

Bibliometric Analysis of International Journal of Research in Education, 2004 – 2012

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ABSTRACT

This study is a bibliometric analysis of the International Journal of Research in Education for the period between 2004 and 2012. The authors have tried to analyse the number of articles, authorship pattern, bibliographical forms of citations, geographical distribution of authors, authors' institutional affiliations, citation pattern, subject coverage, etc. The study reveals that 347 articles were published during the period. 226(65.1%) articles were contributed by single authors while the rest 121 (34.9%) were by joint authors. The study also revealed that 94.2% of the contributions are from Nigeria. Majority (40.9%) of the contributors preferred books as source of information. Universities topped ranking of institutional affiliations of contributors with 41.8%. Finally, curriculum and teaching is the most researched subject.

Keywords: Bibliometric analysis, Authorship pattern, Citation pattern, Geographical distribution

1. INTRODUCTION

The term bibliometrics was first used in 1969 by Allan Pritchard when he published his work entitled "*Statistical Bibliography or Bibliometrics*" and described it as "the application of mathematical and statistical methods to books and other media of communication" (Aina, 2013; De Bellis, 2009; Glanzel, 2003). The scope of Pritchard's definition was widened by Aiyepeku and Ehikhamenor (1979) when they defined bibliometrics as

the application of statistical and mathematical techniques to the analysis of books, journal articles and other media of graphic communication in order to shed light on the characteristics of formalised information transfer and to understand the course and development of a discipline.

Not long after Pritchard put bibliometrics on the radar screen by coining the term, Nalimov and Mulcheko also introduced the term "Scientometrics" which they defined as "the application of those quantitative methods which are dealing with analysis of science viewed as an information process" (Glanzel, 2003). Thereafter, the terms can be said to have followed in torrents – "informetrics", "librametrics", "webometrics", "netometrics", "cybermetrics": all narrowed to the measurement of scientific communication based on speciality. Overtime, (Hood and Wilson, 2001; Glanzel, 2003) the older term bibliometrics seem to have gained ascendancy, though used almost interchangeably with scientometrics and infometrics.

Okafor and Dike (2010) citing Hertzel (2003) identified two main aspects of bibliometrics – descriptive and evaluative. The descriptive aspect is the productivity count (number of publications) that involves institutions, regions, countries, time periods and disciplines or subjects while the evaluative aspect is the literature usage count that involves references and citations. This allows evaluation (Archambault and Gagne, 2004) of research output in individual disciplines and to track trends in research fields, collaborative research such as researchers' preferences for publication output as well as other aspects of research output. To this end, data is usually obtained or gathered from one or more journals covering a particular period and analysed from various perspectives. The outcome of this analysis (Nattar, 2009) help to provide benchmarks to evaluate the quality of information resources and packages for decision making. For librarians collection development decision making process is enriched by bibliometric data thereby enabling the maintenance of need based collection as well as better organisation of information resources.

Source Journal

International Journal of Research in Education is a peer-reviewed journal published bi-annually by The Development Universal Consortia, Ikot Ekpene, Nigeria since 2004. In its maiden publication, it stated that the journal is a forum for educationists and policy makers in government, universities, international agencies as well

as development research institutions to provide insights for the advancement of knowledge of the interrelationships between education and development in an increasing global economy and policy implications that arises thereof. Specifically, the journal seeks to expand the knowledge in the fields of Educational theory and practice, library science education, women education, environmental education, curriculum and teaching, guidance and counselling, special/adult education, as well as vocational/technical education by providing information on these and other related issues.

From inception, it was stated that the journal will be a bi-annual publication. However, it was only bi-annual in description until volume 7 published in 2010. Hitherto, each of the (1 – 6) volumes was a combined single publication numbered 1 and 2. Since 2010 (volume 7) the journal has been published bi-annually in June and December.

2. REVIEW OF LITERATURE

Studies in the field of the application of bibliometrics have become topical since Pritchard introduced the concept in 1969. These studies have examined the facets of bibliometrics across many information sources, across many fields across the world (Thanuskodi, 2011; Koehler, et al, 2001; Buba, 2002; Glanzel, 2003). In a nutshell, there is a mass of literature on the subject even when it is comparatively an emerging one.

Abubakar and Garba (2007) studied articles published in The Information Technologist spanning three years (2004 – 2006) by focusing on number of articles by year, form of authorship, nature of articles and geographical distribution of authors. Findings revealed a total number of 44 articles over the period with 2006 accounting for the highest with 20 (45.45%). Works of co-authorship were more with 58.63%. Majority of the articles were through empirical research and with 29.55%, internet was the most researched field. Nigeria was dominant geographically having accounted for 77.27% of the articles. Jimenez-Fanjul, Maz-Machado and Bracho-Lopez (2013) studied the four mathematics education journals in the Social Science Citation Index. Findings showed that USA is the highest contributor of Mathematics education research articles with 32.44%, followed in a distance by Brazil with 15.81%. Single authorship was predominant, being responsible for 38.62%, followed closely by two authored articles with 35.94%. However, almost half of the articles were result of collaboration. An interesting phenomenon in the study was an article signed by 20 authors. Neto and Williams (2012) did a bibliometric analysis of papers in 6 engineering education journals published in 2011 with respect to reference discipline and author affiliation in engineering education research.

Bahar, Scahill, Akhlaq and Gard (2013) studied literature on pharmacy education in low and middle income countries between 1996 and 2011. They found dominance of commentary and viewpoint over empirical literature in several peer-reviewed journals. Kagra and Sharma (2014) studied doctoral thesis in education in Kurushetra University from 1995 – 2008. Their findings showed periodical publications as the dominant bibliographic form of citations with 43.20% followed by books in a distance with 21.04%. This is against the well-known trend in education field where books are usually dominant. India accounted for most (31.01%) of the periodicals cited, followed by USA. More than half of contributions (56.23%) were produced under single authorship which is consistent with the common phenomena in social sciences.

Mishra, Gawde and Solanki (2014) equally studied doctoral thesis in English in Vikram University between 1975 and 2007. The study revealed that books are the most preferred source of information having accounted for 80.47% citations. Single authorship was dominant with 83.70%. Haycock (2004) undertook a citation analysis of education dissertation on Curriculum and Instruction between 2000 and 2002 for the purpose of collection development for journals. The study revealed that in spite of more funds allocated to journals, monographs (books) and reports accounted for 56% of works cited.

Park (2010) analysed authorship characteristics of D-Lib Magazine in its 13 years, specifically from July 1995 – May/June, 2008. Overall, 43% of papers were by single authorship and the rest 57% were by two or more authors. One article was written by 13 authors. Genderwise, 74% of all authors were males. Authors affiliated to universities were dominant and United States topped with 70% of articles. In the same vein, Rakhi (2014) investigated scholarly collaboration in the field of Business management research in terms of co-authored publication in multiple perspectives during the time span 1997 – 2012. The study showed an increase from 0.44% to 11.08% in 1997 and 2012 respectively of co-authored publications. 31.98% of the articles were by single authors and the rest 68.02% were by two or more authors which showed a clear trend towards collaboration. Okiy (2003) analysed the characteristics of authors of articles published in four Nigerian librarianship journals between 1994 and 2000 with respect of major topics, gender, geographical location, type of employment, institutional affiliation and form of authorship. The study revealed that information technology was the most researched topic. Males were more represented in authorship and generally authors from South-West Nigeria were in majority in all the four journals. Practicing librarians were major contributors and they were mostly from academic libraries. Majority of the authors preferred single authorship.

3. OBJECTIVES

The main objectives of this study are:

- To find out year-wise distribution of articles
- To find out the length of articles
- To study authorship pattern of contributions
- To find out the distribution of citation by bibliographical forms
- To study the geographical distribution of contributors
- To find out the author's institutional affiliations
- To study the citation pattern
- To find out the subject coverage of the articles.

4. METHODOLOGY

The data required for this study was collected from the articles published in the International Journal of Research in Education in volumes 1 – 9 published 2004 – 2012. Analysis of data was done using descriptive statistics: tables, frequencies and percentages.

Table 1: Year-wise Distribution of Articles and their lengths.

Volume	Year	No. of Articles	Percentage	Length in Pages	Average Page Article	Page Per
1	2004	24	6.9	201	8	
2	2005	33	9.5	265	8	
3	2006	44	12.7	326	7	
4	2007	40	11.5	325	8	
5	2008	37	10.7	302	8	
6	2009	32	9.2	298	9	
7	2010	44	12.7	403	9	
8	2011	49	14.1	477	10	
9	2012	44	12.7	434	10	
TOTAL		347	100	3031	9	

Table 1 depicts the number of research papers published from 2004 – 2012. The study shows that a total number of 347 articles were published in nine volumes of the journal. Volumes 8 has the highest number of articles of 49 (14.1%) while volume 1 with 24 (6.9%) articles had the least. Volume 8 (2011) also has the highest number of length in pages with 477. Again, the least number of pages goes to volume 1(2004). Of the total 347 articles with 3031 length in pages, 9 is the average page per article.

Table 2: Distribution of Papers According To Pages

Pages	2004	2005	2006	2007	2008	2009	2010	2011	2012	TOTAL	Percentage
1 – 5	2	6	9	4	4	1	4	2	3	34	9.6
6 – 10	17	23	32	33	29	21	29	30	29	250	70
11 – 15	4	3	2	3	4	9	7	14	9	59	16.5
16 -20	1	1	1	0	0	1	4	3	2	13	3.6
More than 20	0	0	0	0	0	0	0	1	1	1	0.3
TOTAL	24	33	44	40	37	32	44	49	44	357	100

Table 2 shows the length of articles. It is revealed that 250 (70%) articles had page length in the range of 6 – 10 pages followed by 59 (16.5%) in the page range of 11 – 15. 1 (0.3%) article had a page range of more than 20 pages.

Table 3: Authorship Pattern

No. of Authors	2004	2005	2006	2007	2008	2009	2010	2011	2012	TOTAL	Percentage
Single	12	24	32	34	20	18	25	36	25	226	65.1
Two	9	7	9	4	17	10	11	9	15	91	26.3
Three	3	1	3	1	0	1	8	4	3	24	6.9
Four	0	0	0	1	0	2	0	0	1	4	1.2
Five and above	0	1	0	0	0	1	0	0	0	2	0.5
TOTAL	24	33	44	40	37	32	44	49	44	347	100

Table 3 reveals that single author contributions have dominated this journal. Single authored articles accounts for 226(65.1%) papers. Two authored papers are 91 (26.3%); the least number of 2 papers (0.5%) came from five authors and above. In all, multiple authored papers were 121 (34.9%) during the period under review.

Table 4: Distribution of Citations by Bibliographical Forms

	2004	2005	2006	2007	2008	2009	2010	2011	2012	TOTAL	Percentage
Journals	51	89	122	89	163	130	172	209	265	1290	27.7
Web (Internet)	1	14	21	35	28	53	62	50	52	316	6.8
Books	130	208	225	243	192	144	215	292	253	1902	40.9
Proceedings	4	10	25	7	8	2	5	6	8	75	1.6
Report	16	9	7	13	11	7	4	12	8	87	1.9
Thesis & Dissertations	17	7	21	18	16	12	14	21	17	143	3.1
Others	60	84	89	110	69	100	105	118	102	837	18
TOTAL	279	421	510	515	487	448	577	708	705	4650	100

Table 4 shows a total of 4650 cited references from all sources of information materials in the 9 volumes of the International Journal of Research in Education. Books took the lion share of 1902(40.9%) citations. This was followed by Journals with 1290 (27.7%) citations. Proceedings took the rear with 75 (1.6%) citations. Books as the major source of information of the contributors is consistent with earlier studies in the humanities generally and education in particular.

Table 5: Geographical (Country wise) Distribution of Authors

Place	2004	2005	2006	2007	2008	2009	2010	2011	2012	TOTAL	Percentage
Cameroon	0	0	0	0	0	0	0	0	1	1	0.3
Ghana	0	0	0	0	0	1	2	7	3	13	3.7
Kenya	0	0	0	0	0	0	1	1	0	2	0.6
Nigeria	24	33	44	40	35	31	39	41	40	327	94.2
Uganda	0	0	0	0	0	0	2	0	0	2	0.6
U.S.A	0	0	0	0	2	0	0	0	0	2	0.6
TOTAL	24	33	44	40	37	32	44	49	44	347	95.4

An attempt has been made to study the geographical distribution of contributors. Table 5 reveals that papers have emanated from 6 countries. The geographical distribution of authors has been on the basis of address of the first author. The analysis reveals that the highest number of authors are from Nigeria with 327 (94.2%) papers. Next is Ghana with 13 (3.7%) papers. Kenya, Uganda and USA are tied in third place with 2 (0.6%) papers each. The least is Cameroun with 1 (0.3%) paper. The obvious dominance of Nigerian authors can be attributed to the fact that the journal is based in Nigeria and it has no online version.

Table 6: Author's Institutional Affiliations

Institutions	2004	2005	2006	2007	2008	2009	2010	2011	2012	TOTAL	Percentage
Universities	13	17	18	14	11	13	17	23	19	145	41.8
Polytechnics	2	8	9	11	8	8	17	11	11	85	24.5
College of Education	7	5	11	11	12	7	6	11	11	81	23.3
Others	2	3	6	4	6	4	4	4	3	36	10.4
TOTAL	24	33	44	40	37	32	44	49	44	347	100

Table 6 depicts author's institutional affiliation which is predicated on the first author's address where more than one author exists. Analysis reveals author's institutional affiliations which indicates that 145 (41.8%) are from Universities thereby topping the list. The least contributors emanated from others with 36 (10.4%). No doubt, the very high number from Universities presupposes the fact that research publication is emphasized as prerequisite for academic promotion right from the first position. This coupled with the academic staff being homogenous therefore subject to the same conditions for promotion.

Table 7: Citation Pattern

Year	No. Of Papers	No. Of Citations	Average No. Of Citations Per Paper
2004	24	279	12
2005	33	421	13
2006	44	510	11
2007	40	515	13
2008	37	487	13
2009	32	448	14
2010	44	577	13
2011	49	708	14
2012	44	705	16
TOTAL	347	4650	13

Table 7 shows the division of citations for the study period. It reveals that a total number of 4650 citations were appended to 347 papers. The number of citations per year range from a minimum of 279 citations in 2004 to a maximum of 708 citations in 2011. The average number of citations per paper varied from 11 in 2006 to 16 in 2012. On the whole it is an average of 13 citations per paper.

Table 8: Subject Coverage of Articles by Year

Subject	2004	2005	2006	2007	2008	2009	2010	2011	2012	TOTAL	%
Curriculum and Teaching	6	9	19	13	12	9	11	16	13	108	31.1
Educational Theory and Practice	1	6	8	8	2	1	7	8	4	45	13
Environmental Education	0	0	1	0	0	1	0	0	0	2	0.6
Guidance and Counseling	3	1	1	2	0	0	4	2	7	20	5.8
Library and Information Sc.	0	5	6	6	9	6	13	12	11	68	19.6
Special/Adult Education	1	0	0	0	1	0	1	0	0	3	0.7
Vocational/Technical Education	2	3	1	3	2	3	1	1	1	17	4.9
Women Education	0	0	1	1	0	0	0	0	2	4	1.2
Others	11	9	7	7	11	12	7	10	6	80	23.1
TOTAL	24	33	44	40	37	32	44	49	44	347	100

Table 8 reveals the subject coverage of articles in the journal. Curriculum and Teaching is ranked highest with 108 (31.1%). This is followed by Others with 80 (23.1%) papers. Library and Information Science comes next with 68 (19.8%) articles. The least subject covered is Environmental Education with 2 (0.6%)

articles. Others coming second in ranking could be attributed to the sundry articles in the journal based on the vision of the publishers.

5. DISCUSSION

The International Journal of Research in Education has been published consistently since inception in 2004 with volume 1. However, the intention to publish the journal twice a year did not materialise until 2010 with volume 7 and it has since been published as a bi-annual in June and December. The number of articles in the journal varies from volume to volume.

The number of the articles published in the 9 volumes (2004 – 2012) amounted to 347. The highest number of 49 articles were published in 2011 (volume 8) while the least number of 24 articles were in the maiden issue in 2004. The lack of visibility of the journal then could be responsible for this number as subsequent volumes indicates with leap in number of papers.

Length of articles showed that a significant number of the articles have page length in the range of 6 – 10 pages having accounted for 250 (70%) of the 347 articles.

Authorship pattern revealed that single authorship has dominated this journal by accounting for 226 (65.1%) articles. The level of multiple authorship is not very high. In all multiple (two or more authors) authored articles were 121 (34.9%).

Majority of the contributors preferred books as the source of information having occupied the top position with the highest number of citations of 1902 (40.9%) of the total 4650 citations. Journals are next with 1290 (27.7%) citations. This is consistent with most studies in education. Oboko (1985) citing Heizkill (1980) and Mochida (1976) revealed that researchers in the field of education appear to depend more heavily on books. This was confirmed in his study of characteristics of bibliographic citations in first degree research projects on education.

The findings revealed that the journal has received overwhelming contributions from authors in Nigeria. They are responsible for 327 (94.2%) papers. A plausible reason for this is that the journal originates from Nigeria.

The findings also showed that in terms of authors' institutional affiliations, the highest output came from Universities with 145 (41.8%). This is an indication that the journal has credibility. Again, "publish or perish" slogan is more popular in universities.

Citation pattern showed that a total of 4650 citations were appended to 347 articles. The maximum number of citations of 708 were appended to 49 articles in 2011. The least appended citations of 279 occurred in 2004 to 24 articles. On the whole, 13 is the average citations per article.

Subject coverage of articles revealed Curriculum and Teaching as the highest ranked with 108 (31.1%) articles followed by others with 80 (23.1%). Environmental education is the least ranked with 2 (0.6%) articles.

6. CONCLUSION

The International Journal of Research in Education has been published consistently in the period under study i.e. 2004 – 2012. The number of articles in the journal varies from volume to volume. The journal has published 347 articles during the period of study and majority of articles i.e. 250 (70%) have length of 6 – 10 pages. In all, the papers had an average length of 9 pages. The maximum number of contributors are single authors with 65.1%. The contributors are mainly from Nigeria (94.2%). Most of the articles emanated from Universities by accounting for 41.8%. The study revealed that majority of the authors preferred books (40.9%) as source of information. 4650 citations were appended to the 347 articles and the most covered subject is Curriculum and Teaching.

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