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DOCUMENT SELECTION IN DIGITIZATION AS PREDICTOR OF RESEARCH PUBLICATION VISIBILITY IN ACADEMIC LIBRARIES WITHIN KANO STATE

Hawwau Adedayo Moruf (Mrs.)
Department of Library and Information Science,
Federal University Dutsin-Ma, Katsina State, Nigeria
*Mobile Line: 08022429983, Email: hawwau.moruf@yahoo.com

Eboro E. Umoren (Ph.D.)
Department of Library and Information Science,
University of Uyo, Akwa Ibom State, Nigeria

&
Uduak U Enang (Ph.D.)
Department of Library and Information Science,
University of Uyo, Akwa Ibom State, Nigeria

ABSTRACT

Document selection is the first stage of digitization workflow, which entails all the steps involved in the process of converting non-digital research collections to a digital format and making them available online. This study is carried out to investigate document selection as a predictor of research publication visibility in academic libraries within Kano State, Nigeria. The main purpose was to assess the relationship between document selection and research publication visibility in academic libraries within Kano State. The design employed in this study was survey research design. The population of the study comprises 156 librarians from Bayero University, Kano (BUK) and Aliko Dangote University of Science and Technology, Wudil (ADUST). The entire population was used for the study. The instrument used for data collection was a structured questionnaire. All administered questionnaires were returned and formed basis of analysis. Descriptive statistics was used to answer the research question while Student-t-test was used to test the hypotheses at 0.05 level of significance. The majority of the library staff possess Bachelor's degree in both BUK and ADUST constituting 57 (52.8 %) and 23 (47.9 %) respectively. Principal majority of staff are experienced. The Pooled mean is 3.17, indicating that document selection has a positive relationship with research publication visibility. The revealed standard deviation ranges from 0.67-1.43, indicating that the responses are close and not too dispersed from each other. The results of the analysis also show that the null hypothesis was rejected. This means that, there is a significant relationship between document selection and research publication visibility in academic libraries in Kano State, Nigeria. In conclusion, it is clear that document selection is a predictor of research publication visibility. Hence, it is recommended that workflow management system which guides the digitization processes should be developed and tailored to the need of each institution library.

Keywords: *Academic library, Automation, Digital skill, Digitization Workflow, ICT, Research Project, Nigeria.*

Introduction

The electronic version of research publications forms part of the university library collections, hence, the need for their preservation. These resources enhance the institution's aim in visibility, increases its prestige and the reputation of its researchers. To systematically respond to the preservation of these scholarly resources, there is need for a holistic preservation technique. University libraries are saddled with the responsibility of preserving and disseminating these research publications for global visibility (Inuwa & Abrizah, 2018).

In preserving and disseminating the research publications, university libraries embark on digitization. Digitization is the process of converting information into a digital (i.e. computer readable) format, in which the information is organized into bits. Digitization refers to the process of converting analogue or physical data, such as paper documents or images, into digital formats that can be easily accessed, stored, and manipulated using computers and digital technologies (Dieffenbacher, 2023). The result is called digital representation or, more specifically, a digital image for the object, and digital form for the signal (Oyewole, 2020). Digitization can be performed on different types of information materials such as text (paper documents, articles, books, data etc.), images (moving or still images), audio and video. The focus of this study is on paper and born digital research documents. Digitization has removed physical barriers to the discovery and use of rare and fragile resources and those recorded on difficult-to-access formats. Access to paper manuscripts and research documents has often been limited because of their value and/or fragile nature. Digitization not only expands the reach of these materials to researchers, students, and the general public, but in many cases it enhances the visual quality of faded and illegible documents (Zhou et al., 2023). Digitization as a practice improves efficiency, accessibility, and preservation of information content. Digitization therefore becomes a necessity to enhance visibility of scholarly research publications. To digitise these resources, a workflow must be followed which in other words is termed as digitization workflow.

Digitization workflow entails all the steps involved in the process of converting non-digital research collections to a digital format and making them available online. The digitization process encompasses a range of procedures and technologies with widely varying implications and costs ranging from preparation and conversion to presentation and archiving (Prescott & Hughes, 2018). It is the process of digitizing information resources and requires careful justification, planning and systematic implementation. Digitization workflow is a step by step approach to explaining the processes involved in digitization of information resources. It is essential to study the digitization workflow as it helps to streamline the many processes and tasks involved in a digitization project, thereby facilitating consistency and reliable results, especially when dealing with a large volume of information resources to be digitized (Sharma et al., 2021). Researchers have identified various phases of digitization with each leading to the end result of preservation and access creation. Chisita et al. (2021) and Zhang et al. (2020) identified document digitization workflow to include but not limited to documents' selection, documents' preparation, scanning, editing, metadata and indexing, document validation, archiving and publishing.

Document selection is the first stage of digitization workflow. It requires expertise in knowing which documents to include and for what reasons. Decisions about what to digitize must first and foremost address the intellectual value of the original sources as well as determine what is truly worthwhile to convert. It involves sorting from a myriad of scholarly collections to identify materials worthy of being digitized. This according to Christa et al. (2021) involves content identification, content selection, content acquisition, and registration of documents for digitization. To ensure actualization of these elements, there has to be a guiding principle that governs selection of materials for digitisation. Document selection thus entails setting criteria for choosing the right materials for digitization and ensure that such document to digitize meet those criteria. The criteria must be of standards with global practices by considering the ownership rights and permission, formats and physical condition for selecting and scanning as well as considering the intrinsic value to users among others. A key factor with any digitization initiative is the selection of materials to be digitized (Ezeani & Ezema, 2011). A number of studies such as Nyide et al. (2018) and Chisita et al. (2021) stressed the need for the selection of materials in the context of digitization process, maintaining that copyright and permission is considered as the most important factor in selection for digitization. With the permission to select the documents for digitization, the next step is document preparation.

According to earlier studies, only a small fraction of Nigerian libraries has started the process of digitizing their holdings. There is still a dearth of information on the digitization workflow carried out by university libraries in Nigeria. Hence, the need to examine the influence of digitization workflow in academic libraries in Nigeria.

Research Question

What is the relationship between document selection and research publication visibility in academic libraries in Kano State, Nigeria?

Research Hypothesis

There is no significant relationship between document selection and research publication visibility in academic libraries in Kano State, Nigeria.

Literature Review

Digitization has become increasingly prevalent across diverse fields, including communication, media, healthcare, finance, educational and library system. It involves scanning or capturing the physical items using specialized equipment and software to create digital replicas that can be stored, preserved, and accessed electronically. Digitization refers to the process of converting analogue information into digital form, which can be stored, manipulated, and transmitted using digital technology (Hassan, 2022; Lim, 2019). This digital representation enables efficient storage, retrieval, analysis, and distribution of information. Digital materials created through the process of digitization can be accessed via various platforms, including online catalogues, digital libraries, institutional repositories, or specialized digital collections. Users can search, view, and interact with the digital resources thereby enhancing research, education, and cultural exploration (Kennedy, 2019).

Digitization of library resources has become increasingly important in the digital age, enabling broader access to scholarly materials that were previously limited to physical locations. It is the

conversion of physical content into digital files that can be stored, managed, and retrieved electronically. Digitization of library resources enables libraries and cultural institutions to preserve and provide wider access to valuable and often fragile materials, expand the reach of their collections, and facilitate remote access for users (Olubiyo et al., 2022). Today, there is widespread of digitisation projects in Nigerian universities as affirmed by Mohammed et al. (2020) that digitization is the major and popular technique adopted to preserve digital resources in the surveyed university libraries in Northern Nigeria. Digitization is considered the modern method of preservation. It has gained significant prominence because of the roles it plays in combating theft, mutilation and distortion of information sources on one hand, and on the other hand in supporting the creation of digital contents that are valuable to research publications and visibility.

Digitization thus, facilitates the preservation and dissemination of knowledge, supports remote access, and enhances visibility of information resources. Digitization efforts focus on building digital resources, including e-books, e-journals, databases, multimedia content, and other digitized materials. Marchionini (2018), posited that digitization enables library collection to be stored electronically and accessed remotely through computers or mobile devices. It enables libraries to offer remote access to resources, allowing users access to materials from anywhere with or without an Internet connection. Users can search, view, and download materials online, enabling 24/7 access and eliminating geographic barriers (Yakubu et al., 2022). Adogbeji and Akporhonor (2021) emphasized the reasons for digitization of library resources, to be: digital preservation (archival purpose), accessibility, the need to meet global need, to save time and space, to improve availability and visibility, historical and cultural values, changing nature of the library, ease of retrieval, higher education needs, technological push among others.

Digitization workflows are designed to streamline the digitization process, maintain the integrity and authenticity of the original materials, and produce high-quality digital surrogates that are suitable for access, preservation, and discovery (Brunton et al., 2021). Digitization workflow refers to the systematic and structured process of converting analogue materials into digital formats. It involves a series of sequential steps and activities that ensure the efficient and effective digitization of library resources. It provides a structured framework for managing and executing digitization projects. According to Channgam et al. (2019), workflow is described as a sequence of activities which appears in succession from the beginning to the end of the activity. When the first activity is completed, it will deliver the burden to other activities continuously until the end of the activity in that workflow or until the last activity that is unable to make other activities work anymore. The workflow focuses on the movement of data and information from one activity to another until the end of the work that must be done with that information or activity. The digitization workflow is therefore a process which according to Chadijah et al. (2023) includes selection materials, scanning, transcribing, creating mark-up and an index, creating metadata, quality control by subject specialists, processing images and populating the appropriate digital asset management software (such as DSpace, Eprints, Fedora, and Greenstone)

collect, index, and provide queries over a catalogue of metadata records that are accessible locally and remotely. Digitization workflow may vary depending on the specific requirements, resources, and goals of the digitization project.

Document selection as a concept commonly used in engineering field includes three stages: initial screening, development and comparison of alternatives, and final stage is determination of best solution. It is mentioned that engineers and designers have to make right materials choice to meet product requirements, such as weight saving, higher product performance, and cost reduction (Babanli et al., 2019). The three stages are still relevant in document selection to determine the best alternative for selection of material to be digitised. Katuu (2020) stressed that records that are chosen for digitization should be identified after a deliberate selection process and must meet project objectives without legal constraints. This is essential to maintain record trustworthiness and ensuring the integrity of the selected material for visibility.

Research Method

This study covers two academic university libraries in Kano State: Bayero University, Kano and Aliko Dangote University of Science and Technology, Wudil. The design employed in this study was survey research design. The purpose of survey design is to describe the current condition of an area of study. Rubin and Babbie (2016) stated that survey design is a research methodology used to gather information about prevalence, distribution, or patterns of certain variables or phenomena within a specific population. Document Selection and research publication visibility Questionnaire (DSRPVQ) was developed by the researcher to elicit information from the respondents. The instrument was divided into two parts: A and B. Part A consists of items meant to obtain demographic data of the respondents, Part B was used to elicit information on the dependent and independent variables as well as answer the research question and test the hypotheses. Four point Likert scale was employed in order to understand respondents' opinion in respect to the extent of influence without being neutral on a specific item. The questionnaire was structured on four response scale ratio of Less Extent (LE), Moderate Extent (ME), Great Extent (GE), Very Great Extent (VGE), and the scales attract the following points: LE-1 point; ME-2 points, GE-3 points while VGE- 4 points. A total enumeration sampling method was employed, since the population size was manageable. A total of 156 respondents (i.e. librarians working in two universities in Kano State: Bayero University Kano and Aliko Dangote University of Science and Technology) completed and returned the questionnaire administered to them. Descriptive statistics was used to answer the research questions. In deciding the mean and answers to the research questions, the weighted options were:

Very Great Extent (VGE)	3.50-4.0
Great Extent (GE)	3.00-3.49
Moderate Extent (ME)	2.50-2.99
Less Extent (LE)	1.00-2.49

Student-t-test was used to test the hypotheses at 0.05 level of significance.

Results Presentation and Discussion

Respondents' Academic Qualification

The educational qualification of the librarians can be seen in Table 1. The majority of the library staff possess Bachelor's degree in both Bayero University Kano (BUK) and Aliko Dangote University of Science and Technology (ADUST) constituting 57 (52.8 %) and 23 (47.9 %) respectively. This corroborated the report of Adio and Popoola (2010) where nearly half of librarians in federal university libraries in Nigeria hold a Bachelor's Degree in Library and Information Science. The observation that the majority of library staff hold Bachelor's degrees compared to other educational qualifications has implications for the academic and professional environment within libraries. This prevalence of Bachelor's degrees may influence the overall skill set and expertise available among library staff (Gerolimos *et al*., 2015).

Table 1: Academic Qualification of the Respondents

S/N	Qualifications	BUK Library		ADUST Library	
		Frequency	Percentage (%)	Frequency	Percentage (%)
1	Ph.D.	5	4.6	3	6.3
2	Master's Degree	23	21.3	7	14.6
3	Bachelor's Degree	57	52.8	23	47.9
4	HND/OND	23	21.3	15	31.3
	Total	**108**	**100**	**48**	**100**

Respondents' Working Experience

In Table 2, principal majority of staff are experienced. Among the total respondents, 30.6 % (BUK) and 29.2 % (ADUST) had 6-10 working years, and secondly, a group of 1-5 years working experience with percentages of 25.0 % and 20.8 % in BUK and ADUST respectively. The least were staff having 26-30 years of working experience with percentages at 5.6 % and 4.2 % at BUK and ADUST respectively. When conducting research studies, the academic qualification and professional experience of respondents are factors as they can greatly influence the quality and reliability of the collected data. Respondents with work experience often provide insightful and detailed responses due to their deeper understanding of subject matter- an aspect particularly valuable, in qualitative research (Husband, 2020). The finding reveals that the majority of the library staff possess Bachelor's degree in both BUK library and ADUST Library. The finding also revealed that a principal majority of staff are experienced librarians, corroborating works of Jibia *et al*. (2013), Dangani *et al*. (2016) and Alkali (2022).

Table 2: Distribution of the Respondents by Years of Working Experience

S/N	Years of Experience	BUK Library		ADUST Library	
		Frequency	Percentage (%)	Frequency	Percentage (%)
1	1- 5	27	25.0	10	20.8
2	6-10	33	30.6	14	29.2
3	11-15	18	16.7	9	18.8
4	16-20	15	13.9	7	14.6
5	21-25	9	8.3	6	12.5
6	26-30	6	5.6	2	4.2
	Total	**108**	**100**	**48**	**100**

Document Selection on Research Publication Visibility

Table 3 gives the summary of the mean and item analysis of respondents on the relationship of document selection and research publication visibility. The result shows the mean range is 2.89-3.68, with the items having mean responses above 2.50, the weighed mean (Mid-point). This indicates that the respondents agreed to a great extent that all the items on document selection has a positive relationship with research publication visibility. The standard deviation ranges from 0.67-1.43, indicating that the responses are close and not too dispersed from each other. The Pooled mean is 3.17, the respondents agreed that that document selection technique has a positive relationship with research publication visibility.

Table 3: Mean and Standard Deviation of Respondents on Relationship between Document Selection and Research Publication Visibility in Academic Libraries within Kano State, Nigeria

S/N	Extent to which the following document selection techniques influence research publication visibility	Mean	Std. Dev	Remarks
1	Goals and objective of digitization	3.00	1.40	Great Extent
2	Institutional priorities	2.89	1.43	Moderate Extent
3	Collection development policies	3.68	0.67	Very Great Extent
4	User interest and demand	2.95	1.41	Moderate Extent
5	Academic value	3.13	1.30	Great Extent
6	Clearly defined ownership	3.16	1.29	Great Extent
7	Copyrights permissions for distribution	3.11	1.35	Great Extent
8	Deposit to the library only	3.25	1.28	Great Extent
9	Availability in the public domain only	3.54	1.05	Very Great Extent
10	Original format and physical condition	3.04	1.32	Great Extent
	Pooled Mean & Std. Dev.	3.17	0.23	Great Extent

Research Hypotheses

Ho_1 There is no significant relationship between document selection and research publication visibility in academic libraries in Kano State, Nigeria.

Table 4 presents the summary of the t-test analysis. The result shows that the t-value is 6.19 and the probability value at .05 alpha level is .0001. Since the *p*-value is less than the alpha level, the result is statistically significant. The null hypothesis is thereby rejected. Thus, there is significant relationship between document selection

and research publication visibility in academic libraries in Kano State, Nigeria.

Table 4: Summary of T-test Analysis for Significant Relationship between Document Selection and Research Publication Visibility in Academic Libraries within Kano State, Nigeria

Variables	Mean	Std. Dev	T	*p*-value	Decision
Document selection	3.17	0.23			
Research publication visibility	3.58	0.78	6.19	.0001	*

*Significant at $p<.05_{.0001}$

The result reveals that all the items have mean responses above the weighed mean (Mid-point), indicating that the respondents agreed to a great extent that all the items on document selection have a positive relationship with research publication visibility. These include goals and objective of digitization, institutional priorities, user interest and demand, academic value as well as original format and appropriate physical condition. The hypothesis test reveals that there is a significant influence of document selection on research publication visibility in academic libraries within Kano State, Nigeria. As an emerging area for librarians, the selection of documents for digital transformation is essential for its visibility. This finding is supported by Ravenwood *et al.* (2015) who studied the relationships, responsibilities and stakeholders' influence in selection of material for digital preservation. They found that selection is a social activity, partly through identifying a range of stakeholders that have an influence on selection decision making which include librarians, IT staff and other stakeholders in university management team. This finding is further supported by David and Alayon (2016) who examined digitization and preservation initiatives in selected academic and research libraries in the Philippines. They found that as the criteria for material selection varies, so also are the types of materials digitized. Selection of the materials for digitization was based on demand.

The finding is also corroborated by Ogar and Onah (2021) which found that uniqueness or rarity of material, material of high demand, academic importance, physical fragility, out-of-publication materials, and materials of historical value were considered essential in the criteria for selecting materials for digitization. As a result, there were no selection policies for digitization in the university libraries studied. It is established that selection of materials based on academic importance has influence on the visibility of such materials. The result of findings is also buttressed by Nneji (2018) which found that copyright permissions posed challenges to document selection for digitization in Nigerian University Libraries.

Conclusion

Based on the findings of the study, it is concluded that digitalization workflow is an on-going process in universities and it is happening at a moderate rate. The outcome of the study shows that document selection techniques have a positive influence on visibility of scholarly research publications in academic libraries within Kano State, Nigeria. Although the study relates to the University libraries in Kano State, Nigeria in particular and the Nigerian university

libraries situation in general, issues raised could be pertinent to the situation elsewhere in North West and the Nigeria at large. It is hereby recommended that workflow management system which guides the digitization processes should be developed and tailored to the need of each institution library.

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