

RELATIONSHIP BETWEEN ONLINE SERIALS UTILIZATION PATTERN AND RESEARCH OUTPUT AMONG POSTGRADUATE STUDENTS IN STATE UNIVERSITIES IN NORTH-CENTRAL, NIGERIA.

By

DR. JIBRIN YAKUBU AZAKI (CLN)

Department of Library and Information Science,
Kogi State University, Anyigba, Kogi State, Nigeria.

and

PROF. A. J. C. Mole

Department of Library and Information Science,
University of Nigeria, Nsukka, Enugu State, Nigeria.

Abstract

The study examined the Relationship between Online Serials Utilization Pattern and Research Output among Postgraduate Students in State Universities in North-Central, Nigeria. Two research questions guided the inquiry, with a single null hypothesis tested at a significance level of 0.05. The study adopted a correlational research method with total population of 4,400 registered postgraduate students in state universities in North-Central, Nigeria. A sample size of 220 postgraduate students was selected for participation. Data collection utilized two instruments developed by the researcher: the Serials Utilization Pattern Questionnaire (SUPQ) and the Research Output of Postgraduate Students Questionnaire (ROPSQ). The data was analyzed using Pearson Product Moment Correlation Coefficient (PPMCC), mean and standard deviation. The findings revealed a significant positive relationship ($R^2 = .955$) between online serials utilization patterns and the research output of postgraduate students in state universities in North-Central, Nigeria. Additionally, the study identified a high level of research output among postgraduate students, particularly in the realm of writing papers for local conferences. However, the null hypothesis concerning the predictive ability of online serials utilization patterns on research output was supported ($\beta = .136$, $t(219) = 2.027$, $p < .05$). In light of these findings, it is recommended that university management consider increasing budgetary allocations to the serials sections of their libraries. This investment would facilitate the provision of up-to-date information across various disciplines, thereby enhancing the research endeavors of postgraduate students in North-Central, Nigeria.

Keywords: Serials, Utilization Pattern, Research Output and Postgraduate Students.

Introduction

Serial publication plays a pivotal role in the academic landscape of educational institutions, facilitating the production of high-quality research output and the exploration of new ideas within

existing bodies of knowledge. Universities, established by federal and state governments, are inherently geared towards research, teaching, and learning. The utilization of serials, which often contain the latest information on advancements and ideas, is indispensable for researchers, lecturers, and particularly postgraduate students. Research has long been the cornerstone of university activities, setting it apart from other levels of the education system. The pursuit of knowledge and the aspiration to enhance humanity's condition underpin the establishment of the university system. The term "university" stems from the Latin phrase "universitas magistrorum et scholarium," signifying a community of teachers and scholars. Universities are designated hubs for teaching, learning, and research across various disciplines, empowered to confer academic degrees, including bachelor's, postgraduate diplomas, master's, and doctorates. Universities are entrusted with the generation of new knowledge, fostering the dissemination and adoption of innovations, while emphasizing the importance of qualitative and quantitative research outcomes (Akinbode & Nwalo, 2017).

Serials play a crucial role in study, learning, teaching, and research, offering current and relevant information. Professionals tasked with managing serial collections are commonly referred to as serial librarians. Nyiyongo, Tersur, and Tofi (2020) outlined the characteristics of serials, including variable publication intervals, ongoing publication without a planned end, and the necessity of subscription due to their costliness compared to books. Serials serve as significant information sources for university users, particularly those pursuing advanced degrees, as they provide access to contemporary ideas and knowledge. They are published by academic or research institutions, learned societies, publishing organizations, or professional bodies at various intervals, ranging from daily to annually, often covering specific topics or themes. Unlike books and monographs, serials offer serialized content, with format and cost varying according to the length of the publication. Recognizing their importance, scholars frequently turn to serials to access the most recent opinions and developments within their respective disciplines (Olutoki & Osoba, 2017).

As additions to library book collections, serial materials furnish users with current information, drawing from scholarly, religious, cultural, political, social, and entertainment domains. Highly esteemed by instructors and students alike, serials serve as primary knowledge sources in government-approved libraries, underpinning the foundation of academic libraries due to their informational richness. These publications frequently feature expert-authored and reviewed articles, ensuring reliability and readability compared to textbooks. Serial collections cater to specialized user needs and offer technical services, uniquely contributing to the mission of tertiary institutions in teaching, research, and scholarly communication. The presence of a robust serials collection signifies the excellence of a university's information services, facilitating the dissemination and utilization of research findings across time and space. It is imperative to acknowledge the intricate processes involved in managing serial publications within library systems to ensure their accessibility and utility for a diverse user base (Anunobi, Nwankwu & Ezejiofor, 2010).

The knowledge disseminated through serial publications often remains exclusive to that medium, highlighting the significance of these publications for both libraries and scholars (Nwalo, 2009). Graduate students utilize serial publications to present their research findings and identify areas for further study. Academic libraries curate the latest serial materials across various subjects or courses to provide faculty and students with access to up-to-date information relevant to their fields of study. Sambo and Akpojotor (2016) detailed how academic libraries allocate dedicated sections for serial materials, including journals, newspapers, newsletters, and other resources, to support researchers' information needs.

Serials serve as essential sources of knowledge, offering intellectual stimulation through professional journals, magazines, newspapers, reports, bulletins, and yearbooks. Library serial divisions play a critical role in selecting, acquiring, cataloging, storing, and displaying these materials to facilitate their utilization by lecturers, students, and researchers. Understanding how postgraduate students utilize serial publications is particularly crucial as it grants them access to the most current

and relevant research materials in their respective fields (Akinbode & Nwalo, 2017). The emergence of online and electronic serials has revolutionized the utilization patterns of serial publications. Electronic journals, accessible via computers or electronic devices, offer researchers the convenience of accessing new issues without visiting physical libraries, enhancing accessibility and timeliness of information. Electronic books (e-books) complement printed copies, especially for high-demand titles, with many free collections available online. Online databases provide searchable abstracts and full-text access to journal articles and materials, empowering users to efficiently locate relevant resources. Notable examples of online databases include Agora, NEXUS, Keesings, Researchpro, and Sabinet Online (Komolafe, Gbotosho & Odewole, 2020).

Correlation serves as a statistical tool for gauging the extent of relationship, association, or co-variation between multiple variables. The correlation coefficient, typically employed to quantify this relationship, indicates both the strength and direction of association between variables (Nworgu, 2015). A correlation coefficient can vary in magnitude and sign, with a high value signifying a strong association and a low value indicating a weaker relationship. If the coefficient is positive, it indicates a direct correlation, meaning both variables move in the same direction. Conversely, a negative coefficient signifies an inverse relationship, indicating that as one variable goes up, the other goes down.

Output refers to the quantity of something produced by individuals, machinery, or industries. In this context, research output encompasses the outcomes of research endeavors conducted by academics and postgraduate students, including projects, theses, dissertations, and articles published in various mediums (Madu, 2012). Academic staff's performance is often evaluated based on their research output, including publications, conference papers, workshops, and seminars, influencing promotion and institutional rankings. Postgraduate students, having already obtained an undergraduate degree, pursue advanced degrees such as postgraduate diplomas, master's, and doctoral degrees (Griffith, 2019). Their maturity in their respective fields necessitates access to serial publications for their

research endeavors. Serials play a crucial role in research by offering up-to-date materials, and ensuring that students, professors, and researchers remain relevant in their fields.

Statement of the Problem

Serials serve as highly effective information sources beneficial to researchers and students across various subjects. However, despite their significant role in academic work, including research and the dissemination of up-to-date information across diverse disciplines, the quality of research output from postgraduate students in state universities in North Central Nigeria appears to be unsatisfactory. Addressing the issue of serials utilization in higher education becomes imperative, considering their role in providing current information across various subjects and disciplines. Moreover, academic staff members' advancement is often contingent upon their research output, which predominantly comprises publications.

Nevertheless, despite the value of serials materials in universities, preliminary observations and studies conducted at state universities in North Central Nigeria suggest that postgraduate students' research output falls short of expectations. The caliber of research output, whether disseminated through print or electronic serial publications, appears inadequate in these institutions. This deficiency underscores the need for improvements in the quality of research output produced by postgraduate students in state universities in the North Central, Nigeria.

Research Questions

1. What is the research output of postgraduate students in state universities in North-Central, Nigeria?
2. What is the relationship between online serials utilization patterns and the research output of postgraduate students in state universities in North-Central Nigeria?

Hypothesis

The hypothesis was formulated and tested at a 0.05 level of significance:

H₀₁: There is no significant relationship between online serials utilization pattern and research output of postgraduate students in state universities in North-Central, Nigeria.

Literature Review

Serials encompass publications in print, non-print, or electronic formats, including journals, newspapers, annual reports, yearbooks, periodicals, proceedings of societies, and monograph series. These materials constitute a significant portion of university library collections, as librarians must ensure access to serials and related services for lecturers, postgraduate students, and researchers engaged in practical research activities. Universities, being centers for teaching, research, and publication, often disseminate research outcomes through professional journals, books, magazines, and other mediums.

University libraries frequently assess the success of their programs by gauging their ability to procure timely and pertinent serial publications essential for research endeavors. Ndanwu (2019) delineated several categories of serials housed within university library departments, tailored to meet the diverse needs of patrons. These include journals, abstracts, newspapers, society transactions, newsletters, memoirs, government documents, reports, proceedings, magazines, yearbooks, almanacs, bulletins, and pamphlets. Serials are valued as essential and popular learning materials due to their provision of current information, which can be sourced locally or ordered from overseas. In Nigerian universities, library users frequently request photocopies of important articles and academic topics from serials, indicating the significance of these materials in academic research (Susanah & Ayobani, 2018).

Efficient management of serial publications greatly enhanced academic pursuits and research activities for scholars. Serials are regarded as essential assets in special, academic, or research libraries, offering crucial and current sources for research (Uzoigwe, 2015). Their pivotal role in library functions, especially within academic settings such as university libraries, cannot be emphasized enough, as they provide users with the latest and most critical information to bolster academic endeavors (Komolafe, 2020). Serials, which encompass various forms such as newspapers, magazines,

journals, indexes, reports, and more, are not only valuable for research purposes but also serve as engaging reading material for leisure and educational purposes.

Postgraduate students depend on collections of serials to stay abreast of the latest developments in diverse fields and acquire current bibliographic data in specialized areas of study (Olanlokun & Salisu, 2016). The utilization pattern of serials materials by postgraduate students in research activities across different disciplines plays a crucial role in meeting their academic needs and achieving desired outcomes. Research output, including publications, projects, dissertations, theses, teaching experiences, examinations, and scholarly works, serves as a key indicator of academic staff productivity in tertiary institutions (Research Information Network, 2011).

Research output serves as a crucial indicator for evaluating the success or failure of postgraduate students in academic institutions. Different scholars have offered various definitions of this concept. According to Ashworth and Harvey (2014), research output constitutes tangible proof of scholarly investigation, underlining that meaningful research is only evidenced through output. Lindauer (2018) broadens this definition to include publications in journals, books, conference presentations, chapters in edited volumes, secured grants, and creative works.

Likewise, Moed et al. (2015) view research output as comprising publications in peer-reviewed journals and scholarly books, which disseminate academics' research findings and concepts among colleagues, fostering discourse within the respective field. They assert that such publications should provoke reactions and challenges among colleagues. In essence, research output signifies the outcomes of research endeavors, whether published or unpublished, serving as a critical measure of academic staff productivity and overall institutional performance.

Despite its significance, the emphasis on research output has drawn criticism for potentially leading to a proliferation of lower-quality work. However, research output remains indispensable for measuring academic staff productivity and institutional performance. Ahmad et al. (2018) emphasize the connection between research output and teaching effectiveness, suggesting that engaging in quality

research enhances academic staff's teaching abilities exposing them to valuable information and innovative teaching methods.

Moreover, Babbar et al. (2010) assert that maintaining a high level of research output keeps academic staff abreast of developments in their fields, positioning them as leaders in their disciplines. The research output enhances the quality and depth of classroom learning, encouraging students to engage critically with complex research findings. Consequently, academic researchers with substantial research output are believed to be more adept at fostering critical inquiry and understanding among their students.

Postgraduate students are individuals who have successfully completed undergraduate degree-level courses at a university or college and are pursuing further studies at more advanced levels. Niyiyongo, Tersur, and Tofi (2020) characterize postgraduate students as individuals who have finished their Bachelor's Degree or Higher National Diploma programs and are pursuing advanced studies. These students might be enrolled in postgraduate diploma programs, master's degree programs, doctoral degree programs, or post-doctoral programs to achieve higher qualifications.

In tertiary institutions, postgraduate students rely on serial publications to fulfill their roles in research, learning, and particularly research work. Kumah (2015) highlights the heavy reliance of students on journals (both print and online), theses, dissertations, and periodical literature to enhance their research productivity. Similarly, Olanlokun (2015) emphasizes the importance of journal articles, treatises, textbooks, monographs, theses, dissertations, and government documents in supporting the job performance of Nigerian academics.

Methodology

This study utilizes a correlational research design to investigate the relationship between variables. Correlational studies, as defined by Nworgu (2015), elucidate the direction and strength of relationships between two or more variables. The study is conducted in the North-Central region of Nigeria, covering Kogi, Kwara, Benue, Niger, Plateau, Nasarawa states, and the Federal Capital

Territory (FCT), Abuja. The population consists of 4,400 registered postgraduate students in five state universities in North Central Nigeria namely: Kogi State University, Anyigba; Ibrahim Badamasi Babangida University, Lapai; Benue State University, Makurdi; Kwara State University, Malete; and Nasarawa State University, Keffi. These universities are established and governed by various state governments.

The sample of this study comprised of 220 postgraduate students, representing 5% of the total population of 4,400 postgraduate students enrolled for the 2017/2018 academic session in the five state universities under investigation. This sample size adheres to the recommendations of Nwana, as cited in Ifidon and Ifidon (2007), which suggest that for populations in the thousands, a sample size of 5% or less suffices for research purposes. Considering this guideline, the researcher considers the sample size appropriate for generating dependable and credible data. Data collection involved administering structured questionnaires by the researcher and assisted by research assistants recruited from the five state universities under study. This approach aimed to maximize questionnaire returns from the participants. The collected data underwent analysis utilizing the Pearson Product Moment Correlation Coefficient (PPMCC) for research question 1, investigating the relationship between online serials utilization patterns and research output among postgraduate students in the five state universities of North-Central Nigeria. Furthermore, all hypotheses were tested using analysis of variance (ANOVA) at a significance level of 0.05.

Results And Discussion

The result was presented in line with the following research questions and the null hypothesis that guided the study.

Research Question 1: What is the research output of postgraduate students in state universities in North-Central, Nigeria?

Table 1: Mean responses of respondent on research output of postgraduate students

		NAME OF INSTITUTIONS					Overall	Rank	Decision	
		KSU	BSU	KWSU	NSU	IBBU				
		Mean	mean	Mean	Mean	mean	mean	SD		
1	Publishing of articles	2.14	1.94	2.35	2.09	2.06	2.10	.94	12 th	L

	in Journals										
2	Publishing of books	3.23	2.88	2.81	3.34	3.49	3.16	.84	3 rd	H	
3	Contribution of Chapters in books	3.37	2.82	2.57	3.36	3.43	3.12	.85	4 th	H	
4	Contribution of articles in Conference proceedings	3.16	2.73	2.86	3.39	3.40	3.11	.81	5 th	H	
5	Presentation of Seminar papers	3.16	2.57	2.49	3.32	3.30	2.98	.92	8 th	H	
6	Writing of Abstracts	3.40	3.08	3.11	3.18	3.45	3.25	.75	2 nd	H	
7	Writing of Dissertations reports	3.12	2.55	3.05	3.41	3.43	3.10	.93	6 th	H	
8	Seminar reports	2.77	2.84	3.27	3.07	2.98	2.97	.91	9 th	H	
9	Writing of conference papers for local conferences	3.49	3.53	3.59	3.59	3.62	3.56	.63	1 st	VH	
10	Contribution in Co-authored textbooks	2.42	1.88	2.08	2.08	2.27	2.26	1.10	10 th	L	
11	Contribution in Scientific peer-reviewed	2.26	1.94	2.22	2.30	2.28	2.19	.99	11 th	L	
12	Publications of Articles in learned journals	3.07	3.33	3.24	3.07	2.72	3.08	1.10	7 th	H	
	CLUSTERMEAN	2.91	2.54	2.74	3.05	3.03	2.85	.44		H	

Key: Very High (VH); High (H); Low (L), KSU=Kogi State University, BSU=Benue State University, KWSU=Kwara State University, NSU= Nassarawa State University and IBBU= Ibrahim Badamosi Babangida University.

Table 1 above indicates research output of postgraduate students. These include writing of conference papers for local conferences, writing of abstracts and publishing of books. These have mean and standard deviation of (\bar{X} =3.56, SD=.63), (\bar{X} =3.25, SD=.74); and (\bar{X} =3.16, SD=.94) respectively which indicates Very high, high and high respectively. Similarly, the table also indicates other research output of postgraduate students that are low such as Publications of Articles in learned journals, Contribution in Scientific peer-reviewed and Contribution in Co-authored textbooks. These have mean and standard deviation of (\bar{X} =2.10., SD=.94); (\bar{X} =2.19, SD=99) and (\bar{X} =2.26, SD=1.10) respectively.

Research Question 2: What is the relationship between online serials utilization pattern and research output of postgraduate students in state universities in North-Central, Nigeria?

Table 2: Pearson correlation analysis showing the relationship between online serials utilization pattern and Level of Research Output

School			Online utilization pattern	Level of Research Output
KSU	Online utilization pattern	Pearson Correlation	1	.732
		Sig. (2-tailed)		.001
		N	43	43
	Level of Research Output	Pearson Correlation	.732	1
		Sig. (2-tailed)	.001	
		N	43	43
BSU	online utilization pattern	Pearson Correlation	1	.166
		Sig. (2-tailed)		.255
		N	49	49
	Level of Research Output	Pearson Correlation	.166	1
		Sig. (2-tailed)	.255	
		N	49	49
KWSU	online utilization pattern	Pearson Correlation	1	.998
		Sig. (2-tailed)		.000
		N	37	37
	Level of Research Output	Pearson Correlation	.998	1
		Sig. (2-tailed)	.000	
		N	37	37
NSU	online utilization pattern	Pearson Correlation	1	.728
		Sig. (2-tailed)		.004
		N	44	44
	Level of Research Output	Pearson Correlation	.728	1
		Sig. (2-tailed)	.004	
		N	44	44
IBBU	online utilization pattern	Pearson Correlation	1	.693
		Sig. (2-tailed)		.045
		N	47	47
	Level of Research Output	Pearson Correlation	.693	1
		Sig. (2-tailed)	.045	
		N	47	47
Overall	online utilization pattern	Pearson Correlation	1	.977
		Sig. (2-tailed)		.000
		N	220	220

Level of Research Output	Pearson Correlation	.977	1
	Sig. (2-tailed)	.000	
	N	220	220

Key: r=Pearson Correlation Coefficient, N=total number of respondents. KSU= Kogi State University, BSU= Benue State University, KWSU= Kwara State University, NSU= Nassarawa State University and IBBU=Ibrahim Badamosi Babangida University

Table 2 shows the result of the relationship between online serials utilization pattern and Level of Research Output. It reveals that the overall correlation coefficient (r) were positively correlated, $r = 0.977$, $p < .05$. Results from state universities under study shows that all the universities had positive relationships (Kogi State University $r=.732$, $p < .05$, Benue State University $r= .255$, $p < .05$, Kwara State university $r=.998$, $p < .05$. Nassarawa State University $r=.728$, $p < .05$ and Ibrahim Babangida University $.693$, $p < .05$.)

Test of Hypothesis

The following null hypothesis guided the study which was tested at 0.05 level of significance:

H₀₁: There is no significant relationship between online serials utilization pattern and research output of postgraduate students in state universities in North-Central, Nigeria.

Table 2a: ANOVA Regression analysis showing the relationship between online/electronic utilization pattern and research output of postgraduate students.

Model	SS	Df	MS	F	R ²	Beta	Sig.	Predictors:
Regression	1551.954	1	1551.954	4655.172	.955	.977	.000 ^a	(Constant),
Residual	72.677	218	.333					online serials utilization
Total	1624.632	219						n

pattern; Dependent Variable: research output of postgraduate students

Table 1a presents the results indicating the relationship between online/electronic utilization patterns and research output of postgraduate students, with $R^2 = .955$, $F(1, 218) = 4655.172$, $\beta = .977$, $p < .05$. Given that the exact probability value (.000) is lower than the predetermined probability value (0.05), the null hypothesis, suggesting no significant relationship between online serials utilization patterns and research output of postgraduate students in state universities in North-Central Nigeria, is

rejected. The R² value of .955 demonstrates that online serials utilization patterns explain 95% of the variance in research output of postgraduate students. Moreover, the Beta (β) weighting of .977 indicates that for every standard deviation increase in online serials utilization patterns, research output of postgraduate students will rise by .977 (97%).

Discussion of Findings

Relationship between Online Serials Utilization Pattern and Level of Research Output

The findings indicate a positive relationship between online serials utilization patterns and level of research output. Ndanwu (2019) emphasized the importance of online serials utilization pattern in meeting the research needs of postgraduate students. Additionally, Nwalo, Onatola, and Aina (2014) highlighted the diverse benefits of serials resources in facilitating successful research endeavors, including access to journals, magazines, newspapers, and other periodicals. Online serials serve as foundational resources for research, providing current and accurate information across various disciplines. The advantages are further amplified with the accessibility and convenience offered by online serials compared to their printed counterparts.

Level of Research Output of Postgraduate Students

The study findings indicated a notably high level of research output among postgraduate students. These include local conference paper writing, abstract writing and book publication. Iroaganachi (2017) noted that research output fuels the proliferation of information on the internet, leading to unprecedented information growth and increased accessibility to online resources, thereby mitigating issues of information scarcity. The utilization of serials has significantly contributed to enhancing the research output levels of postgraduate students, aiding in project writing, abstract and conference paper creation, and journal publication across both local and international platforms.

Recommendations

Based on the findings of this work, the following recommendations were made:

1. Library management should prioritize the provision of serials resources to support postgraduate students in research activities.
2. Government intervention is essential in allocating adequate funds to ensure the provision of relevant, up-to-date serials for research activities in Nigerian universities. Increased funding would directly contribute to enhancing the publication output of postgraduate students.
3. University administrators should consider augmenting their budgetary allocations specifically designated for the serials section of libraries that plays a pivotal role in providing the most recent information within respective disciplines.

Conclusion

The results of this study revealed a positive relationship between online serials utilization pattern and level of research output among postgraduate students in state universities in North-Central, Nigeria. Interestingly, the analysis also reveals that online serials utilization pattern significantly predicts the level of research output ($\beta = .136$, $t(219) = 2.027$, $p < .05$), suggesting that more postgraduate students engage with online serials utilization for their research work. Consequently, the null hypothesis regarding online serials utilization pattern is accepted. This study not only offers valuable insights into the relationship between online utilization patterns and research output but also provides current empirical data on the serials utilization patterns of postgraduate students. This study enhances the current understanding within Library and Information Science by elucidating the dynamics of postgraduate students' interactions with serials resources during their research pursuits. Additionally, the findings enrich the literature on serial utilization and its influence on the research productivity of postgraduate students, providing a comprehensive view of this significant facet of academic scholarship.

REFERENCES

- Ahmad, M., Batcha, M. S., Wani, B. A., Khan, M. I. & Jahina, S. R. (2018). Research Output of Webology Journal (2013-2017): A Scientometric Analysis. *International Journal of Movement Education and Social Sciences*, 7(3), 46-58.

- Aina, L. O. (2014). Availability of *Libraries*, 10 periodical titles cited in literature of Nigerian's scientific Research. *Nigerian* (1), 25-31.
- Akinbode, R. O. O. & Nwalo, K. I .N. (2017). Impact of Serials Management, Access and Use on Publications Output of Lecturers in Nigerian Universities. *Journal of Education and Practice*. 8(2), 216 – 226.
- Anunobi, C. V., Nwankwu, O. P. & Ezejiofor, V. O. (2010). Serials acquisition problems in Nigerian Federal University Libraries. *International Journal of Library and Information Science*, 2 (7), 137 – 142.
- Ashworth, A. & Harvey, R. C. (2014). Assessing quality in further and higher education. Higher Education Policy Series 2. *Asian Review of Accounting*, 13(2), 68 – 83
- Griffith, D. (2019). The importance of scale in spatially varying coefficient modeling. *Annals of the American Association of Geographers*, 109(1), 50-63.
- Ifidon, S. E. & Ifidon, E. I. (2007). *Basic Principles of Research Methods*. Benin City: Justice Jeco Press and publishers.
- Iroaganachi, M. A. (2017). Access and use of electronic information resources as a correlate of research output of academic staff in selected universities in Lagos and Ogun states in Nigeria. Unpublished dissertation submitted to the Department of Library and Information Science, University of Nigeria, Nsukka.
- Komolafe, R. S., Gbotosho, A. S. & Odewole, O. M. (2020). Serials availability and use in Nigeria Nigeria Academic Libraries by the Postgraduate Students of Osun State University, Osogbo,. *Global Journal of Library and Information Science*, 3 (20),1 -13.
- Kumah, C. H. (2015). A Comparative Study of use of the Library and the Internet as Sources of Information by Graduate Students in the University Of Ghana.. *Library Philosophy and Practice* (e-journal). 1298, 1-21
- Lindauer, B. G. (2018). Defining and measuring the library's impact on campus wide outcomes. *College and Research Libraries* 59(6), 546 – 70.
- Madu, I. D. (2012). Library resources, services and use as factors influencing publications output of fisheries scientists in Nigeria. Unpublished Ph.D thesis submitted to the Department of Library Archival and Information Studies, Faculty of Education, University of Ibadan.
- Moed, H. F., Glanzel, W. & Schmoch, U. (2015). *Handbook of quantitative Science and technology research: The use of publication and patent statistics in studies of S & T systems*. Dordresht: Kluwer Academic Publishers.
- Ndanwu, A. I. (2019). Management of serial publications in Festus Aghagbo Nwako Library, Awka: Problems and Prospects. *Library Research Journal*, 52 – 57.
- Nwalo, G. H. (2017). Introduction to serials management. *Journal of Library and Information Technology*, 2(2), 17 – 21
- Nworgu, B. G. (2015). *Educational Research: Basic issues and methodology*. Nsukka: University Trust Publishers.
- Nutsupkui, E. & Owusu-Ansah, C. M. (2017). Awareness and use of serials in an African University Library: Faculty and students' perspective. *Information Management and Business Review*, 9 (1), 39 – 48.

- Nyiyongo, T. V., Tersur, A. A. & Tofi, T. S. (2020). Use of serials for research by postgraduate students in university libraries in Benue State, Nigeria. *International Journal of Research and Innovation in Social Science*, 4(11), 352-360.
- Ogunrombi, S. A. (2017). Serials selection and de-selection: a survey of Nigerian university libraries. *African Journal of Library, Archival and Information Science*, 7 (1), 33 – 42
- Olanlokun, S. O. & Salisu, K. (2016). Library use pattern: The University of Lagos Main Library. *Lagos Librarian*, 16(1), 9 -12.
- Olutoki, A. E. & Osoba, M. A. (2017). Utilization of serials resources in libraries of selected tertiary institutions in Nigeria. *Journal of Information and Knowledge Management*.8 (2), 55 – 62.
- Research Information Network (2011). Patterns of information use and exchange: Case studies of researches in the life sciences in Nigerian. *Journal of Librarianship*, 67(5), 79-87.
- Sambo, A. S. & Akpojotor, O. J. (2016). Undergraduates' perception and utilization of serial materials in Federal University of Petroleum Resources Library. *American Journal of Social Sciences and Humanities*. 1(1), 1- 9.
- Susanah O. T & Ayobami B. H. (2018). Evaluation of students' access to serial publications in three selected universities in Ogun State, Nigeria. *Library Philosophy and Practice (e-journal)*. 1727 15-29.
- Uzoigwe, C. U. (2015). Reposing school libraries for effective service delivery in Nigeria for the 21st Century. *Library and Information Science Digest*, 8 (1), 36 – 41.