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Editor - in - Chief

Udayan Bhattacharya

Instruction to Author

The followings are the general instructions regarding the structure/format of an article.

1 General Instructions

The following general instructions are to be followed by author(s) in contributing a paper.

- Articles should preferably be within 5000 words in length. This includes all text including references and appendices.
- The article should consist of the Title, Author(s) details, Indicative Abstract and subject keywords, Text with documentation, Table(s) (if any), Figure(s) (if any), Acknowledgment(s) (if any), References, and Appendices (if any).
- All sections of the article must be in Times New Roman font with specified point size in different sections of the manuscript as stated below.
- Equal margin of 2.54 cm (1 inch) should be provided at top, bottom, left, and right.
- Unless otherwise specified for different sections, as is stated below, all parts of the manuscript, in general (abstract, text, tables, figure captions, notes and references), must be single-spaced.
- Page orientation should generally be portrait.
- Page size should preferably be A4 (8.27" X 11.69").
- Entire text should be provided in one column.
- Beginning of each paragraph should get aligned left and double-spaced.
- There should be double space in between title, author details, abstract, main text, headings, sub headings, figure captions, notes and references.
- Papers may be submitted in either UK or US English provided usage is consistent.
- Abbreviations can be used within the text according to internationally accepted conventions.
- Notations should conform to international usage.
- Footnotes should not be used.
- Author(s) should submit article in a hard copy along with soft copy preferably through e-mail at **librarian@libsc.jdvu.ac.in** It is assumed that the authors have kept an exact copy of the article submitted by them.
- For additional guidance on any matters not specifically addressed in the Specific Instructions listed below, the author(s) should consult the organizing secretary (by e-mail).

2 Specific Instructions

The following specific instructions are to be followed by author(s) in contributing a paper.

2.1 The First Page

The First Page of the article should be consisting of the following elements with prescribed specifications:

Article Title: The title should be a maximum of 15 words written in upper lower case with a 14-point bold font placed on the page top, centred on the first line.

- Author Details: The author details should include full name, affiliation, and contact details including e-Mail Id(s) of the author(s) in upper lower case with a 12-point bold font centred.
- Indicative Abstract: Contributions should be preceded by an indicative abstract of 100-150 words in a 10-point italic bold font with single spacing. The abstract should summarise the whole article, not just the approach or conclusions.
- Keywords: The author(s) should provide three to six keywords expressing the exact nature and content of the article in a 10-point italic bold font. Each of the keywords needs to be separated by a comma (,).
- Type of Article: Article type should be specified clearly keeping no scope of ambiguity.

2.2 Text Style and Format

Text style and format should be as per the following specifications.

Text with Documentation

- Text must be in a 11-point Times New Roman font in single space.

Headings

- Headings must be concise, with a clear indication of the distinction between the hierarchies of headings.
- All headings/sub-headings, etc. should get aligned left.
- Headings should be numbered with Arabic numerals starting from 1, e.g., 1 Introduction. Sub-headings (second-level headings) should be numbered 1.1., 1.2., 1.3., etc. Third- and fourth-level headings should be numbered, e.g., 1.2.1. and 1.2.1.1., respectively. There should be two blank spaces between the heading/sub-heading number and heading/ subheading itself.
- All headings should be in a 12-point Times New Roman bold font, sub-headings (second-level heading) should be in a -point Times New Roman bold font, third-level heading should be in a 10-point Times New Roman bold font, and fourth-level heading should be in a 9-point Times New Roman bold italic font. Subsequent level headings should get reduced by 1-point and be in ordinary italic.

Tables

- There should be a title at the top of every table preceded by a number, in Arabic, if more than one table is used. A single sequence of numbers must be used even when tables differ in kind.
- A table in the text should be placed almost immediately after the point where it is first mentioned or referred to.
- If a table is merely supplementary, it should be placed in the appendix and mentioned in the text.
- Standard symbols and abbreviations may be used to save space.
- Figures in columns should be aligned under similar digits, ordinarily the right hand digit.
- If a table is taken from an outside source it should be duly acknowledged by mentioning the source in parentheses under the figure.
- If a note is needed to explain some part of a table, it should be placed under the table.

Figures

- There should be a caption at the bottom of every figure preceded by a number, in Arabic, if more than one figure is used. A single sequence of numbers must be used even when figures differ in kind.
- A figure in the text should be placed almost immediately after the point where it is first mentioned or referred to.
- If a figure is merely supplementary, it should be placed in the appendix and mentioned in the text.
- If a figure is taken from an outside source it should be duly acknowledged by mentioning the source in parentheses under the figure.

2.3 Acknowledgements

Acknowledgements, if any, should be at the end of the article (before the references).

2.4 Appendices

There should be a title at the top of every appendix preceded by a number, in Roman, if more than one appendix is used. A single sequence of numbers must be used even when appendices differ in kind.

2.5 References

Citations in the text and reference list should follow the procedure prescribed by the Style Manual of American Psychological Association (APA), Sixth Edition.

Editorial

Our beloved department has completed its 54 years of journey. Its illustrious journey has engraved footprints in different directions. Students have become successful professionals; scholars are bearing the flag-ship of the department. The alumni of the department are gradually becoming the potential force to reinforce its foundation. The age old eagle has spread its wings to rule over the sky.

LAB MILKY WAY is the latest strong stride towards the development. It is the fulfillment of the dream weavers dream. This huge Lab is really a long cherished dream of the department. It has the capacity of housing 85 terminals with server, separate arrangements for students, scholars and project personnel.

The departmental library is always a place of inspiration for stack holders of the departments and outsiders as well. A new feather has been added to its journey towards MILKY WAY. The library becomes 'automated' with bar code facilities and CCTV monitoring system. And the physical space of the library has become double to provide more facilities to students.

The department has been publishing 'Librarian' with all its sincerity. With the passage of time it has become a symbol of 'regularity and nourishment'. To encourage potential scholars and researchers its volume has been substantially increased.

Finally we are able to start M. Phil course from this session. It is also a long unfulfilled demand of the students. So, this effort will definitely be a positive step to produce more qualified manpower.

The department is the outcome of the support and hard work of hundreds of people. Their untiring efforts, religious involvement and limitless affection are the reasons for its prosperity and expansion.

We believe in the words of Walt Disney: "If you can dream it / You can do it"

Dewey Decimal Classification (DDC) and Its Number Relocation since Inception: An Evaluative Study

Tapan Barui and Udayan Bhattacharya

The utility of DDC is very appreciable instead of so many lacunas. This study is an attempt to explain the concept of relocation and its use in different editions of Dewey Decimal Classification (DDC). It is a critical review of significant changes occurred in different editions of DDC and its number relocations, phoenix schedules, and future modifications. The types of relocations used in DDC are also included here. The number of relocations from the last eight editions and major revision works are studied and presented in tabular form.

Keywords: Dewey Decimal Classification, Relocation, Facet in DDC, Phoenix schedule, DCEPC.

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1. Introduction

The important event in library history occurring in 1876 was the appearance of a (then) anonymous publication entitled: **A Classification and Subject Index for Cataloging and Arranging the Books and Pamphlets of a Library**. The author was Melvil Dewey and, through the years, the work has become known as the Dewey Decimal Classification (DDC). It has been revised and expanded through 23 major editions; the latest was published in 2011 and has grown from forty four-page pamphlet to with fewer than one thousand classes to a four volume set. Today 138 countries use DDC in 30 major languages and 2 lakh libraries, information centres and many national libraries in the world. The mammoth revision works are done by the OCLC and the DC Editorial Policy Committee (DCEPC) and the European Dewey User Group (EDUG). Now DDC is available in Full edition in 4 volumes, Abridged Dewey in one volume, and its electronic editions since 1993 such as the

Electronic Dewey, Dewey for Windows (DfW), Web Dewey and Dewey database. The web edition is updated on an ongoing basis, with changes announced each month. An experimental version of Dewey in RDF is available at dewey.info. This includes access to the top three levels of the classification in 14 languages.

DDC was started as an enumerative classification scheme for a flexible system to arrange books and other materials on shelves as well as subject headings for subject cataloguing and indexing. Dewey adopted decimal system which has inbuilt hospitality quality and used Arabic numerals for its notational structure. But due to the advancement of our society, the fundamental concepts are changed knowingly or unknowingly. According to Custer, Dewey used 'concept' instead of 'facet'. Surprisingly it is seen that from 16th edition (1958), DDC is commencing towards a faceted one. An example of application of several facets in 17th edition (1965):

Basic Subject	Primary Facet
617.1 Wounds and injuries	Add to each subdivision*;
.14 *Wounds	001-008 Standard subdivisions
.1 5 Fractures	01-09 General aspects
.16* Dislocations	Divide like 617.01-617.09

Secondary Facet	Tertiary Facet
617 Surgery	616.075 Diagnoses
.01 Complications and sequelae	.0755 Clinical diagnosis
.02 Special texts	.0 758 Microscopy in diagnosis
.07 Surgical pathology	
.073 Surgical nursing	
.075 Diagnoses	
Divide like 616.075	

Table 1: Classification of "Clinical Diagnosis in the Surgical Treatment of Wounds."

The demand of library community leads DDC to revise its editions in certain interval. Relocation of class number is an important characteristic of DDC. It reflects the

changes occurred in different spheres of our society through updated class number.

2. Objectives

1. To understand the notational structure of DDC

2. To furnish an overview of number relocation in DDC.

3. To identify the number relocation of DDC class number throughout different editions.

4. To evaluate the relocation policy taken by the DCEPC.

3. Methodology

In order to reach the objectives, stated above, a comprehensive literature search has been carried out to identify and locate available information, relevant and pertinent to the problem of this research work, scattered in various information sources like journal articles, conference papers, theses and dissertations, research reports, books, electronic information sources, even in Internet resources. To get access to such sources, document surrogates like bibliographies, indexes, library catalogues, booksellers' catalogues, and guide books have been used. The study covers all 23 editions of DDC in general but restricted in 16th to 23rd edition in particular to number relocation.

4. Observations

Relocation occurs when a topic is shifted to a number (other than to a super ordinate number or in an expansion of the topic upon the same base number). The old number may be bracketed, indicating that it is vacated and its use discontinued in this edition. These shifts may result in concern by the users of the Schedules, and so they are not done lightly. Relocations are made for various reasons in DDC, to keep pace with new knowledge or to rectify some of the structural irregularities which have developed in the system over the years (Chan 1973, 38).

4.1 Expansion of DDC Numbers

Expansion is undertaken in order to accommodate new subjects as well as to provide more minute and specific sub-divisions under the existing subjects. This is a

reasonable approach as most new subjects emerge as an outgrowth of an existing field of knowledge. With increasing specialization, library materials also tend to be more specific and, thus, require more minute subdivisions of the existing subjects. It introduces new numbers, or ones that had not been used recently, for one of the six purposes.

4.1.1. Subdivision of a Class Number

A specific topic may have been included under a broad heading. The growth of knowledge or the increase in materials written on the subject now warrants giving it a place of its own. As for example, multimedia systems was shifted from 006.6, and assigned 006.7, a new number.

4.1.2. Extended Meanings for Standard Subdivisions

Deviations from Table 1 usage are often accompanied in the Schedules by notes referring to other sections of the Schedules. As for example, organizations under religion were moved from [.6] to 291.65.

4.1.3. Standard Subdivision Scatter

To improve subject integrity, materials formerly grouped together because of a common aspect are relocated throughout the Schedules by use of a standard subdivision. As for example in Safety measures for particular excavation techniques were moved to the particular technique in 622.22–.29, with notation—0289 from Table 1 added.

4.1.4. Tables of Precedence

These tables help users choose among competing concepts in the course of synthesizing (building) numbers. A Table at the beginning of Education (370) offers these instructions:

Unless other instructions are given, observe the following table of preference, e.g., special education at elementary level 371.90472 (not 372).

Public policy issues in education	379
Special education	371.9
Specific levels of education	372–374

4.1.5. Multiple 0s for Subdivision

In some areas, the single zeros are used for other kinds of subdivisions, so additional zeros are added to the standard subdivisions.

Under Oriental philosophy (181), the structure is

.001–.008	Standard subdivisions
.009	Historical treatment
.04–.09	Philosophies based on specific religions

4.1.6. New Concepts

The growth of knowledge, or library materials on a subject not previously available, results in new numbers added to the Schedules. A new number is 004.678 for the Internet.

4.2 Reduction of DDC Numbers

A reduction results from shifting one or more topics to a number shorter than the old but otherwise not differing from it. Such topics are, then, classed with the more general topic. Relocation of a number of existing subjects takes place in every new edition. There are three reasons that this may occur.

4.2.1. Discontinued Number, or Total Reduction

If a new edition removed the entire contents of a number to a more general number, the original number is "discontinued." In the Schedules and Tables, the "reduced" numbers are bracketed with the note, "Number discontinued; Class in. . . .'' .The super ordinate number may or may not name the old caption in a note. Geographic distribution of Labor force was moved from [331.111] to 331.1109.

4.2.2. Meaningless Content

This may occur when a topic no longer has any meaning within its context. Three are listed in Edition 21. Special topics under Religion [204] were discontinued because it is without meaning in the context of Religion here.

4.2.3. Partial Reduction

This results when a number loses only part of its meaning but is retained within this edition's Schedules. These numbers are not bracketed but will have instructions concerning the nonuse of the number for the given topic, including directions about where to class it.

Election procedures was located under Voting procedures

at 342.075 but was moved "upward" in the hierarchy:

.075 Voting procedures. Use of this number for election procedures discontinued; Class in 342.07. The number is not bracketed and is retained for other meanings, such as "absentee voting."

4.3 Relocation of DDC Numbers

In relocation, one or more topics are shifted to a number differing from the old in respects other than length. If the relocation is partial, the original number remains valid; but if it is total, the original number is no longer used.

*, † and [ ] are used to indicate relocation. For details of the specific relocated topics the classifier should consult the appropriate entries in the tables and schedules.

4.3.1 Types of Relocation:

These locations are done in eight instances.

4.3.1.1 Total Relocation

This occurs when a number has lost all of its meaning in its context; then it appears in this edition in brackets with a note beginning, "*formerly. . . .*"

Armorial bearings and Comprehensive works on coats of arms were *both formerly* 929.82, but are now found at 929.6 under Heraldry.

4.3.1.2. Relocated Span

In some cases, not just a single number but a whole span of numbers may be relocated.

In the overhaul of Life sciences, many whole spans were moved en masse; for example, Natural history of organisms and related subjects was moved from 574 to 578.

4.3.1.3. Relocation of Split Meanings

Topics with single numbers or spans may be discontinued to have their meanings distributed elsewhere. These will be indicated with a series of relation notes separated by semicolons. Management of personnel of specific ages and sexes (658.3042) is no longer used and all its "parts" moved elsewhere. ("Management of men

relocated to 658.30081, management of women relocated to 658.30082," etc.)

4.3.1.4. Partial Relocation

This results when the original number retains some of its meaning, losing only part to a different class number. Instructions at the old location refer the user to the new one, which is annotated by a bracketed note beginning "*formerly. . . .*"

Acid rain was moved to 344.046336 from 344.04634, Pollution of specific environments, which is retained in the Schedules.

4.3.1.5. Split Relocation

In some instances only part of the meaning of a topic will be shifted to various other places, leaving the topic also in its existing place. Financial administration of agencies supporting public education bad been included under Support of public education (379.11) but was moved to 353.824, leaving the rest of Support of public education in its former place.

4.3.1.6. Splitting Out Comprehensive Works

"Comprehensive works" are often shifted to a super ordinate number or relocated completely to other hierarchies or other portions of their original hierarchy.

Comprehensive works on mammals was moved from 333.959 to 333.954 (same hierarchy).

4.3.1.7. Scatter Relocation

When the meaning of the discontinued heading is dissipated so widely that full enumeration of its relocations would be impracticable, a general scatter note or its equivalent is given. Scattering is done to improve subject integrity. Instructional facilities for teaching specific subjects was under Laboratories (371.6234) but is now "Relocated to specific subject, e.g., language laboratories 407.8, chemical laboratories 542.1."

4.3.1.8. Hierarchical Force of Relocation

If a topic with subdivisions is relocated, the subdivisions are also relocated or discontinued altogether. Usually the hierarchy is retained, although not necessarily in

the previous form. In the revamping of Religion (200), all of the standard subdivisions were moved together from the first division (201, 202, etc.) to the third (230).
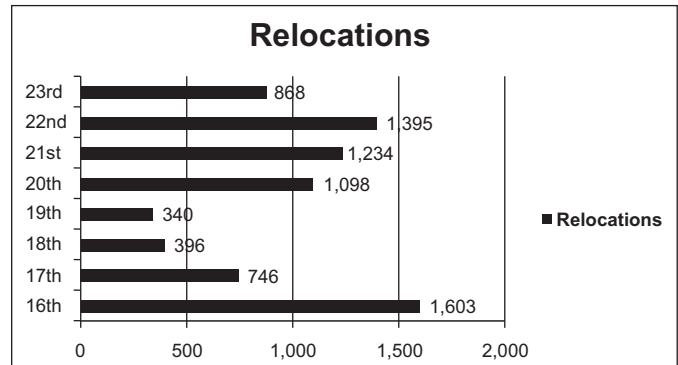
4.4 Phoenix Schedule

A phoenix schedule was a complete revision of an area, usually a division or several sections; the old schedule is removed and a new one instituted in its place retaining only the heading number; if a topic was at the same number in both editions, it was incidental. Phoenix schedules aimed at rectification of the schedules and tables in small but very potent doses, thus rendering the changes easily manageable. In Fifteenth Edition of DDC the concept of the *phoenix schedule* was introduced. Since the Nineteenth Edition there have been no more than two phoenix schedules per edition. (What a phoenix may cover, however, varies considerably.) The phoenixes for the Nineteenth Edition were 301–307 Sociology and 324 The Political Process. The first phoenix schedules were made for 546 and 547 in Chemistry.

4.5 Importance of Relocation

Melvil Dewey, in the Second Edition (1885), declared that the class numbers were then permanently linked to subjects. Future editions would only contain new subjects and their numbers, it was assured. In other words it was to keep the correspondence with existing class numbers and their then present meanings intact. New editions would only add new subjects and their numbers. It has never been possible to strictly observe this policy. In the revisions old subjects are usually given new numbers to rectify errors in the old edition. These are called relocations.

Chart 1: Edition wise relocations

The above chart shows that an uneven pattern of number relocation since its 16th edition to the latest 23rd edition. It proves that the revision work is a challenging one and despite of strong editorial committee, the universe of subjects are not represented in DDC properly. In other words, construction of enumerative classification or its revision is a tough and imperfect work. The DCEPC is competent and powerful enough to do such kind of task.

Table 3: Edition wise Major revision work:

Editions	Class	Topics
Sixteenth (1958)	546	Inorganic Chemistry
	547	Organic Chemistry
Seventeenth (1965)	150	Psychology
Eighteenth (1971)	340	Law
	510	Mathematics
Nineteenth (1979)	301-307	Sociology
	324	Political process
Twentieth (1989)	004-006	Data Processing
	301-307	Sociology
		(larger extension)
	780	Music
Twenty-first (1996)	350–354	Public administration
	370	Education
	560–590	Life sciences
Twenty-second (2003)	296–297	Judaism, Islam
	543	Analytical chemistry
Twenty-third (2011)	---	No class has been revised fully of drastically but relocation is found

Table 2: Edition wise relocations

DDC Editions	Relocations
16th	1,603
17th	746
18th	396
19th	340
20th	1,098
21st	1234
22nd	1,395
23rd	868
Grand Total	7680

Conclusion:

Number relocation is an intrinsic feature of enumerative classification scheme. DDC is not an exception. It is found that DDC-16 has greater number of relocation and DDC-19 has minimum number relocation. The primary reason behind it was the editorial competencies of above mentioned editions. At the same time, literary warrant was a great impact on it. DDC-16 was a post war publication, societal change was rapidly found in that period; nation building activities were prevalent in that era. The DCEPC is devoted to do such kind of task very skillfully. Although there are some limitations in number relocation, despite of it, DDC is a popular classification scheme among the library professionals.

References:

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Usability Testing of Web OPAC of Jaykar Knowledge Resource Center: A Study

Vijaykumar K. Jagtap and Sadanand Y. Bansode

Usability testing is a process of checking the usefulness of system whether it is obtaining the desired goals for which it is developed. The aim of the present study is to test the usability of the Web OPAC of Jaykar Knowledge Resource Center in order to make it more functional and interactive. The well-designed checklist and questionnaire have applied to conduct usability study. The questionnaires were randomly circulated among 50 research scholars of Savitribai Phule Pune University, Pune to obtain the data. The majority of the respondent use Web OPAC to know the availability and location of the document. The significant recommendation made by the respondents that there is need of library orientation programme at least twice in a year. Therefore, there is need to create awareness among users by conducting user education programmes, such as orientation, demonstrations and workshops regarding the importance of Web OPAC and its use.

Keywords: *Usability testing, Online catalogue, OPAC, Web OPAC*

1. Introduction

OPACs for libraries appeared in the 1980s, Web-based OPACs began to emerge in the late 1990s **(Babu and O'Brien, 2000)**. It is an access tool and resource guide to the collection of a library or libraries, which provides bibliographic data in a machine-readable form and facilitates search interactively on computer terminal by a user. Web OPAC is admired tool used by wide range of library users to browse, search and retrieve library resources.

Usability is the part of Human Computer Interaction (HCI), which refers to knowing the usefulness of the product or system. According to Bindal, Gupta & Khurana (2014) usability is the combination of fitness for purpose, ease of use and ease of learning that makes a product effective. It is a process of evaluating how well end users can use some web based system or web appliances for its intended purpose. It is usually conducted with the help of

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standard techniques such as questionnaire, checklist, observation, card sorting, heuristic principle, think aloud, log analysis, the task based analysis, video recording, online tools and screen casting etc.

2. Literature Review

The meaning of the term usability testing has been briefly explained by Battaleson, Booth and Weintrop (2001). According to them usability testing is human computer interaction (HCI) which is the study of how people interact with computer technology and how to make this interaction effective. Nielson (1993) has defined usability have five popular traditionally associated quality attributes such as learnability, efficiency, memorability, errors and satisfaction. The observation, video recording, heuristic evaluation, screencasting, software logging, think aloud, card sorting, interviews, questionnaires, online tools etc. are popular tools or methods of usability testing. Grady (2000) has applied paper prototypes to conduct usability testing of web site and to measure the benefits of it whereas Neilson (1994) has conducted study to fix the ideal number of subject headings for think aloud method to conduct effective usability testing. Chisman, Diller and Walbridge (1999) have applied questionnaire tool to conduct the usability testing of Griffin catalogue whereas Bury and Oud (2005) have carried out usability testing of online information tutorial with the help of questionnaire. Similarly Buchanan and Salako (2009) conducted usability testing of digital library e-services through questionnaire and observation method. Ramey (1989) created bibliography which focuses on the various earlier studies in the subject usability testing. Campbell (2001) gave usability assessment of library web OPAC which provided an admirable bibliography on usability testing which covered earlier research work which helps to understand the pros and cons of usability testing and its methods.

3. Objectives

The objectives set for the study are:

1. To assess the awareness about Web OPAC among the users.

2. To examine the users' perceptions about use of Web OPAC.

3. To know the availability of features and functions in Web OPAC under study.

4. To find out the difficulties or problems encountered by users.

5. To recommend suitable measures to improve the functionality of Web OPAC.

4. Scope and Limitations

The study is limited to the Web OPAC of Jaykar Knowledge Resource Center, SPPU, Pune and the responses from research scholars who are pursuing Ph.D. degree from the Savitribai Phule Pune University in the academic year 2016-2017. These research scholars are regular users of Jaykar Knowledge Resource Center.

5. Research Methodology

The present study adopted descriptive survey method in order to achieve its aims and objectives. Under survey method, checklist and questionnaire tools have been applied to obtain the necessary data. The specially designed checklist has been used to evaluate features and functions of the Web OPAC. The checklist designed with some modifications based on the earlier checklist developed by Babu and O'Brien (2000) and Mahmood (2008). Early research work sustaining the assumption argued that just five participants could reveal about 80% of all usability problems that exist in a product (Nielsen, 1993; Virzi, 1992). However, according to Faulkner (2003) table, fifty users or samples can raise 99 % minimum known usability problems of product or system. Hence, researcher has randomly selected fifty Ph.D. research scholars as sample to conduct the present usability testing study. Therefore, a structured questionnaire has designed and distributed randomly to fifty Ph.D. research scholars to gather the data.

6. Profile of Jaykar Knowledge Resource Center, SPPU, Pune

The Jaykar library of Savitribai Phule Pune University (SPPU), Pune was established in January 1950. The library name 'Jaykar' was given in honour of the first Vice-Chancellor of the Pune University, Dr. M.R. Jaykar. The 'Jaykar library' is presently known as 'Jaykar Knowledge Resource Center' (Jaykar Knowledge Resource Center, 2017). At present library has nearly

5,11,748 numbers of collection which includes printed books, periodicals, maps, specimen copies, bound volumes of periodicals and theses, films, clippings, pamphlets etc. The library automated in LIBSYS library management software, which was installed in the year 2000 by replacing CDS/ISIS Information Storage and Retrieval System. LIBSYS is an integrated library management system developed by LIBSYS Ltd, Gurgaon. It offers four basic modules e.g. acquisition, cataloguing, circulation, serials etc. and additional features like Web OPAC, article indexing and customizable reports. The Web OPAC is popular and commonly used module of LIBSYS Software. Following is the home screen of the Jaykar Knowledge Resource Center Web OPAC.

7. Home page of Web OPAC of Jaykar Knowledge Resource Center
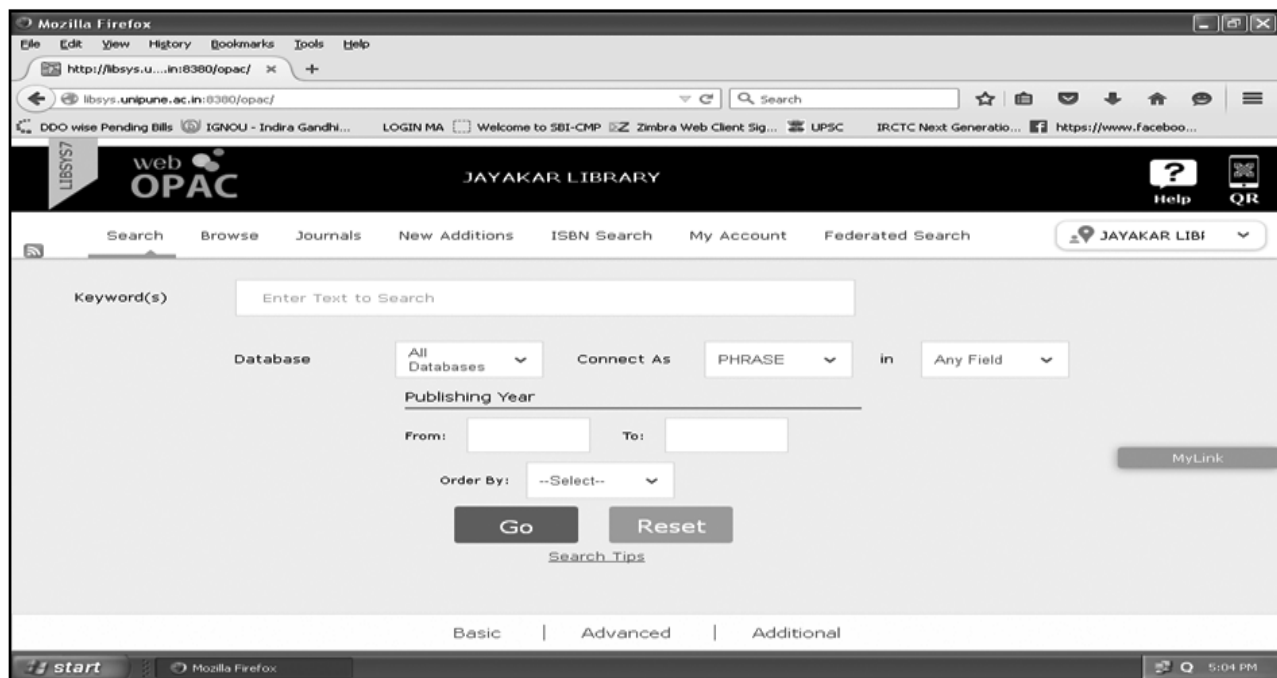
Screenshot : Screenshot of Web OPAC of Jaykar Knowledge Resource Center, SPPU
http://LIBSYS.unipune.ac.in:8380/opac/

8. Data Analysis and Interpretation

Data analysis section comprises of both checklist and user based analyses, which are as follows:

8.1 Checklist Based Analysis

The evaluation of the Jaykar Knowledge Resource Center Web OPAC has been done based on checklist. The detailed evaluation of the features and functions are shown in the following table. These features and functions are grouped under the headings such as home page attributes, access points, types of search, limit options, result conversion, sorting options, additional features etc.

Table no 1: Features and Functions of Web OPAC of Jaykar Knowledge Resource Center

	Features			Features	
I	**Attributes on Home Page**		**VI**	**Access Points**	
a	Browse	√	a	Title	√
b	Basic Search	√	b	Author	√
c	Advanced Search	√	c	Subject	√
d	Additional Search	√	d	Publisher	√
e	Federated Search	√	e	Place	√
f	My Account	√	f	Series	√
g	ISBN Search	√	g	ISSN / ISBN	√
h	New Arrivals	√	**VII**	**Limit Options**	
i	Databases	√	a	Collection Type	√
j	Journals	√	b	Item Type	√
k	My Links	√	c	Language Filters	√
l	Help	√	d	Publication Year	√
m	QR Code App	√	e	Database	√
n	Search Tips	√	f	Location and Availability	√
II	**Types of Search**		**VIII**	**Field Shown in Result**	
a	Browse	√	a	Author	√
b	Basic Search	√	b	Title	√
c	Advanced Search	√	c	Image of the document	√
d	Additional Search	√	d	Publication Details	√
e	Federated Search	√	e	Accession Number	√
III	**Result Display Formats**		f	Call Number	√
a	MARC	√	**g**	Availability and Status	√
b	AARC II	√	**IX**	**Result Conversion options**	
c	ISBD	√	a	Print	√
d	Linear View	√	b	Export	√
IV	**Result Sorting options**		c	Add to cart	√
a	Author	√	d	Share to RSS feed, twitter, facebook	√
b	Title	√	**X**	**Boolean Logic Operator**	
c	Publication	√	a	AND	√
d	Most Popular	√	b	NOT	√
e	Call Number	√	c	OR	√
V	**Additional Features**		**XI**	**User Assistance Facilities**	
a	Link to RSS feed, twitter and facebook	√	a	Help	√
b	Message	√	b	Search Tips	√
c	QR Code Facility	√			

8.1.1 Discussion

The table no 1 reveals that there are fourteen attributes available on the Web OPAC home page. It provides all the necessary search types such as simple, browse, advanced, additional, Boolean and federated search. It shows result in all standard display formats i.e. MARC, ISBD, and AACRII. It also offers popular and commonly used access points such as author, title, subject, publisher, series etc. The facility of result sorting is available where

one can sort their retrieved result by author, title, subject, call number and most popular. The essential limit options like collection, item, language, publication, location and availability found in advanced search. The displayed result shows necessary fields such as title, author, publication details, image of the document, availability status etc. The result conversion facilities such as print, export, add to cart and sharing of results with RSS feed, twitter and facebook. Like other Web OPACs, it offers AND, NOT and OR Boolean logic operators to combine or restrict the search queries. The advanced features such as QR code, federated search, message, sharing with social media etc. are available in the SPPU Web OPAC. It is noted from the evaluation that the Web OPAC of Jaykar Knowledge Resource Center offers majority of the necessary and advanced features.

8.2 User Based Data Analysis

A questionnaire distributed randomly among fifty respondents to analyze the usability of the Web OPAC from the user's perspective. A detailed analysis of the data and its interpretation are presented below in the form of tables, graphs and figures.

8.2.1. Gender wise distribution of the Respondents

Table no 2: Gender wise distribution of the Respondents

Sr. No.	Gender Type	No of Respondents	Percentage
1.	Male	29	60.42%
2.	Female	19	39.58%

The study reveals that out of 50 questionnaires 48 (96%) respondents responded to the study. It explains that majority of the respondents i.e. 29 (60.42%) were male respondents whereas remaining 19 (39.58%) respondents were female respondents.

8.2.2. Experience wise distribution of the Respondents

It is essential to know the users' experiences towards the use of Web OPAC, which means since how long they are using it. It helps to know the easiness of it based on respondents' amount of experience.
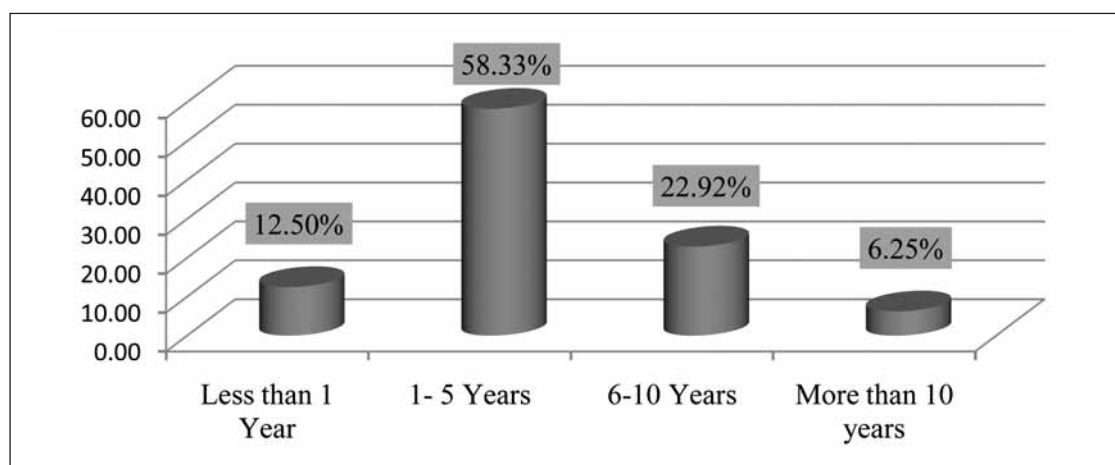
Figure no 1: Respondents Experience towards Web OPAC Use

The figure no 1 describes that majority of the respondents i.e. 28 (58.33%) are using Web OPAC who have 1-5 years experience, followed by 11 (22.92%) have 6-10 years experience, 6 (12.50%) respondents have less

than one year experience and only 3 (6.25%) respondents using it for more than 10 years. The respondents who have more than 10 years experience have been using it since their post graduation or M.Phil.

8.2.3. Frequency of use of Web OPAC

The purpose of next question was to know the frequency of use of the Web OPAC in order to know its compatibility.
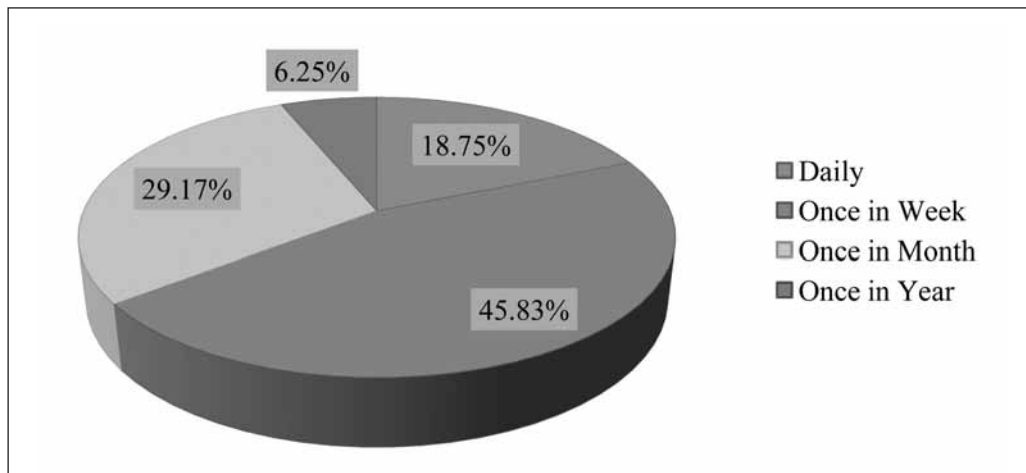

Figure no : Frequency of use of Web OPAC

The above pie chart shows that the majority of respondents i.e. 22 (45.83%) use it once in a week, followed by 14 (29.17%) respondents who use it every day whereas 9 (18.75%) respondents use it on daily basis. There are only few respondents i.e. 3 (6.25%) who have used it at least once in a year. The respondents frequently need of references or resources for research purpose therefore majority of them use it once in a week.

8.2.4. Time spent by Respondents to search in Web OPAC

Further questions are set to know how much time they spent during one session of search. It helps to know the search compatibility of the Web OPAC.
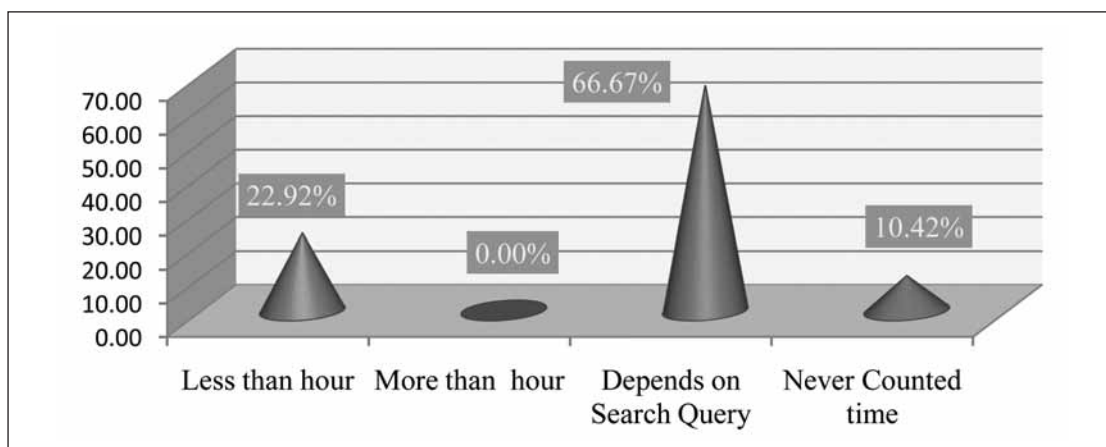
Figure no 3: Time Spent to Search Web OPAC by Respondents

It is interesting to note that the majority of respondents i.e. 32 (66.67%) spend time depending on their search query, 11 (22.92%) of them spend less than an hour and only 5 (10.42%) of them spend more than an hour. It is also found that no single respondent spend more than an hour, it means that the search function of the Web OPAC is user friendly.

8.2.5. Purpose of using Web OPAC

The intention of this question was to know the respondents widely preferred purpose to consult the Web OPAC.
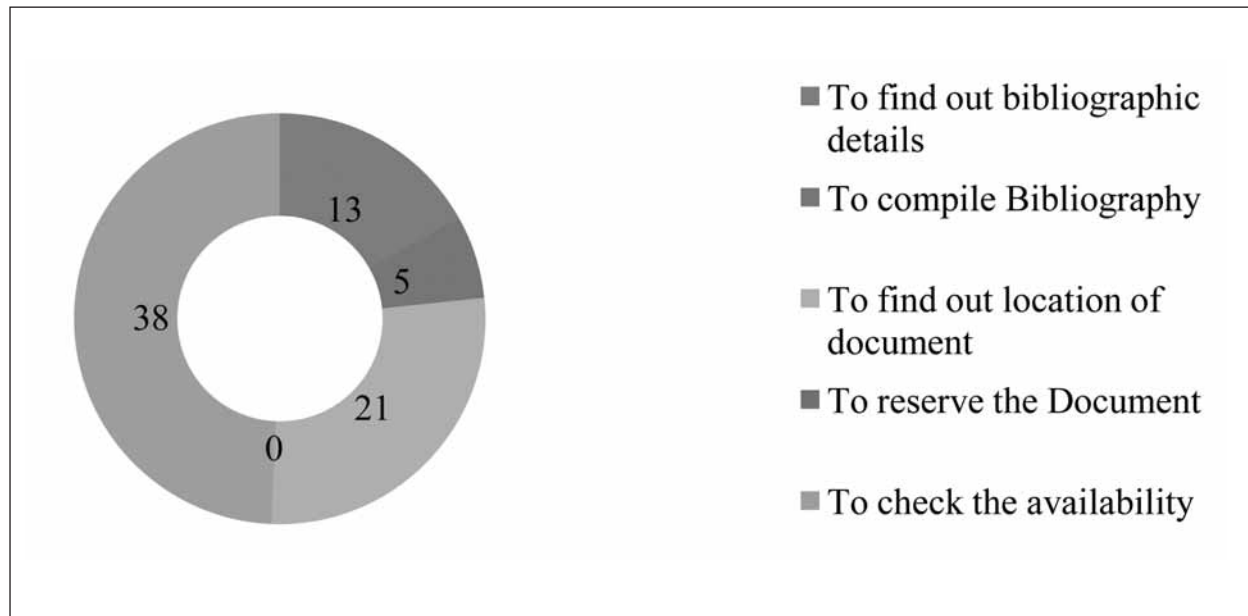
Figure no 4: Respondents Purpose of consulting Web OPAC

The figure no 4 illustrates that the majority of respondents i.e. 38 (49.35%) are consulting Web OPAC to check the availability of the documents, followed by 21 (27.27%) are using it to find out document location, 13 (16.88%) are browsing it to find out the bibliographical details and only 05 (6.49%) are using it to compile bibliography. None of the respondents used it for the purpose of document reservation because they may not aware of such facility or it is not in working condition.

8.2.6. Updation of Web OPAC

Further question was intended to know whether respondents get up-to-date information in Web OPAC or not. Following chart shows respondents' opinions towards Web OPAC updation.

Table no 3: Respondents' opinion towards Web OPAC up-to-dateness

Sr. No.	up-to-dateness of Web	No of Respondents	Percentage
1.	Yes	37	77.08%
2.	No	11	22.92%

The table no 3 reveals that out of 48 respondents' 37 (77.08%) respondents feel that they get up-to-date information on Web OPAC while remaining 11(22.92%) respondents think that they do not get up-to-date information. It is noticed that very few respondents are not getting update information may be due to the unawareness about how to operate it.

8.2.7. Mode of Web OPAC Learning

Another crucial question was put up to know the respondents' way or mode of learning to use the Web OAPC.
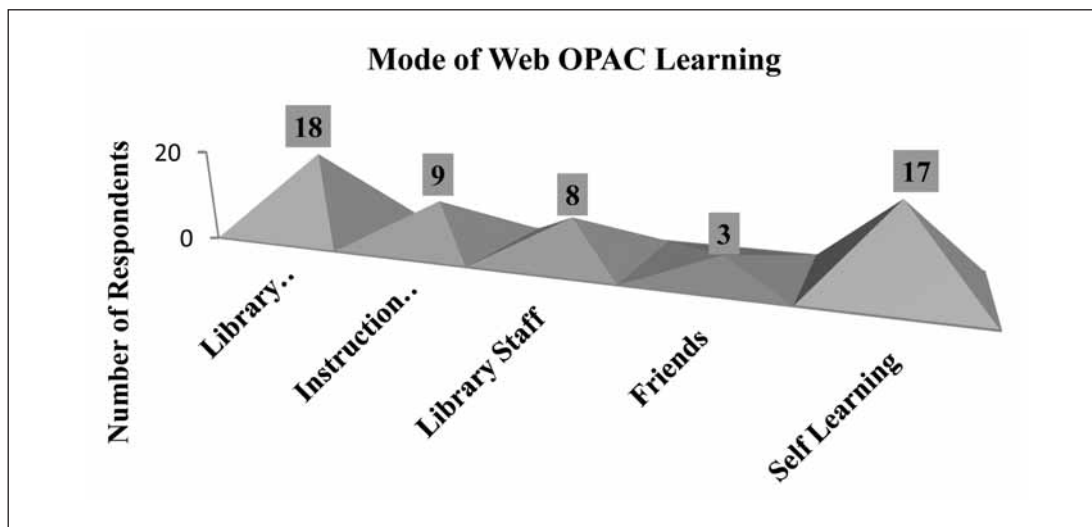

Figure no 5: Respondents Perceptions towards mode of Web OPAC Learning

The figure no 5 highlights that majority of the respondents i.e. 18 (32.73%) learnt to use Web OPAC in library orientation programme, followed by, 17 (30.91%) respondents learnt it through self learning, whereas 9 (16.36%) respondents learnt it with the help of instructions or search tips given on screen of Web OPAC. Similarly, i.e. 8 (14.55%) respondents learnt Web OPAC with the help of library staff and remaining 3 (5.45%) respondents learnt it with the help of their friends. The finding highlights that library orientation programme is crucial mode or way of Web OPAC learning.

8.2.8. Location wise Access of Web OPAC

The purpose of the next question was to know the respondents' preferred locations to use the Web OPACs.
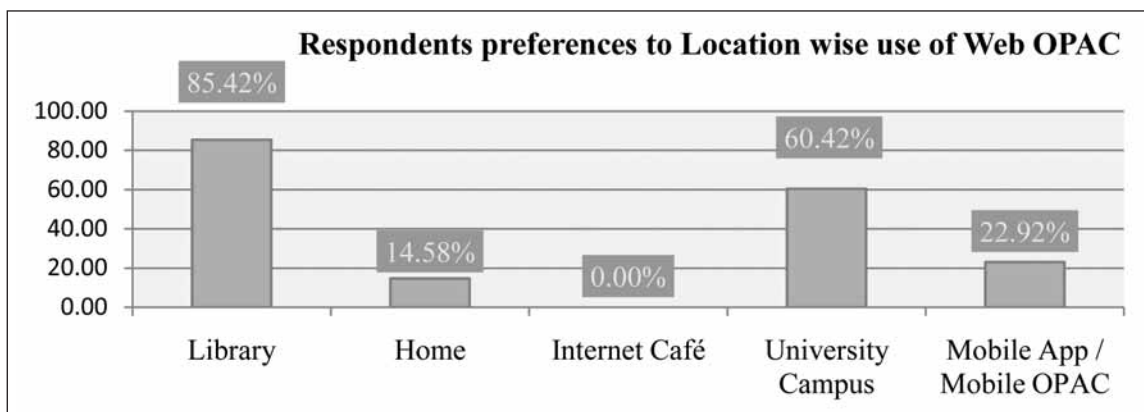
Figure no 6: Location wise access of Web OPAC

The figure no 6 reveals that nearly half of the respondents i.e. 41 (46.59%) are using Web OPAC from library itself, followed by 29 (60.42%) are browsing it from University campus means from their respective departments, 11 (22.92%) are using Web OPAC on their mobiles whereas 07 (14.58%) respondents are accessing it from their homes. It is further noticed that none of the respondents use Web OPAC from internet cafe.

8.2.9. Respondents' Preference for Types of Search

Another specific question was asked to know the types of search respondents prefer while using the Web OPAC.
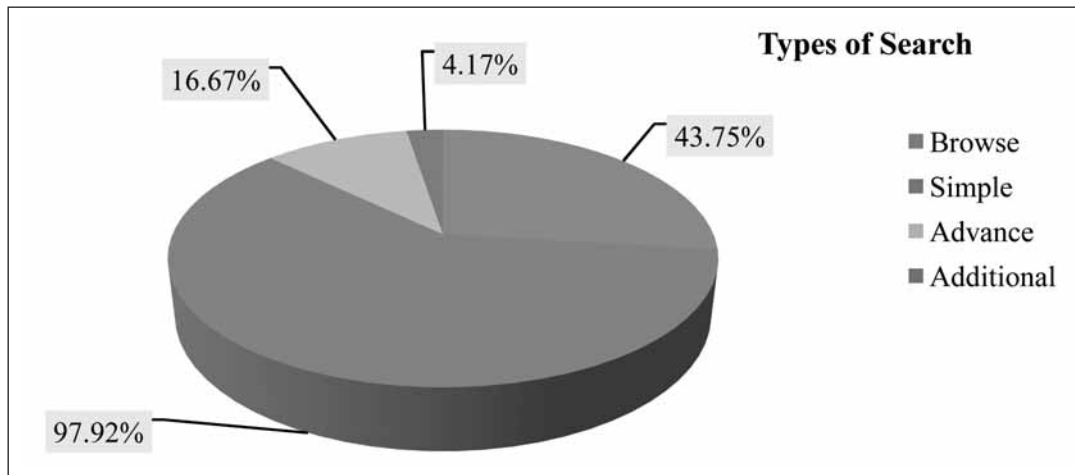

Figure no 7: Respondents Preferences for Use of Search Types

The figure no 7 shows that though there are number of search types available in Web OPAC majority of respondents i.e. 47 (97.92%) use simple search, followed by 21 (43.75%) prefer browse search, 8 (16.67%) go for advanced search and only 2 (4.17%) of the respondents use additional search. Hence, it is clear from the figure that simple search is widely used by respondents due to the simple design and availability on home screen of Web OPAC.

8.2.10. Respondents' preferences for Access Points

Researcher has attempted to know which access points are mostly used by respondents while searching in Web OPAC.
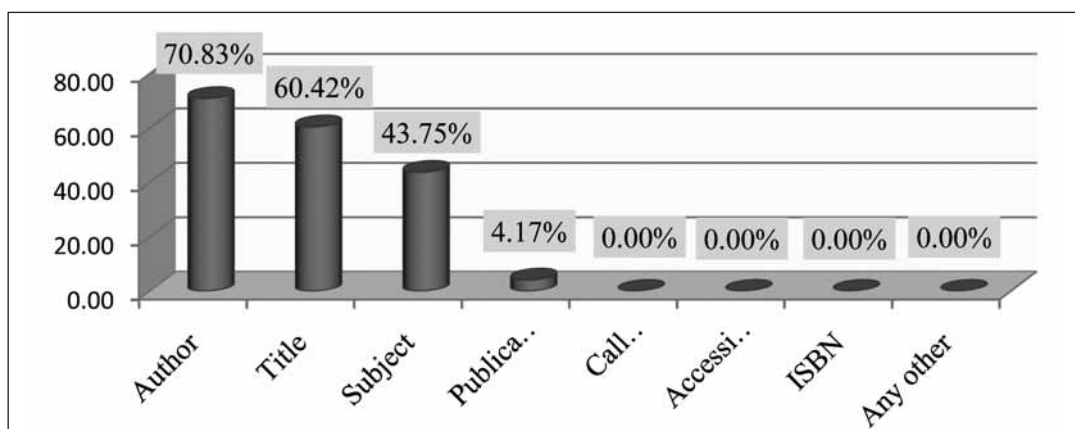
Figure no 8: Respondents Preferences for Access Points

The figure no 8 shows that majority of the respondents i.e. 34 (70.83%) prefer author access point to search in Web OPAC followed by, 29 (60.42%) use title access point whereas 21 (43.75%) respondents use subject access point and very few respondents i.e. 2 (4.17%) prefer publication access point while searching in Web OPAC. The remarkable finding is that none of the respondents uses other access points like call number, access number, ISBN and any other access points because they yield the required result through widely used access points such as author, title and subject.

8.2.11. Respondents' Remarks for Design of Web OPAC

This question was asked to know the respondents' remarks about the design part of Web OPAC whether it is excellent, good, average or poor.
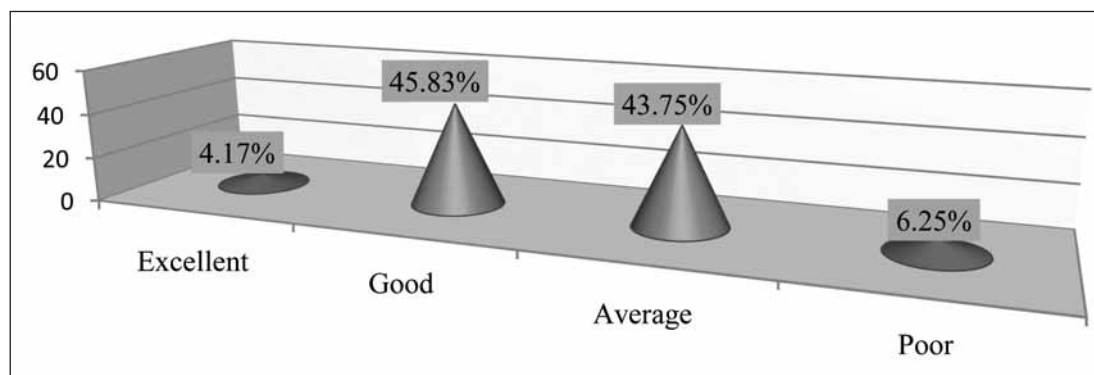

Figure no 9: Respondents Remarks towards Design Part of Web OPAC

The figure no 9 illustrates that 22 (45.83%) respondent feel that design of Web OPAC is good, on the other hand 21 (43.75%) respondents said that it is average. It is also noticed that 03 (6.25%) respondents stated that the Web OPAC design is poor. Only few respondents i.e. 2 (4.17%) feel the Web OPAC design is excellent. Looking at the comparative remarks 'good' and 'average' it can be concluded that the design of the Web OPAC is not up to the expectations of the end users.

8.2.12. Problems faced by Respondents

An open question was asked to know the problems or difficulties faced by respondents while using the Web OPAC, which are listed as follows:

- Speed of the Web OPAC is sometimes very slow.
- The printing facility is not available to print the retrieved result.
- Respondents are not aware about the library orientation schedule.
- Sometimes Web OPAC server is down.
- Instructions or tips available on home screen are difficult to understand.

9. Findings

- It is found that most of the respondents use Web OPAC at least once in a week and very few respondents use it once in a year.
- Majority of the respondents use Web OPAC to know the availability of document and its location.
- The remarkable finding extracted from the study that none of the respondents use Web OPAC to reserve the document.
- Majority of the respondents learn how to use Web OPAC in the library orientation programme.
- Majority of the respondents prefer 'simple search' type to search the information in Web OPAC and very few respondents use 'advanced' and 'additional search'.
- None of the respondents prefers access points like call number, accession number, ISBN and any other access points to search in Web OPAC.
- Very few respondents feel design of Web OPAC is excellent.

● The respondents raised the problems such as speed, system down, result error, difficult to understand instructions or tips, unable to print the result and lack of awareness about library orientation.

10. Suggestions

● Library should organize orientation twice in a year for users to create awareness about various features, functions of Web OPAC and its use.

 ● There is need to attach printer to Web OPAC so that user can take the print out of the results.

 ● The instructions or search tips provided should be simple and self-explanatory.

 ● The interface design of Web OPAC should be simple and user friendly.

Conclusion

Library Web OPAC is most popular and commonly used information retrieval tool to browse the library resources and materials. It is evident from the above analysis that majority of the respondents facing difficulties in Web OPAC while searching the information. The present study highlights that majority of the respondents are unaware about the features of Web OPAC and the use of advanced features like advanced search and additional search. The library users should acquire essential skills to use Web OPAC efficiently and effectively. There is need of user-friendly interface of the Web OPAC so users feel comfortable while operating it. The useful features like printer facility and search tips or instructions are required. The findings also strongly point out that user orientation and design of interface are the deciding factors in usability testing which focus the necessity of orientation and necessary changes in Web interface with customization of suggested features. Therefore, the seminar, orientation programmes, workshops and hands on sessions need to be arranged to create awareness among the users.

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How to Write Articles in Wikipedia: A Tutorial

Piyali Ghosh and Tarun Kumar Mondal

Wikipedia, a wiki based people's encyclopedia was launched on 15 January, 2001 with the mission to make its content openly writable and editable by the users. Currently this most popular online encyclopedia is available in 299 languages which include many local and indigenous languages also. The purpose of including local languages is to record local knowledge and local culture by the local people. But according to Wikipedia website, within 74,208,684 registered Wikipedia users only 311,694 are active users. It indicates that most of the time users visit Wikipedia only to read or to download its pages. But very few of them are engaged in writing an article in this encyclopaedia or even modify its existing pages. Perhaps the reason is that users are not well aware about the Wiki Markup language which is the basis of Wikipedia pages. This tutorial provides basic level guidelines for the beginners to introduce the Wiki Markup language. The purpose is to demonstrate how easily one can write articles in Wikipedia. This tutorial includes some fundamental techniques which have to be maintained in every Wikipedia pages. It will be helpful for those who are thinking to write or edit articles in Wikipedia in their own language but don't have the proper knowledge to do so. This tutorial will make a Wikipedia user an active wikipedian who can be engaged to develop and enrich its collection.

Keywords: *Wiki, Wikitext, Wiki Markup, Wiki code, Wikipedia*

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1. Introduction

Wikipedia is a very popular website which gives us huge number of encyclopedic articles in multiple languages. All of us accept this fact and of course users make this encyclopedia popular by accessing its article whenever they need. This makes Wikipedia getting huge web traffic so that in Alexa ranking it gets 5th rank all over the world. The rank is calculated using a combination of average daily visitors to this site and page views on this site over the past 3 months (How popular is wikipedia.org?, 2018). Basically Wikipedia is a people's encyclopedia supported by general people. Here support means contributing and editing its articles.

2. Significance of this Tutorial

Currently Wikipedia articles are available in 299 languages including many local and indigenous languages also. The purpose of including local languages

is to record local knowledge and local culture by the local people. But according to Wikipedia website, within 74,208,684 registered Wikipedia users only 311,694 are active users (Wikipedia, n.d.). It indicates that most of the time users visit Wikipedia only to read or to download its pages and the problem is very few of us are engaged in writing articles in this encyclopedia or even modify its existing pages. When Wikipedia was launched, the Wikimedia foundation announced that this website will be based on a model of openly editable content where anyone can write and edit articles (Wikipedia, n.d.). For this reason, the article writing technique was made very simple for general people. The aim of this tutorial is to demonstrate how easily one can write articles in this encyclopedia.

3. Technical Aspects behind Wikipedia Articles

Wikipedia in its name contains a Hawaiian word "wiki" which means 'quick'. In computer science language wiki means a website on which users collaboratively modify content and structure directly from the web browser (Dennis, 2018). In 1995, American computer programmer Ward Cunningham created this new kind of collaborative technology for organizing and sharing information on Websites (Wiki, n.d.).

So Wikipedia is a wiki website. Like any wiki website it runs by a wiki engine called Mediawiki. This software permits its users to 'write' and 'modify' its article in collaborative way. Like any typical wiki, here text is written using a simplified markup language (Wikipedia. (n.d.). A markup language is a system for annotating a document in a way that is syntactically distinguishable from the text which one will see finally (Markup language, 2018). Wikipedia is written by simplified form of markup language. Sometimes this language is called as wikitext, wiki markup or wikicode.

Wikitext or wiki markup is such kind of markup language which is a mixture of content, markup, and metadata. The current and old versions of all pages of a wiki are stored in the database in the text table, in the form of wikitext. It consists of the syntax and keywords used by the MediaWiki software to format a Wikipedia page.

4. General Format of Wikipedia Articles

In Wikipedia, all articles have a general format. The following screen shot was taken from Wikipedia to represent this format.
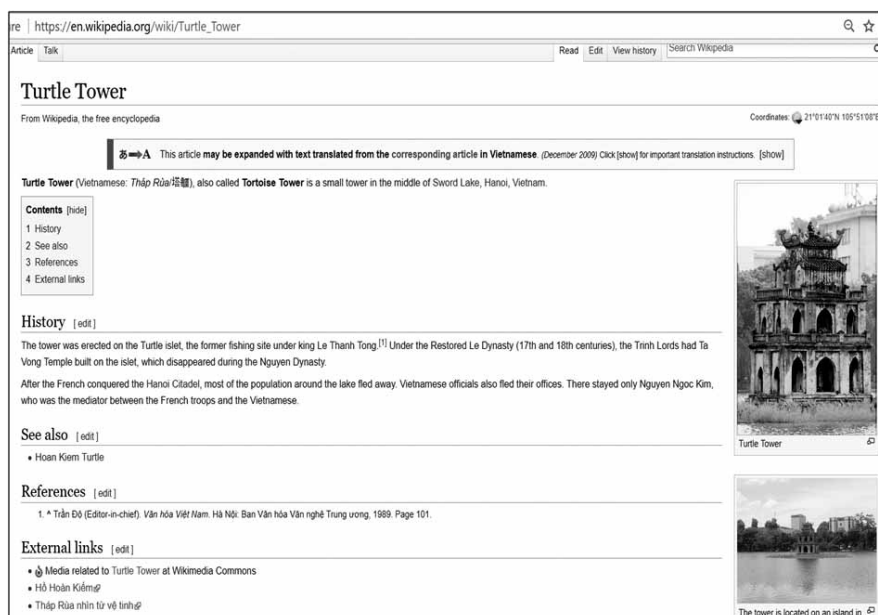
Figure 1. General form of Wikipedia pages

Generally Wikipedia articles starts with title ('Turtle Tower' in the above screen shot) and then short description or definition or etymological meaning of terms etc. Then the content of article, infobox (right side of the article), all the headings and sub headings included in content come one by one. At the end 'See also' heading includes all related Wikipedia articles, 'References' includes all relevant references, 'External links' includes all links used in the article from outside of this encyclopedia.

5. Some Important Points should be Kept in Mind to Write an Article

There is a misconception that in Wikipedia any one can write anything at any time and it will be published. But this is not true. To check this particularly, a very short length article without any reference was written in Wikipedia Sandbox and was submitted finally. Within few minutes a message from editorial board was received which clearly justified why the article was rejected. The following screen shot shows that message:
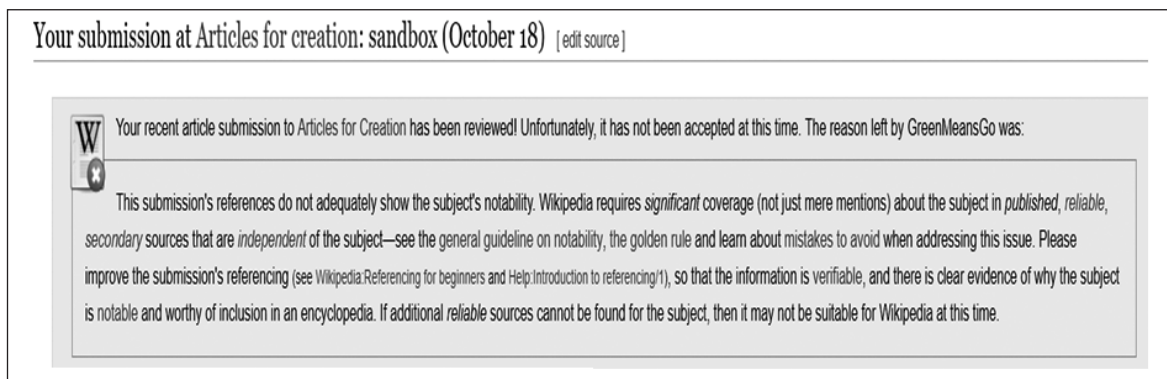
Figure 2. Message from Wikipedia editorial board

Wikipedia has very specific kinds of requirements to publish articles in its website. So it is necessary to know those points which direct users to the successful submission and publication of articles.

Following points should be kept in mind:

✓ **Selection of topic:** Before final selection of topic one must have to be sure that there is no article on the same topic. Secondly Wikipedia's mission is to share accepted knowledge rather than a research topic (Wikipedia: your first article, n.d.). So this thing should have to be kept in mind before selecting a topic. Thirdly Wikipedia is not a social media or a place to promote a company or product or person, or a place to advocate for or against anyone or anything. One should always remain aware of these things also.

✓ **Gathering of references:** After selecting subject information related to that subject, one will have to collect information from high quality published sources. Here "high quality" means books by reputable publishers, high-quality and reputed journal's paper, newspapers, literature reviews in the scientific literature, etc.

✓ **Copyrights protection:** Copyright protection is a big challenge for Wikipedia. There is no space to copy and paste text into a Wikipedia article. Where necessary one can use quotation marks and inline citation. Even material of public domain must be attributed to the source, or the result.

The following things should be avoided:

✗ **Articles about one self, his or her family or friends, website, teacher, or a story he or she wrote:** Articles like this are likely to be from Wikipedia and writer of such kind of article may be blocked from editing. So articles should be encyclopedic.

✕ **Attacks on a person or organization:** There is no space to personally attack anyone or any organization. These kinds of pages are quickly removed.

✕ **Personal essays or original research:** Wikipedia surveys existing human knowledge; it is not a place to publish new work. So one should not write articles that present his or her own original theories, opinions, or insights.

6. How to Write Articles in Wikipedia

Article writing should start with creating an account on Wikipedia. After entering through account one can get following tool bar (at top right corner of the page):
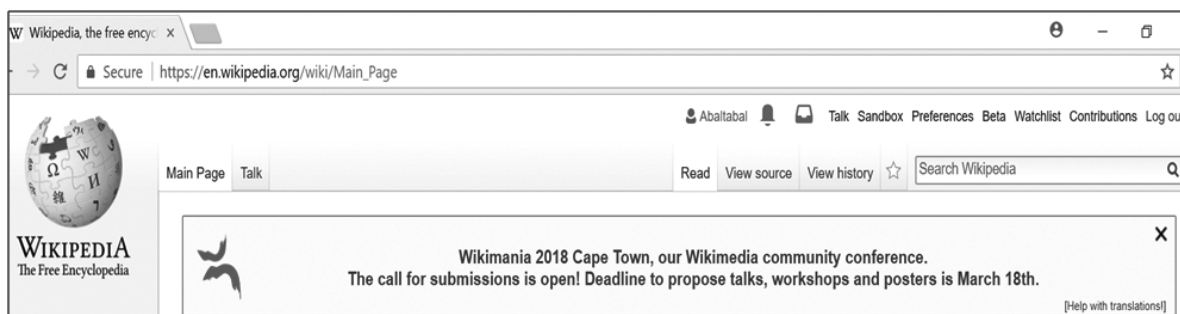
Figure 3. Tool bar provided after creating an account

Here the "Sandbox" (see above figure), a place to make test edits. After clicking this tool following wikitext interface will be appeared:
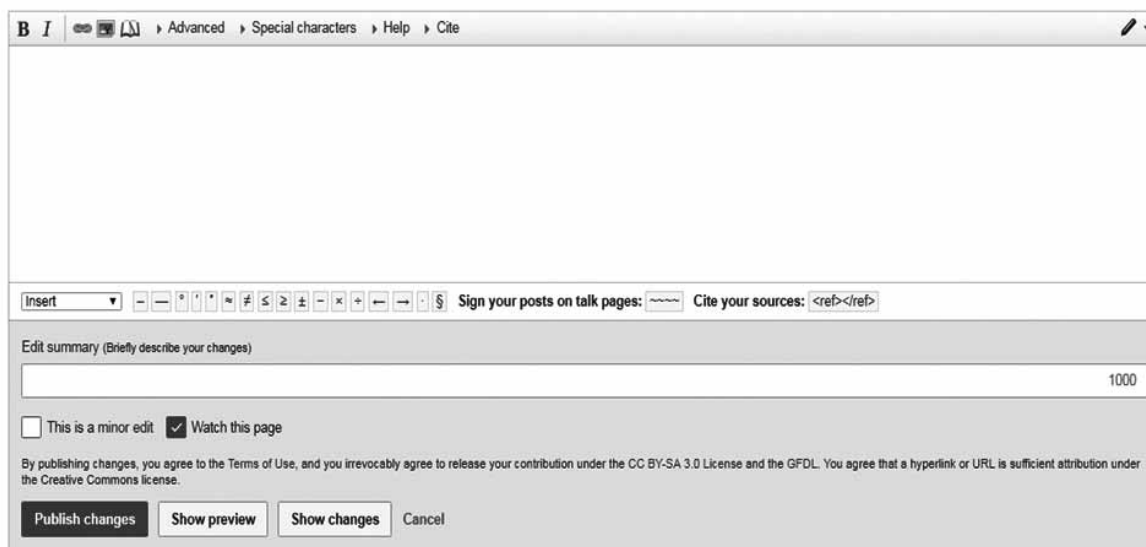
Figure 4. User Interface

There are three basic steps to write an article:
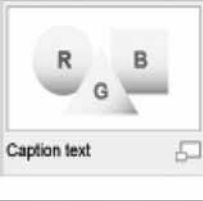
    i. Use of sandbox (see 6.3 section);

    ii. Type some texts;

    iii. Click 'Show preview' (at bottom left corner of above screen shot) to test the changes, or 'Publish changes' when user happy with the way it looks.

Now the next section of article will represents some very basic kinds of wikitext techniques which will help one to start writing.

6.1. Wikitext Techniques for Text Formatting

Here text formatting means arranging or organizing the text with bullets, numbers, image files, different size of headings, bold and italic form, etc. Table 1 states these:

Table 1: Format related wikitext techniques

Description	What we type	What we get
Italic	''italic text''	*italic text*
Bold	'''bold text'''	**bold text**
Section headers	=Heading text=	Heading text
	== Heading text ==	Heading text
	=== Heading text ===	Heading text
Indent	Reference books : Encyclopedias :: Subject Encyclopedias	Reference books 　Encyclopedias 　　Subject Encyclopedias
Horizontal rule	----------------	———————————
Bulleted list	* Dictionary * Encyclopedia	• Dictionary • Encyclopedia
Numbered list	# Dictionary # Encyclopedia	1. Dictionary 2. Encyclopedia
Image with caption	[[File:Example.jpg|thumb|Caption text]]	 Caption text
Signature at the last of the article	~~~~	Abaltabal (talk) 17:07, 21 March 2018 (UTC)

6.2. Wikitext Techniques for Linking Internal and External Web Pages

References are important to verify content. It helps readers to verify facts and find more details on the given topic. The following table demonstrate the way to link internal and external web pages in wikitext.

Description	What we type	What we get
Link to another Wikipedia page (Internal link)	[[Wikipedia]]	Wikipedia
Link to external links	Library of Congress [http://loc.gov Library of Congress website]	Library of Congress website
Insert a citation	Page text. <ref>[http://example.org Example.org], more text.</ref>	Page text. [1]

Table 2: Links and URLs related wikitext techniques

Sometimes it seems difficult for the beginners to properly maintain the above mentioned formats, properly cite references, rightly embedding files. The wikitext interface or sandbox of Wikipedia makes it easy for them. This next section briefly describes all the ready to use tools of this sandbox.

6.3 Different Tools Available in the Sandbox

At the top of the sandbox (see figure no. 4) there are different kinds of easy to use buttons. The following screen shots represent these one by one:

a) **Normal level of formatting styles**
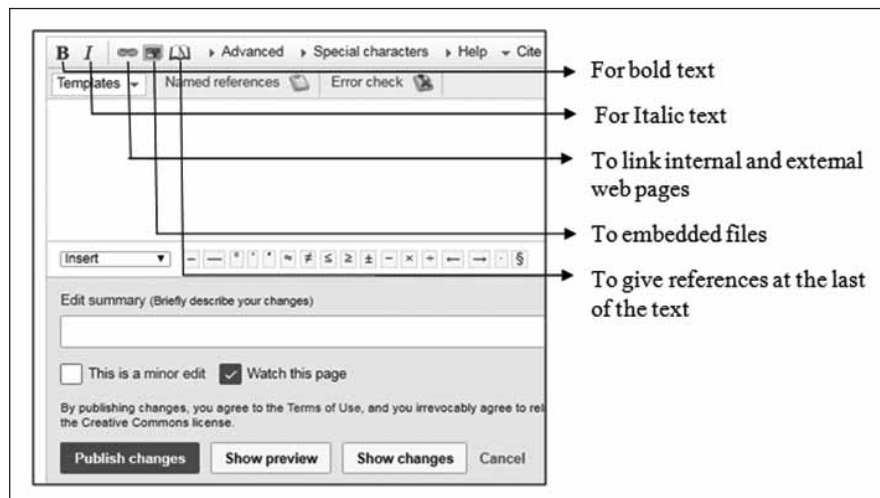
Figure 5. Normal formatting style related buttons

By those above shown buttons one can quickly modify the text and organize the text with necessary links, files, etc.

b) **Advance level of formatting styles**
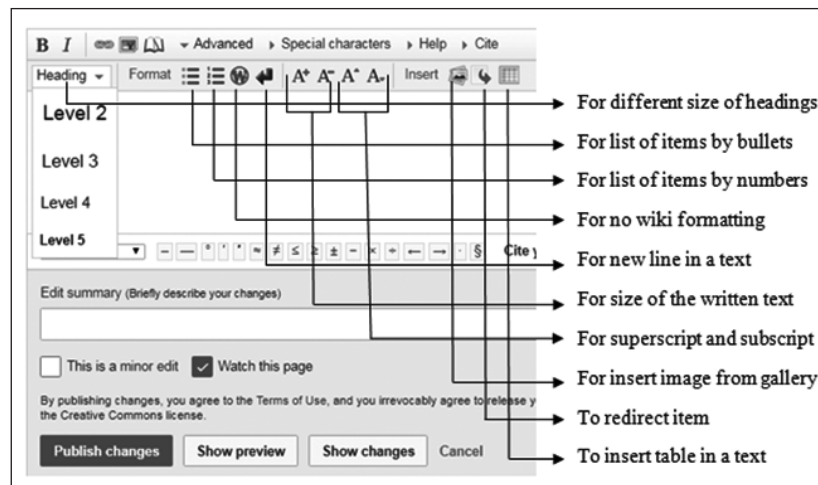
Figure 6. Advance formatting style related buttons

Here advance formatting means different sized headings, bullets, number list, redirecting items, table insertion, image insertion from gallery, etc.

c) Special characters
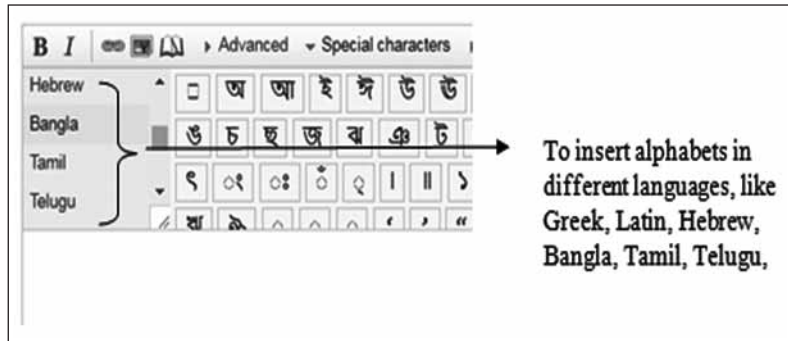
Figure 7. Special character related buttons

It is important tool for writing some portion of texts in required languages, like Greek, Latin, Bengali, Telugu, Tamil, Gujarati, Devanagari, etc. nineteen languages.

d) Help buttons
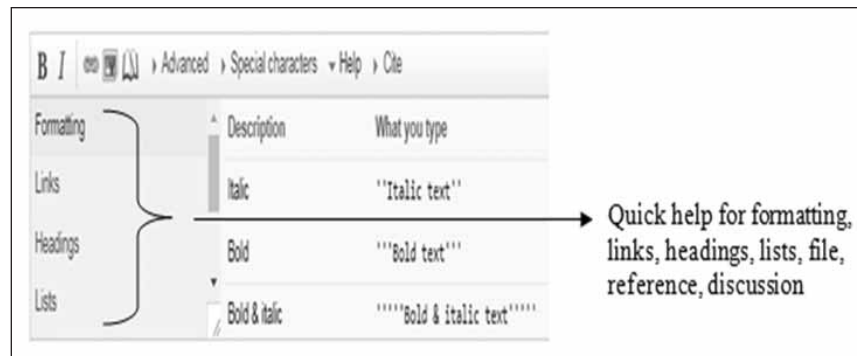
Figure 8. Help buttons

If one is looking for quick help regarding formats, links, headings, lists, file embedding, references then these buttons will have to use. If one wants to quickly see the necessary wikitext for linking web pages then the option 'Link' will have to click. The following window will be opened (the same is represented in table 2):

Figure 8.1. Help buttons for internal and external links

e) Cite buttons
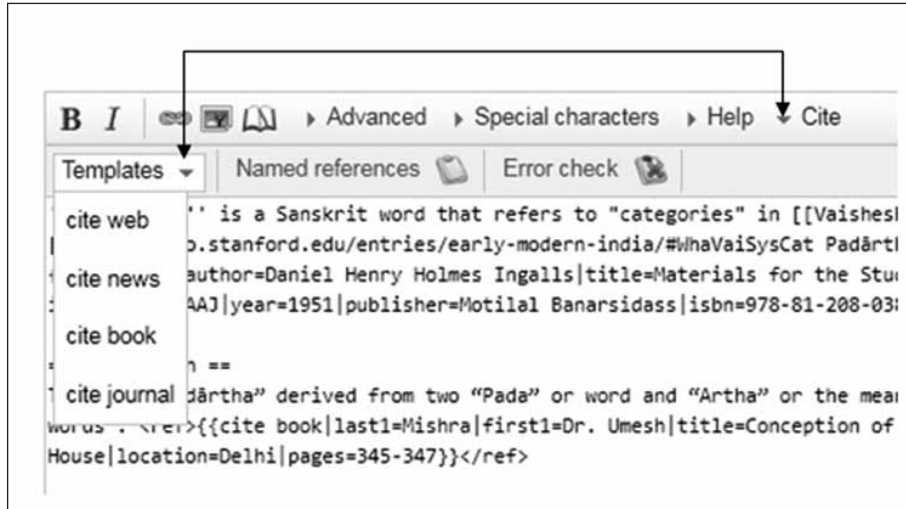
Figure 9. Cite buttons

'Cite' which, after clicking it, opens four options, i.e., 'cite web', 'cite news', 'cite book', 'cite journal'. Now if one wants to cite web pages then he or she has to click on 'cite web' option (see above screen shot). Then the following window will be opened.
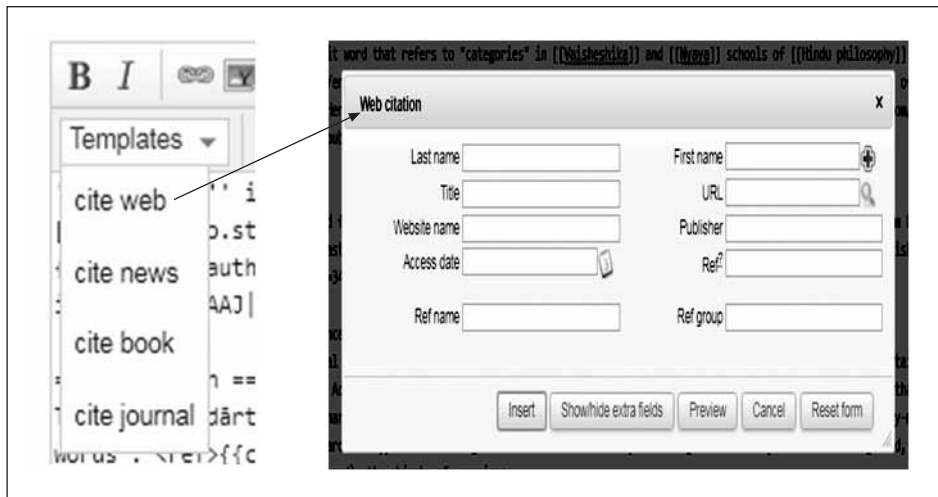
Figure 10. Web citation window

So the necessary information like the last name, first name of the associated author, title, URL, website name, publisher, access date, etc. are to be filled up properly. The process of citing the news, book, and journal will be same as the above.

7. Exemplification of These above Techniques

The above wikitext techniques will be best understood with an example. Now the following screen shots will represent a Wikipedia articles along with its background wikitext.

Example no. 1: Uploading image with caption in Infobox

Figure 11. Uploading image with caption

Infobox in Wikipedia represents a summary of information about the subject of an article (Infobox, n.d.). The above figure demonstrates the way to make Infobox with image and caption.

Example no. 2: Create content and text

```
== Definition ==
The term "Padārtha" derived from two "Pada" or word and "Artha" or the meaning or referent. Therefore etymologically the term Padārtha means
"the meaning or referent of words". <ref>{{cite book|last1=Mishra|first1=Dr. Umesh|title=Conception of matter according to
Nyayavaisesika|date=1987|publisher=Gian Publishing House|location=Delhi|pages=345-347}}</ref>

== Philosophical significance==
Almost all the philosophical systems of India accept liberation as the ultimate goal of life; it is the summum bonum. For attaining liberation
different philosophies prescribe different means. According to Gautama, liberation can be attained by the true knowledge of the categories or
padārthas.<ref>{{cite web|last1=Ganeri|first1=Jonardon|title=Analytic Philosophy in Early Modern
India|url=https://plato.stanford.edu/entries/early-modern-india/|website=Stanford Encyclopedia of Philosophy|accessdate=19 March 2018}}
</ref>According to the Vaisheshika school, all things which exist, which can be cognised, and which can be named are padārthas (literal
meaning: the meaning of a word), the objects of experience.

== Types ==

=== From Vaisheshika view points ===
According to [[Vaisheshika]] school of philosophy Padārtha or all objects of experience can be primarily divided as "Bhāva" and "Abhāva". The
bhāva padārthas are six types. <ref>{{cite book|last1=Mishra|first1=Dr. Umesh|title=Conception of matter according to
Nyayavaisesika|date=1987|publisher=Gian Publishing House|location=Delhi|pages=345-347}}</ref> These are:
```

Contents [hide]

1 Definition
2 Philosophical significance
3 Types
    3.1 From Vaisheshika view points
    3.2 From Nyaya view points
    3.3 From western philosophical view points
4 See also
5 References
6 External links

Padarth	Categories	
1. Dravya	Substance	
2. Guna	Quality	
3. Karma	Action	
4. Samanya	Generality	Exist
5. Visesa	Uniqeness	
6. Samanya	Injerence	
7. Abhav	Non Existence	

Vaisheshika Padārtha

Definition [edit source]

The term "Padārtha" derived from two "Pada" or word and "Artha" or the meaning or referent. Therefore etymologically the term Padārtha means "the meaning or referent of words". [3]

Philosophical significance [edit source]

Almost all the philosophical systems of India accept liberation as the ultimate goal of life; it is the summum bonum. For attaining liberation different philosophies prescribe different means. According to Gautama, liberation can be attained by the true knowledge of the categories or padārthas.[4]According to the Vaisheshika school, all things which exist, which can be cognised, and which can be named are padārthas (literal meaning: the meaning of a word), the objects of experience.

Types [edit source]

From Vaisheshika view points [edit source]

According to Vaisheshika school of philosophy Padārtha or all objects of experience can be primarily divided as "Bhāva" and "Abhāva". The bhāva padārthas are six types. [5] These are:

Figure 12. Creating content and text

Example no. 3: To cite external website in text

Figure 13. Citing of external website in text

Example no. 4: To make See also list, References, External link list

Figure 14. Creation of See also list, References, External links

Example no. 5: To link with all related categories of Wikipedia

Figure 15. Linking with related categories on Wikipedia

8. Suggestions

Writing Wikipedia pages are so easy that users need not be afraid to edit or making pages in this encyclopedia. Anyone can edit almost every page, and Wikipedia encourages them. But users should find something that can be improved and makes it better—for example, spelling, grammar, rewriting for readability, adding content, or removing non-constructive edits. If one wish to add new facts, they should try to provide references so they may be verified, or suggest them on the article's discussion page. All Wikipedians are suggested to remember five pillars of Wikipedia as expressed by the Wikimedia foundation (Wikipedia: five pillars, n.d.). These are:

    i. Wikipedia is an encyclopedia: It combines many features of general and specialized encyclopedias, almanacs, and gazetteers. Wikipedia is not a soapbox, an advertising platform, a vanity press, an experiment in anarchy or democracy, an indiscriminate collection of information, or a web directory. It is not a dictionary, a newspaper, or a collection of source documents, although some of its fellow Wikimedia projects are.

    ii. Wikipedia is written from a neutral point of view: All articles must have verifiable accuracy, citing reliable, authoritative sources, especially when the topic is controversial or is on living persons. There is no place for expressing Editors' personal experiences, interpretations, or opinions.

iii. Wikipedia is free content that anyone can use, edit, and distribute: Since all editors freely license their work to the public, no editor owns an article and any contributions can and will be mercilessly edited and redistributed. Editors should respect copyright laws, and never plagiarize from sources.

iv. Wikipedia's editors should treat each other with respect: All wikipedians should have respect for fellow wikipedians, even when there is disagree.

v. Wikipedia has no firm rules: Wikipedia has policies and guidelines, but they are not carved in stone; their content and interpretation can evolve over time.

9. Conclusion

A good article in Wikipedia informs the reader with broad coverage, relevant context and deliberates thoughtful prose. At the very least, a good article is understandable and clearly expressed, for both experts and non-experts. It thoroughly explores and explains the subject in appropriate details. But the article is not the only thing of importance. It's a Web page, too. Good articles contain internal links and external links. So references are the important parts in case of Wikipedia articles. Wikipedia needs more and more contributions from its users particularly for local and indigenous knowledge. The Wikimedia foundation wants to raise the level of expert participation to improve the quality of pages, cover more scholarly and encyclopaedic knowledge, and increase the diversity of participants. So it is the responsibility of Wikipedia users to play the role as wikipedians.

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Journal of Library Progress (2010-2017): A Bibliometric Study

Ravi Shukla and Manoj Kumar Verma

The study was undertaken on the journal of Library Progress (International) and studied 178 research articles published during the period (2010-2017) and observed that distribution pattern of the particular journal articles, authorship pattern, geographical distribution of authors and references distribution pattern and authorship pattern of references. The highest number of (95) research results contributed in the particular journal is on two author pattern, followed by (56) research results as a single author pattern. India since being the host country and Tamil Nadu emerged the single largest contributing state with (38) out of 125 contributors from India.

Keywords: *Bibliometrics, Authorship pattern, Geographical distribution of articles, Reference distribution*

Introduction:

British librarian A. Pritchard first introduced the term 'bibliometrics' as the "application of mathematics and statistical methods to books and other media of communication" (Narang and Kumar, 2010). Bibliometric focuses on the quantitative study of written products of research, principally. "Bibliometric studies are used to identify the pattern of publication, authorship, citations and journal coverage with the hope that such studies can give an insight into the dynamics of the field under consideration (Vijayakumar and Naqvi, 2002).

Library Progress (International) journal has resulted in the creation of academic research. The output of the journal deals with research and development activities which is responsible for the generation of new information and knowledge. It is a half-yearly journal, and every year there are two issues. Library Progress (International) is one of the famous journals in the field of Library and information science and researchers of this field in the whole world equally prefer to publish their articles in this particular journal. This

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paper takes this renowned journal, Library Progress (International) into consideration with the goal to investigate the various bibliometric patterns such as authorship pattern, geographical distribution of authors, the most productive authors, references distribution and authorship pattern of references.

Literature Review:

Tiew, Abdullah and Kaur (2002) conducted a bibliometric study on Malaysian Journal of Library and Information Science from 1996-2000, a total number of (76) research articles were published from five volume and ten issues of the journal in marked period and found that the maximum number of (17) articles were published in 1997, followed by (16) articles in the year 1996, Zainab Awang Ngah was most prolific contributor and out of 1712 references, 22.5 average reference in each articles. Kumar and Moorthy (2011) conducted a study on bibliometric analysis of DESIDOC journal of library and information technology during the period 2001-2010. A total number of 271 articles were published in it, and observed various pattern of bibliometric analysis such as growth pattern, authorship patterns, subject wise distribution of articles, content coverage, and resolved that (50) articles were published in 2008 and 2009 each, while maximum number of (107) articles were published by single author followed by two authors with 100 contributions and the most productive author was B M Gupta. Thavamani (2013) conducted a study on bibliometric analysis of the DESIDOC Journal of Library and Information Technology for the year 2007-2001. A total number of 94 articles were published during the study and found that the maximum 50, constituting (25.77%) articles were published in 2008 lowest number of contribution 16, constituting 8.25% in the year 2011 and the Degree of Collaboration was high that is 108 (0.556) in the terms of collective contribution.

Das (2013) conducted a study on a bibliometric analysis of contributions in the journal Library Trends during the period of study 2007-2012, and 206 articles were published in the period of the study, maximum number of contribution 122, constituting (59.22%) were published by single author and majority of research

articles 63 (30.58%) have the length of 16-20 pages. Pandita (2014) investigated a total of 366 articles published in DESIDOC Journal during the period 2003-2012 and revealed that in the two authors pattern 147 research articles contributed in the journal, followed by single author 139 articles, New Delhi emerged the single largest contributing state with 199 out of total contributors 627 from India and references distribution pattern total of 5063 references, making average 13.83 references per research article. Singh and Bebi (2014) conducted a bibliometric study on the Journal of Library Herald during the period (2003-2012) during the period of investigation 234 research results were published, investigation examines the different bibliometric patterns such as authorship pattern, geographical distribution, most productive authors and their affiliations, length of articles. And we can see that 114, constituting (48.8%) research results were contributed by single authors, followed by two authored 90, constituting 38.5%. The major portion (81.6%) of the research articles originated from India and about (18.4%) from abroad.

Naheem and Shibu (2015) conducted a study on Authorship Patterns and Collaborative Research in the Journal of Knowledge and Communication Management during the period of investigation from 2011-2014. A total number of 46 articles were published in the marked period of particular journal and found that the 22 articles, constituting (47.83%) research articles were published by single authors, the average number of authors each article of whole publication is 1.67 and average productivity each author is 0.60, the average degree of author collaboration is 0.52. Verma, Devi and Brahma (2017) conducted a bibliometric study of the DESIDOC Journal of Library and Information Technology (DJLIT) from the marked period (2005-2016) in which 553 articles were published in particular journal. And analyze various bibliometric pattern such as authorship pattern, most productive author, references distribution pattern, geographical distribution, state-wise contribution of articles, and found that in the authorship pattern maximum articles contributed by two authors with (41.41%), followed by single author with (36.88%) and (15.18%) contributed by three authors. M. Gupta was a most

productive author with (17.98%) articles contribution, followed by Chennupati K. Ramaiah (9.35%) and S. M. Dhawan (7.19%). New Delhi (23.44%) emerged at first position with the highest number of contributions, followed by Karnataka (12.75%).

The Scope of Study:

An attempt has been made to analyze the contributions of 16 issues of 8 volumes of Library Progress (International) journal. The scope of the present study is limited to 8 years (2010-2017).

Objectives of the Study:

The present study aims to analyze the publication trends in the Journal of Library Progress (International) from the period of (2010-2017). The main objectives of the study are:

- To find out the authorship pattern of the contributions Library Progress (International)
- To analyze the year wise contribution of articles
- To find out the most productive authors
- To analyze the geographical distribution of articles
- To analyze the references distribution of articles

Methodology:

The primary data for the investigation has been extracted from the publisher website of the journal Library Progress (International) (www.indianjournals.com/ijor.aspx?target=ijor:bpasl p&type=home) pertaining to the period of eight years from 2010-2017. Every article published in the particular journal selected for this study was investigated carefully, and required details were entered in the MS-Excel format. The collected data were organised, calculated, tabulated, analysed and presented by using simple arithmetic and statistical methods in order to provide analysis. The data interpretation was done on the basis of authorship pattern, volume wise, geographically distribution of contributions and contributors, references and authorship pattern of references distributions.

Data Analysis:

Volume wise Distribution of Articles

Table 1 and Figure 1 presented the data of the articles published in the particular journal and revealed that 178 research articles were published during the period of (2010-2017). The maximum number of articles was published in 2011 and 2017 with 32(17.98%). While the lowest number of research articles were published in 2014 with 12 (6.74%).

Table 1- Volume wise Distribution of Articles

Distribution of articles Issue wise						
Year	Vol. No.	Issues	Issue No. 1	Issue No. 2	Total Publications (%)	Average Articles per Issue
2010	30	2	10	14	24 (13.48)	12
2011	31	2	14	18	32 (17.98)	16
2012	32	2	9	13	22 (12.36)	11
2013	33	2	17	10	27 (15.17)	13.5

Distribution of articles Issue wise						
Year	Vol. No.	Issues	Issue No. 1	Issue No. 2	Total Publications (%)	Average Articles per Issue
2014	34	2	7	5	12 (6.74)	6
2015	35	2	7	7	14 (7.87)	7
2016	36	2	6	9	15 (8.43)	7.5
2017	37	2	12	20	32 (17.98)	16
Total		**16**	**82**	**96**	**178**	
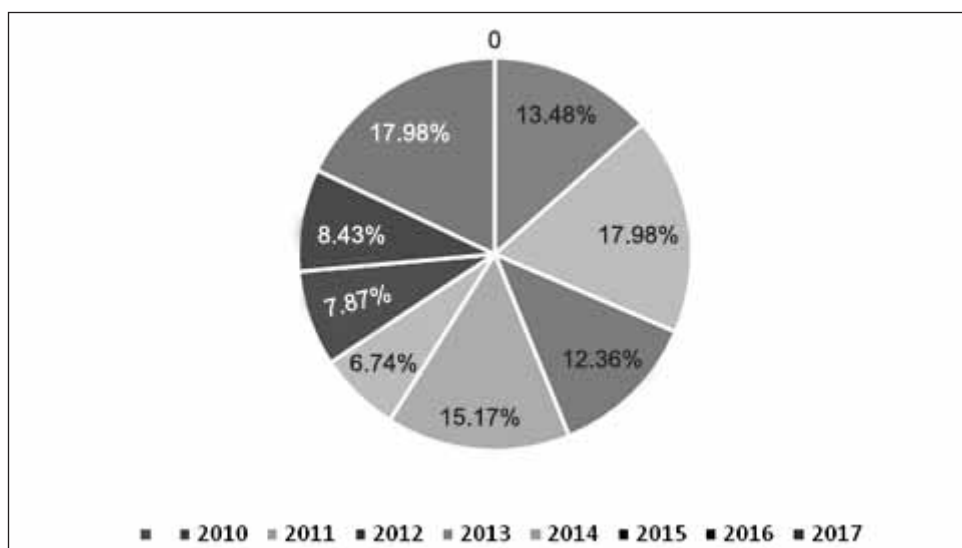
Figure-1: Volume wise Distribution of Articles

Volume wise Authorship Pattern of Articles

Table 2 and Figure 2 clearly shows the volume wise authorship pattern of articles during the period of investigation 2010-2017, the total number of articles are 178 over eight volume of the particular journal. Out of 178, we can see there are 95 two author research articles at the top, followed by 56 single author research articles, 24 three author research articles and 3 as four author articles.

Table 2- Volume wise Authorship Pattern of Articles

Year	Vol. No.	Single Author	Two Authors	Three Authors	Four Authors	Total
2010	30	6	16	1	1	24
2011	31	9	16	7	0	32
2012	32	6	10	6	0	22
2013	33	9	15	2	1	27

Year	Vol. No.	Single Author	Two Authors	Three Authors	Four Authors	Total
2014	34	6	3	3	0	12
2015	35	5	8	1	0	14
2016	36	6	8	1	0	15
2017	37	9	19	3	1	32
Total		**56**	**95**	**24**	**3**	**178**
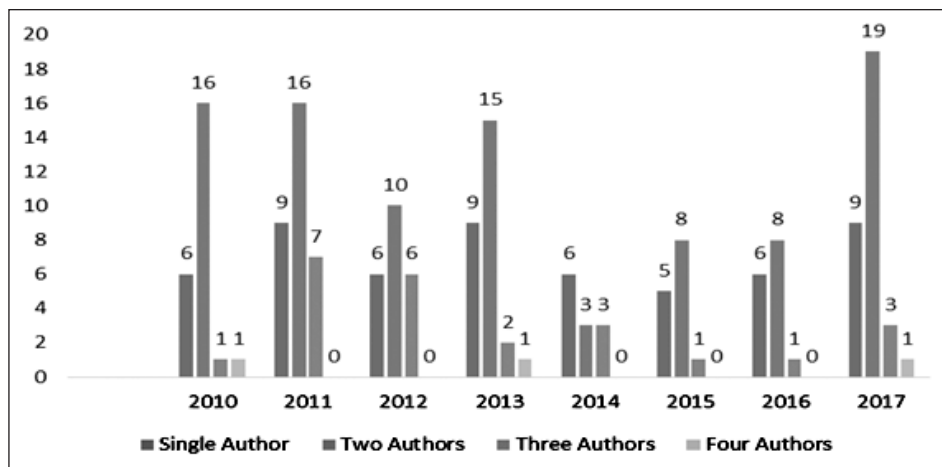
Figure- 2: Volume wise Authorship Pattern of Articles

Issue wise Article Distribution Pattern of Authors

Table 3 depicts the issue wise article distribution pattern of authors and revealed that out of 178 research articles, 95 (53.37%) articles are two author publications followed by a single author with 56 (31.46%), three author with 24 (13.48%) and 3 (1.69%) articles are written by four authors.

Table 3- Issue wise Article Distribution Pattern of Authors

Year	Author Type	Distribution Issue Wise		Total Articles (%)	Commulative Articles (%)
		Issue No. 1	Issue No. 2		
1	Single	26	30	56 (31.46)	56 (31.46)
2	Two	45	50	95 (53.37)	151 (84.83)
3	Three	7	17	24 (13.48)	175 (98.31)
4	Four	3	0	3 (1.69)	178 (100)
Total		**81**	**97**	**178**	

Geographical Distribution of Contributions & Contributors

Table 4 and Figure 3 show the geographical distribution of contributions and contributors of research articles published in the journal. However, a maximum portion (80.65%) of the publication originated from India, followed by Nigeria (16.77%). 1.29% contribution is from Fiji; Oman and South Korea have contributed 0.65% research articles each.

Table 4- Geographical Distribution of Contributions & Contributors

Sl. No.	Name of the Country	Total No. of Contributions (%)	Total No. of Contributors & (%)	Rank
1	India	125 (80.65)	228 (80.00)	1
2	Nigeria	26 (16.77)	51 (17.89)	2
3	Fiji	2 (1.29)	3 (1.05)	3
4	Oman	1 (0.65)	2 (0.70)	4
5	South Korea	1 (0.65)	1 (0.35)	5
	Total	**155**	**285**	
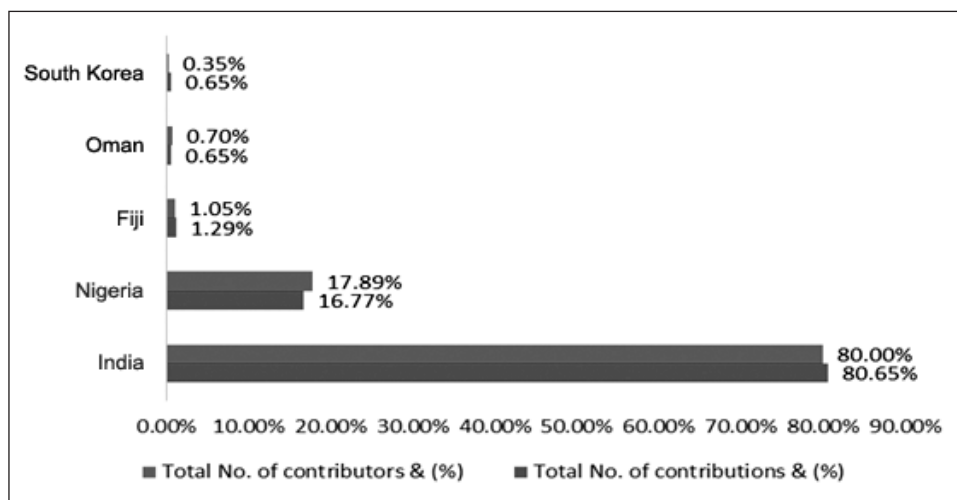
Figure-3: Geographical Distribution of Contributions & Contributors

Major Contributors and Pattern of Article Distribution

Table 5 reflects the major contributors of the particular journal during the period of investigation. The table shows that Dr A K Sharma occupies first place to contributed highest number of 9, constituting (25.71%) research articles, followed by Satija and Manoj Kumar Sinha with 4, constituting (11.43%) research articles each, Vijay Kumar, Vikas Singh, Dr Jatinder Singh Gill and Jagjit Singh contributed 3, constituting (8.57%) each.

State wise contribution of articles from India along with authorship pattern

Table 6 indicated state wise contribution of articles from India along with authorship pattern, the highest number of publication contributed from the host country, which is India. Tamil Nadu had got the first place with the

highest number of 38 contributions, constituting (30.40%) and 83 contributors from India, followed by UP, Karnataka, and Rajasthan having 13 contributions, constituting (10.40%) contributions with 26, 28 and 17 contributors respectively during the period of study.

Table 5- Major Contributors and Pattern of article distribution

Sl. No.	Author Name	Single Author	Two Authors	Three Authors	Four Authors	Total Contribution (%)	Rank
1	Dr. A. K. Sharma	3	5	1	0	9 (25.71)	1
2	Satija	2	1	1	0	4 (11.43)	2
3	Manoj Kumar Sinha	3	1	0	0	4 (11.43)	3
4	Vijayakumar	1	2	0	0	3 (8.57)	4
5	Vikas Singh	2	1	0	0	3 (8.57)	5
6	Dr. Jatinder Singh Gill	1	2	0	0	3 (8.57)	6
7	Jagjit Singh	1	2	0	0	3 (8.57)	7
8	Balasubramanian	0	1	1	0	2 (5.71)	8
9	Dr. Udya Chandra Shukla	0	2	0	0	2 (5.71)	9
10	Mintu Halder	1	1	0	0	2 (5.71)	10
	Total	**14**	**18**	**3**	**0**	**35**	

Table 6- State wise contribution of articles from India along with authorship pattern

Sl. No.	Name of the State	Single Author	Two Authors	Three Authors	Four Authors	Total Contribution (%)	Total Contributors
1	Tamil Nadu	9	27	1	1	38 (30.40)	83
2	U.P.	4	8	0	1	13 (10.40)	26
3	Karnataka	1	10	2	0	13 (10.40)	28
4	Rajasthan	3	9	1	0	13 (10.40)	17
5	Punjab	5	6	1	0	12 (9.60)	30
6	New Delhi	6	5	0	0	11 (8.80)	11
7	Haryana	4	2	0	0	6 (4.80)	6
8	Kerala	2	3	0	0	5 (4.00)	7
9	Kolkata	1	3	1	0	5 (5.00)	7
10	Assam	3	1	0	0	4 (3.20)	5
11	Mizoram	1	0	0	0	1 (0.80)	1

Sl. No.	Name of the State	Single Author	Two Authors	Three Authors	Four Authors	Total Contribution (%)	Total Contributors
12	J&K	1	0	0	0	1 (0.80)	1
13	Pondicherry	1	0	0	0	1 (8.80)	1
14	Manipur	0	0	1	0	1 (8.80)	3
15	Tripura	0	1	0	0	1 (8.80)	2
	Total	**41**	**75**	**7**	**2**	**125**	**228**

Reference Distribution Pattern

Table 7 depicts reference distribution pattern in a particular journal during the period of investigation, 2606 is total number of references cited in 178 research articles during the period of study, though we could have added average references for two articles to the total references and could have easily crafted the average references per article.1308 has recorded the maximum number of references in issue no. 2, followed by 1298 references in issue no. 1.

Table 7- Reference Distribution Pattern

Year	Volume No.	No. of Articles	Issue No. 1	Issue No. 2	Total References (%)	Cumulative References (%)	Average Reference per Article
2010	30	24	112	181	293 (11.24)	293 (11.24)	12.21
2011	31	32	166	207	373 (14.31)	666 (25.56)	11.66
2012	32	22	172	227	399 (15.31)	1065 (40.87)	18.14
2013	33	27	361	128	489 (18.76)	1554 (59.63)	18.11
2014	34	12	92	62	154 (5.90)	1708 (65.54)	12.83
2015	35	14	96	77	173 (6.64)	1881 (72.18)	12.36
2016	36	15	96	128	224 (8.60)	2105 (80.78)	14.93
2017	37	32	203	298	501 (19.22)	2606 (100)	15.66
Total		**178**	**1298**	**1308**	**2606**		

Authorship Pattern of References

Table 8 has been crafted with the view to give a better understanding of the authorship pattern of references during the period of study, a total number of references have 2606, Out of 2606 references 1256, constituting (48.20%) references cited by single authors research articles, 655 references, constituting (25.13%) references have been assigned to two author research articles, 288 references, constituting (11.10%) references cited by three author articles, 49 references, constituting (1.88%) references cited by four authors,13 references, constituting (0.50%) references cited by five authors research articles, 8 references, constituting (0.30%) references cited by

six authors research articles, 333 references cited by an organization, 3 references cited by more than six authors, 1 references not accessible or not found.

Table 8- Authorship Pattern of References

Sl. No.	Author Type	Distribution of references Issue Wise		Total References (%)	Cumilative References (%)
		Issue No. 1	Issue No. 1		
1	Single	647	609	1256 (48.20)	1256 (48.20)
2	Two	322	333	655 (25.13)	1911 (73.33
3	Three	137	151	288 (11.10)	2199 (84.38)
4	Four	27	22	49 (1.88)	2248 (86.26)
5	Five	5	8	13 (0.50)	2261 (86.76)
6	Six	6	2	8 (0.30)	2269 (87.10)
7	Organization	154	179	333 (12.78)	2602 (99.85)
8	More than Six	NA	3	3 (0.11)	2605 (99.96)
9	Not accessible/ Found	NA	1	1 (0.04)	2606 (100)
		1298	1308	2606	

Conclusion:

Journal of Library Progress (International) is one of the leading journals in the field of Library and Information Science. Researchers contributed their research results in the field of Library and Information Science all over the world but maximum research articles contributed by the host country, which is India. 80% contributors are from India while (20%) contributors from foreign countries during the period of study. The most popular authorship pattern among researchers is mostly by two authors.

In the year of 2011 and 2017, maximum number of publications are recorded i.e. 32 each, constituting (17.98%) articles each, 27 publications are recorded, constituting (15.17%) in the year 2013, and the lowest number of publications recorded in year was 2014 which is 12, constituting (6.74%), during the period of investigation (2010-2017).

As discussed in our conclusion part and has once again emerged that India is the host nation which greatly enjoys the highest contribution in many ways. Tamil Nadu emerged as the largest state among 38 federally contributing states of the host nation.

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Research Contribution of DESIDOC Journal of Library and Information Technology (DJLIT): A Bibliometric Assessment

N G Thermi Moyon and Akhandanand Shukla

The paper deals with the bibliometric assessment of an Open Access journal "DJLIT" for five years from 2011 to 2015, comprising 294 research articles in 30 issues of the journal. The study comprises to assess the distribution of articles, authorship pattern, degree of collaboration, geographical distribution of articles, and obsolescence of literature in the field as objectives. Conclusions have been drawn from the analysis that sufficient number of research contributions to the journal with collaborative authorship patterns, the highest national contribution than international, India and Nigeria as the topmost contributors to the journal in national and international category respectively. Within a national boundary, New Delhi is the highest contributor. Journal Articles were found to be the most prevalent source for reference item for citing in research articles, and calculated half-life (rate of obsolescence) for the journal is 8 years.

Keywords: *Authorship pattern, Research contribution, DOAJ, Degree of collaboration, Open access, Obsolescence of literature.*

1. Introduction

DESIDOC Journal of Library and Information Technology (DJLIT) is more than three decades old journal. It was formerly known as DESIDOC Bulletin of Information Technology (DBIT). DJLIT is one of the leading Open Access journals in the field of Library Science in India. It is published by Defence Science Documentation Centre (DESIDOC), DRDO, GOI, New Delhi since 1981 on the bimonthly basis which covers original research and review papers related to information technology applied to library activities, services, and products. The journal claims wide readership both at national and international level. Library and Information Science (LIS) research has been

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always the ultimate vision of intellectuals and academicians, as it also influences scientifically or technically research in other disciplines. In order to achieve their goal, the LIS professionals are now more competitive and update the current trends of research in the changing scenario to build a rich collection of LIS publications throughout the globe. Creswell (2008) reported that research not only aids solving practical problems and brings about material improvements, but it also provides insight into new ideas that improve human understanding of various social, economic and cultural phenomena. In recent years, there has been increasing interest among researchers and policymakers in the notion of research output. Research output is referred to some other similar terms including research contribution, research productivity, research performance etc. Research output is one of the major measures of journal performance in terms of research contribution to the field. A number of studies have tried to compare research contributions across journals to explore the main factors that enhance the research contribution of journals in the specific field.

Open Access is the revolutionary way of providing free access to the scholarly literature which is made possible through the Internet. The Open Access journals are mostly supported by the academic institutions and research & development institutions or government grants for publishing these journals. Private publishers are publishing them with getting financial support from the authors and supporting from reputed companies or institutions or some of the funding agencies who are providing support for the publishing open access journals (Tamizhchelvan & Dhanavandan, 2014). In 1917, Cole and Eale's study on the "history of comparative anatomy part-1: a statistical analysis" is considered to be the first bibliometric study. The word 'Bibliometrics' first appeared in 1969 in Alan Pritchard's article 'Statistical Bibliography or Bibliometrics' in the December issue of the Journal of Documentation. He described it as the "application of mathematics and statistical methods to books and other media of communication". In a later article, "bibliometrics and information transfer", Pritchard explained bibliometrics as the "metrology of the information transfer process and its purpose is analysis and control of the process".

2. Review of Literature

There are a number of researches conducted by various scholars in the field. Some of the relevant researches conducted on the different aspects of bibliometrics have been reviewed and mentioned below:

In a study, Awasthi & Jaiswal (2015) found considerable growth in the archiving of library science journals in DOAJ whereas print journals' archive was more than online journals' archive. A similar study conducted over DOAJ by Maity & Teli (2015) observed maximum productivity in the field of Library and Information Science was in ICT followed by Library and Society, Library Association, and Library Management. Mondal & Saha (2015) conducted a study on the journal "JILA" from 2008-2014 and found steady growth in the journal and more than 55% collaborative works whereas articles of the journal were localized. Thavamani (2015) examined the authorship trends in the "Indian Journal of Forensic Medicine & Toxicology" and concluded that higher collaborative works (86%) among authors with less than half (0.5) average productivity per author. Mondal (2014) conducted a bibliometric analysis of "Webology" and found 2665 journal citations from 102 papers published during the study period and further revealed that single authorship pattern was prevalent followed by two authorship pattern, India was the highest contributor to the journal. Narang & Singh (2014) studied 15786 citations appended to 1310 articles published in "Indian Journal of Pure and Applied Mathematics" and found that joint authorship pattern is predominant in the journal articles whereas foreign contributors were more than Indian contributors. Further, journals articles were the most cited documents in the articles and university teachers were the highest contributors to the journal. Satyanarayana (2014) evaluated the journal "TOURISMOS" and found that maximum numbers of articles were contributed by joint authors and their degree of collaboration was 0.65. The geographical distribution of papers highlighted that journal was dominated by the host country (i.e. Greece).

In a research, Barik & Jena (2013) explored the bibliometric aspects of "Journal of Knowledge Management Practice" from the period 2008-2012 and

found that 23.3% articles were published in 2011 and single authorship was prevalent in the journal. The USA was the highest contributor to the articles to the journal. A similar study conducted by Das (2013) over 206 articles of the journal "Library Trends" during 2007-2012, and concluded that on an average 11 articles per issue in the journal with a dominance of single authorship which had the lower degree of collaboration i.e. 0.41. Hussain (2013) also conducted a similar kind of research on "Annals of Library and Information Studies" for the period 2006-2010 and revealed that maximum numbers of articles were published in the year 2010, a majority of the articles preferred two authorship pattern and major contributions were coming from New Delhi. Lokhande (2013) conducted a study on "Annals of Library and Information Studies" for different time period (2002-2011) and found that majority of articles published in multiple authorship patterns, teaching faculty members were the major contributors, bibliometric and scientometrics study was the major focus of the journal covering other LIS subjects in the articles. In the same year, Pandita (2013) also analysed 310 articles of "Annals of Library and Information Studies" published during the period 2002-2012 and revealed that more than 65% articles published in the journal were on co-authorship pattern, India being the host country of ALIS as such proved to be one of the major contributors of the journal in every respect.

A bibliometric study conducted by Roy & Basak (2013) on "Journal of Documentation" revealed that majority of the Library and Information Scientists prefer to contribute their papers jointly, the majority of contributions were published on "information retrieval" and the majority of contributions were from the United Kingdom followed by the USA, and Finland. In another bibliometric study conducted by Thanuskodi (2011) for 138 articles of "Library Herald" during 2006-2010 revealed that major contributions were from single authors, the highest numbers of articles appeared for "library automation", and India (as a host country) was the major contributor of articles than foreign countries. It had been also revealed that the highest contributions were from universities and the majority of the authors preferred "journals" as the source of information providing the highest number of citations.

In a study Devendra (2014) investigated 140 free full-text online journals through DOAJ in Environmental Science and analyzed based on country-wise distribution, language-wise distribution, institution-wise distribution of publishers, distributions of subject headings, their accessibility of archives of online journals etc. and found that the United States publishes more open access journals (14.29%) in Environmental Science whereas Indian contribution is only 5%, English was the dominating language for publication of articles in the field. Similarly, Khillare & Khaparde (2014) investigated 48 open access online journals on Microbiology available under DOAJ and analyzed based on country, language, and subject heading accessibility of archives and concluded that India and Turkey were in 1st rank in this regard, and the English language was found common communication medium by majority of the journals. Hulagabali (2012) analyzed Library and Information Science journals with the aid of bibliometric methods, explained the distribution of LIS journals archived in Directory of Open Access Journals (DOAJ) and concluded that year-wise growth of LIS journals started in the year 2003 with 21 journals. Further, LIS domain stands the third position under the Social Science stream out of 960 journals listed under ten major disciplines in DOAJ. In a country-wise distribution of LIS journals, developed countries have maximum contributory share whereas out of 97 LIS journals, 40 LIS journals are being published in the English language.

3. Scope of Study

The scope of the study is confined to the bibliometric analysis of Indian open access LIS journal "DESIDOC Journal of Library and Information Technology (DJLIT)" for 5 years from 2011 to 2015. During the study period, the journal has published 5 volumes which contain 294 numbers of articles/research papers.

4. Objectives of the Study

The objectives of the study are to:

    a) Examine the year wise distribution of articles.

    b) Find the authorship pattern.

c) Assess the degree of collaboration among authors.

d) Find out geographical distribution of articles.

e) Determine the obsolescence of LIS literature.

5. Hypotheses

The hypotheses of the study are:

H1: Solo research is less preferred than collaborative research.

H2: Time has an inverse relationship with the growth of citation.

6. Research Methodology

The study was designed to investigate the research contribution of journal "DJLIT" using bibliometric techniques. The survey and observation methods of research were found appropriate to undertake the study. The journal articles have been retrieved from its website (http://publications.drdo.gov.in/ojs/index.php/djlit/index). The survey was conducted for retrieving 294 articles, which is the n value for the study; from the year January 2011 to December 2015 i.e. 5 years. The data obtained were tabulated, organized, and analyzed by the use of MS-Excel and SPSS as statistical tools and techniques.

7. Data Analysis and Interpretation

A. *Year wise Distribution of Articles*

Table 1: Distribution of Articles – Year wise

Year	Vol. No.	No. of Issues	No. of Contributions	%
2011	31	6	55	18.70
2012	32	6	65	22.10
2013	33	6	61	20.74
2014	34	6	60	20.40
2015	35	6	53	18.02
Total		**30**	**294**	**100**

(Source: Primary Data)

Table 1 display the total number of articles published in 30 issues of (5 volumes) of the journal from 2011-2015. On the observation of table 1, it has been found that major contributions of research articles to the journal published in Volume 32 (22.10%) and Volume 33 (20.74%) whereas Volume 35 has the lowest

publication percentage (18.02%) of total articles published in the journal.

B. *Issue wise Distribution of Articles*

Table 2 indicates issue wise publications of articles in five volumes. On the observation, it has been found that during April issue there was less number of research publications to the journal i.e. 15.64% whereas August issue of the journal has the highest number of published articles i.e.19.04% followed by December (16.66%) issue.

Table 2: Distribution of Articles – Issue wise

Issues (Month)	Volume Number					Total	%
	31	32	33	34	35		
February	8	10	12	9	9	48	16.32
April	8	10	9	11	8	46	15.64
June	7	12	9	10	10	48	16.32
August	13	12	11	10	10	56	19.04
October	9	11	9	10	8	47	15.98
December	10	10	11	10	8	49	16.66
Total	**55**	**65**	**61**	**60**	**53**	**294**	**100**

(Source: Primary Data)

C. *Authorship Pattern*

Table 3: Authorship Pattern of the Journal

Year	Volume	No. of Authors					Total Articles	Total Authors (%)
		One	Two	Three	Four	Five		
2011	31	20	25	7	2	1	55	104 (18.57)
2012	32	23	30	10	1	1	65	122 (21.78)
2013	33	26	25	8	2	-	61	108 (19.28)
2014	34	18	28	9	5	-	60	121 (21.60)
2015	35	16	25	10	1	1	53	105 (18.75)
Total		**103**	**133**	**44**	**11**	**3**	**294**	**560 (100)**
Percentage		**35.03**	**45.23**	**14.96**	**3.74**	**1.02**	**100**	

(Source: Primary Data)

Table 3 shows authorship pattern of research articles published in the journal (DJLIT) during 2011-2015. On the observation of table 3, it has been found that 35.03% articles were published in the name of one (single) author whereas 45.23% articles were published in the name of two authors. There were 14.96% articles published in the name of three authors while 3.74% articles were published in the name of four authors and only 1.02% articles belong to five authorship pattern

in the journal. From the analysis, it has been deduced that two authorship pattern is most prevalent in the journal followed by single authorship and three authorships respectively. Further, table 3 also reveals the total number of authors i.e. 560 authors contributed 294 research papers to the journal. Out of the total number of authors, 21.78% belongs to Volume 32 of the journal followed by Volume 34 (21.6%), Volume 33 (19.28%), Volume 35 (18.75%), and Volume 31 (18.57%).

D. Degree of Collaboration

Table 4: Degree of Collaboration among Authors

Year	Volume	Single Author (Ns)	Multi Authors (Nm)	Total Ns+Nm	Degree of Collaboration
2011	31	21	34	55	0.61
2012	32	23	42	65	0.64
2013	33	26	35	61	0.57
2014	34	18	42	60	0.7
2015	35	16	37	53	0.69
Total		**104**	**190**	**294**	**0.64**

(Source: Primary Data)

The Degree of Collaboration (C) of the contributors has been derived using the Subramanyam formula. The formula for the Degree of Collaboration can be expressed as:

$$\text{Degree of Collaboration (C)} = \frac{Nm}{Nm + Ns}$$

Where,
C = Degree of Collaboration
Nm = Number of multiple authors
Ns = Number of single authors

$$C = \frac{190}{190+104=294} \quad \text{or} \quad C = 0.64$$

The Degree of Collaboration (C) has been calculated for the year 2011-2015. Single author contribution is 104 and multiple authors' contribution is 190. Volume wise Degree of Collaboration of the journal falls in the range of 0.57 to 0.7. The average Degree of Collaboration of the journal is 0.64 which indicates the sound collaborative research among journal authors.

E. Geographical Distribution of Articles

Table 5: Geographical Distribution of Articles

Year	National	International	National+ International	Total No. of Articles
2011	46	7	2	55
2012	56	7	2	65
2013	52	7	2	61
2014	49	9	2	60
2015	49	3	1	53
Total	**252**	**33**	**9**	**294**
Percentage	**85.71**	**11.22**	**3.06**	**100**

(Source: Primary Data)

Table 5 displays geographical distribution of articles in the journal. The articles have been divided into three categories: National, International, and National + International. On the observation, it has been found that 85.71% articles belonged to national contribution and 11.22% belonged to international contribution. The National contribution is more than an international contribution to the journal. There were very few contributions (3.06%) belong to national and international collaboration. On the analysis, it has been found that since the journal is of Indian origin, the highest number of articles submitted and published by India in the journal. The International contribution of articles to the journal is less than national because of geographic distance as well as might be due to less popularity of the journal among foreign LIS professionals.

F. Country-wise Distribution of Authors

Table 6: Country-wise Distribution of Authors

Rank	Country	No. of Authors	Percentage
1	India	487	86.96
2	Nigeria	15	2.67
3	Singapore	7	1.25
4	Saudi Arabia	7	1.25
5	Greece	7	1.25
6	Turkey	4	0.71
7	Bangladesh	3	0.53
8	South Africa	3	0.53
9	Spain	3	0.53
10	London	2	0.35
11	UAE	2	0.35
12	Argentina	2	0.35

Rank	Country	No. of Authors	Percentage
13	Germany	2	0.35
14	Malaysia	2	0.35
15	Portugal	2	0.35
16	U.S.A	2	0.35
17	Oman	2	0.35
18	Australia	1	0.17
19	Belgium	1	0.17
20	Japan	1	0.17
21	Thailand	1	0.17
22	Virginia	1	0.17
23	Swaziland	1	0.17
24	Slovenia	1	0.17
25	Fiji	1	0.17
Total		**560**	**100**

(Source: Primary Data)

Table 6 shows the country wise distribution of authors. India has the highest number of contributors (86.96%) to the journal followed by Nigeria (2.67%), Singapore, Saudi Arabia and Greece (1.25% each). The journal has 13.04% authors from other countries and rests were from India which displays its less international acceptance and presence amongst LIS professionals than other open access journals of LIS. Among foreign countries authors, 20.54% authors belong to Nigeria only that indicates Nigerian authors have more interest in publishing their research papers with DJLIT than other countries authors/researchers. Singapore, Saudi Arabia, and Greece have individually 9.58% authors to the journal. In the terms of a number of foreign countries, DJLIT has covered 24 countries as its widespread availability for publication of the research papers.

G. State-wise Distribution of Indian Authors

Table 6: State-wise Distribution of Indian Authors

Rank	Name of State	No. of Authors	Percentage
1	New Delhi	100	20.53
2	Maharashtra	74	15.19
3	Karnataka	66	13.55
4	Telangana	24	4.92
5	Kerala	24	4.92
6	Uttar Pradesh	23	4.72
7	Chandigarh	22	4.51
8	Tamil Nadu	21	4.31

Rank	Name of State	No. of Authors	Percentage
9	West Bengal	21	4.31
10	Odisha	13	2.66
11	Andhra Pradesh	13	2.66
12	Pondicherry	12	2.46
13	Jammu & Kashmir	11	2.25
14	Rajasthan	8	1.64
15	Haryana	8	1.64
16	Gujarat	8	1.64
17	Punjab	7	1.43
18	Chhattisgarh	7	1.43
19	Jharkhand	6	1.23
20	Madhya Pradesh	6	1.23
21	Uttarakhand	5	1.02
22	Himachal Pradesh	5	1.02
23	Goa	2	0.41
24	Meghalaya	1	0.20
Total		**487**	**100**

(Source: Primary Data)

Table 7 shows state-wise distribution of Indian authors. New Delhi (20.53%) has the highest number of contributors to the journal followed by Maharashtra (15.19%), Karnataka (13.55%), Telangana and Kerala (4.92% each), Uttar Pradesh (4.72%), Chandigarh (4.51%) etc. Indian contributors to the journal belong to 24 States and Union Territories of India which shows journal's wide publicity, circulation, and acceptance amongst Indian LIS professionals.

H. Forms of Documents Cited

Table 8: Forms of Documents Cited in the Articles

SN	Forms of Document	Total No. of Citations	Percentage
1	Journal Articles	2607	53.96
2	Web-based Resources	831	17.20
3	Books and Reference Sources	545	11.28
4	Conference/Seminar Proceedings	467	9.66
5	Miscellaneous Items	200	4.13
6	Research/ Project Reports	138	2.85
7	Theses/ Dissertations	43	0.89
Total		**4831**	**100**

(Source: Primary Data)

The study has been conducted to know the prevalent forms of citations appeared in research articles published in the journal. From the analysis of table 8, it has been found that "Journal Articles" were most prevalent in terms of citations/references in research articles. There were total 4831 citations received to 294 research articles

published in the journal during study period, and more than 53.96% citations belong to Journal Articles followed by Web-based Resources (17.20%), Books and Reference Sources (11.28%), articles published in Conference/ Seminar Proceedings (9.66%), Research/ Project Reports (2.85%), and Theses/ Dissertations (0.89%). By the analysis of table 8, it has been an inference that "Journal Articles" are the first choice as a citation/ reference for writing a research paper by authors. Web-based Resources are recent in origin (about 21 years old) but gained the trust of authors as a source of information & knowledge and used for citation/ reference in their research papers and in this journal, authors preferred to cite as second choice. Books and Reference Sources have been the third choice of authors for citation due to having conceptual and historical information & knowledge about the topic of research. Conference/ Seminar Proceedings have been used as the source of information and knowledge for research purposes but less than Web-based Resources due to availability problem in comparison to Web-based Resources. Research/ Project Reports and Theses/ Dissertations have been less used by researchers to write the research papers in the field, and it might be due to less/ restricted availability of such information sources in public domain. Moreover "Miscellaneous items" have higher usage than Research/ Project Reports and Theses/ Dissertations, so that cited more than Research/ Project Reports and Theses/ Dissertations.

I. Chronological Distribution of Citations

The chronological distribution of citations to the journal articles has been given in Table 9. The citations from the journal articles have been divided into 8-time frames having a periodicity of 10 years each. The citations before 1950 were enclosed within the cluster up to 1950 and citations after 2010 to 2015 enclosed in 2011-2015 groups. From the table 9, it has been observed that DJLIT research articles prefer most of the citations of 2001-2010 (50.42%), 2011-2015 (27.42%), and 1991-2000 (15.02%) time periods. It indicates that 92.87% literature cited in the research papers of the DJLIT are within the period of 1991-2015 i.e. last 25 years duration. Further categorically, citations belong to "Journal Articles" covered from 2001-2010 (56.19%), 1991-2000 (17.75%), and 2011-2015 (17.72%). Within the "Journal Articles" category, 91.67% citations are within the period of 1991-2015. Citations in the form of "Books and Reference Sources" also have 49.35% citations within 2001-2010, 20.36% within 1991-2000, and 9.35% within 2011-2015 time periods. The major citations (79.08%) are within 1991-2015 time periods in case of "Books and Reference Sources". The "Web-based Resources" as a form of citations appeared during 1991-2000 time period first time in the journal articles and all the citations are within 1991-2015 time periods. In case of "Conference/ Seminar Proceedings", 70.66% citations are within 2001-2010 time period followed by 18.20% within 1991-2000, and 10.49% within 2011-2015. In this case, 99.34% citations are within 1991-2015 time periods. In the cases of Miscellaneous items (98.5%), Research/ Project Reports (98.55%) and Theses/ Dissertations (88.37%), major citations are within 1991-2015 time periods. From the analysis, it has been evident that literature older than 25 years (published before 1991) have not been used much by researchers and they [researchers] have a tendency to use the latest literature published in any form. Further "Journal Articles" for writing research papers (for citing purposes) are prevalent amongst authors/ researchers followed by Web-based Resources, Books and Reference Sources, and Conference/ Seminar Proceedings.

Table 9: Chronological Distribution of Citations

Year	Journal Articles	Web based Resources	Books and Reference Sources	Conference/ Seminar Proceedings	Misc. items	Research/ Project Reports	Theses/ Dissertations	Total
Up to- 1950	10 (0.38%)	-	14 (2.56%)	-	1 (0.5%)	-	-	25 (0.52%)
1951-1960	3 (0.11%)	-	8 (1.46%)	-	-	-	-	11 (0.22%)
1961-1970	19 (0.72%)	-	19 (3.48%)	-	1 (0.05%)	-	1 (2.32%)	40 (0.82%)

Year	Journal Articles	Web based Resources	Books and Reference Sources	Conference/ Seminar Proceedings	Misc. items	Research/ Project Reports	Theses/ Dissertations	Total
1971-1980	55 (2.10%)	-	34 (6.23%)	-	1 (0.05%)	1 (0.72%)	3 (6.97%)	94 (1.94%)
1981-1990	130 (4.98%)	-	39 (7.15%)	3 (0.64%)	-	1 (0.72%)	1 (2.32%)	174 (3.60%)
1991-2000	463 (17.75%)	20 (2.40%)	111 (20.36%)	85 (18.20%)	22 (11%)	15 (10.86%)	10 (23.25%)	726 (15.02%)
2001-2010	1465 (56.19%)	159 (19.13%)	269 (49.35%)	330 (70.66%)	104 (52%)	86 (62.31%)	23 (53.48%)	2436 (50.42%)
2011-2015	462 (17.72%)	652 (78.45%)	51 (9.35%)	49 (10.49%)	71 (35.5%)	35 (25.36%)	5 (11.62%)	1325 (27.42%)
Total	**2607**	**831**	**545**	**467**	**200**	**138**	**43**	**4831**

(Source: Primary Data)

J. Obsolescence of LIS Literature

The table 10 displays frequency of citations appeared in the articles published in the journal DJLIT and obsolescence of literature cited in those articles. The total 4831 citations were classified into 9 time zones, each having the time duration of 10 years. These 4831 citations were also categorized according to their form of the document. From the table 10, categorically different rates of obsolescence observed for different forms of documents. For example, for Journal Articles, Web-based Resources, Miscellaneous Items, and Research/Project Reports rate of obsolescence is 10 years while for Books and Reference Sources, Conference/ Seminar Proceedings, and Theses/ Dissertations rate of obsolescence is up to 20 years. The calculated rate of obsolescence or half-life of citations to the journal is 8.603 years. The calculation method for the rate of obsolescence can be observed from the study of Shukla & Moyon (2017) which is available at http://digitalcommons.unl.edu/libphilprac/1530.

Table 10: Frequency of Citations and their Obsolescence

Years	Journal Articles	Web based Resources	Books and Reference Sources	Conference /Seminar Proceedings	Misc. items	Research/ Project Reports	Theses/ Dissertations	Total Citations (f)	Cumulative Citations (Cf)
1-10	1314 (50.40%)	777 (93.50%)	178 (32.66%)	229 (49.03%)	133 (66.5%)	79 (57.24%)	19 (44.18%)	2729	2729
11-20	954 (36.59%)	53 (6.37%)	223 (40.91%)	220 (47.10%)	58 (29%)	54 (39.13%)	15 (34.88%)	1577	4306
21-30	202 (7.74%)	1 (0.12%)	57 (10.45%)	17 (3.64%)	6 (3%)	4 (2.89%)	4 (9.30%)	291	4597
31-40	90 (3.45%)	-	26 (4.77%)	1 (0.21%)	-	-	3 (6.97%)	120	4717
41-50	33 (1.26%)	-	29 (5.32%)	-	1 (0.05%)	1 (0.72%)	2 (4.65%)	66	4783
51-60	2 (0.07%)	-	16 (2.93%)	-	1 (0.5%)	-	-	19	4802
61-70	4 (0.15%)	-	8 (1.46%)	-	-	-	-	12	4814
71-80	-	-	2 (0.36%)	-	-	-	-	2	4816
80+	8 (0.31%)	-	6 (1.1%)	-	1 (0.05%)	-	-	15	4831
Total	**2607**	**831**	**545**	**467**	**200**	**138**	**43**	**4831**	

(Source: Primary Data)

K. Testing of Hypotheses

Hypothesis 1: Solo research is less preferred than collaborative research.

For the testing of this hypothesis, the null hypothesis is required that has been given as:
H0: There is no significant difference between solo research and collaborative research.

Chi-Square (X2) is a test to test the significance when obtained data are expressed in frequencies or percentage or proportions.

	Observed Frequency (*fo*)	Expected Frequency (*fe*)
Solo Research	104	147
Collaborative Research	190	147

Computation of X2 with the data given in above table 11.

Table 11: Computation of X2 for DJLIT

	fo	*fe*	*fo - fe*	$(fo-fe)^2$	$(fo-fe)^2/fe$
Solo Research	104	147	-43	1849	1849/147=12.57
Collaborative Research	190	147	43	1849	1849/147=12.57
Total	294	294		3698	3698/147=**25.15**

Degree of Freedom (df) = (R-1) (C-1) = (2-1) (2-1) = 1.
From the critical value of Chi-Square table, the values of X2 distribution for 1 degree of freedom at .05 and .01 level are 3.84 and 6.64 respectively. The calculated X2 value is 25.15 which is greater than critical X2 value 3.84 at .05 level. This value is significant and so null hypothesis is rejected and it proves that solo research is less preferred than collaborative research.

Hypothesis 2: Time has an inverse relationship with the growth of citation.
Pearson Correlation is a test to know the degree of association (correlation) between two variables. Here association has been observed between Time and Growth of Citations.

Table 12: Correlation of DJLIT

Correlations			
		Time (Year)	Citations
Time (Year)	Pearson Correlation	1	-.625**
	Sig. (2-tailed)		.000
	N	133	133
Citations	Pearson Correlation	-.625**	1
	Sig. (2-tailed)	.000	
	N	133	133
**. Correlation is significant at the 0.01 level (2-tailed).			

There is a significant adverse (negative) relationship between time and growth of citations (r= -.625, significant at .01 level). Therefore, Hypothesis 2 (H2) is accepted. The correlation has been measured between time and

citations and found that there is significant adverse (negative) relationship for the journal "DJLIT". This proves the hypothesis that time has an inverse relationship with the growth of citations to the journals. As time passes in backward movement (from 2015-1950-1900), there should be a number of citations from recent to old but it is not so, and if time passes in forward movement (1900-1950-2015), there should be a number of citations from old to recent. But in both the conditions, it has been found an adverse correlation between time and growth of citations.

8. Research Findings

The analysis of the data collected through survey and observation have revealed a number of findings which are as follows:

● The journal has published 294 articles in 30 issues of 5 volumes from the year 2011-2015. There was an almost equal distribution of articles found in every volume. Volume 32 and Volume 33 have published the major percentage of research papers in the journal i.e. 22.1% and 20.74% respectively whereas Volume 35 has the lowest publication percentage i.e. 18.02%.

● As per issue wise publications of articles in five volumes, it has been found that August issue (19.04%) of the journal has the highest number of published articles whereas April issue has the least number of publications to the journal i.e. 15.64%.

● In the study of authorship pattern for the journal, it has been found that two authorship pattern (45.23%) is most prevalent in the journal followed by single authorship (45.03%).

● The Degree of Collaboration for the journal is 0.64 which indicates a significant amount of collaborative research among authors of the journal.

● In the analysis of the geographical distribution of articles in the journal, it has been found that majority (85.71%) of research papers belonged to national contribution. Since the journal is of Indian origin, so highest number of research papers submitted and published by Indian authors in the journal.

● Analysis based on the country wise distribution of authors, it has been observed that India has the highest number of contributors (86.96%) to the journal. The journal has 13.04% contributors from overseas which display its less international reach, distribution, acceptance, and presence amongst LIS professionals. Nigerian authors (20.54%) have more interest in publishing their research papers in the journal amongst all overseas authors.

● Analysis based on State-wise distribution of authors within India, it has been observed that New Delhi (20.53%) has the highest number of contributors to the journal. Indian contributors to the journal belong to 24 States and Union Territories of India which shows journal's wide publicity, circulation, and acceptance amongst Indian LIS professionals.

● The study has been conducted to know the prevalent forms of citations appeared in research articles published in the journal and found that Journal Articles (53.96%) were most prevalent in terms of citations/references in research articles followed by Web-based Resources (17.2%), and Books and Reference Sources (11.28%).

● The study has been conducted to know the chronological distribution of citations to the journal articles and found that research papers published in the journal prefer most of the citations of 2001-2010 (50.42%), 2011-2015 (27.42%), and 1991-2000 (15.02%) time periods. It indicates that majority (92.87%) of literature cited in the research papers of the journal were within the time period of 1991-2015 i.e. last 25 years duration.

● The study has been conducted to determine the rate of obsolescence (half-life) of LIS literature in the journal and found that the calculated rate of obsolescence (half-life) for the journal is 8.603 years.

● From the testing of significance of Hypothesis (H1) with Chi-Square test, it has been found that journals prefer collaborative research than solo research.

● From the testing of correlation between time and growth of citations in Hypothesis (H2) with Pearson Correlation, it has been found that DJLIT has a significant adverse relationship between time and growth of citations and thus Hypothesis (H2) is accepted.

9. Conclusion

From the analysis, it is evident that journal "DJLIT" has published sufficient amount of research articles during the period of study which includes many collaborative works (64% collaborative articles). The journal has less popularity in overseas than India which indicates the journal has much popularity within the country and produced more than 86% research articles from India only. The similar results have been also observed by other studies conducted by Shukla & Moyon (2016, 2017) and Moyon & Shukla (2017). Amongst the overseas countries, Nigeria has contributed a lot to the journal. Further, the journal has very wide coverage within national boundary including 24 States and Union Territories with the highest coverage from New Delhi. The "Journal Articles" has been found to be the most used reference item for writing the research articles (Shukla & Moyon, 2016; 2017). The reference items used by authors for writing research articles were not older than 25 years from the current date which proves that latest information sources have more chance to be cited than older one as well as authors and readers believes in updated and current sources of information for an academic purpose. Moreover, calculated half-life (rate of obsolescence) for the journal "DJLIT" is 8 years. This is an indication that growth of LIS literature is very fast and supports the statement "less the half-life will confirm the faster growth of literature" (Shukla & Moyon, 2016; 2017). The present study proved that journal publishes more collaborative research than solo research as well as the inverse relation of time with the growth of literature.

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Treatment of Children in Various Editions of Dewey Decimal Classification

Ashok Pal, Tarun Kumar Mondal and
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Depending on the subject descriptors on children and its related concepts along with the corresponding DDC class numbers in the first ten editions of DDC, this paper tries to present the treatment of children in Dewey Decimal Classification (DDC). Concept wise and edition wise analysis of these class numbers have been done here with the ultimate motto of exhibiting the evolution of children related subjects in course of time through the window of DDC.

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Introduction:

Starting its journey in 1876, Dewey Decimal Classification (DDC) bears with it a long and chequered history behind it. With its enormous popularity as a library classification scheme as is seen in its translation over 30 languages and application in138 countries, DDC has proved itself to be an ideal reflection of the trends of development of the universe of subjects. The present study henceforth, wants to investigate the trend of development of children, a specific subject area, depending on various editions of DDC. Children as the future citizens of this human civilization no doubt hold a prominent position in the whole gamut of history. As DDC reflects the growth of literary warrants on different subject domains through its subject descriptors and corresponding class numbers, the concepts on children are no exception in this regard.

Literature Review:

According to Krishan Kumar (2011), with the purpose of arranging the library of Amherst College, Melvil Dewey in 1876 launched his epoch making library classification scheme. Though in 1873 he conceived the idea of framing the scheme, it was actually published in 1876. The name of the first edition of

Dewey Decimal Classification (DDC) Scheme was "A Classification and Subject Index for Cataloguing and Arranging the Books and Pamphlets of a Library". From the 20th edition of DDC (1989) and from the popular book on classification theory by S. Husain (2004) the following table has been drawn to have a glimpse at the brief introduction of the first 10 editions of DDC which will be the cornerstone of this present study.

Table 1: First 10 Editions of DDC

EDITION	DATE	PAGES	COPIES	EDITOR
1	1876	44	1,000	Melvil Dewey
2	1885	314	500	Melvil Dewey
3	1888	416	500	Melvil Dewey
4	1891	466	1,000	Evelyn May Seymour
5	1894	467	2,000	Evelyn May Seymour
6	1899	511	7,600	Evelyn May Seymour
7	1911	792	2,000	Evelyn May Seymour
8	1913	850	2,000	Evelyn May Seymour
9	1915	856	3,000	Evelyn May Seymour
10	1919	940	4,000	Evelyn May Seymour

While discussing the subject treatment in DDC, none can overlook Fox's opinions. M. J. Fox's critical perception on the treatment of subjects in Dewey's magnum opus is built on a feministic approach. Fox's clear emphasis is on the treatment of men, women and trans-gender people in Dewey's scheme (Fox, 2015). Comaromi (1976), a later editor of the DDC, in his largely complimentary history of the system, has made no comment on the fact that that the category of "women" was omitted altogether from the first edition, but does complain that Domestic Economy, an implicitly feminine category, should not be elevated "to the same level as medicine or engineering or any of the other skills with a heading in the Useful Arts".

Objectives:

The present study deals with the following objectives:

➢ To explore the subject development on children from the related subject descriptors.
➢ To represent the discipline wise analysis of concepts on children.
➢ To exhibit the edition wise distribution of concepts on children.
➢ To trace the existing similarities among different subject descriptors on children in DDC.
➢ To depict the See and See also references of the concerned subject descriptors in the ten DDC editions.
➢ To check the availability of Subdivisions and use of Divide like device in the selected editions on the selected subject descriptors.

Limitations of Scope:

The proposed research focuses on the subject descriptors on children, infants and juveniles (as all are synonymous to child in various ways) as reflected in Dewey Decimal Classification or DDC. First ten editions of DDC will

be thoroughly treated (especially the relative index and the parts related to children in the schedule) in the proposed study. Analysis of the Subdivisions and See & See also references by visiting those numbers of the related concepts have been kept outside the purview of this study.

Methodology:

In order to investigate the problem of the proposed research and to achieve the objectives stated earlier, it has been intended to adopt assessment and evolution study. First ten DDC editions have been searched to collect data on children. Comparative treatment of subject descriptors on children in various DDC editions is also shown. First the subject descriptors have been taken from the index part of the DDC, then those are alphabetically arranged in tabular form and only after going through the schedule with thorough observation these have been tabulated with their corresponding DDC numbers and other related information. Though the original table could not be included here owing to the limitation of space, necessary tables and graphs have been deduced from it are depicted in this paper.

Analysis and Interpretation of Data:

Occurrences of Subject Descriptors

Altogether 68 subject descriptors on children and its related concepts have been tabulated and on the basis of that the following figure has been drawn to reflect the occurrences of subject descriptors in the ten editions of DDC. Eight subject descriptors like **Child Care, Children – health – home care, Children's hospitals, Foundling asylums –sociology, Infant schools (Primary schools), Infanticide – ethics, Kindergarten/ Primary education** and **Nurseries (Children's rooms) - home economics** have maximum number of occurrences i.e. each of these concepts are present in all the 10 editions. On the contrary **Children- social welfare** has occurred in only one edition i.e. the 10th edition.
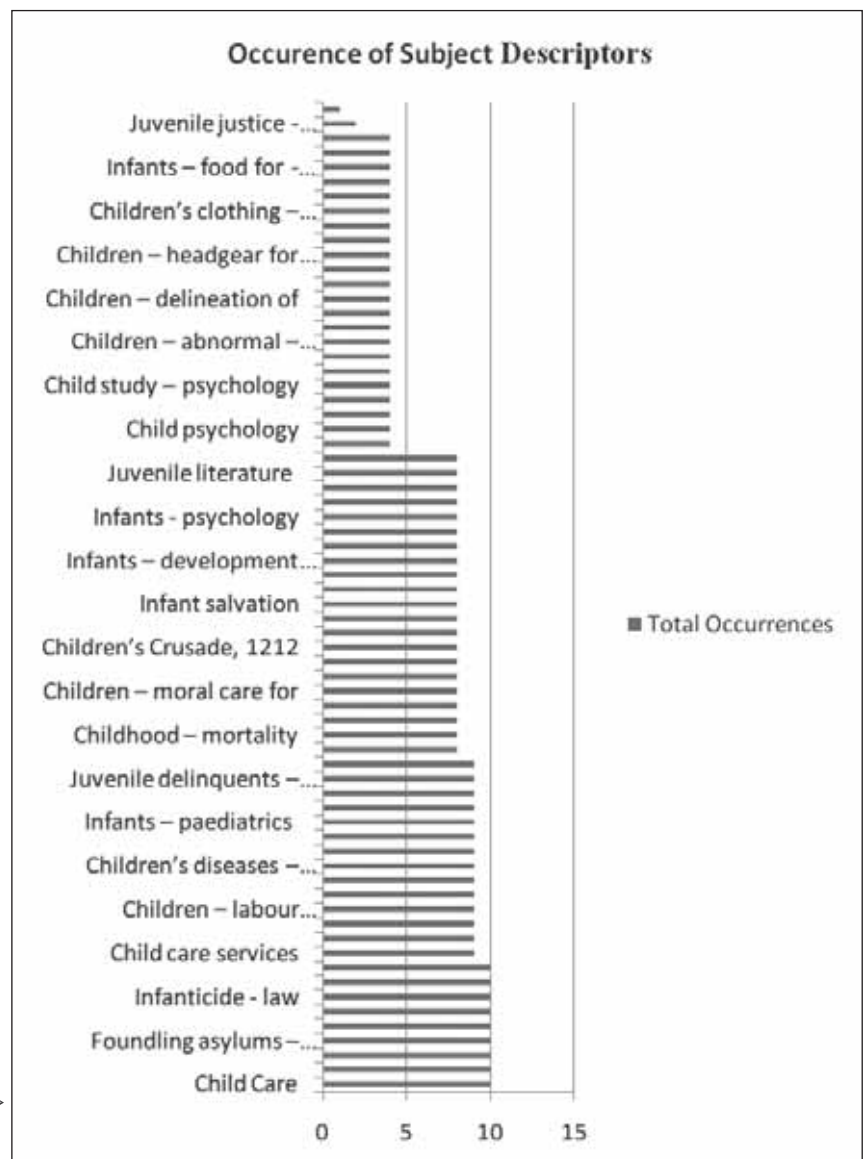
Figure 1: Occurrences of Subject Descriptors ➤

Edition wise Distribution of Subject Descriptors

Out of the 68 subject descriptors on children and its related concepts edition wise analysis has been exhibited here through the following figure.
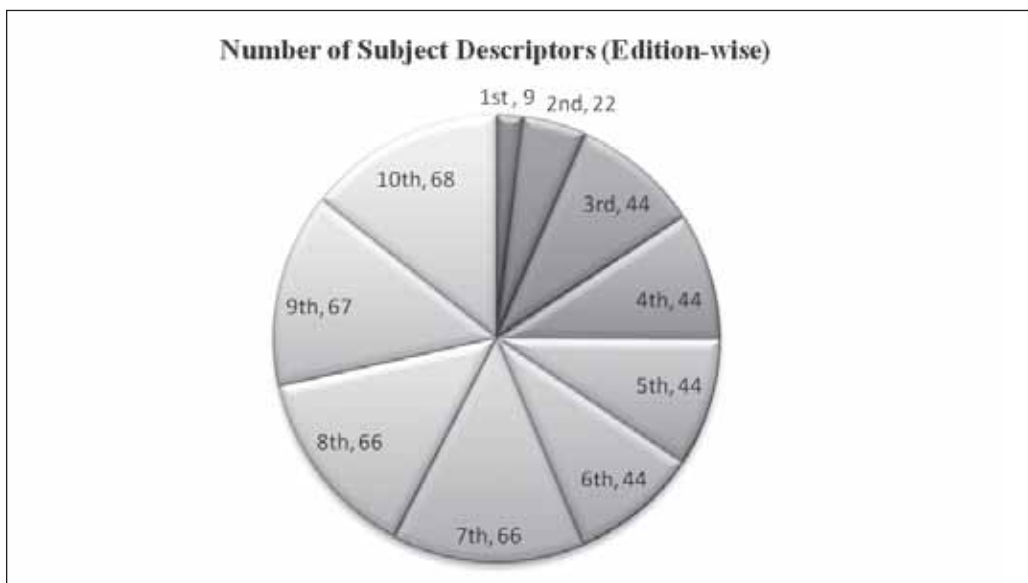
Figure 2: Number of Subject Descriptors (Edition-wise)

The above figure 2 clearly indicates that the 10th edition has maximum 68 concepts, while 9th edition has 67. The 7th and 8th editions share 66 subject descriptors each while the 1st edition has only 9 subject descriptors on children, clearly denoting the gradual growth of DDC regarding the amount of concepts.

Synonymous Subject Descriptors

After thorough observation it has been found that there are only 51 unique children related concepts in these editions. The similar concepts (with same class numbers but with terminological differences) have been brought together in the following table 2. For example mention may be made of **Child care** and **Child rearing**. Both these concepts have been represented by the class number 649.1 from DDC 7th edition to 10th edition. Similar is the case with many other synonymous concepts like **Child development – physiology** or **Children – development – human physiology or Infants – development – physiology** all of which are represented by 612.65 from the 3rd edition to the 10th edition.

Table 2: Similar Subject Descriptors

Subject Descriptors
Child care || Child rearing
Child care services || Children – abandoned/orphans – services ||Children's hospitals || Foundling asylums –sociology
Child development – physiology || Children – development – human physiology || Infants – development - physiology

Child development – psychology || Child psychology|| Child study – psychology || Children – psychology
Child labour || Children – labour economics
Child study – physiology
Childhood – mortality || Juvenile mortality – public health
Childhood – psychology
Children – abnormal – child study
Children – abnormal – education
Children – art representation
Children – cooking for
Children – delineation of
Children – games of – nursery
Children – habits of – domestic economy
Children – headgear for – domestic economy
Children – health – home care
Children – institutional buildings – architecture
Children – moral care for
Children – of American revolution
Children – reading – library science || Juvenile literature
Children – recreation - outdoor
Children – social welfare
Children – treatment of – ethics
Children's clothing – home economics
Children's clothing -customs
Children's Crusade, 1212
Children's diseases –medicine
Children's duties - ethics
Children's room- library building
Exercise – child care
Foundling asylums – architecture
Infant baptism – public worship

Infant salvation
Infant schools (Primary schools)
Infanticide - customs
Infanticide - ethics
Infanticide - law || Juvenile delinquents – law || Juvenile justice – law
Infantile paralysis - disease
Infantile paralysis – public health
Infants – food for - hygiene
Infants – food for - nursery
Infants – mortality – public health
Infants – paediatrics
Infants - psychology
Infants – ration – physiology
Infants - therapeutics
Juvenile mortality – public health
Juvenile correctional institutions || Juvenile delinquency / Juvenile delinquents –criminology || Juvenile courts || Juvenile delinquents – penal institutions or Reformatories || Juvenile justice – criminology
Kindergarten or Primary education
Nurseries (Children's rooms) - home economics

(N.B. as this paper deals with ten DDC editions, in this table the class numbers from all the editions could not be shown due to space problem)

Discipline-wise Distribution of Subject Descriptors or Concepts on Children

The following table 3 and figure 3 reflect the main discipline(s) wise distribution of subject descriptors on children. Here the main divisions of the 10 main classes of the 10th edition of DDC have been considered as the disciplines.

Table 3: Discipline-wise Distribution of Subject Descriptors or Concepts on Children

Subject Disciplines	Number of Concepts (with Percentage)
Amusements (790)	1 (1.96%)
Architecture (720)	2 (3.92%)
Associations and institutions (360)	4 (7.84%)
Church institutions and work (260)	1 (1.96%)
Customs, costumes, popular life (390)	2 (3.92%)
Doctrinal, dogmatics, theology (230)	1 (1.96%)

Subject Disciplines	Number of Concepts (with Percentage)
Domestic economy (640)	10 (19.61%)
Economics || Political economy (330)	1 (1.96%)
Education (370)	4 (7.84%)
Ethics (170)	3 (5.88%)
Europe-Modern history (940)	1 (1.96%)
Law (340)	1 (1.96%)
Library economy or Library science (020)	2 (3.92%)
Medicine (610)	10 (19.61%)
Mind and body || Anthropology (130)	8 (15.69%)
Total	**51 (100%)**
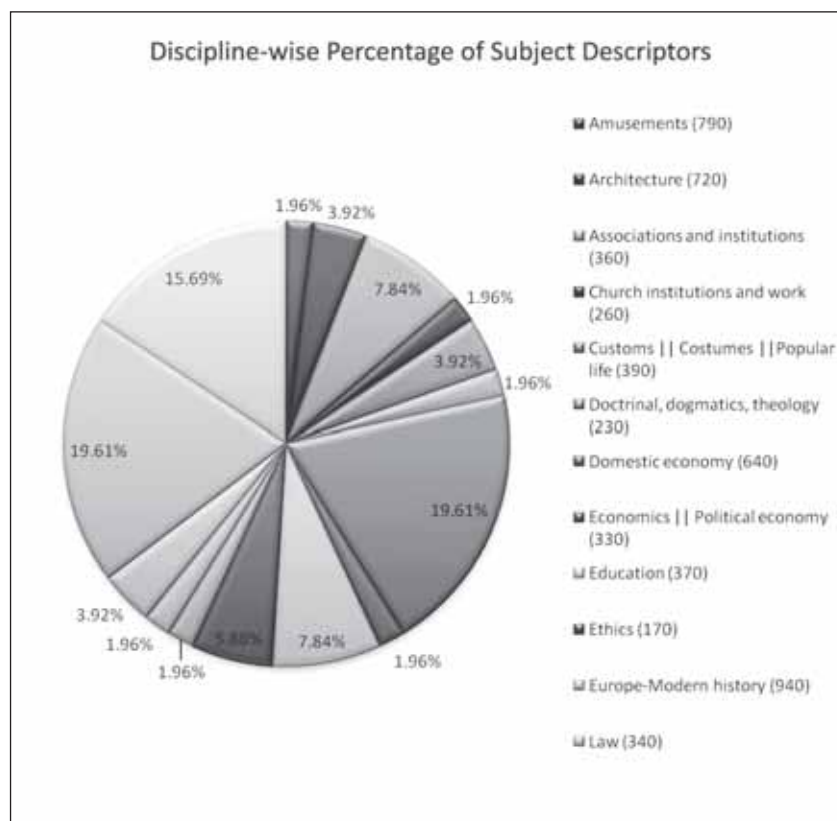
Figure 3: Discipline-wise Percentage of Subject Descriptors

Calculations have been done on 51 unique concepts and out of which **Medicine** (610) and **Domestic economy** (640) hold the largest share of concepts i.e.10 (19.61%) in each discipline. **Mind and body** along with **Anthropology** (130) class is also not far behind and possesses 8 (15.69%) concepts on children. **Doctrinal, dogmatics, theology** (230), **Church institutions and work** (260) **Economics** (330), **Law** (340), **Amusements** (790) and **Europe-Modern history** (940) are having only 1(1.96%) concept each.

Edition-wise Availability of Subdivisions and Divide like Device for Each Concept

DDC also treats the children related concepts in minute level. Therefore many concepts are having subdivisions and for addition of subdivisions sometimes Divide like device is also used which are depicted in the following table through edition wise availability of subdivisions and Divide like device.

Table 4: Edition-wise Availability of Subdivisions and Divide like Device for Each Concept

Subject Descriptors	Ed. 1	Ed. 2	Ed. 3	Ed. 4	Ed. 5	Ed. 6	Ed. 7	Ed. 8	Ed. 9	Ed. 10
Child care										
Child care services							S	S	S	S
Child development – physiology										
Child development – psychology										
Child labour										
Child study – physiology										
Childhood – mortality										
Childhood – psychology							S D	S D	S D	S D
Children – abnormal – child study							S	S	S	S
Children – abnormal – education							S	S	S	S
Children – art representation										
Children – cooking for										
Children – delineation of							S	S	S	S
Children – games of – nursery										
Children – habits of – domestic economy										
Children – headgear for – domestic economy										
Children – health – home care										
Children – institutional buildings – architecture										
Children – moral care for		S	S	S	S		S	S	S	S
Children – of American revolution										
Children – reading – library science										
Children – recreation - outdoor										
Children – social welfare										
Children – treatment of – ethics										
Children's clothing – home economics										
Children's clothing -customs										
Children's Crusade, 1212										
Children's diseases –medicine										
Children's duties - ethics										
Children's room- library building										
Exercise – child care										
Foundling asylums – architecture										
Infant baptism – public worship										
Infant salvation		S	S	S	S		S	S	S	S
Infant schools (Primary schools)	S	S	S	S	S		S	S	S	S
Infanticide - customs										
Infanticide - ethics										
Infanticide - law	S	S	S	S	S		S	S	S	S
Infantile paralysis - disease										
Infantile paralysis – public health		S	S	S	S		S	S	S	S
Infants – food for - hygiene										
Infants – food for - nursery										
Infants – mortality – public health										
Infants – paediatrics										
Infants - psychology		S	S	S	S					
Infants – ration – physiology										
Infants - therapeutics										
Juvenile mortality – public health										
Juvenile correctional institutions										
Kindergarten or Primary education							S	S	S	S
Nurseries (Children's rooms) - home economics										

S-Subdivisions available,   D-Divide like device used,
Blank space denotes that there are no such subdivisions or Divide like device.

(N.B. In this table only the 51 unique concepts are presented without their synonymous forms as available in the DDC indices.)

The above table clearly indicates that only in case of **Childhood –psychology** the Divide like device has been used from ed. 7 to ed. 10 along with the provision of subdivisions. **Child care services, Childhood-psychology, Children-abnormal-child study, Children-abnormal education** and such other concepts are having subdivisions as is reflected in the table from the presence of S symbol.

Edition-wise Distribution of See and See Also References

The subject descriptors on children are also having some See and See also references which lead them to some other related concepts. The following figure bears testimony to that.
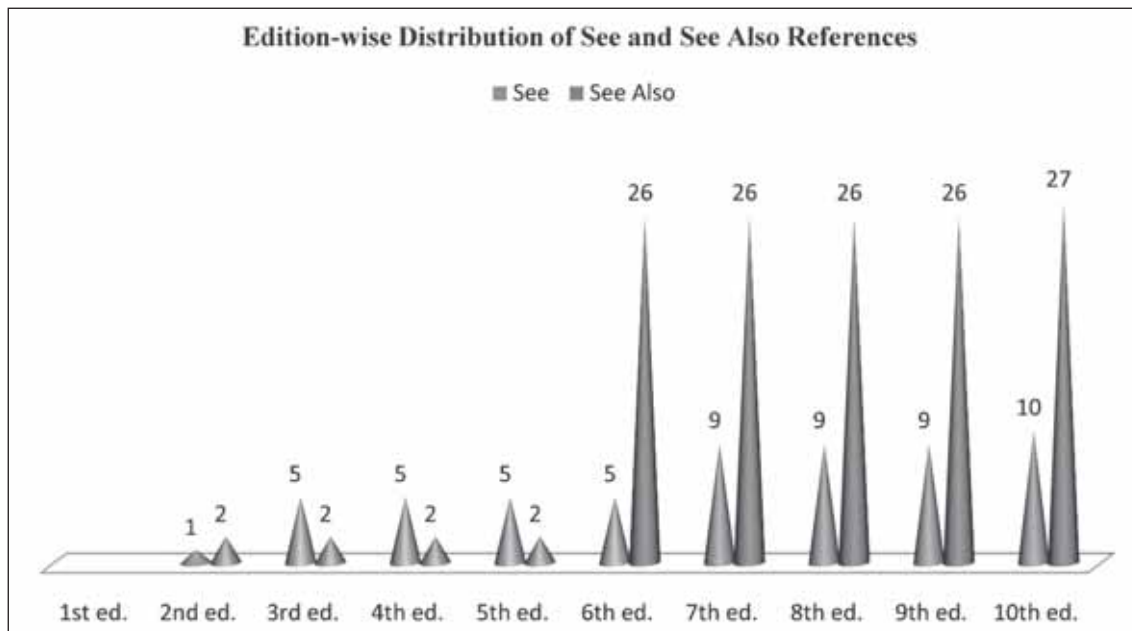
Figure 4: Edition-wise Distribution of See and See Also References

From the figure 4 it is evident that 2nd edition of DDC has 1 See reference where as the number of See also references are 2 in the same edition. From the 6th to 10th editions in every case See also reference rule the roost with 26, 26, 26, 26 and 27 numbers in contrast to See reference's 5, 9, 9, 9 and 10 respectively.

Findings of the Study:

The study clearly hints at some findings which are jotted down below:

❖ Subject descriptors on children gradually increase in numbers from the 3rd edition onwards denoting the progress and growth in children related subjects in the world.

❖ While index of DDC editions represent similar types of concepts in different names, the schedule provides single number for different concepts. It hints at the availability of the same subject under different terminologies.

❖ Till the second decade of the 20th century (the publication year of the 10th edition is 1919) the world has not witnessed much growth in children related subjects in the disciplines of Law, Education, Church, Economics etc. but the predominance was observed in the domains of Medical science, Domestic economy and Psychology.

❖ Availability of subdivisions of a particular concept signifies DDC's approach in meticulous treatment of children related subjects.

❖ Finally the presence of See and See also references only gives vent to DDC's ability to bring together various related concepts in one place by linking the related concepts.

Conclusion:

DDC's representation on various children related concepts from edition 1 to edition 10 is the mirror through which one can observe the trend of development of subjects on children happening around the globe. There is no denying the fact that whenever a literary warrant is born on children it hints at a subject domain on children and it is codified in the pages of DDC for the future generations. In spite of the availability of various classification schemes, DDC with its meticulous and pervasive treatment of subjects as is seen in case of children related subjects, truly holds a pivotal position in the history of Library science.

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Bibliometric Analysis of the Faculty Research Output: A Study in Humanities and Social Science Departments of Selected Indian Institutes of Technology (IITs)

Trishna Bhui and Nivedita Bhattacharyya Sahu

The paper presents the bibliometric analysis of faculty research output in Humanities and Social Science Departments of ten Indian Institutes of Technology (IIT Bhubaneshwar, IIT Gandhinagar, IIT Hyderabad, IIT Jodhpur, IIT Patna, IIT Ropar, IIT Indore, IIT Mandi, IIT Varanasi and IIT Dhanbad) as depicted in Web of Science and Scopus database during the period 2000-2016. This study methodically depicts the scenario of publications through different parameters such as total publications of the institutes, journal preferences in publication, citation count of publications by the faculty members as well as citation count of the journals etc. The analysis indicates that in total 355 publications, contributions have been made by 84 full time faculty members of which 219 are research articles and there is a consistent growth in the publications till 2016. The study also revealed that Varun Dutt from IIT Mandi has made 57 publications and is ranked first among the faculties on the basis of publications and on the other hand Malavika A Subramanyam from IIT Gandhinagar is ranked first for receiving highest citations i.e. 408 among the faculty members.

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1 Introduction

Research outputs of any institute and assessment of it has enormous significance in the ranking of the institute. The faculty publications is viewed as individual parameter in order to rank the University/ Institute in 2016 (MHRD, GOI, 2016). As pointed by Hall and Backburn in 1984, very minimal amount of

researches have been undertaken to evaluate institute's publication and moreover a good number of studies were done on natural/ pure sciences rather than in social sciences. Citation count has turn out to be a very significant means for assessing the quality of research all the way through the progress and usage of a variety of impact indicators such as journals, universities and institutions. It is considered an important and accepted branch of bibliometrics (Astrom and Sandor, 2009). Therefore, this study intends to scrutinize the research output of permanent faculty members of Humanities and Social Science departments of the ten Indian Institutes of Technology (IIT Bhubaneshwar, IIT Gandhinagar, IIT Hyderabad, IIT Jodhpur, IIT Patna, IIT Ropar, IIT Indore, IIT Mandi, IIT Varanasi and IIT Dhanbad). In this regard, the list of faculty has been assembled from the websites of the respective institutes and the publication data has been retrieved from the Scopus and Web of Science databases over a span of 17 years from 2000-2016. For citation count Web of Science database has been used. This study will go afar of the academic norms and will be supportive in the policy making of the social science research.

2 Literature Review

Bala & Gupta (2010) studied the publication productivity of biochemistry, genetics and molecular biology research in India during 1998-2007. They studied the distribution of global collaborative papers in India's research output, the features of publication output of major Indian institutions, authors and highly-cited papers. The authors concluded that amongst the top 30 countries, USA published highest paper with 31.86% share in the collective publication productivity of the world and India was at the 10th position with the output of researches as 45,712 papers. Jeevan & Gupta (2002) studied the publication productivity from IIT Kharagpur from the period 1994-1997. Annual Report and Science Citation Index (SCI) has been used for collecting data. They found in total 1172 publications in all over 10 selected departments. Of these 757 were published in SCI- covered journals. Kumar, Dora & Desai (2015) analyzed the publication output in the University of Gujarat during 2004 to 2013 from the

database Scopus. In total 760 publications were retrieved, among these 631 were journal articles distributed in 293 journals. The journal named 'Acta Poloniae Pharmaceutica- Drug Research' was the largest chosen journal with 30 papers. Other findings of this paper are the authorship pattern, kinds of research publication, year wise publication growth etc. Pradhan & Ramesh (2018) analyzed the research output of six IITs as manifestated in Scopus database during 2006- 2015. In total 72940 papers were retrieved. IIT Roorkee and IIT Bombay scored greater citation impact than other IITs. Reed (1995) depicted that citation analysis being reviewed for promotion turned out to be more important to the faculty members. It demonstrates the excellence of a publication. He suggested that the staff members can take the assistance of librarians to find other means of identifying citations to published works. He also described some additional sources and methods for citation analysis and suggested the ways through which the faculties can follow new citations as they emerge in literature. Sagar, Kademani & Bhanumurthy (2014) studied the publications on researches on agriculture in India during 1993-2012 as depicted in Web of Science database. The authors analyzed the growth of agriculture output, its distribution in different domains, pattern of citation in the output of researches, well prolific institutions, communication pattern etc. They investigated a total no. of 22615 publications and found that these publications received 98954 citations. The year 2008 received utmost number of contributions i.e. 1917. The authors also noticed that there were 10428 (46.11 %) contributions with no citations during the study period. Siwach and Kumar (2015) examined the research contributions of Maharshi Dayanand University, Rohtak on the basis of output of publication for the duration of 2000-2013. Scopus database has been used to collect data. They analyzed the yearly research productivity, its impact of citations, distribution of contributions according to subject, number of citations received, most preferential journals etc. The findings revealed that a total of 1247 papers in the journal articles and reviews along with articles in press. In the year 2013 maximum numbers of papers (219) were contributed and in the year 2001 lowest quantity of

paper (30) were contributed. Biotechnology was having largest citations for each paper on the basis of its average number. Surulinathi, Kumari and Neelakandan (2015) analyzed the trend of publication among the faculties of Bharathidasan University. The findings revealed that their publications received 4763 citations from 1981-2004. They collected the data from Web of Science database. Per item average citation was 5.7. The average output of the institution was 87 publications per year; the highest was 269 items in year 2013 and the lowest was 1 item in year 1981.

3 Objectives

- To find out the publications of the faculty members from humanities and social science (HSS) departments of selected IITs.

- To determine the year-wise distribution of publications of the faculty members.

- To categorize the item type distribution of publications of the faculty members.

- To investigate the authorship pattern of the faculty publications.

- To depict institute wise percentage of total faculty members & their publications

- To rank the top five faculty members on the basis of their publications.

- To rank the top five faculty members receiving highest citations.

- To identify the top 3 journals preferred for publication of research outputs.

- To rank the top five highly cited journals according to the citations received by the articles in these journals.

4 Scope and Coverage

The study takes into consideration the ten IITs i.e. IIT Bhubaneshwar, IIT Gandhinagar, IIT Hyderabad, IIT Jodhpur, IIT Patna, IIT Ropar, IIT Indore, IIT Mandi, IIT Varanasi and IIT Dhanbad. The reason for the establishment of these IITs is the decision taken by the Ministry of Human Resource Development in the year 2008 to establish more IITs, IIMs and Central Universities. No year in history reveals such important landmark for the IITs. At a stretch six IITs were established in 2008 followed by two IITs in 2009 and IIT Varanasi which was previously called as Institute of Technology- Banaras Hindu University was setup as an IIT in 2012 on the recommendation of S.K. Joshi Committee in 2003 and Anand Krishnan Committee in 2005. Another one IIT i.e. IIT Dhanbad which previously bore the name of ISM Dhanbad has been established in 2016. So the study covers in that sense ten IITs which on the recommendation of the then Government was established as full- fledged institutes of technology.

5 Methodology

The present study is confined to the 84 full time faculty members in Humanities and Social Science department of ten IITs as listed in their respective institute's website on January 30 & 31, 2018. The authors have personally visited the institutes' departmental websites to collect the required data. The publication data has been collected from the Scopus and Web of Science database over a period of 17 years from 2000-2016. The duplicity check was done for the similar publications retrieved from both the databases. The citation count was done till 16th February 2018 from Web of Science database, which is regarded as one of the widely used databases which keeps track of the citations of peer-reviewed articles published in scientific journals. Then the data were arranged individually accordingly to the parameters such as publication year, item type, title, author, citations received etc. into the excel sheet. The collected data has been tabulated and graph has been prepared by using excel spreadsheet for analysis and drawing the conclusion.

6 Limitations of the Study

As the study is confined to the full time faculty members in limited period of time and the faculty list is collected from the website on a particular date, therefore, those faculty members' publications that had left the institute are not included. The data have been collected from the two databases, and therefore, if the faculty members have made more number of publications, which are not indexed in these databases, then it could have been missed.

7 Findings, Analysis and Discussions

7. 1 Year wise distribution of the publications

Table 1: Distribution of publications- Year wise

Sl. No.	Year of Publications	No. of Publications
1	2002	1
2	2004	2
3	2005	2
4	2006	6
5	2007	9
6	2008	8
7	2009	11
8	2010	16
9	2011	34
10	2012	34
11	2013	45
12	2014	55
13	2015	56
14	2016	76
Total		**355**
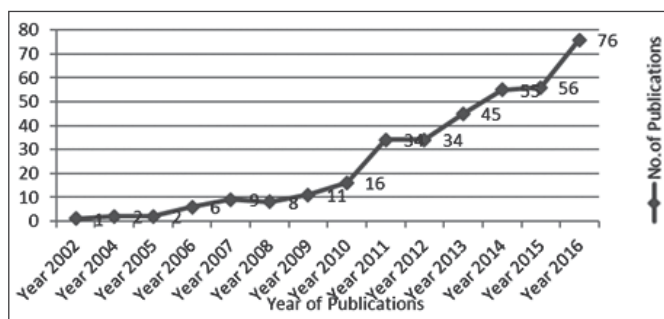
Fig 1: Year wise publications

Analysis: The above table and figure depict the consistency in year wise growth of publications from the year 2000 but unfortunately the year 2003 shows no publications. Maximum number of publications was contributed in the year 2016 with 76 numbers of publications followed by the year 2015 and 2014 with

56 and 55 numbers of publications respectively. This table also depicts that in total 355 publications were made from the year 2000 to 2016 and in the year 2000 & 2001, no publications have been done.

7. 2 Item type distribution of the publications

Table 2: Item type distribution

Sl. No.	Item type	No. of Publications
1	Article	219
2	Conference Paper	46
3	Book Review	27
4	Review	14
5	Book Chapter	13
6	Meeting Abstract	12
7	Letter	9
8	Editorial Material	8
9	Book	4
10	Erratum	1
11	Note	1
12	Short Survey	1
Total		**355**
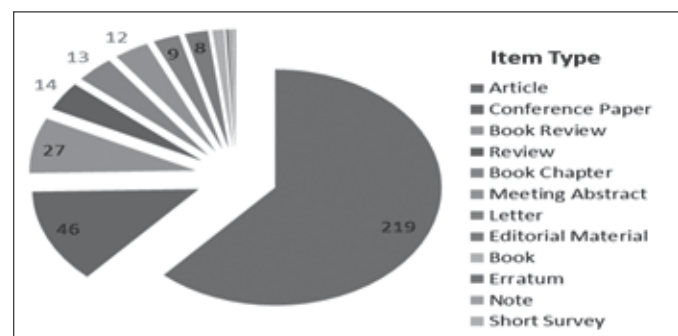
Fig 2: Item type distribution

Analysis: This pie chart depicts that research article topped the item type list with 219 publications followed by conference paper with 46 papers, 27 book reviews, 14 article/ paper reviews and so on. Book chapter, Meeting abstract, Letter, Editorial material and Books

are rest of the items of publications. Only one publication is made in each item types like Erratum, Note and Short survey.

7. 3 Authorship pattern of faculty publications

Table 3: Authorship pattern

Sl. No.	Authorship Pattern	No. of Publications
1	Single Author	103
2	2 Authors	105
3	3 Authors	81
4	4 Authors	39
5	5 Authors	9
6	More than 5 Authors	18
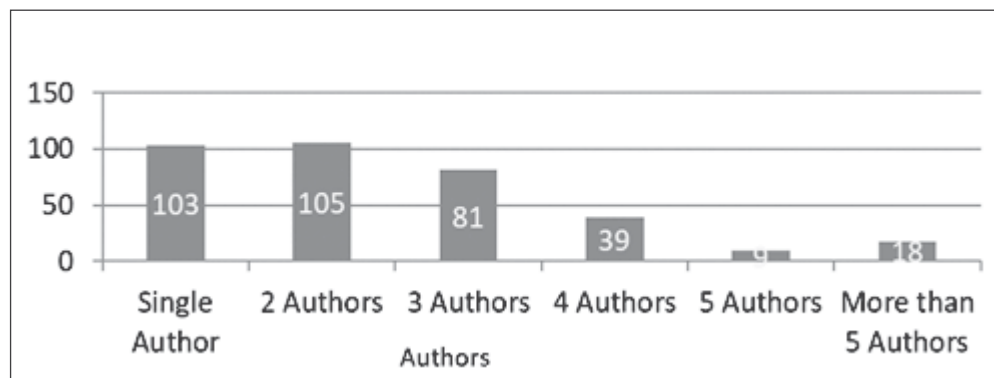
Fig 3: Authorship pattern

Analysis: This graph shows that 103 publications were made by single author followed by 105 publications by 2 authors, 81 publications were made by 3 authors, 39 publications were made by 4 authors and only 9 publications were made by 5 authors. 18 publications were made by more than 5 authors. So from this table it is clear that faculties from HSS departments in IITs either write singly or with only one other author.

7. 4 Institute wise percentage of total faculty members & their publications

Table 4: Percentage institute wise- Faculty & their publications

Sl. No.	Institutes	No. of Faculty	Percent	No. of Publications	Percent
1	IIT Bhubaneshwar	6	7.1 %	14	3.9 %
2	IIT Gandhinagar	13	15.4 %	104	29.2 %
3	IIT Hyderabad	12	14.2 %	76	21.4 %
4	IIT Jodhpur	5	5.9 %	8	2.2%
5	IIT Patna	9	10.7 %	16	4.5%

Sl. No.	Institutes	No. of Faculty	Percent	No. of Publications	Percent
6	IIT Ropar	9	10.7 %	18	5.0 %
7	IIT Indore	9	10.7 %	24	6.7 %
8	IIT Mandi	12	14.2 %	66	18.5 %
9	IIT Varanasi	1	1.1 %	0	0 %
10	IIT Dhanbad	8	9.5 %	29	8.1 %
Total	**10 IITs**	**84**	**100 %**	**355**	**100 %**
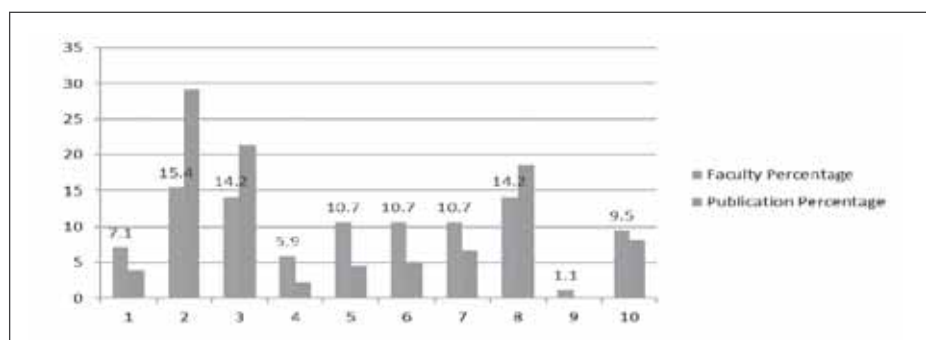
Fig 4: Institute wise percentage

Analysis: It shows that highest number of faculty members i.e. 15.4 % is present in IIT Gandhinagar with highest number of publications i.e. 29.2 %. The second highest faculty i.e. 14.2 % is present in IIT Hyderabad and IIT Mandi with 21.4 % of publications in IIT Hyderabad but IIT Mandi ranks third in terms of publications i.e 18.5% only. IIT Patna, IIT Ropar and IIT Indore all have the same percentage of faculty but faculties from IIT Indore have 6.7% publications followed by faculties from IIT Ropar 5% and IIT Patna 4.5% publications. IIT Varanasi has only one faculty member during this time period with no publication.

7.5 Ranking of top 5 faculty members on the basis of publications

Table 5: Top 5 faculty members on the basis of publications

Sl. No.	Faculty	Institute	Discipline	No. of Publications	Rank
1	Varun Dutt	IIT Mand	Social Science & Computing & Electrical Engineering	57	1st
2	Malavika A Subramanyam	IIT Gandhinagar	Social Science	29	2nd
3	Krishna Prasad Miyapuram	IIT Gandhinagar	Social Science	20	3rd
4	Shivakumar Jolad	IIT Gandhinagar	Social Science & Physics	15	4th
5	Rajni Singh	IIT Dhanbad	Humanities	13	5th
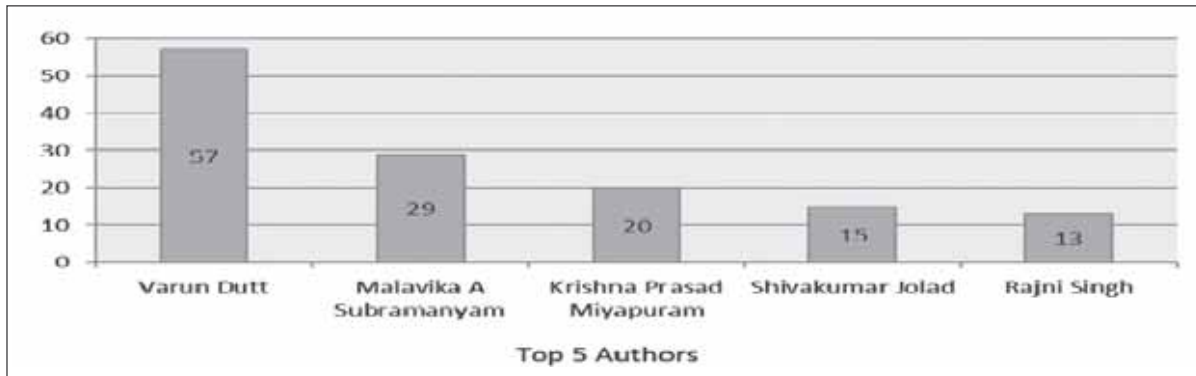
Fig 5: Top 5 faculty members on the basis of publications

Analysis: This table ranks the top 5 faculty members with highest number of publications. It clearly shows that Varun Dutt of Social Science and Computer & Electrical Engineering is ranked first with 57 publications, Malavika A Subramanyam of Social Science discipline is ranked second with 29 publications followed by Krishna Prasad Miyapuram of Social science, Shivakumar Jolad of Social Science & Physics and Rajni Singh of Humanities discipline with 20, 15 and 13 publications respectively. So it can be concluded that a faculty member who belongs to both social science and engineering discipline has more publications to his credit than the faculties who solely represent social science.

7.6 Ranking of top 5 faculty members on the basis of citations received

Table 6: Top 5 faculty members receiving highest citations

Sl. No.	Faculty	Institute	Department	No. of Citations	Rank
1	Malavika A Subramanyam	IIT Gandhinagar	Social Science	408	1st
2	Varun Dutt	IIT Mandi	Social Science & Computing & Electrical Engineering	190	2nd
3	Haripriya Narasimhan	IIT Hyderabad	Social Science	149	3rd
4	Shivakumar Jolad	IIT Gandhinagar	Social Science & Physics	76	4th
5	Shyamasree Dasgupta	IIT Mandi	Social Science	43	5th
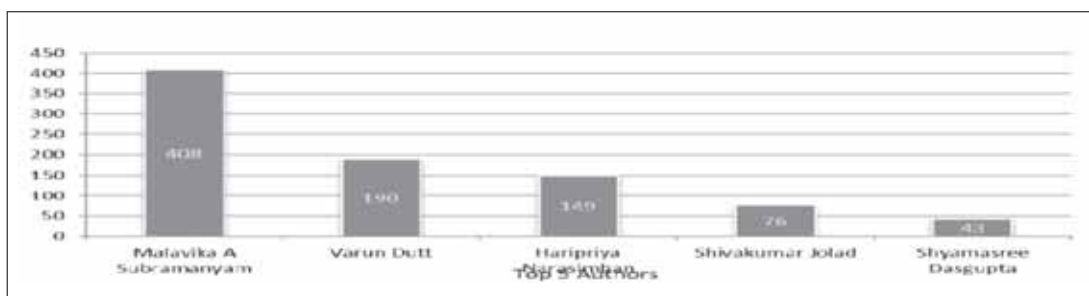
Fig 6: Top 5 faculty members receiving highest citations

Analysis: This table ranks the top 5 faculty members with highest number of citations received by the faculty members. It clearly shows that Malavika A Subramanyam of Social Science discipline of IIT Gandhinagar is ranked first with 408 citations, Varun Dutt of Social Science And Computer & Electrical Engineering discipline of IIT Mandi is ranked second with 190 citations followed by Haripriya Narasimhan of IIT Hyderabad, Shivakumar Jolad of IIT Gandhinagar and Shyamasree Dasgupta of IIT Mandi with 149, 76 and 43 citations respectively. So by comparing the tables 7.5 and 7.6 it can be concluded that if we judge the publications in terms of citations then we can say that the faculty member from solely Social science discipline, Malavika A Subramanyam makes more qualitative publications though she ranked second in terms of number of publications. Also some faculty members like Haripriya Narasimham from IIT Hyderabad and Shyamashree Dasgupta from IIT Mandi who were not ranked in the list of number of publications got ranks third and fifth in terms of citations and therefore, can be said to produce qualitative papers.

7.7 Top 3 journals where Faculty members has maximum no. of articles

Table 7: Top 3 journals according to publication

Sl. No.	Journals	No. of Publications	Rank
1	IUP Journal of English Studies	8	1st
2	Journal of Dharma	8	1st
3	Physical Review B	8	1st
4	Plos One	7	2nd
5	Explicator	6	3rd
6	Journal Of Behavioral Decision Making	6	3rd
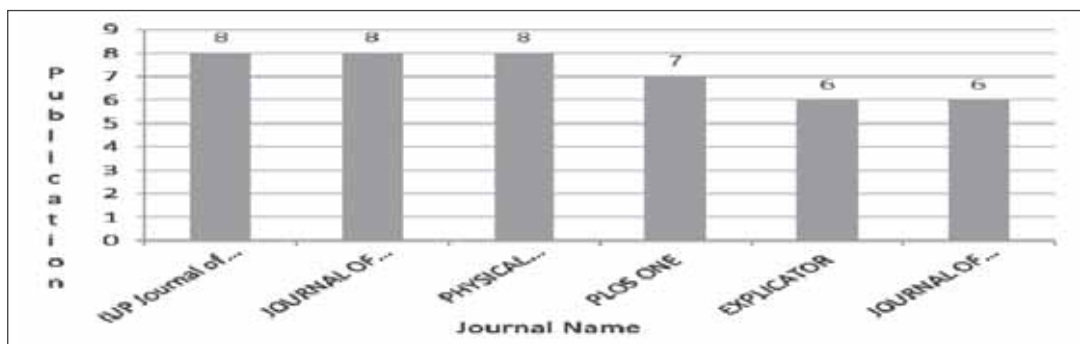
Fig 7: Top 3 most preferred journals

Analysis: This graph depicts the top most 3 journals, where the works of faculty members has been published. Most of the faculty members preferred to publish their research work in the journal named IUP Journal of English Studies, Journal of Dharma & Physical Review B with 8 publications each followed by the journal named Plos one with 7 publications. The third preferred journal for publication is Explicator & Journal of Behavioral Decision Making with 6 publications each during the period of study.

7.8 Top 5 journals according to citations received

Table 8: Top 5 highly cited journals

Sl. No.	Journal Name	No. of Citations	Rank
1	International Journal Of Epidemiology	105	1st
2	Plos One	92	2nd
3	Social Science & Medicine	92	2nd
4	Modern Asian Studies	76	3rd
5	Psychological Review	54	4th
6	Plos Medicine	52	5th
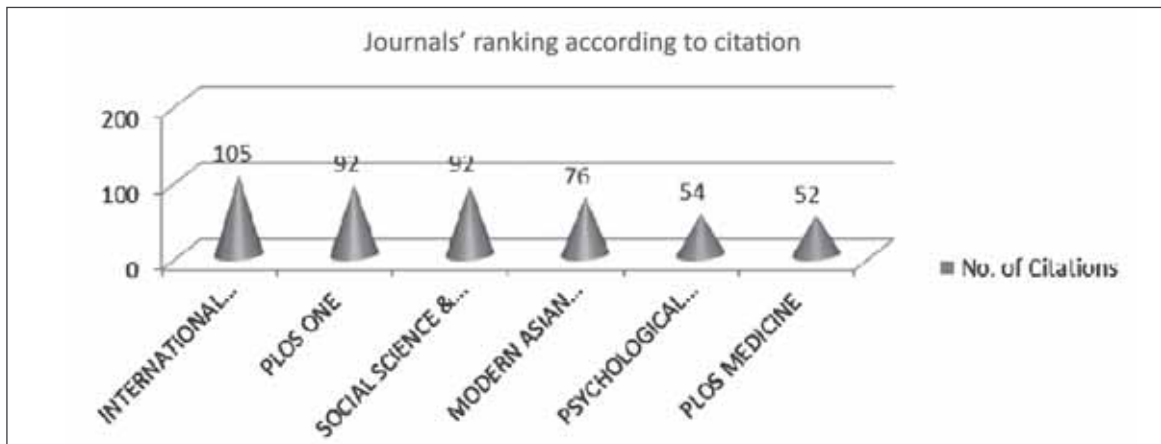
Fig 8: Top 5 highly cited journals

Analysis: The journals which received highest number of citations are provided in the above table. Here the top 5 journals which received highest citations as depicted in Web of Science database are shown. During the study period the International Journal of Epidemiology is ranked first with highest number of citations i.e. 105. The journals which are ranked second are the Plos One and Social Science & Medicine journal with 92 number of citations each followed by the journal Modern Asian Studies with 76 citations and so on.

8 Conclusion

Publication output of an institution reveals the research productivity of the faculty members, researchers and students of that particular institute. In the present study the research publications of the faculty members from ten Indian Institutes of Technology has been taken into consideration. It has been found that 84 full time faculty members of Humanities and Social Science department have made 355 publications as indexed in Scopus and Web of Science databases in 17 years. Consistent growth of literatures has been seen from the year 2004 to 2016, Maximum number of publications was contributed in the year 2016 with 76 publications and the research article topped the item type list with 219 in number, followed by conference paper with 46 in number. This study points out that more number of publications are done where there are more number of faculty members. Double authorship is more prominent with 105 publications than by single author. Finally, this study reveals that Varun Dutt of IIT Mandi who belongs to both the discipline i.e. Social Science & Computer and Electrical Engineering

is ranked first with 57 publications and on the other hand Malavika A Subramanyam from Social Science discipline of IIT Gandhinagar is ranked first for receiving highest number of citations. This type of research work thus helps to explore the fundamental productivity from an institutional department as well as showcase the significant publications in any subject or discipline.

Acknowledgement

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An Assessment of User Attitude towards College Library Services in Darjeeling Hill

Sudha Sinha and Krishnapada Majumder

One of the key tools that can be used to assess the library services is the user survey. This study was undertaken to assess library user satisfaction with current information services and resources provided by the college libraries in the hilly areas of Darjeeling district of West Bengal. The structured questionnaire was distributed among 300 users comprising teachers, students, non-teaching staff members, and scholars selected from the fifteen Colleges (Government and Govt. Sponsored) affiliated to North Bengal University, Rajarammohunpur, Darjeeling and 2 Primary Teacher's Training Colleges and 1 Polytechnic College located in the hilly region. From each college 20 numbers of users were picked up with the help of simple random sampling method and a primary survey was conducted with the help of a structured questionnaire. A total of 300 structured questionnaires were distributed and out of which 267 questionnaires were duly obtained with a response rate of 89%. Apart from this a semi structured interview was conducted with the users who are available during the visit to the library. Hence the analysis of the data collected is based on the user responses of these 15 college libraries. Based on the findings, the study presents some recommendations for the development of effective college library services in the hilly region.

Keywords: *Users of college library, College library services, College library facilities, Darjeeling hill, Colleges of hilly areas.*

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1. Introduction:

Education and library are inseparable. A well-stocked and managed library is an asset to the school, college, university or any other educational institution. It helps the spread of education. It acts as an important learning resource center. A reader can either read the resources available in the library or borrow the book of his choice and take it home. The library is a popular place in the

academic curriculum. A student or a reader can increase his/her knowledge of various subjects by reading in the library during spare time. One can update one's knowledge by reading regularly in a library. The concept of academic library has undergone radical changes in present days. Earlier academic libraries were characterized by activities that built mere repository of books or collection of tangible materials and by systems of access and services that mediated between users and content to serve expressed information needs. But now the things are changing. Realising the significant role of libraries in educational institution Dr. R L Mittal says, "A well equipped and well managed library is, indeed, the foundation stone of modern educational structure. The importance of library in education can be appreciated properly and precisely only if we try to understand the changing concept of education of today. Education bereft of library service is like a body without soul, a vehicle without an engine and an edifice, merely a collection of bricks without cement. Education and library are twin sisters, rather true lovers and cannot live apart from each other." (Mittal, 1964). The focus of any type of modern academic library remains on dissemination of right information at the right time to right user with every possible measure.

2. A Short Profile of Darjeeling District

The district of Darjeeling fondly called "Queen of the Hills" has its own glory as a very beautiful hill station in India having rich biodiversity of international importance lies between 26.31' and 27.13' North Latitude and between 87.59' and 88.53' east Longitude. Its total area is 11, 99.7 square miles. In shape, the district is an irregular triangle. The district is located in the northern most part of West Bengal and is bordered by Sikkim in North, Bhutan in East, Nepal in West and the districts of Jalpaiguri and Purnea (Bihar) in South. The district consists of a portion of outlying hills of the lower Himalayas and a stretch of territory lying along the base of the hills known as Terai. The altitude ranges from 300 feet (Terai) to 12,000 feet in the hills (O' Malley, 1907). The district of Darjeeling has got a mixed population of Nepalese, Lepchas Bhutias, Bengalese, Marwaris, Biharis and others. The total population of the district according to 2011 census is 18,42.034, of which 9,34,796 are males and 9,07,238 are females. Among them the hill areas consist population of about 7,87,939. The total literacy of the district is 13,28,218 (Provisional Census of India, 2011).

Earlier the Christian missionaries and in later period the government officials to some extent brought and spread the light of modern education in the hill region of Darjeeling district. The hill region of Darjeeling district is less explored area in the field of its informatics. The district gazetteer of Darjeeling district gives little information so far the academic wing of this remote region is concerned. Of course some native educationists have assayed some cursory survey of educational institutions of this area initiated by the early Christian Missionaries mostly up to lower and upper primary school level. High schools were rare at that time. Only after the independence Darjeeling could have more high schools and a few colleges. But at present the numbers of colleges have gone up to a dozen. Colleges are the only educational institutions that have libraries obligatorily with separate blocks, qualified librarians and sufficient books relating to different disciplines. It is quite interesting to look into the user's perception of these college libraries which is indispensable for the development of college library services in the region.

3. Objectives of the Study

The objectives of the present study are:

1. To ascertain the frequency of use of the library's collection and services by students, faculty members, non-teaching staffs, researchers and others;

2. To find out the purpose of such use

3. To know the satisfaction level of users

4. To identify problems encountered in the use of the library

5. To make out ways to improve the library's efficiency

The following College Libraries along with two primary Teacher's Training Institutes and one Polytechnic College are taken into consideration for the study.

Table 1: List of College Libraries

Sl No.	Name of College Library	Address
1	Darjeeling Government College	Lebong Cart Road, Darjeeling
2	St. Joseph's College	North Point, Darjeeling
3	Southfield College	Southfield, Darjeeling
4	Sree Ramkrishna BT college	Gandhi Road, Darjeeling
5	Bijanbari Degree College	Bijanbari, Darjeeling
6	Ghoom Jorbunglow College	Sinchel Road, Darjeeling
7	Mirik College	Mirik, Darjeeling
8	Sonada Degree College	Sonada, Darjeeling
9	Salesian College	Gorabari, Sonada, Darjeeling
10	Kurseong College	Dow Hill Road, Kurseong
11	Kalimpong College	Ringkingpong Road, Kalimpong
12	Cluny Women's College	7th Mile, Kalimpong
13	Sree Ramkrishna Primary Teacher's Training Institute	Dr. Zakir Hussain Road, Darjeeling
14	Govt. Primary Teacher's Training Institute	Ringkingpong Road, Kalimpong
15	Darjeeling Polytechnic	Kurseong, Darjeeling

4. Literature Review

Review of related literature is an essential part of any kind of research work. Some of the studies that may deserve mention here are; Nazir and Ali (2014) conducted the study title "College Libraries of Srinagar: A study to evaluate collection, facilities and services". The study is an attempt to evaluate collections, facilities and services of six Degree Colleges of Srinagar, Kashmir. A survey of users was conducted and the findings revealed that the majority of users were not satisfied with the collections, facilities and services provided by the college libraries. Another study was conducted by Kabiraj and Roy (2013) who examined the user survey of five college libraries under University of North Bengal, West Bengal. The study elaborates the user's usage of library collections, frequency and purposes of visit, adequacy of library hours, library services and collections, ways of document searching and user's satisfaction with the overall performance of the library. Hussain, Muzeed and Fatima (2011) find out the overall user satisfaction with the resources and services facilities provided in the five women college libraries users in south campus in University of Delhi. Gunasekara (2010) conducted a user survey at the Main

Library, University of Peradeniya and examined what library services, resources and facilities undergraduates use for their learning and research and how far they are satisfied with available resources and services in the library. The study also suggests remedies that may help the undergraduates to use the library more effectively. Rani (2009) conducted a survey with the title "Library use pattern of undergraduate students in minority degree colleges in Andhra Pradesh". The study took the 1705 students from 17 degree colleges and evaluates in detail the type of material, sources and the services used by the students. It also assesses the extent of student's satisfaction regarding collection, timings and library staff cooperation in finding the information. The study has also recommended some suggestions based on the findings for improvement of college libraries in the state. Khongtim and Marbaniang (2008) take up a study on Information Needs and Search Strategies of the Co-Ed College Students in Shillong: A Case Study discusses the information needs and search strategies of the co-ed college students in Shillong, Meghalaya. The study reveals the different sources of information used by the college students and the problems faced during the searching of information. In this study the researcher also tried to find out whether the students are using the library as one of the main sources of information or not, if not then what are the barriers that discourage them to use the library. Madhuri Devi, Vidyavati Devi and Singh (2006) conducted a survey of two universities, seven colleges, two teacher's training colleges, and ten R & D Organizations of Manipur and the study focuses on understanding of the users community of these institutions comprising of mostly students, research scholars, working staff, teaching community, scientists, a media persons, etc. and their level of satisfaction from the use of library resources. The paper strongly suggests for the optimal use of e-resources for these institutions. Callinan (2005) described the information seeking behaviour of undergraduate biology students with a comparative analysis of first year and final year students in University College, Dublin. He observed that there are differences in the extent to which scores of information are used by students in different years of their studies.

5. Methodology

Survey method of research has been adopted. All together 300 users comprising teachers, students, non-teaching staff members, and scholars were selected from the fifteen colleges across the region. From each college, 20 numbers of users were picked up with the help of simple random sampling method and a primary survey was conducted with the help of a structured questionnaire. A total of 300 structured questionnaires were distributed and out of which 267 questionnaires were duly obtained with a response rate of 89%. Apart from this a semi structured interview was conducted with the users who are available during the visit to the library.

6. Analysis and Interpretation of Data

The data collected through questionnaire and personal contact were analyzed and interpreted with the help of using simple percentage in tables.

Table 2: Background of the respondents

Background	Number of users(N=267)	% of users
Students	164	61.42%
Teachers	82	30.71%
Non-Teaching Staff	21	7.87%
Researcher	-	-
Others	-	-

The above table-2 reveals background of the respondents. It can be assessed that 164(61.42%) respondents are students, 82(30.71%) are teachers in substantive or temporary post and some of them are scholars also, and 21(7.87%) are non-teaching staff member of the college using the library.

Table 3: Sex-wise distribution of the respondents

Sex groups	No. of users(N=267)	% of users
Male	145	54.31%
Female	122	45.69%

In the above table-3 shows the gender-wise distribution of the surveyed respondents. It shows that majority of the respondents are male 145(54.31%) followed by little lower percentage 122(45.69%) of female respondents.

Table 4: Educational status of the respondents

Qualification	No. of users(N=267)	% of users
Higher secondary	14	5.25%
1st Year Studying	58	21.73%
2nd Year studying	55	20.59%
3rd Year studying	56	20.97%
Graduate	22	8.23%
Post Graduate	51	19.11%
MPhil/PhD	11	4.12%

Table-4 gives report on educational status of the respondents. The surveyed areas have reputation of well developed education system since long time and have been a destination of many young pupils to study here. Figures in table shows that 14(5.25%) respondents have higher secondary degrees, 58(21.73%) respondents are studying in 1st year, 55(20.59%) respondents are studying in 2nd year, 56(20.97%) respondents are studying in 3rd year, 22(8.23%) respondents have graduate degrees, 51(19.11%) respondents have post graduate degrees and 11(4.12%) respondents have MPhil/PhD degrees.

Table 5: Freequency of using library

Freequency	No. of users(N=267)	% of users
Daily	53	19.86%
Once in a week	52	19.48%
Twice in a week	35	13.11%
Once in two week	49	18.35%
Once in a month	36	13.48%
Once in six month	21	7.86%
Once in a year	21	7.86%
Never	-	-

The table-5 discloses the frequency of using the library by its users. Facts indicates that 53(19.86%) users respond to use the library daily, 52(19.48%) users said to go to library once in a week, 35(13.11%) use library twice in a week, 49(18.35%) users visit the library once in a two weeks, 36(13.48%) users use the library once in a month, 21(7.86%) respond to visit library once in a six months, while 21(7.86%) users use the library once in a year.

Table 6: Duration of visiting the library

Time Duration	No. of users(N=267)	% of users
Less than 15 mts	57	21.34%
15 - 30 mt	76	28.47%
30 mts - 1 hr	87	32.59%
1hr – 2 hr	30	11.25%
2 hr – 3 hr	13	4.86%
3 hr – 4 hr	4	1.49%
4 hr and more	-	-

The table 6 shows respondents' duration of visit to the library. 57(21.34%) users responded that they remain in the library for less than 15 minutes. 76(28.47%) respondents spend between 15 - 30 minutes, 87(32.59%) users stay between 30 mts - 1 hour, 30(11.25%) users remain between 1 hrs – 2 hrs of duration, 13(4.86%) stay for 2 hrs – 33 hrs of duration while 4(1.49%) users responded that they use the library for 3 hrs to 4 hrs of duration.

Table 7: Time of visiting the library

Time of visiting the Library	No. of users(N=267)	% of users
Intervals/Break	74	27.72%
Off Period	83	31.09%
Free Time	110	41.19%
Others	-	-

The above table-7 shows the users' time of visiting library, majority of users 110(41.19%) state that they visit the library in free time, 83(31.09%) users do visit the library in off periods while 74(27.72%) respondent to visit library in intervals or breaks time.

Table 8: Purpose of using the library

Purposes	No. of users(N=267)	% of users
Read Newspaper / Magazines	97	36.32%
Home issue	180	67.41%
Text Books	165	61.79%
Using reference tools	63	23.59%

Purposes	No. of users(N=267)	% of users
Pass time reading Novel-story etc.	41	15.36%
Preparation for exam	124	46.45%
For research purpose	26	9.73%
Others (specify)…………………	-	-

(Multiple choice questions)

It is observed from the above table that, 97(36.32%) users responded that they look around to the library to read newspapers and magazines. 180(67.41%) users visit the library for home issue, 165(61.79%) users visit the library for text book, 63(23.59%) for reference tools, 23(8.62%) 41(15.36%) opt for pass time reading like novel, story etc., 124(46.45%) for preparation of examinations, 26(9.73%) approach for research activities.

Table 9: Meeting required information by the library

Meeting Information	No. of users(N=267)	% of users
Very Often	68	25.47%
Often	112	41.95%
Once a while	48	17.98%
Seldom	18	6.74%
Never	21	7.86%

Table 9 shows the meeting of information required by the users, maximum number of 112(41.95%) respondents state that they often get required information from the library, while 68(25.47%) users reveal that they get their required information very often from the library. 48(17.98%) respondents find required information once in a while, 18(6.74%) users answer that they seldom get required information and 21(7.86%) users respond that they never get their required information from the library.

Table 10: Opinion about library collection on subject of interest

Library Collection	No. of users(N=267)	% of users
Poor	124	46.44%
Adequate	82	30.71%
Good	61	22.85%
Very Good	-	-

In the above table 10 majority of respondents 124(46.44%) report that the collection of the libraries on subject of interest is poor. 82(30.71%) users say that the collection is adequate and 61(22.85%) users claim that it is good and no users recount the library collection as very good.

Table 11: Overall services of the library

Library services	No. of users(N=267)	% of users
Very Satisfactory	45	16.85%
Satisfactory	101	37.83%
Not Satisfactory	121	45.32%

Table 11 shows the overall services of the library that, 45(16.85%) users state that they are very satisfied with the various services provided by the library. Another 101(37.83%) number of users express the services provided by the library are at the level of satisfaction while 121(45.32%) respondents find as not satisfactory.

Table 12: Opinion about library facilities

Library Facilities	Poor	Adequate	Good	V Good	Excellent
Condition outside the library	88(32.96%)	72(26.96%)	53(19.86%)	36(13.48%)	18(6.74%)
Condition inside the library	72(26.96%)	109(40.83%)	16(5.99%)	52(19.48%)	18(6.74%)
Ease of access to library	87(32.59%)	72(26.96%)	54(20.23%)	36(13.48%)	18(6.74%)
Hours of operations	54(20.23%)	90(33.71%)	72(26.96%)	51(19.11%)	-----------
Layout & arrangement	100(37.48%)	82(30.71%)	34(12.74%)	35(13.11%)	16(5.99%)
Condition of reading room	54(20.23%)	101(37.82%)	52(19.48%)	32(11.98%)	28(10.49%)
Seating arrangement	54(20.23%)	101(37.82%)	52(19.48%)	32(11.98%)	28(10.49%)
Signs & signage	142(53.18%)	54(20.23%)	71(26.59%)	-------------	-------------
Time waiting for services	52(19.48%)	57(21.36%)	110(41.19%)	48(17.98%)	-------------
Research assistance	136(50.94%)	69(25.85%)	45(16.85%)	17(6.36%)	-------------
Accomplish to do tasks faster	54(20.23%)	112(41.94%)	52(19.48%)	49(18.35%)	-------------
Clean & Quiteness	36(13.48%)	115(43.08%)	49(18.35%)	37(13.85%)	30(11.24%)
Lighting system	38(14.23%)	105(39.32%)	71(26.59%)	53(19.86%)	-------------
Access to e-resources	190(71.16%)	37(13.86%)	26(9.74%)	14(5.24%)	-------------
Assistance from library staffs	21(7.86%)	22(8.24%)	126(47.19%)	71(26.59%)	27(10.12%)
Others.......	-------------	-------------	-------------	-------------	-------------

Analyzing users' opinion on table-12 on the facilities of library with graded scale as poor, adequate, good, very good and excellent; the above table describes that-

Regarding the condition outside the library, 88 (32.96%) respondents rate as poor, 72(26.96%) rate as adequate, 53(19.86%) users mark good, 36(13.48%) users rate very good and 18 (6.74%) users label excellent. Similarly the condition inside the library 72(26.96%) respondents say poor, 109(40.83%) rate adequate, 16(5.99%) users covey good, 52(19.48%) users mark as very good and 18(6.74%) users grade as excellent.

Giving an account on ease of access to the library 87(32.59%) respondents reveal as poor, 72(26.96%) state as adequate, 54(20.23%) users say good, 36(13.48%) users label as very good and 18(6.74%) users reveal excellent. About hours of operation of library 54(20.23%) respondents rate as poor, 90(33.71%) mark as adequate, 72(26.96%) users exhibit as good, and 51(19.11%) users label as very good.

About layout and arrangement of the library 100(37.45%) respondents reveal as poor, 82(30.71%) users show as adequate, 34(12.74%) users present as good, 35(13.11%) users mark as very good and 16(5.99%) user label as excellent. Regarding the condition of the reading room of the library 54(20.23%) respondents rate as poor, 101(37.82%) state as adequate, 52(19.48%) users express as good, 32(11.98%) users rate as very good and 28(10.984%) user rate as excellent.

For seating arrangement 54(20.23%) respondents reveal as poor, 101(37.82%) users held adequate, 52(19.48%) users exhibit as good, 32(11.98%) users present as very good and 28(10.49%) users mark as excellent. About sign and signage 142(53.18%) respondents rate as poor, 54(20.23%) exhibit as adequate, and 71 (26.59%) users regard it as good.

About time waiting for service 52(19.48%) respondents rated as poor, 57(21.35%) state as adequate, and 110 (41.19%) users exhibit as good and 48(17.98%) users label as very good. For library's involvement in improving the user's ability to conduct research 136(50.94%) respondents exhibit as poor, 69(25.85%) rate as adequate, 45(16.85%) users scale as good, and 17(6.36%) users grade as very good. About user's opinion about the library's role in enabling the task faster 54(20.23%) respondents rate as poor, 112(41.94%) rate as adequate, 52(19.48%) users scale as good, and 49(18.35%) users rank as very good.

In regard to cleanliness and quietness of the library 36(13.48%) respondents rate as poor, 115(43.08%) mark as adequate, 49(18.35%) users regard as good, 37(13.85%) users assess very good and 30(11.24%) user grade excellent. In relation to lightening system 38(14.23%) respondents rated as poor, 105(39.32%) indicate as adequate, 71(26.59%) users mark as good, 53(19.86%) users evaluate as very good.

Regarding access to electronic resources in the library 190(71.16%) respondents rate as poor, 37(13.86%) mark as adequate, 26(9.74%) users say good, and 14(5.24%) users label as very good. For staff assistance 21(7.86%) rate poor, 22(8.24%) users mark as adequate, 126(47.19%) users rate good, 71(26.59%) users say very good, and 27(10.12%) respondents claim excellent.

Table 12: Users' suggestions to improve the college library

Library should have	Yes	No	No Opinion
More comprehensive collection of reading materials including reference	267(100%)	----	----
More collection of journals and newspapers	267(100%)	----	----
More special collections	187(70.04%)	18(6.74%)	62(23.22%)
Better arrangement of books on shelves	250(93.64%)	----	17(6.36%)
Adequate Non-book materials (Audio-visual aids)	260(97.38%)	----	7(2.62%)
More effective research assistance	98(36.71%)	----	169(63.29%)
Internet access facility	267(100%)	----	----
More e-resources	267(100%)	----	----

Library should have	Yes	No	No Opinion
Added opening hours	232(86.89%)	----	35(13.11%)
More professional Staffs	258(96.62%)	----	9(3.38%)
Inter Library Loan System	267(100%)	----	----
Better organization and management	255(95.51%)	----	12(4.49%)

or improvement of college library, users were request to suggest on various aspects to improve library. Their opinion has been collected on the structured manner as yes, no and no opinion. In above table all the users 267(100%) suggest the library should have more comprehensive collection on general reading including reference, textbook related to subjects of interest, journals, magazines and newspaper, electronic resources and internet access facility in the library. Regarding the library should have more special collection such as local history collections 187(70.04%) users suggest yes, 18(6.74%) users say no and 62(23.22%) users hesitate to opine. 250(93.64%) users advocate for better arrangement of books on the shelves for easy and speedy retrieval while 17(6.36%) users remain quite. Likewise regarding the library should have more comprehensive collection on non book materials (audio-visual aids) 260(97.37%) users suggest yes and 7(2.63%) responded with no opinion.

Gathering their opinion on library's position to provide more effective research assistance 98(36.71%) users suggest yes and 169(63.29%) users dither to opine. Regarding the library should have more opening hours, 232(86.89%) users indicate yes and only 35(13.11%) users remain silent. 258(96.62%) user imply for more professional staff while only 9(3.38%) users remain indecisive. Considering the inadequacy of resources in almost all the libraries 125(46.82%) users say yes for initiation of inter library loan service system while 142(53.18%) users remain quiet. And for overall better organization and management of the library 255(95.51%) users say yes whereas 12(4.49%) users did not respond the column.

7. Recommendations

Major recommendations which emerged out of the study are listed below:

1) The location of many college libraries is not satisfactory. Some are housed in ground floor or in top floor of the college building. Entrance to the library building also found uneasy by users in many cases. So proper planning of college library building is necessary keeping in view the geographical and climatic condition of the hilly region.

2) The opening and closing time of library should be properly maintained and in user demand opening of library beyond college hours, holidays and vacation should be encouraged to attract more users into the library.

3) A well defined collection development policy for both print and non-print materials representing the curricular programmes of campus should be formulated.

4) All the college libraries should follow standard cataloguing code and classification scheme to maintain uniformity and proper organization of documents in the library.

5) The college libraries should occasionally arrange user's education, library orientation programmes to help users to use the library effectively. Undergraduate should especially be trained to use the library.

6) Appropriate Information and Communication Technology based infrastructure facilities especially computer hardware and software for collection, processing, organization and dissemination of information should be

provided to every college libraries. Library automation should be initiated in college libraries where the process is not yet executed.

7) Networking of libraries should be established connecting each and every college library for practicing sharing of resources. This local network should eventually connect with the immediate state and national level network. This local network eventually helps the libraries to provide effective information services to the people.

8) There is severe shortage of staff in almost all college libraries in the region. Sanctioned posts are lying vacant in many libraries. Proper staffing pattern recommended by UGC should be followed to fill up the staff strength to run the library smoothly.

9) Motivation programmes at regular intervals should be organized to inspire and motivate library personnel to provide effective library services across the region.

10) The assistance provided by the INFLIBNET to computerize and networking of college libraries may be fully adopted by each college library in the state.

11) The college libraries with adequate infrastructure should be encouraged participating to INFLIBNET's e-ShodhSindhu: Consortium for Higher Education Electronic Resources which provides access to e-resources to Universities, Colleges and Centrally Funded Technical Institutions in our country.

8. Conclusion

The library in colleges has an unparalleled ability to bring people and knowledge together, especially in curriculum based study and research. The college libraries have played a significant role in the development of higher education in our country and will remain committed to foster the education in coming days, if it be looked and nourished properly. The present study has elucidated the awareness and use of the college library facilities and services in the hilly areas of Darjeeling District of West Bengal. What was learnt from analysing the findings of the study is that all libraries irrespective of their collection and size have an important role in the educational development of this hilly region. In spite of various developmental efforts, still the college libraries are facing many problems. The satisfactions of users are not up to the mark. There are many loopholes in functioning of college libraries. An integrated and steadfast effort by the Government, Universities, and College Authorities and even by Library Professionals is needed to tie together for the overall development of college libraries making it a hub center of learning in each and every college in the region.

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An Analytical Study of the National Library Websites of Asian Countries: Through Simple Web Impact Factor and Online SEO Analyser

Arindam Sarkar and Udayan Bhattacharya

Web Impact Factor (WIF), Search Engine Optimization (SEO) ranking improve the visibility of a website's presence in online environment. A very good ranked website represents better traffic and good opportunity to serve the users. Hence, effective websites are a necessity for libraries or information centres. The present paper highlights the Simple WIF ranking, SEO ranking and popularity ranking of the national library websites of the Asian countries.

Keywords: *Web Impact Factor, Search Engine Optimization, Library website, Asia, SEO ranking*

1. Introduction

Libraries and information centres are the vital part of the world's systems of education and information storage and retrieval. They make these information available to common people through books, films, recordings, and other media. All kinds of people including students, teachers, business executives, government officials, scholars, and scientists use library resources for their purposes. A National Library is a library specifically established by the government of a country to serve as the preeminent repository of information for that country. A National Library is that library which has the duty of collecting and preserving the literature of the nation within and outside the country, Thus, National Library are those libraries whose community is the nation at large. With libraries shifting their role from being custodians of collection-based traditional information resources to being providers of access-based digital information resources, the library websites play an important

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role. Libraries have to disseminate and facilitate access to variety of information to their users' through their websites. National libraries around the world maintain their websites which are used to offer a wide range of information, consistent with their wide range of activities, as compared to other types of libraries. The present work attempts to analyse and evaluate the National Library websites of Asian countries on the basis of Simple Web Impact Factor rank, Search Engine Optimization rank and Alexa page-ranking.

2. Literature Review

Ratha, Naiddu and Silawat (2013) presented an analysis of design and structure of National Library websites of SAARC countries in their paper. They have analysed the user supporting link, staff information, number of hyperlinks on home pages and whole websites, number of images, location of images, In-active links and web pages etc.

Zeinolabedini, Maktabifard and Osareh (2006) studied the status of various national libraries in terms of their website quality and performance. Results show that based on this research criterion, LC website is the most powerful one among some of the world's other national library websites.

In a survey, Smith (1999)compared impact factors of website of Australia and New Zealand National Library. After calculating links of these 2 websites, he concluded that Australian NL website is larger and has more in–links rate.

3. Objectives

The objectives of the study are as follows:

  i. To calculate the simple web impact factor of national library websites.

  ii. To analyse the national websites of Asian countries on the basis of SEO.

  iii. To find out the global popularity ranking of the websites.

4. Scope of the Study

In Asia, there are 48 sovereign states, which are member of United Nations in Asia. Also there are 6 Non-United Nation states with limited international recognition, 4 Dependent territories and 2 Special areas of internal sovereignty (http://www.un.org/).

A comprehensive search on the web was conducted and websites were selected for the study from the Asian countries on the basis of following criteria:

  ● Number of Asian countries or territories which are having national library;

  ● Number of Asian countries or territories which are having website of national library;

  ● Number of Asian countries or territories which presented national library website in English language or having comprehensive English version website of national library.

  ● Major functional university library of some countries treated as national library with legal deposit, which are included in this study.

On the basis of the above mentioned criteria, it was found that 50 Asian countries (including UN & Non-UN members) are having national libraries; out of that only 49 countries are having websites. The website of 49 national libraries were examined and observed on different intervals and it was found that out of 49 websites only 45 are functional national libraries of Asia are maintained English language website or has translation facilities for convert to the English. So, finally 45 countries were selected.

5. Limitation

The present study was conducted on the selected national library websites of Asia. The study is restricted within the particular time period i.e. from 15/03/2018 to 20/04/2018. Another decision was taken that the study is restricted within English language based and translation based national library websites only. For simple WIF calculation data were collected from only the Google search engine, not any other search engine like Alta vista etc.

6. Methodology

In order to achieve the objectives stated earlier, a very simple method which was surfing the Internet on National Library Websites of Asian countries was used. When undertaking WIF study it is necessary to select a suitable search engine that will count the number of pages in the website and the number of pages linkied to the websites. At first, for simple WIF calculation data were collected from only the Google search engine (which have large database) using particular commands introduced by Ingwersen (1998). Here, two Boolean search statement/ Query Syntaxes have been used to collect data for each national library's websites as:

Command	Results	Search engine
site:~name.ac.in	Extracts the number of web pages at the particular website.	Google
linksite:~name.ac.in	Reveals total number of web pages linking to the particular website.	Google

After WIF calculation all the selected NL websites are observed and analyse with the help of online tools like Neil Patel's SEO analyser (https://neilpatel.com/seo-analyzer/) and Alexa (https://www.alexa.com/siteinfo). After the of data collection, the collected data were analysed and tabulated keeping in view the objective of the study.

7. Data analysis and Findings

In this study data analysis part described via three parts: Calculation of Simple Web Impact Factor, SEO analysis and Popularity rank of website.

7.1. Calculation of Simple Web Impact Factor

In the Internet age, library websites are very essential for their users and there is a need to assess their ranking. Webometrics is the study of the quantitative aspects of construction and the use of information resources, structures and technologies on the web, based upon bibliometric and informetric approaches. Different metric studies in LIS such as librametrics, bibliometrics, scientometrics and informetrics are well known. According to Bjorneborn and Ingwersenawebometric study basically covers the main four areas: Web page content analysis; Web link structure analysis (self-link, external link etc.); Web usage analysis (searching and browsing behavior) and Web technology analysis i.e. search engine performance(Bjorneborn and Ingwersen, 2004).WIF is the part of the methodology in webometric studies. The WIF provides quantitative tool for ranking, evaluating, categorizing and comparing the websites and top level domains or sub-domains. In general, a website with a higher impact factor may be considered to be a more prestigious and of higher quality than those websites with a lower impact factor (Noruzi, 2005). This part of the study aimed to rank the National Library Websites (NLW) of Asian countries using webometric methods, particularly using simple WIF.

7.1.1. Data Collection and Calculation

The Webometric analysis (for WIF study) is based on the data collected from the Web using various search engines. In each search engine there are some specific search keywords assigned by the search engines to retrieve the required information from the Web. In this study Google (www.google.com) search engine has been used for collecting required data. Google advanced web queries have been used to find the approximate number of pages in each website that are linked to each other.

7.1.2. Query Syntaxes

Two Boolean search statement/ Query Syntaxes have been used to collect data for each national library's websites which are mentioned in methodology part.

7.1.3. Calculation of Simple Web Impact Factors (SWIF)

WIF is the web versions of impact factor. There are three types of WIFs: WIF (simple), WIF(selflink) and WIF (inlink). The WIF introduced by Ingwersen (1998) is the ratio of the number of links to a site, divided by the number of webpages at the site, as follows:

A = Total number of webpages to a particular site
B = Number of external backlinks to a given site
C = Number of selflinks to a given site
D = Total number of links to a site

Therefore, WIF (simple) = **D/A**; WIF (inlink) = **B/A**, and WIF (selflink) = **C/A**.

To calculate the simple WIF only used the formula D/A (mentioned above) in this study.

7.1.4. Analysis and Ranking

The following table illustrates the rank distribution of NL websites according to their SWIF. Dividing the number of link pages to a site (D) by the total number of webpages to a particular site (A).

Table7.1: Simple WIF with Rank of selected national library websites

Name of NL Website	URL	Web pages (A)	Total links (D)	WIF (simple) (D/A)	Rank
Armenia	http://www.nla.am/arm/?q=en	106	8	0.075	20
Azerbaijan	http://anl.az/new/en/main	9420	2500	0.265	17
Bahrain	https://librarytechnology.org/libraries/library.pl?id=198548	20	5	0.25	18
Bangladesh	http://nlb.gov.bd/	167000	4590	0.027	26
Bhutan	http://www.library.gov.bt/	241	91	0.377	14
Brunei	https://www.librarybrunei.gov.bn/library/	143	5	0.034	24
Cambodia	http://www.khmerica.com/	145	5	0.034	25
China	http://www.nlc.cn/newen/	1480	5	0.003	33
Cyprus	http://www.cypruslibrary.gov.cy/moec/cl/cl.nsf/dmlindex_en/dmlindex_en?opendocument	7	17	2.428	1

Georgia	http://www.nplg.gov.ge/eng/home	1930	6	0.003	34
Hong Kong	https://www.hkpl.gov.hk/en/hkcl/home/index.html	278	7	0.025	27
India	http://www.nationallibrary.gov.in/	440000	334000	0.759	9
Indonesia	http://perpusnas.go.id/homepage/	312000	533	0.001	41
Iran	http://www.nlai.ir/	236000	33	0.0001	44
Iraq	http://www.iraqnla-iq.com/site/index.html	68	5	0.073	21
Israel	http://web.nli.org.il/sites/nlis/en	5470	6	0.001	42
Japan	http://www.ndl.go.jp/en/	107000	38900	0.363	15
Jordon	http://www.nl.gov.jo/En/HomePage.aspx	111000	93000	0.837	7
Kazakhstan	https://nlrk.kz/page.php?lang=3	5600	55	0.009	30
Kuwait	https://www.nlk.gov.kw/historical_background.aspx	380000	14500	0.038	23
Kyrgyzstan	http://www.nationallibraryofkyrgyzstan.org/	313000	961	0.003	35
Laos	http://www.nationallibraryoflaos.org/	61	0	0	45
Lebanon	http://bnl.gov.lb/English/index.html	30000	9	0.0003	43
Macao	https://www.library.gov.mo/en/	780000	596000	0.764	8
Malaysia	http://www.pnm.gov.my/	249000	6030	0.024	28
Maldives	https://nlm.gov.mv/	1860	102	0.054	22
Myanmar	http://www.nationallibrary.mn/en/	1510	701	0.464	16
Mongolia	http://www.nlm.gov.mm/	3700	1140	0.308	
Nepal	http://www.nnl.gov.np/	6500	496	0.076	19
Oman	https://www.squ.edu.om/libraries/Home	4	9	2.25	3
Pakistan	http://www.nlp.gov.pk/	2480	1880	0.758	10
Philippines	http://web.nlp.gov.ph/nlp/	14400	113	0.007	32
Qatar	http://www.qnl.qa/	35100	766	0.021	29
Saudi Arabia	http://www.kfnl.gov.sa/Ar/Pages/default.aspx	1310	5	0.003	36
Singapore	https://www.nlb.gov.sg/	892000	2930	0.003	37
Korea South	http://www.nl.go.kr/english/	885000	7810	0.008	31
Sri Lanka	http://www.natlib.lk/	512	1190	2.324	2
Syria	http://www.alassad-library.gov.sy/	490	328	0.669	11
Taiwan	http://www.ntl.edu.tw/mp.asp?mp=2	2300	8	0.003	5
Thailand	http://www.nlt.go.th/th/index.php	5580	7610	1.363	38
Timor-Leste	http://www.cultura.gov.tl/en/institution/projects/national-library-and-archives-of-timor-leste	12500	22000	1.76	6
Turkey	http://www.mkutup.gov.tr/en/	1720	3820	2.220	4
UAE	https://www.abudhabi.ae/portal/public/en/homepage	2420	7	0.002	40
Uzbekistan	http://www.natlib.uz/en	1580	5	0.003	39
Vietnam	http://nlv.gov.vn/ef/	451	287	0.636	12

From above table (Table 7.1) results relating to SWIF indicate that National library of Cyprus and National Library of Laos websites were the best (2.428) and the worst (0) respectively.

7.1.5. Drawbacks

There is one of the basic problems of webometric studies. According to Noruzi (2005), "suppose we have two websites, X and Y. Website X has 100 links and also has published 100 web pages, while website Y has 1000 links and has published 1000 web pages. Based on determined formula, both of them have the same impact factor, which is 1 (one)" (Noruzi, 2005).

7.2. SEO Analysis

Collective number of visitors to a website is called web traffic. Search Engine Optimization increases the web traffic by making the website more visible to search engines. In this study we have used online SEO report generation tool, Neil Patel's SEO analyser (https://neilpatel.com/seo-analyzer/) to analyse and compare the NL websites on various parameters like backlinks, page size, load time, request, traffic score, SEO score and Speed score.

Table 7.2A: Results from SEO Analyzer

Name of NL Website	URL	Back links	Page size (KB/MB)	Load time (Sec.)	Request
Armenia	http://www.nla.am/arm/?q=en	221	426.7 KB	7.00	46
Azerbaijan	http://anl.az/new/en/main	465	842.6 KB	2.64	60
Bahrain	https://librarytechnology.org/libraries/library.pl?id=198548	723	149.5 KB	1.57	17
Bangladesh	http://nlb.gov.bd/	12	410.2 KB	9.67	74
Bhutan	http://www.library.gov.bt/	125	72.9 KB	1.96	41
Brunei	https://www.librarybrunei.gov.bn/library/	1	764.9 KB	15.06	74
Cambodia	http://www.khmerica.com/	4	33.5 KB	0.83	13
China	http://www.nlc.cn/newen/	542	744.4 KB	16.75	61
Cyprus	http://www.cypruslibrary.gov.cy/moec/cl/cl.nsf/dmlindex_en/dmlindex_en?opendocument	7	0.2 KB	0.64	1
Georgia	http://www.nplg.gov.ge/eng/home	715	895.5 KB	14.35	122
Hong Kong	https://www.hkpl.gov.hk/en/hkcl/home/index.html	555	543.6 KB	7.82	82
India	http://www.nationallibrary.gov.in/	357	117.8 KB	2.67	8
Indonesia	http://perpusnas.go.id/homepage/	117	69.7 KB	1.86	21
Iran	http://www.nlai.ir/	5689	985.0 KB	8.05	62
Iraq	http://www.iraqnla-iq.com/site/index.html	84	169.7 KB	1.23	18
Israel	http://web.nli.org.il/sites/nlis/en	1288	5.8 MB	7.95	182
Japan	http://www.ndl.go.jp/en/	7228	758.8 KB	2.94	50
Jordon	http://www.nl.gov.jo/En/HomePage.aspx	88	234.6 KB	32.21	58
Kazakhstan	https://nlrk.kz/page.php?lang=3	403	512.4 KB	6.17	63
Kuwait	https://www.nlk.gov.kw/historical_background.aspx	40	1.0 MB	0.96	24

Kyrgyzstan	http://www.nationallibraryofkyrgyzstan.org/	10	41.1 KB	2.74	14
Laos	http://www.nationallibraryoflaos.org/	1	348.2 KB	3.58	24
Lebanon	http://bnl.gov.lb/English/index.html	10	645.1 KB	2.71	75
Macao	https://www.library.gov.mo/en/	193	509.7 KB	16.11	63
Malaysia	http://www.pnm.gov.my/	758	924.6 KB	7.21	37
Maldives	https://nlm.gov.mv/	21	293.7 KB	0.47	16
Myanmar	http://www.nationallibrary.mn/en/	101	2.2 MB	63.53	108
Mongolia	http://www.nlm.gov.mm/	79	221.9 KB	30.09	51
Nepal	http://www.nnl.gov.np/	61	1.1 MB	14.64	55
Oman	https://www.squ.edu.om/libraries/Home	895	1.0 MB	8.17	67
Pakistan	http://www.nlp.gov.pk/	125	1.4 MB	1.01	64
Philippines	http://web.nlp.gov.ph/nlp/	225	204.6 KB	5.02	46
Qatar	http://www.qnl.qa/	205	1.4 MB	2.94	109
Saudi Arabia	http://www.kfnl.gov.sa/Ar/Pages/default.aspx	301	1.2 MB	14.82	120
Singapore	https://www.nlb.gov.sg/	2097	1.2 MB	10.19	97
Korea South	http://www.nl.go.kr/english/	942			
Sri Lanka	http://www.natlib.lk/	107	731.2 KB	4.44	49
Syria	http://www.alassad-library.gov.sy/	135	70.2 KB	16.97	28
Taiwan	http://www.ntl.edu.tw/mp.asp?mp=2	340	519.9 KB	9.08	53
Thailand	http://www.nlt.go.th/th/index.php	222	1.2 MB	17.32	118
Timor-Leste	http://www.cultura.gov.tl/en/institution/projects/national-library-and-archives-of-timor-leste	56	188.1 KB	1.96	21
Turkey	http://www.mkutup.gov.tr/en/	1114	561.8 KB	26.73	69
UAE	https://www.abudhabi.ae/portal/public/en/homepage	697	1.1 MB	13.04	57
Uzbekistan	http://www.natlib.uz/en	251	890.5 KB	161.30	103
Vietnam	http://nlv.gov.vn/ef/	392	208.2 KB	6.45	43

Above table (Table-7.2A) shows the number of backlinks, page size, load time and request of 45 national library websites. Backlinks are an essential and very important part of the. With the good amount of quality backlinks, one can not only attract a remarkable number of visitors to their website but also can improve their website's ranking.In case of backlinks NL website of Japan has highest number of backlinks and then followed by NL websites of Iran, Singapore, Israel and Turkey. Page size of a website indicates the amount of data to be spent to load the site. It is a very important parameter of SEO. In this regard, Cyprus has topped the list. After the NL website of Cyprus website of Cambodia, Kyrgyzstan, Indonesia and Syria maintain their order. Website load time is another important indicator of SEO. Users' satisfaction or dissatisfaction very much dependent on website loading time. Above table shows that NL website of Maldives is fastest loading website and then followed by websites of Cyprus, Cambodia, Kuwait and Pakistan. In case of request NL website of Israel has topped the list, followed by Georgia, Saudi Arabia, Thailand and Qatar.

Based on these above four parameters, following scores are given by Neil Patel's SEO analyser that are distributed through Figure-1 and Table-7.2B(See Appendix-1).
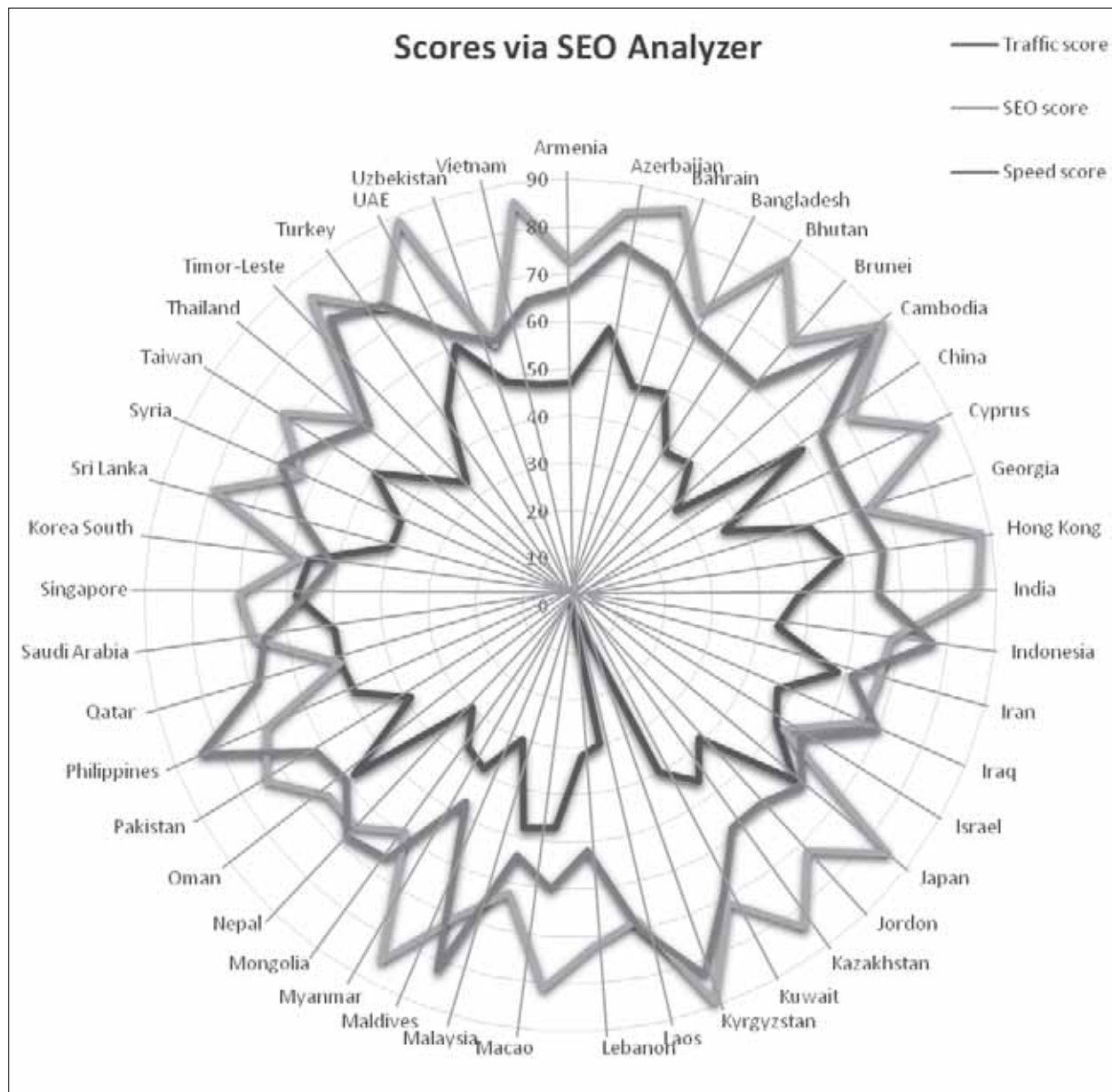
Figure-1: Distribution of SEO analyser scores

From the above figure (Figure-1) it becomes clear that no single NL website tops the all three categories of ranking. Whereas NL website of Japan and UAE(60) receives highest traffic then followed by websites of Azerbaijan and China (59), Hong Kong, Iran, Oman and Singapore (58), South Korea (56) and Georgia (53); NL website of Cambodia, Kyrgyzstan and UAE(89) have done best SEO score then followed by Hong Kong (88), Bahrain (87), Bhutan, Cyprus, India and Vietnam (86) and Japan, Myanmar and Timor-Leste (85); and NL website of Cambodia (85) has topped the speed score then followed by Philippines(84), Kyrgyzstan (83), Maldives (82) and Timor-Leste (79). However, this ranking do not predict the popularity test result by Neil Patel's SEO analyser.

7.3. Popularity rank of website

Website popularity ranking is another important indicator which helps to better promotion of a website. Ranking of a website is based on a combined measure of and unique site users. Popularity ranking of selected NL websites are described below through following table.

Table 7.3: Popularity rank of the NL Websites

Name of NL Website	URL	Rank by Neilpatel.com	Alexa page rank
Armenia	http://www.nla.am/arm/?q=en	466,778	458,789
Azerbaijan	http://anl.az/new/en/main	23,204	23,255
Bahrain	https://librarytechnology.org/libraries/library.pl?id=198548	342,609	344,256
Bangladesh	http://nlb.gov.bd/	1.990,201	1,992,158
Bhutan	http://www.library.gov.bt/	3,417,514	3,317,763
Brunei	https://www.librarybrunei.gov.bn/library/	2,647,999	2,727,400
Cambodia	http://www.khmerica.com/	10,202,778	10,202,716
China	http://www.nlc.cn/newen/	23,630	23,433
Cyprus	http://www.cypruslibrary.gov.cy/moec/cl/cl.nsf/dmlindex_en/dmlindex_en?opendocument	5,987,581	5,630,611
Georgia	http://www.nplg.gov.ge/eng/home	83,876	83,357
Hong Kong	https://www.hkpl.gov.hk/en/hkcl/home/index.html	37,268	37,057
India	http://www.nationallibrary.gov.in/	308,156	313,741
Indonesia	http://perpusnas.go.id/homepage/	68,698	66,747
Iran	http://www.nlai.ir/	31,759	32,076
Iraq	http://www.iraqnla-iq.com/site/index.html	485,169	481,425
Israel	http://web.nli.org.il/sites/nlis/en	100,098	99,076
Japan	http://www.ndl.go.jp/en/	12,942	13,115
Jordon	http://www.nl.gov.jo/En/HomePage.aspx	2, 682,686	2,650,405
Kazakhstan	https://nlrk.kz/page.php?lang=3	523,450	515,537
Kuwait	https://www.nlk.gov.kw/historical_background.aspx	1,800,521	1,875,462
Kyrgyzstan	http://www.nationallibraryofkyrgyzstan.org/	1,652,023	1,425,669
Laos	http://www.nationallibraryoflaos.org/	14,734,195	14,605,166
Lebanon	http://bnl.gov.lb/English/index.html	9,052,335	8,597,155
Macao	https://www.library.gov.mo/en/	447,703	439,618
Malaysia	http://www.pnm.gov.my/	336,887	335,982
Maldives	https://nlm.gov.mv/	18,051,959	18,094,469
Myanmar	http://www.nationallibrary.mn/en/	2,362,406	2,333,324

Mongolia	http://www.nlm.gov.mm/	5,002,362	5,201,124
Nepal	http://www.nnl.gov.np/	13,162,997	12,491,087
Oman	https://www.squ.edu.om/libraries/Home	32,356	32,158
Pakistan	http://www.nlp.gov.pk/	2,104,807	2,043,522
Philippines	http://web.nlp.gov.ph/nlp/	291,809	292,982
Qatar	http://www.qnl.qa/	114,163	115,182
Saudi Arabia	http://www.kfnl.gov.sa/Ar/Pages/default.aspx	147,622	145.052
Singapore	https://www.nlb.gov.sg/	32,589	32,361
Korea South	http://www.nl.go.kr/english/	58,606	58,441
Sri Lanka	http://www.natlib.lk/	1,665,276	1,606,671
Syria	http://www.alassad-library.gov.sy/	1,763,272	1,699,246
Taiwan	http://www.ntl.edu.tw/mp.asp?mp=2	186,962	185,832
Thailand	http://www.nlt.go.th/th/index.php	1,157,776	1,222,504
Timor-Leste	http://www.cultura.gov.tl/en/institution/projects/national-library-and-archives-of-timor-leste	7,929,018	6,538,588
Turkey	http://www.mkutup.gov.tr/en/	291,067	292,216
UAE	https://www.abudhabi.ae/portal/public/en/homepage	16,318	16,139
Uzbekistan	http://www.natlib.uz/en	233,787	230,956
Vietnam	http://nlv.gov.vn/ef/	401,651	408,067

Above table (Table-7.3) shows that, according to popularity test NL website of Japan (12,942 and 13,115) is the most popular website by Neil Patel's SEO analyser and Alexa. After the website of Japan most popular websites are UAE (16,318 and 16,139), Azerbaijan (23,204 and 23,255), China (23,630 and 23,433) and Iran (31,759 and 32,076). This table also shows that there is very little difference between two ranks provided by Neil Patel's SEO analyser and Alexa.

8. Conclusion

A national library reflects the cultural heritage of the nation. It preserves the information for future generation. With libraries shifting their role from being custodians of collection-based traditional information resources to being providers of access-based digital information resources, the library websites plays an important role. Libraries have to disseminate and facilitate access to variety of information to their users' through their websites. National libraries around the world maintain their websites which are used to offer a wide range of information, consistent with their wide range of activities, as compared to other types of libraries. This analysis shows that most of the East Asian countries' websites are highly frequented and popular than South East, South, Central and Middle East countries. Though some countries form South East, South, Central and Middle East zone like India, Israel, UAE, Philippines, Kyrgyzstan, Qatar, Oman etc. have done better in this regard. It can be said and expected that the limitation of the present evaluative study of the websites of National Libraries of Asian countries will create the scope of further research in the field.

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(Appendix-1)
Table 7.2B: Scores via SEO Analyzer

Name of NL Website	URL	Traffic score	SEO score	Speed score
Armenia	http://www.nla.am/arm/?q=en	47	73	67
Azerbaijan	http://anl.az/new/en/main	59	84	77
Bahrain	https://librarytechnology.org/libraries/library.pl?id=198548	48	87	73
Bangladesh	http://nlb.gov.bd/	49	68	64
Bhutan	http://www.library.gov.bt/	38	86	62
Brunei	https://www.librarybrunei.gov.bn/library/	39	73	61
Cambodia	http://www.khmerica.com/	30	89	85
China	http://www.nlc.cn/newen/	59	71	64
Cyprus	http://www.cypruslibrary.gov.cy/moec/cl/cl.nsf/dmlindex_en/dmlindex_en?opendocument	36	86	63
Georgia	http://www.nplg.gov.ge/eng/home	53	66	64
Hong Kong	https://www.hkpl.gov.hk/en/hkcl/home/index.html	58	88	67
India	http://www.nationallibrary.gov.in/	48	86	65
Indonesia	http://perpusnas.go.id/homepage/	44	68	77
Iran	http://www.nlai.ir/	58	67	61
Iraq	http://www.iraqnla-iq.com/site/index.html	47	66	70
Israel	http://web.nli.org.il/sites/nlis/en	50	52	56
Japan	http://www.ndl.go.jp/en/	60	85	62
Jordon	http://www.nl.gov.jo/En/HomePage.aspx	39	72	58
Kazakhstan	https://nlrk.kz/page.php?lang=3	46	84	58
Kuwait	https://www.nlk.gov.kw/historical_background.aspx	40	71	69

Kyrgyzstan	http://www.nationallibraryofkyrgyzstan.org/	0	89	83
Laos	http://www.nationallibraryoflaos.org/	30	68	70
Lebanon	http://bnl.gov.lb/English/index.html	32	72	52
Macao	https://www.library.gov.mo/en/	47	81	60
Malaysia	http://www.pnm.gov.my/	48	62	54
Maldives	https://nlm.gov.mv/	30	70	82
Myanmar	http://www.nationallibrary.mn/en/	39	85	47
Mongolia	http://www.nlm.gov.mm/	37	59	66
Nepal	http://www.nnl.gov.np/	30	65	68
Oman	https://www.squ.edu.om/libraries/Home	58	65	60
Pakistan	http://www.nlp.gov.pk/	39	74	62
Philippines	http://web.nlp.gov.ph/nlp/	49	69	84
Qatar	http://www.qnl.qa/	50	50	68
Saudi Arabia	http://www.kfnl.gov.sa/Ar/Pages/default.aspx	50	67	65
Singapore	https://www.nlb.gov.sg/	58	70	56
Korea South	http://www.nl.go.kr/english/	56	58	51
Sri Lanka	http://www.natlib.lk/	40	79	60
Syria	http://www.alassad-library.gov.sy/	40	63	68
Taiwan	http://www.ntl.edu.tw/mp.asp?mp=2	50	73	62
Thailand	http://www.nlt.go.th/th/index.php	40	59	57
Timor-Leste	http://www.cultura.gov.tl/en/institution/projects/national-library-and-archives-of-timor-leste	34	85	79
Turkey	http://www.mkutup.gov.tr/en/	49	74	75
UAE	https://www.abudhabi.ae/portal/public/en/homepage	60	89	63
Uzbekistan	http://www.natlib.uz/en	49	57	58
Vietnam	http://nlv.gov.vn/ef/	47	86	65

College Library Resource Sharing: A Question of Reality

Subal Kumar Barui and Asis Kumar Karan

This paper deals with the resource sharing situation in West Bengal. Sharing of resources is possible in a regional place. Library professionals are aware that the basic aspects of resource sharing are books, journals or periodicals, manpower and technology. This paper also explores the collection of resources in different colleges, staff strength etc.

1. Introduction

Education aims to impart knowledge and makes good citizens. College Libraries are the repositories of knowledge and are an integral part of higher education. Libraries have a long history, starting with the chained and closed-access libraries of earlier times to the present-day hybrid, digital, and virtual libraries that use the latest technology for provision of information through various services. Accordingly, librarians have also been changed from storekeepers who were concerned with protection of books against theft, mutilation, and pilferage, to that of information officers, navigators, and cybrarians who find themselves in the vast ocean of reading material and are busy in satisfying their clients who want anytime and anywhere information.

2. What Is Resource Sharing?

Resource sharing is a kind of cooperation among various libraries of a region by which they have shared their resources for the benefit of users whose numbers have grown fast and whose interest have become diversified. It is an arrangement by which resources of all participating libraries are coordinated and are made available to the users at each of the participating libraries. In the contemporary world, the resource sharing among libraries of a region has become essential. It denotes a mode of operation whereby functions are shared in common by a number of libraries. The goals are to provide a positive networking effect: a) on the library user in terms of access to more materials

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or services; and / or b) on the library budget in terms of providing level of services at less cost, increased service at low cost, or much more service at less cost than if undertaken individually. These goals should be realized without harm to the missions of participating libraries, although their methods of operation invariably must be adjusted. Similarly, the goals are realizable only with some changes in the habits of the users (IGNOU, 2005).

3. Why Resource Sharing ?

With the passage of time, the quantum and quality of users and their expectations have also drastically changed. Besides this major factor, there are various other factors which motivate General Degree Colleges to share their available resources within respective institutional framework (Paul, 2011). There are so many points for sharing of resources. Basically three vital points are -

i) Shrinking fiscal resources

ii) Price-hike in S&T journals

iii) Information is treated as the factor of production

4. Objectives of Resource Sharing

On the basis of experience and involvement in resource sharing activities in the area of science, technology and engineering, it can be visualised that College libraries can have the following objectives for their resource sharing initiatives:

a) to provide better services to the users

b) to provide more coverage of collections and facilities

c) to avoid duplication

5. Levels of Resource Sharing

It is further suggested that General Degree Colleges can work out a suitable and sustainable strategy to implement resource sharing plan at different levels in phased manner so that the activity is properly coordinated and implemented to achieve set objectives. It is suggested that the resource sharing can be implemented at different levels. Some of them are given below:

i) Local

ii) Regional

iii) National

iv) International

6. Areas of Resource Sharing

Keeping in view the needs of stake holders of General Degree Colleges as well as the potential information needs of the users of library & information support services provided by Colleges, it is essentially needed to identify the various areas for resource sharing activities so that degree Colleges management as well as users are able to enjoy the fruits of resource sharing equitably (IGNOU, 2005). The following areas for resources sharing are identified which may certainly be useful for General Degree Colleges' environment:

a) Collections Building

b) Inter-Library Loan

c) Reference Service

d) Human Resources

e) Expertise & Facilities

In West Bengal there are three (3) types of resources in college libraries. The resources of College Libraries are discussed herewith:

6.1. Books and non-book resources - College libraries have so many collections on reading materials such as Books, Journals, Thesis, Dissertations and CDs. Library collection is an important constituent of the library, which should be rich quantitatively as well as qualitatively. The quality of services provided and satisfaction of users depend largely upon the kind of collection. Libraries are not sufficient in their own collection. They depend on each other. It is only one way to resource generation. Every library should have participated in this process.

6.2. Manpower / skilled personnel - Manpower is the vital resource in any kind of libraries. Skilled personnel are the basic factor of manpower resources. Technically qualified manpower develops its community as well as services in society. Skilled personnel help other libraries to improve library services as well as produce technical manpower. Technically sound human resources provide competent and quality library services for its users.

6.3. Machine / ICT Etc. – With the advent of computers, the nature of libraries has changed dramatically. Computers are being used in libraries to process, store, retrieve and disseminate information. As a result, the traditional concept of library is being redefined from a place to access books to one which houses the most advanced media including CD-ROM, Internet, and remote access to a wide range of resources.

In West Bengal most of the College libraries have computers. But few of them do not have computers. Now a days Information and Communication Technology is very much essential for any type of libraries.

7. Objectives of the Study

　1. To identify the total resources (Books & Journals) of different college libraries in West Bengal.

　2. To show the skilled manpower of college libraries at different parts of West Bengal

　3. To show the real picture of resource sharing

　4. To identify the barriers of resource sharing

8. Scope, Coverage and Methods Used

We have taken ten colleges of different corners of West Bengal. The survey was made by telephonic interview. Information has been received from College Librarians regarding college library resources, manpower and hindrances of resources sharing at the different parts of West Bengal.

9. Areas of Resource Sharing

　A)　Inter-library loan

　B)　Acquisition

　C)　Cataloguing

　D)　Cooperative storage

10. Barrier of Resource Sharing

It is a fact that the concept of resource sharing undoubtedly is very useful in recent environment in the area of science, technology & engineering. The implementation of this concept needs careful, constant and concerted efforts on the part of educational institutions. On the basis of experience, the potential problems pertaining to the implementation of resource sharing (Bavakurty, Veeran, & Salim,. 2002) in the Colleges are listed below: -

　i. Physical Isolation

　ii Rigid Procedures

　iii. Closed Policy

　iv. Disinterest

　vi. Low Priority

　vii. Infrastructure

11. What Makes Resource Sharing Successful ?

With the advent of computers, the nature of libraries has changed dramatically. Computers are being used in libraries to process, store, retrieve and disseminate information. As a result, the traditional concept of library is being redefined from a place to access books to one which houses the most advanced media including CD-ROM, Internet, and remote access to a wide range of resources. Libraries have now metamorphosed into digital institutions. Gone are the days when a library was judged by its quantitative resources. Today, libraries are surrounded by networked data that is connected to vast ocean of Internet-based services. Moreover, electronic resources relevant to the professions are developing at an unprecedented pace.

Academic libraries are considered to be the nerve centers of academic institutions, and must support teaching, research, and other academic programmes. The situation in academic libraries of India is the same as that of academic libraries the world over; however, Indian libraries must provide maximum information with limited resources.

Table: Information regarding College Library Resources

Name of Colleges	Yr. of Establish	Total No. of Books	Total no. of Journals	Member of N. List Program me	Library software	No. of Library Staff	Have any facility	Barrier of resource sharing
1. St. Pauls Cathedral Mission College	1865	41000	12 Print 1000 Bound volume	Yes	SOUL	1 Professional 3Non-professional	No	User Demand & Attitude
2. Victoria Institution (College)	1937	35000	2 Print 4-5 Title Bound	Yes	Libsys & KOHA	1 / 3	No	Administration Attitudes
3. Barast College	1973	26400	8 print	No	KOHA	1/4	No	Distance / Administration
4. Naba Barakpore Prafulla Chandra College	1966	11600	3 Print	No	KOHA	2/ 1	No	Collection & User demand
5. Loreto College	1912	50200	68 Print / 824 Bound	No	Libsys	3/ 2	No	Authority/ Motivation
6. Calcutta Girls B.T. College		13200	2 Print/ 120-125 Bound	No	KOHA	2/ 1	No	Attitude & Motivation
7. Charu Chandra College	1947	26000	14-15 Print	Yes	SOUL	1/3	No	User demand Attitudes
8. Kalipada Ghosh Tarai Mahavidyalaya	1988	15000	15-16	Yes	SOUL	1/2	No	Motivation of Staff / Authority
9. University B.T. and Evening College	1968	16400	7 Print (was)	No	No	1/1	No	Collection & Administration
10. Chandrakona Vidyasagar Mahavidyalaya	1985	15000	6 print	No	No	1/2	No	

We have considered only ten colleges in different parts of West Bengal. We also emphasized basically on the General Degree Colleges as well as three B.Ed. Colleges. We have also selected four colleges in Calcutta at prime location to know the real situation of resource sharing at Kolkata and other parts of Bengal. Authorities and librarians played a vital role to motivate resource sharing process. Another four colleges have been selected which are in suburb region and two are in North Bengal and Midnapore. Views of resource sharing are reflected on the following points.

❖ Column three (3) shows that 70% college libraries have sufficient number of books. Which helps to resource sharing

❖ Print and Bound volume journals' collection are not in sound in above college libraries which are mentioned in the column four (4).

❖ 50 %College libraries have facility of N-List Consortia programme where we can easily arrange resource sharing.

❖ All libraries have library management software (except two libraries). User can access the software for seeking their resources. It is a positive approach to automation and networking.

❖ Only three percent college libraries have not sufficient number of library staff. It is real problem to resource sharing.

❖ The above college libraries have no facility for resource sharing. We should concentrate to it for betterment of user services as well as network for college libraries.

❖ In the last column of the above table it is shown that barrier of resource sharing are motivation of staff members of libraries, attitudes of authority as well as collection of different libraries.

Conclusion

This study shows that college libraries have sound collection which is the basic component of resource sharing. College librarians are very much enthusiastic about this work. This study also shows that the researchers have received spontaneous response from library professionals. But unfortunately there is no such possibility for resource sharing. This is the real situation in West Bengal.

References:

Bavakurty, M , Veeran, M.C.K. and Salim, T.K.M. (2002) *Organization of libraries and information centres in the 21st century*. New Delhi : Ess Ess.

IGNOU. (2005) *Resource sharing and user studies-4*. New Delhi: The University.

Paul, D. (2011) *Resource management in academic library: Systems and tools*. Kolkata: UGC-Academic Staff College, CU.

Rare Books vs. Value of Rare Books: Analysis of Viewpoints from Rare Book Specialists

Pronobi Porel and Udayan Bhattacharya

Present study identifies various viewpoints from Rare Book Specialists to find any relation among criteria of rare books and value of rare books. By analyzing the factors given in the viewpoints of 10 specialists, it is revealed that factors involved in rare book identification are always not directly related to the fixing of prices of those books. It also concludes that all the criteria are dependent on each other in most of the cases.

1 Introduction

It is very tricky to define a "rare book". A book becomes "rare" when it is both hard to find and highly required. In the context of rare book market, both the supply side and the demand side must be at extreme points for a book to qualify its rarity. For example, a book published in 1850 will be treated as "rare" if it has sufficient demand. In case of a rare book, the word "old" is relative – because the only books old enough to be highly sought after just for their age are those printed in the 1400s, the earliest years of printed books in the West (Romney, 2017). Generally a rare book "can mean any one of the three different things depending on the sense in which it is used. Two of these meanings those used in a narrow, conditional sense to indicate merely that a particular volume is either not plentiful, or that it possesses some quality distinguishing it as being unusually excellent or meritorious can be banished at once from consideration. Neither of these restricted meanings can be properly conveyed by our phrase, unless one or the other is expressly stipulated for or inferentially suggested by context" (Howes, 1957).

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The present study focuses on those factors which are essential qualities to determine value of a rare book. Rarity as a compound phenomenon – a series of discrete but related attributes that, when all present in one book, give a special quality, greater than the sum of its parts (DuRon, 2012). So it is very difficult to identify those determining factors. There are a number of factors which make books valuable. It is important to remember that books are a different story than antiques in that way; age doesn't always determine scarcity and value (Kwakman, n.d.). By contrast, the term "rare" connotes something definitely valuable. For valuation of rare book it is essential to analyze basic three criteria: rarity, condition and interest.

2 Objectives

The main objective is to identify the rare book with its value added factors. The other objectives of this study are as follows:

- To identify the factors involved in the rarity of the world's most rare books still in existence;
- To study the features of valuable books;
- To analyze comments, suggestions regarding rare as well as valuable books;
- To investigate the world's rare book markets and their activities;
- To find out distinguishing factors for comparing rare books;
- To reveal considering factors to add higher value to an antique book;
- To sum up factors of rare and valuable books from the viewpoints of Rare Book Specialists.

3 Methodologies

To collect various viewpoints from the rare book experts or Rare Book Specialists, a list of concerned persons has been sorted from various online rare book auction places, online rare book shops, rare book sellers' associations, rare book vendors or from renowned persons in this regard. The Rare Book Specialists are scrutinized by considering a set of aspects such as tenure of experiences, education, family background, job place, dealing materials, associated company, designation and responsibility etc. A total of 10 Rare Book Specialists have been selected who have clearly declared their viewpoints about rare and valuable books. All of their viewpoints have been identified separately and then consolidated under limited criteria or factors. In this study all of the factors have been discussed with supporting factors – supporting factors are the alien viewpoints of the Rare Book Specialists. The study follows the analysis on the basis of those factors.

4 Short Biographies of Rare Book Specialists

- **Adam Weinberger** – He has 30 years' experience in family traditions of rare book collecting and he works with many universities and museums.

- **Alexandra Owens** – He deals with rare books and other artefacts through selling and purchasing of those materials. He works in Sotheby's auction house which was founded in 1744 as a book auctioneer.

- **Dale A. Sorenson** – He is Ph.D., ISA AM and is a rare book expert. He is the owner of Waverly Rare Books and an ISA accredited personal property appraiser of used and rare books, maps, prints and autographs.

- **Ed Grabianowski** – He is a freelance writer from Buffalo, N.Y. He previously worked as a newspaper reporter and attended school at Suny Plattsburgh and Kansas State University.

- **Ed Nudelman** – He has over 30 years' experience in the rare book trade and owner of Nudelman Rare Books. He is the member of the Antiquarian Booksellers' Association of America since 1983.

- **Erik DuRon** – He is the manager of Bauman Rare Book which is a preeminent rare book company since 1973. He is also a member of Greenlight Bookstore First Editions Club Selection Committee.

- **Jeremy Michael Norman** – He began his career in the antiquarian book trade in 1964 at the age of nineteen and worked with a famous antiquarian bookseller John Howell's son Warren. In 1971 he started Jeremy Norman & Co., Inc.

- **Job Kwakman** – He is a rare books expert and he has great experience with AllBooks & Auctions, a leading antiquarian and auction house dealing with antiquarian books, maps, prints, literature, curios, comics, etc.

- **John Carter** – He was an author of "ABC for Book Collectors", educated at Eton and King's College, Cambridge, became a bibliophile early and entered the rare book trade in 1927. In 1956 Carter joined Sotheby's auction house and was also a director of Parke-Bernet Galleries.

- **Rebecca Romney** – She is a rare book dealer since 2007 with Honey & Wax Booksellers, a former manager at Bauman Rare Books and a member of the Grolier Club, the Rare Book School Scholarship Committee.

5 Considering Factors

There are a number of factors which make books valuable. It is important to remember that 'old' doesn't automatically mean 'rare'. Every old book is not rare. By contrast, the term "rare" connotes something definitely valuable. A group of Rare Book Specialists in various rare book auction houses, stores, online shops or in famous rare book libraries proposed a number of criteria in this regard. These factors or criteria have been discussed below:

5.1 Age of the book: This is an important factor. Many books printed in the 19th century are fairly common. But books printed in the 1700s or earlier contribute directly to its rarity. For example, Gutenberg Bible, printed in 1456, considered the first book of movable type ever printed, is usually regarded as the rare book (Weinberger, n.d.). So, all older books are not considered as rare books though most people think that if a book is older than they are, it is an old book, and an old book is a rare book. A 17th century religious tract may be objectively rare, but if there is little demand for it.

5.1.1 Supporting factors: Incredibly old, old with demand, printed before 1700.

5.1.2 Factor propositioned: This factor has been propositioned by Adam Weinberger, Dale A. Sorenson, Ed Nudelman and John Carter.

The oldest book in the world which has been created about 660 BC. It was discovered 70 years ago in a Strouma river in Bulgaria. It was made from 6 sheets of 24 carat gold and bound with rings. The plates are written in Etruscan characters, and also depicted a horse, horseman, a Siren, a lyre, and soldiers. Now it is kept in Bulgaria's National History Museum in Sofia. Age of this book is about 2,673 years.

[Source: https://wiganlanebooks.co.uk]

A Buddhist holy text, the "Diamond Sûtra" was written in Sanskrit text, translated into Chinese characters printed on a 17 and a-half foot long scroll of the sacred Buddhist text, including an inscription. The book was copied by Wong Jei, in May 868 AD. It was originally discovered in 1900 by a monk in Dunhuang, China. In 1907, British-Hungarian archaeologist Marc Aurel Stein later discovered this book.

[Source: https://www.smithsonianmag.com]

5.2 Classic book: Any old classic book which is out of print can be treated as rare book. For example, "Alice Adventures in Wonderland", and "Wuthering Heights" are classic books which have been treated as rare (Nudelman, n.d.).

5.2.1 Factor propositioned: This factor has been propositioned by Ed Nudelman and Job Kwakman.
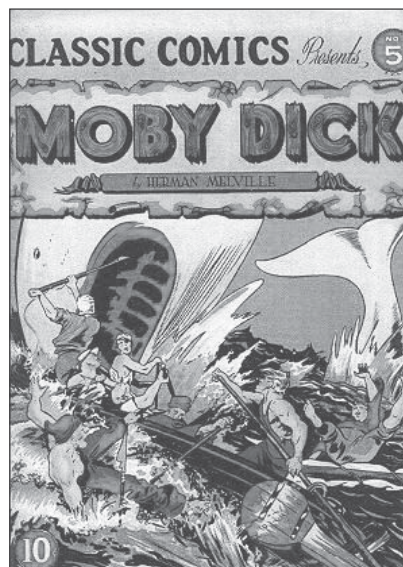
The classic book "Moby-Dick or The Whale" was published in 1851. The author and illustrator of this book are Herman Melville and Rockwell Kent respectively of United States. The book was written in English language and published by Richard Bentley (Britain) and Harper & Brothers (US).

[Source: https://en.wikipedia.org/wiki/Classic_book]

5.3 Condition: Better condition of a book demands its high price and treated as rare rather than an incomplete one. This criterion helps to increase the value of antique book. However, because bindings didn't become uniform until the late 19th century, distinguishing condition is much more relevant in recent editions. Value differs from a book with dust jacket to the same book without dust jacket. In the 18th and 19th centuries many earlier books were rebound in luxurious but period-inappropriate styles. This can make original or very early bindings harder to find (Sorenson, 2017).

5.3.1 Supporting factors:

● Completeness: A book with 100% completeness i.e. having all multiple parts like such as colour plates, maps, or illustrations demands its high potential value.

● Dust jacket: Most commercially published hard covered books published since 1900 originally came with jackets, and in many cases, jackets were issued on books published at much earlier dates. The earliest known dust jackets appeared in the 1830s. However, it is rare to see jackets on books before 1880 (Carter, n.d.). It is an important factor for a rare book.

5.3.2 Factor propositioned: Alexandra Owens, Dale A. Sorenson, Ed Grabianowski, Ed Nudelman, Erik DuRon, Jeremy Michael Norman, Job Kwakman, John Carter and Rebecca Romney.
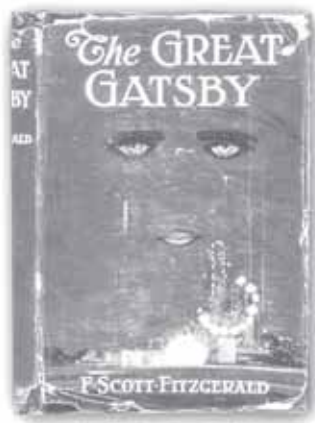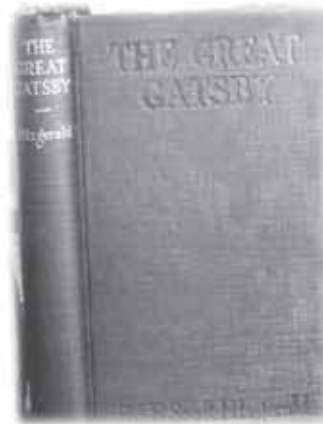
Book with dust jacket   Book without dust jacket

"The Great Gatsby" is a novel in English languare written by American author F. Scott Fitzgerald and cover artist was Francis Cugat. It was published by Charles Scribner's Sons on April 10, 1925. In rare book market, a perfect dust jacket, a first edition of this book could be worth $400,000 and without the jacket, its price drops to $8,000.

[Source: https://www.sothebys.com]

5.4 Physical objects: Another thing which comes after considering the above mentioned factors is physical objects. In other words, is the book in good shape? Is the binding strong and original? A book with original binding increases the flavour of antique book. As sometimes binding is an important factor to consider a book as 'rare', it also helps to evaluate a rare book.

5.4.1 Supporting factors:

● **Good shape:** Sometimes good shape of a book adds much to its value.

● **Design & craftsmanship:** Sometimes books having exceptional design are grouped into rare books. Original book cover with illustrations, and illuminations, for example, done by artists or famous designers are also considered in this feature (Kwakman, n.d.).

● **Quality of binding:** Sometimes binding in good quality adds extra factor to consider a book as 'rare'. For example, 20th century French Art Deco and 17th or 18th century English, which are considered works of art (Owens, 2017).

● **Distinguishing features:** Some old books are found with many distinguishing characteristics which are valuable books through generations.

5.4.2 Factor propositioned: This factor has been propositioned by Alexandra Owens, Dale A. Sorenson, Job Kwakman and Rebecca Romney.

Contemporary speckled calf binding   Skillfully re-backed and refurbished

First edition of **"Travels into Several Remote Nations of the World"** (in general Gulliver's Travels) by Jonathan Swift was published by Benjamin Motte on October 28, 1726 in English language. A fine, un-restored copy of Gulliver's Travels is priced $135,000.

[Source: https://www.peterharrington.co.uk and http://www.19thshop.com]

5.5 First books (not first editions): An author's first book, the first edition of a famous novel, the first mention of a beloved character and other firsts in literature all make a book rare and considered as more valuable books. But sometimes first editions are not important or considered as rare. An author's first book is typically printed for a small audience which is significant factor for rarity (Owens, 2017).

5.5.1 Supporting factors:

● **Editions:** The books having significant first editions are rare. This condition must fulfill other factors of rare books. Significant editions are also rare, especially those with important revisions by the author.

● **First edition:** First edition of a book is most important e.g. first edition of a classic in English literature, the first account of a historic exploration of a country or part of a country, the first account of a major voyage of discovery, or the first publication of a great scientific or medical discovery (Nudelman, n.d.).

5.5.2 Factor propositioned: This factor has been propositioned by Alexandra Owens, Job Kwakman, Dale A. Sorenson, Ed Nudelman, Jeremy Michael Norman and John Carter.
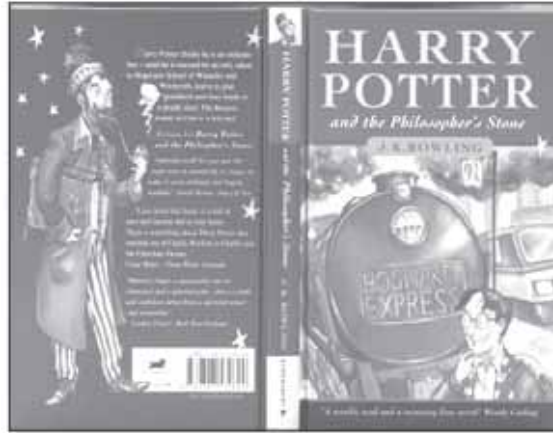
"Harry Potter and the Philosopher's Stone" is the first novel in the Harry Potter series and J. K. Rowling's debut novel, first published in 1997 by Bloomsbury a quantity of 500 copies. It was signed by J.K. Rowling on the dedication page. Price of first printing is about to $45,000, a hardcover first edition first printing of the second in the series, Harry Potter and the Chamber of Secrets, costs around $7,000 in rare book market. [Source: https://www.raptisrarebooks.com]

5.6 Provenance: Previous ownership by a famous person of a book adds a significant feature to a book. It is also considered if books which were previously owned by the author, a celebrated library or a historical ownership or someone closely connected with the author, such as a family member. For example, if a book belonged to a famous individual like George Washington, it becomes rare and enhances its value (Owens, 2017).

5.6.1 Supporting factors:

- **Ownership:** A book becomes rare if the book has personal notations in the margins by the famous person, the value goes up even more.

- **Original signed copy:** Genuine signed book by the author is most important factor for its rarity. It must not consider facsimile signature of the author or eminent persons. The style of facsimile signature in the book was popular in the late 1800s (Carter, n.d.).

5.6.2 Factor propositioned: This factor has been propositioned by Adam Weinberger, Adam Weinberger, Ed Grabianowski, Job Kwakman and John Carter.
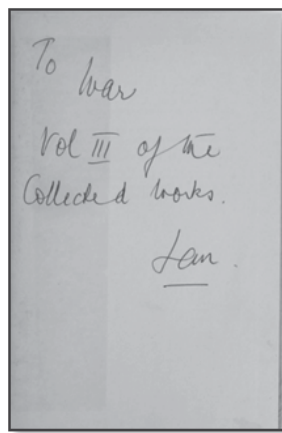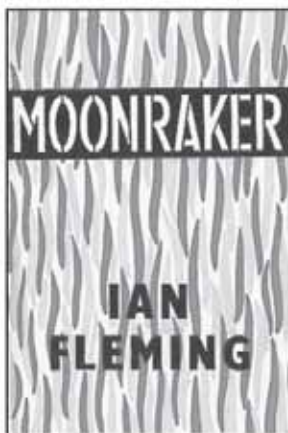
It is the first edition of the book "**Moonraker**" by Uan Fleming and published by Jonathan Cape on 5th April 1955 in English language. The book with author's signed copy will cost in rare book market more than $70000.

[Source: https://www.biblio.com]

5.7 Scarcity: How many copies of a given book were printed in the first place, and how many of those have survived? Further, how many are likely to be available at any given time? For example, the first book printed in colonial America, the Bay Psalm Book (1640), of which only 11 known copies survive (DuRon, 2012).

5.7.1 Supporting factors:

● Not a private publication: A book of fewer copies printed privately, for example, on family memories and distributed to family members, is not rare. Most of these extremely scarce books create no interest whatsoever to anyone outside the families concerned

● Private publishing but public interest: If a private publication with public interest is frequently found to be close to valuable and if it is concerned with a figure of historic importance or for example family of a famous person.

5.7.2 Factor propositioned: This factor has been propositioned by Dale A. Sorenson, Erik DuRon, Jeremy Michael Norman and Rebecca Romney.

First book in Indian language
published from India

The first book printed in
British North America

"**Thambiraan Vanakkam**" is the first book in Indian language was published on October 20, 1578. The author was Portuguese missionary Henrique Henriques. Its papers were imported from China and it was 10x14 cm book with 16 pages of 24 lines each.

[Source: https://www.quora.com]

"**The Bay Psalm Book**", as this work is commonly known, is the first book printed in British North America published at the Massachusetts Bay Colony in 1638.

[Source: https://www.wdl.org]

5.8 Importance: Historically influential incidents, important scientific discovery etc. which are treated in a book that changed the course of history can be treated as rare. The stories attached to these books increase their values also. For example, a book on poetry or fiction written by famous author, a book of science which announces a major discovery or change the course of its field are most important.

5.8.1 Supporting factors:

● **Relevance:** Many books on mysterious or puzzling subjects and are in small numbers do not rise to a level of general interest. Though scarce, they are not given the opportunity to be considered rare.

● **Desirability:** Desirability of an old book increases its value.

● **Significance of the book's contents:** Privately printed memoirs directly concerned to the childhood of an eminent person of a country, which has substantive importance, or the significance of the book's contents.

● **Imprint:** The factor of "imprint" constitutes a significant criterion e.g. the first books printed in the 15th century Europe are rare, and many later books are rare because they were printed in a special place or at a special time—for instance, books printed in the Confederate States during the American Civil War, the first book printed in Antarctica, or the first book printed on a submarine (Norman, 2017).

5.8.2 Factor propositioned: This factor has been propositioned by Adam Weinberger, Erik DuRon, Jeremy Michael Norman, Job Kwakman, John Carter and Rebecca Romney.
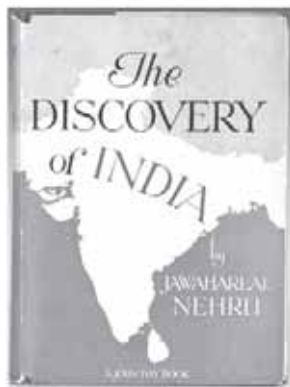
"**The Discovery of India**" was written by India's first Prime Minister Jawaharlal Nehru and published by The John Day Company, 1946. The book was written during author's imprisonment in 1942–46. This book is an honour paid to the rich cultural heritage of India, its history and its philosophy as seen through the eyes of a patriot fighting for the independence of his country.

[Source: https://www.raptisrarebooks.com]
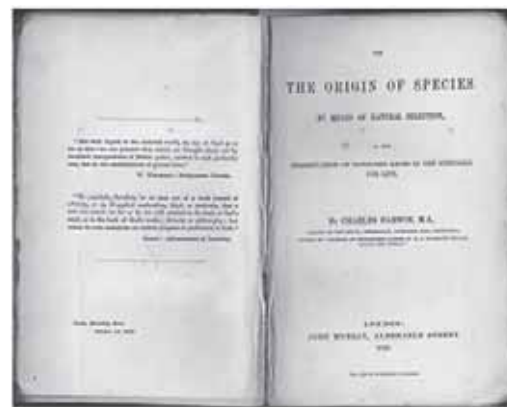
"**On the Origin of Species by Means of Natural Selection**" was written by Charles Darwin. The book "On the Origin of Species by Means of Natural Selection" by Charles Darwin was published by John Murray on November 24, 1859 is considered most valuable and rare due to its important content.

[Source: https://gdblogs.shu.ac.uk]

5.9 Speciality: A book without important or significant contents maybe treated as rare because of its characteristics as a physical object. It may be printed on an exotic paper. Because of its binding materials it can be treated as rare binding is a great work of art or design. It may be illustrated by a great artist and so on.

5.9.1 Supporting factors:

● **Primacy:** Books containing earliest known significant character, idea or theory in print format are considered as rare books (Owens, 2017). On the other hand, historical primacy is highly valuable if it was written in some books. Those first appearances of books in a certain language or the first book printed in a particular location are rare books.

● **Quality of printing:** An important feature of a rare book is its printing quality. A beautiful and finely printed book doesn't have to be the first edition from an author like Giovanni Boccaccio, but can be any one of his printings that exemplify quality of craftsmanship (Owens, 2017).

5.9.2 Factor propositioned: This factor has been propositioned by Ed Grabianowski, Jeremy Michael Norman.

Book binding with human skin

The Gunpowder Plotters were a group of Catholic rebels who in 1605 tried to kill the Protestant King James I of England, his eldest son, and much of the English court and government. Their attempt was failed and the participants were all discovered and executed. The most famous of these was Guy Fawkes. However, one of his co-conspirators was Father Henry Garnet, the head of the Jesuits in England. It was his flesh which was used after his execution to bind this book. The book has a Latin inscription on its cover which, when translated, reads "severe penitence punished the flesh". This book is famous due to its special object of binding.

[Source: https://www.toptenz.net]

6 Analysis of Viewpoints

After considering various factors or criteria from 10 Rare Book Specialists, a total of 9 significant criteria have been sorted out. These criteria help to identify rare books and fix their market values. Following table shows those criteria.

Table no.1: Statement showing criteria and their propositions

Sl.No.	Criteria	No. of Propositions	% of Propositions
5	Age of book	4	09.52
8	Classic book	2	04.76
1	Condition	9	21.43
2	First Books	6	14.29
3	Importance	6	14.29
6	Physical objects	4	09.52
4	Provenance	5	11.90
7	Scarcity	4	09.52
9	Specialty	2	04.76
Total		**42**	**100.00**

The following pie chart has been given for the analysis of the above mentioned criteria:
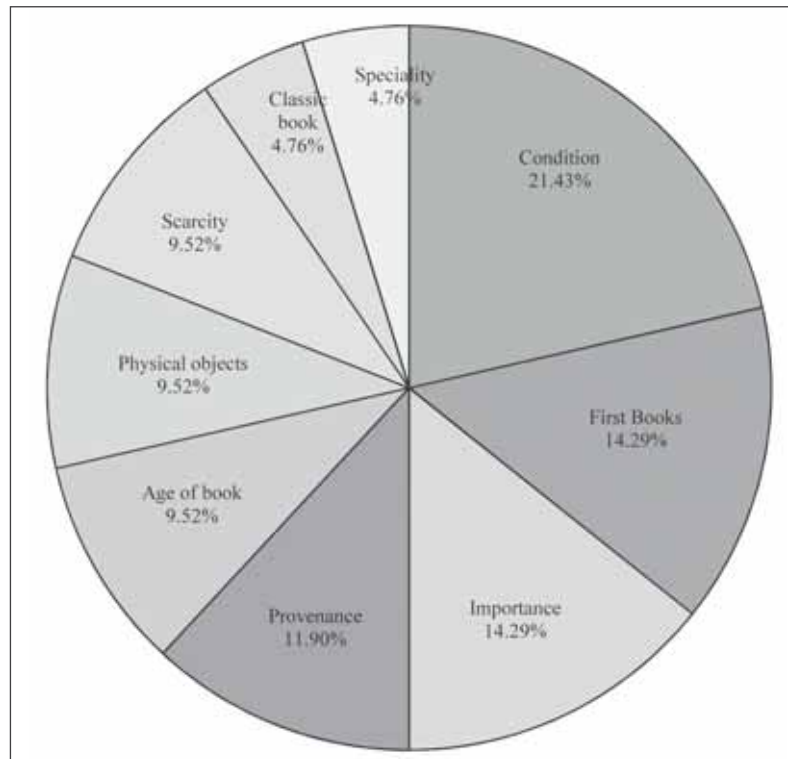
Figure no.1: Pie chart showing different factors

6.1 Results

 ● The criterion 'Condition' (21.43%) is most significant issue for determining the value of a rare book. It also indirectly helps in identifying rare books.

 ● Other two most important factors are 'First Book' (14.29%) and 'Importance' (14.29%) which are directly involved in identifying rare books and their values.

 ● The factor 'Provenance' (11.90%) is also important feature of a rare book. It directly helps to increase the value of rare books.

 ● Another factor 'Age of book' (9.52%) is directly involved in rare book identification. But in this study it is found less important than 'Conditions', 'Importance' and 'Provenance'. This observation ensures that the Rare Book Specialists show more interests on values of rare books rather than 'Age of book'.

6.2 Remarks

The above mentioned analysis ensures that rare books and value of rare books are different issues. The criteria for identification of rare books are always not applied for valuation of those books. Valuation of rare books is directly involved to the demands of those books. The factors discussed above can be applied to both of the issues directly or indirectly.

7 Conclusions

By analyzing the above mentioned factors along with their supporting factors, it is cleared that the essential qualifications of a rare book are not a set of minimum factors rather more complex to identify. Sometimes it is

very difficult to choose at the time of value addition of a rare book especially when it is dealt in auction houses or in a rare book shop. The criteria, sometimes, are not considered universal due to their applicability in different places. For example, a rare book on local demand increases its market value locally, but it may not be relevant to other countries at all. On the other hand, same rare books having high demand universally may not claim same value due to their individual physical condition. Therefore, it is very crucial to select and apply criteria for identifying rare books as well as fixing their values. It is highly indispensable to consider viewpoints from Rare Book Specialists in this regard. Present study has attempted to collect, consolidate and establish a set of criteria for identifying rare books and determining their values. This study demands further investigation to explore its various aspects by taking other organizations and institutions beyond the viewpoints of the Rare Book Specialists.

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Usage of E-Journals under UGC-INFONET Digital Library Consortium by the Users of Jadavpur University: An Analytical Study

Swarup Kumar Raj and Pinakinath Mukhopadhyay

Recently e-journals have become mostly needed resources for the higher study in the universities. This study attempts to find out usage of e-journals under UGC-INFONET in the Jadavpur University (JU). Questionnaire method has been adopted to collect data from the respondents; and data have been analyzed by using SPSS software. This study has put forward the problems faced by the users as well as recommended some suggestions for the improvement in the access of these facilities and particularly the rapid progress in the research activities of JU.

1. Introduction

Resource sharing and contemporary research work has been widely flourished today all over the world. This has increased the demand for the journals throughout the years. But due to the scarcity of funds, most of the libraries have been forced to discontinue the subscription of scholarly journals. It has a major effect on the users' community to meet their multi-dimensional information needs. The initiative of the University Grant Commission (UGC) to launch an e-journal Consortium, UGC-INFONET presenting a bouquet of e-journals for the universities is timely and provides the solution to the problem. The consortium enables the academic libraries to access a large number of scholarly journals from reputed publishers, aggregators and societies.

According to ALA Glossary, 1983 "A journal is a periodical especially one containing scholarly article and /or disseminating current information on

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research and development in a particular subject field. If this task is done   by electronic media then it may be called e-journals. If the content of journal produced, stored and scanned in a database and then retrieved online then same is called online journal" (Chakraborty and Chakraborty, 2002). "Vannevar Bush first described the e-journals in 1967as a part of MEMAX Proposal. Before that as per UNESCO report published in 1960 the first e-journal was created in the form of a project named to test networking computers as a means of improving scientific communications. As a result of this project the first e-journal produced in 1980 in the name of MENTAL WORKLOAD" (Hatua, 2000).

The statistics given on the website of International Standard Serial Number (ISSN-2015) shows the growth of total ISSN assigned journals (printed and electronic) during the years 2003-2014, that can be shown in the following Table 1

Table 1: Growth of e-journals compared with print journals (2003-2014)

| Year	Print journal	Growth	Online journal	Growth	CD-ROM	Growth	Online + CDROM	Growth
2003	1095296	-	22916	-	4160	-	27076	-
2004	1124235	28939	25451	2535	4663	503	30114	3038
2005	1182241	58006	32967	7516	6182	1519	39149	9035
2006	1230056	47815	41448	8481	7291	1109	48739	9590
2007	1280680	50624	50353	8905	8529	1238	58882	10143
2008	1332581	51901	62004	11651	9532	1003	71536	12654
2009	1395463	62882	72337	10333	11241	1709	83578	12042
2010	1447705	52242	83507	11170	12563	1322	96070	12492
2011	1500130	52425	97563	14056	13809	1246	111371	15302
2012	1546700	46570	113092	15529	15122	1313	128214	16843
2013	1587422	40722	132086	18994	16085	963	148171	19957
2014	1625560	38138	154745	22659	16923	838	171668	23497
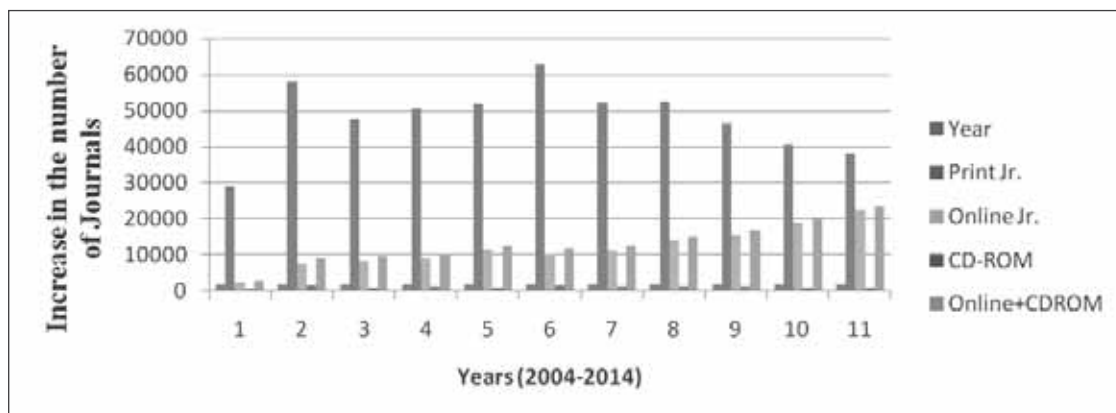
Fig: 1: Growth of print and online journals

UGC-INFONET has started the consortium of e-journals subscription for selected university libraries. Now more than 189 university libraries have been connected through this consortium and it is being planned to provide this service through higher band width of Internet connection which will be given to the rest of the university libraries in a phased manner. At present, it is known as e-ShodhSindhu.

2. Jadavpur University: A Brief Profile

"A collage and a school under the name The Bengal National College and School to teach the primary, secondary and collegiate courses according to the schemes of studies framed by the Council were opened on the 15th August, 1906" (The National Council of Education, Bengal, 1908). Jadavpur University (JU) was formally established by the Jadavpur University Act XXXIII, in 24th December 1955. JU, from the beginning, has distinguished itself by developing trans-disciplinary programme of teaching and research. At present, in two sprawling campuses, one at Jadavpur and the newer one at Salt Lake, JU has been offering its students/scholars quality education in humanities, science, engineering and technology.

JU Library was started along with the establishment of the University in 1955 in order to cater the academic and research needs of the faculty, research scholars, students, officers and non-teaching staff. Since then, the University Library has gone from strength to strength to live up to the expectations of its immediate clientele. It is one of the best-equipped libraries in the country.

The University is proud of its library system, which comprises the Central Library, Salt Lake Campus Library, 36 Departmental Libraries under the Faculty of Arts, Science, Engineering and Technology, and also the Libraries attached with the Schools and Centres for studies. The Central Library of Jadavpur University is one of the central facilities used by all types of members of this University.

Under the Potential for Excellence Programme of UGC, Centre for Digital Library has been established in November 2003 in the first floor of the new annex building of the Central Library. The digital Library has a learning Resource Centre (LRC) and a reading room. The Digital Library Management Software Dspace, developed by MIT, USA and Hewlett Packard has been installed. It is open source software and has been customized to suit our requirements. Dspace accepts all forms of digital materials including text, images, video and audio files. The Institutional Repository is being built in the Digital Library, faculty-wise and department-wise.

The Learning Resource Centre has been set-up with sixty nodes for Teachers, Students, Research Scholars and Academic Administrators for retrieving on-line journals/books and for Internet browsing. The hardware infrastructure for archival of rare texts, Ph.D. theses abstracts has been installed. Besides this, the users may search all on-line journals and databases from all the computers connected to the JU Network. The digital library facilities are also available beyond the university campus for the teachers and officers through user ID password (Jadavpur University, n.d.).

3. Statement of the Problem:

This present article deals with the usage of e-journals by the users of JU under the programme of the UGC-INFONET consortium.

4. Survey of Related Literature:

The most important step in this study is to conduct literature review. The following investigations have been reviewed as those studies are pertinent to this present study.

- According to study of P. Das, G. Sahu and R.K. Mohapatra (2012), Library consortium, which is the organization of different libraries formed to realize the benefits and opportunities of collaborative activity. In this

study, they found out that UGC-Infonet has played a significant role to assist academic and research community. Major problems faced by the users toward access to e-resources are lack of awareness and Internet problem. User orientation programme conducted by the university libraries are found to be inadequate and not focused. There is need to include more number of journals in the UGC-Infonet. Most of the users marked UGC-Infonet as good consortium but ICT infrastructure facilities will be usually better off for utilization of this consortium.

● Manoj Kumar Sinha (2012) mentioned that his survey comprises of administration of questionnaire, observation of the participants and interview of some of the participants for knowing the opinion of the respondents in respect of usage of Internet for their day-to-day activities and status of access to e-journals for their academic and research activities. The period of survey was July to August 2008 covering the users of Assam University Library using the Internet for accessing to the e-resources under the UGC-Infonet Digital Library Consortium. This study highlighted the findings in respect of Internet Awareness, its use pattern and attitude of library users towards the electronic resources.

● D.N. Pradhan, A.K. Rai and Jagadish Arora (2012) emphasized on implications of SUSHI (Standardized Usage Statistics Harvesting Initiative) for analysis of usage statistics of e-resources. The usage of e-resources is one of the most important parameters to judge effectiveness of the consortium. COUNTER (Counting Online Usage of Networked Electronic Resources) and SUSHI standards have the potential to ease the work of a consortium administrator by minimizing the time involved in manual downloading of usage statistics allowing more time for analyzing the usage statistics for better decision making.

● Dr. C. Bhaskar (2013) conducted the survey among faculty and research scholars in Alagappa University analyzing the information usage pattern and needs of the respective users. This study reveals that most of the faculty members have weekly access to e-journals, which is 44%. The faculty members and research scholars are aware of UGC-Infonet, which accounts to 85.99% and 14.1% respondents are not aware of this programme. The study observed that the faculty members who responded to the study, 59.1% learned through guidance from their teachers/ guide. It is provided that the highest proportion of the faculty members (42%) uses their department for accessing the information, while 40% of the research scholars are accessing their e-journals in their department itself.

The above literature reviews show clearly that most of the studies had been conducted in different states of India separately during last few years to know the awareness and use of e-journals among different categories of users. The present study is conducted to know the awareness, usage and other related aspects of e-journals among the users of the JU.

5. Significance of the Problem:

Over the last two decades there has been substantial increase in the production of e-journals all over the world. According to statistics, out of over 150000 serials published in the world, more than 70000 cover scholarly communications and among these more than 20000 titles are electronic journals and are accessible in the Internet. More than 2500 among these scholarly journals are free for all, which comprise a vast treasure of scholarly content from around the world.

What are the advantages and problems faced by users in handling e-journals under UGC INFONET? How much the users are satisfied by using the e-journals through this consortium?

Due to increase in the subscription rate of journals, library consortium enables to access so many journals at least cost. Most of the academic libraries are facing severe economic constraints. They are encountering budget cut coupled with the escalating cost of resources and diverse needs of users.

In this article, the main focus is on the usage of e-journals by the faculty members, scholars and the students of JU under this consortium. Any study on the usage of e-journals under this consortium by the users of JU has not yet been done.

6. Objectives:

The major objectives of study are as follows:

    1) To assess the awareness of the users of JU about the UGC-INFONET;

    2) To find out the purpose and degree of satisfaction of this consortium among the users of JU;

    3) To know the frequency of access of the journals under this consortium among the users of JU;

    4) To know the problems faced by the users of JU while using this consortium;

    5) To reveal the factors that promoted the use of this consortium among the users of JU; and finally

    6) To find out the solution for effective use of the UGC- INFONET among the users JU.

7. Scope and Limitations:

The scope of the present study is confined to the users of JU. Usage of UGC- INFONET has been considered. The data collection period was during 2014-15. Since April 2016, it came to be known as e-ShodhSindhu. In this study the previous nomenclature has been used. The study is limited to 100 respondents in the ratio of 40 teaching staff, 40 research scholars and 20 students of JU. The samples are randomly selected from the different departments of JU. It should be noted here that Faculty Council of Engineering and Technology is incorporated under Science whereas Faculty Council of Arts is subdivided into Social Science and Humanities in the analysis.

8. Methodology:

The survey method has been adopted to conduct the study. The questionnaire method has been introduced to collect data from the respondents. The data has been analyzed to measure percentage, Chi-square test, degrees of freedom and level of significance i.e. P-value of the variables.

9. Data Analysis:

Analysis and interpretation of the total responses from the users of the JU has been discussed. The analyzed data are presented in tabular form as well as graphical form whenever required. Frequencies and percentages of responses are given in each table. Data are collected from the 100 respondents of JU. All respondents are using Internet. But further responses have been calculated from 94 respondents who are using INFONET e-journal consortium.

Table 2: Distribution of the respondents of JU

Status of users / Discipline	No. of Teacher respondents (T)	No. of Research Scholar respondents (RS)	No of Student respondents (S)	Total	X^2= 3.708, df= 4, Sig.= 0.447
Science	25 (41.7%)	26 (43.3%)	9 (15%)	60	
Social Science	12 (40%)	11 (36.7%)	7 (23.3%)	30	
Humanities	3 (30%)	3 (30%)	4 (40%)	10	
Total	**40**	**40**	**20**	**100**	

* X^2=>Chi-square test, df=>degrees of freedom, sig.=> level of significance

Table-2 shows the number of respondents according to discipline as well as types of the respondents. According to discipline (row-wise) respondents are classified into 3 headings viz., Science, Social Science and Humanities. On the other hand according to the types (column-wise) respondents are categorized under 3 heads viz, teachers (T), research scholars (RS) and students (S). In Science discipline, respondents are 41.7% T, 43.3% RS and 15% S. In Social Science, respondents are 40% of T, 36.7% of RS and 23.3% of S. Similarly in Humanities, respondents are 30% of T, 30% of RS and 40% of S. In Science discipline, more respondents (60 %) have participated in the study than the Social Science and Humanities (30 % and 10% respectively). The above table can be represented as follows:
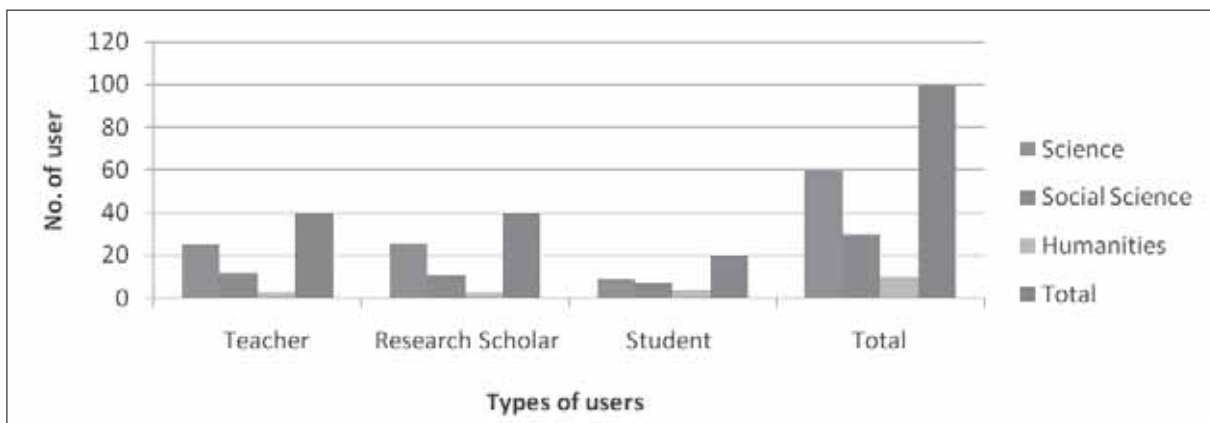

Fig. – 2: Distribution of the respondents of JU

Analysis and interpretation of the data related to awareness of INFONET e-journals consortium in the Jadavpur University has been presented in following Table - 3.

Table-3: Scattering of the users of JU regarding awareness of the Consortium

Status of Users	Teacher	Research Scholar	Student	Total	X^2	d.f.	Sig
UGC-INFONET					25.532	2	.000
Yes	40 (100%)	40 (100%)	14 (70%)	94			
No	0	0	6 (30%)	06			
Total	**40**	**40**	**20**	**100**			

Table-3 shows the status wise awareness of e-journals in the Jadavpur University. All the teachers and research scholars of this university (100% each) are aware of e-journals under INFONET. Whereas 70% of the students are aware about it and rest 30% are not. When the response are statistically tested, it is found significant as P-value= 0.00<0.05 thereby indicating that awareness of different categories of respondents in the Jadavpur University are not same. Table- 3 can be graphically represented as follows:
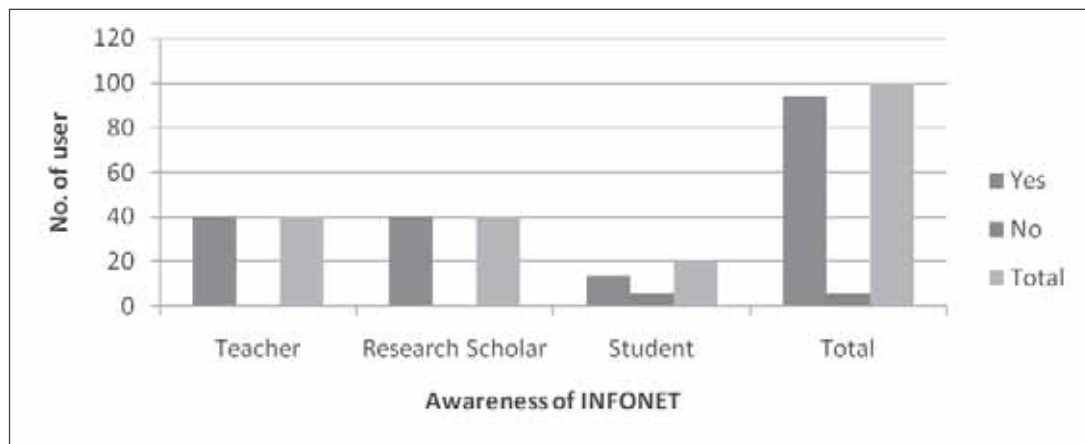
Fig.- 3: Scattering of the users of JU regarding awareness of the consortium

Table- 4: Scattering of the users of JU by their purpose of use of the consortium

Types of users	Teachers		Research Scholar		Student		Total	X2, df, sig.
Purpose of use	Yes	No	Yes	No	Yes	No		
Study	40(100%)	0	40(100%)	0	14(70%)	6(30%)	100	25.532, 2, .000
Teaching	38(95%)	2(5%)	31(77.5%)	9(22.5%)	0	20(100%)	100	58.509, 2, .000
Class notes	17(42.5%)	23(57.5%)	20(50%)	20(50%)	5(25%)	15(75%)	100	3.428, 2, .180
Research	40(100%)	0	40(100%)	0	0	20(100%)	100	100, 2, .000
Writing paper	40(100%)	0	40(100%)	0	6(30%)	14(70%)	100	65.116, 2, .000
Information	23(57.5%)	17(42.5%)	23(57.5%)	17(42.5%)	7(35%)	13(65%)	100	3.252, 2, .197
Multiple journals	34(85%)	6(15%)	32(80%)	8(20%)	9(45%)	11(55%)	100	12.267, 2, .002
Quick Access	31(77.5%)	9(22.5%)	34(85%)	6(15%)	8 (40%)	12(60%)	100	14.384, 2, .001
Database search	26(65%)	14(35%)	31(77.5%)	9(22.5%)	8(40%)	12(60%)	100	8.242, 2, .016

Table-4 shows the different purposes of the respondents (status-wise)) in using INFONET. In this university, all the Teachers and Research Scholars made use of Infonet e-journals for their study whereas 70% of the Students have using for their study. Similarly, most of the respondents belonging to 95% of T and 77.5% of RS made use of Infonet e-journals for the teaching purpose. More no. of T (42.5%) and RS (50%) made use of Infonet e-journals for class notes than the S (25%). All the T and RS make use of Infonet e-journals for their research works as well as for writing paper articles. Only 30% of the S use it for writing papers. 57.5% of both T and RS and 35% of the S use Infonet e-journals for current information. A large number of respondents i.e. 85% of T, 80% of RS and 45% of students use this consortium for multiple journals. Similarly 77.5% of T, 85% of RS and 40% of S use infonet e-journals for quick access. 65% of T, 77.5% of RS and 40% of S use Infonet e-journals for database search.

When the responses for all the above-mentioned purposes are statistically tested, all the purposes are found significant as p-value < 0.05 except the purposes of class notes and current information.

It is necessary to point out here that the teachers and research scholars use more e-journals for each purpose than students. It is clearly reflected from above table that majority of respondents are using e-journals for doing their research work in respective fields. Table- 4 can be graphically represented as follows:
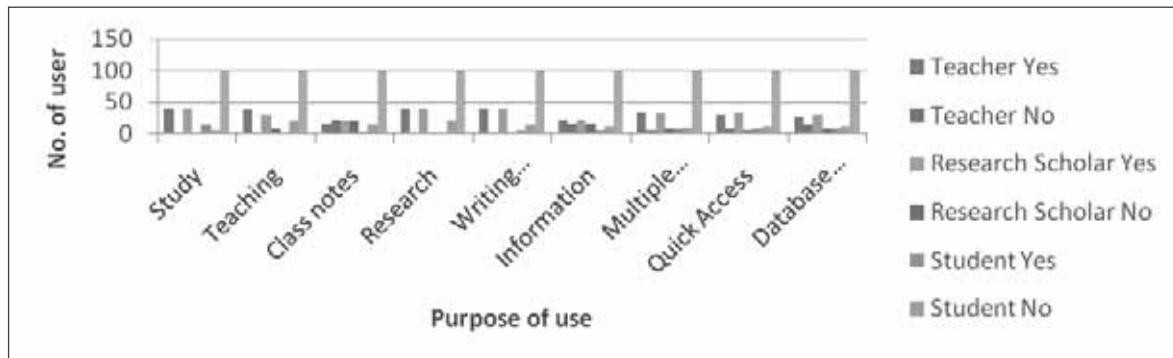

Fig.- 4: Scattering of users by their purpose of use of the consortium

Table -5: Scattering of the users of JU by their degree of satisfaction

Type of User	Teacher	Research Scholar	Student	Total	X^2	d.f.	Sig
Level of Satisficaion					32.008	6	.000
Fully satisfied	25 (62.5%)	24 (60%)	14 (70%)	63			
Partly satisfied	15(37.5%)	16 (40%)	0	31			
Neutral	0	0	6 (30%)	06			
Partly dissatisfied	0	0	0	00			
Fully dissatisfied	0	0	0	00			
Total	**40**	**40**	**20**	**100**			

Table-5 shows the status-wise level of satisfaction of respondents in the Jadavpur University. A significant number of T (62.5%), RS (60%) and S (70%) are fully satisfied with the use of Infonet e-journals while 37.5% T and 40% RS are partially satisfied with the use of Infonet e-journals. 30% S are marked as neutral. When this response is statistically tested, it is found to be significant because P-value = 0.000 < 0.05. Thus, it can be said that different categories of respondents are satisfied to different extent during making use of e-journals. Thus it can be said that different categories of respondents are satisfied to different extent during making use of e-journals. Table-5 can be graphically represented as follows:
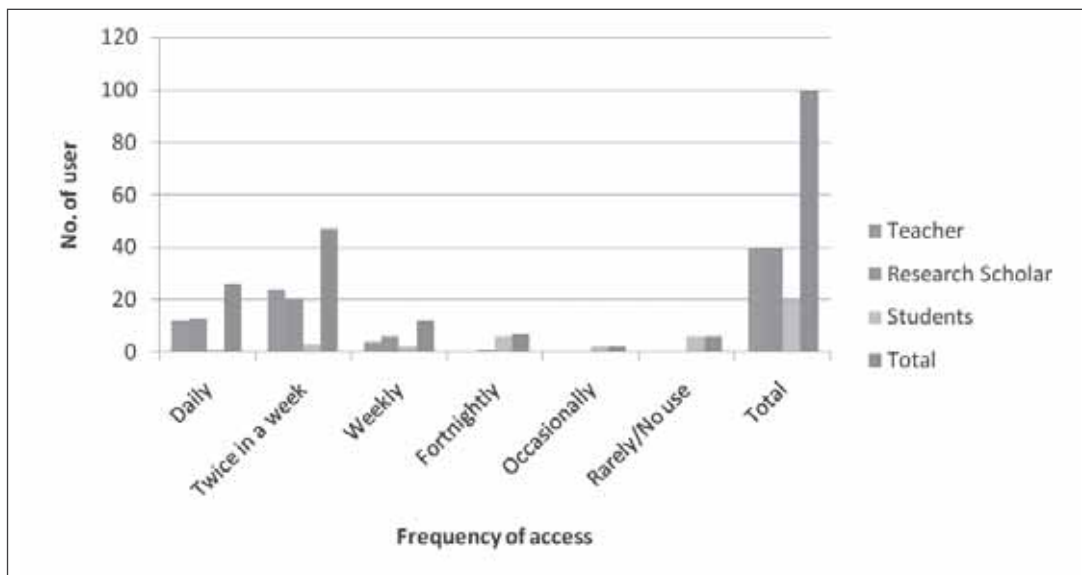
Fig.-5: Scattering of the users of JU by their degree of satisfaction

Table-6: Scattering of the users of JU by the frequency of access of the consortium

Discipline	Teacher	Research Scholar	Student	Total	X^2	d.f.	Sig
Frequency of Access					61.732	10	.000
Daily	12 (30%)	13 (32.5%)	1(5%)	26			
Twice in a week	24 (60%)	20 (50%)	3 (15%)	47			
Weekly	4 (10%)	6 (15%)	2(10%)	12			
Fortnightly	0	1(2.5%)	6 (30%)	07			
Occasionally	0	0	2(10%)	02			
Rarely/No use	0	0	6 (30%)	06			
Total	**40**	**40**	**20**	**100**			

Table-6 presents status-wise respondents' frequency of use of Infonet e-journals. 30% of T, 32.5% of RS and 5% of S use Infonet e-journals on daily basis. 60% of the T, 50% of RS and 15% of S use Infonet e-journals twice in a week whereas 10% of the T, 15% of the RS and 10% of S use weekly. Only 2.5% of RS and 30% of S use e-journals fortnightly. Merely 10% of S use this consortium occasionally. Only 30% S use e-journals rarely or do not use. This response is statistically tested and it is found to be significant as P-value=0.000<0.05. Table-6 can be graphically represented as follows:
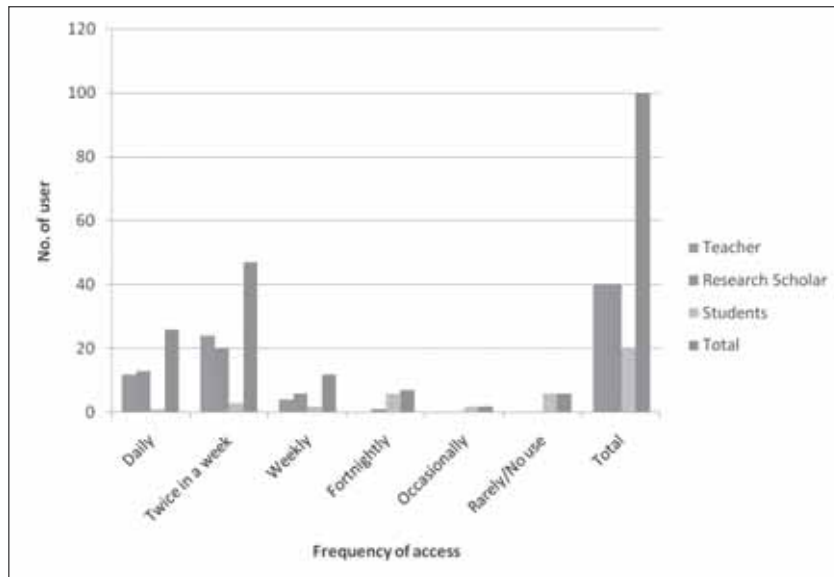
Fig.-6: Scattering of the users of JU by the frequency of access of the consortium

Table- 7: Scattering of the users of JU by their hindering factor

Type of user	Teacher					Research Scholar					Student					Total	X^2, df, sig
Hindering factors	SA	A	N	D	SD	SA	A	N	D	SD	SA	A	N	D	SD		
Speed of the Internet	0	10 25%	0	30 75%	0	0	7 17.5%	0	33 82.5%	0	0	1 5%	6 30%	13 65%	0	100	27.518, 4, .000
Connectivity with the respective site	0	3 7.5%	0	37 92.5%	0	0	8 20%	0	32 80%	0	0	1 5%	6 30%	13 65%	0	100	28.887, 4, .000
Lack of computer	0	6 15%	0	34 85%	0	0	5 12.5%	0	35 87.5%	0	0	5 25%	6 30%	9 45%	0	100	28.85, 4, .000
Power supply	0	0	0	40 100%	0	0	0	0	40 100%	0	0	0	6 30%	14 70%	0	100	25.532, 2, .000
Only abstract	0	0	0	40 100%	0	0	0	0	40 100%	0	0	0	6 30%	14 70%	0	100	25.532, 4, .000
Non-availability of back issues	0	5 12.5%	0	35 87.5%	0	0	6 15%	0	34 85%	0	0	3 15%	6 30%	11 55%	0	100	26.076, 4, .000
Difficult in finding relevant information	0	6 15%	0	34 85%	0	0	4 10%	0	36 90%	0	0	3 15%	6 30%	11 55%	0	100	26.610, 4, .000
Lack of attitude of staff	0	2 5%	2 5%	36 90%	0	0	4 10%	2 5%	34 85%	0	0	3 15%	7 35%	10 50%	0	100	17.521, 4, .002

*SA= Strongly Agree, A=Agree, N=Neutral, D= Disagree, SD=Strongly Disagree

Although, technology is advancing rapidly, the universities sometimes lag behind in adoption of these developments and despite availability of high bandwidth, their networks operate on low bandwidth resulting in slow response rate. 25% of T, 17.5% of RS and 5% of S agree on this problem and only 30% of the S have marked this problem

as neutral. 75% of T, 82.5% of RS and 65% of S disagree on this issue. This response is statistically tested and it is found to be significant as P-value=0.000<0.05.

Every university is now providing the facility of Internet to its users but this connectivity sometimes fails for many hours due to which user has to suffer a lot. This problem is always faced by almost all types of users. 7.5% of T, 20% of RS and 5% of S agree on this matter. Only 30% of S are neutral on this point. A large number of respondents i.e. 92.5% of the T, 80% of the RS and 65% of the S did not agree on this problem. This response is statistically tested and it is found to be significant as P-value=0.000<0.05.

The problem relating to lack of infrastructure like lack of computer have agreed by 15% of T and 12.5% of RS and 25% of S. 30% of S are neutral about this problem. 85% of the T, 87.5% of the RS and 45% of the S have not agreed on this problem. This response is statistically tested and it is found to be significant as P-value=0.000<0.05.

Power supply is not a problem according to all the T and RS and 70% of the S. 30% of the S are neutral about this problem. This response is statistically tested and it is found to be significant as P-value=0.000<0.05.

Similarly, absence of full text is not a problem according to the entire community of T, RS and 70% of the S. 30% of the S are neutral about this problem. This response is statistically tested and it is found to be significant as P-value=0.000<0.05.

The problem of incomplete issues or non-availability of back issues have agreed by 12.5% of T and 15% each of the RS and the S. 30% of the S are neutral about this problem. 87.5% of T, 85% of the RS and 55% of the S did not agree on this problem. This response is statistically tested and it is found to be significant as P-value=0.000<0.05.

E-journals are published in so many formats such as pdf, html, etc. As getting information from these formats is not very simple due to lack of awareness and availability of supporting software, so it is difficult to find relevant information. But only a small number of respondents (15% of T, 10% of RS and 15% of the S) agree on this problem. Only 30% of the S are neutral about this problem while 85% of the T, 90% of the RS and 55% of the S do not face this type of problem. This response is statistically tested and it is found to be significant as P-value=0.000<0.05.

Library staff and other technical staff prove to be quite supportive tool in providing guidance for making proper use of e-journals as well as to solve some technical problems, therefore, lack of attitude of the staff becomes a problem to the users in accessing e-journals. In the present study, 5% of the T, 10% of the RS and 15% of the S agree on this issue while 35% of the S are neutral about this problem. But 90% of T and 85% of RS and 50% of S did not agree on this problem. This response is statistically tested and it is found to be significant as P-value=0.002<0.05.

Table- 8: Scattering of the users of JU by the promotional factors

Discipline	Teacher					Research Scholar					Student					Total	X^2, df, sig
Promotional factors of use of UGC-INFONET	SA	A	N	D	SD	SA	A	N	D	SD	SA	A	N	D	SD		
Easy access to e-journals	36 90%	4 10%	0	0	0	35 87.5%	5 12.5%	0	0	0	11 55%	3 15%	6 30%	0	0	100	26.529, 4, .000
Down loading of text	36 90%	4 10%	0	0	0	37 92.5%	3 7.5%	0	0	0	14 70%	0	6 30%	0	0	100	26.773, 4, .000

Discipline	Teacher					Research Scholar					Student					Total	X^2, df, sig
Promotional factors of use of UGC-INFONET	SA	A	N	D	SD	SA	A	N	D	SD	SA	A	N	D	SD		
Good search Engine	26 65%	14 35%	0	0	0	32 80%	8 20%	0	0	0	6 30%	8 40%	6 30%	0	0	100	31.552, 4, .000
Instructions to access	28 70%	12 30%	0	0	0	28 70%	12 30%	0	0	0	9 45%	5 15%	6 30%	0	0	100	25.676, 4, .000
Professional training	33 82.5%	7 17.5%	0	0	0	35 87.5%	5 12.5%	0	0	0	13 65%	1 5%	6 30%	0	0	100	26.467, 4, .000
Up-to-date information	2 5%	29 72.5%	0	9 22.5%	0	0	21 52.5%	0	19 47.5%	0	0	10 50%	7 35%	3 15%	0	100	38.847, 6, .000
Proper need of the user	23 57.5%	16 40%	1 2.5%	0	0	27 67.5%	13 32.5%	0	0	0	9 45%	5 25%	6 30%	0	0	100	21.167, 4, .000
Awareness programme	37 92.5%	3 7.5%	0	0	0	37 92.5%	3 7.5%	0	0	0	12 60%	2 10%	6 30%	0	0	100	26.090, 4, .000
Prolonged access	29 72.5%	11 27.5%	0	0	0	29 72.5%	11 27.5%	0	0	0	12 60%	2 10%	6 30%	0	0	100	26.399, 4, .000

*SA= Strongly Agree, A=Agree, N=Neutral, D= Disagree, SD=Strongly Disagree

Easy access is one of the primary features of e-journals. A user can easily search multiple journals sitting at one place. Unlike print journals for which he has to go to library, the user can access e-journals while sitting on his/her desk. So, easy access to the e-journals is considered most important by the majority of users. 90% of the T, 87.5% of the RS and 55% of the S strongly agree on this factor. 10% of the T, 12.5% of the RS and 15% of the S agree on this factor. 30% of the S are neutral about this factor. This response is statistically tested and it is found to be significant as P-value=0.000<0.05.

Universities under study are public funded institutions and users, mainly the scholars of the university are down loading the text of the journals. 90% of the T, 92.5% of RS and 70% of S strongly agree on this promotional factor. 10% of the T and 7.5% of the RS agree on this factor. Only 30% of the S are neutral about this factor. This response is statistically tested and it is found to be significant as P-value=0.000<0.05.

Better search engines are essential to provide better services in the universities. The promotional factor relating to good search engine is strongly agreed by 65% of the T, 80% of the RS and 30% of the S. However, 35% of the T, 20% of RS and 40% of the S agree on this factor. Only 30% of S are neutral about this factor. This response is statistically tested and it is found to be significant as P-value=0.000<0.05.

Another promotional factor 'instructions to access' have strongly agreed by 70% of the T, 70% of the RS and 45% of the S. But 30% of the T, 30% of the RS and 15% of the S agree on this factor. 30% of the S are neutral about this factor. This response is statistically tested and it is found to be significant as P-value=0.000<0.05.

Professional training plays a pivotal role in the promotional factor. 82.5% of the T and 87.5% of the RS and 65% of the S strongly agree on this factor. 17.5% of the T, 12.5% of the RS and 5% of the S agree on this factor, while 30% of the S are neutral about this factor. This response is statistically tested and it is found to be significant as P-value=0.000<0.05.

The promotional factors of 'up-to-date information' have strongly agreed by 5% of T. But 72.5% of T, 52.5% of RS and 50% of S agree on this factor. 35% of S are neutral about this factor, whereas 22.5% of T, 47.5% of

RS and 15% of the S did not agree on this factor. This response is statistically tested and it is found to be significant as P-value=0.000<0.05.

E-journals are published according to the proper need of the users. 57.5% of T, 67.5% of RS and 45% of the S strongly agree on this factor. 40% of T, 32.5% of RS and 25% of the S agree on this factor. 2.5% of the T and 30% of the S are neutral about this factor. This response is statistically tested and it is found to be significant as P-value=0.000<0.05.

Awareness programme is playing a pivotal role in the use of e-journals. In the present study 92.5% of both T and RS and 60% of the S strongly agree on this factor. 7.5% of both T and RS and 10% of the S agree on this factor, whereas 30% of the S are neutral about this factor. This response is statistically tested and it is found to be significant as P-value=0.000<0.05.

Last but not the least, time period of access should be longer. 72.5% of both T and RS and 60% of the S strongly agree on this factor. 27.5% of both T and RS and 10% of the S agree on this factor whereas 30% of the S are neutral about this factor. This response is statistically tested and it is found to be significant as P-value = 0.000<0.05.

Table -9: Scattering of the users of JU regarding the solution of effective use

Type of user	Teacher					Research Scholar					Student					Total	X^2, df, sig
Solutions of effective	MS	S	UD	US	MU	MS	S	UD	US	MU	MS	S	UD	US	MU		
Good Internet services	36 90%	4 10%	0	0	0	35 87.5%	5 12.5%	0	0	0	13 65%	1 5%	6 30%	0	0	100	25.839, 4, .000
Increase the No. of terminals	33 82.5%	7 17.5%	0	0	0	32 80%	8 20%	0	0	0	9 45%	5 25%	6 30%	0	0	100	27.233, 4, .000
Improved computer services	27 67.5%	13 32.5%	0	0	0	26 65%	14 35%	0	0	0	7 35%	7 35%	6 30%	0	0	100	26.669, 4, .000
E-journal accessible through University Website	26 65%	14 35%	0	0	0	29 72.5%	11 27.5%	0	0	0	9 45%	5 25%	6 30%	0	0	100	26.169, 4, .000
IPR safely protected	16 40%	16 40%	8 20%	0	0	9 22.5%	23 57.5%	8 20%	0	0	0	0	20 100%	0	0	100	48.465, 4, .000
User awareness programme	27 67.5%	13 32.5%	0	0	0	27 67.5%	13 32.5%	0	0	0	5 25%	9 45%	6 30%	0	0	100	29.613, 4, .000
Tips to access the consortium as guideline	27 67.5%	13 32.5%	0	0	0	23 57.5%	17 42.5%	0	0	0	6 30%	8 40%	6 30%	0	0	100	27.928, 4, .000
Providing password to access from outside	35 87.5%	5 12.5%	0	0	0	29 72.5%	11 27.5%	0	0	0	8 40%	6 30%	6 30%	0	0	100	30.953, 4, .000

*MS=Mostly satisfied, S=Satisfied, UD=Undecided, US=Unsatisfied, MS=Mostly Unsatisfied

Table-9 represents scattering of users regarding the solutions of effective use of e-journals. The good Internet service is considered the most important for using e-journal by a majority of respondents. 90% of T, 87.5% of RS and 65% of S are mostly satisfied with this remedy. 10% of the T, 12.5% of the RS and 5% of the S are satisfied with this solution. Only 30% of the S are undecided regarding this service. This response is statistically tested and it is found to be significant as P-value = 0.000<0.05.

Increasing the no. of computer terminals is one the solutions for more use of this consortium. 82.5% of the T, 80% of RS and 45% of S are mostly satisfied with this solution. 17.5% of the T, 20% of the RS and 25% of the S are satisfied with this solution. Only 30% of the S are undecided with this solution. This response is statistically tested and it is found to be significant as P-value = 0.000<0.05.

Improved computer services are significant solution for e-journal services. 67.5% of the T, 65% of the RS and 30% of the S are mostly satisfied with this solution. 32.5% of the T, 35% of the RS and 35% of the S are satisfied with this solution. Only 30% of S are undecided regarding this solution. This response is statistically tested and it is found to be significant as P-value = 0.000<0.05.

'E-journal accessible through university website' is one of the most important solutions to effective use of this consortium. 65% of T, 72.5% of RS and 45% of the S are mostly satisfied with this solution. 35% of the T, 27.5% of the RS and 25% of the S are satisfied with this remedy. Only 30% of the S are undecided regarding this solution. This response is statistically tested and it is found to be significant as P-value = 0.000<0.05.

Another solution i.e. protection of IPR is an important factor. 40% of the T and 22.5% of the RS are mostly satisfied with this solution. 40% of the T and 57.5% of the RS are satisfied with this solution. 20% of both T and RS and all the S are undecided regarding this solution. This response is statistically tested and it is found to be significant as P-value = 0.000<0.05.

User awareness programme plays an important role in the solution to upgrade the use of e-journals. 67.5% of both T and RS and 25% of the S are mostly satisfied with the solution. 32.5% of both T and RS and 45% of the S are satisfied with this solution. Only 30% of the S are undecided regarding this solution. This response is statistically tested and it is found to be significant as P-value = 0.000<0.05.

'Tips to access the consortium as guideline' is another factor to enhance the use of e-journals. 67.5% of the T, 57.5% of the RS and 30% of the S are mostly satisfied with this solution. 32.5% of the T, 42.5% of the RS and 40% of the S are satisfied with this solution. 30% of the S are undecided regarding this solution. This response is statistically tested and it is found to be significant as P-value = 0.000<0.05.

Last but not the least, the solution is to provide password to access this consortium from any corner of the world. 87.5% of the T, 72.5% of the RS and 40% of the S are mostly satisfied with this solution. 12.5% of the T, 27.5% of the RS and 30% of the S are satisfied with this solution. 30% of the S are undecided regarding this solution. This response is statistically tested and it is found to be significant as P-value = 0.000< 0.05.

10. Findings:

i) 94% (40 no. of teachers, 40 no. of research scholars and 14 no. of students) of the respondents are aware about the UGC-INFONET and 6% are not. When the responses are statistically tested, it is found significant as P-value= 0.00<0.05 thereby indicating that awareness of different categories of respondents in this University.

ii)   The teachers and research scholars have used this consortium maximum for the purposes of research work, study, teaching, writing papers etc. Majority of the respondents are using e-journals for doing their research work in the respective fields.

iii)   Most of the users (62.5% of the teachers, 60% of research scholars and 70% of the students) are fully satisfied with the services provided.

iv)   Most of the users have used these journals of this consortium twice in a week next to daily use except the students.

v)   The users are facing various types of problems while using e-journals. The major problematic issues are speed of the Internet, connectivity with the respective site etc. which have significant impact on the use of this consortium.

vi)   Major promotional factors of this consortium are easy access, down loading of text, professional training and awareness programme. All of the issues have significant impact in the study.

vii) All factors for the solution of the efficient use of e-journals have also significant impact in the study.

11. Suggestions:

i) Good Internet service with high bandwidth Wi-Fi and LAN will have to be made available in the university campus.

ii) More number of core journals should be incorporated in this consortium.

iii) Orientation programmes will have to be arranged in different manners for the different groups of users.

12. Conclusions:

In the present scenario, UGC-INFONET is playing a significant role to assist the academic and research personnel. Major common problems to access the e-journals are the speed of the Internet and the selection of journals' subscription according to users' need. User orientation programme should be arranged frequently. More number of journals will have to be incorporated in this consortium. Majority of the users have effectively used this consortium. Therefore, better ICT infrastructure should be enhanced for the usage of this consortium.

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Disaster Management for College Libraries of West Bengal: A Study

Amiya Paramanik and Subarna Kumar Das

It is true that our civilization is the great creation of the universe but it looks like measuring the forthcoming dangers created either by human or by nature at any time at any place. Prevention is better than cure. Preservation is given a least priority in many college libraries in West Bengal. The study describes the major studies conducted on the topic. It includes the nature of disaster affected area, phases which also includes before, during and after. The study tries to analyze the risk factors concerning to the general degree colleges of West Bengal. It also tries to identify equipments, tools and techniques, infrastructural inadequacy, degree of awareness regarding disasters in the degree college libraries of West Bengal.

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1. Introduction

The term "disaster management" encompasses the complete realm of disaster-related activities. Traditionally people tend to think of disaster management only in terms of the post-disaster actions taken by relief and reconstruction officials; yet disaster management covers a much broader scope, and many modern disaster managers may find themselves far more involved in pre-disaster activities than in post-disaster response. This is because many persons who work in the development field, or who plan routine economic, urban, regional or agricultural development projects, have disaster management responsibilities. For example, housing specialists planning a low-income housing project in a disaster-prone area have the opportunity (and an obligation) to mitigate the impact of a future disaster if the houses incorporate disaster-resistant construction technologies. In the same manner, agricultural development projects must be planned in such a way that they help stem

environmental degradation and thus lower the farmer's vulnerability to losses from droughts, floods, cyclones, or other natural hazards. In fact, in dealing with natural hazards, the vast majority of disaster management activities are related to development projects; only a small portion is related to emergency response.

A disaster plan is a document which describes the procedures devised to prevent and prepare for disasters, and those proposed to respond to and recover from disasters when they occur. The responsibility for performing these tasks is allocated to various staff members who comprise 'the disaster team'.

A comprehensive disaster plan consists of several independent but interrelated smaller plans. Every disaster has three phases: before, during and after. A variety of plans is required to cope with each of these phases. In the 'before phase', which corresponds to everyday routine operations, two types of plan should be in operation: preventive and preparedness. Preventive plans recommend actions that will prevent most disasters. Disaster Management is the discipline that deals with risks. It is a discipline that involves preparing, supporting, and rebuilding society when natural or manmade disasters happen. Disaster Management is a multidisciplinary activity, and often crosses departmental boundaries. From an organizational point of view, the effective Disaster Management depends on proper disaster planning and co-operation and communication between authority and members of the staff of a particular organization. In reality what has often happened is that there has been little co-operation.

The 26th December, 2004 is a red letter day in the history of India. On that very day Tsunami affected almost all parts of India, particularly coastal areas. After the Tsunami, awareness regarding disaster increased rapidly. In this situation libraries need to be a well-developed disaster management system.

2. The Objectives

- To study the disaster management system and identify the potential risks related to libraries in five college libraries West Bengal.

- To suggest preventive measures in reducing vulnerability to disasters.

- To assist in restoring the library and its collections to a usable condition after a disaster promptly and efficiently and suggest a model or technique to combat with the disasters.

- To prepare a plan to combat against disaster. To enhance awareness of the disaster posed to library.

3. Review of Literature

From http://encyclopedia.laborlawtalk.com/ "disaster is an unexpected natural or man-made catastrophe of substantial extent causing significant property damage or destruction, loss of life or sometimes permanent changes to the natural environment. Disasters may also be unforeseen events which devastate a company or industry, such as a public relations disaster or a major flop." A disaster can create huge financial losses and protection against losses due to disasters is one purpose of insurance. The work in this field has not been very large in the past; and some work is being carried out in the present decade. As for India, very little work has been done in this area. On surveying the literature, it has been found that Ashman, J. (1995) covered disaster prevention, disaster preparedness, salvaging water damaged library materials and the training of the staff. Planning, building regulations, including zoning, building codes, performance standards, and improved urban design, strategic development or investment of sites and services, economic incentives, housing education, i.e., the training of home builders to improve the quality and performance of housing, code encouragement, i.e., the use of building inspectors to advise and encourage homeowners to utilize disaster-resistant construction techniques (rather than simply to enforce codes), financial incentives as an inducement to builders to use hazard- resistant construction techniques, insurance, environmental management, for example, reforestation and range-land management in watersheds, immunization campaigns to reduce the threat of disease. Kaneyama, M. and Zasshi, T. (2006) informed that a four day training course was run by four Japanese specialists in archives to help restoration of materials damaged in 2001 by Indian Ocean Tsunami. The course also covered practical steps in restoration of damaged materials. Public awareness is also an

important disaster preparedness tool. Preparedness awareness activities are designed to inform the public about what individuals can and should do to protect themselves and their property. Disaster preparedness activities naturally vary with each type of disaster. In the case of high winds, people would be encouraged to board up windows, batten down loose objects, etc.

Ngulube, P and Magazi, L. (2006) suggested that a survey conducted between December 2005 and February 2006 in public libraries of Kwazulu-natal in South Africa showed that the libraries were not adequately prepared to avert disasters. In addition to that most of the libraries did not have disaster plans for disaster response. A disaster manager uses a variety of tools to plan and manage disaster response. Most important of these are plans and procedures, policies, codes and standards, and standardized programmes or programme structures. The continuity of this attempt has been reflected in the works of Aikin, J. (2007) where he advised to prepare a committee to execute a plan to avert disasters and recommended protective action for cultural institutions nationwide like Policies, Plans and Procedures, Codes And Standards, Standardized Programs or Programme Structures, Emergency Response, Programmes, Public Awareness, Awareness Activities for Recovery and Reconstruction.

4. Methodology

The survey conducted to the five general degree college libraries of different districts of West Bengal. A structured questionnaire is sent to the colleges through online to survey for the disaster management methods and techniques. The study has been designed to provide descriptive data, so that all aspects of the disaster management system in the degree college libraries are revealed. The survey emphasized to get first hand information on the specialized areas. The five degree college libraries of different districts of West Bengal were taken into consideration for the present study. The statistical analysis of the data was done by applying simple percentage method.

5. Phases in Disaster Management

The relationships between the various phases of a disaster and the corresponding disaster plans are shown schematically in Table 1. Each type of plan must take into account personnel, collections and the building.

Table: 01

Phase No.	Description of time	Type of Plan
1st	Before	Preventive, Preparedness
2nd	During	Response
3rd	After	Recovery

All preventive activities should be incorporated into the day to day operations of the institution. Once the disaster plan has been formulated it is important to decide how much time can be devoted to preparedness. A balance must be struck: disaster planning may prevent other essential operations, such as cataloguing, filing and user services, from being carried out. Too much time ought not to be spent on disaster planning activities: only enough for the institution to be adequately prepared.

6. The Colleges taken into the Study

Table: 02

Name of the College	Yr. of Est.	NAAC	Courses offered	
			UG	**PG**
1. Jagannath Kishore College, Purulia **(JKC)**	1948	Accredited (2013)	H-17, G-21	Arts, Science, Commerce
2. Bankura Christian College **(BCC)**	1903	Accredited (2013)	H-25, G-30	Arts, Science, B.P.Ed
3. Midnapore College **(MC)** (Autonomous)	1873	Accredited (2012)	H-23, G-27	Arts, Science,
4. Asutosh College **(AC)**	1916	Accredited (2017 Grade- A)	H-28 G-36 Management	Arts, Science,
5. Acharya Prafulla Chandra Roy Government College **(APCRGC)**	2010	Not Mention	H-11, G-15	Arts, Science,

In this table the fact reveals that most of the college libraries in different districts are established in different years and situated in congested semi town areas. As a result they can be attacked any time by any type of disasters. Other college libraries which are situated in urban areas may also be attacked any time

6.1 Library Resources:

Table: 03

Name of the college	Books	Bound/Current Periodicals	Cd's/ DVD	Computers	Furniture	Document Delivery Technology
JKC	43,000	300/12	173	5	Wooden Metal	Photocopy-1 Printer - 2
BCC	65,000	245/21	354	13	Wooden Metal, Plastic	Photocopy-1 Printer - 5
MC	70,000	412/22	584	15	Wooden Metal, Plastic	Photocopy-1 Printer - 2
AC	50,000	354/19	214	8	Wooden Metal	Photocopy-2 Printer - 4
APCRGC	11,000	91/6	27	3	Wooden	Printer - 1

Table 3 shows the variety and strength of library resources among the college libraries of West Bengal. Among the five college libraries Midnapore College (Autonomous) library resources is comparatively better than the four libraries considered in the study. The study includes resources like books, bound/ current journal CD/DVD, computer, furniture, document delivery technology which includes photocopy machine etc. In the northern region of West Bengal Acharya Prafulla Chandra Roy Government College includes in its collection eleven thousand books, ninety one bound journals and six current periodicals, 27 CD/DVD, three computers and one printer .

6.2 Risk Analysis:

Table: 04

Name of colleges	High probability,		Low probability	
	High effect	**Low effect**	**High effect**	**Low effect**
JKC	Fire, cyclone, dust storms, burst water	Leaking tap, poor environmental conditions, theft, vandalism	Earthquake, nuclear war,	Collapse of bookshelf, theft, vacuum cleaner malfunction
BCC	Fire, cyclone, flood, civil unrest	Leaking tap, poor environmental conditions, theft, vandalism	Earthquake, nuclear war, civil unrest	Collapse of bookshelf, theft, vacuum cleaner malfunction
MC	Fire, cyclone, flood, burst water	Leaking tap, poor environmental conditions, theft, vandalism	Earthquake, nuclear war, civil unrest	Collapse of bookshelf, theft, vacuum cleaner malfunction
AC	civil unrest, Fire, cyclone, flood	Leaking tap, poor environmental conditions, theft, vandalism	Earthquake, nuclear war, civil unrest	Collapse of bookshelf, theft, vacuum cleaner malfunction
APCRGC	earthquake, Fire, cyclone, flood	Leaking tap, poor environmental conditions, theft, vandalism	Earthquake, nuclear war,	Collapse of bookshelf, theft

In the table no 04 risk factors are categorized and analysed in different ways concerned to the particular college library. First the risk factors are categorised into High probability and Low probability effects. The high probability is further divided into two Low effect and High effect. High effect includes fire, cyclone, dust storms, burst water, civil unrest, flood, earthquake and Low effect is leaking tap, poor environmental conditions, theft, vandalism and in the same way Low probability is further divided into two Low effect and High effect. High effect includes earthquake, nuclear war, civil unrest while Low effect is collapse of bookshelf, theft, vacuum cleaner malfunction etc.

6.3 Types of Disaster and Their Risk Factor

Table: 05

Sl. No.	Name of colleges	Type of risk	Effect	Percentage	
1.	Jagannath Kishore College, Purulia (JKC	High probability	High effect	9%	
			Low effect	7%	
		Low probability	High effect	3%	
			Low effect	6%	25%
2.	Bankura Christian College (BCC)	High probability	High effect	6%	
			Low effect	3%	
		Low probability	High effect	2%	
			Low effect	4%	15%
3.	Midnapore College (MC) (Autonomous)	High probability	High effect	8%	
			Low effect	4%	
		Low probability	High effect	3%	
			Low effect	5%	20%
4.	Asutosh College (AC)	High probability	High effect	7%	
			Low effect	3%	
		Low probability	High effect	1%	
			Low effect	2%	13%
5.	Acharya Prafulla Chandra Roy Government College (APCRGC)	High probability	High effect	10%	
			Low effect	7%	
		Low probability	High effect	4%	
			Low effect	6%	27%

The above table describes low and high probability of risk effect with the respective percentage of the general degree college libraries of West Bengal. High probability with High effect is 10% and Low probability with Low effect is 6% and overall risk factor of Acharya Prafulla Chandra Roy Government College (APCRGC) is 27%. On the other hand Asutosh College (AC) has High probability with High effect is 7% and Low probability with Low effect is 2% and overall risk factor is 13% . Overall risk factor among the other three college libraries are Midnapore College (MC) (Autonomous) 20%, Bankura Christian College (BCC) 15% and Jagannath Kishore College, Purulia (JKC) 25% .

6.4 Existing Equipments:

Table: 06

Name of colleges	Fire Extinguishers	Smoke Alarms	Fire Fighting System	Vacuum cleaner
JKC	Yes	No	No	Yes
BCC	Yes	No	No	Yes
MC	Yes	Yes	No	Yes
AC	Yes	Yes	No	Yes
APCRGC	Yes	No	No	Yes

Though in case of disaster management personal training and knowledge of handling unwary situations is an important matter but the most important or essential things are the disaster management equipments. In the table no 06 the study lights on the disaster management equipments and their availability and use for the purpose. Fire Extinguishers and Vacuum cleaner is available among all the five libraries but there is not a single Fire Fighting System among the libraries. The Smoke Alarms system has only in the Asutosh College (AC) and Midnapore College (MC) (Autonomous).

6.5 Level of Awareness:
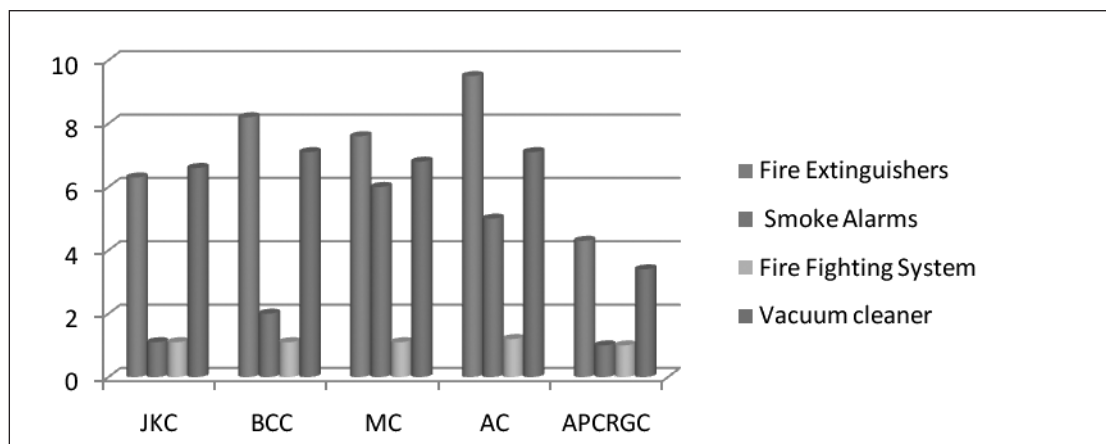
Figure: 06

Availability and usefulness is highly dependent on the awareness of the equipments of the disaster management. For the purpose of awareness the library staff must join the training programmes, workshops, seminars and symposiums on the disaster management programme. In this concerned figure one sees that the level of awareness on Fire Extinguishers and Vacuum Cleaners is comparatively better than Smoke Alarms and Fire Fighting System.

7. Recommendations and Conclusion

● This study reveals that libraries are not enough aware about the proper disaster management methods, policy, technique, tools, models and planning strategies. Though it is an urgent need to ensure proper disaster management.

● Library should organize orientation programme, seminar, symposium, and workshop or may encourage the professional to participate in eminent library associations' programmes regarding disaster management.

● Other aspect of the orientation programme is that it may include the library users, administrative persons, all the persons relating to the concerned college and also the local community of the college.

● A well trained disaster management team must be framed involving the library staff and also the user members of the library and their duty and responsibility must be assigned.

● Besides the primary responsibility of the team members, the goals and tasks of the team members should be updated regularly for the completion of the various stages of the disaster planning process.

● Library administration and library staff should identify the probable disaster and take the proper plan of action.

● Management system regarding disaster in every corner of the state/country should be strengthened.

● The team should acquire adequate knowledge to identify the materials or resources which will be required in the event of crisis to manage the disaster.

● Librarian should convince library committee and college administration to take the library collection into the insurance policy and web copy of accession register should be maintained.

7.1 Conclusion

The necessity of disaster management is important over the time. Now a days the use of modern technology has been found in the disaster management system which incorporates the modern tools, techniques and equipments. It may be said that the general degree college libraries of West Bengal are mostly affected by flood, earthquake, violence at workplace and fire and these four factors can be potential risks for the library. No remedial measure is taken by any college library except some minor fire equipments and arrangements of security. Only fire extinguisher is used. Very few members of the staff are properly trained regarding the use of fire extinguisher. There are no budget allocations for the disaster management purpose in the colleges. College authority spends a little amount of money for the above purpose. Again there is a lack of sufficient equipment essential for the disaster management purpose.

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