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Informetric Analysis of Articles published in Nigerian Libraries: Journal of the Nigerian Library Association (2009 – 2018)

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Informetric Analysis of Articles published in *Nigerian Libraries: Journal of the Nigerian Library Association* (2009 – 2018)

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Abstract

This informetric study focused on finding out the distribution of articles and authors that published in the *Nigerian Libraries: Journal of the Nigerian Library Association* from 2009 to 2018. Also, the year-wise growth of research articles; authorship pattern and collaboration ratio; subject distribution of articles and institutional affiliation of authors were examined. A descriptive informetrics research design was adopted. The journal was selected based on its consistency and popularity. Data collected through a self-designed checklist was analysed using frequency count and percentage. The findings revealed that 134 articles, contributed by 252 authors were published in *Nigerian Libraries* from 2009 -2018. An annual average growth of 31.56% was observed. Overall year-wise authorship pattern revealed that majority of 60.45% articles published in *Nigerian Libraries* were multiple authored. Also, articles on ICT dominated *Nigerian Libraries*. Some subject areas not covered were identified, such as indexing and serial collections management. Average collaborative index across the 10-year period was 0.60, while majority of the contributors were from universities, with only a fraction from the polytechnics. The study, therefore, recommended that awareness should be created by the publishers to familiarise the researchers with the publishing requirements of the journal. Also, LIS researchers (especially in polytechnics and colleges of education) should engage more in research activities and publish such in reputable journals; and concentrate more on areas usually left untouched by previous studies.

Introduction

Scholarly journals contain mostly reports of past research efforts and findings that are necessary not only to form basis for new and further research activities, but also to advance the frontiers of knowledge. However, it is necessary to strategically measure some quantitative aspects of such publications such as the citation patterns used, research gap, country-wise analysis of output, subjects-wise, citation analysis, authors productivity and growth of scientific publications (Bar-Ilan, 2008).

Siluo and Qingli (2017) describe informetrics as a study that focuses on quantitative aspects of information in recorded formats. This translates to statistical measurements of tangible aspects of information such as: chronological distribution of citations, number of cited sources, productivity index of authors, authors collaborative index etc. Informetrics is applicable to any field of study to track the level of literature growth in such field or discipline.

The area of informetrics study in Nigeria is still under-explored and certain factors may be attributed to this. Tracing these causative factors to literature is not equally an easy task as there is a dearth of literature on informetrics study in Nigeria. For instance, of all the 58 articles published in *Nigerian Libraries* from 2012 – 2015, only 2 representing 3.45% were on informetrics. However, the trend is improving as more Nigerian authors are embarking on informetric study.

From the 120 articles published in *Library Philosophy and Practice* from January to April, 2019, informetrics study top the type of published papers by constituting 27.50%, distantly followed by articles on ICT/ Social media which constitute 12.50%. However, from the 27.50%, authors from Nigeria came second behind those from China. Also, many of the available literature on the subject area are not recent, and many writers on the subject area review similar literature that were not in most cases recent.

Statement of the Problem

It is expected that professionals, librarians inclusive, embark on research activities, not only to develop their profession, but also to investigate and proffer solutions to problems related to their efficiency and job productivity. Findings of such studies are published in academic journals. Hence, part of the yardsticks for measuring professional growth is the quality and quantity of researches turned out in such profession. Personal observations have shown that informetrics studies on LIS research articles are rare, especially in Nigeria. This has resulted in the dearth of literature on this aspect. Also, while some researchers may prefer collaborating with their colleagues, others may prefer sole researching.

Likewise, due to incursion of ICT into various activities, it has been observed by previous studies (Edewor, 2013; Anyaoku and Okonkwo, 2018; Udo-Anyanwu, 2018; and Usman and Ewulum, 2019) that many LIS researchers focus more on the use of ICT, thereby leaving out other subject areas. This usually translates into creating literature and research gaps, which is damaging to the future of the profession. Similarly, researchers and publishers of academic journals need to be informed and guided on what to write and publish respectively. It was on this basis that this study set out to carry out a 10-year informetric analysis of research articles published in the *Nigerian Libraries: Journal of the Nigerian Library Association* from 2009 to 2018.

Research Questions

This study provided answers to the following research questions:

1.   What is the distribution of articles and authors in *Nigerian Libraries* by year and issue from 2009 -2018?

2.   What is the year wise growth of research articles published in *Nigerian Libraries* from 2009 -2018?

3.   What is the overall/year-wise authorship pattern in *Nigerian Libraries* from 2009 -2018?

4.   What is the subject distribution of published articles in *Nigerian Libraries* from 2009 - 2018?

5.   What is the degree of collaboration among authors of articles in *Nigerian Libraries* from 2009 - 2018?

6.   What are the institutional affiliations of authors that published in *Nigerian Libraries from* 2009 - 2018?

7.   What are the types of research articles that published in *Nigerian Libraries* from 2009 - 2018?

Methodology

The study adopted informetric study to analyze articles published in the *Nigerian Libraries* from year 2009 - 2018. This consisted of 141 articles spread across 10 volumes of 20 issues. Data for the study were collected directly from the articles published in the journal. Also, the formula $C = \frac{Nm}{Nm+Ns}$ by Subramanyam (1983) was used to calculate the degree of collaboration among authors, where:

C   = Degree of collaboration (based on total number of multiple and single authored papers);

Nm   = Number of multiple authored papers;

Ns   = Number of single authored papers

The efficacy of the formula has been proved by Pradhan, Panda and Chandrakar (2011), Dharanikumar, Banateppanavar, Girishi and Jayaraj (2014) and Thavamani (2015) in their studies. Annual growth of the research articles was calculated using the formula $r = \frac{P1-P0}{P0} x\ 100$ where:

r = Publication growth in percentage

P0 = Number of publication in the base year

P1 = Number of publication in present year.

The formula has been tested by previous studies such as that of Verma et al (2018) and it proved effective. The data were presented using frequency tables and graphs for easy clarification.

Findings and Discussion

Distribution of articles in *Nigerian Libraries* by years and authors

The articles were distributed based on the number of articles published and the numbers of authors recorded for such articles. The result is presented in Table 1 showing evidence of a total of 134 articles published in the 10 volumes of *Nigerian* from 2009 to 2018. The highest number of articles published in *Nigerian Libraries* within a year was recorded in 2018 which was 26 (19.40%) while the least was recorded in 2009 to be 5 (3.73%). Similarly, the highest number of authors for *Nigerian Libraries* was recorded in year 2018 (20.63%) while the least number of authors was recorded in 2009 (3.73%).

Table 1: Distribution of articles in *Nigerian Libraries* by year and authors from 2009 -2018

Year	*Nigerian Libraries*	
	No. of Publications & Percentage (%)	**No. of Authors & Percentage (%)**
2009	5 (3.73)	9 (3.57)
2010	6 (4.48)	11 (4.37)
2011	14 (10.45)	26 (10.32)
2012	18 (13.43)	29 (11.51)
2013	15 (11.19)	28 (11.11)
2014	17 (12.69)	29 (11.51)
2015	8 (5.97)	18 (7.14)
2016	14 (10.45)	27 (10.71)
2017	11 (8.21)	23 (9.13)
2018	26 (19.40)	52 (20.63)
Total	**134 (100%)**	**252 (100%)**

Year- wise growth of research articles published in *Nigerian Libraries*

From Table 2, it is evident that there was positive growth in number of publications from 2009 to 2011. However, there was growth-decline-growth pattern noticed, year after year from 2012 to 2018; where the annual growth rate dropped from 28.57% in 2012 to negative (-16.67%) in 2013 and also, a major decline to -52.94% in 2015 against a positive growth of 13.33% recorded in 2014. The 134 articles published during the 10-year period recorded an annual average growth rate of 31.56%.

It should be noted that the average growth rates of articles increased considerably from 20% in 2010 to 136.36% in 2018. This indicate an upward trend which implies that the journal has grown considerably over the ten-year period under review. The zig-zag growth pattern recorded for *Nigerian Libraries* during the period is similar to Chakravarty and Sharma (2017) discovery on the growth of LIS publication outputs in Panjab University, India. This is also in line with Ramiah-Santha (2016) findings in a similar study on publications trends in Nuclear Physics from 2004 - 2013. The fluctuations recorded in the growth pattern of the articles can be attributed to the fact that no publication can maintain a constant growth pattern for their publication outputs in every year (Chakravarty and Sharma, 2017; Ramiah-Santha, 2016).

Table 2: Year-wise growth of research articles published in *Nigerian Libraries*

Year	No. of Publications	Growth Rate	Average Growth Rate in percentage
2009	5	0	0
2010	6	1	20
2011	14	8	133.33
2012	18	4	28.57
2013	15	-3	-16.67
2014	17	2	13.33
2015	8	-9	-52.94
2016	14	6	75
2017	11	-3	-21.43
2018	26	15	136.36
Total	**134**	**21**	**Average = 31.56**

Authorship pattern

The authorship pattern of *Nigerian Libraries* was studied and the results are presented in Table 3. It shows the overall authorship pattern of articles published in the journal from 2009 to 2018 revealing that majority of the published articles were products of collaborative efforts and also, most of the collaborative works were between two and three authors. The 134 articles published in *Nigerian Libraries* across the 10 years were contributed by 252 authors. There were 53 (39.55%) single and double authored articles each whereas three authors' contributions were 20 (14.94%), four authors 7 (5.22%) and only 1 (0.74%) five authors contributions.

The authorship pattern mostly recorded for the journal were multiple authorship, especially two to three authors, with overall collaborative index of 0.60. This is in line with Verma et al (2018) findings that multiple authorship dominated authorship pattern of publications in *Library Philosophy and Practice* (LPP) from 2008 -2017 which was also a period of ten years. Other studies with similar findings include: Bathrinarayanan and Tamizhchelvan (2014), Ramiah-Santha (2016) and Verma and Shukla (2018).

Table 3: Overall authorship pattern in *Nigerian Libraries fr*om 2009 -2018

Authorship pattern	Nigerian Libraries		AJLAIS	
	No. of articles (%)	Total No. of authors (%)	No. of articles (%)	Total No. of authors (%)
Single	53 (39.55)	53 (21.03)	53 (37.59)	53 (19.92)
Two	53 (39.55)	106 (42.06)	59 (41.84)	118 (44.36)
Three	20 (14.94)	60 (23.81)	23 (16.31)	69 (25.94)
Four	7 (5.22)	28 11.11)	5 (3.55)	20 (7.52)
Five	1 (0.74)	5 (1.98)	0	0
Six	0	0	1 (0.71)	6 (2.26)
TOTAL	**134 (100)**	**252 (100)**	**141 (100)**	**266 (100)**

Year-wise authorship pattern of articles published in *Nigerian Libraries* from 2009 to 2019

Table 4 reveals the year wise authorship pattern of articles published in *Nigerian Libraries* from 2009 to 2018. It shows that highest number of single authored articles was 11 in 2018, whereas 2016 was recorded as the year with the highest contributions by two authors which was 8. Year 2018 recorded the highest number of articles with three authors, which was 5 articles. In 2015, only 1 article was contributed by five authors. This finding is in line with Gaud (2019) discovery that majority (94.15%) of articles published in Robotics research in India during 2009 to 2018 were multiple authorship.

From the findings, it was evident that the distribution of articles across the years revealed that majority of the articles were contributed by single and double authors, more than those jointly contributed by three, four and five authors. This implies that joint contribution of research articles by LIS researchers in Nigerian is still at a developing stage and there is still more to be done in improving collaborative research.

Table 4: Year wise authorship pattern of articles published in *Nigerian Libraries* from 2009 to 2018

SN	Year	Single author	Two authors	Three authors	Four authors	Five authors	Total
1	2009	3	1	0	1	0	5
2	2010	3	1	2	0	0	6
3	2011	5	7	1	1	0	14
4	2012	9	7	2	0	0	18
5	2013	6	6	2	1	0	15
6	2014	8	6	3	0	0	17
7	2015	2	4	1	0	1	8
8	2016	4	8	1	1	0	14
9	2017	2	6	3	0	0	11
10	2018	11	7	5	3	0	26
	Total	**53**	**53**	**20**	**7**	**1**	**134**

Degree of collaboration among the authors that published in the *Nigerian Library*

Table 5 shows the degree of collaborations among the authors that published in *Nigerian Library* from 2009 to 2018. It was evident that from the 134 articles published during the period under review, 53 articles were single authored while the remaining 81 were multiple authored with overall degree of collaboration of 0.60. This implies that the authors published more collaborative works than single authored publications. Also, the highest collaborative index was recorded in the year 2017 (0.82), whereas the least was recorded in 2009 which was 0.4. It should be noted that the closer a collaborative degree is to 1, the higher or stronger such degree is, and the farther it is to 1, the weaker the degree of collaboration.

The overall collaborative average of 0.60 recorded in *Nigerian Libraries* from 2009 – 2018 was lower than 0.93 discovered by Gaud (2019) in a similar study of authors collaboration in Robotics research in India from 2009 to 2018, but somewhat similar to 0.65 discovered by Shukla, Yadav and Verma (2018) in a study of International Journal of Information Dissemination and Technology (IJIDT) from 2011 – 2017. The implication of this was that collaborative pattern of authors that published in *Nigerian Libraries* from 2009 - 2018 was lower compared to other studies reviewed.

Table 5: Degree of collaboration among authors of articles in *Nigerian Libraries* from 2009 – 2018

SN	Year	Single authored publications (Ns)	Multiple authored publications (Nm)	Nm + Ns	Degree of Collaboration DC=Nm/(Nm+Ns)
1	2009	3	2	5	0.4
2	2010	3	3	6	0.5
3	2011	5	9	14	0.64
4	2012	9	9	18	0.5
5	2013	6	9	15	0.6
6	2014	8	9	17	0.53
7	2015	2	6	8	0.75
8	2016	4	10	14	0.71
9	2017	2	9	11	0.82
10	2018	11	15	26	0.58
	Total	**53**	**81**	**134**	**0.60**

Subject distribution of published articles in *Nigerian Libraries* from 2009 -2018

Table 6 shows the subjects distribution of published articles in the journal from 2009 - 2018. The seemingly related subjects were grouped and tagged together. There were a total of 23 subjects through which the articles were grouped. It was evident from the Table that the subject with highest number of articles (26.8%) from *Nigerian Libraries* were on ICT/cloud computing/social media, followed by articles on library/information management (11.94%) and articles on capacity building/job satisfaction (10.45%).

This is related to Anyaoku and Okonkwo (2018) discovery that articles on ICT dominated the Library and Information Science Digest Journal from 2007 -2016, and Udo-Anyanwu (2018) who also discovered that ICT was the most researched subjects (23%) among the 1,022 articles studied from 2004 -2013. Similarly, Usman and Ewulum (2019) identified that many of the articles (13.2%) published in the Journal of Applied Information Science and Technology (JAIST) from 2007 - 2017 focused on ICT while articles on library management constituted 8.80%.

This finding is also in line with Edewor (2013) who discovered that articles on ICT topped the subject coverage list of publications in *Information Impact: Journal of Information and Knowledge Management* from 2010 – 2013. The dominance of articles on ICT may not be unconnected with

the keen interest the LIS practitioners in Nigeria have in such areas, as observed by Tsafe, Basaka and Mohammed (2016) that 25% of sampled librarians across 16 Universities in Nigeria claimed ICT as their research area of interests, distantly followed by 8% that claimed library automation, which is also a subset of ICT applications in Library.

Also, this subject distribution has shown areas of research gaps in LIS in Nigeria. *Nigerian Libraries* on the other hand tends to be restricted by the themes of the Annual General Meetings/National conference of the NLA, from which related papers are selected. The implication of this findings is that many research gaps in LIS have been identified, which there were little or no research article published on them over the ten-year period under review from the journal. Such research gaps include: data management, data science and mining; institutional repository; reading culture; legal depository; academic library development; audio visual management; serial publication management; cataloguing and classification; indexing; abstracting; collection development; public/school library development; library finance and gender issues in LIS.

Table 6: Subject distribution of published articles in *Nigerian Libraries* from 2009 – 2018

SN	Subjects	Nigerian Libraries (%)
1	Capacity Building/Job satisfaction/Job performance	14 (10.45)
2	Data management/Data science/Data mining	0
3	Knowledge management	2 (1.49)
4	Record/Archives management	2 (1.49)
5	Informetrics/research productivity	7 (5.22)
6	Preservation/conservation	5 (3.73)
7	ICT/ cloud computing/social media	20 (26.8)
8	Electronic information resources/ Database	8 (5.97)
9	Library/Information management	16 (11.94)
10	Information/ Digital literacy and users education	8 (5.97)
11	Library networking/resource sharing/Open access	4 (2.99)
12	Institutional repository/collection Development	2 (1.49)
13	Accreditation/Curriculum development/blended/ e-learning	5 (3.73)
14	Reading development	3 (2.24)
15	Cataloguing and classification	6 (4.48)
16	Legal deposit	1 (0.75)
17	Library and national development/MDS/SDG	7 (5.22)
18	Entrepreneurship/Infopreneurship/Library Marketing	13 (9.70)
19	Public/ school library development	4 (2.99)
20	Academic library development	0
21	Information needs and seeking behaviours	4 (2.99)
22	Audio visual/ Arts/ Multimedia Systems	2 (1.49)
23	Gender issues in LIS	1 (0.75)
	Total	**134 (100%)**

Institutional affiliations of authors that published in *Nigerian Libraries*

Table 7 shows the institutional affiliations of the 252 authors that published in *Nigerian Libraries* from 2009 -2018. The Table shows that majority of the authors were from university (83.73%), very distantly followed by authors from the Polytechnic sector with just 7.94%. Next in rank was the National Library of Nigeria with 1.98% and those whose affiliations were not indicated (1.59%). The least was 0.40% from religious bodies. It should be noted that all the contributions, but one, were from Nigeria. This is in line with Udo-Anyanwu (2018) discovery that majority of LIS researchers (73%) that published in 119 journals that were studied from 2004 - 2013 were from University, distantly followed by Polytechnic (12%) and College of Education (5%). This is also similar to Singh and Chander (2014) findings that 79.5% of articles contributed to *Library*

Management Journal in India were from the universities, followed by 77.35% from Colleges/Institutes. This revealed that the dominance of the university sector in publication outputs is not only peculiar to Nigeria, but also obtainable in other parts of the world.

While that of the university is quite understandable, it is expected that Polytechnics and Colleges of Education, being higher institutions of learning, also, with focus on teaching/ learning and research should also have quite number of contributions, but the reverse is the case; most especially that they also need paper publications for their promotions, just like their university counterparts. However, this may be attributed to apathy, lack of sponsorship and poor funding (Yusuf, 2012; Solanke and Olatunji, 2015; and Tsafe, Basaka and Mohammed, 2016).

Table 7: Institutional affiliations of the authors of articles in *Nigerian Libraries* from 2009 – 2018

SN	Institution	Total Number of Contributions	Percentage
1	University/ Defence Academy	211	83.73
2	Polytechnic	20	7.94
3	National Library	5	1.98
4	Not indicated	4	1.59
5	College of Education	3	1.19
6	Research Institute	3	1.19
7	Public Library	3	1.19
8	Librarians Registration Council of Nigeria (LRCN)	2	0.79
9	Religious Body	1	0.40
	TOTAL	**252**	**100**

Conclusion

The study has shown that *Nigerian Libraries* is growing numerically. Also, the study has established that collaborative index of authors that published in the journal was fairly adequate but can be improved upon. Similarly, there was an impending dearth of scholarly literature on certain aspects of librarianship as it was revealed that little or nothing was done in such areas as serial collection management, indexing, cataloging and classification, public/school library development

etc. Finally, majority of the contributors were from the University, whereas only a small fraction was from Polytechnics and Colleges of Education.

5.3   Recommendations

Based on the findings of this study, the following are hereby recommended:

1. Awareness should be created by the publishers and the editorial crews to enable researchers to be familiar with the publishing requirements of the journals. Keeping abreast of such information can go a long way in enabling researchers take informed decision on publishing in the journal, thereby increasing the number of contributed articles.

2. Also, LIS researchers, especially those in Polytechnics, Colleges of Education and Research Institutes should be encouraged by their respective institutions' management to engage in research activities and publish such in reputable journals like *Nigerian Libraries*, and should also be sponsored to attend conferences and seminars to develop their research prowess.

3. Similarly, all LIS researchers should embrace collaborative research, especially in collaborating with other researchers outside their institution and country as this is a global trend in research undertakings. Academic institutions and Library Associations should organize more international conferences where participants can share ideas and to boost international collaborations of LIS researchers in Nigeria. This will not only develop the profession rapidly, but also put them on the global map of innovative researchers that can proffer solutions to various challenges.

4. LIS researchers should endeavour to concentrate on areas usually left untouched by previous studies. This will create additional literature that will form basis for further studies. This is also useful to increase knowledge, and ensure the continuous growth and sustainability of the LIS profession. To this end, Library associations and academic institutions should organize their conferences, workshops and seminars around themes that reflect any of the identified research gaps by this study.

5. Also, there is the need for the Nigerian government to improve on research funding/ grants among scholars. Similarly, the process of accessing such grant should be stress free, as this will encourage robust and collaborative research, especially with researchers from other countries of the world.

6. LIS researchers, especially from academic institutions should endeavour to publish their research articles in referred and reputable journals as this not only improve the webometric ranking of such institutions, but also put Nigerian institutions at the front lines of such global rankings.

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