CHAPTER - III

Research Design

3.0 Introduction

Research and Development activities in each field are acknowledged on the basis of the investigations into identified problems. There are new approaches to settle scientific paradigms, searching for new research prospects with the task of giving theoretical maturity with factual foundations. This aspect of methodological research is based on established research results which are accepted as scientific truths.

The research process is a special and powerful mode of thinking. It yields an understanding of how related events behave, and will often provide ways of coping with the environment. It comprises of the methods of gathering numerical data and drawing conclusions on their characteristics and their behavior. The kind of data selected for study is determined by past developments in the field to which these data belong.

It is a universally recognized fact that the methodology of a scientific
branch is an integral, inseparable part of that scientific branch along with its history and organization. Methodology of any scientific branch is considered to be formed when more and more of investigations are undertaken.

“In Library & Information Science, librarians as mediators between recorded information and users, they must be able not only to locate information but also to interpret or evaluate this information for patrons.”

The present study is a case study, concerned with bibliometric investigations which are used to identify the patterns of publications, authorship, and or secondary journal coverage in the hope that such regulations can give an insight into the dynamics of the area under consideration. It is an evaluative study of scientific literature output in Social science. It aims to apply the empirical laws of bibliometrics on the data/records of Social Science research literature. The study includes an analysis of social science literature between 1999 to 2011 in the context of country of contributions, language of contributions, authorship pattern and percapita aspects of contributions. Further the study intends to identify the course of trend in social science research as revealed by the literature output in the subject.

Based on the analysis, the study aims to arrive at future course of projections in authorship pattern, language and country of publications. In addition, the study proposes to apply the empirical laws of Lotka and Bradford. The study is mainly exploratory in nature in identifying the research output of

---

scientists in social science and is also analytical in nature with suitable statistical tools application in strengthening the empirical validity.

### 3.1 Choice of the Topic

Bibliometric Analysis as a subject of study and its application, when compared with many other subject fields, is of recent origin in Information Science attracting scholars to work on its various aspects as evaluation of information plays a vital role in policy making and economic planning.

The topic of investigation of this project for research is "Evaluation of social science research output: A bibliometric analysis."

### 3.2 Objectives

The investigator has framed the following objectives in the context of the content and meaning of the study:

- To identify the quantum and structure of Social science covered by Social science Abstracts during the decade spanning between 1999 to 2011 thirteen years

- To identify the source and country-wise distribution of global Social science literature output;

- To compare and measure the growth rate of Social science of India in relation to some selected countries;

- To analyse the authorship pattern of various countries;

- To study the trend in authorship pattern;
To track down the development of Social Science research literature and its language of publication during the period of coverage;

To analyse quantitatively, the annual literature output;

To analyse the trend among the various types of publications;

An analysis of the data with the above objectives and a set of co-ordinating hypotheses shall lead to a set of meaningful inferences.

3.3 Hypotheses

The researcher has formulated following set of hypotheses fulfilling the objectives of the study:

1. Research literature output from a country is related to its Economic growth;

2. Scientists prefer to publish their contributions in journals published from developed countries;

3. Collaborative research output has replaced individual (solo) research in many areas in Science;

4. The scientific productivity of authors in herbal research literature is in conformity to the Lotka’s inverse square law of scientific productivity.

3.4 Methodology
The present study entitled “Evaluation of social science research output: A Bibliometric analysis” encompasses records output in social science. Records required for the bibliometric analysis of this study have been downloaded from the Thomson Reuters ISI Web of Science database accessible at Madurai Kamaraj University Library.

3.5 Sample size

The fields selected for the download includes Author, Title, Source, Language, Country and Year. The size of the sample downloaded for the purpose is 53801. The study involves the analysis of behaviour of social science output in its wholeness between a break free period of 1999 to 2011.

3.6 Data Collection

There are various sources contributing to the research output in the field of Social science. In this study, bibliographic records have been downloaded from the Thomson Reuters ISI Web of Science database. The bibliographic data thus downloaded includes journal articles, books, conference proceedings, editorials, letters, News, comments etc. The search was conducted using the Subject Category “Social Sciences” limited to a period between 1999 and 2011.

3.7 Statistical Tools
Keywords filtered and cleaned records relevant to the study were imported into MS-ACCESS for statistical analysis. Laws, principles of Bradford, Lotka, Zipf and Naranan have been applied for inferences. In addition, general statistical principles and Trend Analysis have been applied wherever required.

### 3.7.1 Correlation Analysis

The correlation co-efficient is a measure of the strength of the linear relationship between two variables. Like regression analysis, correlation assumes that the relationship between the two variables is linear. That is, when one of the variables is plotted against the other, the data points should show a straight line pattern (no curves). Unlike regression, correlation assumes that both variables are independent, neither is dependent on, nor causes or influences the other. The correlation co-efficient takes on values between -1 and 1, with values close to -1 or 1 indicating a strong relationship between the two variables. A value close to 0 indicates a weak or non-existent relationship. A negative value shows a negative or inverse relationship -- as one variable increases, the other decreases. A positive value shows a positive or direct relationship--as one variable increases, the other also increases.

Pearson's correlation co-efficient (Pearson's r) assumes that both populations are well approximated by a normal distribution, and that their joint distribution is bivariate normal.
3.8 Limitations of the study

The study covers a period of Thirteen years and is pertained to the records downloaded exclusively from the Thomson Reuters ISI Web of Science database which follow its own set of criteria for the inclusion or exclusion of sources and therefore records. Generalizations are based on the data pertaining to the thirteen years period.

REFERENCES