

The Data Analysis Tools Used in the Articles of Annals of Library and Information Studies: An Analysis

*Rajani Mishra**

Department of Library and Information Science, Faculty of Arts, Banaras Hindu University, Varanasi, Uttar Pradesh, India

Abstract

Research is the means to deplore the already existing information in the discipline. It is continuous and exhaustive study and leads to development of the newer theory, methodology or redefinition of the already existing theory in the light of new facts. This rediscovery depends upon the used methods and tools of the research. The present study is a step towards this. It tries to find out the various research methods used by the researchers of the library and information science.

Keywords: Research methods, library services, survey, analytical research

***Author for Correspondence** E-mail: rajanimishra5@gmail.com

INTRODUCTION

Library science as a discipline developed somewhere around late nineteenth century in USA. Any subject to develop requires input by the research in various parts of the subject. The development of the phenomenon like interdisciplinary and multidisciplinary research has added value to the subject. This has made library and information science as a discipline more versatile and productive. The interdisciplinary research has added various prongs to discipline like addition of the word information to mere word library science, the change in very nature of libraries into digital or electronic libraries. The services of libraries have also changed from collection based to access based by the use of OPAC instead of physical card catalogue. Libraries are exhausting their budget in subscribing e-databases instead of purchasing print volumes. Libraries have become dynamic resource sharing centres with the plethora of information available on the web.

Both the services and collection of libraries are using Web 2.0 technology. Being an interactive technology, the very nature of libraries has changed into Library 2.0, which allowed access to information cross-society, sharing and utilization of it for the progress of the society [1]. All these could be possible only by the research in the subject. Dr. S. R.

Rangnathan has contributed a lot in the discipline. The active research in LIS field was further taken up by D.B. Krishna Rao under the supervision of Dr. S. R. Rangnathan, who was awarded the first doctoral degree in library science in 1957. Research plays an active role in the growth and development of the society and its citizens.

Importance of research can be summarized in following points as given by Rajshekhar *et al.* [2]:

1. A research problem is a difficulty experienced by researcher and calls for a thorough understanding and possible solutions.
2. Research helps us to identify the range and applications of the problem and its solutions.
3. Research is a formulation of knowledge and provides guidelines for solving problems.
4. Research is a formulation of knowledge and provides basis for many government policies and helps in budget making.
5. It is important in industry and business for higher gain and productivity and to improve the quality of products.
6. Novel ideas and phenomenon are the result of research only. It also helps in solving the social issues.

LITERATURE SEARCH

A number of studies have been done on the single journal like JASIST, JI. of Documentation, and Library literature at the international level. Annals of library and information studies have been studied by different authors in different time duration. An important study done by Mete and Deshmukh from 1984 to 1993 on the journal was citation analysis revealing the fact that journals are the best vehicles for communication, annals of library science and documentation is the most cited journal and self-citation is highest [3]. Another study was done by Deshmukh from 1997 to 2010 which was published in ALIS in December 2011. Second citation study on the same journal though later in time, out of 326 articles published during the period with 4141 citations, revealed the half-life of LIS literature i.e. 9 years for periodicals and 14 years for books, source journal being the most cited one [4].

In June 2007, another article by Verma *et al.* on citation analysis of the same journal appeared, which was little bit different from previous two in terms of publication wise, area wise and ranking of journals were the basis of study [5]. Time duration of the study was 1999–2005. Another study was published in Desidoc journal of library and information technology in 2013. Pandita did bibliometric analysis of the articles published in ALIS from 2002 to 2012, which was actually citation analysis and revealed the half-life of books and periodicals [6]. Current study is a content analysis in terms of research methodology used in the articles of annals of library and information studies, published by National Institute for Science Communication and Information Resources, New Delhi, from 2011 to 2015.

OBJECTIVE

The objective of the study is to find the various research methods used by the researchers in their article.

METHODOLOGY

The studied journal has modest origin in 1954, when INSDOC launched annals of library science and Dr. S. R. Ranganathan as the first editor. In 1964, the name was changed from annals of library science to annals of library science and documentation, again in 2001 the name changed to annals of library and information studies. It is the oldest Indian journal in library science. Annals of library and information studies is a leading quarterly journal publishing original papers, survey reports, reviews, short communication and letters pertaining to library science, information science and computer application in these fields. Simple methodology of the study used was content analysis of the articles published from 2011 to 2015. Since the frequency of the journal is quarterly, so, the articles published in the 20 issues of the journal were taken into consideration. The content of each and every issue was analysed for the type of data analysis tools used by the authors of the articles.

There were total 173 articles published in 20 issues of 5 volumes of annals of library and information studies. These articles were grouped into four major research methodologies viz. statistical, descriptive, survey and case study, shown in the Table 1 below.

These articles were further categorised for the various data analysis methods, which are as follows (Table 2).

Table 1: Year wise Distribution of Articles and their Growth Rate.

Year	2011	2012	2013	2014	2015	5
Total No. of Articles	36	27	37	35	38	173
Annual Growth Rate	0%	-25%	37.037%	-5.405%	8.571%	CAGR 7.07%

Table 2: Various Research Methods used in the Published Articles of ALIS.

Research Method Used	Statistical	Descriptive	Survey	Case-Study
No. of Articles	54 (31.21%)	64 (36.99%)	45 (26.01%)	7 (4.04%)

Besides, there were two short communications and one letter to editor. These articles were further explored for the kinds of methods employed by them for data analysis. The statistical methods employed in case of library and information science are termed as bibliometric, scientometric or webometrics. There were 28 bibliometric studies, 17 scientometric studies and nine webometric studies. Descriptive method is the highly used method (64) of study and least used one is case study (7). The survey method is also used by the researchers for the data collection, which is a means of “gathering information about the characteristics, actions or opinions of group of people, referred to as a population” [8]. Survey is either structured questionnaire based or through simple observation and interview methods. Outcome of the findings were (Table 3).

Further distribution of articles on the basis of survey method can be categorised as follows (Table 4).

These articles were further analysed for the type of statistical methods used for the analysis of the received questionnaire. The result showed the use of simple frequency distribution and percentage of usage to be frequent enough, while some articles used SPSS package for factor analysis, chi-square test, t-tests, frequency distribution, percentage and contingency coefficient, multiple regression analysis, and weighted means. The entire analysis can be depicted through given tabulation (Table 5).

The above table depicts that percentage and frequency distribution is the most frequently used methods of statistical analysis, while other statistical methods like chi-square test, standard deviation etc. are least used once. Bibliometrics, scientometrics or webometric studies uses simple frequency distribution and percentage as the data analysis tool. This distribution of statistical methods for data analysis can also be shown with the help of Figure 1.

Table 3: Year wise Distribution of Articles of ALIS using Survey method.

Year	2011	2012	2013	2014	2015
Total no. of articles using survey method	11 (30.55%)	6 (22.22%)	14 (37.83%)	6 (17.14%)	8 (21.05%)

Table 4: Year wise Distribution of Articles with Various means of Survey methods.

Year	2011	2012	2013	2014	2015	Total
Questionnaire Based Survey	9	4	12	5	8	38
Simple Survey	2	2	2	1	0	7

Table 5: Various Statistical Methods used in the Analysis of the Questionnaires of Survey method.

Year	2011	2012	2013	2014	2015
Chi-Square Test	1	-	1	-	-
Factor Analysis	2	-	1	1	-
t-Test	1	-	1	1	-
ANOVA	-	-	-	1	-
Weighted Mean	-	1	-	1	1
Multiple Regression Analysis	-	1	-	1	-
Mean	-	-	1	-	-
Standard Deviation	-	-	1	-	1
Frequency Distribution and Percentage	5	2	9	1	6
Contingency Coefficient	-	1	-	-	1
Total	9	5	16	6	9

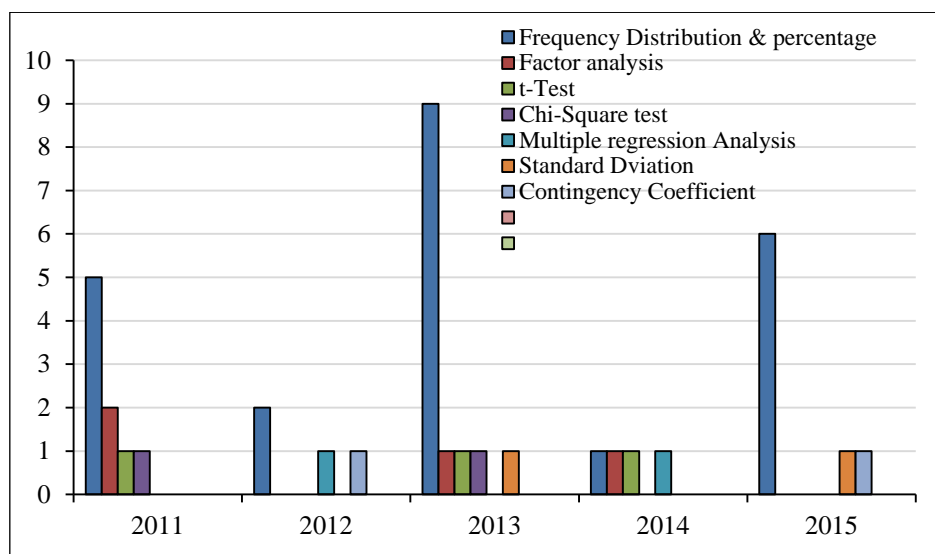


Figure 1: Year wise Distribution of statistical methods for Data analysis.

CONCLUSION

The various articles appearing in the issues of the ALIS are descriptive one using historical or descriptive research method while statistical and survey methods stood at second and third position, case study is the least used method. Of the statistical methods, frequency distribution and percentage is most frequently used data analysis method, other methods like factor analysis, chi-square test, t-tests, contingency coefficient, multiple regression analysis, and weighted means are used sparingly by the researchers.

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