Curriculum, Programme Structure and Course Contents

(Prepared in conformity with LOCF)(2025-2026 onwards)

User studies and Informetrics

DEPARTMENT Library and Information Science
Directorate of Distance and Continuing Education
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METHODS OF ASSESSMENT

Cognitive Level	Description
Remembering (K1)	The lowest level of questions require students to recall information from the course content. Knowledge questions usually require students to identify information in the textbook.
Understanding (K2)	Understanding of facts and ideas by comprehending organizing, comparing, translating, interpolating and interpreting in their own words. The questions go beyond simple recall and require students to combine together.
Application (K3)	Students have to solve problems by using/applying a concept learned in the classroom. Students must use their knowledge to determine an exact response.
Analyze (K4)	Analyzing the question is one of the tasks the students to breakdown something into its component parts. Analyzing requires students to identify reasons, causes or motives and reach conclusions or generalizations.
Evaluate (K5)	Evaluation requires an individual to make judgment on something. Questions to be asked to judge the value of an idea, a character, a work of art, or a solution to a problem. Students are engaged in decision-making and problem-solving. Evaluation questions do not have single right answers.
Create (K6)	The questions of this category challenge students to get engaged in creative and original thinking. Developing original ideas and problem-solving skills.

Pre-Requisites

Basic understanding of library and information science principles. Familiarity with research methodology and statistical concepts. Foundation in information seeking behavior and user services.

Learning Objectives

- To understand the concept, scope, and importance of user studies in libraries.
- To learn the methods and techniques for conducting user studies and analyzing user behavior.
- To explore the evolution of user studies and information seeking behavior models.
- To understand the fundamental concepts of informetrics, bibliometrics, scientometrics, and webometrics.
- To apply classical bibliometric laws and techniques for evaluating research productivity and impact.

COURSE STRUCTURE

UNITS	Course Contents

UNIT I: User Studies: Concepts and Evolution	User studies – concept, categories, aims and objectives; Importance and need for user studies; Scope of user studies; Brief historical account of user studies; Major user studies conducted in India and abroad; Research methodology in user studies; Categories and characteristics of users.
UNIT II: User Behavior and User Education	University and college library user behavior; Evolving a theory of user behavior; Characteristics and patterns of user behavior; Influencing factors; Limitations in behavioral research in librarianship; User needs and user education – concepts, aims and objectives; Planning of user education; Problems of user studies and user education; Recent trends in user education.
UNIT III: Informetrics: Evolution and Laws	Evolution of informetrics – Librametry, Bibliometrics, Scientometrics, Webometrics, Altmetrics; Theory and laws – Zipf's Law, Lotka's Law, Bradford's Law; Price Theory; Circulation theory; Obsolescence of literature; Half-life concept.
UNIT IV: Quantitative and Qualitative Techniques	Quantitative and qualitative techniques; Multidimensional scaling; Cluster analysis; Correspondence analysis; Co-word analysis; Media and audience analysis; SPSS; Data sources and software tools for bibliometric studies (BibExcel, CiteSpace, HistCite, Pajek, Publish or Perish, VOSviewer).
UNIT V: Citation Analysis and Science Indicators	Citation analysis – definition, theory of citing, forms of citations, citation counts, self-citation; Applications and limitations; Bibliographic coupling; Co-citation; Science and Technology indicators – input indicators, output indicators; Impact factor; h-index; National mapping of science; Scientific collaboration; Role of scientometrics in science policy.

TEXT BOOKS

S.No.	Book Details
1.	Devarajan, G. (2017). *User Studies*. New Delhi: Allied Publishers.
2.	Kumar, P.S.G. (2014). *Library and Users: Theory and Practice*. New Delhi: BR Publications.
3.	Ravichandra Rao, I.K. (2016). *Quantitative Methods in Library and Information Science*. New Delhi: Wiley Eastern.

REFERENCE BOOKS

S.No.	Book Details

1.	Case, Donald O. (2007). *Looking for Information: A Survey of Research on Information Seeking, Needs, and Behavior*. 2nd ed. Amsterdam: Elsevier.
2.	Egghe, L. and Rousseau, R. (1990). *Introduction to Informetrics*. Amsterdam: Elsevier.
3.	Garfield, E. (1979). *Citation Indexing: Its Theory and Application in Science, Technology, and Humanities*. New York: Wiley.
4.	Sridhar, M.S. (2002). *Library Use and User Research*. New Delhi: Concept Publishing Co.
5.	Wilson, T.D. (2000). *Information Behaviour: An Inter-disciplinary Perspective*. Information Research, 5(4).

WEB SOURCES

S.No.	Web Source
1.	Information Research: http://informationr.net/ir
2.	Journal of Informetrics: https://www.journals.elsevier.com/journal-of-informetrics
3.	Scientometrics: https://www.springer.com/journal/11192
4.	Web of Science: https://www.webofscience.com
5.	Scopus: https://www.scopus.com

COURSE OUTCOMES

CO No.	Course Outcome	Cognitive Level
CO1	Remember and recall the fundamental concepts, scope, and historical development of user studies.	K1
CO2	Understand and explain the theories, models, and methods of user behavior and user education.	K2
CO3	Apply the classical bibliometric laws and techniques for analyzing research productivity.	K3
CO4	Analyze the applications of quantitative and qualitative techniques using software tools.	K4
CO5	Evaluate the role of citation analysis and science indicators in research assessment.	K5

K1-Remember; K2-Understand; K3-Apply; K4-Analyze; K5-Evaluate

UNIT I: User Studies – Concepts and Evolution

Content: Concept, scope, aims and objectives; Importance and need; Historical development; Major studies; Research methodology; Categories and characteristics of users; Alternative terms for user

USER STUDIES

UNIT 1

INTRODUCTION TO USER STUDIES

1.0. OBJECTIVES

To introduce the students of LIS to the basics of user studies, its scope, brief history, importance and the methodologies applicable to conduct these studies.

1.1. OUTCOME OF LEARNING

After reading this unit, you will be able to:

- understand the basics of user studies,
- enumerate the scope of user studies,
- account the brief history of user studies
- discuss the importance of user studies, and
- elaborate methodologies applicable to conduct these studies

1.2. STRUCTURE OF UNIT

- Introduction
- Scope of User Study
- Brief Historical Account
- Why User Studies?
- Research Methodology
- Summary
- References

1.3. INTRODUCTION

Libraries are established to provide services to their users. While planning library services, users have to be always kept in view so that the services being proposed and introduced are valued and used to the maximum extent. Most of the patrons are infrequent users who make a few demands for the service. If the library focuses on the heavy users and their known demands and needs, it can achieve outstanding performance… (Evans, et al.1972). However, the philosophy of librarianship is not only to serve heavy and regular users but also supposed to look after the interests of casual and infrequent users. Everyone whosoever visits the library or asks for information should find his/her information conveniently. Everybody in academics; a student or a teacher comes across some or other problem in finding and accessing information. You as students of Library & Information and also as users of the library and its services might be fully familiar with such day-to-day common problems faced

in finding relevant information. To know as to what problems users face in locating and accessing information, a paper on User and User Studies‘ has been introduced in the LIS curriculum so that the students of today and information professionals of tomorrow are able

to understand and conceptualize users‟ problems. Take a simple example of a shopkeeper, who thinks of his consumers before the opening of a shop and goes on adding items which have the possibility of their use and scalability. We notice shopping mall culture in all big cities, and small shops/stores in small cities and villages with different commodities to sell according to the requirements of the consumers. The same principle holds good in librarianship also with the difference that one earns a profit and another provides services without aiming at any profit. The profit is earned and measured in the form of user satisfaction with the services being provided. The primary concern of the library profession has been to assess the information needs of the users and assist them in finding their information resources to solve their day-to-day problems relating to information access and use.

Information has been recognized as an important resource and commodity for the overall development of individuals as well as nations. Today, the richness of nations is measured in terms of the availability and use of information. Information poverty or illiteracy is considered more dangerous than economic poverty. One of the differences between the developed and developing nations is that the former makes good use of information than the latter. If we believe that information and knowledge is a powerful resources, then their holders obviously become powerful. Therefore, the availability and use of information make the difference. The very purpose of information and knowledge generation is its use for the overall development of humanity and society. Right from the inception of libraries, serving the users to their utmost satisfaction has been the one and only objective. User study investigates the information requirements [of the users] almost entirely with how a user navigates a given system and what he or she could do with the data (rather than information) made available by information systems. … (Wilson, 2006). Information science firmly founded upon an understanding of information users in the context of their work or social life is also likely to be of more use to the information practitioners by pointing the way to practical innovations in information services, and to potentially beneficial association with other communication-information-related subsystems‖ (Wilson, 1981). Hollnagel (1980) also writes that information science is concerned with the use of information by humans … and it is concerned specifically with the way in which humans search for information, systematically as well as unsystematically. The basis for information science is therefore to be found in our experience of using and searching for information from the users.

The scope of user study is quite wide and diverse which includes all the aspects of users as well as non-users relating to the use of information. This has been an intriguing area of research in which behavioural aspects of human beings are to be studied which is ever-changing according to the situation and many other factors. Users are the consumers and library professionals are the producers, organizers and communicators of information and information products. Therefore, the library has to be constantly in touch with its consumers (users) as their behaviours and needs go on changing from time to time. We can easily identify the difference between the users of the 20th century and the present era. If a library is developed by isolating its present and future readership, it is likely to fail in its objectives. Therefore, it is important that the library is fully aware and acquainted with the needs and

requirements of its community to be served. Taking the analogy of producers and consumers as cited above, it is important for the producers of the products to first make an assessment of the market as to what types and kinds of products are required in the market. The library should provide what its users want. After doing a proper survey of the market, products are manufactured based on consumers‟ needs and behaviour to yield maximum output in the form of use, salability, profit, etc. whatever the case may be. Similarly, library professionals also should adopt the same analogy to know and understand the customers‟ (users) need and take the necessary steps to meet them. The library should always aim to identify and develop services to the maximum satisfaction of users. If there is any disconnect between the two, all effects, money, etc, being spent are going to be a big waste. Given this, a user study is a prerequisite to providing need-based services and developing and modifying information systems and services from time to time.

1.4. SCOPE OF USER STUDY

User means information user, patron, or clientele of the library who seeks information from various sources available to him to remove his „uncertainty‟, „inquisitiveness‘ _and ambiguities‘ to meet his/her information need and solve various problems at hand. In these studies, user and user groups remain in focus to know and ascertain the facts about their information needs, information use and information-seeking behaviours, etc. The scope of user study … can be expanded to include parts of computer science, communication studies and other disciplines (Wilson, 2008). Hewins (1990) called for increased interdisciplinary research in this area. She suggested that research in this area should integrate research being conducted in other disciplines (e.g., psychology, cognitive science and computer science). Wersing (1973) divides user studies into four areas: channels of communications, information receivers (users), data sources and information senders. The core of user studies has three main components; information needs, information-seeking behaviour and information retrieval, all studies revolve around these aspects. Let us broadly understand these two concepts since these are not precisely definable. We need information when we feel that our existing knowledge is deficient or inadequate to solve the problem at hand for study and research. In such a situation, users start searching for information from various sources known to them. How users process their information needs and retrieve and use information by going through different stages and steps. Krikelas (1983) states that „information-seeking begins when someone perceives that the current state of knowledge is less than the needed one to deal with some issue (or problem). These concepts would be discussed elsewhere in detail in different modules. Nicholas and Herman (2009) have devoted a whole chapter to defining these terms. These studies broadly include all interactions between users and their information products (sources of information), information-seeking behaviours including searching and retrieval processes, cognitive processes, barriers and intervening variables in information accessing and use (Chandel, 2011). Eithel (1981) states that user studies are composed of who reads what; and how these needs can be identified and satisfied. Tenopir (2003) identified the following areas of user studies: i) What do people do? ii) What do people prefer? iii) What do people say they do? iv) What do people say they prefer? v) What they may do or prefer in the future?

The author prefers the term people rather than user which means, involving the whole community to be studied to ascertain the information need of the whole population to be served rather than only library users. The needs of users and the needs of the people are different. Non-users are to be converted into users or educated to use information. Therefore, the identification of information

needs of diverse populations forming different groups of people in the community is required to be studied to serve them in a better way. Krikelas (1983) in his model identified four steps of information processing and use (1) perceiving a need, (2) the search itself, (3) finding the information, and (4) using the information, which results in either satisfaction or dissatisfaction.

The thrust areas of these studies can be summarized as under:

i) To study the reading interests and the preferences of the various categories and groups of library and information users belonging to different disciplines and environments.

ii) To know what are the roles, activities, job profiles, academic background and social life, etc. of the user groups and how these affect their information needs and information-seeking behaviours?

iii) To study the information-seeking behaviour of different categories of users, how they search for information and what search strategies, browsing patterns they follow, and what problems and barriers they face in the process of finding information?

iv) To know what are the theories and models established on information-seeking behaviours and needs, and how the identification of the behaviours are useful in such studies?

v) What channels of communication and sources do the users quite often consult and use and with what frequency?

vi) To evaluate the services being provided with users‘ perspectives and take their feedback to improve and make services more effective and meaningful.

vii) To go beyond what, why, and how of usability of resources and find out the measures to educate and direct them to use the right resources which may not be known to them through educating users.

viii) To study non-users to know why information available to them is not being used, and identify those factors which are responsible for the non-use or under-use of resources.

ix) To know the level of user satisfaction from the services being provided and take appropriate measures to improve them, etc. Wilson (1994) presented a model of user study covering the following components in his paper published as early as 1981 which has as much relevance today as during the time of its proposal.

We may agree that most "user studies" have been about how people use systems, rather than about the users themselves and other aspects of their information-seeking behaviour (Wilson,

1994). These studies include: who library patrons are, how they use libraries, and more recently, what the information needs of people are and how various sources of information help or do not help them, independently of formal information delivery systems such as libraries (Julian, 1996). Various literature surveys have also revealed that most of the studies have been conducted on sources of information being referred by the users. Now the question arises as to what follow-up actions are required to be taken by the practitioners in the light of such findings. In such a situation, when users were found to use e-resources more than printed material, their preferences were found more on Internet resources in full-text form than resources in the library in printed format. Given such findings what measures have to be taken as a follow-up action to improve the existing services by the practitioners need to be ascertained and thoughtfully implemented. The recommendations and findings of most of these studies have not been implemented. The outcome and implementation of user studies remain questionable even though a lot of literature has been generated on the subject. Nevertheless, the importance of these studies cannot be undermined, provided an appropriate research methodology is applied. Both users, as well as non-user groups, form the population of such studies to be conducted with a holistic approach relating to information communication, access, retrieval, transfer and exchange.

1.5. BRIEF HISTORICAL ACCOUNT

Libraries were never established isolating their users. They have always been there in the background of the establishment of any library. User studies have a long history; as long as the libraries themselves. Users have been always in focus right from the inception of libraries all over the world. Libraries cannot be thought of without their users. It is a different matter that the formal studies began much later when the need for such studies was realized and brought out at the verbal plane. Before the initiation of these studies, librarians used to assess users‘ need for books and other material hypothetically based upon their perception, formal or informal interaction with the users and indirectly observing their behaviours while in the libraries and using resources. Users‟ statistics might have been another indicator of users‘ approach to library collection usage and users‘ preferences in the beginning. Wilson (2008) traces its history from 1916 whereas he also quotes the study by McDiarmid (1940) on a library survey produced in 1940. Siatri (1999) states that the beginning user study started in the 1940‟s. Till 1965, there were 676 user studies listed in the „Bibliography on User Studies‟ (David and Bailey, 1969). More studies started coming up after 1948 when Royal Society Scientific Conference was held. The first library surveys were designed to discover what categories of persons used libraries, not what those persons did when they were in a library nor what life or work issues were behind their library use. In earlier studies emphasis was on the discovery and description of document usage (Wilson, 2008).

During the 1960‟s two important studies were conducted by Menzel (1966) and Line (1971) in the field of science and social science respectively which deserve special mention because of their landmark contributions to further studies. These two studies made an impact and the need to conduct such studies was well realized by the professionals. INFROSS study started in the autumn of 1967 with a large sample with multiple questionnaires, which led to the design of information systems in social sciences. This was the first study conducted in the

field of social sciences whose objectives were achieved by implementing its findings. However, such studies had been attempted earlier in the field of science but not in the field of social science since there was more awareness and consciousness of the use of information among scientists as compared to social scientists. Menzel (1966) and Line (1971) made a good beginning for user studies and set directions for further studies. During 1963-1969 the American Psychological Association (APA) conducted a series of studies on users‟ behaviours. During the 1970s these studies became quite popular and many research projects were funded by various organizations and associations. In India, the feasibility study of the establishment of NISSAT (National Information System in Science and Technology) was conducted by Peter Lazar in 1970 assessing the information needs of the scientific community of India on behalf of UNESCO at the request of Govt. of India.

The establishment of the Centre for Research on User Studies (CRUS) in 1975 in the Department of Information Studies at the University of Sheffield gave more emphasis to conducting user studies (Siatri, 1999).in 1975 the Department of Information Studies at the University of Sheffield gave more emphasis on conducting user studies (Siatri, 1999). The Department had started user studies in the early 1970s as reported by Roberts and Wilson (1988). These studies were in the form of student dissertations and occasional research projects but got further promotion under the project funded by BLRDD (British Library R. & D. Department) (Wilson, 1995). Earlier studies were limited to library surveys relating to library use, readers‘ preferences and interests. Crawford (1978) estimated that there might have been more than1000 studies up to 1978. More and more literature started coming up during the 1980s and 1990s onwards, with a broader scope of these studies. During 1990 there were only 9 papers which had appeared on the Web of Science which increased to 200 by 2006 (Wilson, 2008). However, Web of Science does not cover all the journals of Library & Information Science. Therefore, some studies might have been not been covered in the web of science. From 1990-1994, 588 articles were indexed in library literature under the terms „use studies‟ and „information needs‟ (Julian. 1998). During the 1990s user studies became one of the main areas of research for PhD programmes in many universities in India and abroad. The courses on user studies were also introduced in many schools/Departments of Library & Information Science.

It is now estimated that 200-300 articles are being published every year on the subject (Chang, 2011). Jarvelin and Vakkari (1990) estimated that research on information needs and uses constitutes 8% of total research in Library and Information Science. However, according to Wilson (1981), the progress towards some theoretical understanding of the concept of „information need‟ has been slow, though literature growth was quite high. He supports his remarks by the statement that subjects from Menzel to Paisley through the various authors in ARIST volumes to Ford review of 1977 did not show any significant progress in theoretical understanding mainly due to inadequate methodology and failure to do cumulative research. On the other side, he also mentions elsewhere that there is no other area of information science except information retrieval that has occasioned as much research effort and writing as „user studies‟ (Wilson, 1981).

Literature growth in user studies has been fast from 1990 onwards but regretfully as had been realized by many authors and practitioners that the implementations of the findings of these studies have not been so significant. Despite the accumulation of vast literature including thousands of PhDs produced, there is hardly any theoretical foundation for these studies with generalized findings and conclusions, perhaps because of the lack of standard methodology and the nature of the subject which involves a behavioural pattern of users which are ever-changing from one situation to another. Nevertheless, there are some important contributions in the form of various models of information-seeking behaviour which will be discussed separately in other modules of this course.

1.6. WHY USER STUDIES?

One of the topics discussed during the International Conference of Scientific Information held in 1958 was _Literature and reference needs of scientists…'. This conference provided a good platform to deliberate on the information needs of scientists. Urquhart (1948) made the following statement during the conference, highlighting the importance of user studies:

—…a knowledge of the requirements of the different users of scientific information and the uses to which they wish to put the information they secure should be the ultimate determining factor in the designing of methods of storage and retrieval of scientific information."

Evans, et al. (1972) stated that determining user requirements is most important as an aid in evaluating, selecting and weeding out needs which are not being met. According to Dewe & Deunette (1979) developers of information, services should see to it that information from users is more actively involved in the designing phase and that the environment within which the services are used in all their sociological and psychological are also taken into account.

Hood and Blackwell (1976) in their United States study identified that a significant meaningful pattern can be established [by conducting a user study], and there would be at least a beginning basis for designing and redesigning information products and services in terms of different classes of users. Planning any functional and effective information system requires the study of user behaviour, which of course is not as easy as it appears to be. John Martyn (1974) while endorsing the opinions of many others, agrees that the ultimate value of any information communication system should be thought of in terms of users, that is made of the information and subsequent impact of information on users' scientific and technical behaviour. Hale (1986) summarized the purpose of user studies to:

i) Optimizing the allocation of operating resources by customizing services to a selected clientele
ii) Fine-tuning the delivery of information within existing systems.

It is unanimously agreed that knowing your present and future leadership is of paramount importance and the prerequisite to designing and developing any information system to provide need-based information services, failing which there is every possibility of mismatch and disconnect between producers and the consumers. It becomes increasingly important when practitioners think of the marketing of information. This pre-supposes surveying the

market (community) of users to assess the information needs of the consumers fully well so that information products and services get their clientele. Belkin (1977) also realized that information users are often in an anomalous state of knowledge (ASK) this anomaly can be resolved by ―the effective communication of desired information between the human generator and human user.‖ This state of knowledge is caused by „uncertainty and _inadequacy of knowledge' prevailing in the minds of the users which needs to be resolved so that they can come out of the prevailing „problematic situation" and find the solution through getting information. This requires perfect communication between the generator of information and the recipients and thorough cognitive analysis of the queries existing in the minds of the users. Most of the users even remain unaware of some of the useful services being provided by the library and are not likely to make use of such services. This situation arises due to the lack of communication between the library and its users. Information science mainly deals with collection building, organizing and systematization, retrieval and use of information resources. A useful information output can only be created if the designer understands the product's intended users and their information needs (Landu, 1982). At every stage participation and involvement of users play an important role in introducing, improving and reinventing services.

In the survey report of DLF, the objectives of the user survey have been identified as under:

i) Patterns, frequency, ease, and success of the use

ii) User needs, expectations, perspectives, priorities, and preferences for library collections, services, and systems

iii) User satisfaction with vendor products, library collections, services, staff, and Web sites

iv) Service quality

v) Shifts in user attitude and opinion

vi) Relevance of collections or services to the curriculum (Covey, 2002).

1.7. RESEARCH METHODOLOGY

There is a unanimous opinion that studying library use and the user is one of the important areas of study which has been well realized since the 1960s. It is also true that research output has its value provided results are authentic and reliable so that the findings of these studies can yield desired results. Various literature surveys have revealed that there has been a large number of studies on the subject. The question arises about the reliability of the data collected and the authenticity of the findings drawn out from these studies. The common methodologies applied in these studies have been: observation keeping „… our eye on a user" (Zweizig, 1976), analysis of documentary sources, library usage through library statistics, case study, citation analysis, interview, etc. (Chandel, Saraf, 2002). With the advent of new technology, new research methodologies have evolved; such as data collection through E-mail, social networking, online interviews, virtual ethnography, log analysis, etc.

The application of a strong research methodology is necessary for every research topic irrespective of the area of research and discipline. These studies, it has been mostly a survey method based on scheduled questionnaires. The authenticity of data collection through the survey method has always been doubtful. It is a common observation that questionnaires are rarely filled up seriously and honestly by the respondents. When filled up and responded to, there are biased opinions. However, it depends upon the researcher as to how reliable data is to be collected and which methodology is to be applied. Crawford (1978) has rightly made the following observation:

_Sophisticated social science concepts combine with quantitative techniques produced both case report and field studies…utilizing well-designed survey instrument, carefully selected. Stratified random sampling, and appropriate techniques of statistical analysis… slowly, valid and empirical data are being accumulated which in time will contribute to a unifying theory of information needs and uses. These accumulated findings and data after scientific analysis lead directly or indirectly to the improvement of systems.‘

The pertinent question before us is to know as to what these accumulated findings have given to the profession and how far these findings have been responsible to achieve the identified objectives. Most of these studies have been attempted only for sake of research, not for implementation and arriving at some theoretical foundations and models. Only a very few selected studies have made a significant contribution to the profession. It is the choice of the right sample and the right methodology that matter significantly in these studies (Chandel and Saraf, 2002). Julien et al. (2011) while analyzing methods used in studying information behaviour of users conducted from 1984 to 1998 reported that 58.1% of the studies were based upon the survey method. The declining trend of using the survey method from 58.1% to 44.7% was reported in another study conducted for the period 1998-2008 (Julien and Duggan, 2000). Applying the content analysis method to analyze literature published on LIS from 1990-1994 found that 56% of research methodologies employed in research studies were based upon survey research the ―other‖ category of research methods included content analysis, and unobtrusive observation, and cluster analysis (Julien,1996). The analysis further revealed that log analysis, ethnography, interview, citation and experiments methods were also used.

The survey method based upon a questionnaire has its inherent limitations often criticized but hardly replicable. This means that the methodology must be used thoughtfully and carefully to collect factual data by applying a single methodology or in combination with another method (s). Lyons (2011) while pointing out the limitation of research methodologies being applied observed that ―…often they employed deficient research methods or promote unjustifiable interpretations of data they have collected.‖ Greifender (2011) observed that library and information science education does not always offer librarians in-depth methodological education in social science, psychology, ethnography, mathematics or computer science. But now teaching of research methods is being given due importance in almost all the teaching departments in Indian Universities at Master‘s Degree and PhD levels. Over the years, there has been good progress in the improvement of research methodology and synergies and combinations of methodologies are being applied for authenticity and

reliability of data. Since user studies mostly deal with the behaviour and attitudes of users, so complexity and intricacies in attempting these studies are quite obvious and can be solved by the combination of qualitative and quantitative methodologies.

1.8. SUMMARY

The history of „user studies" is now more than 70 years old and large numbers of research papers, PhD theses, dissertations, project reports, and conference and seminar presentations have been cumulated. During the 1970s and 1980s trend was to write on classification indexing and information retrieval. It was also realized that the studies of users' behaviour and identification of their need for information are prerequisites to planning and developing information systems, improving existing services and evaluating the functioning of the library from users' perspectives. Given this, user studies represented an increasing proportion of information science research (Summers, 1984). Wilson (198l) made this observation at the beginning of the 1980s that "apart from information retrieval there is virtually no other area of information science that has occasioned as much research effort and writing as user studies." This trend continued during the 1990s. Even today many studies are being conducted on the subject but with different approaches warranted by the new environment of the digital age. Traditional settings of users have changed in the present environment. Users" behaviours over the years have been changing, consequently, the findings of these studies also lose their relevance with the changing attitudes of users. Their dependence on libraries has tremendously gone down and they are satisfied with whatever, they get on the Internet which calls for the conversion of print resources into digital which is easily available and accessible to them. Libraries have to meet such challenges to attract users to use their resources within the library or outside by modifying and reinventing services according to their preferences and choices. Ranganathan (1953) in his Five Laws of Library Science has focused on uniting the users with their resources with the purpose to maximize their use and serving them to their utmost satisfaction. Menzel (1964) also in his study on „Information Needs of Current Scientific Research.' emphasized the usefulness of these studies by stating that the guiding slogans must be speed, efficiency, and comprehensiveness [in the services being offered]. The overriding aim, in other words, is to bring information to the scientist promptly, to bring him all that is relevant, and to bring it to him with a minimum of waste motion, especially on the scientist's part. We should not depend upon our experience, judgments and presumptions about users' information needs, better ask them what they would like to read and for what purpose. This will enable libraries to serve them better.

1.9. MCQ QUESTIONS

1. The Theory of Ask (Anomalous State of Knowledge) was given by: A. Herbert Menzel B. T D Wilson C. C. Nicholas J Belkin D. James Krikelas

2. ―Information seeking begins when someone perceives that the current state of knowledge is less than the needed one to deal with some issue (or problem)‖ is stated by: A. Herbert Menzel B. Tenopir C. Nicholas J Belkin D. James Krikelas

3. _CRUS‘ stands for A. Centre for Research on User Studies. B. Centre for Research on the United States. C. Computer Research in the United States. D. None of the above.

4. Wersing (1973) divides user studies into _____areas.

5. During 1963-1969 _____conducted a series of studies on users‘ behaviours. A. The Modern Language Association (MLA) B. The Chicago style C. The American Psychological Association (APA) D. None of the above.

6. The core of user studies has three main components; information needs, information seeking behavior and _____ A. information overload B. information demand C. information retrieval.

7. Information seeking begins when someone perceives that the _____ is less than the needed one to deal with some issue. A. current state of knowledge B. quality of knowledge C. quantity of knowledge D. diffusion of knowledge

8. INFROSS study started in the autumn of 1967 with a large sample with multiple questionnaires, which led to the design of information systems in social sciences. True/False

9. The establishment of the Centre for Research on User Studies (CRUS) in 1995 in the Department of Information Studies at the University of Sheffield gave more emphasis on conducting user studies. True/False

10. The history of _user studies‘ is now more than 170 years old. True/False

11. How many Ph D. were awarded by the Indian universities between 1950 -2012 on the topic 'Use and User Studies? _____

12. User study is concerned with: A. Use of information resources B. User‘s evaluation C. Users‘ need and behavior D. All of the above.

13. The selection of available documents A. (both published and unpublished) B. (published)C. (unpublished) D. None of the above

14. Review of literature may be carried out from ___ A. books. B. periodicals C. research articles from journals. D. All the above.

15. _A literature review uses as its database reports of primary or original scholarship and does not report new primary scholarship itself. The primary reports used in the literature may be verbal, but in the vast majority of cases, reports are written documents. The types of scholarship may be empirical, theoretical, critical/analytic, or methodological in nature. Second, a literature review seeks to describe, summarise, evaluate, clarify and/or integrate the content of primary reports.‘ This definition is given by A. Cooper B. Hart, and Chris C. Bruce. D. All the above.

16. _The review of relevant literature is nearly always a standard chapter of a thesis or dissertation. The review forms an important chapter in a thesis where its purpose is to provide the background and justification for the research undertaken (Bruce 1994). Bruce, who has published widely on the topic of literature review, has identified six elements of a literature review. These elements comprise a list; a search; a survey; a vehicle for learning; a research facilitator; and a report.' This definition is given by -A. Cooper B. Hart, Chris C. Bruce. D. All the above.

17. Library Literature & Information Science (LLIS) is A. Full-text bibliographic database B. Library C. Society D. None of them.

18. What is LISTAA. Library, Information Science & Technology Abstracts B. Library and Information Service & Technology Abstracts C. Library Information System of Technical Advances. D. None of them.

19. What is LISA A. Library and Information Science Abstracts B. Library and Information Services in South Asia.C. Library Information System for Advancement. D. None of them.

20. Library and Information Science Abstracts is an international _____ tool. A. Catalogue B. a department C. abstracting and indexing. D. None of them.

21. **Small Questions**

S. No	Questions	LOCF Mapping
1.	Define user studies.	K1
2.	List the three main components of user studies according to Wersing.	K1
3.	Who gave the theory of Anomalous State of Knowledge (ASK)?	K1
4.	Name any four alternative terms for "user" in library context.	K1
5.	What are the three aspects of library trinity?	K1

22.

23. **Big Questions**

S. No	Questions	LOCF Mapping
1.	Discuss the concept, scope, and importance of user studies in libraries.	K2
2.	Trace the historical development of user studies from 1948 to the present.	K2
3.	Explain the major user studies conducted in India and their contributions.	K2
4.	Discuss the various categories and characteristics of library users.	K2

5.	Analyze the research methodologies applicable to user studies.	K3, K4

KEYWORDS: User study; Methodology

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UNIT II: User Behavior and User Education

Content: University and college library user behavior; Theories and models; Characteristics and patterns; Influencing factors; Limitations; User needs; User education – concept, aims, objectives, planning; Recent trends; Information literacy.

UNIT 2
EVOLUTION OF USER STUDIES

2.0. OBJECTIVES

- Evolution of user studies
- User studies in the 1930s, 1940‘s, 1950s, 1960‘s, 1970‘s, 1980‘s, 1990‘s, 2000‘s,
- User studies in India

2.1. OUTCOME OF LEARNING

After reading this unit, you will gain to:

- To know the categories of Library Users
- To know the Origin and Development of User Studies
- To know Different methods of User Studies
- To know Recent Trends in User Studies

2.2. STRUCTURE OF UNIT

- Introduction
- User Studies in the 1930s
- User Studies in the 1940s
- User studies in the 1950s
- User studies in the 1960s
- User studies in the 1970s
- User Studies in the1980s
- User Studies in the 1990s
- User Studies in the 2000s
- Some Important Library User studies
- Recommendations and Suggestions
- Summary
- References

2.3. INTRODUCTION

User studies, use studies, information-need studies, information transfer studies, communication behaviour studies, information dissemination and utilization studies, user research, etc., are all closely related and often not clearly defined and there is no universal definition. There is a need to understand the information need, and information-seeking behaviour of the user to facilitate library and information centres to provide effective and quality services to their users. It becomes necessary to point out the limitations of use and user studies. Use studies may not reveal the effects of use, indirect use of a library and

information centres and many fruitful interactions of users with the library. Further, the use of a library and information centre and their utility to users are often quite different. A library or information centre may be used but it may not be useful; another may be useful but may not be used; a third may be neither useful nor used and an ideal is both used and useful.

2.4. EVOLUTION OF USER STUDIES

User Studies are one of the most important and most researched areas in library and information science. Earlier user studies were mainly related to scientists involved with biochemistry, medicine, engineering, physics etc. The high concentration of user studies in these sciences can be partially attributed to the fact that the publication of professional and scientific information in these disciplines was much more developed at the time in comparison with the humanities Technology, health, industry, and agriculture. It may be worth noting here that Dr S.R. Ranganathan has grouped users based on the types of services enunciated by him into the freshman, ordinary inquirer, specialist inquirer, and general reader.

2.4.1. User studies in 1930’s

In the literature of LIS, the earliest reference we come across is to the study conducted by L.R. Wilson in the late 1930s. It was an attempt to investigate the distribution and status of libraries in the USA and was not aimed at obtaining information relating to library use or users.

2.4.2. User studies in 1940’s

The foundation for the user studies was laid down in 1948 at the Scientific Information Conference of the Royal Society, where Urquhart and Bernal brought out their research findings. Urquhart (1948) conducted his study on the distribution and use of scientific and technical information. He was associated with the sources of reference to the literature borrowed, the purpose of consulting the borrowed item, and the usefulness of the item about factors like a year of publication and its form.

2.4.3. User studies in the 1950’s

The concept of users and their information needs found some expression at the first conference of the Royal Society held in London and became a subject of discussion at the International Conference on Scientific Information held in Washington in 1958: Prof. J.D. Bernal's paper entitled `The Transmission of Scientific Information: a user's analysis" received great attention.

It may be mentioned here that a pilot study on the use of scientific literature by scientists was conducted by R.R. Shaw in 1956 on behalf of the National Science Foundation. Shaw's study is considered one of the pioneering efforts in the direction of user studies.

2.4.4. User studies in the 1960’s

Literature review shows that the number of user studies increased rapidly. In 1963 the American Psychological Association (APA) conducted a series of studies concerning psychologists, which was one of the first and most important projects carried out in social and behavioural sciences (APA 1963– 1969).

Menzel refers first (Annual Review of Information Science and Technology, 1966) two comprehensive bibliographies of User Studies in 1964 and 1964, each containing 438 and 676 studies respectively.

Numbers of comprehensive studies have emerged on the subject: Use of Scientific Literature example, Davis and Bail compiled a bibliography consisting of 438 such studies as early as 1964.

2.4.5. User studies in the 1970's

Moving towards the 1970s, user studies flourished and introduced a diversity of target user groups like magistrates, urban citizens, personnel working in local authorities, university students, etc. The 1970s also mark the point that user studies examined the use of particular information systems, their efficiency and effectiveness and how this can be maximized. More scientists began to realise deficiencies in the use of methodological techniques and conceptualization although no theoretical framework had been developed. The trends of user studies during this period were well documented in the three chapters of ARIST on information needs and uses (Crane 1971; Martyn 1974; Crawford 1978).

It has been recorded that by 1977, more than 1000 important studies were conducted on the subject of `user studies. It must be mentioned that the growth of science and technology and, the importance accorded to the use of scientific information proliferated such attempts of user studies.

An event of great significance in the history of user studies was the establishment of the Centre for Research on User Studies (CRUS) in 1975 by The British Library at the University of Sheffield. The main objective of this centre was to create a national centre to act as a focus for research in user studies. Let us hope that researchers on different facets of `user studies' will receive encouragement from the centre in future and a theory of user studies would be developed. The establishment of a centre for research on user studies indicates the importance of the subject's user studies.

Martin (1976) in his article ―User Studies and Library Planning‖ discussed user studies and appraised their role in library planning. The author provided various guidelines for conducting user studies and concluded that user data strengthen the planning and decision-making processes at several levels, so the responses of users should be an integral part of the ongoing practice of librarians, providing constant feedback.

2.4.6. User studies in the 1980's

The 1980s were a decade that was characterized by an increasing awareness surrounding the conceptual Framework and methodological issues of user studies. One of the first attempts at

articulating this awareness was the publication, in the journal Social Science Information Studies of the papers presented in a symposium on qualitative approaches to the study of information problems.

Belkin (1980) formulated the theory of the Anomalous State of Knowledge for information-seeking behaviour that included six stages: starting, chaining, browsing, differentiating, monitoring and extracting.

Kuhlthau (1988) conducted a study examining the application of library skills in assigned library research by high school seniors. The objectives of the project were ―to explore the experience of students in the library search process, to reveal evidence supporting the hypothesis that there is a sequence of stages to an information search and to propose a model of the user‘s stage within the search process‖ (Kuhlthau 1988: 232).

2.4.7. User studies in the 1990's

In the 1990s Internet becomes an information provider to the information community. The 1990‘s witnessed the implementation of conceptual theories that were developed during the 1980s and several researchers adopted conceptual theories and frameworks in designing their research design with qualitative research methods.

Several studies have been conducted to know the impact of the Internet on the user and information community.

In the year 1993 Tillman et.al conducted a study on the use of the internet as a reference tool by special librarians.

In the year 1996, another small case study was conducted by Eager and Oppenheim, to examine the information needs of academics. The major objective of this study was to know and test an alternative observation technique (shadowing). In this technique participant, ‘s would be observed the whole day.

Another study was conducted and published by Abel et.al 1996; Liebscher et al,1997) to explore the factors that influence the use and option of electronic networks by engineering and science faculties in small industries.

Eager and Oppenheim (1996) undertook a small case study examining the information needs of academics. The main purpose of the study was to test an alternative observation technique (shadowing), in which the participants would be observed throughout the day. A recent study (Abels et al. 1996; Liebscher et al.1997) was published examining the factors that

Influence the use and adoption of electronic networks by science and engineering faculty at small institutions. The study identified several factors that are likely to influence the use and adoption of electronic networks. These included perceived accessibility, proximity, workstation availability, and experience, ease of use, academic discipline, task and perceived utility.

2.4.8. User studies in 2000's

Wildemuth (2003) an article titled ―Why Conduct User Studies? The Role of Empirical Evidence in Improving the Practice of Librarianship‖ emphasized that gathering evidence about library users, their interactions with library services and materials and the context in which those materials and services are used, librarians can make sound decisions for the future.

Carr (2006) ―What Users Want: An Academic ‗Hybrid' Library Perspective‖. The author described the development of a user-centred approach in academic libraries over the recent decades.

Varghese (2008) ―User Studies in the Electronic Environment: Review and Brief Analysis‖. The article summarized the results of 101 user studies conducted in the electronic environment.

2.5. 10 SOME IMPORTANT LIBRARY USER STUDIES

Several library user studies have been made by various organizations in various countries, some important library user studies and their findings are described below:-

2.5.1. Council on Library and Information Resources (CLIR) and the Digital Library Federation, Dimensions and use of the Scholarly Information Environment

- Number of Interviews- 3,200
- 55.4% of all respondents browsed library book stacks to get information
- 52 % of graduate students use print resources
- 59% of graduate students use print indexes and abstract
- 11% use of e-journals
- 28% of users find reading materials on a screen satisfactory
- 14% want more print as compared to 11% e-Journals, 89% want more books

2.5.2. OCLC White Paper on Information Habits of College Students (June 2002) with a sample of 1050 qualified respondents:

Among its findings are these:

- 31 % of all respondents use Internet Search Engines to find the answer to their questions
- 89 % use the campus library's print resources including, books, journals, articles, and encyclopedias
- Americans have not yet found ideal information resources

2.5.3. 10.3 Electronic Publishing Initiative at Columbia (EPIC) survey of responses from 1,233 students and scholars (2004)

Some important findings are:

- Dependent on physical library 75.8%
- To retrieve books and articles from the library's website 81.5%

- Physical library use more than once a month 67.7%
- Search engines were not precise 80.2%
- The physical Library is still an important destination for students
- More than half of the respondents somewhat strongly agree that electronic resources can result in an overload of information…. And almost half of the respondents agree that this overload can be overwhelming for them.

2.. USER STUDIES IN INDIA

INSDOC conducted a user survey relating to its current awareness service entitled "INSDOC List of Current Scientific literature" as early as 1964. As a result of the findings of this survey, INSDOC had to wind up the above-mentioned current awareness service' and had to start the compilation of `Indian Science Abstracts.

Another significant study is conducted by Carl M. White regarding the use of the Delhi University Library in 1965.

In the same year (i.e. 1965) the Indian Association of Special Libraries and Information Centres (IASLIC) organized a seminar on "Users and Library and Information Service. Though the seminar did not discuss or, report any worthwhile study/survey, it helped in drawing the attention of the authorities of special libraries and information centres towards these problems.

Another significant effort was made by M.S. Sridhar. His doctoral research work was on Information seeking behaviour (ISB) of the Indian Space Technologists (IST) of ISRO Satellite Centre (ISAC), Bangalore. The results of this study have been published under the title "Information Behaviour of Scientists and Engineers". This study is a contribution to user studies.

2.7. RECOMMENDATIONS AND SUGGESTIONS

In changing environment of information overload, digital environment, fast-growing information users; and changing information-seeking behaviour of users, there is a need to conduct a user study to know the user‘s behaviour towards information. A user study shows the following facts which may facilitate to improve of library and information services to its users:-

- Information awareness of the users
- Interaction of user to library and information resources
- Information literacy skills of the information users
- Information use patterns of the library and information centres
- Information-seeking behaviour of the users
- The information needed by the users
- Information priorities of the users
- Evaluation of information users and information centres

2.8. SUMMARY

The user is an important component of the library and information centre. In the present Information Socie, ty it has been universally accepted that ―Information is for use or Information for all.‖ The right information helps users to solve problems, decisions making, do policy-making and prepare research projects.

There is a need to develop a healthy relationship between users and library & information centres. Now it becomes necessary to conduct user studies by the library and information centres to know facts about the library and information centre users. A healthy relationship between a library or information centre and users facilitates more information use and helps in the evaluation of library or information centres as well as users‘ behaviour.

While using e-resources users experience problems with search engines, overload of information and user wants to prefer physical library use. There is a need to conduct user studies to know users‘ problems, especially in a fast-growing digital environment.

2.9. MCQ QUESTIONS

1. The term Special inquirer said by A. M.S. Sridhar B. Carl M White C. T D Wilson D. S R Ranganathan

2. First user study was appeared in _____

3. Pilot study on the use of scientific literature by scientists was conducted by A. R R Shaw B. J D Bernel C. Menzel D. OCLC

4. A Systematic User Study shows A. Information priorities of library staff B. Information priorities of the librarian C. Information priorities of the user D. Information awareness of the library staff

5. 1980‘s user studies were focused on A. users methodological issues B. qualitative approaches C. Information awareness D. All of these

6. Who formulated the Anomalous State of Knowledge for information-seeking behavior? A. Belkin B. Kuhlathau C. Menzel D. T D Wilson

7. Anomalous State Knowledge for information-seeking behavior includes Six Stages

8. Centre for Research on User Studies was established in the year. 1955 B. 1965 C. 1975 D. 1985

9. The 1990‘s user studies were focused on. Impact of the Internet on library staff B. Impact of Internet on library collection C. Impact of the Internet on users D. Impact of the Internet on librarian

10. The user study ―Dimensions and use of the Scholarly Information Environment‖ conducted by A. Eager and Oppenheim B. OCLC C. EPIC D. CLIR

11. ProQuest Library Science provides full-text access to over _____in library and information science

12. How many Ph D. were awarded by the Indian universities between 1950 -2012 on the topic 'Use and User Studies? _____

13. User study is concerned with: A. Use of information resources B. User‘s evaluation C. Users‘ need and behavior D. All of the above.

14. The selection of available documents "_____" on the topic, which contain information, ideas, data and evidence written from a particular standpoint to fulfil certain aims or express certain views on the nature of the topic and how it is to be investigated, and the effective evaluation of these documents in relation to the research being proposed.‘ A. both published and unpublished B. published C. Unpublished D. None of the above

15. Review of literature may be carried out from _____ A. periodicals B. books. C. research articles from journals. D. All the above.

16. _The review of relevant literature is nearly always a standard chapter of a thesis or dissertation. The review forms an important chapter in a thesis where its purpose is to provide the background and justification for the research undertaken (Bruce 1994). Bruce, who has published widely on the topic of literature review, has identified six elements of a literature review. These elements comprise a list; a search; a survey; a vehicle for learning; a research facilitator; and a report.‘ This definition is given by -A. Cooper B. Hart, Chris C. Bruce. D. All the above.

17. Library Literature & Information Science (LLIS) is a -A. Full-text bibliographic database B. Library C. Society D. None of them.

18. What is LISTA A. Library, Information Science & Technology Abstracts B. Library and Information Service & Technology Abstracts C. Library Information System of Technical Advances D. None of them.

19. What is LISA A. Library and Information Science Abstracts B. Library and Information Services in South Asia. C. Library Information System for Advancement. D. None of them.

20. Library and Information Science Abstracts is an international _____ tool. A. Catalogue B. a department C. abstracting and indexing. D. None of them.

Small Questions

S. No	Questions	LOCF Mapping
1.	Define user education.	K1
2.	List the three components of user education.	K1
3.	What is bibliographic instruction?	K1
4.	Who formulated the theory of Anomalous State of Knowledge?	K1
5.	Name the four stages of information need according to Taylor.	K1

Big Questions

S. No	Questions	LOCF Mapping
1.	Discuss the patterns and characteristics of user behavior in academic libraries.	K2, K3
2.	Explain the various models of information seeking behavior.	K2
3.	Describe the concept, aims, and objectives of user education.	K2
4.	Discuss the methods and recent trends in user education.	K2, K3
5.	Analyze the factors influencing user behavior and the limitations of behavioral research in librarianship.	K4

KEYWORDS: INSDOC; Information seeking behaviour; Library users

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UNIT III: Informetrics: Evolution and Laws

Content: Evolution – Librametry, Bibliometrics, Scientometrics, Webometrics, Altmetrics; Zipf's Law; Lotka's Law; Bradford's Law; Price Theory; Circulation theory; Obsolescence; Half-life.

UNIT 3

REVIEW OF LITERATURE

3.0. OBJECTIVES

- Library and the review of literature
- Need for literature review on a user study
- International Users Studies
- Some selected database

3.1. OUTCOME OF LEARNING

After reading this unit, you will be learned to:

To understand the concept of Review of Literature on user studies

3.2. STRUCTURE OF UNIT

- Introduction
- Library and the review of literature
- How to write a review of literature on user studies?
- Need for literature review on a user study
- International Users Studies
- Some selected database
- Summary
  References

3.3. INTRODUCTION

The user studies in terms of library and information science have considered the studies related to library use. The library is used by the readers and library professionals having different objectives. The library professionals are information providers and readers are considered information recipients. These two aspects create a multidimensional platform regarding the use of library material available in various forms in various types of libraries. The users of the libraries may be different in their needs or expectations of the library.

Keeping in mind to provide better or improved services or desired information, the studies are being made by individuals or institutions from time to time. The objectives of these studies are to evaluate library resources for maximum utilization by the readers. The user studies in this discipline are also carried out to satisfy users in seeking information from the library regarding satisfying the five laws of library science.

In India, there are several studies conducted at schools, colleges, universities, academic institutions, rural libraries, and urban libraries to evaluate the information resources and readers‘ satisfaction with the library services and existing library resources. Before exploring the status of users‘ studies we have to explain the meaning of a review of the literature.

The ‗Literature‘ covers everything relevant that is written in books, journal articles, newspaper articles, historical records, government reports, theses and dissertations, etc. on certain relevant topics. The important word is ‗relevant‘. However, the review of literature is a description of the literature relevant to a particular field or topic or disciplines or subject. While writing the review of literature, the main purpose is to convey to the reader what knowledge and ideas have been established on a study or topic, and to know the strengths and weaknesses of that study. A critical literature review is a critical assessment of the relevant literature. It is unlikely that you will be able to write a truly critical assessment of the literature until you have a good grasp of the subject, usually at some point near the end of your thesis.

In other words, it can be stated that a literature review is an account of what has been published on a topic by accredited scholars and researchers. Generally, it is being experienced in the introduction to an essay, research report, or thesis. It is not just a descriptive list of the material available or a set of summaries.

Besides enlarging your knowledge about the topic, writing a literature review lets you gain and demonstrate skills in two areas –

- **Information seeking:** the ability to scan the literature efficiently, using manual or computerized methods, to identify a set of useful articles and books.
- **Critical appraisal:** the ability to apply principles of analysis to identify unbiased and valid studies.

The review of literature is a subject of discussion and it is defined by various scholars. Some of the selected definitions are as follows –

‗A literature review uses as its database reports of primary or original scholarship and does not report new primary scholarship itself. The primary reports used in the literature may be verbal, but in the vast majority of cases, reports are written documents. The types of scholarship may be empirical, theoretical, critical/analytic, or methodological. Second, a literature review seeks to describe, summarise, evaluate, clarify and/or integrate the content of primary reports.‘ - **Cooper: (1988)**

‗The selection of available documents (both published and unpublished) on the topic, which contains information, ideas, data and evidence written from a particular standpoint to fulfil certain aims or express certain views on the nature of the topic and how it is to be investigated, and the effective evaluation of these documents about the research being proposed.‘ - **Hart, Chris : (2005)**

‗In writing the literature review, the purpose is to convey to the reader what knowledge and ideas have been established on a topic, and what their strengths and weaknesses are. The literature review must be defined by a guiding concept (e.g. your research objective, the problem or issue you are discussing or your argumentative thesis). It is not just a descriptive list of the material available or a set of summaries.‖

The review of relevant literature is nearly always a standard chapter of a thesis or dissertation. The review forms an important chapter in a thesis where its purpose is to provide

the background to and justification for the research undertaken (Bruce 1994). Bruce, who has published widely on the topic of literature review, has identified six elements of a literature review. These elements comprise a list; a search; a survey; a vehicle for learning; a research facilitator; and a report. - **Bruce: (1994)**

A literature review is an evaluative report of information found in the literature related to a selected area of study. The review should describe, summarize, evaluate and clarify the relevant literature. It should give a theoretical base for the research and help the author determine the nature of the research. Irrelevant works should be discarded and those which are peripheral should be looked at critically. In another word a literature review is more than the search for information and goes beyond being a descriptive annotated bibliography. All works included in the review must be read, evaluated and analysed (e.g. Annotated bibliography), but relationships between the literature must also be identified and articulated, in your field of research.

3.4. LIBRARY AND THE REVIEW OF LITERATURE

The library is a rich source of knowledge and plays a significant role in providing relevant literature for literature review. The studies carried out on users of the library may have in the form of books, journal articles, working papers, monographs, theses, grey literature etc. These studies may be published or unpublished but certainly, find a place in the library. A good literature review requires knowledge of the use of indexes and abstracts, the ability to conduct exhaustive bibliographic searches, the ability to organise the collected data meaningfully, describe, critique and relate each source to the subject of the inquiry, and present the organised review logically, and last, but by no means least, to correctly cite all sources mentioned (Afolabi: 1992). The library offers a range of services and training for research scholars to assist with the production of literature reviews including sessions on electronic databases, using the bibliographic management software, End-Note to download records, Internet searching using Netscape, Library catalogue searching, off-campus student orientation, subject resources, and research skills.

The literature search is an important task when writing a literature review on user studies. Find out what has been written on user studies is available in the library or not. Use as many bibliographical sources as you can to find relevant titles. The following are likely sources: catalogues, bibliographies and references in key textbooks and recent journal articles, abstracting databases, such as LISA, etc. Citation databases, many abstracting journals and electronic databases are available through the University Library's Research Gateway. Today some e-resources are also available in the form of e-books and e-journals like Jstor, and doaj (http://doaj.org). These sources may be priced or freely accessible.

3.5. HOW TO WRITE A REVIEW OF LITERATURE ON USER STUDIES?

In general readers of the library are treated as the users of the library. While making a review of literature on user study we have to face a large number of studies on the relevant topic. These topics may be information-seeking behaviour, evaluation of library services, users‘ satisfaction towards library facilities and current awareness services, users‘ views regarding providing qualitative services etc. These studies may be different by their geographical area or by the nature of the study. Such kinds of studies may be conducted at the school, college, or university level. The studies can also be made for academic research or any other kind of special library. The setup of each library is different in its working and objectives. This indicates that a user study is a multidimensional problem which needs to be read and studied

carefully. There are several steps in developing a literature review on user studies. These include:

Selecting the topic of user study for which review of the literature to be carried out like information seeking pattern of users in a particular library.

- Setting the topic in the context
- Looking at information sources
- Using information sources
- Getting the information
- Organising information (information management)
- Positioning the literature review
- Writing the literature review

Noting the bibliographical details is another task for literature review. For this, write down the full bibliographical details of each book or article as soon as you find a reference to it. This will save you an enormous amount of time later on.

Another important point in the literature review is finding the literature. Once you have what looks like a list of relevant texts, you have to find them. For this, use the library catalogues to see if the books and journals are held. For e-journals, look at the A-Z listing. For books and journals, you can use the catalogues available in the library. For journals, use the libraries or catalogue to see which libraries hold the journals you are looking for. If the book or journal you want is not held in the library, you may be able to access it through inter-library loans. The full text of many journal articles can be found on relevant electronic databases.

Now the further important point is reading the literature on a user study. Before you begin to read a book or article, make sure you wrote down the full details. Take notes as you read the literature. You are reading to find out how each piece of writing approaches the subject of your research/study, what it has to say about it, and how it relates to your study. Usually, you won‘t have to read the whole text from the first to the last page. Learn to use efficient scanning and skimming reading techniques.

The last task is writing the review on the user study. Having gathered the relevant details about the literature on a user study, you now need to write the review. The kind of review you write, and the amount of detail, will depend on the level of your studies. You must be keeping in mind that a literature review is different from an annotated bibliography. An annotated bibliography deals with each text, in turn, describing and evaluating the text, using one paragraph for each text. In contrast, a literature review synthesises many texts in one paragraph. Each paragraph (or section if it is a long thesis) of the literature review should classify and evaluate the themes of the texts that are relevant to your thesis; each paragraph or section of your review should deal with a different aspect of the literature. Like all academic writing, a literature review must have an introduction, body, and conclusion.

3.6. NEED FOR LITERATURE REVIEW ON USER STUDY

A crucial element of all research studies is the review of relevant literature. According to Bourner (1996), there are good reasons for spending time and effort on a review of the literature before embarking on a research study in a certain field. These reasons include:

- To identify the gaps available in the literature of user study.
- To avoid reinventing and to build on the platform of existing knowledge and ideas related to user study.

- To create a research network regarding strengthening the knowledge of the subject area on a user study.
- To identify the seminal works on user study in your area.
- To identify information and ideas that may be relevant to your study.
- To identify methods that could be relevant to your study.

The user study is not now a new concept in India but the whole world. A large number of studies conducted in India so far. They are in the form of published and unpublished. The following are some selected relevant categories for review in users‘ studies.

The research activities are carried out in India by University Grant Commission or any other prominent educational and research institutions. The Ph.D. and M. Phil degrees are also conducted by universities or colleges in each discipline for the promotion of research in particular fields. To avoid research duplication in the relevant topic they follow the procedure of review for existing literature. There are provisions for theses to have research output of existing literature of Ph.D. degrees. These are available for further research and interest in their institutions. Some of the theses are also available in India at INFLIBNET and Other ETDs and Repositories at MG University Theses (Nitya), ETD@IISc, Vidyanidhi, Dyuthi@CUSAT, ETDs@Pondicherry University.

The reviews of the literature on users‘ studies are also available in journal articles and conference proceedings and seminar volumes. There are certain agencies like the Indian Library Association, IASLIC and other library institutions and organizations that produce literature on users‘ studies. For example 49th All India Conference was held at Bundelkhand University, Jhansi and published a book consisting of 68 articles in 623 pages covering various topics, such as user perception and need, user survey and feedback methods, ways to promote library services for users, innovative services to users.

Some of the studies are available in the form of working papers, monographs and reports of funded projects. A large number of studies were conducted in India on users‘ by using different aspects of the subject like information-seeking behaviour, use of resources and e-resources for certain kinds of libraries. Some of the known studies are as under:

Wilson has made a study on information-seeking behaviour in 1999, and 2000 which explores the identification of user‘s own needs for information, searching for such information in any way, and using or transferring that information. Wilson, T.D. has made a study on user studies and information needs. He is of the view that apart from information retrieval there is virtually no other area of information science that has occasioned as much research effort and writing as _user studies‘. Within user studies the investigation of _information needs‘ has been the subject of much debate and no little confusion. Wilson has also attempted to reduce this confusion by devoting attention to the definition of some concepts and by proposing the basis for a theory of the motivations for information-seeking behaviour.

Information-seeking behaviour in libraries has been the focus of enquiry for students, researchers, teachers and professionals over the decades. Kakai, et al., (2004) have defined information-seeking behaviour as an individual's way and manner of gathering and sourcing information for personal use, knowledge updating, and development.

Initially, users‘ studies were conducted primarily to evaluate the collections of libraries and satisfaction with library resources and personnel as well. The studies concerned with

information resources, and habits of individuals or groups lead to the design of appropriate information systems and services.

The focus of users‘ studies shifted to new approaches to information-seeking behaviour based on the technology. Line (2000), made new studies of information users and their needs even more necessary in the age of the Internet.

Mahajan and Preeti (2009) have also made a study on Information-Seeking Behavior at Panjab University of India by using primary data with a questionnaire from 250 users. The users were undergraduates, postgraduate students, and researchers in sciences, social sciences, and humanities disciplines. The study examined the kinds of academic information as per their need, which information resources they prefer, whether they are satisfied with the library collections, and the general pattern of information-seeking, with special reference to the influence of the course of study.

Golnessa Galyani Moghaddam and V.G. Talawar, (2008) have made a study on Interlending & Document Supply. The case study was conducted at the Indian Institute of Science for the use of scholarly electronic journals. The purpose of the study was to investigate the use of scholarly electronic journals at the Indian Institute of Science. A random sample of the main cohort was selected and, for five months from January 2004 until May 2004, 700 copies of the questionnaire were distributed among 40 departments of IISc; 397 completed and valid questionnaires (56.7 per cent) were received. The interesting fact was that people were interested in free access to electronic journals and preferred pdf format.

A study entitled ―Electronic Journals' Usage and User Studies: a Literature Review‖ was published in SRELS (Sarada Ranganathan Endowment for Library Science) Journal of Information Management vol 47(2), 2010. There are many studies reviewed on user‘s study and published in different forms by several authors. It is very difficult to cite all the studies. Therefore, we have taken only some limited studies as an example to adopt the procedure for review.

Professor Shashi Prabha Singh illustrated the Doctoral Research Trends in Library and Information Science in India that approximately 119 Ph D. awarded by the Indian universities between 1950 -2012 on the topic 'Use and User Studies.

3.7. INTERNATIONAL USER STUDIES

Carol Tenopir has made a study on users entitled ―Use and Users of Electronic Library Resources: An Overview and Analysis of Recent Research Studies. The Council on Library and Information Resources (CLIR) summarizes and analyzes more than 200 recent research publications (CLIR Report 1995 & 2003: Washington DC). These reports focus on the use of electronic library resources and were published between 1995 and 2003. Eight major ongoing studies (each with multiple publications) are identified as Tier 1 studies and are analyzed in detail, while about 100 smaller-scale studies are classified as Tier 2 studies and are examined together.‖

Wood, D.N. made a study in 1971 entitled "User Studies a review of the literature from 1966 to 1970". It was published in Aslib Proceedings, Vol. 23 Iss: 1, pp.11 – 23. Wood was asked to prepare the review of user studies to bring Fishenden's work up to date. This was published in the Journal of Documentation in September 1965 and his paper looks at a limited number of British use studies and draws some broad general conclusions relating to the development of a national information service. This study considers a wide range of investigations into the

information gathering habits of scientists, engineers, social scientists and others, and reports results that it is hoped will provide managers with information on which to develop policies regarding library and information services at all levels. Although an increasing number of studies are being carried out in Eastern Europe and the USSR there has been no major work reported and consequently, the review considers mainly British and American investigations.

Lancaster, F.W. has made a study on the evaluation of library services: a concise review of the existing literature. Lancaster stated that the first serious attempt to develop objective evaluation procedures emerged in studies performed for the National Library of Medicine by Orr et. al. (1968).

User involvement in the design of computer-based information systems is enthusiastically endorsed in the prescriptive literature. However, determining when and how much, or even if, user involvement is appropriate are questions that have received inadequate research attention. A review of research was published online in 1984 in Management Science on user involvement and MIS success. The link between user involvement and indicators of system success is reviewed in the study. The authors find that much of the existing research is poorly grounded in theory and methodologically flawed; as a result, the benefits of user involvement have not been convincingly demonstrated. Until higher-quality studies are completed intuition, experience, and unsubstantiated prescriptions will remain the practitioner's best guide to the determination of appropriate levels and types of user involvement; these will generally suggest that user involvement is appropriate for unstructured problems or when user acceptance is important. To foster higher-quality integrated research and to increase understanding of the user involvement-system success relationship, the authors present the following: a conceptual framework into which previous research has been mapped that can provide direction to future efforts; a review of existing measures of user involvement and system success; a set of variables that have been proposed as potentially impacting the relationship between user involvement and system success.

3.8. SOME SELECTED DATABASE

There are a large number of studies conducted at the national and international levels on the concerned topic. They are published in various forms like books, journals, monographs, chapters in books etc. Some of the studies can be unpublished for certain reasons. It is very difficult to have all the studies on a single platform. The endeavours have been made to cover such studies in several databases. There are several databases consisting of full text and/ or indexing of books, journals, theses, pamphlets, proceedings, and research reports on various topics. Some of the popular databases are as follows:

3.8.1. Library Literature & Information Science (LLIS)

LLIS is a full-text bibliographic database that indexes articles and book reviews in more than 300 library and information science periodicals. Full-text coverage for 148 periodicals is also included. The indexing of books and chapters in collected works such as conference proceedings, library school theses, and pamphlets is also available in the database.

3.8.2. Library, Information Science & Technology Abstracts (LISTA)

LISTA provides full text for more than 330 journals and indexes over 560 journals, covering subjects such as librarianship, cataloguing, bibliometrics, online information retrieval, information management and more.

3.8.3. Library and Information Science Abstracts (LISA)

Library and Information Science Abstracts is an international abstracting and indexing tool. LISA is designed for library professionals and other information specialists. LISA currently abstracts over 440 periodicals from more than 68 countries and in more than 20 different languages.

3.8.4. ProQuest

ProQuest Library Science provides full-text access to over 150 core titles in the library and information science. It is also an authoritative Library and Information Science Abstracts database (LISA). It covers a range of titles relevant to the theoretical and applied study of library science, including trade publications aimed at the library profession as well as scholarly journals. This database offers complete text and images from journals such as:

- American Libraries
- Collection Building
- Reference & User Services Quarterly
- Technical Communication Quarterly; TCQ
- School Libraries Worldwide
- Portal: Libraries and the Academy

Image articles include all the charts, tables, diagrams, and other graphical elements often used to enhance the editorial value of articles that focus on education topics.

3.9. SOME OTHER IMPORTANT DATABASES

Some other important databases are also involved in making a collection of studies in library and information science.

- Dissertations Abstracts
- ERIC
- INSPEC
- Social Sciences Citation Index
- Web of Science

3.10. SUMMARY

The evaluation of library services was not so familiar before 1960. Virtually it was unknown but after 1960 several studies were conducted by so many authors like L.R. Wilson (1930), Ralph R. Shaw (1956), Krishna Kumar (1970), K. Saha (1978), P.S. Kawatra (1988), G. Devarajan (1989), Bawden (1990), M.S. Shridhar (1992) Baker and F.W., Lancaster(1991) and F.W. Lancaster (1993).

The review of users‘ studies can play a significant role in determining the direction of research for improving the quality of services provided by libraries for certain purposes. The review can also help make policies for further research or policymaking in relevant fields. We can compare information retrieval systems, web browsing, catalogue searching and so many information retrieval systems adopted by the libraries for their betterment or improving its quality.

The review of literature plays a significant role in research. The library has a key role in research and other developmental activities. The review of literature is very closely connected to the library. The library can‘t be ignored while making a literature review for the desired study. Here we have attempted to explain how to write a review of literature on user

studies. We have also illustrated the need for a literature review on a user study. We have given some of the important national and international studies on users carried out by some agencies or individuals. The Library Literature & Information Science (LLIS), Library, Information Science & Technology Abstracts (LISTA), Library and Information Science Abstracts (LISA) and ProQuest are some selected databases highlighted in this study.

3.11. MCQ QUESTIONS

1. How many Ph D. were awarded by the Indian universities between 1950 -2012 on the topic 'Use and User Studies? _____

2. User study is concerned with: A. Use of information resources B. User‘s evaluation C. Users‘ need and behavior D. All of the above.

3. The selection of available documents A. both published and unpublished B. (published)C. (unpublished) D. None of the above

4. Review of literature may be carried out from _____ A. books. B. periodicals C. research articles from journals. D. All the above.

5_A literature review uses as its database reports of primary or original scholarship and does not report new primary scholarship itself. The primary reports used in the literature may be verbal, but in the vast majority of cases, reports are written documents. The types of scholarship may be empirical, theoretical, critical/analytic, or methodological in nature. Second, a literature review seeks to describe, summarise, evaluate, clarify and/or integrate the content of primary reports.‘ This definition is given by A. Cooper B. Hart, Chris C. Bruce. D. All the above.

6. _The review of relevant literature is nearly always a standard chapter of a thesis or dissertation. The review forms an important chapter in a thesis where its purpose is to provide the background to and justification for the research undertaken (Bruce 1994). Bruce, who has published widely on the topic of literature review, has identified six elements of a literature review. These elements comprise a list; a search; a survey; a vehicle for learning; a research facilitator; and a report.‘ This definition is given by -A. Cooper B. Hart, Chris C. Bruce. D. All the above.

7. Library Literature & Information Science (LLIS) is a A. Full-text bibliographic database B. Library C. Society D. None of them.

8. What is LISTAA. Library, Information Science & Technology Abstracts B. Library and Information Service & Technology Abstracts C. Library Information System of Technical Advances. D. None of them.

9. What is LISA A. Library and Information Science Abstracts B. Library and Information Services in South Asia.C. Library Information System for Advancement. D. None of them.

10. Library and Information Science Abstracts is an international----------tool. A. Catalogue B. a department C. abstracting and indexing. D. None of them.

11. ProQuest Library Science provides full-text access to over ---------- in library and information science 150 core titles

12. How many Ph D. were awarded by the Indian universities between 1950 -2012 on the topic 'Use and User Studies? _____

13. User study is concerned with: A. Use of information resources B. User‘s evaluation C. Users‘ need and behavior D. All of the above.

14. The selection of available documents "_____" on the topic, which contain information, ideas, data and evidence written from a particular standpoint to fulfil certain aims or express certain views on the nature of the topic and how it is to be investigated, and the effective evaluation of these documents in relation to the research being proposed.‘ A. both published and unpublished B. published C. Unpublished D. None of the above

15. Review of literature may be carried out from ___A. periodicals B. books. C. research articles from journals. D. All the above.

16. _A literature review uses as its database reports of primary or original scholarship and does not report new primary scholarship itself. The primary reports used in the literature may be verbal, but in the vast majority of cases, reports are written documents. The types of scholarship may be empirical, theoretical, critical/analytic, or methodological in nature. Second, a literature review seeks to describe, summarise, evaluate, clarify and/or integrate the content of primary reports.‘ This definition is given by -A. Cooper B. Hart, Chris C. Bruce. D. All the above.

17. _The review of relevant literature is nearly always a standard chapter of a thesis or dissertation. The review forms an important chapter in a thesis where its purpose is to provide the background to and justification for the research undertaken (Bruce 1994). Bruce, who has published widely on the topic of literature review, has identified six elements of a literature review. These elements comprise a list; a search; a survey; a vehicle for learning; a research facilitator; and a report.‘ This definition is given by -A. Cooper B. Hart, Chris C. Bruce. D. All the above.

18. Library Literature & Information Science (LLIS) is a -A. Full-text bibliographic database B. Library C. Society D. None of them.

19. What is LISTA A. Library, Information Science & Technology Abstracts B. Library and Information Service & Technology Abstracts C. Library Information System of Technical Advances D. None of them.

20. What is LISA A. Library and Information Science Abstracts B. Library and Information Services in South Asia. C. Library Information System for Advancement. D. None of them.

Small Questions

S. No	Questions	LOCF Mapping
1.	Who coined the term "bibliometrics"?	K1
2.	Define scientometrics.	K1
3.	State Bradford's Law of Scattering.	K1
4.	What is Lotka's Law?	K1
5.	Define obsolescence of literature.	K1

Big Questions

S. No	Questions	LOCF Mapping
1.	Discuss the evolution of informetrics with its various branches.	K2
2.	Explain Bradford's Law of Scattering with its applications.	K2, K3
3.	Describe Lotka's Law of Scientific Productivity with examples.	K2, K3
4.	Explain Zipf's Law and its applications in information science.	K2, K3
5.	Discuss the concept of obsolescence and half-life in literature.	K2, K3

KEYWORDS: Literature review; ProQuest; Web of Science

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UNIT IV: Quantitative and Qualitative Techniques

Content: Quantitative and qualitative techniques; Multidimensional scaling; Cluster analysis; Correspondence analysis; Co-word analysis; SPSS; Data sources and software tools for bibliometric studies (BibExcel, CiteSpace, HistCite, Pajek, Publish or Perish, VOSviewer).

UNIT 4

CATEGORIES OF USERS

4.0. OBJECTIVES

- Meaning of Alternate Terms
- Importance of User
- Categories of Users
- Characteristics of Users

4.1. OUTCOME OF LEARNING

After reading this unit, you will be able to:

- To understand the alternatives for users.
- To know the scope of various terms used synonyms to user
- Acquaint with the importance of users.
- Enumerate the various characteristics of users.

4.2. STRUCTURE OF UNIT

- Introduction
- Alternate terms for ‗User‘
- Meaning of Alternate Terms
- Importance of User
- Categories of Users
- Characteristics of Users
- Summary
- References

4.3. INTRODUCTION

Library and information centres collect, organize, retrieve and disseminate information to fulfil the needs of users. In the 21st Century, there is a paradigm shift in the functioning of libraries; now the libraries are more user-centred, focused and friendly. In earlier days,

libraries were concerned to fulfil the need of the users in anticipation and/ or on-demand, but now the user is an integral part of all library processes and services. The user is no longer an outsider or just a recipient, as he was earlier, a silent service taker, but now the user is an active participant in all processes and services of libraries. The user in terms of library and information science may be readers of the library and all those who use the library for different purposes but in general, readers of the library are users. The library is called a trinity of –

- Readers,
- Reading materials; and
- Library personnel.

Here in this trinity user has been considered the most important constituent. All library activities are focused on catering to the information needs of the user. With the advent of information communication technologies (ICTs), various types of platforms are available and user services can be provided in real-time enabling the library professionals and users to work symbiotically and ensuring the seamless functioning of the library.

Indian library users have a very diverse and complex social profile. Users are influenced by their social background and cultural, political, and economic conditions. There are various terms used in various contexts to represent the concept of readers across the world. In this module an attempt has been made to define and describe various alternative terms in library and information science, Jennifer Rowley, Heidi Julien, Michael Gorman, BT Laloo etc. have attempted to differentiate these alternative terms.

4.4. ALTERNATE TERMS FOR 'USER'

In library and information science literature, various terms have been used to represent the concept of user. There are varieties of terms used in different contexts for users. These all terms reflect the same meaning and are interchangeably used for the term user with different connotations. These terms are enumerated alphabetically as below

- Audience
- Borrower
- Buyer
- Client
- Consumer
- Customer
- Patron
- Purchaser
- Reader
- User
- Visitor

4.5. MEANING OF ALTERNATE TERMS

In libraries and information centres various terms are used to represent the user. All terms have different meanings, scope, purposes and uses, though these terms which are used by different subject experts, are synonyms or near to synonyms to represent the concept. The definition of various key terms is given below:

4.5.1 Audience

The audience is a common term, which is used in library and information science too. This term is used in the context of public libraries and research activities. The audience is defined as ―The group of consumers for whom a media text was constructed as well as anyone else who is exposed to the text"(Wilson, 2011). The definition is very wide. This definition reflects the media and information literacy context. Generally, the audience is viewers of any programme or show. Wikipedia says, "… an audience is a group of people who participate in a show..."

4.5.2. Borrower

According to ODLIS, a borrower is "a person who checks out books and other materials from a library. Most libraries require users to register to receive the borrowing privileges associated with a library card. .....The library privileges to which a borrower is entitled are indicated by the individual's borrower status."

The term is widely used in circulation activities or circulation counter of a library. In the context of the library‘s functioning borrower, reader or user terms are synonymously used. Various other terms have been coined with the association of this term, for instance, the borrower‘s card, the borrower‟ register, borrower account, borrower status, and borrowing period.

4.5.3. Buyer

Business Dictionary defines a buyer as a " party which acquires, or agrees to acquire, ownership (in case of goods), or benefit or usage (in case of services), in exchange for money or other consideration under a contract of sale."

Libraries are social institutions and are considered as not profit organisations; hence they do not come under the purview of business. The concept of marketing is now being applied in the operation of libraries. Some libraries and information centres are charging for their services, but charges are meagre and not for profit. So this term is not popular and frequently used in library scenarios.

4.5.4. Client

According to ODLIS, a client is "a person who uses the services of a professionally trained expert, or of a professional organization or institution, usually in exchange for payment of a fee. Librarians employed in academic and public libraries usually refer to the people they serve as users or patrons because libraries have traditionally provided most services without charge. Information brokers who operate on a fee-for-service basis can be more appropriately said to serve clients."

This definition elaborates the term and also describes the scope of the term in various contexts.

4.5.6. Consumer

The consumer is also a synonym for the user. Business Dictionary defines it as "1. A purchaser of a good or service in retail. 2. An end-user, and not necessarily a purchaser, in the distribution chain of a good or service." Generally, this term is not preferred in the literature of library and information science.

4.5.7. Customer

According to Business Dictionary, a customer is a party that receives or consumes products (goods or services) and can choose between different products and suppliers." Harrod‘s Librarians‘‘ Glossary and Reference Book define a customer. "…the user of a service; in particular the term implies that a financial transaction is taking place whereby a service or commodity is transferred to a purchaser."

The definition given by the Business Dictionary is more comprehensive and incorporates all types of consumers. Today this is fashionable to call information a product or a service and libraries provide information products and services to their readers. Most of the services are rendered free of cost by the libraries, in some cases, they charge but nominally.

4.5.8. Patron

This term is often used in libraries and library and information science literature. ODLIS defines a patron as „any person who uses the resources and services of a library, not necessarily a registered borrower. Synonymous with the user. ―Generally patron means a person who donates or supports an organization.

4.5.9. Purchaser

Business Dictionary says that a purchaser is a ―person or entity that is a recipient of a good or service provided by a seller under a purchase order or contract of sale.‖

Generally, this term is not used in library activities. Most of the library products and services are free of cost or charges are very nominal.

4.5.10. Reader

This is a core term frequently used in libraries. Generally, libraries have a reading room, in which readers read or consult materials kept for this purpose. Harrod‘s Librarians‘‘ Glossary and Reference Book define a reader as a person who makes use of literary material in a library; a member of a lending library is frequently called a Borrower." The reader is a general term, which is frequently used interchangeably for the user.

4.5.11. User

A user is a person, who uses library and information resources for various purposes. It may be an individual, a group, an institution, or any other. It is to be noted that users‘ information needs could / will be different or vary from time to time and place to place. It must be remembered that in the changing world the information need is also changing very rapidly. This is more important how do LIS professionals frame or feel problems? If LIS professionals do not indulge in user studies, they would not be able to accurately forecast the future scenario. In libraries and information centres the terms user, reader, patron and borrower are frequently used for various purposes. In LIS literature these terms have been defined to differentiate their connotations.

4.5.12. Visitor

Dr SR Ranganathan used this term frequently in his writings. He expressed ―visitors fall into two groups: those who want immediate attention and those who want to make an unhurried selection without too much assistance.‖ (Ranganathan: Five Laws of Library Science: 74). This is a general term, a visitor who visits a place or someone or somewhere. Visitor visits

the library and information centres to consult or refer to the material to fulfil /her information needs. This is a common term used for a user, who visits a library.

4.6. IMPORTANCE OF USER

Father of nation Mahatma Gandhi has said, ―…a customer is the most important visitor on our premises. He is not dependent on us. We are dependent on him. He is not an interruption in our work. He is the purpose of it. He is not an outsider in our business. He is part of it. We are not doing him a favour by serving him. He is doing us a favour by allowing us to do so.‖ This statement describes the whole philosophy of serving the people. LIS professionals should keep this statement in mind while serving the users." Customer is the King " is a slogan we listen to everywhere in the market. It shows the importance of users in the market. User satisfaction is the supreme and ultimate purpose of any library.

S.R. Ranganathan expressed his view on the importance of users in the library science profession, he said ―you should not impose your ideas, your likes and dislikes on him . Alas! we are all human and in trying to prove that we are right, we lose sight of our main object which is to help the visitor in finding out what he can use for pleasure and profit. Work with the reader. Don‘t work on him. You can lead him. But you can not drag him. Work with him on his ground.‖ (Ranganathan, The Five Laws of Library Science).

User is a very important component of a library system or any information generation, exchange and utilization process. Information is a public resource or a common resource; it must be made available to all citizens on an equal footing. Library and information centres are deeply associated with the information generation, exchange and utilization process. This process can be made more effective and useful if users participate in this process. Now users are not only beneficiaries of services or passive actors in this process. In the 21st century‘s changed scenario, a user is an active part of any product or service. Now ICT has given a platform for reciprocity in the functioning of libraries and information centres. Libraries should understand the importance of the user and they must associate users in the planning of products and services rendered.

Today libraries are facing several problems; one of them is the dearth of users. Many people do not visit libraries to avail their services. The endemic nature of this problem in India can be realized by visiting any library. This problem can be solved by giving due importance to users. As users are beneficiaries of any information product and service ultimately, their opinion and feedback about the planning and execution of any service and product would associate more of them to the libraries. Users‘ needs must be satisfied by all means.

4.7. CATEGORIES OF USERS

It is very difficult to cover or limit the scope of the categories of users. Users may be categorised in various ways. How to capture or limit possible categories is a big challenge for professionals. In this module, an attempt has been made to give one dimension to understanding the wide and complex scenario of the phenomenon. Categories of the user may be divided based on some characteristics. The further categorisation may be done based on attributes.

The diagram given below shows the various categories of the users:

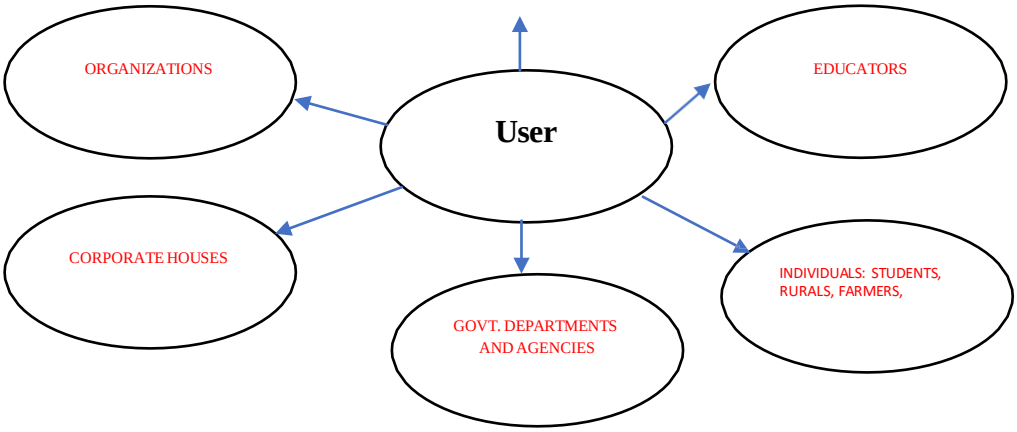

Diagram 1: Various categories of the users

In the following diagram, the term "person" is illustrated and various divisions, subdivisions and sub-sub divisions are enumerated based on different attributes. This chain of divisions can be enhanced in any direction by adding an attribute. For instance, in the following diagram term "person" has been further divided by literacy, gender, age, marital status and economic status. Then each division is again put under subdivisions. A map is ready to understand the scope of categorisation of users.

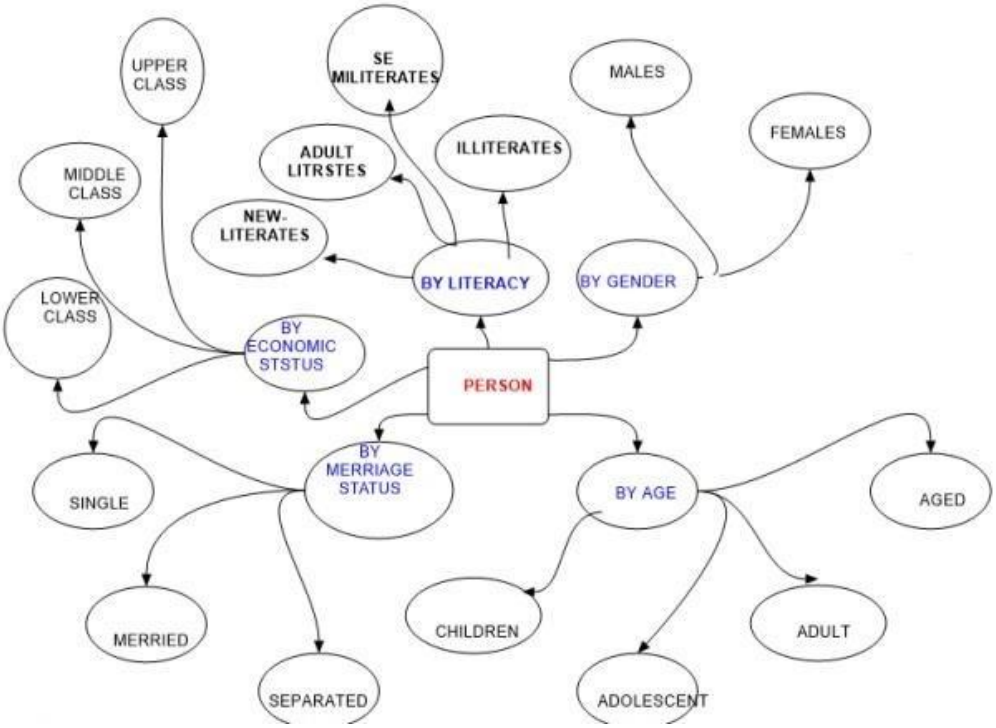

Diagram 2: Showing a categorization of the term " person" with various attributes

Categories can be made based on attributes or scope and the development of new knowledge. For example, Users can be categorized based on different kinds of disabilities as enumerated in Wikipedia

(< en.wikipedia.org/wiki/Disability<).

Categories of disabled users

- 1 Physical disability
- 2 Sensory disability
  - Vision disability
  - Hearing disability
  - Olfactory and gustatory disability
  - Somatosensory impairment
  - Balance disorder
- 3 Intellectual disability
- 4 Mental health and emotional disabilities
- 5 Developmental disability
- 6 Non–visible disability

Categories of students can be drawn based on various attributes, such as:

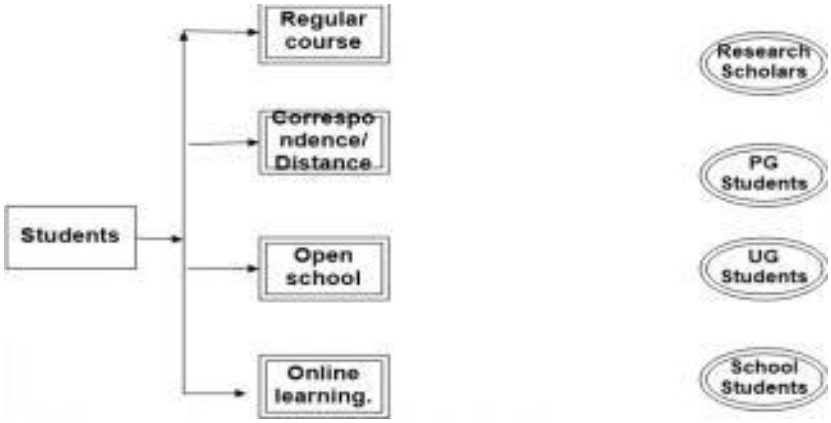

Diagram: 3 Categories of Students

Persons associated with educational activities, for example:

- Teachers: Teachers can be further categorised based on level of education:
- Universities: Professor, Associate Professors, Assistant Professors, Demonstrators
- Colleges: Associate Professors, Assistant Professors
- Schools: Postgraduate

Teachers, Trained Graduate Teachers, Primary Teachers.

Administration: Registrars, Finance Officers, Section Officers, etc.

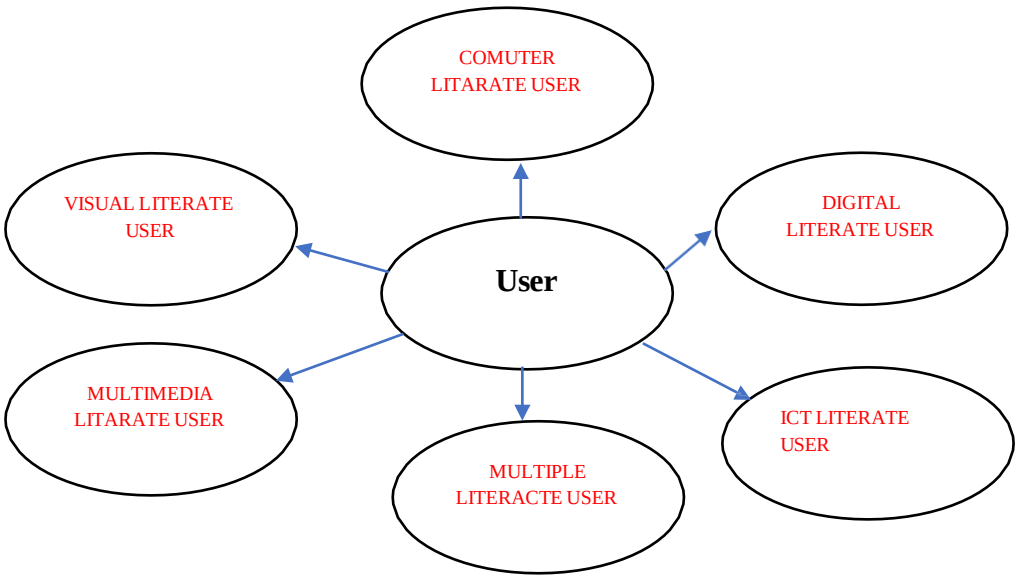

Diagram: 4 Categories of Users based on literacy

4.8. CHARACTERISTICS OF USERS

It is very difficult to enumerate all characteristics of users because the user is a blanket term, which incorporates a variety of attributes. Some of the characteristics may be:

- Social background
- Racial
- Ethnic
- Religious
- Cultural
- Social
- Economic
- Demographic
- Physical
- Mental

Every user has a specific kind of behaviour because the personality of a person gets affected by their religion, family values, demographic and geographical attributes, cultural environment and values that exist in that society. All these factors affect the information-seeking behaviour of the users. Users as individuals or as groups always have a specific kinds of features. Library and information science professionals should always keep in mind these characteristics. Accordingly, they can plan and execute various information products and services for the users. The ultimate task or function of any library product or service is to satisfy the ever-changing and ever-growing information needs of the users. If LIS professionals know the attributes of the users, they can plan products and services in a better way.

4.9. SUMMARY

The user is the most important component of library activities or information business. There are various alternative terms for the user, such as audience, borrower, buyer, client, consumer, customer, patron, purchaser, reader and user. All these terms have been defined and explained above. In this module, an attempt has been made to differentiate these terms. Categories of users have been enumerated and it has been explained how these categories can be multiplied by taking into account different attributes. Various characteristics of users, such as their social background, viz., their racial, ethnic, religious, cultural, social, economic, demographic, physical, and mental statuses among others affect their information-seeking behaviour.

4.10. MCQ QUESTIONS

1. The library is called a trinity of - A. Library Building, Reading materials and Library personnel B. Readers, Reading materials and Library personnel C. Readers, Library Committee and Library personnel D. Readers, Reading machines and Library Authorities

2. A person who makes use of literary material in a library; a member of a lending library is frequently called a Borrower. is expressed by: A. Wikipedia B. Business Dictionary C. ODLIS D. Harrod Librarians Glossary and Reference Book

3. The term _____is widely used in circulation activities or circulation counter of a library. A. Borrower B. Customer C. Client D. Purchaser

4. "A customer is the most important visitor on our premises. He is not dependent on us. We are dependent on him. He is not an interruption in our work. He is the purpose of it " is said by A. Philip Kotlar B. Mahatma Gandhi C. S R Ranganathan D. None of the Above

5. The library is called a trinity of -A. Library Building, Reading materials and Library personnel. B. Readers, Reading materials and Library personnel. C. Readers, Library Committee and Library personnel. D. Readers, Reading machines and Library Authorities.

6. ―A person who makes use of literary material in a library; a member of a lending library is frequently called a Borrower.‖ is expressed by: A. Wikipedia B. Business Dictionary C. ODLIS D. Harrod‘s Librarians‘ Glossary and Reference Book

7. The term..... is widely used in circulation activities or circulation counter of a library. A. Borrower B. Customer C. Client D. Purchaser

8"A customer is the most important visitor on our premises. He is not dependent on us. We are dependent on him. He is not an interruption in our work. He is the purpose of it " is said by A. Philip Kotlar B. Mahatma Gandhi C. S R Ranganathan D. Melvil Dewey

9. Now ..... has given a platform for reciprocity in the functioning of libraries and information centres. A. Information Technology B. Information Communication Technology C. Computer Technology D. Communication Technology

10. Which is not the alternate term used for users: _____

11. ―Person or entity that is a recipient of a good or service provided by a seller under a purchase order or contract of sale.‖ The statement is given by A. Hindi – English Dictionary B. Online Dictionary C. Business Dictionary D. Harrod‘s Librarians‘ Glossary and Reference Book

12. What is the full form of Library OPAC? A. Online Public Access Catalogue B. Online Publisher Access Catalogue C. Online Publicly Access Catalogue D. Online Publicly Available Catalogue

14. Access to electronic information in a variety of remote locations through a local online catalogue or other gateways. _____

15. Which is the national Union Catalogue of India? A. IndCat B. WorldCat C. UniCat D. BibCat

16. Union Catalogue Project initiated by _____in the year 2002

17. Government Publications lists are released in A. Annual catalogue B. Annual Report of the concerned Ministry/Department C. National Library Newsletter D. Publishers catalogues

18. Catalogue of Government of India publications is a regular serial published every year. False/True

19. In the Library use studies the popular type of use study identified was: A. Library Routines B. Use of Card Catalogue C. Community Survey D. Above all

20. What is the main source of data employed in use studies A. Catalogue Use B. Circulation Transactions C. Bibliographic Sources D. None of the above

Small Questions

S. No	Questions	LOCF Mapping
1.	What is multidimensional scaling?	K1
2.	Define cluster analysis.	K1
3.	What is co-word analysis?	K1
4.	Name any four software tools used for bibliometric analysis.	K1
5.	Expand SPSS.	K1

Big Questions

S. No	Questions	LOCF Mapping
1.	Distinguish between quantitative and qualitative techniques in user studies.	K2
2.	Explain multidimensional scaling and cluster analysis with their applications.	K2, K3
3.	Describe the features and applications of bibliometric software tools (BibExcel, CiteSpace, VOSviewer).	K2, K3
4.	Discuss the various data sources available for bibliometric studies.	K2
5.	Explain the use of SPSS in analyzing user study data.	K3, K4

KEYWORDS: Categories of Users, Characteristics of users

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UNIT V: Citation Analysis and Science Indicators

Content: Citation analysis – definition, theory, forms, citation counts, self-citation; Applications and limitations; Bibliographic coupling; Co-citation; Science indicators; Impact factor; h-index; National mapping; Scientific collaboration; Scientometrics in science policy

UNIT 5

IDENTIFYING OF USER INFORMATION NEEDS

5.0. OBJECTIVES

- Understand what is needed?
- Enumerate the characteristics of information need
- Elaborate on the types of needs, and
- Discuss the meeting of information needs.

5.1. OUTCOME OF LEARNING

After reading this unit, you will be able to:

To define information needs, Types of needs

5.2. STRUCTURE OF UNIT

- Introduction
- What Need is?
- Meaning of Alternate Terms
- Definitions of Information Needs
- Characteristics of Information Needs
- Characteristics of Users
- Types of Needs
- Meeting Information Needs
- Summary
- References

5.3. INTRODUCTION

Identification of information needs is a prerequisite to designing and developing any information system to provide need-based information services to the users. In earlier times before the systematic beginning of user‟ studies during the 1940s, the generation of library services was mostly based upon professional perception without gathering factual data on the information needs of users Nevertheless, the libraries have been always aiming at serving the users in the best possible way by providing them with the desired reading resources they are likely to use. With the advances in the library profession, it was felt that empirical data should be collected from the various communities and groups of users to generate and provide need-based effective and meaningful services to the prospective users. In India, S R Ranganathan (1933) particularly through his Five Laws of Library Science brought to the conscious level of library professionals that users are the focal point and every activity of the library profession revolves around them. He brought forth how the messages embedded in his laws could be complied with to serve the users in the most effective manner and ways. The philosophy emanating from these laws emphasizes that users have to be always kept in sight while building resources and services. To quote Taylor (1986) The „principal strength of value-added model lies in its stress on the user and the needs and dimensions of the information environment as a major element in the design and evaluation of the system.‖

It has been a great concern of the profession as to how user-centred services could be generated and disseminated. A mismatch between the resources and the user‘s needs must be minimized as far as possible. This presupposes that information professionals must know the users‘ information needs they will serve. Further, they should also know how people seek, retrieve and prefer to use information. When we think of marketing information, we must first know our clientele to have the salability of our information products. The producers or the generators of any product should always produce such commodities that meet the day-to-day needs of prospective consumers without any barriers and drudgery. Information user is happy when he gets what he/she is looking for. To achieve this, the users‘ information needs are first identified before planning such services (Chandel, Saraf, 2004).

According to Wilson (1980), perfect knowledge of inquirer is predictions and perfect knowledge of all texts, which could be used by an inquirer, would be necessary before that ideal set could be identified. For the library, it is important to investigate the preferences of its users to be able to acquire adequate information sources (Vilar and Zumar, 1995)"...a knowledge of the requirements of the different users of scientific information and the uses to which they wish to put the information they secure should be the ultimate determining factor in the designing of methods of storage and retrieval of scientific information." (Bernal, 1959).

Before this module is further elaborated, let us attempt to define and understand the connotation of „needs‟. According to Karl Marx, need is a psychological concept, and a human being is a creature of need. These needs are to be satisfied to avoid complications and unpleasantness and remove uncertainty. Need is a requisite which is required or wanted or desired. Need is a necessity such as food, water, security, etc.

5.4. WHAT NEED IS?

Defining needs is difficult. But the human being is a creature of need as stated by Karl Marx. Even philosophers have avoided and neglected the definition of need (Reader, 2005). Ohlsson (1995) observed that there are two concepts expressed by the term „need‟ – one referring to certain psychological drives and one referring to certain casual connections between states. The psychological drives of Ohlsson are similar to Maslow‘s theory of hierarchy of needs (1943).

Dictionary meaning of need is a condition or situation in which something is required or wanted, e.g., I need a glass of water. Business Dictionary defines „need" as a motivational force that compels action for its satisfaction. Needs range from basic survival needs (common to all human beings) satisfied by necessity, to cultural, intellectual, and social needs (varying from place to place, and age group to age group).

We need food, and shelter to survive. People need health care. But there is a difference between the need for food and health care. Anything, which is necessary but lacking leads to the generation of need. These needs are due to lack of and deprivation of something which are to be satisfied in order to avoid unpleasantness, remove anxiety and feeling and move on to a higher level need. Other terms used as synonymous or near synonymous with „needs" are requirement, demand, want, and preference. Needs are contingent, and wants and preferences in contrast are contingent (Ohlsson, 1995). When some demand is put to seek something, it implies that there is a need behind this demand. So we may infer that demand is also the expression of need. The difference between wants and needs has been summarized as (McCain,2012):

5.5. DEFINITIONS OF INFORMATION NEEDS

The concept of information needs was first time used by Robert (1962). Taylor attempted to describe how an inquirer obtains an answer from an information system, by performing the process of seeking information consciously or unconsciously (Wikipedia). However, Menzel (1964) preferred the term „demand" in place of „need". Our collection development policy is also based on demand theory. In all literature of Library& Information Science, mainly two terms have been frequently used, i.e. Information needs and information-seeking behaviour.

It is not only the information needs of users exclusively which is to be met, libraries are also expected to meet the requirement, demand and want of the users. Users may put a demand on the system to get information, may require some piece of information or want to read and consult some information resources which may not be based upon their actual needs. Therefore, for the purpose of this study, „information needs" should be considered in a broader perspective which also includes information requirement, want and demand of information, though differences among these terms have been discussed in the preceding paragraphs. Information needs are not the basic need as needs for food, shelter and health care.

Information-seeking theories often refer to the concept of information needs, a presumed cognitive state wherein an individuals need state triggers the search behavior characteristic of information seeking in a given context (Design dialogues, Nov. 15th, 2010). On a day-to-day basis, people engage themselves in information seeking at some level (consciously or unconsciously) (Krikelas,1983). When an attempt is made to define information needs, both the terms „information" and „need" should preferably be defined individually for a better understanding of the concepts of the two terms. But both these terms are difficult to define, as such there is no consensus on defining these terms. Need is an internal process and information is a nebulous term. In view of this situation, Wilson (1981, 2005) suggests that the term „information needs" be abandoned and replaced with the term „information-seeking behavior." He writes (2005): that the term "information-seeking behavior" should be adapted in place of information needs as behaviour is observable, whereas needs being internal mental states, are not." „Information needs" and „information seeking behaviour" cannot be treated as conveying the same meaning, nor information needs can be adapted to mean information seeking behaviour and vice versa. When information need is felt, the process of information

seeking begins. In other words, information needs to generate information-seeking or information-gathering behaviour. Information-seeking behaviour includes how users look for information, how they make use of resources, what are their preferences, and choices, how they interact with the barriers of information communication and information systems in use, how they perceive their needs and formulate search strategies to access information (Chandel, 2004). This makes the difference between „information need‟ and „information seeking behaviour‟. But the argument of Wilson is convincing in order to resolve the issue by replacing information needs with information-seeking behavior to come out of the complexity in defining „information need‟. But the meaning and the concept of both the terms are different.

Belkin (1977) gave the concept of an Anomalous State of Knowledge (ASK). He identified the fundamental problem of communication between information generator and information user and concluded that the cognitive level of the recipient of the information is anomalous with respect to some goals. ASK is similar to the unconscious need of Taylor (1968) when the user is not able to conceptualize what he actually needs. However, it may not be true in all cases. When reference is made to unconscious need, unexpressed need, and anomalous state of knowledge, it is difficult to bring „information need‟ under a precise definition. When people recognize a gap in their state of knowledge, that is, when they experience ―an anomalous state of knowledge‖, they wish to resolve that anomaly and seek information. But libraries are not supposed to meet the information needs only but have to provide all resources whatever is required or demanded or /wanted by the users. The following statements may explain the difference among terms like need, demand, requirement, preferences and wants which almost convey the same meaning so far as meeting information needs is concerned:

i) There is a demand for course books as observed by the library staff. ii) Survey revealed that the majority of the users above the age group of 60 years like to read religious books. iii) In public libraries, users often look for recreational and inspirational materials. Users often want to read new arrival and new publications in their area of interest. People need digital libraries in the 21st Century. I need the morning newspaper to begin the day. iv) Local history is one of the subjects of interest of the local community.

Krikelas defines information needs as a state of uncertainty recognized by an individual (Henefer, and Fulton,2008). Information needs are felt in different circumstances encountered by the individual. Information is also sought even without the feeling of its „need‟. It is not always need-based. One may search for information out of inquisitiveness to know the latest advances in the subject, and resolve problems at hand relating to work one is engaged in. Information is also sought for recreational, inspirational and motivational purposes which do ‟t fall under the category of human basic needs. One may also gather information to keep updated and influence people around him with his knowledge. Some people have an instinctive derive to seek information to go on changing their knowledge structure and keep themselves abreast with the latest developments. Therefore, „information need‟ is to be considered in a broader sense which includes want, demand, preferences, and choices for information resources.

5.6. CHARACTERISTICS OF INFORMATION NEEDS

- Main characteristics of information needs could be summarized as below:

- Information needs are subjective as well as objective with an inter-relationship between the two. Needs are objective because it is a discoverable matter of fact what needs a person has.
- Needs differ from individual to individual, group to group, institution to institution, society to society, environment to environment, and from time to time conditioned by the purpose and function at hand (Chandel and Veena, 2004).
- Need-Creating Events/Environments are responsible factors behind information needs and information gathering (Krikelas, 1983).
- Nature and types of information needs differ according to the purpose at hand and the situation in which it arises.
- Information needs are often non-specific, and intangible. visceral and thus unknowable and non-specifiable in a query to an information system (Belkin, Oddy, and Brooks, 1982).

5.7. TYPES OF NEEDS

There are different types of needs conditioned by the different purposes at hand. The environment in which one works or in which one lives will have bearing on the type of information one needs as well as one defines that need. Voigt (1959) identified only three types of needs: The current approach (to keep up-to-date), the Everyday approach, and the Exhaustive approach. Menzel (1964) added one more function to Voigt‘s list of enabling a scientist to „brush up on a field – that is to familiarize himself with the more or less well-defined field of inquiry. The need may also arise from isolated events (Henefer and Fulton, 2008). Krikelas (1983) believed in only two types of needs; immediate needs and deferred needs. Whittaker (1993) gave the following types of information needs:

i) Regular: Such as current awareness, browsing of subject journals.

ii) General: General reading according to the interests hobbies etc.

iii) Quick reference: Fact-finding, statistical information.

iv) Relating to personal problems: Travel, diagnosis of diseases, finding a job, etc.

v) Personal development: Study abroad, qualifying competitive examinations and improve professional competence.

vi) Research: Writing thesis, project report, dissertation, literature survey and review, etc

Gorman (1995) identified the following types of information needs:

i) Unrecognized: not aware of information or knowledge

ii) Recognized: aware that information needed may or may not be pursued

iii) Pursued: information seeking occurs, may or may not be pursued

Taylor (1962) identified the following four stages in the minds of the inquirer when asking four types of questions, giving rise to information needs:

i) Actual, but unexpressed, need for information (the visceral need)

ii) The conscious, within-brain description of the need (the conscious need)

iii) The formal statement of the question (the formalized need).

iv) The question as presented in the information system (Compromised need).

Orr (1970) gave a detailed account of types of information needs. He identified why of information needs based on input and output functions which are given below:

5.7.1. Input Functions

5.7.1.1. Regular Needs

- Current Awareness: To keep abreast of new development.
- Everyday Reference: To obtain specific items of information essential for the day-to-day conduct of an ongoing project.
- Personal: Such as food, drinks, etc.
- Stimulation: Suggest new ideas, approaches and problems.
- Feedback: To obtain reactions to own work and refine problem definitions.

5.7.1.2. Episodic Needs

- Retrospective: Search to learn of past work possibly relevant to and useful for current or project.
- Exhaustive: All relevant work.
- Limited: Limited by size or by criteria (e.g., literature of last 10 years).
- Instructions: To acquire new competencies or to „brush up" in areas where competency has declined.
- Consultation: To obtain tailor-made „solutions to or expert opinions on specific problems recognized as outside areas of special competence.

5.7.2. Output Functions

5.7.2.1. Responding

This is in response to the input needs of the users which may be explicit or implicit. The output response could be:

- Informing
- Alerting (Current awareness)
- Answering (Everyday reference)
- Referring (Retrospective search)
- Teaching (Instruction)
- Advising (Consultation)
- Reacting to meet personal needs

Requesting: To solicit input from others explicit or implied requests aimed at meeting own needs for current awareness, everyday reference, retrospective search, instruction and consultation, as well as for stimulation and feedback.

- **Promoting:** To advance own ideas, projects, career, or reputation, namely:
- **Proposing**: To obtain support from sponsors, collaboration and cooperation from others.
- **Preempting**: To establish a proprietary „claim" for contribution, pending definitive disclosure or ―registration‖.

- **Registering**: To make a contribution part of the permanent record esteemed by reference groups or sponsors.
- **Re-enforcing**: To improve the chance of achieving the desired end by citing your own contribution, etc.
- **Defending**: To refute criticism.

Types of information needs depend upon the nature of the problem at hand which varies from individual to individual in different circumstances. The very purpose of going into the details of types of information needs is to find ways and means of meeting these needs to the utmost satisfaction of different types of users belonging to different communities by generating such services which have relevance to the users. Some writers distinguish information needs according to the activity in which information gained is used, Menzel (1964). Knowledge of different types of information needs provides background to generate different types of services for different types of users. Today‟s users are entirely different to earlier users of two or three decades ago. Internet and Google experience have changed the information-seeking behaviour of the users. They expect everything in a single click irrespective of the location and possession. Most users today want comprehensive information in full text.

5.8. MEETING INFORMATION NEEDS

The classification of information needs is quite diverse as discussed above and it is quite challenging to meet the varied needs of different types of users. Any type of need or demand can confront the professional who should be ever prepared to meet the situation. Menzel (1964) identified three themes to provide expected services to the scientists to meet their requirements which have the same relevance today as 50 years ago:

> The guiding slogan must be speed, efficiency and comprehensiveness. The overriding aim in other words is to bring information to the scientist promptly, to bring him all that is relevant, and to bring it to him with a minimum of waste motion, especially on the scientist‘s own part.

- The prototype activity is an exhaustive search. This means the delivery to the scientist of all documents satisfying a small set of criteria that he has defined in advance.
- The achievement of these goals lies along the roads of greater systematization, greater streamlining, greater mechanization, and greater automation of information processing and dissemination.

Though these were conceived as untested themes and assumptions but have passed through the test of time and seem to be proven facts. During the 1960s there was hardly any application of technology to achieve the above goals which Menzel had very thoughtfully conceived and foresighted. In the present electronic age, nothing can be achieved without systematization, mechanisation and automation. These are the roads leading to reaching library users to meet their information needs.

It is interesting to note that IFLA (2011) used the term wishes of the users in place of the needs of the users.

5.9. SUMMARY

The purpose of identifying the information needs of users is to provide need-based value-added information services. Users are always to be kept in view and emphasis should be on their needs which also include demand, wants, preferences and also wishes. A large number of literature have been published on user studies, particularly on „information needs“. The

precise definition of information needs is still lacking. Information need is not similar to needs for food, shelter, healthcare, etc. Information needs are not the basic need. If information need is not satisfied, it may not lead to consequence as being starved without getting food or not getting healthcare. Information is not only sought when needed, however, but users may also seek information for recreation, to keep themselves up-to-date on their subject of interest. Many users out of their hobby also seek information. They may be driven to find information out of curiosity and interest which may not fall strictly under the definition of need. Information is sought when one feels that his knowledge is not adequate than required to meet the situation, this inadequacy has to be removed by providing the right information.

We have discussed different types of needs of different users which obviously have different sources and services to be generated and provided. The basic function of the library begins with collection building, if it is developed based upon „needs", resources would be used. Therefore, identifying the information needs of users plays an important role in providing need-based services.

It is also equally important as to how these services should be provided. Google and other service providers' search engines have attracted library users and the majority of our users are being withdrawn away from the libraries. Convenience and ease of use are dominating factors. User information-seeking behaviour has entirely changed, and their dependence on libraries is declining. Therefore, it is not only important to assess the information needs of the users, but it is equally important how to provide services to them according to their expectations. Information needs to be interpreted in a broader sense of the term so that whatever is sought is provided timely and effectively provided. It hardly matters whether it is demand or wants or need.

5.10. MCQ QUESTIONS

1. The concept of ASK (Anomalous knowledge) was given by: A. N J Belkin B. R S Taylor C. J D Bernal D. T D Wilson

2. Who made the following statement? Information-seeking behavior should be adopted in place of information needs as behaviour observable whereas needs being internal mental state …A. Melvin Voigt B. N Robert C. T D Wilson D. N J Belkin

3. Who gave the concept of information needs for the first time: A. T D Wilson B. M B Line C. R S Taylor D. Herbert Menzel

4. Identification of information needs helps in: A. Dissemination of information B. Generating need-based information services C. Developing a good circulation system D. Solving problems relating to knowledge management

5. Internet and Google/ books and periodicals experience have changed the information-seeking behaviour of the users. _____

6. Information-seeking theories often refer to the concept of information needs, a presumed physical/cognitive state wherein an individual's need state triggers the search behavior characteristic of information seeking in a given context. _____

7. T D Wilson suggests that the term _information needs‘ be abandoned and replaced with the term……A. information demand B. information requirement C. information want D. information-seeking behavior

8. The concept of information needs was first time used by Robert (1962). True/False

9. Needs do not differ from individual to individual, group to group, institution to institution, society to society and environment to environment. True/False

10. Belkin (1977) gave the concept of an Anomalous State of Knowledge (ASK). True/False

11. ACRL stands for _____

12. The digital collections of the research outputs created within a university or research institution are known as _____

13. DOAJ is the abbreviated form for _____

14. OAI-PMH is Open Archives Initiative _____for Metadata Harvesting.

15. The abbreviation for Public Library of Science is _____

16. Open DOAR is run by _____

17. ETD stands for _____

18. _____are pre-peer-review articles

19. OA can be achieved only by following the green route. True/False

20. Scholarly communication includes only formal means of communication, such as publication in peer-reviewed journals. True/False

Small Questions

S. No	Questions	LOCF Mapping
1.	Define citation analysis.	K1
2.	What is self-citation?	K1
3.	Differentiate between bibliographic coupling and co-citation.	K2
4.	What is impact factor?	K1
5.	Define h-index.	K1

Big Questions

S. No	Questions	LOCF Mapping
1.	Discuss the theory and applications of citation analysis.	K2, K3
2.	Explain the various forms and reasons for citations with their limitations.	K2, K4
3.	Describe the concept of bibliographic coupling and co-citation.	K2

4.	Discuss the role of scientometrics in science policy and national mapping of science.	K4, K5
5.	Analyze the applications and limitations of impact factor and h-index in research evaluation.	K4, K5

KEYWORDS: Information need; Characteristics of users; Episodic need

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