

CONTENT ANALYSIS OF INTERNATIONAL JOURNAL OF WEB INFORMATION SYSTEMS

Kivande Pradnya K.

M. Phil Student

Dept. of Library and Information
Science,

Dr. Babasaheb Ambedkar
Marathwada University,
Aurangabad, (MS), India

Dr. Sonwane Shashank Sonaji

Assistant Professor

Dept. of Library and Information
Science,

Dr. Babasaheb Ambedkar
Marathwada University,
Aurangabad, (MS), India

Dr. Adhe Govind Dalsing

Associate Professor

Dept of Library and Information
Science

Dr. Babasaheb Ambedkar Arts
and Commerce College,
Aurangabad, (M.S.) India

ABSTRACT:-

The present study attempts on the content analysis of International Journal of Web Information Systems . It is based on the references appended to Journal during 2005-2014. The present study is based on 188 articles contributed by the authors from 350 Institutions of 47 various countries. In authorship pattern it was found that collaborative research is predominant then solo research. The collaboration rate is 1.16 & it was found that multiple authorship trend is increasing gradually in of International Journal of Web Information Systems.

KEY WORDS:- Web, Information Systems, Content analysis, Collaboration Trend, Authorship Pattern, International Collaboration

1. INTRODUCTION

In the past few decades the number of recorded communication messages has so increased, by exponential rate that three significant events have occurred. The document handling profession of librarianship has recently and rapidly matured into a major information processing profession where content analysis for retrieval purpose has rapidly become a major social profession. Another result has been the development of content analysis as a research method that complements other social science methods of investigation. The third event, yet to be realized in Librarianship is counseling analysis where the major technique of listening, hypothesizing and responding are used to explore the patron's intentions and meaning and to analyze the effect of resources upon him.

2. INTERNATIONAL JOURNAL OF WEB INFORMATION SYSTEMS

International Journal of Web Information Systems is an international, peer-reviewed journal published quarterly that aims provide well-researched and authoritative information on all aspects of web information system: Web semantics and Web dynamics, Web mining and searching, Web databases and Web data integration, Web-based commerce and e-business, Web collaboration and distributed computing, Internet computing and networks, performance of Web applications, and Web multimedia services and Web-based education. (International Journal of Web Information Systems, 2014).

3. OBJECTIVES

The main objective of the study is to analyze the content of Journal of "International journal of web information system" and make the quantitative assessment of status of the Journal by way of analyzing the following features of Journal

1. To find out year-wise growth of publications,
2. To find out Geographical distribution of research output,
3. To find out the authorship and collaboration pattern in the publication,
4. To find out the extent of international collaboration,
5. To find out the most productive authors in the field,
6. To find out organization – wise distribution of publication,
7. To find out the distribution of literature in various Channels of Communication
8. To find out the high frequency keywords appeared in the channels of communication.

4. SCOPE & LIMITATION OF THE STUDY

Scope of study is restricted to the Journal of "International Journal of Web Information Systems" published during 2005 to 2014. The papers presented in the Journal are analyzed using content analysis technique. The present study is limited to the total numbers of 188 papers published during 2005 to 2014.

5. HYPOTHESIS OF THE STUDY

The study consists of following hypothesis:

1. Authorship trend is towards multiple authored papers.
2. Japan is the high productive country.
3. Majority of the affiliated Institution are from Japan.

6. ANALYSIS OF INTERNATIONAL JOURNAL OF WEB INFORMATION SYSTEMS

In views of the objectives of the present study, analysis of “International journal of web information system” is presented further.

6.1 YEAR-WISE PUBLICATION PRODUCTIVITY AND COLLABORATION RATE

The word publication means the act of publishing .Productivity refers to measures of output from production processes, per unit of input. Collaboration is a recursive process where two or more people or organizations work together toward an intersection of common goals.

Table No. No. 01. Year-Wise Publication Productivity and Collaboration Rate

Year	Single authored Publication	Multi authored Publication	Total no. of publication	Collaboration rate
2005	1	18	19	0.95
2006	2	18	20	0.9
2007	4	17	21	0.81
2008	5	15	20	0.75
2009	2	17	19	0.89
2010	0	16	16	1
2011	3	15	18	0.83
2012	2	15	17	0.88
2013	3	14	17	0.82
2014	4	17	21	0.75
Total	26	162	188	1.16

It can be observed from Table No. No.01 that during 2005-2014 a total of 188 Articles were published in the “International Journal of Web Information Systems” by researchers from 47 various countries with the collaboration rate of 1.16.

6.2 GEOGRAPHICAL DISTRIBUTION OF RESEARCH OUTPUT

Geographical distribution of research output means the article published from different countries. In [political geography](#) and [international politics](#), a country is a [political division](#) of a geographical entity. Frequently, but not exclusively, a [sovereign territory](#), the term is most commonly associated with the notions of both [state](#) and [nation](#), and also with [government](#).

Table No. No. 02. Geographical distribution of the research output

Sr.No	Name of the Country	Publication	Percentage
1	Japan	83	15.15
2	Austria	51	9.31
3	Australia	45	8.21
4	USA	37	6.75
5	Germany	36	6.57
6	Canada	28	5.11
7	Italy	28	5.11
8	Spain	20	3.65
9	France	19	3.47
10	Saudi Arabia	14	2.55
11	UK	14	2.55
12	Malaysia	13	2.37
13	Vietnam	13	2.37
14	Greece	12	2.19
15	China	10	1.82
16	Norway	10	1.82
17	The Netherlands	9	1.64

18	Brazil	8	1.46
19	Singapore	8	1.46
20	New Zealand	8	1.46
21	Tunisia	7	1.28
22	South Korea	7	1.28
23	Argentina	6	1.09
24	Finland	6	1.09
25	Taiwan	6	1.09
26	Czech Republic	6	1.09
27	Egypt	4	0.73
28	Hong Kong	4	0.73
29	Colombia	4	0.73
30	Algeria	3	0.55
31	Kuwait	3	0.55
32	Bangkok	2	0.36
33	Belgium	2	0.36
34	Indonesia	2	0.36
35	Ireland	2	0.36
36	Sweden	2	0.36
37	United Arab Emirates	2	0.36
38	Uruguay	2	0.36
39	Chile	2	0.36
40	Romania	2	0.36
41	Switzerland	2	0.36
42	Iran	1	0.18

43	Poland	1	0.18
44	Portugal	1	0.18
45	Jordan	1	0.18
46	Oman	1	0.18
47	Paris	1	0.18
	Total	548	100

It can be observed from Table No. No. 02 that, there were as many as 47 countries carrying out research and produced 188 articles. The Table No. provides ranked List of countries contributing to this field, the number of publications of each country and their share in percentages. Japan is the top producing country with 83 (15.15%) publications of the total output. Therefore it is seen that, **“Japan is the high productive country” (Hypotheses No.02) is valid.**

6.3. AUTHORSHIP AND COLLABORATION TREND

Authorship is an observable phenomenon reflecting the contemporary scholarly practices clearly showing the communication, productivity and collaborative patterns and influences among researchers even though their quantities and qualities are not well understood. Collaboration in research is said to have taken place when 2 or more persons work together on a scientific problem of project and effort, both physical and intellectual (Gupta, 1986).

Table No. No. 03: Authorship and Collaboration trend

Year	Single Author	Number of papers under various Authorship						Total Pub.
		2	3	4	5	6	25	
2005	1	5	8	4	1	0	0	19
2006	2	4	9	5	0	0	0	20
2007	4	6	6	2	3	0	0	21
2008	5	6	4	2	2	0	1	20
2009	2	7	6	1	2	1	0	19
2010	0	3	5	5	2	1	0	16
2011	3	5	7	3	0	0	0	18
2012	2	6	6	2	1	0	0	17
2013	3	5	5	2	0	2	0	17
2014	4	8	4	2	2	1	0	21
Total:-	26	55	60	28	13	5	1	188
%	13.83	29.26	31.91	14.89	6.91	2.66	0.53	100

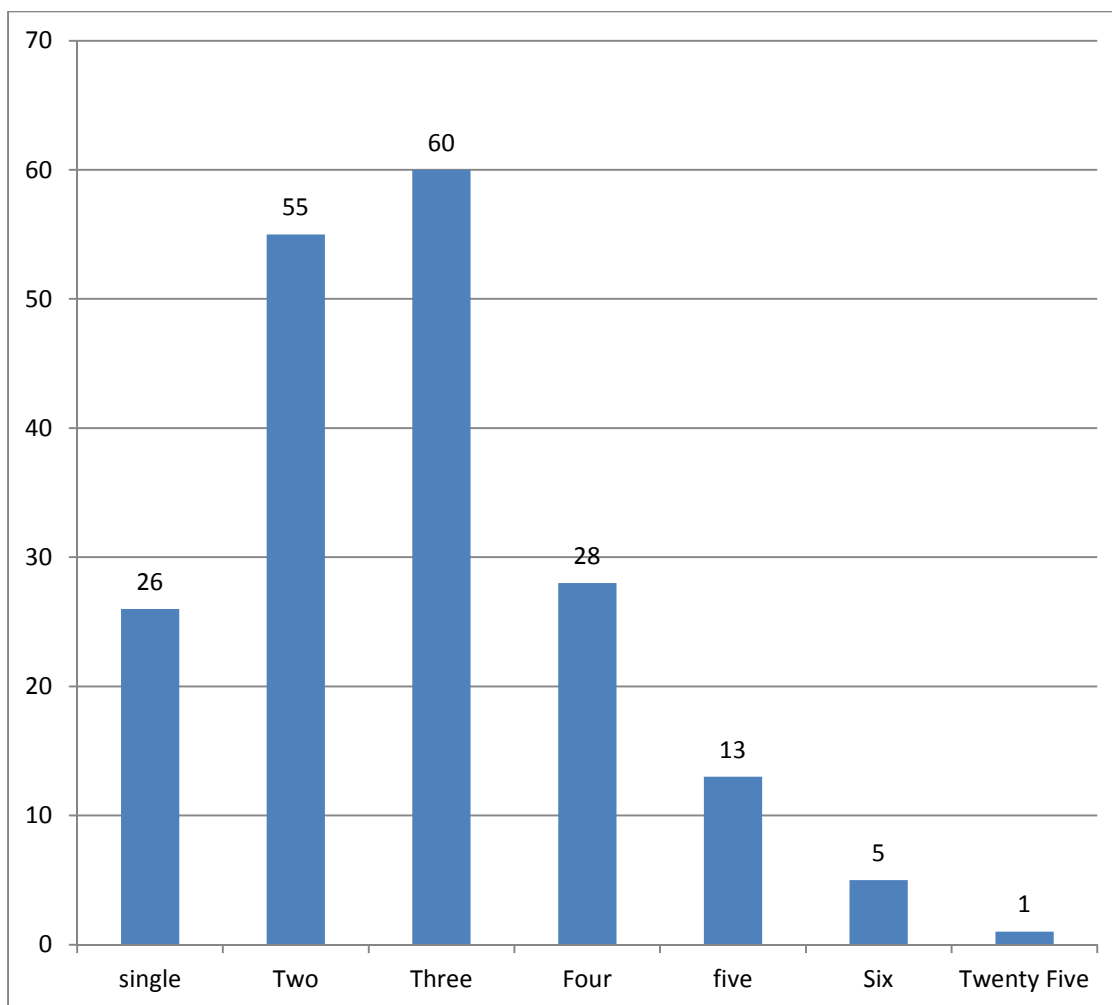


Figure No. 01 Authorship and Collaboration Trend

It can be observed from Table No. No.03. and Figure No.01. that, Authorship trend is towards multiple-authored papers. Single authored papers accounted for 13.83 % and multiple authorship accounted for 86.17%. The highest number of collaboration i.e. 25 authors in one article of 2008. Therefore, the hypothesis, **“Authorship trend is towards multiple authored papers. (Hypothesis No.01) is valid.**

6.4 INTERNATIONAL COLLABORATION PATTERN OF ARTICLES

The International collaborative production of articles is the simultaneous action of many people who try to combine their ideas to make a new one. In fact “collaborative” is the process where two or more people work together toward a common goal and they don’t required leadership.

The distribution of the collaboration of the various countries and their institutions respectively are given in the further Table No. .

Table No. No. 04: International Collaboration Pattern of Articles

No. of Countries			
Year	Single	Collaboration	Total No. of Publication
2005	17	2	19
2006	15	5	20
2007	14	7	21
2008	14	6	20
2009	17	2	19
2010	12	4	16
2011	17	1	18
2012	14	3	17
2013	15	2	17
2014	19	2	21
Total	154	34	188

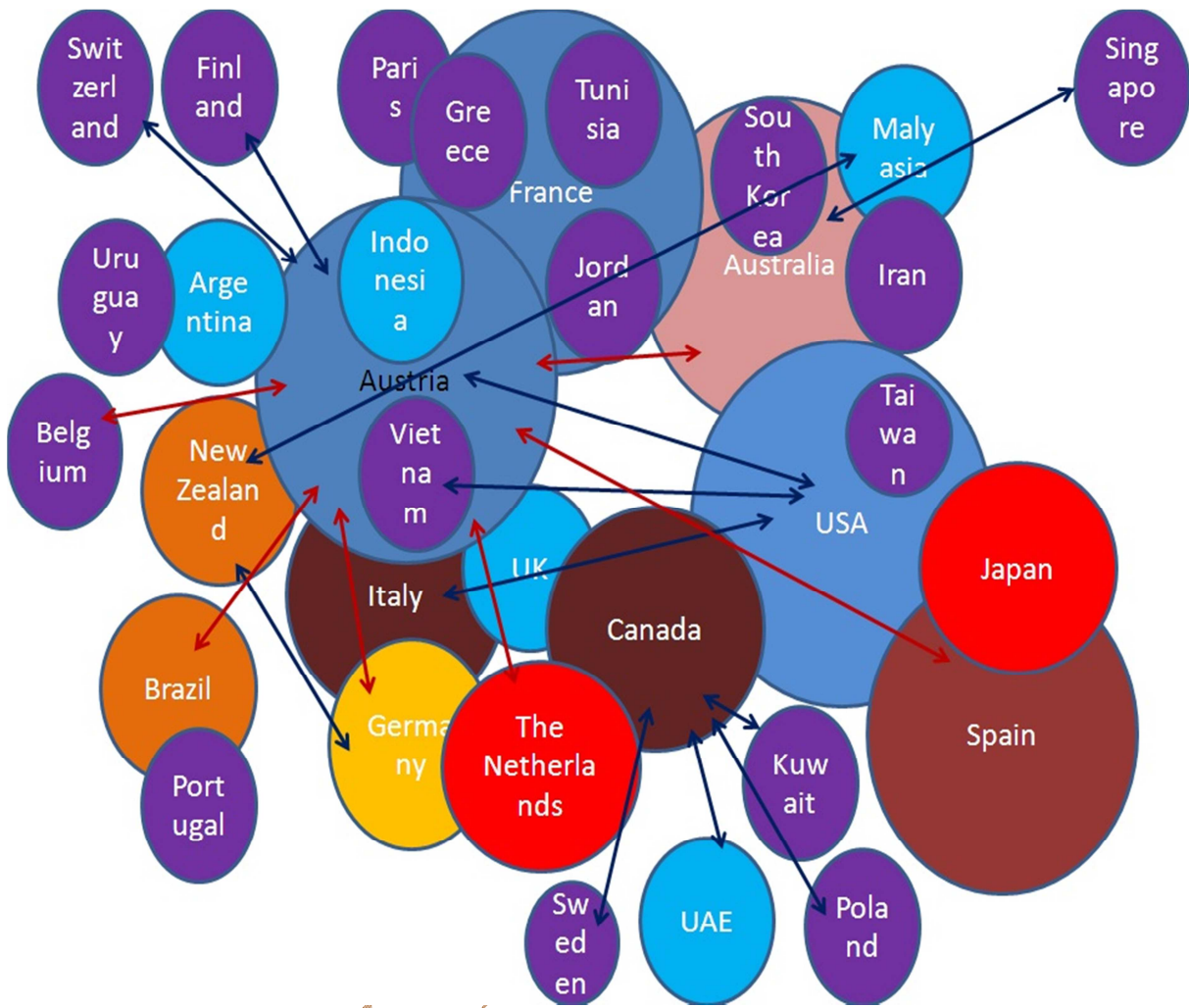


Figure No. 02: International Collaboration Pattern of Articles

It can be observed from Table No. No.04 and Fig. No. 02 that, out of 188 articles, 34 articles are written in collaboration with International Institution. The collaboration is observed with two and three countries, but exceptionally in the year 2008 ,issue no .3 in the article, “Wieland Schwinger ,Werner Retschitzegger,Andrea Schauerhuber, Gerti Kappel, Manuel Wimmer, Birgit Proll, Cristina Cachero Castro, Sven Casteleyn, Olga De Troyer,Piero Fraternali,Lrene Garrigos, Franca Garzotto,Athula Ginige,Geert-Jan

Houben, Nora Koch, Nathalie Moreno, Oscar Pastor, Paolo paolini, Vicente Pelechno Ferragud, Gustavo Rossi, Daniel Schwabe, Massimo Tisi, Antonio Vallecillo, Kees van der Sluijs, Gefei Zhang, (2008) "A survey on web modeling approaches for ubiquitous web applications", International Journal of Web Information System, vol.4 Iss:3 pp.234-305. It is found that this single article is written by 25 authors, from 15 various Institutions belonging to 9 different countries amongst which Spain and Austria has 6 authors, respectively.

The country which has maximum collaboration is USA, Austria and France (10) each, Australia (8), Spain (7), Canada and Italy (6) each, France, Japan and The Netherlands (5) each, Germany (4), Brazil and New Zealand (3) each, While Argentina, Indonesia, Malaysia, UK and UAE (2) each and Belgium, Finland, Greece, Iran, Jordan, Kuwait, Paris, Portugal, Poland, Singapore, South Korea, Sweden, Tunisia, Taiwan, Uruguay, and Vietnam (one) respectively.

6.5 MOST PRODUCTIVE AUTHOR

An author is defined both as "the person who originates or gives existence to anything" and as "one who sets forth written statements" in the Oxford English Dictionary (Fowler, 1988).

Table No. No. 05: Most Productive Author

Sr. No	Name of the Author	Country	No. of Publications	Rank
1	Hiroyuki Kitagawa	Japan	5	1
2	Toshiyuki Amagasa	Japan	5	1
3	Werner Winiwarter	Austria	5	1
4	Fatos Xhafa	Spain	4	2
5	Dunren Che	USA	3	3
6	J. Wendy Rahayu	Australia	3	3
7	Takahiro Ando	Japan	3	3

8	Manuel Wimmer	Austria	3	3
9	Mourad Ykhlef	Saudi Arabia	3	3
10	Prof. Tharam S. Dillon	Australia	3	3
11	Schahram Dustdar	Austria	3	3
12	Sherif Sakr	Australia	3	3
13	Wen-Chi Hou	USA	3	3
14	Hend S. Al-Khalifa	Saudi Arabia	3	3
15	Edgar R. Weippl	Austria	3	3
16	Authors Publishing (2 x 24)		48	4
17	Authors publishing (1 x 448)		448	5
	Total		548	

It can be observed from Table No. No 05. that, the most productive authors are Hiroyuki Kitagawa, Werner Winiwarter and Toshiyuki Amagasa who had the highest number (5) of the publication. Fatos Xhafa (Spain) with 4 Publications each, 11 Authors with 3 publications, 24 Authors with 2 publications and 448 authors with single publication.

6.6. INSTITUTES WISE DISTRIBUTION OF ARTICLES PUBLISHED

Institution is a society or organization for the promotion of science, education etc...An institute is a permanent [organizational](#) body created for a certain purpose. Often it is a [research](#) organization ([research institution](#)) created to do research on specific topics. An institute can also be a professional body. In some countries institutes can be part of a [university](#) or other institution of [higher education](#), either as a group of [departments](#) or an autonomous educational institution without a classic full university status such as a University Institute.

Table No. No. 06: Institutes wise distribution of articles published

Sr. No	Name of the Institution	No. Publications	Rank
1	Graduate School of Systems and Information Engineering, University of Tsukuba, Tsukuba, Japan	19	1
2	Secure Business Austria, Vienna, Austria	13	2
3	Faculty of Computer Science and Engineering, Ho Chi Minh City University of Technology, VNU-HCM, Ho Chi Minh, Vietnam	8	3
4	Department of Computer Science, Dongduk Women's University, Seoul, Republic of Korea	7	4
5	Computer Science Department, King Saud University, Riyadh, Saudi Arabia	7	4
6	Department of Multimedia Engineering, Graduate School of Information Science and Technology, Osaka University, Osaka, Japan	7	4
7	College of Computer and Information Sciences, King Saud University, Riyadh, The Kingdom of Saudi Arabia	7	4
8	Business Informatics Group, Vienna University of Technology, Austria.	6	5
9	Department of Computer Science and Computer Engineering, La Trobe University, Melbourne,	6	5

	Australia		
10	Department of Computer Science, Southern Illinois University, Carbondale, Illinois, USA	6	5
11	Department of Languages and Informatics Systems Polytechnic University of Catalonia Barcelona, Spain	6	5
12	Institutions publishing 5 publications (5x 6)	30	6
13	Institutions publishing 4 publications (4x17)	68	7
14	Institutions publishing 3 publications (3x 33)	99	8
15	Instituions publishing 2 publications (2 x 58)	116	9
16	Institutions publishing 1 publication (1 x 143)	143	10
	Total	548	

It can be observed from Table No. No. 06.1 that, there were 350 organizations involved in research activity. The organizations that have contributed in the publication during 2005-2014. Graduate School of Systems and Information Engineering, University of Tsukuba, Tsukuba, Japan topped the list with 19 publication, Secure Business Austria, Vienna, Austria the list with 13 publication,,& Faculty of Computer Science and Engineering, Ho Chi Minh City University of Technology, VNU-HCM, Ho Chi Minh, Vietnam 8 publications followed by four institutions with 7 publications each four with 6 publications, 33 institutions with 3 publications, 56 institutions with 2 publications and 139 institutions with Single publication. Therefore the hypothesis **"Majority of the affiliated institution are from Japan (Hypothesis No.3) is valid"**.

6.7. DISTRIBUTION OF LITERATURE IN VARIOUS CHANNELS OF COMMUNICATION

Channel, in communications, refers to the medium used to convey information from a sender (or transmitter) to a receiver. Researchers communicated their publication through variety of communication channels.

Table No. No. 07: Distribution of literature in various Channels of Communication

Channels of Communication	No. of Publications	Percentage
Research Paper	158	73.49
Technical Paper	22	10.23
Literature Review	3	1.40
General Review	2	0.93
Conceptual Paper	1	0.47
Case Study	3	1.40
Note from the Publisher	2	0.93
Preface	2	0.93
Awards for Excellence	3	1.40
Guest Editorial	2	0.93
Editorial	17	7.91
Total	215	100

It can be observed from Table No. No. 07.that, 73.20% of the Literature was published in Research papers followed by Technical papers (10.52%) and the Editorial Materials (8.13%). The total content of International Journal of Web Information Systems that is Editorial, Article, Book Reviews, etc. is analyzed.

6.8. DISTRIBUTION OF KEYWORDS

“A word occurring natural language text of documents or its surrogate that is considered significant for indexing and information retrieval”. Keywords are the words that are used to reveal the internal structure of an author's reasoning. Keywords are one of the best scientometric indicators to understand the grasp instantaneously the thought content of the articles and to find out the growth of the subject field. By analyzing the keywords appeared either on the title or article will help in knowing in which direction the knowledge grows (Feather and Sturgis, 2006).

TABLE NO. No. 08: Distribution of Keywords

Sr. No	Keywords	Frequency
1	Extensible Markup Language	32
2	Internet	28
3	World wide web	19
4	Information retrieval	19
5	Computer software	13
6	Query languages	10
7	Search engines	9
8	Computer applications	8
9	Web services	8
10	semantic web	8
11	Algorithmic languages	7
12	Data structures	7
13	Modelling	7
14	Programming and algorithm theory	7
15	Semantics	7

16	User interfaces	7
17	Advanced web applications	6
18	Data handling	6
19	Data security	6
20	Web sites	6
21	Web information systems	6
22	Data management	5
23	Data mining	5
24	Database management	5
25	Information systems	5
26	Ontology	5
27	E-learning	5
28	Information searches	4
29	Databases	4
30	indexing	4
31	Automation	4
32	Communication	4
33	Web engineering	4
34	Programming	4
35	Web	4
36	Web application	4
37	Classification schemes	3
38	Cluster analysis	3
39	Data analysis	3
40	Applications and standard	3

41	Programming languages	3
42	Protocols	3
43	Trust	3
44	Key words having frequency (2 x 35)	70
45	Key words having frequency (1 x 347)	580

It can be observed from Table No. No. 08 that, the high frequency keywords were Extensible Markup Language (32), Internet (28), World Wide Web (19), Information Retrieval (19), Computer Software (13), and Query language (10), Table No. gives a list of keywords appeared in the articles.

7. CONCLUSION

The International Journal of Web Information Systems provides a descriptive and comprehensive assessment of factors, trends and issues in the ever-changing field of Web Information Systems. This authoritative research-based publication also offers in-depth explanations of mobile solutions and their specific applications areas, as well as an overview of the future outlook for Web Information Systems. This timely reference source provides direction for future researchers to pursue when examining issues in the field, and is also the perfect tool for practitioners interested in applying pioneering concepts in practical situations.

The study concludes with the following findings.

The Collaboration rate of articles published per year was 1.16. The highest numbers of Articles 21 each were produced in 2007 and 2014 respectively. There were as many as 47 countries carrying out research and Produced 188 articles. Japan is the top producing country with 83 (15.15%) publications of the total output. Authorship trend is towards multi-authored papers. Single authored papers accounted for 13.83 %. There are

34 International collaborative countries amongst USA, Austria and France is having maximum number of collaborations. It is found that this single article is written by 25 authors, from 15 various Institutions belonging to 9 different countries amongst which Spain and Austria has 6 authors, respectively.

The most prolific authors are Hiroyuki Kitagawa, Werner Winiwarter and Toshiyuki Amagasa who had the highest number (5) of the publication. There were 350 organizations involved in research activity. Keywords are one of the best scientometric indicators to understand the grasp instantaneously the thought content of the articles and to find out the growth of the subject field. By analyzing the keywords appeared either on the title or article will help in knowing in which direction the knowledge grows. The high frequency keywords were Extensible Markup Language (32), Internet (28), World Wide Web (19), Information Retrieval (19), Computer Software (13), and Query language (10). Thus the journal is intended for people interested in Web Information Systems and related areas at all levels.

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