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Library and Information Science Literature in India: An Examination of Author-Assigned Keywords

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Abstract

The Study of articles published in Library and Information Science Journals in recent times suggests that author assigned keywords are largely uncontrolled. Despite knowledge of controlled vocabulary they mostly use NL phrases to represent the content. This paper examines keywords assigned by authors to papers published in Library and information Science journals in India in the last fifteen years (1998-2012).

Keywords: Controlled Vocabulary, Folksonomy, Tags

1. Introduction

The term 'Folksonomy'* was coined in 2003 by an information architect, Thomas Vander Wal (Smith 2004). It is a neologism consisting of a combination of the words *folk* and *taxonomy*. Taxonomy is derived from the Greek words, *taxis* and *nomos*. *Taxis* means Classification and *nomos* means Management. Literally, it may be translated to: "people's classification management". Folksonomy may be said to be metadata from / for the masses (Merholz 2004). The intention of folksonomy is to create a better, more popular and thus more democratic taxonomy (Biemiller, 2003). Folksonomies are based on the premise that people can create a categorization that will better reflect the people's conceptual model, contextualization and actual use of the data. With folksonomy it should be possible to create a more representative, natural, comprehensive, diversified, up-to-date and dynamic categorization than through the classic taxonomy (Biemiller, 2003).

2. Literature Review

Several authors have written on social folksonomy. Catherine Lyons suggested that combining cataloguing and other standard metadata practices with user-developed tags and Folksonomies is a good way to improve subject access to resources (Kacunko, 2009). Slavko Kacunko says that the business world has discovered the considerable commercial potential of folksonomy[8]. Ikki Ohmukai, Masahiro Hamasaki, and Hideaki Takeda examine social bookmark system using several metadata and personal network constructs a community-based ontology[7]. ZIXIN WU said that social tagging communities are a Web 2.0 phenomenon, where users describe a Web resource by using keywords (called tags)[16]. Francisco Echarte, Jose Javier Astrain, Alberto Córdoba, Jesus Villadangos say that Ontologies and tagging systems are two different ways to organize knowledge on the Web[6]. Terrell Russell[14]. Torben Knerr said that Collaborative tagging represents the process by which many users describe resources (e.g. web pages or photos) with free-form keywords (tags). (Knerr, 2005)[9]. Emanuele Quintarelli said that Folksonomies attempt to provide a solution to this issue, by introducing an innovative distributed approach based on social classification (Quintarelli, 2005).

Massimiliano Dal Mas says that folksonomy gives an overview of current trends in manual indexing on the Web. Digital resources with tags (keywords) share their annotations with other users through tagging system[11]. Fabian Abel analyzed the impact of tags on information retrieval[1]. Jesse Vig said that present tagging applications design the system[15]. Fabian Abels, Matteo Baldoni said that with the advent of Web 2.0 tagging became a popular

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feature in social media systems. People tag diverse kinds of content, e.g. products at Amazon[1]. Min Gyo Chung 'said that collaborative tagging activities that proposed scheme maintain video bookmarks, which contain some temporal or positional information about videos (Chih-Ming Chen, 2010).

3. Problem Indentification

In the last few years it has been found that in order to represent the thought content, the authors of Library and Information Science are using NL phrases more and more than standard control vocabulary Whether Folksonomy could be accepted for information retrieval and whether they enrich OPACs (Social OPAC) system for library and information centres is to be examined.

4. Research Questions

- To what extent does folksonomy overlap with headings in controlled vocabulary tools?
- To what extent is folksonomy distributed over the full hierarchical structure of subject heading?
- What is the feasibility of linking folksonomy to controlled vocabulary tools?

5. Objective

The objectives of this study are:

- To identify keywords available in the articles of Library and Information Science journals published in India during 1998 to 2012 and use them for the folksonomical study,
- To find out the trends of usage and study the pattern e.g. controlled vocabulary, phrases, folksonomy etc., and
- To design a model system for folksonomic vocabulary.

6. Methodology

For collecting necessary data for the study, survey method has been employed. Only English language journals have been considered and the journals included are:

- Journals in English language published by Library and Information Science Departments of various Universities (from four zones East, West, North, South in existence for 25 years or more),
- Journals published by national level professional bodies and associations, and
- Journals published by Institutions or organization.

6.1 Data Collection

The list of Journals from which data have been collected is given in Table 1.

Table 1. Data collection

Sl. No.	Institutions/ Associations Name	Place	Journals Name
1	University of Delhi	Delhi	Journal of Library & Information Science (JLIS)
2	University of Kashmir	Kashmir	Trends in Information Management, (TRIM)
3	University of Calcutta	Kolkata	Calcutta University Journal of Information Studies (CUJLIS)
4	Rabindra Bharati University	Kolkata	RBU Journal of Library and Information Science (RJLIS)
5	University of North Bengal	North Bengal	Advances in Library and Information Science (NALIS)
6	Jadavpur University	Kolkata	Librarian: A Journal of Library and Information Science (LJLIS)
7	Vidyasagar university	Midnapur	VU journal of Library and Information science (VJLIS)
8	NISCAIR	Delhi	Annals of Library and Information Studies (ALIS)
9	Sarada Ranganathan Endowment for Library Science	Karnataka	SRELS Journal of Information Management (SJIM)
10	Defence Scientific Information & Documentation Centre	Delhi	DESIDOC Journal of Library & Information Technology (DJLIT)
11	Indian Association of Special Library and Information Centre	Kolkata	IASLIC Bulletin (IB)
12	Indian Library Association	Delhi	Journal of Indian Library Association (ILSB)
13	University Library Teacher's Association	Andhra Pradesh (Hyderabad)	Pearl: A Journal of Library and Information Science (PJLIS)

2638 articles were published during 1998-2018 in 322 Volumes of these 13 journals.

Table 2. Data for analysis

No. of Journals	No. of articles	Total terms found	No. of Unique terms	No. of Uncontrolled terms	No. of Unique uncontrolled terms
13	2638	3604	2159	2924	1958

6.2 Date Collection Statistics (Table 2)

6.3 Data Analysis

The data was analysed as below: Every article was examined, and 1240 terms/phrases were identified:

- Every term was checked against five established controlled vocabularies (Table 3) to separate controlled vocabulary terms and uncontrolled terms; and
- The pattern of uncontrolled vocabulary terms was studied.

Table 3. Standard controlled vocabularies used

Sl. No.	Title of the Books	Edition
1	Library of Congress Subject Heading	25th ed, 2002
2	Sears List of Subject Heading	21st ed, 2014
3	Dewey Decimal Classification	23rd ed, 2011
4	Colon Classification	6th ed, 27th reprint 2006
5	Thesaurus	http://www.thesaurus.com/ (retrieve from 01.3.2012)

6.3.1. Year-wise Growth of Term (Phrases)

The year-wise growth of terms is shown in the Table 4.

(Table 4) it is found that the number of terms has grown since 2003.The growth rate initially was (1998-2001) was negligible; however, usage of such terms increased during 2002-2005 and further during 2012 when growth rate was more than 30%. The frequently assigned uncontrolled terms or phrases are almost 131. Figure 1 lists some of the most common of these.

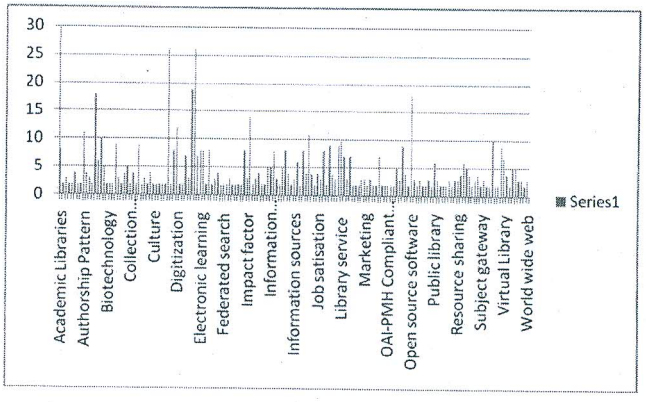

Figure 1. Frequent Keywords.

That the trend among authors to assign keywords to their papers is growing is clearly visible.

Table 4. Year-wise occurrence of frequential term

Journal Name	98	99	00	01	02	03	04	05	06	07	08	09	10	11	12	Total
IB				5	12	34	4	29	73	82	79	97	64	104	87	670
ALIS											1			1	78	80
DJLIS														4	259	263
TIM								12	30	31	34	47	55	96	55	360
SJIM	61	99	65	113	117	88	80	111	110	113	150	90	168	161	159	1685
PJLIS															70	70
LJLIS			3	3	6	8	34	34	1		16	1	10	07		123
RJLIS										2	4		8			14
CUJLIS				1	13	12	5	5	4	10	11	22	5	1	10	99
NALIS													4	2		6
JLIS													33			33
ILAB			32	53	19					8		7	17	33	32	201
	61	99	100	175	167	142	123	191	218	246	295	264	364	100	750	3604

6.3.2 Folksonomy (Table 5)

Table 5. Considering folksonomy

Information communication Technology	36	UGC-INFONET	9
Authorship Pattern	20	Information seeking Behaviour	8
Scientometric	19	Job Satisfaction	8
Bibliometric Studies	16	Metadata	8
Citation Analysis	16	Analytico Synthetic Classification	7
Librarian	16	Author Productivity	7
Library Service	12	Internet Use	7
World Wide Web	11	Case Study	6
Information Literacy	11	Informatics	6
DSpace	10	Reading Habit	6
Publication productivity	10	Virtual Library	5
Publication productivity	10	Webometrics	5
User Studies	10	Information Technology	5
LIS Professional	10	Electronic Books	5
Institutional Repository	10	Electronic Learning	5

There is no guideline to identify a term as folksonomic term. We have no idea, after how many occurrences or after how many years a term becomes a folksonomic term. In this study keywords used frequently by different authors over the study period and not included any standard vocabulary tools are considered folksonomy. "Information communication Technology" term is used thirty-six times. The other 28 terms are used more than five times.

$$x = \sigma x = \sqrt{\frac{\sum x2}{n} - \left(\frac{\sum xy}{n}\right)2}$$

$$= \sqrt{\frac{2373601}{12} - \left(\frac{2924}{12}\right)2}$$

$$= \sqrt{197800.08 - 59370.19} = 372.06$$

$$y = \sigma y = \sqrt{\frac{\sum y2}{n} - \left(\frac{\sum y}{n}\right)2}$$

$$= \sqrt{\frac{88542}{12} - \left(\frac{680}{12}\right)2}$$

$$= \sqrt{7378.5 - 3210.35}$$

$$= \sqrt{4168.15} = 64.56$$

$$x \& y(\text{cov}\, x, y) = \frac{\sum xy}{n} - \left(\frac{x}{n}\right)\left(\frac{y}{n}\right)$$

$$= \frac{432280}{12} - \left(\frac{2924}{12}\right)\left(\frac{680}{12}\right)$$

$$= 36023.33 - 243.66 \times 56.66$$

$$= 36023.33 - 13805.77$$

$$= 22217.56$$

$$of x \& y = r = \frac{Cov(x, y)}{\ell x \times \ell y} = \frac{22217.56}{372.06 \times 64.56}$$

$$= \frac{22217.56}{24020.19} = 0.92$$

Statistical analysis showed that the use of uncontrolled terms as keywords by authors is of a very high order.

7. Suggestion

We propose that a mechanism be developed to admit folksonomy terms into domain controlled vocabularies.

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