NIGERIAN LIBRARY ASSOCIATION
NIGER STATE CHAPTER

2023 CONFERENCE PROCEEDINGS

FAKE NEWS

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T H E M E :
COLLABORATIVE APPROCHES IN CURBING THE EFFECTS OF NEW MEDIA ON FAKE NEWS PROPAGANDA

3RD-7TH DECEMBER, 2023

NEW LECTURE THEATRE, SCHOOL OF SECONDARY EDUCATION, SCIENCE PROGRAMMES, FEDERAL COLLEGE OF EDUCATION, KONTAGORA, NIGER STATE.

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BIBLIOMETRIC ANALYSIS OF SELECTED MASTERS' THESES IN COMPUTER SCIENCE TO SUPPORT COLLECTION DEVELOPMENT AT THE FEDERAL UNIVERSITY OF TECHNOLOGY LIBRARY, MINNA BETWEEN 2008-2014

BY

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ABSTRACT

Collection development is the process of identifying and analysing content and citation in various kind of library collections towards meeting the academic and research needs of researchers in an identified faculty or discipline. It also takes into account library collections, correlating them with the environmental aspects such as users' demand, need and expectation, the information world, fiscal plan, history and trends of the collections. Bibliometrics is a vital tool for collection development in libraries because of the use of quantitative methods in seeking measurement and assessment of scientific publication outputs. It has realistic application of mathematical and statistical methods to books and other media of communication. Citation analysis is a technique that embraces citation patterns in documents in order to link the connection between the documents and their original sources. It also recognize and appreciate the importance of seminal works in various fields of sciences and humanities, and to identify future research directions in a field of study. This study focused on citation analysis of selected masters' theses in Computer Science submitted to Federal University of Technology, Minna Between 2008 to 2014. The population comprised selected masters' theses in Computer Science available at the Federal University of Technology Library, Minna and were twenty (20) in number while the total enumeration sampling technique was used to determine the sample size. The study used quantitative method of research design and adopted total enumeration sampling technique for data collection. Three (3) document extraction templates that covered items relating to the study objectives were designed and used to collect data from twenty (20) copies of masters' theses in the library. The study identifies the collaboration patterns, forms of document and chronological distributions of the cited references. The findings revealed that collaboration distributions of the cited references were mostly multidisciplinary (53.9%). The most cited forms of documents were journals (52%) and books (18%). It was observed that as at the time of citation of cited references, the documents were current and relevant to the topic of the study

Keywords: Collection Development, Bibliometrics, Citation analysis, University Libraries, Computer Science, Masters' Theses

Introduction

Librarianship is one of the nuclei of human civilisation. This can be traced to ancient times when libraries were strongholds for kings and priests in terms of housing valuable information and assets on culture, spiritualties, warfare, agriculture, economy and other affairs in the society. These

information and assets were protected by librarians who were revered as custodians of knowledge. Libraries irrespective of type are designed to meet the information needs and interests of users.

Library collections are the bedrock for services provided to the community where the libraries are situated and eternal assets to the library. Maidabino & Zainab (2016) cited Akinola (2020) who identified the aim of a modern university library as largely to provide access to both print and non-print collections and this makes it necessary to develop a balance between ownership and access to information or knowledge. To meet this purpose, there is need for in-depth analysis of various categories of library collections. This can be viewed from the number of access to the level of popularity and impact of information resources.

Collection development is a planned and systematic development of the collections based on the objectives of the library. These objectives could be stated in documents relating to how to achieve them (Daniel, 2019). Kaur and Kuar (2017) defined collection development as a process of identifying and analysing content and citation in various kinds of library collection towards meeting the academic and research needs of researchers in an identified faculty or disciplines. Institutional libraries are structured to promote access and fast retrieval for clienteles and are staffed by librarians and other personnel trained to provide impeccable services to quench users' information needs. Collection development takes into account library collections, correlating them with the environmental aspects such as users' demand, need and expectation, the information world, fiscal plan, history and trends of the collections.

The presence of bibliometric activities in libraries is driven by desire for a redefinition and widening of the professional roles and services of academic librarians and libraries within the university because hitherto librarianship focuses on the acquisition and organisation of its collections, searching and retrieving information for the library patrons. Libraries have also increasingly focused on development of knowledge and services related to scholarly communication other than the searching and retrieving of scholarly information.

Collection development plays a pivotal role in identifying the strengths and weaknesses of any field which helps in making the right decisions and developing policies. Quantitative measurements such as citation analysis can be employed by libraries to investigate the productivity and impact of their collections for collection building and research engagements (Reyes-Gonzalez *et al*., 2016).

Statement of Research Problem

University libraries house bibliographic collections designed to provide relevant and current information, access and supply services derived from these collections. However, most libraries acquire information resources with little knowledge of current trends of what users' information needs are and most especially the research needs of postgraduate students. The use of bibliometrics as an important tool for collection development becomes a necessity because it provides evidence based information of publications and citations for the benefit of effective collection development. This is also pertinent because academic libraries are most times faced with paucity of funds for their collection development, space management, ever increasing cost of library resources and outdated information resources but there is dearth of comprehensive bibliometric analysis on collection development of university libraries considering the challenges they face in their collection building. This research study recognised the lack of inquiry and potential gap in the using

bibliometrics to support collection development and knowledge based production in masters' theses.

Aim and Objectives of the Study

The aim of the study is to conduct a Bibliometric Analysis of Masters' theses in Computer Science to support Collection Development at Federal University of Technology Library, Minna. In order to achieve this aim, the study is guided by the following objectives:

1. determine the collaboration patterns of cited references to support collection development;
2. determine the forms of cited references to aid collection development; and
3. find out the chronological distribution of cited references to support collection development.

Literature review

The concept of collection development is germane to the professional practice of librarianship as the whole notion of a library is fundamentally associated with idea of a collection of information resources. Collection development according to Sanjay (2016) focuses on varieties of routines connected to the procedures and policies of identifying, selection, acquisition, management and possibly evaluation of library collection. These policies and procedures involve the constitution of selection team which has the users, the library staff and subject experts in the fold. Explaining the need for bibliometric studies for relevant collection development, Anyaobi et al. (2019) explained that knowledge is increasing rapidly and the need to identify the growth of knowledge, core authors and most productive journals in a field becomes imperative for future collection development librarians and researchers.

Libraries can ensure that they are building useful collections that will provide good return for their financial investments through assessment of specific subject support which includes citation analysis for their collections. Citation analysis, a common method of bibliometrics, is the examination of the frequency and pattern of citations in articles and books. Due to information proliferations, the massive amount of data are published on academic journals, books, patents, proceedings, other periodicals and stored and organized into bibliographic databases. The elements of description contained on these published media such as citations, keywords, titles, authors, institutions provide a valuable template to perform science evaluation research using bibliometric techniques (Gutiérrez- Salcedo et al, 2018). In other words, bibliometric analysis can provide an overall examination and quantitative viewpoint of a particular research topic supported by large amount of literature on the topic. According to Yeoh and Kaur (2018), librarians have used citation counts to study the adequacy of their collections. The yearly escalating costs of information resources with their proliferations have mandated libraries to review their collection development strategies to manage the acquisition budget effectively. Identifying titles deemed essential to specific discipline of studies, thus considering core titles to a collection via bibliometric tools such as citation analysis and ranked lists of journals cited in published referenced articles can provide reliable assessment data and information to ensure that the evaluation process in decision making of collection management.

Methodology

The research design employed for this study was a quantitative research which provided for measuring quantitative and qualitative changes in collections of books and other library media.

The population of the study included all the masters' theses in computer science covering the period 2008 -2014, that is seven (7) years. These are the theses arranged and

documented in the library as the time of conducting the research. Twenty (20) masters' theses covering the stipulated years were submitted to the library while total

enumeration sampling technique was adopted. The instruments used in data collection were document extraction templates to extract data from the theses.

Presentation of Results and Analysis

Research Question 1: What are the collaboration patterns of cited references to support collection development?

Table 1

S\N	Collaboration Patterns			No of citations per thesis (%)
	Single Discipline (%)	Interdisciplinary(%)	Multidisciplinary(%)	
M.Thesis 1	1 2.2	16 35.5	28 62.2	45 100
M.Thesis 2	10 16.7	30 50	20 33.3	60 100
M.Thesis 3	1 2.1	15 30.6	33 67.3	49 100
M.Thesis 4	2 4.5	6 13.6	36 81.8	44 100
M.Thesis 5	5 12.8	5 12.8	29 74.4	39 100
M.Thesis 6	9 11.5	29 37.2	40 51.3	78 100
M.Thesis 7	2 6.9	16 55.2	11 37.9	29 100
M.Thesis 8	25 39.1	14 21.9	25 39.1	64 100
M.Thesis 9	5 12.5	10 25	25 62.5	40 100
M.Thesis 10	28 68.3	3 7.3	10 24.4	41 100
M.Thesis 11	14 82.4	-	3 17.6	17 100
M.Thesis 12	12 12.6	16 30.2	25 47.2	53 100
M.Thesis 13	8 22.2	2 5.6	26 72.2	36 100
M.Thesis 14	7 14.9	10 21.3	30 63.8	47 100
M.Thesis 15	2 4	8 16	40 80	50 100
M.Thesis 16	7 33.3	8 30.1	6 28.6	21 100
M.Thesis 17	21 41.2	14 27.5	16 31.4	51 100
M.Thesis 18	10 23.8	10 23.8	22 53.4	42 100
M.Thesis 19	7 19.4	3 8.3	26 72.2	36 100
M.Thesis 20	5 12.5	10 25	25 62.5	40 100
Total	181(20.5)	225(25.6)	475(53.9)	881(100)

Table 1 investigated the pattern of collaboration in the cited references. The patterns of collaboration of cited references in computer science masters theses are single discipline publications, interdisciplinary publications and multidisciplinary publications. The Table revealed that the multidisciplinary pattern of collaboration were more with the statistics of 475 which represent 53.9 percent of the total cited publications. This was followed by interdisciplinary pattern of collaboration with 225 (25.6%) and single discipline was the least with 181(21%) respectively. This means that collaborative pattern was favoured in computer science was multidisciplinary in nature. The implication of this finding with regards to collection development meant that collaboration patterns enable libraries extend their acquisition policy beyond publications published in a single discipline but recognized the law of scattering where the feet of publications in one discipline is dipped in the roots of other disciplines. This finding also provides evidence based data for libraries during accreditation exercises when challenged about not providing only core computer science based resources.

Research Question 2: What are the forms of the cited references?

Table 2

S/N	M.Theses	Newsletters (%)	Newspapers (%)	Workshop Reports (%)	Books (%)	Journals (%)	Web resources (%)	Seminar reports (%)	Audiovisuals (%)	Conference papers (%)	Unpublished publications (%)	No of citations
1	-	2(100)	-		11(6.9)	4 0.9	24(18.2)	-	-	2(2.7)	2(2.4)	45
2	-	-	-		1(0.6)	47 10.3	9(6.8)	1	-	2(2.7)	-	60
3	-	-	-		10(6.3)	30 6.6	5(3.8)	-	-	4(5.4)	-	49
4	-	-	-		6(3.4)	32 7.0	2(1.5)	-	-	2(2.7)	2(2.4)	44
5	-	-	-		2(1.3)	19 4.2	8(6.1)	-	-	9(12.2)	1	39
6	1(8.3)	-	-		3(1.8)	53 11.6	5(3.8)			9(12.2)	7(16.7)	78
7					7	13 2.8	9(6.8)					29
8					14(8.8)	32 7.0	10(7.6)				8(19.0)	64
9					9(5.7)	15 3.3	11(8.3)				5(11.9)	40
10					18(11.3)	22 4.8	-		-	-	1(2.4)	41
11					12(7.5)	4 0.87	1(0.8)			-	-	17
12					3(1.9)	29 6.3	10(7.6)			8(10.8)	3(7.1)	53
13					14(8.8)	16 3.5	6(4.5)			-	-	36
14	1(8.3)				5(3.1)	23 5.0	15(11.4)			-	3(7.1)	47

S/N	Forms of Cited References											No of citations
M.Theses	Newsletters (%)	Newspapers (%)	Workshop Reports (%)	Books (%)	Journals (%)	Web resources (%)	Seminar reports (%)	Audiovisuals (%)	Conference papers (%)	Unpublished publications (%)		
15	1 (8.3)			5 (3.1)	17 3.7	8 (6.1)			13(17.6)	6(14.3)		50
16	4 (33.3)			11 (6.9)	-	-			6 (8.1)	-		21
17	-			2 (1.3)	40 8.8	3 (2.3)			6 (8.1)	-		51
18	-			10 (6.3)	21 4.6	6 (4.5)			3(4.1)	2(4.8)		42
19	3 (25.0)	-	3 (100)	5 (3.1)	20 (4.4)	-	-	-	5(6.8)	-		36
20	2 (16.7)	-	-	11 (6.9)	20 (4.4)	-	-	-	5(6.8)	2 (4.8)		40
Total	12 (1.4)	2 (0.2)	3 (0.3)	159 (18)	457 (52)	132 (15)	1(0.1)	0	74 (8)	42 (5)		881

Table 2 showed the forms of cited references in the masters theses studied. The forms of referenced documents are newsletters, newspapers, workshops, books, journals, web resources, seminar reports, audiovisuals, conference papers and unpublished works. Table 2 revealed that journals were the most used form of cited references as it was mostly referenced with a total number of 457 which represents 52 percent. Books were next in line as the forms of referenced documents with 159 (18%) and followed by web resources pulling 132(15%). Conference papers and unpublished publications trailed behind with 74(8.4%) and 42(5%) as the forms of referenced documents respectively. The least were newsletters with 12(1%), workshop reports with 3(0.3%), newspapers 2(0.2%) and seminar reports with 1(0.1%) respectively. This means that forms of documents cited in computer science postgraduate research works were mainly journals. This finding has created a clear path for libraries/ libraries in their acquisition policy which is tailored towards providing collections that meet users' demands. Provision of journals should be emphasized and can be complemented with e-journals, online databases and other e-resources.

Research Question 3: What are the chronological distributions of the cited references to support collection development?

Table 3

S/N	Period of citation	Journals (%)	Books (%)	Online sources (%)	Conferences (%)	Unpublished documents (%)	Newsletters (%)	Newspapers (%)	Workshop Reports (%)	Seminar Report (%)	Total
1	1980 - 1985	10 (2.2)	3 (1.9)	-	-	-	-	-	-	-	13(1.5%)
2	1986-1990	18 (3.9)	1(0.6)	3(2.8)	-	-	-	-	-	-	22(2.5%)
3	1991-1995	10 (2.2)	4 (2.5)	10 (7.6)	3(4.1)	-	3(25)	-	-	-	30(3.4%)
4	1996-2000	30 (6.6)	9 (5.7)	13(9.8)	5 (6.8)	2(4.9)	4(33.3)	-	-	-	63(7.2%)
5	2001-2005	44 (9.6)	65 (40.1)	10 (7.6)	8 (10.8)	12(29.3)	1(8.3)	2 (100)	2	-	144(16%)
6	2006-2010	145 (31.2)	50 (31.4)	46 (30.3)	23 (31.1	17(41.5)	2 (16.7)	-	1(100)	-	284(32%)
7	2011-2014	200 (43.8)	27 (16.9)	50 (37.9)	35 (47.3)	10 (24.4)	2 (16.7)	-	-	1(100)	325(36.9%)

Table 3 revealed the chronological distributions of cited references. This was divided into five years intervals based on the oldest and recent years of publication of the cited references. Table 3 revealed that publications produced between 2011- 2015 are the mostly referenced with a total number of 325 representing 36.9 percent. Publications produced in 2006-2010 are next in line with 284(32%) and followed by 2001-2005 with 144(16%). 1996 -2000 and 1991-1995 have the total number of cited references 63(7.2%) and 30(3.4%) respectively. The least cited reference were produced in 1986-1990 and 1980-1985 with 22(2.5%) and 13(1.5%). This means that the cited references in the master' theses were mainly produced between 2011 and 2014. The implication of the above table is that the cited references as at the period of citation were current and spread across the different forms of publications.

Summary of Findings
1. The study showed that the collaboration patterns of the cited references in the theses were multidisciplinary in nature. Most of the references cited were enshrined in publications that were multidisciplinary in nature and cut across different fields.
2. The study revealed the numerous forms in which the cited references appeared. These include books, journals, conference papers, unpublished publications such as theses and dissertations, seminar reports, web resources, newsletters, newspapers, workshop reports and others such as reviews, bulletins, manuals. The most cited form of references was Journals.
3. The study also showed that the references cited were current as at the period of carrying out the researches.

Conclusion
This study covered citation analysis of cited references in the masters' theses which included collaboration patterns, forms and chronological distributions. The study concluded on the following:
That titles in computer science masters' theses were multidisciplinary in nature that is they were not limited to computer science alone but also include studies on the application of different aspects of computer science in various fields of human endeavours. There were different forms of publications represented in the cited references. They included books, journals, conference papers, unpublished publications, seminar reports, web resources, newsletters, newspapers, workshop reports, reviews, manuals, bulletins, releases. However, being a science oriented discipline; journals are the most cited forms of the cited references. The cited references used

more recent citations and increased in the number of cited references as the year progressed. This revealed the nature of publications in the sciences which always promote the citation of most recent publications. This is responsible for obsolesce of the publications.

Recommendations

1. University library management can solve the age-long issue of low budgetary allocations by investing in publications that are multidisciplinary in nature yet relevant in Computer Science. This will enable them to cover many fields with few quality multidisciplinary publications.

2. Library acquisition/collection development committees should provide for the purchase of more journals in the sciences on a slightly raised ratio to other forms of documents in their collection development policy.

3. Collection Development committees should take cognisance of the penchant for obsolesce of scientific publications under few years of their production and therefore acquire information resources that do not go out of use as quickly as possible.

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