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Lesson No. : 1.1 **Dr. M.Masoom Raza**

CONCEPT OF INFORMATION ANALYSIS AND CONSOLIDATION

Structure:

1.1 **Introduction**

Today's age is an 'information age'. An age where, information has become the most important aspect of today's social development. As social development depends on the standard of living of that particular society, the cause affecting factor for uplifting the standard of living is the participation of that society in research work, as it is the only means which can study the existing situation and analyse what is required and puts forth a concept or formula which when adopted or utilized, produces better results. The vital factor that affects research is 'information'. The amount and type of information received, would directly have its impact on the research work. If this total resource is received with delay then there is the probability of its being repeated or becoming obsolete, in which case the amount of time, energy and money would be wasted.

Human mind is a generator of ideas. These ideas are based on certain facts. These facts are derived by continuous observances and experiences. When these facts hold the test of time, they become data, i.e. something which occurs, which can be seen, felt and observed. When these data are arranged in an organized manner and presented or told or passed on to some one, it becomes 'information' e.g. lightening had been observed from the very beginning of civilization, as an event that occurred before rain. After this lightening came the thunder which preceded the rain. So, the facts that were deduced were lightening, thunder, rain. Thus, the piece of information could be stated as, usually before a heavy rain we get lightening and thunder. But this information is raw, later when it will be scientifically tested, will it be proved that as lightening travels faster than sound, it is seen first but the sequence is that the thunder occurs first, resulting in lightening and rain. Now, this is an accepted information which can be told and retold with authenticity. Information originates from an idea that creeps in the mind, as a result of observation. These ideas/facts when organized or processed to convey significant meaning about something, is information. Stores of information represent a new kind of transactable commodity, ranking in future

human importance alongside material and energy resources. "Information" must be differentiated from data. " Data", whether it is numeric or bibliographic, relates to facts, figures, or recorded documents, expressed in the form of symbols. But for data to transform itself to information should be processed, organized and presented to a person or agency, at the time needed for taking some action. Thus, information comprises three main characteristics of timeliness, person affiliation and action orientation.

1.2   The Information Revolution and Knowledge Explosion

The information revolution resulted from the large scale technological advances during the last few centuries in human capabilities to record, reproduce and disseminate information. The new technologies developed for preserving and disseminating all types of information, i.e., documentary, non-documentary, non-conventional, formal, informal etc. have greatly increased the information processing capacity.

The information revolution produced a knowledge explosion. Advances in the development and use of computers for the transmission and storage of information, proved to be a new way for access to information which further developed towards satellite communications, tele-communications, tele-conferencing, e-mail services, all means of more and more knowledge. The revolution in information processing has enabled storage and retrieval of large quantities of data and communication techniques have facilitated access to data available in any part of the world.

Today, the effect of this revolution can be felt in the outdating of technologies in a short span of three years with the new techniques developing and ready for usage, for another short period. This continuous progress although provides a number of facilities viz. high storing capacities, durability, portability, speedier access, etc. But it also creates problems as production of suitable manpower, economic problems specially in case of developing countries like ours, rapid change which is not easily absorbable, development of the new sense towards the usage of these technologies etc. creep from the changing trends.

Although, the information revolution is for the benefit of mankind yet its speedier use by the specialists is important since, as a result of this revolution large amount of information is being brought to the fore. The speed by which this information appears, it tends to disappear simultaneously, meaning its importance lies in the speedy absorption as time lag reduces its effectiveness as it gets outdated with the same speed. Now the problem is, how to catch-up with this revolution, as it is the only way to take our nation closer to being a developed country. It is high time we recognize it as a national resource and utilize it , to its maximum, for the benefit of mankind.

Before we discuss the concept of information analysis and consolidation we should know the concept of information.

1.3   Concept of Information

The term Information originate from formation and forma. Both these terms define the size and format of any entity, along with the indication towards the construction of a pattern. The dictionary meaning of the term is "the knowledge communicated or received concerning a particular fact or circumstance". In other words, information means "to inform or to tell or a thing told". Information may also be termed as knowledge, because knowledge

is what we know or the portion of information which is in our knowledge.

1.4   Information Analysis

In the context of information consolidation, however, it is used primarily to denote a non-evaluative information analysis for the purpose of consolidating the results of analysis into a textual presentation in which the isolated units of inputs undergo substantial structural changes. The product, thus, always is factual, non-critical or non-evaluative, but informative in nature.

1.5   Information Consolidation

Information consolidation involves compressing relevant documents in order to provide defined user groups-audiences-with reliable and concise new bodies of knowledge.

Unesco symposium on information analysis and consolidation in Sri Lanka has given the following definition:

> "Information Consolidation Activities are used to define the responsibility exercised by individuals, departments or organizations for evaluating and compressing relevant documents in order to provide definite user groups with reliable and concise new bodies of knowledge. Individuals or groups of individuals performing consolidation activities would each constitute an Information Consolidation Unit".

Saracevic and Wood have given the following comprehensive and concise definitions:

> "CONSOLIDATED INFORMATION is public knowledge specifically selected, analysed, and possibly restructured and repackaged for the purpose of serving some of the immediate decisions, problems, and information needs of a defined clientele or social group, who otherwise, may not be able to effectively and efficiently access and use this knowledge as available in the great amounts of documents or in its original form. The criteria for selection, evaluation, restructuring, and repackaging of this knowledge are derived from the potential clientele". To be precise, "CONSOLIDATED INFORMATION is a text(s) or message(s) purposefully structured from existing public knowledge to affect the private knowledge and decisions of individuals who otherwise may not be able to effectively access or use this public knowledge from the original amounts or in the original structure and form".

1.6   Communication

Communication is a process whereby information is transferred through a given channel(s) from a source or sender to a destination or recipient and vice versa.

1.6.1   Diffusion of Information

Diffusion is a communication process by which a new idea or piece of information/ knowledge spreads among the members of a social group.

Information Systems

1.   Information systems are a type of communication system which selects, organizes, stores and disseminates public knowledge for the purpose of communication that knowledge to users.

2.   Libraries

3.   Information centers

1.6.2   Objectives of Information Consolidation

The basic objectives of information consolidation can be summarized as follows:

1. To increase the effectiveness of information transfer.
2. To encourage more intensive information use in a wide array of development activities, and
3. To widen the circle of the population of potential users particularly by fulfilling specific information needs for evaluated and synthesized information.

Several distinct types of user groups various information consolidation products and services address

1. Scientists, engineers and professionals engaged in R&D activities, manufacturing, health services, planning, education, etc.
2. Managers and business people engaged in small and large businesses, commerce, marketing, etc.
3. Policy and decision makers in government.
4. Technicians, supervisors, paraprofessionals.
5. Communicators such as extension workers and services, teachers, local leaders in adapting new technology or practices.
6. Agricultural and industrial workers from rural and urban populations.

1.8   Information Consolidation Processes

The following are the basic processes involved in information consolidation :

1. Study of potential users to derive criteria for all other processes
2. Selection of information sources potentially containing the most useful information for the given problem and information need of users.
3. Evaluation of information as to its intrinsic merit, validity and reliability
4. Analysis of identify and extract the most salient features
5. Restructuring of extracted information. This process may involve synthesis, condensation, rewriting, simplifying, review, state-of-the-art presentation etc.
6. Packaging and repackaging of restricted information
   (i)   Restructuring deals with substance
   (ii)   Packaging deals with presentation
7. Diffusion of dissemination
8. Feed back from users, evaluation/adjustment.

1.9   Self-Check Exercise

1. Discuss the concept of Information Analysis.
2. Define the process of Consolidation of Information.

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NEED OF INFORMATION ANALYSIS AND CONSOLIDATION

2.1   Introduction

We live in an age of knowledge explosion. The rate of growth of information and knowledge is faster than ever before and is still accelerating. The world famous futurist, Alvin Toffler calls 21st century as space age, computer age, information age or electronic era. These developments are the impact of the phenomenon known as "Information Explosion". It is said that scientific knowledge doubles itself every ten years. There are about 80,000 regular scientific periodicals. The number of abstracting periodicals in science only, is around 1,500. The rate of growth of scientific literature can be well judged by chemical abstract.

It is noticed that the number of research journals published in the world is continuously increasing. It reached up to 1,18,500 in 1991-92. Every year about 3000-6000 periodicals are newly started. Specialisation in subject coverage is also increasing. It is expected that any creative man has to have access to all these journals.

With this tremendous growth of scientific and other literature, it is difficult for any library to procure and to put on its shelves all the published literature.

2.2   Sources of Generating Information

Information is the product of different types of human activities and events or incidents. Activities are undertaken by individuals to perform their tasks. Events are things that happen, occur or take place from time to time. If there has been no activity or an event or incident taking place there would be no information. Hence we say that information always is generated. Following are the activities which cause the generation of information.

1.   Research and Development
2.   Surveys and Census
3.   Government activities
4.   Other activities   e.g. Business and Indetnal

2.2.1   Research and Development

Some activities are undertaken with the specific objective of generating information out of which Research and Development (R and D) are one of them. Research organizations in various disciplines specially in science and technology have been established specifically for this purpose. Research is a creative work undertaken in order to increase the stock and use of the information for the benefit of human beings. Research is properly organized activity in each and every country of the world which generates a large amount of information. Therefore to increase the amount of information, the more and more funds should be allocated for conducting research to research institutions, because the progress of any nation often depends only on generated valuable information.

2.2.2   Surveys and Census

There are other organizations also which have been setup specifically to collect and gather statistical information through censuses and surveys. In this regard, one of the most important examples is the Registrar General Office which had been established to conduct censuses to collect data about population which is the basic information about the demographic characteristics of the country.

2.2.3   Governmental Activities

There are also so many activities undertaken by governments and their agencies for generating information. These perform their tasks as a matter of routine. For example, the government setup the police department for the maintenance of law and order in the country. It is the routine administrative task of the police. The activities of these departments generate information on such burning topics as dowry deaths, terrorism, and atrocities perpetrated on the backward community of the country. In this way, we can say that there is no area of activity in the life of a nation in which the government is not involved. The legislative and judicial bodies also contribute for the growth of information, as legislatures enact various laws and the judiciary interprets these laws when disputes arise in their implementation.

2.2.4   Other Activities

There are other sources also for generating and increasing information. They are

business and industrial organizations, whose activities create and generate business and industrial information. For example the names of various organizations and institutions can be seen, which are generating information. The meteorological department generate atmospheric data on weather and other related phenomena in the form of statistical tables. And the Reserve Bank of India issues notifications on exchange control regulations in the descriptive and textual form. Similarly, research organizations like National Chemical Laboratory (NCL) and National Physical Laboratory (NPL) generate experimental information in the form of journals and research reports.

2.3   Users of Information

No information service worth its name can be planned and no worthwhile information system can be established unless the planners know fully about the users. No information can be communicated to a person who is not interested in it. An author or a scientist, who produces or generates information and who is naturally very keen to communicate it to as wide an audience as possible, himself does not know who all are his users. Under the circumstances, the document containing information generated by him is to be added to the total stock of documents with the hope that all those who are interested in the information will be able to retrieve this document for the huge stock and have the required information. In order to get a communicator as many recipients as possible, appropriate communication systems have come into being. And to provide every user his information, suitable information systems have been organized. The success of a communication system or an information system depends largely on the accurate knowledge about the user, his information needs, and his information-gathering habits.

2.3.1   Categories of Users

Users can be divided into different categories on the basis of tasks assigned to them in a research organization.

1.   They may be the planners or decision-makers belonging to the top echelon of the hierarchy.
2.   The users may belong to the middle -rung category responsible for the execution of the research projects or for the coordination of research activities.
3.   The users may be the working scientists carrying out research activities under the guidance of a coordinator of a middle-rung scientist.
4.   In a university, the users may be either teachers, or research scholars, or postgraduate students. Similarly there can be different categories of users in other environments. Information needs of a user in an information system vary according to the category he or she belongs to.

2.3.2   Information Gathering Habits

It is well-known that users make use of different communication media in accessing their information. The National Academy of Sciences, Washington ranks them as follows: oral personal, preprints and reports, research journals, lectures and classes, books, reviews, written personal communications and others. But there is no consensus of opinions on this ranking. For instance, Dhakar ranks the sources of information used by physicists as follows:

review articles, abstracting and indexing journals, consulting with experts and colleagues. And Singh's ranking is: abstracting journals, review articles, original papers, books, experts, and colleagues. In the above three cases the importance of media differs showing that the preference for a specific communication media varies from user to user. Except for primary journals, there is no consensus regarding the preference of communication media. But all the four studies rate primary journal as the most preferred medium in accessing information. It is now accepted that easy accessibilities is the major determinant for use.

2.4   Nature of Information:

The nature of information is clouded by the fact that the word is used in a variety of different contexts as under:

1.   **Information as a Commodity** : Information like any other commodity is meant for consumption. When information is used as a commodity, it often assumes economic value. The individual in possession of information is in a more advantageous position than the one not possessing it.

2.   **Information as Energy :** Those who view information as energy regard it as a quantifiable physical entity. It can be said that the information is transmitted by, or embedded in ordinary form of energy.

3.   **Information as Communication :** Information is often considered to be synonymous with communication. When one person is communicating with another, the person initiating the exchange of data is moving or transferring his or her understanding of the data (together with the actual data) to the other person (the receiver). When the data are received the person becomes informed. Being informed, therefore, is the result of communication or information transfer.

4.   **Information as Facts :** Information is often thought to be the same as fact. For example, who is the Prime Minister of India? What is the population of India? When the term information is used in this way, it does not necessarily mean that there is any implied or actual use of the facts although one actually wonders about day to day facts (old or new) for some purpose. The fact may or may not be of immediate concern. Unless the fact is placed in context it remains just a fact and nothing else.

5.   **Information as Data :** Information is often thought to be the same as data. Data are the product of symbols that are organized according to established rules and conventions. A data may have meaning or may not, e.g. the population data of India i.e. 100 crores, is a data with specific meaning to convey.

6.   **Information as Knowledge :** Information is often used interchangeably with knowledge. Knowledge implies a state of understanding beyond awareness. It represents an intellectual capacity to extrapolate beyond facts and draw original conclusions. Knowledge must be deduced, not simply sensed. What we 'know' or think is often called 'information'.

2.5   Types of Information Analysis and Consolidation Needs

Information need is often a vague concept. It is often result of some unresolved problem(s) it may arise when an individual recognizes that his/her current state of knowledge

is insufficient to cope with the task in hand, or to resolve conflicts in a subject area, or to fill a void in some area of knowledge. Before going to identify the information analysis and consolidation needs of different categories of users, the following points should be kept in mind:

1. Information analysis and consolidation need is a relative concept. It depends on several factors and does not remain constant.
2. Information analysis and consolidation needs change over a period of time.
3. Information analysis and consolidation needs vary from person to person, from job to job, subject to subject, organization to organization, and so on.
4. People's information analysis and consolidation needs largely dependent on the environment. For example, information needs of those in an academic environment are different from those in an industrial, business or analysis and consolidation, government/administrative environment.
5. Measuring (quantifying) information need is difficult.
6. Information analysis and consolidation need often remains unexpressed or poorly expressed.
7. Information analysis and consolidation need often changes upon receipt of some information.

2.6   Needs/Approaches of Information Analysis and Consolidation

Information is a great national as well as international resource today it is an essential ingredient in decision making and is also the life blood for those who are engaged in doing research. The researcher requires information as a sinking patient requires blood for transfusion. It pertinent information, so urgently required by the researcher, is not collected, shifted, processed and finally communicated to him, his research will come to a stand still. The researchers have different types of information requirements (approaches) to fulfill his need to interest. These are as follows:

2.6.1   Everyday Approach

Information need of a user often depends upon the purpose for which he is seeking information. For example, a user may be looking for data on property of a given substance or material. The purpose may be to use the property value (e.g. boiling point) in a calculation or experiment. This kind of an approach to information may be termed as Everyday Approach. Thus everyday approach flows from the frequent need of researcher in the course of his investigation for specific piece of information, such as application of operations research in libraries or advances in gas chromatography of steroids. The nature of information sought in such a situation is very specific and a quick answer is usually expected. This is called everyday approach.

2.6.2   Current Approach

In the current approach to the information, the user wishes to keep himself abreast or up-to-date on what is being published in his areas of specialization and closely related areas. The current approach to information is a browsing approach, i.e. the user likes to browse through a range of current information in his areas of specialization of interest and

closely related areas. By doing so, the user comes to know of recent advances or new developments. This help the user to update his knowledge and can be useful to him in various ways. For instance by keeping himself informed of recent literature he becomes aware of new methodologies, interpretations, theories or models developed, new results achieved, new products introduced, etc. The current approach to information is an ongoing approach, i.e. it is regular feature of every active professional, and is in fact considered essential to avoid obsolescence and duplication of effort.

2.6.3   Exhaustive or Comprehensive Approaches

A user may want to look at all the information that has been published on a given topic, e.g. use of synthetic piesticides or to identify a researchable area or to formulate a research proposal. This kind of an approach to information is termed as the Exhaustive or Comprehensive approach to information. Thus this type of approach is in response to a well recognized requirement, namely to find out all relevant literature or as much as possible on a subject. Thus, need for a researcher arises only occasionally, usually when he is taking up a new research project in hand. To meet such an approach effectively, the coverage of the information system has to be as exhaustive as possible.

2.6.4   Catching up or Brushing-up Approach

This is still more occasional service. A researcher may need to have a brief but a complete picture of recent developments of a related subject or a subject in which he was not very much interested or which did not come within the area of his main interest. As a result of this, he is not quite current with the subject. Hence he expects to have in the communication system a device which can help in promptly catching up with the subject.

Thus we see that there are four types of requirements of the researchers. To match these requirements, the information system has to create tools or devices which will meet all the requirements and all the approaches of information.

2.7   Information Analysis and Consolidation Needs in Different Areas of Activity

A number of good publications are available that talk about information analysis and consolidation needs of various categories of users. For example, the information analysis and consolidation needs of users (i) in business and industry in general, (ii) in product planning and development, and (iii) in the establishment as well as the promotion and management of small-scale industries have been discussed by Neelameghan, while Atherton discusses the needs of users in the field of scientific and technological research and Scott and Wootliff discuss the information needs in business environments.

2.7.1   Information Analysis and Consolidation Needs in Scientific and Technological Research

Atherton has identified the following seven different stages in scientific and technological research and the corresponding information need:

1.   Overall familiarization with the problem and problem statement: This stage requires a general acquaintance with the subject for drawing up a plan and provisional terms for the solutions of the problems of primary and secondary importance. At this stage users need general information on the chosen subject to build up an overall idea.

2.   Gathering scientific knowledge about the subject of study: At this stage the user is engaged in the retrospective searching of the broadest possible scope of the literature without any pronounced critical approach.

3.   Coordination and interpretation of scientific data: Here the user attempts to make a critical evaluation of the ideas and hypotheses of different authors. The relevance criteria for the information needed are specified at this stage and the volume of information is reduced.

4.   Formulation of the problem: Statement of the hypotheses and choice of the problem are one of the most important stages in a piece of research. As to the need for information, this is characterized by in-depth analysis rather than broad coverage.

5.   Providing the working hypothesis: Information requirements at this stage depend on the specifics of the research. The researcher may need a lot of factual data at this stage.

6.   Statement of conclusions and recommendations: At this stage the user may need to come to a conclusion based on his/her own findings and on those available in the literature.

7.   Description of the research results: At this stage he requires information on scientific reporting and documentation. Users may need to check each and every documents consulted for bibliographic and other details for the purpose of documentation.

2.7.2   Information Analysis and Consolidation Needs in Business

Scott and Wootliff state that there are three major categories of user in a business environment. The following are those categories of user and indications of the nature of information they need in their day to day activities :

1.   Planners and market analysts, who need information on future trends and potential new market in industries, and on what competitors are doing in their field, in order to plan future strategies for business.

2.   Service Professionals, such as accountants, stockbrokers, bankers, and management consultants who need information on specific industries.

3.   Corporate finance specialists, who need to identify potential take over targets in a specific industry and need information on their financial performance.

2.7.3   Information Analysis and Consolidation Needs in Enterprises

Neelameghan identifies the following activities involved in the promotion and management of enterprises for which users may need information. These include:

(i)   Formulating objectives of the enterprises

(ii)   Formulating major strategies and policies to meet specific objectives

(iii)   Preparing long range plans

(iv)   Reporting to the stock holders or to the Board of Management about the result of the enterprises operations

(v)   Informing employees about the status and performance of the enterprise

(vi)   Providing basis and background so that decisions can be made about specific matters as they arise

(vii)   Providing basis for giving pre action approval
(viii)   Taken decision about taxes etc
(ix)   Being aware of possible trouble and problems ahead
(x)   Allocating capital resources optimally
(xi)   Exercising control over day to day operations
(xii)   Training staff, and
(xiii)   Improving personnel management and public relations

2.7.4   IAC Needs of Persons

Information analysis and Consolidation needs of persons working on different aspects of product design, development, and production vary, and this has to be borne in mind during the development of an information analysis and consolidation. Neelameghan identifies the information needs of persons concerned with product planning the development and their respective roles and function of an enterprises as follows:

1.   **Planning:** This involves long range forecasting of developments and profits and providing the overall direction for development.
2.   **Research:** This stage involves setting up the priorities on products and projects on the basis of available funds and time, trouble-shooting, avoiding side tracking, advising the termination of a project when it is sensed to be unprofitable, and so on.
3.   **Engineering:** This involves drawing up specifications, designing and testing prototypes, manufacturing, making adjustments in the final engineering design and models.
4.   **Production:** This involves scheduling, formulating process and procedures, testing of equipment, materials requirements, pilot runs and tests, quality control, and so on.
5.   **Marketing:** This involves market analysis, consumer research, forecasting of marker developments, market testing, finding solutions to distribution problems, sales promotion and advertising, and so on.
6.   **Public relations:** This involves all public relation activities, coordinating responses of the firm to criticism from outside, building the image of the enterprise, and so on.
7.   **Packaging:** This involves special points of view in regard to consumer requirements, product safety, handling facility, etc.
8.   **Finance:** This involves costing, pricing, identifying sources of finance and mobilizing funds, budgeting and budget control, cataloguing on over expenditure and related matters.
9.   **Top management:** This involves coordinating the work of all groups and divisions taking decision to move ahead or drop projects, if necessary, establishing policies etc.

2.8   Information Analysis and Consolidation Required to Support Community Development Planning

Neelameghan provides a detailed account of the different kinds of information required in the process of community development planning. The following are the main points from Neelameghan's account.

1.   Information about the geographical environment
2.   Population and demographic information, and

3.   Socio-economic information

Such items of information are collected in a number of ways: through surveys, from census data, maps, community profiles,etc. Information about the community may consist of :

    1.   General information on the area/boundary of a village, population, households, literacy rate, birth and morality rates, and so on.

    2.   Information related to special problems of the community

    3.   Agriculture and livestock pattern input and practices

    4.   Livestock information

    5.   Fisheries information

    6.   Cottage industries information

    7.   Trade information

    8.   Information on community structure and facilities, and so on.

Neelameghan has discussed the information need in a number of specialized activities for example, in community development planning, in government and administration and socio-economic development, and so on.

2.9   Conclusion

In the fast developing world, information or data is treated as "POWER". Thus information analysis and consolidation as the most powerful resource like men, material and money. For any research work, the pre-requisite is collection of all the available information relating to research areas of study. Information is essentially required commodity in any kind of research activity, only because of its immense value in forming the policy and decision making. Therefore, it is necessary that information play a vital role in all kinds of human activity and is an important factor for the overall progress and development of society.

2.10   Self-Check Exercises

    1.   Discuss the need of Information Analysis and Consolidation.

    2.   Discuss the types of Information Analysis and Consolidation.

2.11   Bibliography

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Lesson No. : 1.3   **Dr. M.Masoom Raza**

INFORMATION REQUIREMENT OF USERS

Structure :

3.1   Introduction

Information is an important national basic resource. It is an indispensable raw material for right decision making from the governmental level to the personal level. It is, infact, a vital ingredient for the socio-economic and cultural development of any nation. It is a well-accepted generalization that a country, which is rich in information and rich in the field of socio-economic spheres. The backwardness of any country in respect of socio-economic condition is mainly due to lack of international co-operation and understanding in the field of Information Transfer especially in the area of Science and Technology.

Information leads to knowledge. Knowledge is a prerequisite for wisdom which when applied judiciously, contributes to prosperity in diverse areas of human activities like academic, social and industrial, and the world has now moved from the industrial revolution into the information revolution.

3.2   Concept of Information:

The term Information originated from 'formation' and 'forma'. Both these terms

define the size and format of any entity, along with the indication towards the construction of a pattern. Information may also term as knowledge, as knowledge is what we know or the portion of information which is our knowledge.

The term information is extensively used in the documents of library and Information Science. It is used with a variety of meaning some identify it with communication over transmission lines, measured by the statistical properties of signals, some identify it as facts about any subject, some with the experience stored in human mind.

Information is recorded or communicated knowledge gained by man through experience, observations and experiment.

Information is the product of human brain in action. It may be abstract or concrete.

Information is the knowledge communicated or received concerning a particular fact or circumstance.

3.3   Definitions of Information:

The term information came into existence in USA, as an alternative for documentation that could be more co-extensive with the recent developments in mechanization, viz. the advent of computers and its use in information management.

Webster's Third International Dictionary defined information as:
   a.   Facts or figures ready for communication or use as distinguished from those incorporated in a formally organized branch of knowledge.
   b.   The process by which the form of an object of knowledge is impressed upon the apprehending mind so as to bring about the state of knowing.

According to Machlup:

Information, differentiating it from knowledge at the same time according to him (i) Information is piecemeal, fragmented, particular, where as knowledge is structural, coherent and universal (ii) Information is timely, transitory, perhaps even ephemeral, where as knowledge is of enduring significance (iii) Information is a flow of messages whereas knowledge is a stock largely resulting from the flow.

3.4   Types of Information:

According to J.H. Shera, information may be categorized into the following six types.
1.   **Conceptual Information**: The ideas, theories, hypotheses about the relationship, which exists among the variables in the area of a problem.
2.   **Empirical Information**: Experience, the data of research, may be drawn from one's self or through communication from others. It may be laboratory generated or it may be a product of the 'literature search'.
3.   **Procedural Information**: The methodology which enable the investigator to operate more effectively. Procedural information relates the means by which the data of investigation is obtained, manipulated and tested, it is certainly methodological and from it has been derived the scientific attitude. The communication of procedural information from one discipline or field of investigation to another may illuminate vast shadows of human ignorance.

4.   **Stimulatory Information**: Man must be motivated and there are but two sources of such motivation, himself and his environment. Stimulatory information that is transmitted by direct-communication, the contagious enthusiasm of another individual-but whether direct or indirect communication it is fortuitous by nature, it submits unwillingly to direction or compulsion.

5.   **Policy Information**: This is the focus of the decision making process. Collective activity necessitates the definition and objective and purpose, the fixing of responsibility, the codification of rights and privileges and the delineation of functions.

6.   **Directive Information**: Group activity cannot proceed effectively without coordination, and it is through directive information that this coordination is achieved.

3.5   Nature of Information:

The nature of information is clouded by the fact that the word is used in a variety of different contexts as under:

1.   **Information as a Commodity**: Information like any other commodity is meant for consumption. When information is used as a commodity, it often assumes economic value. The individual in possession of information is in a more advantageous position than the one not possessing it.

2.   **Information as Energy**: Those who view information as energy regard it as a quantifiable physical entity. It can be said that the information is transmitted by, or embedded in ordinary form of energy.

3.   **Information as Communication**: Information is often considered to be synonymous with communication. When one person is communicating with another, the person initiating the exchange of data is moving or transferring his or her understanding of the data (together with the actual data) to the other person (the receiver). When the data are received the person becomes informed. Being informed, therefore, is the result of communication or information transfer.

4.   **Information as Facts**: Information is often thought to be the same as fact. For example, who is the Prime Minister of India? What is the population of India? When the term information is used in this way, it does not necessarily mean that there is any implied or actual use of the facts although one actually wonders about day to day facts (old or new) for some purpose. The fact may or may not be of immediate concern. Unless the fact is placed in context it remains just a fact and nothing else.

5.   **Information as Data**: Information is often thought to be the same as data. Data are the product of symbols that are organized according to established rules and conventions. A data may have meaning or may not, e.g. the population data of India, i.e. 100 crores, is a data with specific meaning to convey.

6.   **Information as Knowledge**: Information is often used interchangeably with knowledge. Knowledge implies a state of understanding beyond awareness. It represents an intellectual capacity to extrapolate beyond facts and draw original

conclusions. Knowledge must be deduced, not simply sensed. What we 'know' or think is often called 'information'.

3.6   Value of Information:

It is extremely difficult to define the value of information. The difficulty stems from the following characteristics of information.

(i)   Information is subjective because its effectiveness ultimately depends upon the recipient-essentially a decision maker. The decision maker may accept it or reject it, acknowledge it or ignore it externally through, even though it may help him in decision making

(ii)   One can at best assign some 'expected value' to pieces of information which could effect the course of action chosen by the individual. As per Voigt, information has more of an incremental value then the absolute value.

   In order to measure the effectiveness of information, we need to:

(i)   Define the objective for which information is being provided.

(ii)   Stipulate the unit of information for measurement.

3.7   Laws of Information:

Some fundamental laws of information are:

1.   Law of Stimulation (1st Law of Information)

A decision maker remains in a state of rest to perform the same action unless and until his knowledge base is stimulated by either a piece of information from external source (non-autonomous) or activated by his own self thinking mechanism (autonomous).

2.   Law of Equi-action Orientation (2nd Law of Information)

Under similar condition of time, space, resources, and knowledge base, the same piece of data act as information for all decision makers and make them take the same action.

3.   Law of Information Utilization (3rd Law of Information)

The force that propels a decision maker to seek access to an information store is directly proportional to the product of relevance, availability, precision, accessibility, reliability and speed (of reach, recall and return) of access and inversely proportional to the cost of access.

3.8   Theories of Information

1.   Mathematical Theory of Information

Early theory of information was based on the classic research of Shannon and Weaver, who suggested that the amount of information in a message is related to the size of the vocabulary available in it.

The mathematical theory of information, thus evolved, stated that the amount of information in a message, is related to the probability ratio of the message i.e. if a message has lesser number of terms, there is possibility of 50% of information reception, as there are equal chances of guessing either correct or incorrect. And if, the number of terms is more the probability of getting more and correct information is high. But if, the recipient has prior knowledge of the same, it will reduce the amount of information in a message.

2.   Semantic Theory of Information

According to this theory, information in a message is increased by the prior knowledge of the recipient. This theory was referred to by Fairthorne as the Phlogiston theory of information, in which an earlier knowledge of the message would increase the information content for a particular recipient as he would be able to extract more or fully.

3.   Whittemore and Yovits Theory

The two models elaborated earlier are not fit to work as an information unit, so Whittemore and Yovits generalized another information system. They suggested that, information is date of value, for decision making.

This theory stated, that the information embedded, had the capacity to reduce uncertainty. The amount of uncertainty reduced would vary, with the information needed by the recipient. In this way, the decision taker will be guided by the information in decision matters.

Thus, this theory stresses on some kind of decision making, which act as a measure of information.

4.   Brookes Information Theory

Brookes tried to differentiate between information and knowledge. He opined that the individual knowledge that has been collected by himself, when it is collected together and presented for public use, does it become knowledge.

To support the above statement he had put forward an equation of information theory:

$$\Delta I + (S) \rightarrow (S + \Delta S)$$

Where S is the knowledge structure modified by information inputs ΔI , to bring forward a totally new knowledge structure $(S + \Delta S)$.

Thus the concept of information as made clear by these theories is that information can be regarded as data, which can be transmitted between individual and it varies from individual to individual, regarding its usage.

3.9   Information Channels

Information is generated through a number of communication channels, predominantly through printed media viz. books and periodicals and mass media viz. newspapers, radio, television, cinema etc. These sources generate a large quantity of information. With regard to printed media, 20th century witnessed the exponential growth. It is estimated that the world book production which stood at 2,69,00 titles in 1955 crossed figure of 6,91,009 titles in 1976. A similar growth rate is estimated in the case of periodicals also. It is calculated that the number of articles published in periodicals each year in the field of science and technology alone is in access of one million. Literature doubles with in a range of 5-10 years in Science and Technology subject and in a range of 10-13 years in social science subjects.

The phenomenon of information deluge or information flood has created a number of problems to information workers in respect of the retrieval of information exhaustively, expeditiously, pinpointedly and with precision. The factors like quantitative growth of users, diversified nature of users needs, multidisciplinary nature of research, developments of nascent

subjects etc have aggravated the gravity of the problem further. A number of techniques both quantitative and qualitative are being used by the information mangers to tide over the problems. Survey focussed on users to understand their approaches to information is one of the important techniques available for fruitful user-based information service.

3.10   Approaches to Information

Wersig and Neveling gave the following six approaches to information:

1.   **Structural Approach**: In this approach information is viewed as structures of the world or static relations between physical objects, which may be perceived or not.

2.   **The Knowledge Approach**: This approach records knowledge that is built on the basic of perception of the structure of the world. But the problem with this approach is that the term 'information' may erroneously be used for the term 'knowledge'

3.   **The Message Approach:** The mathematical theory of communication uses this approach. It is concerned with the transmission of symbols representing a message.

4.   **The Meaning Approach**: In this approach the semantic contents of a message are accepted as information.

5.   **The Effect Approach:** This approach says that information occurs only as a specific effect of a process.

6.   **The Process Approach:** According to this approach the process information occurs in the human mind when a problem and useful data are brought together.

On the basis of above approaches the learned authors conclude that information is a social process and should be defined in relation to information needs either as reduction of uncertainty caused by a communication data or as data used for reducing uncertainty.

3.11   Characteristics of Information

1.   Information is the flow of message

2.   Information is transitory by nature.

3.   Information inherits meaning. (it give meanful message).

4.   Information is fragmented these facts collectively generate 'knowledge'.

5.   Information is timely-information is characterized by timeliness.

6.   Information is purpose oriented. Any fact or data information has some purpose behind its origin or generation.

7.   Information is dynamic by nature, information is dynamic i.e. it is not a static process, it keeps on being generated and including itself in knowledge. More and more researches are conducted and newer information is added to the universe of knowledge, proves its dynamic character.

8.   Information can be surrogated in place of others.

9.   Information can be changed into other mediums, transmitted by speech, books, television etc.

10.   Information is mainly related to abstracts and behaviours.

11.   Information can be recorded-As information is fact, it can be recorded in any form.

12.   Information is quantitative.

13.   Information may be destroyed, there are chances of disappearing.

14.   Information can be abstracted or extracted, as the situation may be for better and beneficial usage.

15.   Information needs person affiliation-The known facts when told to other person or passed through any mode becomes information i.e. it needs someone to carry the known materials to others.

16.   Information may be interpreted wrongly-Information is the product of observation and experimentation, it may be generated by anyone at anytime. So there may be chances of its wrong use also.

3.12   Barriers of Information

Some of the barriers of information are as follows:

1.   The barriers of space-continuous and heavy flow of new documents every day makes their location, procurement and organization is a difficult task.

2.   Due to financial constraints all the publications required by the scientists or researchers or users may not be procured by a library.

3.   It may be permissible to communicate information to or receive information from scientists in foreign countries because of political reasons.

4.   Due to procedural difficulties and foreign exchange problems, it is not easy to acquire a large number of needed foreign books without the loss time.

5.   The barrier of lack of accessibility of right sources of information.

6.   A foreign language not understood by the user act as a barrier.

7.   Information about the forthcoming conferences / seminar is not easily available.

3.13   Information Requirements of User

Information has become a vital resource in the present day context. With the advancement of research and social requirements, its need in an organized manner to be possible to disseminate it for further utility has become the need of today.

Earlier research was a result of inner urge in few men of genius and the result were not utilized for any social need. But, after the Second World War, the government also took part in accelerating the rate of research within the country along with this; it gave assistance and financial support to the R&D institutions. Today information has become the necessity of every one. Every body needs information for some purpose of the other. We may realize that there are so many reasons; various categories of people require information, which are as follows.

1.   Need in Education and Research Activities

Education and research activities require more and more information. Students need it relating to the prescribed syllabiis for pursuing academic studies, more specifically to pass their examinations. In addition to the students, teachers also need information for imparting education to their students. Besides students and teachers, researchers, who are engaged in doing research in various subjects especially in the field of science, need information on a continuing basis and are considered the biggest users of information. So most of the information systems and services have been developed in academic institutions and universities to satisfy these requirements of students, teachers and researchers.

The progress of a nation depends on its research work, which in turn depends on the available information. After the Second World War, the government took an active part in promoting R&D activities for the intellectual and national development. With the government interest, grew the interest of researchers. More and more scholars started participating in research. As a result, more and more research centers came into existence e.g. ICMR, ICAR, CSIR etc. All these, in turn produced more and more information, team researchers and relay researcher replaced individual research work. As, with the incoming information, much speedier transmission of information was required, time became a vital factor in determining the effectiveness of research, so the latest information acquired.

2.   Need by Professionals

Professionals, like medical doctors, legal advisors, engineers need information for pursuing their profession. The medical doctor would like to know the new developments in medical sciences. His ignorance about new development would be fatal to his patients. Similarly legal advisor must keep in touch with the latest case laws and judicial verdicts to ensure fair justice. Judges also need access to earlier verdict or case precedents before pronouncing judgments. Engineers and his related technologists need information for solving their technical problems faced by them. Business managers and industrialists need information to enable them for taking appropriate decision relating to issues having both short term and long term implications. They need more and more information for taking managerial decision and their executives and other workers.

3.   Need in Governmental Activities

In the government's offices, officials who are the manager need information to take right decisions, so that they can govern the offices efficiently. Legislators of the governments need information to argue a point of discussion on the floor.

4.   Need in Increasing Standard of Living

With an increase in research work especially in science and technology, has helped in increasing the standard of living in the country. The results of these researches being conducted in various institutions and research center, help in producing batter products either edible or electronic gadgets of various kinds which assist in our daily life. With these artificial commodities, we are able to overcome the problem of insufficient natural commodities with the increasing awareness of the need and the purpose of researches and its utility, more attention is paid towards gathering and disseminating information, the use of which, result in over all rise in the standard of living of the masses.

5.   Need in National Progress

The increase in awareness among the general public regarding the application of the result of research in their routine work, uplift their standards of living. With the increase in literacy rate and the utilization of the available source of information, in turn, help in the progress of the nation. The nation can move towards the independent survival, peace and prosperity.

3.14   Models of Information Search

Peter Brophy Generic Model (2000)

Peter Brophy has given generic model of hybrid library describing the process of

'search and retrieve' of information system. User makes an inquiry, interact with secondary sources, discovers his information, identifies its location and then does the browsing of the actual object (container of information). This stage may not be applicable in all cases. If the information is not locally available, he makes a request to get it. Authenticating the user and delivering the item to the user is the function of the library or information center after which user makes use of the information he has gathered. (Brophy, Peter, 2000)

Kuhlthau's Model (1994)

Kuhlthau's model of information search process is more in context of students who select their research topic after initiation. This may not be applicable to other categories of user who normally begin their search with pre-conceived implicit or explicit need present in their cognitive state. However, the other stages may have the general applicability.

Kuhlthau (1993) had also proposed a model of individual information search process identifying following 7 stages, namely:

1. Take initiation
2. Topic selection
3. Previous exploration
4. Focus formulation
5. Information collection
6. Search closure, and
7. Start writing

Ellis Model (1989)

The stage of browsing in Ellis's model may precede or follow chaining. Similarly, monitoring may not fit between differentiating and extracting. In monitoring, user search for current awareness, which he can find directly by browsing current journals and any other indexing and abstracting services and may not need earlier stages of information search.

Ellis (1989) has described these stages as 'general characteristics' in time and space of model.

Dervin's and Wilson's Model also have the similarity situation in time and space of Dervin's model is comparable with context of needs of Wilson's model and work role of Leckie. The context of the problem and situation are the predominant factor in information seeking behaviour.

Wilson Model (1999)

Wilson has differentiated between information seeking and information searching behaviour. However, in the present model, both are being together. The process of finding information including behavioural aspect has been rightly denoted aspect has been rightly denoted by new term information foraging (1998) meaning activities associated with assessing, seeking and handling information sources. The approach of information seeking is different by different users groups adopting their own strategies.

Krikelas's Alternative Model

Krikelas has presented "the alternative model" to information seeking behaviour.

Though his model does not elaborately or specifically discussed, information seeking behaviour (ISB), its ultimate value lies in its utility in the design and analysis of future empirical studies.

Simon's Model

Similarly, satisfying models concerning to information seeking designed by Simon in the 1970's emphasis the extent to which individuals and groups simplify and terminate their work on a problem, not for reasons inherent in the logic of the problem but for practical constraints (for example, time, money and patience). Simon was also awarded Nobel Prize in Economics in 1978 for innovating such approach to decision modeling.

Conclusion

We would like once more to assess the paradoxical role of information in the modern age. Everyday individuals and whole organization try to dispatch with the great information stream continuously incoming. People talk about information overloaded and wounded that there are no essential growth of productivity in organization which invest in information technologies very much.

Information environment is very complex. In order to retrieve desired information of the users, the information intermediary has to adopt inter alia certain behavioural strategies to make the system effective. Information seeking behaviour is one such approach that identifies the basic requirements that the users need. While studying information seeking behaviour, it is essential to know its various categories and methods so that the real picture of users perception is visualized. However, if the library and information system is to work effectively, it is information seeking behaviour which is required to known on priority basis to make the system successful.

3.15   Self-Check Exercises

1.   Discuss the need of Information .

2.   Discuss the theories of Information.

3.   Define information. Describe various characterstic and barriers of information.

4.   Discuss various models of information Searching.

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Lesson No. : 1.4

Guiding Principles for Presentation of Ideas in a Helpful Sequence

Structure :

4.1   **Introduction**

4.2   **Guiding Principle**

         4.2.1   Time Sequence

         4.2.2   Evolutionary Sequence

4.3   **Spatial contiguity Sequence**

4.4   **Quantitative Measure Sequence**

4.5   **Complexity Sequence**

4.6   **Alphabetical Sequence**

4.7   **Canonical Sequence**

4.8   **Literary Warrant Sequence**

4.9   **Additional Principles of Ideas**

         4.9.1   Concreteness Abstractness Sequences

4.10   **Extension- Intension Sequences**

4.11   **Developmental Sequence**

4.12   **Naturalness-Artificality Sequence**

4.13   **Choice of Principles of Helpful Sequence**

4.14   **Self-Check Exercises**

4.15   **Bibliography**

4.1   **Introduction**

         Idea is a product of thinking, reflecting, imagining, etc., got by the intellect by integrating with the aid of logic a selection from the apperception mass, and /or what is directly apprehended by the intuition, and deposited in the memory. The totality of all sets of systematized body of ideas- that is, subjects- constitutes the universe of subjects. Thus, for each subject in the universe of subjects there is a set of ideas- correlates in the universe of ideas. The universe of subjects is also ever-growing and dynamic. The subjects in the universe have neighbourhoods relations of various removes and some of them have the same degree of immediate neighbourhoods relation to a given subject. The essential function of classification is to so organize universe of subjects as to make the retrieval of any desired subject or any filiatory sequence of subjects pinpointed, exhaustive, and expeditious. The problem in the mapping, which classification is, amounts to determine which immediate neighbourhoods relation should be kept invariant; because when represented in one dimension, all but one of them cannot preserve that quality. The difficult problem of invariant arises. The number of compound subjects going with even a single basic subject is too large to be arranged without the aid of guiding principles.

4.2   Guiding Principles

Ranganathan formulated certain guidelines in the form principles of helpful sequence. These principles are listed below: -

1.   Principle of latter in time.
2.   Principle of earlier in time.
3.   Principle of later in evolution.
4.   Principle of earlier in evolution.
5.   Principle of spatial contiguity,
6.   Principle of increasing quantity.
7.   Principle of decreasing quantity.
8.   Principle of increasing complexity.
9.   Principle of decreasing complexity.
10.   Principle of Alphabetical sequence.
11.   Principle of canonical sequence
12.   Principle of decreasing literary warrants
13.   Principles of increasing literary warrant

It may be noted that some of the principles are in pairs. In fact, any one of the two principles in pairs may be applied to secure a helpful sequence The preference to a particular principle in pair may be given if it is found to give a more helpful result. However, the principles of helpful sequence will give the following sequences of classes in array:

1.   Time sequence:
1.1   Principle of later in time
1.2   Principle of earlier in time

2.   Evolutionary sequence:
2.1   Principle of later in evolution
2.2   Principle of earlier in evolution

3.   Spatial contiguity sequence:
3.1   Principal of spatial contiguity

4.   Quantitative measure sequence:
4.1   Principle of increasing quantity
4.2   Principle of decreasing quantity

5.   Complexity sequence:
5.1   Principle of increasing complexity
5.2 P   rinciple of decreasing complexity

6.   Alphabetical sequence:
6.1   Principle of alphabetical sequence

7.   Canonical sequence:
7.1   Principle of canonical sequence

8.   Literary warrant sequence:
8.1   Principle of decreasing literary warrant sequence
8.2   Principle of increasing literary warrant sequence

4.2.1 Time Sequence

The subjects, or the isolates, comprising an array may have originated independently in different times. In such cases, the most logical approach would be to arrange them either according to increasing time sequence (i.e. the one coming earlier should come earlier, and one coming later should come later), or decreasing time sequence (i.e. the reverse of the earlier sequence). This is what the two principles dictate.

1.1 Principle of later in time

The principle dictates that 'if the subject in an array of subject, or the isolates in an array of isolates, have originated in different times, they should be arranged in a parallel progressive time sequence, accept when any other overwhelming consideration rules it out.

1.2 Principle of earlier in time

This principle is reverse of the principle of latter in time.

4.2.2 Evolutionary Sequence

The subjects or isolates, forming classes in an array may show different stages of evolution. If so, they may be arranged parallel to their evolutionary sequence, either according to the later in evolution or earlier in evolution. Time sequence is different from evolutionary sequence in the sense that all the stages in time sequence come into existence independently in different times. In an evolutionary sequence, each advance stage evolved from earlier stage during the course of evolution. Therefore, all the stages are interdependent.

4.2.1. Principle of later in evolution

The Principle of later in evolution states that if the subjects in an array of subject or the isolates in an array of isolates, belong to different stages of evolution, they should be arranged parallel to the evolutionary sequence, except when any other overwhelming consideration rules it out.

4.2.2. Principle of earlier in evolution

Principle of earlier in evolution is the reverse of the principle of later in evolution.

4.3 Spatial Contiguity Sequence

The word 'spatial' is derived from space, and the word contiguity means ' touching or neighbouring'. If the entities are found just touching with one another in space, they may be called as lying in a state of spatial contiguity, e.g. part of a plant, regional organs of human body, etc.

The principle of spatial contiguity is stated thus: "if the subjects in an array of subjects, or the isolates in array of isolates, occur contiguously in space, roughly along a unidirectional line or a radial line, or a circle, they should be arranged in a parallel spatial sequence, except when any other overwhelming consideration rules it out.

4.4 Quantitative measure sequence

The classes forming an array may differ with one another as regards the quantity of the entities comprehended by them .For example, different types of libraries are divided

on the basis of the size of population

The libraries are arranged according to decreasing quantity of population served whereas in later case, they are arranged according to increasing quantity of population served. Thus, there are two principles to deal with the quantitative sequence:

4.4.1   Principle of increasing quantity

The Principle of increasing quantity states that "if the subjects in an array of subjects or the isolates in array of isolates admit of quantitative distinction, they may be arranged according to their increasing quantity, if it is helpful."

4.4.2   Principle of decreasing quantity

According to the Principle of decreasing quantity, "if the subjects in an array of subjects or the isolates in an array of isolates admit of quantitative distinction, they may be arranged to their decreasing quantity, if it is helpful."

4.5   Complexity Sequence

The classes forming an array may differ as regards to their degree of complexity. A number of words form a phrase which in turn combine into a clause. More than one clauses develop into a sentence and many sentences form a piece of composition. Such subjects show different degrees of complexity and may be arranged either according to increasing complexity or decreasing complexity. Out of the two sequences, the one which is more helpful is followed.

4.5.1   Principle of iIncreasing Complexity

"The subjects in an array of subjects or the isolates in an array of isolates show different degrees of complexity, they should be arranged parallel to the sequence of increasing complexity except when any other overwhelming consideration rules it out." Such an arrangement is according to the principle of increasing complexity.

4.5.2   Principle of Decreasing Complexity

"If the subjects in an array of subjects or the isolates in an array of isolates show different degrees of complexity, they may be arranged parallel to the decreasing complexity sequence, except when any other overwhelming consideration rules it out." Such an arrangement is according to the principle of decreasing complexity.

4.6   Alphabetical Sequence

At times it is found that the classes forming an array do not conform to any of the above-mentioned sequences. Such classes may be arranged in an alphabetical sequence. This sequence should be used as a last resort, as it is not very convenient. The terms may be arranged in alphabetical sequence using first letter or first two letters or first three initial letters for individualization. The terms to be arranged alphabetically should be the ones, which are internationally established and current in usage.

4.6.1   Principle of Alphabetical sequence

The principle of alphabetical sequence states that "when no other sequence of the subjects in an array of subjects or of the isolates in an array of isolates is more helpful, they may be arranged alphabetically by their names current in

international usage."

4.7 Canonical Sequence

Sometimes, it becomes difficult to find a characteristics which can form the basis of division of an immediate universe, except that they are traditional divisions. Foe example, universe of knowledge (UK) is divided as follows;

UK

Natural Science **Useful Arts** **Humanities** **Social Science**

Here it is difficult to recognize any explicit characteristics to be used as the basis of division. In fact, UK is traditionally divided by philosopher into four broad divisions, which are called canonical classes. The second problem with canonical classes is to determine their sequence, because such classes do not show any distinction with regard to time, evolution, spatial contiguity, quantitative or any other sequence. Thus no underlying principle discussed so far, may be used in their arrangement. In such cases, arrangement follows a traditionally accepted sequence or the consensus of a number of scholars. This sequence is known as canonical sequence.

4.7.1 Principle of Canonical Sequence

According to the principle of canonical sequence, if the subjects in an array of subjects or the isolates in an array of isolates are traditionally referred to in a specific sequence, although no underlying principle is discoverable it will be convenient to conform to this traditional sequence.

4.8 Literary Warrant Sequence:

The term literary warrant was introduced by Wyndham, Hulme, a British Librarian. Literary warrant is defined as the quantity of publications available in a subject. Sometimes when none of the sequences explained above can be used be arrange the subjects in an array, they may be arranged according to their literary warrant, i.e. the one which has greatest number of publications will come first followed by others with gradually decreasing output of publications. The approach seems to be logical, as the frequency of reference to the subjects having greatest published output, will be more and therefore it will be better to place it in the beginning of array. However, one should be careful in the judgement of literary warrant will disturb the sequence of classes which is fatal for a scheme of classification.

4.8.1 Principle of Decreasing Literary Warrant :

The subjects in an array of subjects or the isolates in an array of isolates may be arranged in the sequence of the decreasing quantity of documents published on them, except when any other overwhelming consideration rules it out. Such an arrangement is according to the principle of decreasing literary warrant.

4.8.2 Principle of Increasing Literary Warrant:

According to the principle of increasing literary warrant, the subjects in an array of subjects or the isolates in an array of isolates may be arranged in the sequence of the increasing quantity of documents published or anticipated to be published on them, if it is helpful.

4.9 Additional Principles of Ideas in Helpful sequence

Some additional principles of Helpful sequence given by Neelameghan and

elaborated by M.A. Gopinath are discussed below:

    4.9.1   Concreteness- Abstractness Sequence

        9.1   Principle of increasing concreteness

        9.2   Principle of decreasing concreteness

4.10.0 Extension- Intension Sequence

    4.10.1 Principle of decreasing extension

    4.10.2 Principle of Increasing extension

4.11.0 Development sequence

    4.11.1 Principle of developmental sequence

    4.11.2 Principle of reverse of Developmental sequence

4.12.0 Naturalness- Artificiality sequence

    4.12.1 Principle of increasing artificiality

    4.12.2 Principle of decreasing artificial

4.9   Concreteness- Abstractness Sequence :

At one end of the spectrum there are subjects like Mathematics and Physics, while the other end has subjects like Sociology and Law. It may be seen that the subjects in the field of Mathematical Sciences have more predictive quantity (Abstractness) but little contents (Concreteness), while the subjects like Sociology and Law have relatively poor predictive quantity but are richer in contents. The subjects belonging to Humanities have an intermediate degree of predictive quantity and richness of contents.

While moving from one end of the spectrum of main subjects to the other end, one observes that the predictability (or Abstractness) decreases while the richness of contents (or Concreteness) increases. Neelameghan has given following two principles to arrange the subjects showing distinction in concreteness.

    4.9.1   Principle of Increasing Concreteness

The principle of increasing concreteness states that if the subjects in an array of subjects or the isolates in an array of isolates admit different degrees of concreteness, they may be arranged according to their increasing concreteness, if it is helpful.

All the main subjects covering the pure disciplines (theoretical aspects) in the Natural Sciences group are arranged among themselves according to the principle of increasing concreteness as given below:

        Mathematics

        Physics

        Chemistry

        Biology

        Geology

        Geography

        Botany

        Zoology

        Pure Discipline- Applied Discipline sequence In the natural science group,

two types of subjects may be observed. Those dealing with theoretical aspects of the subjects are pure disciplines and those which deal with practical applications of the subjects are applied disciplines A subgrouping as pure discipline followed by applied discipline will be discernible, as given below:

> Pure discipline followed by applied discipline
> Physics (C) followed by Engineering (D)
> Chemistry (E) followed by Chemical Technology (F)
> Botany (I) followed by Agriculture (J)
> Zoology (K) followed by Animal Husbandry (KX)

The principle followed to achieve such a helpful sequence is called Principle of Pure discipline- Applied discipline sequence.

4.9.2   Principle of Decreasing Concreteness

The principle of decreasing concreteness stipulates that if the subjects in an array of subjects or the isolates in an array of isolates admit different degrees of concreteness, they may be arranged according to their decreasing concreteness, if it is helpful. This principle is the reverse of the principle of increasing concreteness. When the subjects are to be arranged in the order of decreasing concreteness, the applied discipline will come before pure discipline. Therefore, an Applied discipline- Pure discipline sequence will result.

Example (A) The subjects given in the example for the earlier principle may be arranged according to decreasing concreteness. (B) while designing a schedule for the subject 'classification' the isolates in the array of five fundamental categories may be arranged according to the principle of decreasing concreteness, as follow:

> Time
> Space
> Energy
> Matter
> Personality

4.10.0   Extension- Intension Sequence

We have seen the arrangement of canonical divisions under the 'Principle of canonical sequence'. These canonical divisions called canonical basic subjects are formed form main subjects without using an explicit characteristic

4.10.1   Principle of Decreasing Extension

According to the principle of decreasing extension if the subjects in an array of subjects or the isolates in any array of isolates admit different degrees of extension, they may be arranged according to their decreasing extension, if it is helpful.

Example, the arrangement of subjects may be secured by following this principle:

> Universe of Knowledge
> Physics
> Properties of matter
> A succession of Agglomerate Basic Subjects in CC7 shows the application of principle of decreasing extension.

A	Natural Science
B*Z	Mathematical and Physical Sciences
B*ZZ	Mathematical Science

4.10.2 Principle of Increasing Extension

The principle of increasing extension states that if the subjects in an array of subjects or the isolates in an array of isolates admit different degrees of extension, they may be arrange according to their increasing extension, if it is helpful.

Example : The subject in the examples given for the earlier principle may be arranged in a reverse way to satisfy the principle of increasing extension, if it is more helpful.

4.11.0 Developmental Sequence

Special basic subjects are sometimes more appropriately arranged according to the Developmental Sequence. For example, the study of Human body in Medicine can be restricted by using such characteristics as 'by age' and 'by sex'. Medicine 'by age' will give rise to the following special Basic subjects.

Medicine   --- Embryo
             --- Child
              -- -Adolescent
             ----Old Age

The above subjects showing different stages of development, may be arrange in any array according to the principles given for developmental sequence.

4.11.1 Principle of Developmental Sequence

The principle of developmental sequence states that if the subjects in an array of Subjects or isolates in an array of isolates belong to different stages of development, they may be arranged parallel to the developmental sequence, if it is helpful.

In the above example, special basic subjects in Medicine may be arranged according to this principle.

Medicine (Specials)
(by Age)

Medicine	Medicine	Medicine	Medicine
Ebryo	Child	Adolescent	Old age
L9B	L9C	L9D	L9E
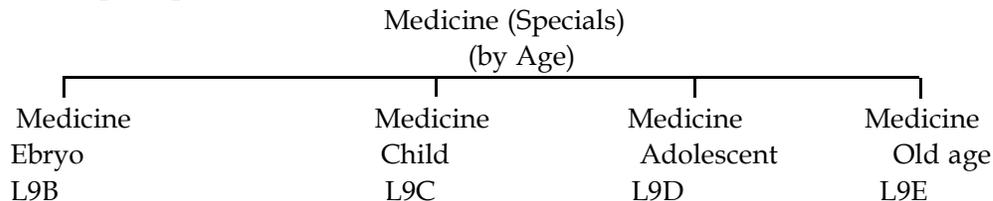
4.11.2 Principle of Reverse of Developmental Sequence

If the subjects in an array of subjects or the isolates in an array of isolates belong to different stages of development, they may be arranged parallel to the reverse of their developmental sequence, if it is more helpful. Such an arrangement is according to the principle of reverse of developmental sequence.

The isolates given in the example, for the earlier principle may be arranged in exactly the reverse way if it is more helpful.

4.12.0   Naturalness- Artificiality Sequence

To understand the naturalness-artificiality sequence, think of the main subjects covering the pure disciplines in the Humanities group, as given below

Humanities

Spiritual   Fine Arts   Literature   Linguistics   Religion   Philosophy Psychology
Experience and
Mysticism
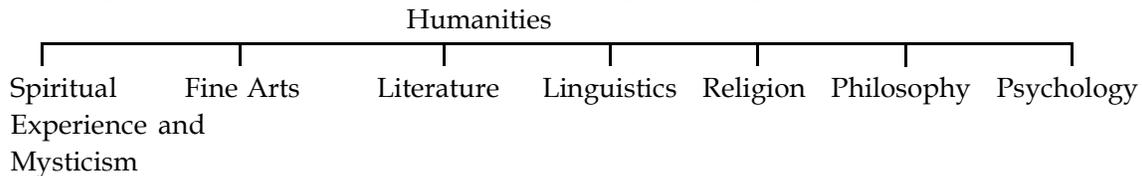
It may be noted that the subjects like Spiritual experience and mysticism and Fine arts have more naturalness as compared to the subjects like Philosophy and Psychology, which are more artificial. Subjects in the above array, thus, show distinction with regard to naturalness and artificiality and may be arranged by following either of the two principles given below:

4.12.1   Principle of Increasing Artificiality

If the subjects in an array of subjects or the isolates in an array of isolates admit different degrees of artificiality, they may be arranged according to their increasing artificiality, if it is helpful. Such an arrangement is according to the principle of increasing artificiality(or principle of decreasing naturalness).

Examples

(A)   Increasing artificiality

Textiles

Cotton

Tere-cotton

Terene

(B)   Decreasing Naturalness in CC7

P	Linguistics
PUG	Biolinguistics
PUS	Psycho-Linguistics
PUV	Socio-Linguistics
PVT	Mathematical Linguistics
PVU	Linguistic Cybernetics

4.12.2 Principles of Decreasing Artificiality

If the subjects in an array of subjects or the isolates in an array of isolates admit   different degrees of artificiality, they may be arranged according to their decreasing artificiality,   if it is helpful. Such an arrangement is according to the principle of decreasing artificiality (or principle of increasing naturalness).

Example : The isolates/subjects in the examples given for the earlier principle may be arranged in a reverse way if it is more helpful.

Problems in the Choice of Ideas in the principles of helpful sequence

The need for choosing one among the principles of helpful sequence may arise in one or more of the following ways:

1.   Two or more principles giving sequences apparently equally helpful in the context;

2.   The need to decide the sequence of application of the principles, when two or more principles are applicable, in arranging the chapters and sections of different removes of each chapter in a book or section of different removes in a review;

3.   The possibility of using a principle which will give a comparatively more helpful sequence in the text, but this being less obvious;

4.   The more appropriate attribute of the entity concerned for the application of a principle for helpful sequence not being obvious.

4.13   Choice of Principle of Helpful Sequence

While classifying the universe of entities, the firist step is to examine the characteristics possessed by each entity. Out of a number of characteristic available, the once which are relevant to the purpose of classification are chosen and applied in relevant succession. To arrange coordinate classes in an array, an appropriate principle from the sets of the principle of helpful sequence can be found to give them a consistent sequence. However, the choice of the principle depends largely on the judgement of the classificationist. It may, however, be added that no list of the principles of helpful sequence can be complete. As such, a new principle can be formaulated as and when situation demands.

4.14   Self-Check Exercises

Discuss the principles for presentation of ideas in a helpful sequence.

Discuss the concept of mapping universe of subject in detail.

4.15   BIBLIOGRAPHY

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LESSON NO.: 1.5   **Author : Dr M.Masoom Raza**

PACKAGING AND REPACKAGING : CONCEPTS, NEED AND PURPOSE

Structure :

5.1   **Introduction**
      Packaging of information is a physical recording, arrangement and presentation of information on a given medium in a given form.
      In packaging, two species can be distinguished:
(i)   **Packaging media:** The reference here is to physical medium in which the information is displayed or presented to users. For example-print, audio-visuals, demonstrations, interpersonal contact.
(ii) **Package formats:** The arrangement, shape, and lay-out of information in a given production on a given medium.
      In packaging formats the requirement of effective formatting should be followed in terms of:
        1.   readability (comprehension where reading is involved)
        2.   viewability (comprehension where viewing is involved)
        3.   audibility (comprehension where viewing is involved)
        4.   identifiability (cognition and perception of key information elements)
        5.   mnemonics (visual or audio association, particularly for recall)

5.2   Repackaging

5.2.1 Concept:

Repackaging of information refers to the presentation of information in more understandable, readable, acceptable and usable forms.

Customization of information taking into account the needs and characteristics of the individual or user groups, and matching them with the information to be provided so that diffusion of information occurs.

5.2.2 Need of Repackaging Programme

1.   As a time-saving tool
2.   As a selective and systematic sorter of the most useful information
3.   As a means for wider information transmission and delivery
4.   As a translation tool
5.   As an opportunity for the practical application of results of research and information
6.   As a means for prompt and updated delivery of relevant information

5.2.3 Purpose:

The information can be repackaged in various ways so as to meet the requirement of user community. Some of them are as follows:

1.   By assembling information into manageable listings
   - (A)   By assembling titles
   - (B)   By assembling sources of information
2.   By tailoring and reducing lengthy and voluminous materials
   - (A)   Abstracting or summarizing
   - (B)   Excerpting/extracting
   - (C)   Reprinting
3.   By critically matching information with specific information needs of users (selective dissemination of information or SDI).
4.   By analyzing, consolidating and synthesizing scattered and voluminous information into concise and usable forms, highlighting new findings or lessons learned.
   - (A)   Literature Review
   - (B)   Case studies
   - (C)   State-of-the-art
5.   By undertaking secondary data analysis and transforming highly technical information/data into usable forms such as tables, graphs, etc.
6.   By consolidating and transforming technical information into how-to-do or practical forms for easy use by practitioners.
7.   By transforming information into news forms to update users of current events.
8.   By transforming technical information into visual forms for greater retention and impact (audio-visuals).

5.3   Guidelines for Repackaging Various Information Products

5.3.1   Guidelines for Preparing an Accessions List

1. Checking and cataloguing of publications
2. Writing of classification number and bibliographic descriptors
3. Writing of annotation or abstracts (Optional)
4. Arrangement of entries

5.3.2   Guidelines for Preparing a Bibliography

1. Purpose of the Bibliography and intended users
2. scope of subject
3. Period of time covered
4. Selection of materials
5. Language of materials
6. Geographical coverage
7. Content of citation
8. Use of abstracts and descriptors
9. Arrangement of entries
10. Use of indexes
11. Layout for format

5.3.3   Guidelines for Preparing   a Directory/Inventory

1. Establish the purpose and identify the users of the directory/inventory
2. Establish the criteria for the selection of entries
   - (A) Scope
   - (B) Time span
   - (C) Geographic coverage
3. Gather data and if a questionnaire is to be used decide what items to include
4. Finalize data
5. Decide on the presentation

5.3.4   Guidelines for writing an Abstract

1. Locate key facts
2. Draft the abstract
3. Finalize the abstract
   - (a) Begin the abstract by stating the document's major theme
   - (b) Limit the length of short abstracts to one paragraph. Longer abstracts can have more than one paragraph.
   - (c) Use complete sentences in writing the abstract
   - (d) Use verbs in the active voice
   - (e) Avoid the use of unfamiliar terms, abbreviations and symbols.

5.3.5   Guidelines for selecting Excerpts/Extracts

1. Selection of sections to be excerpted/extracted

    2.   Arrangement of extracts

    3.   Sourcing of excerpts/extracts include publication title, author, publisher, source, date of publication, the page numbers of the extracted sections.

    4.   Use of published excerpts if it is edited, it becomes an adaption.

    5.   Permission to extract/excerpt a publication

5.3.6 Guidelines for Preparing Computerized SDI

    1.   Acquiring user's profile and storing them

    2.   Processing of incoming materials

    3.   Matching user's profiles and document profiles

    4.   Handling of cards

5.3.7 Guidelines for Preparing Modified SDI

    1.   Survey of user's demographic profiles, professions and subject interests

    2.   New and earlier material are reviewed

    3.   Relevant publications are matched with subject interests of users

    4.   Selected materials are processed by abstracting, extracting, reviewing and analyzing or compiling

    5.   Packets of materials in different forms are sent to users

    6.   Users are asked to fill out feedback questionnaires to find out usefulness of packages and update user's profile

5.5.8 Guidelines for Preparing Literature Reviews

    1.   Formulate problem area and objective, and identify sub-topics or variables

    2.   Selection of materials, scope and time coverage

    3.   Gathering of data and use of interviews and questionnaire

    4.   Organizing information and materials collected

    5.   Preparing introduction.

5.5.9 Guidelines for Preparing Case Study

    1.   Formulate problem area and objectives of the case study

    2.   Identify a programme or case study.

    3.   Identify the aspects /contents that should be included in the writing up of the experiences: objectives of the programme/case, aspects of the programme to be emphasized, strategies used to implement the programme, problems encountered, solutions to be problems, findings and conclusions or lessons learned from the case study.

    4.   Gathering of data and use of interviews and questionnaires.

    5.   Organizing information and materials collected.

    6.   Use of tables and matrices

5.5.10 Guidelines for Preparing State-of-the-Art

    1.   Formulate problem area and objectives of the state-of-the-Art and sub-

topics or variables

2. Include a comprehensive selection of materials to review

3. In writing up, divide the writing-up into three parts: the place since its inception or the present trends and the future directions. Focus not on the entire programme but only on the significant aspects of a programme that come directly under the theme of the state-of- the- art.

4. Use tables and matrices if it can show more clearly the trends and development.

5.3.11 Guidelines for Preparing Handbooks/Manuals

1. Identify the problem area or the skills that need to be improved or upgraded, the objectives and users

2. Identify the main theme and the major issues related to the skills to be upgraded or improved.

3. Gather and organize literature according to the major issues.

4. Present the material in a clear and straight forward style, expressing instructions and procedures to improve skills in short sentences, using active voice.

53.12 Guidelines for Preparing Packages of Materials

1. Identify the users and objectives of the packages.

2. Formulate the main theme as well as the sub-theme.

3. Select and process materials into abstract, excerpts, reprints, summaries, literature reviews, bibliographies, photocopies of curriculum materials, audio-visual aids, decide which sub-theme is best presented by what form of materials

4. Presentation

5. Use of self-mailing questionnaire

5.3.13 Guidelines for Translation of Materials

1. Identify target users

2. Complete survey of existing materials from which a selection can be made:
   (i) recent materials but should not preclude classic work;
   (ii) with well-defined methodology;
   (iii) texts of high professional quality;
   (iv) basic technical works;
   (v) surveys and studies;
   (vi) current statistical information and census reports ;
   (vii) reference lists and bibliographies;
   (viii) limit translation of comprehensive, voluminous materials to relevant parts only.

3. Ensure the quality and reliability of translated materials by :

(1)   Using standard tools of translation such as dictionaries, thesauri, terminologies/glossaries

(2)   Take into consideration the socio-economic variables and cultural factors and avoid oversimplification of translation

(3)   Promote closer co-operation between linguists and subject specialist. If possible first translation should be done by a subject specialist and a second one by a linguist.

(4)   Look into the availability of translators and translation facilities and explore the feasibility of commercial publishing and sale of translated materials.

5.3.14 Guidelines for Preparing Newsletters and News Sheets

1. Define the objectives
2. Decide on the contents
3. Gather data
4. Write the news stories
5. Decide on the layout/format
6. Edit and proof read

5.3.15 Guidelines for Preparing Audio-Visual Materials

1. Identify the objective subject matter and audience of the slide tape-presentation.
2. Determine the budget and length
3. Organize the material and the production team
4. Script writing
5. Use of music and dialogue
6. Employ photographic techniques

5.4 Methodology for Information Repackaging

The main objective of the repackaging is to design an information repackage. This repackage was to be based on the information contained in a cookstove handbook already prepared as a product of information consolidation work. However, in designing the repackage, it was very essential to have specific information about the target audience to collect, process and apply the required information and design a repackage of information accordingly. The methodology followed was a seven stage approach which included:

1. Preparation of first brief,
2. Analysis of the brief,
3. Design criteria for message carrier,
4. Selection of the message carrier,
5. Designing the message carrier,
6. Production of the message carrier, and
7. Feedback system planning.

The different design activities within each of these stages and their significance for designing the final communication product and described in the succeeding sections.

5.4.1 First Briefing Step 1

The first brief containing very selected information on cookstoves was prepared by the information professional. It emerged that the repackaged product should give adequate description on the various improved cookstoves and communicate to the target audience the need for these stoves selected by them.

5.4.2 Analysis of the Brief: Step 2

The visual communication professional analysed the first brief with reference to the target audience, the information content, the budget of the message carrier as well as life cycle of the carrier.

5.4.3 Design Criteria for Message Carrier: Step 3

An in-depth analysis of the brief in the above stage suggested certain design criteria for the message carrier which could be identified as follows:

- The information repackage should be designed with liberal representation of visual information
- Wherever possible, illustrations should substitute written words or textual information
- Quantum of the text should be least if it cannot be avoided totally
- Textual information, if any should be as simple as possible and easy to understand
- The illustrations should be realistic in nature. Use mainly 3-dimensional drawings with more of perspective in it. Avoid using side views wherever possible
- Also, avoid using backgrounds in illustrations and thus minimize possible confusion
- The message carrier should be such that it attracts the reader. This can be achieved by either making the carrier look totally unfamiliar or something that they are conversant within their day-to-day life.

5.4.4 Selection of the Message Carrier: Step 4

The message carrier could be designed with several shapes and sizes. Some of the popular types of carriers are posters, newspapers, leaflets, books and booklets.

5.4.5 Design of the Booklet: Step 5

It was decided that the booklet should be well designed to give it a look of something to be proud of. One should feel like owning it. It should be sophisticated enough and being beyond their means. The design of the booklet consists of:

Shape and size

The cover

The pages

5.4.6 Production of the Booklet: Step 6

This stage mainly concerned with execution of the work to produce the booklet the actual production of the booklet is a professional job. Once the design of the booklet is completed, the rest of the job could perhaps be done by any of the commercial firms specializing in this area.

5.4.7 Feedback: Step 7

To judge the success of the message carrier, it is important to design a feedback system. To get a proper feedback, alternative designs of the message carrier have to be made and shown to the target audience with a view to gathering data on their preferences.

5.5 Observations and Conclusion of Repackaging

1. Information repackaging essentially involves selecting, analyzing and assessing information with a view of communicating a message in a convenient and effective form to a target audience defined for the purpose.

2. It is very essential to have a thorough knowledge of the target audience, the message and the message carrier. The approach based on principles and procedures developed by visual communication experts would be of immense help in meeting these requirements.

3. Translating the information contained in a text into a visual representation is a professional. He also directly professional job to be done by a visual communication professional. He is also directly responsible for the entire design of the information repackage and its effectiveness.

4. The main contribution of the information professional of the project team is to provide the brief and help the communication professional in analyzing the brief. Usually, it involves lengthy but useful discussions for the benefit of both the professionals.

5. Well-designed information repackages need not be expensive. Simple and very useful design techniques are available for inexpensive production of visuals. Hence, irrespective of the budget of the project, it is useful to have a visual communication professional to design information repackages especially when the message is to be carried to the target audience by visual representations.

5.6 Self-Check Exercise

1. Discuss the concept, need and purpose of reackaging.
2. Discuss guidelines for repackaging various information products.
3. Explain the steps followed in methodology for information repackaging.

5.7 BIBLIOGRAPHY.

1. Saracevic, T and Wood, J. Consolidation of Information: A handbook of evaluation, Restructuring and Repackaging of Scientific and Technical Information, Paris, UNESCO, 1981.

2. Seetharama, S., Information Consolidation and Repackaging; Framework, Methodology and Planning, New Delhi, Ess Ess publications, 1997.

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CRITERIA FOR DETERMINING APPROPRIATE REPACKAGING ACTIVITIES

Structure
6.1   Introduction
6.2   Repackaging
6.3   Functions of Repackaging
6.4   Criteria for Reapackaging Activities
6.5   Criteria for Repackaging
6.6   Self-Check Exercises
6.7   Bibliography

6.1   INTRODUCTION

Information analysis and consolidation comprises of a series of activities involved in selection, collecting, analysis, evaluation, synthesizing, repackaging and presentation of information on a specific topic. Though there are different methods and techniques to accomplish each activity, but deep involvement of the information specialist and the subject specialist can only bring fruitful results. Moreover, the role of information specialist in selecting and collecting information is equally important in that the activities of the subject specialist will depend on the information provided to him. The relevance, comprehensiveness, and uptodateness of information has a direct bearing on the production of the product.

6.2   Repackaging

Repackaging of information refers to the presentation of information in more understandable, readable, acceptable and usable forms. Customization of information taking into account the needs and characteristics of the individual or user groups, and matching them with the information to be provided so that diffusion of information occurs.

6.3   Functions of Repackaging Activities

1.   As a time-saving tool.
2.   s a selective and systematic sorter of the most useful information
3.   As a means for wider information transmission and delivery.
4.   As a translation tool.
5.   As an opportunity for the practical application of results of research and information.
6.   As a means for prompt and updated delivery of relevant information.

6.4 Criteria for Determining Appropriate Repackaging Activities

1. Characteristics and subject interests of user communities.
2. functions of information centers.
3. Availability and capability of trained personnel.
4. Reproduction activities.
5. Administrative policies.

6.4.1 The repackaging activities can be grouped as per user & their subject interest:

User Groups

Repackaging Activities

User Groups	Repackaging Activities
Curriculum developers, Editors, Subject specialists, Writers, Trainers, Mass Medial personnel etc.	Actual teaching/learning curriculum materials, guides, Textbooks syllabuses, Multi-media packages, Newsletters, Subject interest bulletins, Research abstracts, Data sheets, Handbooks etc.
Trainers, Trainees, Supervisors, Resource persons etc.	Actual training materials, Audio-visual aids, Multi-media training kit, Training syllabuses and designs, Newsletters, Research reports on teachers training programmes subject interest bulletins, Data sheets, handbooks, yearbooks etc.
Faculty members, College teachers, Supervisors, etc.	Subject interest bulletins, Guide books or handbooks on teaching methodologies, sample lessons and learning materials, Teachers and pupils guides, Textbooks, Syllabuses, Audio-visual kits, Multi-media packages for classroom teaching, Data sheets, Newsletters, etc.
Researchers, Faculty members, Academicians, Students, Project Evaluators etc.	Manuals on research and evaluation methodologies, yearbooks, Data sheets, Handbooks, Research reports, Abstracts, Research journals or bulletins, Newsletters, etc.

6.4.2 Functions of Information Centers

Recognizing the need of information, many information centers including the information consolidation units have been systematically identifying, collecting, storing and disseminating information to the users. But this information was not always compatible with the users and their needs. This was largely because the information presented was not oriented or structured according to their specific needs. Many people feel cut off because very packages in which information arrives are unfamiliar. Hence, a need has arise to develop information-repackaging activities suited with the differential requirements of the different groups of users.

6.4.3 Availability and Capability of Trained Personnel

Skill/Ability	Knowledge of
To interact with users and recognize their needs	Methods of user studies, Method for the formulation of a reference framework, Methods of data/information analysis, highways and byways of subject or subjects concerned.
To identify and organize a team of group of specialists.	Methods to be adopted for the preparation of directories of institutions and experts/specialists in the field of interest of institution or users.
To specify precisely the subject to be covered by the Information analysis and consolidation product.	Methods for study of analysis/information analysis.
To specify the product user group and target group	Attributes of user groups and methods for their study
To identify the products to be prepared for the user groups	Different types of information analysis and consolidation products and their preparation to suit specific user needs
To identify the subject specialists/peer groups for consultation	Methods to be adopted for the preparation of directories of experts/specialists in the field of the institution
To identify and select relevant information	Subject concerned abstracting/ extracting /condensation techniques
To technically process the information	Classificatory/indexing/analytical techniques
For evaluation of information	Evaluatory techniques to be adopted, criteria for assessing the quality of information-validity, reliability, accuracy, credibility, significance etc.

6.4.4 Reproduction Activities.

These are meant for trainers and faculty members, which could aid in teaching and developing instructional material. The appropriate repackaging activity can be audio-visual aids, multi-media packages for teaching, copies of guides and handbooks etc.

6.4.5 Administrative Policies

These are specially meant for directors, heads, and middle level administrator for the policymaking, planning, and administration.

The appropriate repackaging activities can be bulletins, literature reviews, state-of-the-art reports, newsletters, progress report etc.

6.5   General Rules/ Criteria for Repackaging Activities

The general rules/ criteria discussed in this section pertain to structure, language, style, etc. These should be familiar to the abstractor before repackaging a document.

(a)   The abstractor should be aware of the users/ audience to whom the abstract is meant and their informational requirements. This would facilitate orientation or slanting of the abstract of the document to the user.

(b)   An informative abstract should generally be provided for articles from periodicals, conference proceedings, patent, technical reports, etc. Indicative abstracts may be provided for review documents standards, these and dissertations, etc.

(c)   The abstract should indicate the type of document- book, article review, state-of- the- art- and also whether the work is theoretical or experimental.

(d)   Use simple, precise, and concise statement but with some variety in length and structure to avoid monotony. Use complete sentences. Telegraphic language can also be used, without sacrificing precision or clarity.

(e)   Use phases for clauses, words for phases when possible.

(f)   Use standardized terminology, abbreviations, acronyms, initializes, symbols etc in the abstract.

(g)   Use numerals for numbers when possible.

(h)   Avoid generalization in statement.

(i)   Do not interpret the author's statement/remarks.

(j)   Avoid both overusing of and awkward omission of articles.

(k)   Aviod labeling each part of the abstract.

(l)   Paragraphing in abstract is not desirable,

(m)   Each abstract should consist or three sections of parts.

They are:

(1)   Reference Section: Directs the readers/users to the original document.

(2)   Body Section: Contains data from the original document and/or indicates or describes the content of the original.

(3)   Signature section: Identifies the Abstractor.

6.6   Self-Check Exercises

1.   Describe the criteria for determining repackaging activities.

2.   Explain general rules for repackaging activities.

6.7   BIBLIOGRAPHY

1.   Kawatra, P.S. Text book of Information Science. New Delhi: A.P.H. Publishing, 2000.

2.   Saracevic, T and Wood, J. Consolidation of Information: A Handbook of Evaluation, Restructuring and Repackaging of Scientific and Technical Information, Paris: UNESCO, 1981.

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INFORMATION CONSOLIDATION PRODUCT : CONCEPTS, TYPES, DESIGNS AND DEVELOPMENT

Structure:

7.1   Introduction

7.2   Concept of Information Consolidation

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7.1   Introduction

Information is recognized as a vital source and the basic need for the progress of humanity and the development of a nation as a whole. It means that every piece of information should be extracted form wherever it is available, and provided to the users at the right time, in the right proportion, without delay of time. Only then, can that piece of information be put to its maximum use. Information has great potential value in decision making, problem solving, and in the conduct of work and life.

7.2   Concept of Information Consolidation

It may be defined as products emanating from Information Analysis Centres and involves the performance of various activities like selecting, acquiring, evaluating, analyzing, synthesizing, restructuring, packaging, repackaging, etc. Good examples of information consolidation products are state-of-art-reports, reviews, critical reviews, trend analysis, forecast/feasibility/status reports, handbooks, manuals, do-it-yourself booklets, guide books, monographs, country profiles, product/process profiles,data compilations, correlations, etc.

Information products can be categorised as follows:

7.3   Types of Information Products

7.3.1 Books : The books may present a synthesis for a consolidation of knowledge on its topic and research in the field with full references to the primary source. They are treatise, monograph, and textbook. Infact monograph should be on a single topic and textbook is a teaching instruments, its primary aim is not to impart information about its subjects but to develop understanding of it. As a primary document, the book has its own place as it provides a consolidated view of a subject.

7.3.2 Theses and Dissertations: Theses and dissertations have their own importance

as source of information. One important characteristic of such research report is that they may be result of purely academic pursuit. They are not easily accessible due to their unpublished status. But now a days the abstracting service of theses or dissertation are offered world wide. For example : Dissertation Abstracts International published by university microfilms.

7.3.3 Encyclopaedias: These works attempt to deal with the whole of knowledge (general encyclopaedias) or a section of knowledge (subject encyclopaedias) by means of articles. The arrangement is usually alphabetical by subjects. The contains may include articles, bibliographies, illustrations, maps and gazetteer.

7.3.4 Directories: Directory is a list of persons or organizations arranged usually in a systematic order either alphabetically or classified, giving addresses, affiliations etc. of individuals and addresses of offices, functions and similar data for organizations.

7.3.5 Yearbook and Almanacs: Yearbook is a publication issued annually to give current information on a multitude of subjects. It contains a record of progress and embodies current developments in different fields of human activities.

An almanac is the record of astronomical data and information of current events and developments.

7.3.6 Statistical Products: Statistical products are those ready reference products which are the outcome of the collection, classification, analysis and interpretation of numerical data. Every library should have statistical products for answering a number of queries dealing with statistical type of information.

7.3.7 Advances, Progresses, Reviews, Surveys: This category of ready reference products are generally serials. They differ rather in format and frequency then in content from general subject periodicals. They contain article dealing with current, significant trends of development in a particular field.

7.3.8 Handbooks, Manuals, Source books, Guide books: It is very difficult to distinguish all of the them from one another as they have common scope and identical purpose all these terms are used synonymously as they have similar features.

7.3.9 Trade Literature: Information which is the form of product catalogues, information on processes and material, guides, manual, house journals etc. the main purpose of which is product advertisement is also a product of primary information. This literature provides technical information about products or materials, offered for sale by the manufactures.

7.3.10 Monographs: Monographs are published in single volumes devoted to one subject or a topic. A research monograph may be defined as "separately published reports on original research that are too long, too specialized, or otherwise unsuitable for publication in one of the standard journals."

7.3.11 Government Reports-Government reports are printed, published and financed by various government departments. They are statistical reports.

They are classified into two major categories as per the methods of data collection, viz. (i) Census and Survey Reports, and (ii) Abstracts and Research Reports. Census reports are the record of systematic enumeration of population, house, business and trade, livestock and other important aspects of a nation at one particular time. These reports provide descriptive and statistical profiles of their people including demographic, social, economical, ethnographical and religious characteristics. Abstracts and research reports are the reports of the research project conducted by the governments depending upon the primary sources of data.

7.3.12 Literature Guides: Literature guides are a specific type of reference tool designed to aid researchers in identifying important types of information sources in specific subject fields. There are some excellent guides for chemistry, physics, biology, engineering, medicine and similar other disciplines brought out by Butterworth and company. Some of these guides are constantly updated giving the latest references.

7.3.13 Treatises: A "treatise" is a book or writing which treats of some particular subject, giving a systematic exposition or argument and containing a formal or methodical discussion of the facts and principles of the subject, reaching a conclusion.

It is an encyclopedic view of the subject including basic knowledge, fact along with discussion. It presents the contents in a systematic and consolidated manner, the result of research work along with complete bibliographical details. It treats the subject in such details that it has to be issued in two to twenty or more volumes. Because of the contents it contains, it gets outdated very soon.

7.3.14 Reviews : Reviews are a summary of the developments of a subjects, over a given period prepared by a specialist in the subject.

A review scans, evaluates and puts each significant contribution into its proper place. In this way only the most important part of the contribution is brought to the notice of the readers, along with complete bibliographic details. The review helps the users in consulting only the relevant primary documents for further reading.

Usually, reviews are published annually, in which, information is broken up into easily manageable parts, and then separate articles on them are written along with bibliographical details. There are some reviews which are a collection of papers presented at conferences. They form a good secondary source of information in assisting the users to acquaint them with the developments, in a subject area.

7.3.15 Trend Report : Trend report can be obtained only when the work is completed, in the form of reports. But, if the progress is gathered by an author,

the information can be sought informally and published in reviews. This would give the information of the trend report in work and other details.

7.4   Information Consolidation Products Design and Development

The basic processes in most, if all, information consolidation units are: Selection, acquisition, evaluation, analysis and synthesis of information with a view to the provision of a product or service, and their dissemination and marketing. The requirements for these are summarized below:

1.   Selection requires:
- (i)   A selection policy (involving statement about users and needs;subject,topic,or mission to be dealt with and type of information sources and materials to be covered).
- (ii)   Selection aids and tools which will guide in selection and help verification
- (iii)   Specification of a selection process (involving decisions on who selects; procedures for judging intrinsic values of information in sources; and procedures for judging demand and user appropriateness).

2.   Acquisition requires:
- (i)   Procedures for procurement of necessary information source
- (ii)   In cases of no outright procurement: procedures for access to sources e.g., Getting on loan, photocopying pertinent sections, getting permission to use them in another information systems, etc.

3.   Evaluation requires:
- (i)   Criteria for assessing the quality or intrinsic merit of information (validity, reliability accuracy, credibility, significance, etc.)
- (ii)   Criteria for assessing the information products and services from user point of view.
- (iii)   Procedures for achieving a consensus in assessments.

4.   Analysis requires:
- (i)   Specification of the topics in relation to which information will be analyzed
- (ii)   A classification scheme or a table- of- content of the topic for organization and systematization of analyzed information.
- (iii)   Specification of procedures for extraction of the most relevant and salient information or data.
- (iv)   Assessment and verification of the extracted information or data by evaluation criteria described above.
- (v)   Sorting of extracted information into given classes or headings.

5.   Synthesis requires:
- (i)   Comparative arrangement and evaluation of extracted information.
- (ii)   Derivation of a consensus and resolution of possible conflicting information.
- (iii)   Compression or merger of information into a structure and from most suited

for intended users and uses.

(iv)   Evaluation of the final products.

6.   Restructuring of synthesized information requires determination of the mode in which contents of information consolidation products will be presented to users in a way that is most compatibles with the situation and needs and will enhance the comprehension and assimilation of information presented. More specifically, restructuring requires determination of:

(i)   Extent to which available content is be incorporated.

(ii)   Degree of invariability of information as found in the original (i.e., whether new information value is to be added)

(iii)   Degree of detail in formation

(iv)   Degree of changes in sequence of presentation relatives to the original.

(v)   Technical sophistication

(vi)   Temporal presentation

(vii)   Editorial qualities

7.5   Conclusion :

The informaiton consolidation product is the result of efforts of the specialists engaged in that activity. The users may not be the end users but the intermediaries also who help in presenting the information consolidation produce to the end users. The information consolidation products are prepared keeping in mind the information requirements of the existing and potential user groups.

7.6   Self-Check Exercises

1.   Describe various types of information products.

2.   Explain the design and development of information consolidation products.

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MARKETING OF INFORMATION PRODUCTS AND SERVICES

Structure :

8.1   Introduction

Marketing is the human activity directed at satisfying wants and needs through the exchange process. It has to do with finding out what people need and then responding to those need. The marketing of library and information services and products in India is of great importance in the contemporary societal setup. Now most of the national level libraries in the country have access to technology, resource and infrastructure, the utmost need of serious thought for marketing information products and services is lacking

In the recent years libraries have taken initiative to introduce information technology (IT) based products and services to add value to their services. The advent

of new technology i.e., digital media storage; convergence of telecommunication and broadcasting, availability of information resource accessible through the internet   at reduced cost, have made possible for librarian to introduce IT products and services to fulfill information needs of their customer.

During the last decade significant changes have taken place all over the world and they have been posing challenges to various profession and professionals. It has brought about a see change in the library and information profession. . In the Indian context, one has to keep in mind the budgetary cost, increased price for collection, storage, dissemination of information, which altogether justifies changing for a nominal fees for information service. Keeping in view the financial constraints, it is necessary that the users have to share some of the cost. Many library and information centers struggle hard to satisfy users within the limits imposed by small budget. In some of the libraries no additional input is given for infrastructure development, thus decline in the quality of service. For survival, self-esteem, and self sufficiency, it is necessary to create a niche in the society, the library need to concentrate more towards marketing of library products and services.

8.2   Concept of Marketing

Marketing is one to one interaction and exchange of value in which both parties gain something. Marketing discipline has developed into an essential business function in the past forty years. During this period, concepts and insight have been more pragmatic not only for consumer goods and services but also for extended to non-profit organizations

Marketing aims at: (i) Identification of client base (ii) determination of the needs, wants, and demands of the client base and fulfillment of the same through designing and delivering appropriate products and services more effectively. A marketing exercise in the library and information context should be carried out with an aim to integrate library goals and objectives with organisational goals and objectives. These goals and objectives describe the desired future of the organisation and its library. The libraries will thrive better, if there goal and objectives support the organisational goals and objectives. An efficient marketing considers the mission, goals and objectives of a library vis-a-vis its organization. Information professionals may not realize that they are already engaged in some marketing activity everyday. Informational professionals have to recognize that creating and following a marketing plan is an invaluable tool. They should learn how to harness its power to benefit user community.

Marketing is the management process responsible for identifying, anticipating and satisfying consumers' requirements profitably. It encompasses all aspect of a library from identifying client to determine the services one offers.

8.3   Definitions of Marketing:

According to the **Encyclopedia Britannica** (1972), "Marketing in its most general definition is the direction of the flow of goods and services from producers to consumers or users. It is not confined to any particular type of economy, since

goods must be marketed in all economies and societies except perhaps the most primitive. Nor is marketing a function only of profit oriented business; even service institutions as hospital, school, and museums engage in some form of marketing".

According to Kotler (1997), "Marketing is the analysis, planning, implementation and control of carefully formulated programs designed to bring about voluntary exchange of values with target markets for the purpose of achieving organizational objectives. It relies heavily on the designing the organization's offering in terms of the target market's needs and desires and on using effective pricing, communication and distribution of inform, motivate, and service the markets."

The American Marketing Association (1985) defined marketing as "the process of planning and executing the conception, pricing, promotion and distribution of ideas, goods and services to create exchange that satisfy individual or organizational objectives."

Goldhor (1970) defines, "Marketing as the process of creating value through the creation of time, place and form utilities."

8.4   Objectives of Marketing Information Products and Services

Recognizing the vital role of libraries in education and research the following objectives of marketing   of information products and services are follows:

8.4.1 To examine some approaches of marketing products and services for solving the problems of libraries

8.4.2 To examine the level of customer satisfaction for the products and services offered with traditional methods

8.4.3 To examine the new information products and services which can improve the collection libraries.

8.4.4 To examine the level of penetration already achieved by libraries.

8.5   Components of Marketing of Information Products and Services

The entire literature on marketing of information products and services both in management science and library science appears to be unanimous in excepting the 4ps to be the ingredients of marketing i.e. Product, Place, Price and Promotion.

8.5.1 Product: The product is the heart of the system. It is proposed to be marketed. The products are produced by all organizations which could be either tangible or intangible. Kotler (1997) defines it as anything that can be offered to a market for attention, acquisition, use or consumption and that might satisfy a want or need, it include physical objects, services, person, place, organization and ideas

In context of library and information centers the term product attract various connotations such as books, periodical, audio-visual materials, services like circulation, inter-library loan, reference services, SDI, and products like documentation lists, abstracting and indexing journals etc with the advent of information technology, access to international databases, online research result on diskettes, databases on CD-ROM also constitute information products

8.5.2 Price: Pricing of information services and product is relatively a new concept. It has not been considered seriously since library services were provided free, charging of fees by libraries and information centers was seen as incompatible with the ethics of the profession being service oriented profession. But, with the increased emphasis on accountability to charge the various products, services and activities and to recover costs as much as possible. Libraries, which want to move towards self sufficiency should consider that the pricing of information services and products is the sole source of financial support.

8.5.3 Promotion: Promotion is an important element in the marketing mix, but it has received more attention than other element. It is considered synonymous with the marketing. Promotion is widely practiced by all libraries and information professionals. It involves mechanism by which the target groups are informed about the resources available, services and products offered by library and information center. All types of libraries have employed some forms of promotion, either in the form of library guides, pamphlets, arranging orientation programmes, lectures, exhibition, films shows, debates, display, book discussion etc.

Promotion uses all the tools of public relations: persuasive communication, advertising, personal selling, publicity and incentives. The purpose of promotion is to communicate, to convince, and to complete. Promotion in library and information centers can be taken care in the following ways:

- **(a)** **Personal contact:** It is said to be best and most effective method for libraries and information centers. It fosters a strong relationship between organization and its clients.
- **(b)** **Public relations:** It is an exceedingly important and legitimate component of the promotional efforts. It is an interaction between library and its actual and potential users it influences public opinion by conversing and conveying information concerning the benefits of library products and services.
- **(c)** **Advertisement:** It is the most expensive promotion effort to all because it is paid publicity. It attracts consumer's attention. It can reach to users through newsletter, news releases of new library equipment acquisition etc.

8.5.4 Place: Place is where a product or service is made available to the user or potential users. It is the channel that links product and consumer. Traditionally, the library building was the sole outlet and the users were expected to seek services by personally visiting it but the computer and communication technology marvel has opened the doors for multiplaccess choice making the concept of place more complex.

8.6   Determinants for Information Marketing

The virtual library, these days, does not have walls and is transformed into

gateways of information rather than the warehouse. Marketing helps libraries in determining their future and in identifying products such as services, programmes and materials. Marketing of library services, products, etc. require to define the following points:

1.   The access relationship to the ownership.
2.   The value of contents and the extent of collections.
3.   Identification of potential clients in a large community of users.
4.   Specified institutional support for library activities.

The failure for the marketing of library products is due to following reasons:

1.   Library does not embrace marketing plans.
2.   Nonrecognition of marketing theory and practical applications.

Marketing is the management process responsible for identifying, anticipating and satisfying customer requirements profitably. The concept of marketing distinctly refers to the interrelation of _(1) marketing as an organizational attitude, philosophy a set of shared values;and (2) marketing as a function, a set of activities and a process. A market oriented organization is more concerned in identifying and solving customers demands than it is concerned with supplying discreet products and services to a making a profit.

Marketing has four Ps mix- product, price, place and promotion. The market oriented library defines its activities and their resources allocations for the satisfaction of customers, clients and patrons. No doubt, the products and profits are important components of the management process, the difference is in the emphasis, the shared values within the organization and the primary motivation for organizational activity.

8.7   Prerequisites for information marketing

For marketing any commodity including the information commodity certain perquisites are needed. In the case of information commodity the following conditions may be taken into   consideration:

- A well-developed store or collection of data or information.
- Repacking of the data of information into a marketable commodity.
- A target community which would need the commodity.
- Creation of awareness about the commodity.
- Creation of demand for the said commodity...
- Marketing of the commodity
- Satisfaction of the customer with the commodity.
- Continuous supply of the commodity without break or delay.
- Obtaining the feedback from the customers on the commodity.
- Conducting of research with regard to the changing needs of the customers with a view to improve the quality of the commodity.

8.8   Methods of Marketing Library and Information Products and Services (LIPS)

Each institution organizes LIPS in one way or other, but these products and

services are not being utilized fully due to various reasons. The methods for marketing of LIPS for their optimum use by the users are given below:

1. **Initiation to Users:** The new users should be made familiar with library or information center of the organization concerned its location, staff, library rules, working hours, services, facilities, resources, etc. User's "awareness will eliminate many of the user's" problem once for all. This programme should be a regular feature in all types of libraries and information centers for their new users who might have joined the organization recently. This is applicable to students as well as to the staff members as users of LIPS.

2. **Advertising/Publicity:** There are three ways by which library or information center can publicize their products and services. These are the best method of publicity or advertisement of LIPS of the institution concerned. These ways are: display, distribution, organizing exhibition, etc.

3. **Personalized Service:** The personalized assistance provided by the library staff to the users to provide information service and to exploit the library resources is called as reference service. It helps to make full use of LIPS available in the organization. Reference desk should be maintained to provide the Short Range Reference Service and Long Range Reference Service.

4. **User Education Programme:** The users should be educated in how to use the different types of reference sources such as encyclopedias, handbooks, yearbooks, directories, indexing and abstracting services and use of the complex information sources. These programmes should be a regular feature of the organization concerned. The users can be educated in small groups from time to time by way of lectures, workshops, discussions, practical demonstrations, and similar other instructional programmes.

5. **Current Awareness Service (CAS):** Various current awareness service(CAS) in different subjects are being brought out by certain commercial organizations in different parts of the world. These services are of immense use to the researchers provided they are aware of such services. Library   staff can help the users in this respect too. Library can bring out its own In-house or local CAS such as 'Current Contents', 'New Additions to the library', 'Reproduction of Table of Contents of Current Journals', 'Information Bulletin', etc. can be brought out periodically for the use by the users in anticipation of demand.

6. **Selective Dissemination of Information (SDI):** In this service, the library staff keeps the record of the user profiles. The latest information

sources should be scanned, sorted out, processed and provided by the library staff to users depending upon their requirements on individual basis. The selected users usually are provides the service in anticipation of demand.

7. **Lectures, Seminars, Group Discussion:** The professional staff of the libraries and information centers concerned should deliver lectures, organize seminars or arrange group discussions with the users frequently in order to make them familiar with the information sources and services and agencies concerned therewith to enable them to utilize the same as and when require.

8.9   Need for Marketing Information Products and Services

The present time is rightly characterized as the age of information. The fact that information is a key resource for the economic, socio-cultural and political development of a nation is gaining increasing acceptance. The availability of rights information at right time and right cost is becoming all the more critical. It means that libraries will have to appreciate that just having information and storing will serve no purpose unless those who need it put it to effective use. The need can be analysed under the following perspective

8.9.1   **Fewer Resources and Information Explosion :** The flow of financial resource is decreasing day by day. There is ascalation of cost of information materials like books, journal and non book materials etc. Science the most of the information materials come from the development countries, the impact of this is immense. These factors force information centers to acquire less source of information as possible. Inhere, as on the other hand there is an information explosion, which resulted into more and more of publication in micro-subjects areas.

8.9.2 **Demand for new service :** Due to the change of the society and economy there is increase for the new kind of service. Traditional service is not of much value to the user.

8.9.3 **Effect of Free Economy :** In the free economy, customer is more important. They purchase only what they need and not what is available. This is because current and timely information is the key to sound decision-making. Information is power in a free economy.

8.4   **Increasing Resources Constraints :** LICs are also deluged with advice as to how to acquire and organise learning resource and satisfy that complex and ever-increasing information needs of their users. LICs one time very well accepted as cost centers to cater to the information needs of their respective clientele, are now looked upon as a out-reaching centers and, thereby, revenue generation ones also.   .

8.5   Increasing Cost of Information and IT : Information is becoming increasingly expensive and so its packaging and repackaging. Value addition of information makes it even more expensive. There is further rise in the cost of information when IT is to play its role in designing and delivering information service and products.

8.10   Information Products and Services:

Product can be anything offered by the marketer to the customers for attention, acquisition, use or consumption that would lead to the satisfaction of want or need. Product in a broader sense includes physical goods, service, a person, place, and organization, whereas product in the context of library might include physical goods such as book catalogue, compact disk, microforms, audio-video cassettes, periodicals, etc. Service can include provision of a photocopying document, information searching, indexing, reference service, documents issue and return, etc. A product can even be person as their concepts or records can be marketed. We can look at the place as products in the tourism business. Hence, product in a broad term refers to any things   that can be marketed, like physical goods, service, person, place, organization or ideas.

8.11   Marketing Activities of LIC for Revenue Generation:

Professional marketing approaches will help in achieving maximum utilization of information product and services and thus generate more and more revenue. For this purpose, library and information managers have to take initiative. In order to generate suitable revenue, it is suggested that the LICs put a marketing programme, which includes the following group of activities:

8.11.1 Awareness of Information for Development: The LICs should develop information that can be given to potential end users. This should include visit, talks and demonstration to potential end user communities, preparation of attractive and well presented brochures describing objectives, services, etc. of the LICs, publication of information articles about LICs services and products in various journals.

8.11.2 Promotion of Services : The LICs should engage in activities that help to promote the services to the specific individuals who can get benefit from them. This should include identification of users groups, finding their information needs, sending them the promotional material/ Information, publication of newsletter and periodical, sending of specimen copies of information products/ pamphlets to prospective users and users group meet, etc.

8.11.3 Prioritization: Prioritize the market segments to be served first according to the strength in areas. This will be for initial acceptance as well as getting financial support.

8.11.4 Innovation and Creativity: For better marketing activities,

information producers should concentrate on new avenues of products or services, which will attract more and more potential users. New innovative ideas should be generated in the context of information types, quality and economics.

8.11.5 SWOT Analysis : Before devising any marketing strategies, the LICs should do a detailed SWOT analysis of their products and services. This will not only help the LICs to market the products easily and confidently, but also explore the possibility of market segments and create niche for them.

8.12 Marketing Strategies

Strategic marketing require libraries to understand their customers changing information needs in order to provide customer services. Environmental changer that is taking place at national and international levels will continue to influence information needs. Due to information explosion, information is being published and transmitted through electronic media also. Libraries must take proactive measure to introduce IT products and services to cater for information need of the society that are fast transforming towards a digital society.

8.12.1 Forward Marketing: Forward marketing refers to the marketing approach that librarians undertake to meet information needs of their customers. Hence, librarians provide values to their customers by providing IT products and services that fulfill their information needs. In developing a customer value strategy, libraries need to understand how the customers can be segmented. Forward marketing of IT products and services are essential in order to attract more users to use library facilities. IT services offered by libraries must be inviting and user friendly. Libraries need to identify their present and potential users and their changing information needs. Identifying customer's needs and wants is not an easy task as most libraries have many customers, each with their own set of information needs. Librarians in providing quality services should consider five attributes of IT products and services. They are:

8.12.1.1 Responsiveness: The willingness to help library users with prompt services according to the specific time needed by the library user. Timeliness is crucial for quality information services, as information has value to its intended user only when it is delivered at the time when information is needed for decision-making.

8.12.1.2 Reliability: The library users have confidence and trust that information delivered to them is accurate and current for them to make quality decision-making.

8.12.1.3 Availability: IT products and services are always available when users want to use them. IT product must be arranged systematically so that it is easy to locate. Library users should be able to reach library services from any locations at any time through integrated online library systems.

8.12.1.4 Caring: The library staff should be able to provide friendly and personalized attention to each and every library user. For specialized and personalized information services, the library staff should be able to search, retrieve and consolidate information not available in library collection, from other libraries or from the Internet and repackage the information according to the specific users.

8.12.1.5 Environment Friendly: The library provides conducive learning environment for its users as well well as its staff. The use of IT products and services must be made easy and user friendly so that it will not deter users from making full use of its services. User educational programmes should be systematically planned to guide users to the wealth of resources in their subject area of their interest.

8.13 Internal Marketing:

The provision of quality information services is very much influenced by the efficient use of IT products by its users. In the long run market orientation should lead to better quality of IT products and services, higher productivity among its staff and strong customer loyalty. This involves internal or inward marketing. Human resources are the most valuable assets of any organisation. It is the people in the organisation, who individually or collectively, contribute to the achievement of the organisation objectives to achieve competitive edge. As an organisation, a library exists to deliver value to its customers, and this is best achieved by adapting a long-term perspective to the development of its people for the achievement of quality services. With experiences and proper training in IT, staff will become the most knowledgeable asset of the library.The provisions of quality and efficient services depend on the knowledge, skill competencies and experiences of library staff. These require libraries to take positive measures to develop its human resources in IT.

8.14 Marketing Plan

In order to promote the use of IT products and service, librarians must develop marketing plan to market its services. The marketing plan should include services, i.e, Need of remote access library, Packaging of information, Hyper linking relevant sites, User education programmes, Forum and seminars on IT and Consultancy services etc.

8.15 Conclusion

Information is a marketable commodity and libraries and information centers (LICs) can be revenue earning units rather then the revenue consuming. In the

present era of globalization, subsidies have become self-substance. This being so, availability of right information for the right user at the right time and at the right cost becomes all the more t vital. This scenario has posed major challenges for the LICs, whose major functions is to satisfy the complex and increasing demands for information products and services. LICs are successfully carrying out this marathon task by properly planning their activities, better user orientation and marketing of information products and services.

8.16 Self-Check Exercises

1. Define Marketing.
2. Give objectives of marketing of information.
3. Explain components of Marketing of information products/service.
4. Discuss the methods of marketing LIPS.
5. Give the need of marketing information.
6. Describe marketing strategies.

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LESSON NO. :

UNIT NO : 1

1. Concept of Information Analysis and Consolidation

2. Need of Infomation Analysis and Consolidation

3. Information Requirement of Users

4. Guiding Principles for Presentatioin of Ideas in a Helpful Sequencs

5. Packaging and Repackaging : Concepts, Need & Purpose

6. Criteria For Determining Appropriate Repackaging Activities

7. Information Consolidation Products : Conceps, Types, Design & Development

8. Marketing of Information Products and Services

UNIT NO : 2

9. Information Analysis and Consolidation Methodology

10. Knowledge and Skills required for Information Analysis and Consolidation

11. Planning and Management of Information Consolidation Units.

12. Content Creation and Content Management System

13. Methodology for Preparation of Handbooks, News Letters and State of the Art Reports

14. Abstracting : Types and Guidelines for Preparing Abstracts

15. Evaluation of Information Products : Criteria and Steps.