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Editorial Foreword of Global Review of Library and Information Science

Global Review of Library and Information Science (GRELIS) is a journal published bi-annually by the department of Library and Information Science, the University of Nigeria, Nsukka. Articles published in this journal are peer-reviewed and are edited scholarly and original contributions to the field of Library and Information science (LIS). It is therefore, with great pleasure that I introduce this issue of the journal which explores timely topics that reflect both the current challenges and exciting innovations within the field. As we continue to navigate an era defined by rapid technological advancements and shifting societal expectations, the role of libraries and information professionals is becoming increasingly critical, and this issue presents a compelling reflection on that evolving landscape.

In this edition, we aim to address several emerging trends shaping the future of libraries, archives, and information services. Articles in this issue span the gamut of the LIS discipline, from the rise of artificial intelligence in managing information resources to the pressing concerns around digital preservation and access, to health informatics and management. The articles featured in this issue offer a rich array of perspectives. Whether you are a researcher, practitioner, or student of LIS, you will find thoughtful analyses that resonate with the multifaceted role of information professionals today. Looking forward, we welcome a bright future of LIS, as we continue to adapt and collaborate in finding answers to some of our plaguing issues. I encourage all readers to consider how they can contribute to the continued growth of our profession through innovative research. Our collective engagement is key to ensuring that libraries remain at the forefront of education, research, and community support.

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Finally, I want to express my heartfelt gratitude to the authors, peer reviewers, and the entire editorial team of GRELIS whose hard work and dedication made this issue possible. We hope that this issue will provoke thought, inspire action, and contribute to the ongoing conversation about the future of our field.

Thank you.

Prof. C.N Ezeani .

Editor-in-Chief

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Trends and Citation Behaviour of Computer Science Researchers in Federal University of Technology, Minna: A 2015-2017 Citation Analysis

BY

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Abstract

Citation analysis is a very important concept in the research ecosystem. It is an approach used in measuring the importance of research outputs by counting the instances in which an author, or research output has been cited by other works. The study mapped out cited references in computer science theses submitted to the university library, Federal University of Technology, Minna, Nigeria. 30 copies of master's theses organised and available in the library. These theses were between 2015 and 2017. The theses bibliographic details were extracted to determine the research trends and citation behavior of computer science researchers. Using tables, frequency counts and percentages, the results were presented. The study revealed that researchers mostly prefer journal articles than books and conference proceedings. The study also found that Algorithms was the most researched area for computer science in Federal University of Technology Minna, Nigeria, while the least researched areas are System Design and Management Information System. It is recommended that researchers be provided with the most preferred type of publication and scholars encouraged to explore other areas of computer science which has not been extensively researched.

Keywords: Bibliometrics, Research, Computer Science, Theses, Citation Analysis, Citation Behaviour.

Introduction

Research is an important component of university education which is treated with uttermost carefulness, so that universities can achieve their research goals. It is a diligent and meticulous enquiry into a particular nature, trend or phenomenon towards increasing an existing stock of knowledge and evolve new discoveries, with several features that define its approaches, relevance, conception, methodologies, theoretical orientation and ethical frameworks, (Naidoo, 2011). Research is therefore necessary if change, discoveries and innovations are needed to improve a situation or condition in which humans interacts. (Iloka and Abifarin, 2022). One of the measures of understanding the impact of a research output is through citation analysis; it is an off-shoot of bibliometrics/informetrics, which is one of the older areas of library and information science. Citation analysis is a very important concept in the research ecosystem. It is an approach

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used in measuring the importance of research outputs by counting the instances in which an author, or research output has been cited by other works.

Universities are established to award degrees to deserving students after completing course work and research components in fulfillment of the requirements for the award of sought degree. These research components called Thesis or Dissertations are required in partial fulfillment of the requirement for the award of master's degree in most universities, including Federal University of Technology, Minna. Theses present original research results and the guidelines for its production are strictly outlined and approved by the awarding institution. Theses are regarded as the treasure throve and institutional memory of any higher institution and very relevant in building collections of libraries and institutional repositories, Iloka and Abifarin (2022). These important information resources contain extensive and insightful bibliographies which were consulted in support of concepts, theories, analysis and discussions of facts expressed in research work and acknowledgement of authorities through citations. (Borthakur, 2015).

Computer Science as a discipline involves the study of computation, information and automation. Computer science involves the study of theoretical disciplines which include algorithms, theory of computation and information theory; on the other hand, it professes disciplines such as design and implementation of hardware and software. Computer science can be regarded as Academic discipline which is taught and researched at the college or university level. Computer science is an academic discipline, or an area of research established in the Federal University of Technology Minna. At the undergraduate level, Projects are prescribed for the award of B. Tech in Computer science, while 'Theses' are prescribed for masters' and doctoral degrees (Ph.D) in computer science. Computer science department has produced several masters' degree graduates who completed their studies and produced their theses.

Analysing and mapping-out cited references of any scientific literature in computer science provides a better understanding of the characteristics and relevance of its literature. This provides guide and insights on how researchers interact with literature during their studies, therefore helping librarians and information managers in understanding users literature preferences, thereby shaping collection development. (Gayan and Singh, 2018). Due to the exponential rise in literature production and interdisciplinary nature of research, citation analysis has become pertinent for libraries and particularly for acquisition librarians for making informed decisions when acquiring library information resources. There is paucity of funds for libraries to get resources globally, therefore, to maintain a reasonable and useful collection of information resources according to Gayan and Singh (2018) librarians should acquire knowledge of the characteristics and consistently study cited and map- out references used by computer science researchers.

Citation content analysis describes the citation preferences of Computer science researchers. It describes the 'citations' within a full-text document such as Theses. Computer science researchers append a list of references consulted while conducting research. The process provides a bibliographic insight about cited works, such as author(s), 'title of the document formats and in some cases date of publications. Therefore, analyzing and mapping-out citation contents in Computer science theses throws light on the citation patterns by identifying predominant patterns, trends as well as describing the citation behavior of computer science researchers as to how, when, where and why researchers cite a particular document. These indexes play a major role in research assessment and provide guides on how Collection development decisions are based.

Statement of the research problem

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Theses produced by the computer science researchers in Federal University of Technology, Minna, Nigeria has not undergone any bibliometrics analysis. A preliminary investigation at the computer science department provided this information. The ever-increasing amount of literature, financial constraints, interdisciplinary nature of research and divers needs of users necessitated librarians to device cost effective alternatives to meet users' needs. hence, a proper understanding and studying of cited references by computer science researchers becomes ever crucial. Therefore, studying and mapping out citations and citation behaviour of computer science theses throws light on the citation patterns, as well as citation behaviour which maps out citation location, function, and style, which throws light on how, when and why researchers cite particular document(s). These indexes play a major vote on assessment and provides guides in which collection development decisions are based.

Aim/Objectives of the study

The aim of the study is to analyze and map-out cited references in Computer science Theses in Federal University of Technology, Minna. The specific objectives are;

1) identify the features of cited references in Computer science Theses in Federal University of Technology, Minna, Nigeria.
2) determine the roles of in-text citations in Computer science Theses in Federal University of Technology, Minna, Nigeria.

Review of related literature

Determining the roles of in-text citations in Computer science theses will highlight the usefulness and quality attached to cited references. Contemporary practitioners in library and information science field relies on the bibliometric information about literatures, because such information is very relevant in research enhancement, data base management, curriculum and collection development. A study by Aliyu (2015) presented the analysis of thirty-one Doctoral theses in Education submitted to the postgraduate school, University of Maiduguri between 1987 and 2007.The name of the researcher, subject area covered, number of citations, formats of references cited, were examined using bibliometric techniques. The author categorized cited references in each thesis according to formats of reference cited such as books, journals, conference proceedings, using frequency counts and percentages the results were presented in tables. The study revealed that *Curriculum and Instruction* ranked the highest as the most researched subject area, *Educational psychology* was the least subject researched area. The study concluded that *Books* and *Monographs* were cited more than other formats of resources among the theses analyzed.

Similarly, citation analysis of postgraduate theses in the Department of Engineering and Technology Nnamdi Azikiwe University Awka, Nigeria by Anaehobi and Moukebe (2014) used document analysis guide to extract data from 87 copies of master's theses submitted to Festus Aghagbo Nwako library. The presentation of data was done using frequency tables and percentages. The study revealed that books were the most of cited references among the theses analyzed, this finding collaborates the research findings of Aliyu (2011) which means that postgraduate students consult books when carrying out research.

Content-based citation analysis addresses the value of a reference by depicting and explaining each citation based on their contest of use. Content based citation analysis (citation behavior) has

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to with two distinctive tracking system which are Syntactic and Semantic in nature. Syntactic addresses the location where the reference has been mentioned within a given document as well as the function it performs while the semantic aspect addresses why the reference has been mentioned within a given article. (Ding *et al*.,2013), (Zhao and Strotman, 2014).

Some indexes at the syntactic and semantic levels which include citation mentioning, citation location, frequency of citation, citation functions, citation styles and citation disposition describes citation content (Lu *et al.*, 2016). Lu *et al's* study properly used citation indexes to evaluate the influence and value of an article, detect the currency of such publication and as well as inform beginners on how to properly cite an article. Citation mention describes how many times a cited article appears throughout the body of a citing document; which involves counting and mapping out citation throughout the sections of a body of discourse. Ding *et al.* (2013) asserted that citation appears the most. The authors further proved that different locations of cited documents in the citing paper may appear or weigh differently, this means that citation locations can appear in each section of research such as introduction segment, review of related work aspect, methodologies adopted, but still weigh or have different function throughout the citing document. Citation disposition has to do with the sentimental annotation of the citations. Zhang *et al.* (2013) proved that citation may show a positive or negative, neutral and mixed reaction. Furthermore, Zhang *et al* (2013) defined citation styles of mentioning such as not et specially mentioning but interpreting, and direct lifting and quoting. Therefore, citation counts in each cited work means identifying and counting the frequency of citations in a particular article which can suggest its level of significance.

Analyzing and mapping out cited work simplifies citation behavior. Citing of sources involves complex altitudes which can influenced by many subjective factors. Eclevia and Janio (2016) studied citation behavior of Filipino faculty and researchers. Sixty-two percent (62%) of the cited sources provided background information, the citation functions were placed mostly in the Introduction and Result/Discussion segments. Furthermore, the general deposition of citations among Filipino faculty members were positive, researchers mentioned sources in their articles to acknowledge the existence of related knowledge. In conducting citation behavior studies, one needs to be versed with its scope, use and limitation of various research design and methods to properly identify the focus citied articles.

The study of Tahamtan and Bornmann (2018) explored textual indexes of cited references (frequency of citation, citation length, location of citation and citation disposition) within the text which predicts citation relevance. The study revealed 64.7% of references in psychology, 50.9% in biology were cited in the introduction section. Most locations of citations were in general background, conceptual ideas, while methods and data analysis segments had the least frequency of citation. Clarke and Oppenheim (2006) also conducted a survey on the citation behavior of 65 postgraduate in Loughborough University, Department of Information Science. The study revealed that the reasons why researchers cite an article is to support their own argument and acknowledge related articles. Generally, the students believed they based their motivation to cite on the value of the cited articles than any non-scientific reasons.

In Nigeria, Salami & Olatokun (2018) analysed and compared the characteristics and variations of the cited literature across the ten departments in the faculty of science, University of Ibadan, in Nigeria, during the period 2006 to 2013. The study also analysed 21,005 citations from 124 Ph.D. theses submitted to the ten departments. The study revealed that journals (67.6%) were the most cited sources, followed by books/monographs (13.6%), and conference papers (2.6%). The cited

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journals were predominantly non-Nigerian journals. In addition, evaluation of the availability of cited journals in the University Library showed that the library is deficient in providing adequate journals for students' scholarship and research.

Similarly, Onwubiko & Okeke (2023) analysed serials in postgraduate research reports of library and information science of public universities in Southeast Nigeria from 2013 to 2021. The most cited serials according to the study were journals with 76.5% citations followed by conference proceedings/reports with 20% and the least cited being government publication with only .5 citations. Furthermore, the study also revealed that multi authorship is the most frequently cited author pattern in the theses and dissertations, while annual serials citations range from 1034 to 2205. In a related study, Daniel *et. al.* (2023), study revealed that the collaboration distribution of cited references in computer science masters' theses of FUT Minna from 2008-2014 were mostly multidisciplinary (53.9%), while the most cited were journals (52%) and books (18%).

Research Methods

Computer science theses deposited in the University Library, Federal University of Technology Minna, Nigeria, were selected to extract the required data needed for the study. Master's degree theses bibliographic details worksheet and citation content analysis citation codebook designed by Zhang *et al* (2013) were used for the data collection whiles tables, frequency counts and percentages were used to present the results. The theses covered between 2015-2017 respectively.

Results

RQ1: What are the features of cited references in computer science theses in Federal University of Technology, Minna, Nigeria.

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Table 1: The total number of citations and references in computer science theses submitted to Federal University of Technology, Minna, Nigeria.

Thesis Code	Citations	References
MTCS 001	57	44
MTCS 002	41	25
MTCS 003	75	40
MTCS 004	59	34
MTCS 005	68	32
MTCS 006	95	53
MTCS 007	65	45
MTCS 008	143	78
MTCS 009	89	49
MTCS 010	115	60
MTCS 011	154	46
MTCS 012	104	64
MTCS 013	64	26
MTCS 014	66	69
MTCS 015	114	44
MTCS 016	93	49
MTCS 017	77	46
MTCS 018	66	32
MTCS 019	38	22
MTCS 020	184	42
MTCS 021	78	68
MTCS 022	48	55
MTCS 023	62	43
MTCS 024	77	47
MTCS 025	113	39
MTCS 026	38	29
MTCS 027	55	37
MTCS 028	133	59
MTCS 029	156	43
MTCS 030	77	21
TOTAL	**2554**	**1341**

The Findings about the number of citations and references in 30 copies of computer science theses were 2554 citations and 1341 references. References and citations are integral parts of research undertakings which means previous information and knowledge sources were consulted prior to the study .The findings further showed that, some theses had more citations frequency more than others, ranging from 150 and above, which means that some of the research are

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theoretical based rather than programming which normally contained programmed codes and few references and citations.

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Table 2: The subject focus of computer science theses in the Federal University of Technology, Minna, Nigeria

Thesis Code	Subject Focus
MTCS 001	Algorithm
MTCS 002	Software Development & Engineering
MTCS 003	Algorithm
MTCS 004	Computing
MTCS 005	Computer Programming
MYCS 006	Computer Networks & Networking
MTCS 007	Algorithm
MTCS 008	Algorithm
MTCS 009	Software Engineering
MTCS 010	Algorithm
MTCS 011	Automation
MTCS 012	Software Engineering
MTCS 013	Algorithm
MTCS 014	Management Information System
MTCS 015	Networking
MTCS 016	Information Security
MTCS 017	System Design and Management
MTCS 018	Networking
MTCS 019	Algorithm
MTCS 020	Algorithm
MTCS 021	Web Development
MTCS 022	Web Development
MTCS 023	Algorithm
MTCS 024	Software Development
MTCS 025	Cyber Security
MTCS 026	Web Development
MTCS 027	Cyber Security
MTCS 028	Software Development
MTCS 029	Software Development
MTCS 030	Cloud Computing/ Networking

Table 2 shows subject focus of computer science theses, the results show that *Algorithms* was the subject focus of computer science researchers in Federal University of Technology Minna, Nigeria. The least researched areas are *System Design* and *Management Information System*. These are related to the study of Ma and Lund (2020) who studied Library and Information Science research topics between 2006 – 2018, in Emporia State University, USA, and identified that most research focus among librarians are *Informetric* and *Information systems*.

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Table 3: Formats of cited publications in computer science theses in the Federal University of Technology, Minna, Nigeria.

Formats	Frequency	Cumulative Frequency	Percentage	Cumulative Percentage
Journals	1198	1198	89%	89%
Conference	78	1276	6%	95%
Books	65	1341	5%	100%

Table 3 shows the analysis of formats of cited bibliographies appended behind each thesis on computer science. The study discovered that *journals* were major cited articles (89%), followed by *books* (6%) while *conference proceedings* were the least format of cited references (5%). Most researchers find it more appropriate to publish in journal articles. Geetha *et al* (2016) in their analyses of computer science theses submitted to top 5 Universities in Shodhaganga between 2014 and 2015, reported that journals were the preferred and mostly cited information resources by researchers in computer science. This is in line with the findings of this study.

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Table 4: Highly cited journal publications in Computer Science theses in the Federal University of Technology, Minna.

S/n	Journals	Frequency of Occurrence
1	Expert System with Application	52
2	International Journal of Computer Applications	36
3	IEEE Transaction on Neural Networks	35
4	International Journal of Computer Science	19
5	International Journal of Scientific & Engineering Research	18
6	International of Computer Science & Telecommunication	18
7	International Journal of Intelligent System & Application	17
8	International Journal of Computer Science & Information Technology	17
9	Machine Learning	17
10	International Journal of Computer Science & Engineering	17
11	International Journal of Advance Computer Science Application	16
12	Indian Journal of Computer Science and Engineering	16
13	Data Mining and Knowledge Discovery	16
14	European Journal of Business and Management	16
15	Journal of Theoretical and Applied Information Technology	15
16	International Journal of Innovations Research in Computer and Communication Engineering	15
17	African Journal of Computing and ICT	15
18	Journal of Service Marketing	15
19	Journal of Data Mining & Knowledge Management	14
20	IEEE Transaction in Data Mining & Knowledge Discovery	14
21	Research in Computer Science & Management Science	14
22	African Journal of Computer Science and ICT	14
23	Information Sciences	14
24	Neural Networks	14
25	Journal of Health Informatics in Development Communication	13
26	ACM Computing Survey	12
27	International Journal of Human- computer Interaction	12
28	International Journal of Engineering Research	9
29	Knowledge Based Systems	8
30	Journal of Service Industries	6
31	Journals Publications cited 6 times & above	514
32	Journals publications cited 1-5 times	684
	TOTAL	**1198**

From the Table 4 above, *Expert system with application*s had the highest frequency of citation, which means that the journal is the most preferred journal publication among computer science researchers in this period of time studied. *International Journal of Computer Applications* is the second highly cited journal publication with 36 entries, closely followed by *IEEE Transaction on Neural Networks* with 35 entries. *Journal of Service Industries* had 6 entries among the lowest

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cited journal publications. Many research findings reported journal publications were the most used articles in research writing. It is widely accepted that journal publications are the best medium through which latest advancement and discoveries are disseminated. Clarke and Oppenheim (2010) studied research articles on citation behavior of undergraduate and masters' students theses produced more journals and less books. Kumar and Sharma (2010) carried out analysis of 61 Library and Information Science dissertations, the authors reported also that journal publications were cited more than books and other types of information resources. The authors further reported that *College and Research Libraries* and *Journal of American society for information science and technology* were the most cited journals

RQ2: What are the roles of In-text citations in computer science theses in Federal University of Technology, Minna, Nigeria.

Table 5: Citation motivation among computer science theses in Federal University of Technology, Minna, Nigeria.

Citation Motivation	**Number of Citations**
Interpretative	997
Affirmative	1215
Negational	44
Contrastive	83
Comparative	215
Total	**2554**

Table 5 /indicates the citation information of computer science researchers' entries on affirmative and interpretative which had 1215 and 997out of 2554 citations respectively. Researchers admitted that negational, contrastive and comparative motive for citing appears less with 44, 83 and 215 entries. Using the framework of Zhang *el al* (2013) motivations behind citing among computer science were analyzed to determine their citation behaviour. Here, researchers cite to interpret and affirm previous research related to the subject matter. In citations behaviour studies, it is the norm that the researchers cite to always acknowledge related work, support own assertions and make citations were necessary. Citations should not be based on non-Scientific practices.

Table 6: Location of Mentioning in Computer Science Theses in Federal University of Technology, Minna, Nigeria.

Location of Mentioning	**Number of Citations**

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Abstracts	4
Introductions	434
Literature Review	1824
Research Mythologies	154
Results/Discussions	12
Conclusion and Recommendations	9
Total	**2554**

A total 6 of 2554 citations existed in 30 copies of computer science theses. The above table indicated that abstracts sections produced only 4 entries, introduction section had 434 citations, literature review segment had the highest number of citations, while research methodologies, results and discussions and conclusion & recommendations produced 154, 129 citations respectively. Scholars have created a consistent path for reporting research findings. The arrangement of research into segments created space for citations to be analyzed based on this scientific order. This study reveals that literature review produced more citations than other segments. A similar study of Iloka, Abifarin and Salau (2023) on citation content analyses of M. Tech theses in library and information technology revealed that Abstract segment had no citation. Eclevia and Janio (2016) also reported that Filipino faculty members cited more in the literature review segment while communicating their research activities.

Table 7: Disposition of Computer Science Theses in Federal University of Technology Minna, Nigeria.

Disposition of Citations	**Number of Citations**
Positive	2112
Negative	44
Mixed	183
Neutral	215
Total	**2554**

Table 7 shows that 2554 citations 2,112 were in positive outcome, 44 citation reveals the dispositions as negative, mixed reactions had 183 entries while 215 citations of computer science theses were mostly positives, Furthermore, citations were generally made to criticize the statement of others while a little portion of citations were mixed and neutral. Eclevia and Janio (2016) reported that Filipino Faculty Members and researchers were mostly positive in their disposition of citation. Ding *et al* (2013) used citation indexes such as disposition of citation to determine the value of publications which serves as guide to beginners on how to properly cite documents. Generally, citation analysis studies are done to evaluate scholarly impacts and value. These indexes are used to assess the quality, trace patterns and establish relationship among literature. *Algorithm* is the subject focus of master's degree computer science researchers in Federal University of Technology, Minna, Nigeria. This finding implies that other areas of specialization in computer science can be relatively explored by intending researchers. In terms of formats of publications, journals were the most preferred information resources consulted by computer science researchers. The most cited journal is the *Expert system with Applications* and

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closely followed by *International Journal of Computer Applications*. Citation content analysis approaches study citations within full text of any scientific publication, therefore, describe the citation behavior of researchers. The current findings of this study which are based on citation locations, citation motivation and citation dispositions. In citation motivation, researchers in computer science cite to affirm and interpret the works of previous authors, they cite to support, affirm and interpret research related to their research undertaking. In location of citations, majority of the citations appeared in the introduction and literature reviews segments. This is since more and more previous articles are reviewed, and authorities acknowledged. In citation motivation, citation disposition addressed the sentimental aspects of citations, here, the researchers can ignore or negate previous statements of others, because some view it as a threat to their expected results; while could have mixed reaction or in a neutral state while citing.

Conclusion.

The analysis of cited references in computer science theses provided an understanding of preferences and choices of computer science master's degree researchers that suit their research needs, thereby shaping collection development policies of academic institutions which establish academic disciplines. The findings of this study determined the roles of in-text citations within these scientific documents. It is believed that these will guide as many who wish to understand the underlying reasons or motives behind citations. It will serve as a guide to intending researchers to properly explore other areas of computer science which has not been properly researched. All these will bring growth and advancement to the field.

Recommendations

Academic libraries management should use the finding in this study to bring in resources that provides the needs of Computer science researchers especially the most preferred formats of information resources for users. These policies can be replicated across the globe and intending researchers and scholars should have an in-depth knowledge of citations and what they stand for in order to maintain the norms of citations.

References

Aliyu, Y. (2015) Citation Analysis of doctoral theses in education, *Annals of Borno*, 25 (1), 67-74

Anaehobi, E.S. & Moukebe, B.O. (2014) Citation analysis of theses in the Department of Engineering and Technology, Nnamdi Azikiwe university, Awka, Nigeria. *Journal of Applied information Science and Technology*, 7 (2) 46-53.

Borthakur, P. (2015) Citation Analysis of Theses and dissertation in chemistry submitted to the LNB library, Dibrugarh University,2009-2013, *International journal of Research in Library science*, 1 (2), 33-41.

Clarke, M.E. & Oppenheim, C. (2010) Citation Behaviour of Information Science Students II: Postgraduate Students: Education for Information, 24, (1) 1-130 do i: 10: 3233/EFI- 2006-24101.Dibrugarh University, 2009-2013. *International Journal of Research in Library Science*.

Daniel, L. O., Chuk-Ibe, P.O., & Salau, S. A. (2023) *Bibliometrics analysis of selected masters' theses in computer science to support collection development at the federal university library, Minna between 2008-2014*. A paper presented at the 6th Annual conference and AGM of the NLA, Niger State Chapter held at the new lecture theatre, Federal College of Education Kontagora.

Gayan, M.A. & Singh, S.K. (2018) Citation analysis of doctoral theses of Mathematics, Tripuna University: A Scientometrics study. *International Journal of Library Information Network and Knowledge*. 3 (2), 107-12. Retrieved from www.slp.org.in

Iloka, E.C. & Abifarin, F. P. (2022) Content Analysis of master's degree Theses in Library and Information Technology for Improved Research and Collection Development. *Journal of Information Resource Management* (IJRM) 7, (1) 1-13.

Iloka, E.C., Abifarin, F.P. & Salau, S.A. (2023) Citation Content Analysis of master's degree Theses in Library and Information Technology for Improved Research. *Nigeria Libraries, Journal of Nigeria Library Association*, 56, (1) 86-99.

Kumar, K. & Sharma, J. (2010) Library and information science education in India: A historical perspectives. *DESIDOC Journal of library and information technology*, 30(5) 3-8. Doi:10.14429/djlit.30.610

Lu, C., Zhang, C., & Ma, S. (2016). How does citing Behaviour for a scientific article change over time? A Preliminary study. *Proceedings of the Assist*, 52 (17), 1-4.

Ma, J., & Lund, B. (2020) The evolution of LIS research topics and methods from 2006-2018: A content analysis; *proceedings of the American society for Information Science and Technology* doi.10.1002/pra2.24

Naidoo, N. (2011) What is Research? A conceptual understanding. *African Journal of Emergency Medicine* 1, 47-48.

Onwubiko E.C. and Okeke I.E. (2023) Citation Analysis of serials in Postgraduate Research Theses and Dissertations of Library and Information Science of Public universities in Southeast, Nigeria, *International Journal of Library and Information Science Studies*, Vol.9, No.4, pp.13-44

Salami, M. & Olatokun, W. (2018). Citation Analysis of Ph.D. Theses at Faculty of Science, University of Ibadan, Nigeria. 10.5072/FK29Z97H4B.

Tahamtan, I., & Bormann, L, (2018) Core elements in the process of citing publication: Conceptual overview of the Literature. *Journal of Informetric*, 12 (1) 203-216. do i: 10. (016) oi 2018 01.002

ISSN: 3428-0009

Zhang, G., Ding,Y., & Milojevic, S. (2013) Citation content analysis (CCA): A framework for syntactic and semantic analysis of citation content. *Journal of the American society for information science and technology*, 64 (7), 1490-1503.

Zhao, D., & Strotman, A. (2014). In-text author citation analysis; feasibility, benefits and limitations. *Journal of the Association for Information Science and Technology*, 65(11) 2348-2358.

