CHAPTER I

INTRODUCTION

1.1 Statement of the Problem

Information storage and retrieval tools are required to represent the concepts of a discipline or field of knowledge to the best extent possible, in their terminology. As such, identification of the concepts used in a discipline is a prerequisite for designing any bibliographic information storage and retrieval tool. Some theory-based classification schemes and other retrieval tools provide guidelines about the methodology for selection of isolates representing the concepts relating to specific disciplines, but clear methodology is not available to identify the main concepts and the terms representing them, that need to be included invariably as headings in the information retrieval tools. One of the major criteria for evaluating information retrieval tools is, to see how far they have been able to take into consideration main concepts of a discipline; how the main concepts have been categorized and; how the categories themselves and the concepts within categories have been arranged.

Schedule for sociology was examined in some of the classification schemes and it was observed that some of the main concepts used in sociology are either not included at all or provided subordinate placings. The arrangement is also not based on the proper categorization of concepts as displayed in the literature of the subject. Such a situation results in scattering of the literature on related concepts, non-retrieval of all the related documents being searched by users and lack of correspondence between the terms used in the literature of the subject by sociologists and their representation in the retrieval tools.
The present study aims to identify the concepts used in sociology, and out of these concepts, categorize some main concepts, that represent major areas of literature in the field. The identified concepts will be arranged in a helpful and filiatory sequence, on the basis of definition, explanation, and usage of each concept in the literature. Finally, the study will try to evaluate some of the bibliographic information retrieval tools, with regard to the provision in them for the main identified concepts.

There have been several approaches to decide about the concepts that need to be accommodated in the terminology of an information retrieval tool. Hulme (1911) suggested the criterion of 'literary warrant' or 'bibliographic warrant'. Bliss emphasized on 'educational and scientific consensus' as the basis of selection of terms. Lancaster and Ranganathan want 'user warrant' also taken into consideration. Hulme's 'literary warrant' meant that the terms used in a schedule of class headings should be based on accurate survey and measurement of the classes of literature. Mills says 'insofar as the making of a library classification should always begin with the literature, and use as its raw material, the concepts manifested in that literature, then it may be said to be based on literary warrant, although not in the sense that Hulme used the term.' Later on Mills says 'In conclusion, we may say that the characteristics used in library classification are usually to be found clearly expressed in the literature, and that the theoretical problem involved in deciding their naturalness or artificiality is largely irrelevant.'

1.2 Objectives and Hypotheses

A preliminary observation of some bibliographic information retrieval tools gave an indication that the tools available currently, do not represent the concepts used in the literature, adequately. It was also presumed that some
methodology can be evolved to identify the main concepts of a discipline, that are generally used in the literature of that subject. The concepts identified in this way can be seen in the information retrieval tools, with regard to the provision in them. This study has been undertaken with the following main objectives:-

1. To develop a methodology for identifying the main concepts pertaining to a discipline in social sciences, so as to use the terms representing these concepts in the information retrieval tools;

2. To identify the concepts used and the forms of terms used in sociology with the help of this methodology;

3. To find out the relative significance of each concept, and in this way categorize the concepts into some significance groups, that enables to list most significant concepts of sociology;

4. To arrange these main concepts in a filiatory and helpful sequence on the basis of their definition, explanation and usage in the literature of sociology;

5. To evaluate some information retrieval tools, with regard to the provision in them for the main concepts of sociology and the categorization and arrangement adopted.

1.21 Hypotheses

1. Significant concepts of a discipline can be identified with the help of the terms used for chapter headings in the textbooks;

2. Terminology used in the information retrieval tools does not represent all the main sociological concepts; and

3. Concepts used in a field of study can be ranked according to their relative significance for use as headings in the information retrieval tools.
1.3 Interrelationship between Concepts and Terms

Concepts are described as units of thought. These are mental images formed by generalization. A concept is defined as an aspect of thought, it is a kind of unit, in terms of which one thinks. Marion J. Levy Jr. while writing on some methodological problems says "A concept, as that term is used here, is a means of intersubjective communication. For these purposes, concepts are represented by signs, mostly words. These words, in order to fulfill such purposes, must have intersubjective meanings.... A concept may be defined as simply a name for the members of a given class, the class may be of any sort. The definition or referent of a concept involves the logical analysis of the class to which the concept is applied." (5) Chinoy describes the nature of concepts and writes "a concept is a general term that refers to all members of particular class of objects, events, persons, relationships, processes, ideas."

Writing on science and concepts, Chinoy says "The first step toward the understanding of sociology, as of any scientific discipline, is the mastery of its basic concepts. The concepts of sociology, then, provide the intellectual instruments with which the sociologist works. They define the phenomena to be studied, and they differentiate sociology from other social sciences, each of which has its own body of concepts. They focus attention upon those selected aspects of reality with which we shall be concerned, and they provide the terms in which problems are posed and answered." (6)

Levy Jr. provides some guidelines for dealing with concepts for empirical scientific purposes and enumerates his observations like this "For empirical scientific purposes they (concepts) must first be precisely defined and precisely differentiated from other concepts. Second, they must be given empirical referents. Third, they are not more or less valid, but only more or less useful for a given purpose of analysis."(7) Sartori says "Whether concepts are theory-formed or theory-
forming, in either case they are the basic units with which the social profession actually performs." (8)

A term is a word or phrase used to denote a concept. Sartori defines a term as "The form used to signify the concept—that is, a word allocated to a concept." (9) Explaining the relation between concepts and terms, Seergel says "In language, terms (single-word terms or multiword terms) are used to designate concepts. The relationships between concepts and terms are governed by the rules of terminology. However, as is well known, there is much confusion in this area. Firstly, there is not one-to-one relationship between concepts and terms. In the case of synonyms, several terms designate the same concept. For example, lawyer and attorney... and place under government ownership and nationalization are synonyms. On the other hand, homonyms are terms that correspond to different concepts (have different meanings)...: socialization (economics) and socialization (social psychology) are examples. Secondly, different people use the same term with different meanings. Things are complicated even more by the well-known fact that different persons (or even the same person at different times) associate different concepts with one and the same term. It is therefore necessary to control the relationship between concepts and terms. In most fields, this problem is far from solved." (10)

1.31 Sociological Concepts

Concepts in a discipline are useful for the formation of theories. Leslie et al. say "whether we speak of men, tables, societies, cultures, or systems, the process is the same. We use abstract symbols to group things together, to distinguish one type of object from another and, ultimately, to see the world as orderly. Concepts enable man to classify sub-classify, and cross-classify the objects in the environment. They provide him with the flexibility to see connection among things, in ways that otherwise would be impossible." (11) Turner, emphasizing the
importance of defining concepts unambiguously, writes under the head-
ning 'Concepts: the basic building blocks of theory' and says "Theories are built from concepts... Concepts are construc-
ted from definitions.... Concepts that are useful in building
theory have a special characteristic. They strive to communicate
a uniform meaning to all those who use them. However, since
concepts are frequently expressed with the words of every-
day language, it is difficult to avoid words that connote
varied meanings- and hence point to different phenomena - for
different group of scientists. It is for this reason that many
concepts in science are expressed in technical or more 'neutral'
language, such as the symbols of mathematics. In sociology,
expression of concepts in such special languages is sometimes
not only impossible, but also undesirable. Hence, the verbal
symbols used to develop a concept must be defined as precisely
as is possible, in order that they point to the same phenomena
for all investigators. While perfect consensus may never be
attained with conventional language, a body of theory rests on
the premise that, scientists will do their best to define concepts
unambiguously. Not to do so, or to give up because the task is
difficult, is to invite conceptual chaos and thereby to preclude
the accumulation of theoretical knowledge."(12)

Explaining the significance of concepts for sociology,
Chinoy says "So significant a part of sociology are its... con-
cepts that the history of the discipline is in part a his-
tory of conceptual elaboration and refinement. Some have come
into general use, whereas others have gained currency for a time,
only to be displaced by more precise or more refined categories
of observation and analysis.(13) Wallace and Wallace say "Conce-
pts are categories of behaviour, events, or characteristics that are
considered similar for the sake of theory construction."(14)
Bibliographic information retrieval languages use terms that represent concepts of specific fields of knowledge and disciplines. It is desired that a concept is represented by a single term by all those who deal with that concept, but generally it does not happen. According to the perception of an individual, he forms an image of an unit of thought, or an object, which we name concept and uses a term for it, many times quite different from what the concept in question should convey. As such, in specific disciplines, the concepts are given specific explanation, definition and limiting boundaries, but in social sciences, the situation is not that much clear and several times, various terms are used to represent the same concept. Not only that, an individual object is also seen from different angles and different concepts are formed about it according to the cultural background.

Nedobity writing on the difference between common language and information languages, writes "In common language the specific meaning of a word is always dependent upon the context in which it is used. In special languages, a term is assigned to a distinct meaning, i.e. a defined concept. This concept, which is delimited from other concepts, is integrated in a system of concepts. It is dependent on this system, which is also indirectly true of the term. In indexing languages, a thesaurus word is assigned to a concept, which describes the contents of documents stored in an information retrieval system." Nedobity further says "What is found in common in a set of individual objects is, summarized or abstracted mentally and expressed by a concept. In this way, the concept is an element of thinking, which comprises the characteristics common to a number of objects. The aggregate of characteristics of a concept is called its 'intension'. Every concept is a member of a class of concepts and can itself form a class of concepts that are
The aggregate of all subordinate concepts (species) at the same level of abstraction or of all individual objects which belong to the concept in question, is called 'extension'. The aggregate of all individual objects is also termed 'class'. The characteristics of concepts help us classify concepts and construct systems of concepts.\(^{(15)}\)

Organization of knowledge and its retrieval in libraries and information centres necessitates the grouping of concepts into classes, and arrangement of these classes in hierarchical relations. The first prerequisite to any classification and categorization is identification of the items to be classified. In a specific discipline, these items to be categorized can be named as concepts of that discipline. The delimitation of knowledge into specific compartments is not easy, as such, in many fields of knowledge, specifically in social sciences, where the same term is used in different discipline-specific contexts, the literature of that field provides the context in which a term is used and to which concept a term represents. To find out the concepts used in a specific discipline, its areas of interest are identified and some limits are drawn about its nature, perspectives, boundaries, range, field, scope, subject matter and coverage. The second aspect to be kept in mind in identifying the concepts related to a discipline is - to see what type of consensus is emerging about individual concepts with regard to their attributes, among the specialists of that discipline.

Organization of knowledge in libraries, is based on some systems of classification schemes, and use of subject headings. The vocabulary or the terms used in these systems represent the concepts and categories used in the literature of that discipline. The success and effectiveness of any library's knowledge organization system depends on the extent to which the designers of the information retrieval tools have been able to identify the significant concepts of that discipline,
and incorporate the terms representing them in the vocabulary of classification schemes and other bibliographical information retrieval tools.

Bliss says, classes are correlative to concepts and terms. In his words "In the multiplicity, diversity, and complexity of natural objects and their relations, we discern that individual things and events are discrete and that, tho(sic) they differ in their individualities and specific characteristics, we relate them in classes and in concepts, in primary learning and in mental comprehension. This is the process of classifying, of conceiving classes, and of relating them in mental comprehension. It is fundamental to generalization, to simplification, to classification, and to organization of knowledge, and thought. A class is denoted by one or more words or terms, which name it, signify it, and mean it. Such terms or class names are correlative to their classes and to the correlative concepts. (16)

On terms, Bliss says "Terms are definite as classes are; and they are correlative to the classes as the class names are. They should be distinctive and should be used consistently. A class may, however, be denoted by several synonymous terms. The class-name may, moreover, be composed of two or three terms together. In different languages the class-names differ more or less, tho, they may be etymologically related. (17)

We have seen that concepts have been described as the building blocks of theory and same relation exists between theories and a specific discipline like sociology. As such, it is essential for designing any type of bibliographic information retrieval tools to identify the main concepts of a discipline. It may not be difficult to identify the concepts used in a discipline, but the real problem from the information retrieval point of view, is to adopt a methodology, through which, concepts are identified in such a way that no significant concept is left unrepresented in the retrieval tools. It is also essential to place various concepts in
relation to each other in such a manner that those concepts appear together, that have maximum interrelationship. Stressing this point Riggs says "The concepts used in a specialized field of knowledge are highly interdependent, as such, it is important that they are presented in a systematic (i.e. classified glossary, with interlinked definitions, and comprehensive analytical index to all the terms, that can be used to designate each concept, given as an entry in the glossary." \(^\text{(18)}\) However, the task of representing concepts in a systematic order in the form of terms is quite problematic and no arrangement can satisfy differing point of views. Highlighting this problem Coates writes "This would be very simple to achieve if there were an uncomplicated, one-to-one relationship between concepts and words: that is to say, if there were a single word corresponding to each concept and a single concept corresponding to each separate word. In fact, we have on the one hand, concepts that can be rendered by any one of a number of words, and on the other hand, concepts for which no single word equivalent exists in the natural language." \(^\text{(19)}\)

### 1.4 Sources of Data

Terms used in the dictionaries and encyclopaedias, and definition of the main concepts of sociology was taken from the following dictionaries:

To find out the main concepts of sociology on which introductory sociology textbooks include a chapter, 100 textbooks were used. The list of these books is provided in the appendix. Following bibliographical information retrieval tools were used for evaluating the provision in them for the main sociological concepts identified from the textbooks of sociology:-


Dictionaries of sociology were also evaluated for the provision in them, for the main concepts of sociology. Following two sources were very helpful in providing definition and guidelines for some of the concepts used in dealing with sociological concepts in the information retrieval tools:


1.5 Scope

It was decided to take a sufficiently large sample of textbooks, as such, 100 titles were selected and finally 87 books were included in the study for identifying main concepts from the terms used in the chapter headings. The textbooks pertain to the period 1939 to 1990, and the period coverage is also quite satisfactory. Thus, the sample represents the universe of sociology textbooks fairly well. For taking the terms from dictionaries, 5 dictionaries of sociology and 3 dictionaries/encyclopedias of social sciences published between 1955 and 1989 were taken, and for a research study, the sample is quite sufficient. For evaluation of retrieval tools, to see the provision
in them for the main sociological concepts, three general classification schemes, one subject specific classification scheme used in indexing, and one list of subject heading has been used.

Thus, from the point of view of literature coverage, and period coverage, the scope of the study covers the field of sociology fairly well. However, the study is not intended to be a study in the field of concept analysis, and touches the aspects of individual concepts only to the extent, that is helpful in understanding the scope of individual concepts, to decide their interrelations and placement in a filiatory and helpful sequence for use in bibliographic information retrieval systems.

1.6 Presentation of the Study

The study has been divided into six chapters. The second chapter on literature survey provides a brief introduction to some of the theoretical as well as applied efforts to identify concepts pertaining to specific disciplines, mainly in the sociological literature. As there has not been many efforts to identify discipline-specific main concepts, mostly such studies are limited to individual suggestions and not based on any literature survey.

The third chapter on methodology includes data collection as well as the procedure adopted to analyze the data. The chapter also explains the reasons for adopting the chapter headings in the textbooks as the basic source of identifying the main concepts of sociology.

The chapter on analysis and interpretation of data deals with identification and the basis of arrangement of the main concepts of sociology. Each one of the 100 concepts has been analyzed for arrangement, based on its definition, explanation and usage in the literature of sociology. The chapter also explains the methodology in detail of categorization of main concepts according to their relative significance.
Fifth chapter tries to evaluate some bibliographic information retrieval tools as far as the provision for main sociological concepts in them is concerned. For this, various types of tools were selected, as such, three general classification schemes, the Sociological Abstracts classification scheme, and Library of Congress Subject Headings have been evaluated. The provision for these concepts in 8 dictionaries of sociology/social sciences has also been seen. Finally, the main concepts are compared with the main concepts suggested by some sociologists.

The last chapter summarizes the results of the whole study, which shows that main sociological concepts are not well represented in the various bibliographic information retrieval tools.

References

4. ibid.
9. ibid. p. 84


13. Ely Chinoy *op. cit.* p. 15


17. *ibid.*

18. F. W. Riggs "Establishment of glossaries: their basic functions" *International Classification* 9(2) 1982: p. 77