



Research Article

Crowdsourcing Practices in Academic Libraries in Nigeria

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Abstract

Objective – In this study, we investigated the utilization of crowdsourcing practices among academic librarians in Nigeria, encompassing all 36 states across the 6 geopolitical zones of the country.

Methods – We employed the descriptive survey design. The target population consisted of academic librarians who were members of the national professional online group of the association known as the NLA where scholars shared professional thoughts and advancements.

Results – The findings revealed a high level of awareness about crowdsourcing among academic librarians, with their experiences spanning various areas such as knowledge discovery and management (RII = 0.76), broadcast search (RII = 0.63), the distribution of human intelligence tasking (RII = 0.62), and peer-vetted creative production (RII = 0.59). In terms of the extent of practice, electronic document exchange services received the highest relative importance index score (RII = 0.73), followed closely by e-payment platforms (RII = 0.73). The findings also indicated that crowdsourcing is considered beneficial for collection development (RII = 0.68) and is perceived to be useful in the procurement of new items for the library (RII = 0.67). However, the study identified inadequate institutional support (RII = 0.91) as the foremost challenge impeding the adoption and implementation of crowdsourcing practices in academic libraries in Nigeria. Other challenges included inadequate electricity supply and unstable Internet network systems in Nigeria which has hindered full deployment of crowdsourcing in academic library settings in the country.

Conclusion – This study emphasized the importance of the adoption and implementation of crowdsourcing practices in academic libraries in Nigeria. Addressing challenges related to institutional support, electricity supply, and Internet connectivity is crucial to creating an enabling environment for successful crowdsourcing initiatives.

Introduction

Crowdsourcing has emerged as a new concept in the field of librarianship, offering academic libraries an innovative approach to enhance their services and engage with their user community. Academic libraries have traditionally relied on their own resources and expertise to provide access to information. However, crowdsourcing practices enable these libraries to tap into the collective intelligence and diverse perspectives of a large group of individuals through digital platforms and technologies. Crowdsourcing in the context of academic libraries involves obtaining contributions, ideas, or services from library users, including students, faculty, and researchers. It allows for the improvement of various aspects of library operations and services by leveraging the expertise and knowledge of the library community. This approach has been recognized as a valuable tool for information resource collection, awareness creation, and knowledge sharing among libraries.

The World Wide Web and Web 2.0 technology have played significant roles in facilitating effective crowdsourcing. These platforms enable libraries to reach a global audience, extending their services beyond their own communities. The emergence of the Internet has also enabled electronic document sharing, electronic payment, and online library services, further enhancing the potential of crowdsourcing in libraries. Common types of crowdsourcing include micro-tasks-crowding, self-organized crowding, crowd-wisdom, and crowdfunding. Micro-tasks-crowding involves finding individuals with specific skills and competencies to perform designated tasks. This type of

crowdsourcing is similar to freelancing, where workers are matched with suitable tasks through open-source platforms.

While crowdsourcing has been widely studied and implemented in various fields, including business, its application and benefits in the field of librarianship have also been recognized. However, there is a lack of research specifically exploring crowdsourcing practices in academic libraries in Nigeria. This study aimed to fill this gap by investigating the current state of crowdsourcing practices in Nigerian academic libraries. The research examined the level of awareness about crowdsourcing among academic librarians in Nigeria, investigated the extent of crowdsourcing practices among these librarians, and identified the challenges associated with implementing crowdsourcing initiatives. Additionally, the study explored the motivations behind adopting crowdsourcing, as well as the perceived benefits and impact on library services and user engagement. This study examined the following research questions which were raised at the onset of the study:

1. What is the level of awareness about crowdsourcing among academic librarians in Nigeria?
2. What is the extent of crowdsourcing practices among academic librarians in Nigeria?
3. What are the challenges associated with crowdsourcing practices among academic librarians in Nigeria?

Literature Review

Crowdsourcing is the process of sharing known problems with the global community (Lessl et al., 2011). Libraries in the developed world are beginning to introduce the idea of crowdsourcing for collection development (Hasan et al., 2017). Crowdsourcing transforms the creative thoughts of the public through the Internet into promoting effective participation of the community. Libraries use crowdsourcing to procure new books and other materials (Benoit & Eveleigh, 2019). It also helps organizations and libraries to develop creativity which helps to leverage vision, capabilities, and intelligence in people in the process of creating new products and services (Digout et al., 2013). Crowdsourcing helps the crowd to point to the best alternative to work and accomplish the task at hand as well as dwelling more on creative thinking. It involves making certain barriers available to community members through social networking or other electronic platforms and expecting the community members to suggest possible solutions to the issues at hand (Chun & Artigas, 2012). This helps institutions like the library make informed decisions on the best way to improve information service provision. Via the crowd, the library can gather opinions and ideas that are germane to developing possible strategies for solving the future reoccurrence of a problem at hand (Barber, 2018; Chun & Artigas, 2012). Search engines, wikis and Google often work on the platform of the crowd because of the large audience that visits these sites daily. Simperl (2015) identified different types of crowd-wisdom, namely: diversity of opinion, independence, decentralization and local knowledge, and private judgment on the shared resolutions.

Another related concept is crowdfunding, which helps the institution secure monies possibly in lesser contributions and gifts from a multitude of people (Kesselman & Esquivel, 2019). It is called online, open, public and purposeful fundraising for a particular task or goal. More often than not, libraries have reasons to raise money for the expansion of their services to improve library patronage. Crowdfunding may be successful or unsuccessful because it is a complicated project associated with possible failures and successes (Hasan et al., 2017).

The whole idea of crowdsourcing is to outsource certain tasks to the crowd using the Internet (Severson & Sauvé, 2019). It has been documented that crowdsourcing takes place when an individual or institution

such as the library hunts for participation from an open-ended group of users (Barber, 2018). Popular platforms include Google, Facebook and LinkedIn. Outsourcing data processing such as micro-task crowdsourcing meets the need for performing simple tasks, for example, image tagging, audio transcription, and translation. In a simple word, micro-tasks can be defined as paid micro-task crowdsourcing where community or workers receive monetary compensation or other benefits for completing a micro-task. The main purpose of implementing micro-task crowdsourcing in the library is to delegate librarian tasks to focus more on technical and critical parts rather than simple tasks or activities. According to Dunn and Hedges (2012), there is an observable pattern in crowdsourcing of four elements: assets (type of content, primary material like geospatial data, text, image, sound, video, ephemera or intangible heritage, numerical or statistical data), tasks (activity done by the volunteers to the asset), processes (combination of tasks including transcribing, correcting, tagging, categorizing, cataloguing, linking, contextualizing, recording/creating content, commenting/critical responses, mapping, georeferencing, translating), and outputs (what is produced in the end). They argued that understanding the interaction of these four elements is critical to a successful project.

The use of crowdsourcing in academic libraries has been a topic of increasing interest and discussion in recent years. While crowdsourcing can offer potential benefits for academic libraries, the literature highlights several important negative aspects to consider, including issues of quality, control, privacy, representation, sustainability, and the risk of misinformation. Academic libraries must carefully weigh these potential drawbacks against the potential advantages when deciding whether and how to incorporate crowdsourcing into their practices. One key concern raised in the literature is the potential loss of quality and reliability of information when relying on crowdsourcing. Poneis and Adoma (2018) argued that since crowdsourced contributions come from a diverse and unvetted group of individuals, the accuracy, completeness, and credibility of the information may be compromised compared to content curated by professional librarians and subject matter experts. This can undermine the authority and trustworthiness of the library's resources. Closely related to this is the issue of lack of control and accountability. Literat (2017) noted that when academic libraries engage in crowdsourcing initiatives, they may lose a certain degree of control and oversight over the information being contributed and disseminated. It can be challenging to hold anonymous or pseudonymous crowdsourced contributors accountable for the quality and appropriateness of their contributions (Andro & Saleh, 2017).

Privacy and security concerns have also been raised regarding crowdsourcing in academic libraries. Saadati et al. (2021) cautioned that crowdsourcing initiatives can raise privacy issues, as they may involve collecting personal information from contributors or exposing library user data to a broader audience, potentially putting sensitive information at risk. Another potential drawback highlighted in the literature is the uneven representation and bias that can arise from crowdsourcing. Corral (2022) argued that the crowd contributing to crowdsourcing efforts in academic libraries may not be representative of the diverse user population, leading to biases and gaps in the information being collected or curated, and skewing the perspectives and experiences reflected in the library's resources. Besides, sustaining and maintaining crowdsourced content in academic libraries can also be challenging. Qu et al. (2011) and Baydoun and Pickens (2021) suggested that contributions may be sporadic, and there may be a lack of consistent quality control and curation, making it difficult to ensure the long-term viability and usefulness of the crowdsourced information. In particular, authors have raised concerns about the potential for misinformation and manipulation in crowdsourcing-based initiatives. Poneis and Adoma (2018) warned that in the absence of robust verification mechanisms, crowdsourcing in academic libraries can be vulnerable to the spread of misinformation, hoaxes, or intentional manipulation of information by bad actors.

Methods

The research design employed in this study was a descriptive survey, which facilitated the collection of primary data from a large population for quantitative analysis and drawing inferences. With the survey, we sought to answer such questions as what is the level of awareness about crowdsourcing among academic librarians in Nigeria? What is the extent of crowdsourcing practices among academic librarians in Nigeria? What are the challenges associated with crowdsourcing practices among academic librarians in Nigeria? The utilization of the descriptive survey design in studies of this nature has been widely adopted by scholars, including Ponelis and Adoma (2018) and Baydoun and Pickens (2021). Nigeria consists of 36 states and the Federal Capital Territory, which were categorized into six equal geopolitical zones spanning the West, East, South, North, and Central regions (refer to Appendix).

The study population comprised 386 paid-up academic librarians who were duly registered on the National Professional Online Platform of the association, known as the Nigerian Library Association (NLA) online forum, where members engage in discussions and share professional concerns. All registered members willing to participate in the study and present on the platform were purposively recruited into the study. In all, a sample of 312 out of the 386 librarians voluntarily participated in the study by completing a copy of the research instrument and their responses were found adequate and valuable for analysis. For data collection, an instrument was developed using an online Google form, which was divided into four sections aligned with the research objectives and questions.

Each section of the survey instrument was designed to address a specific research question. The instrument was administered through the online platform of the professional association, and responses were monitored for two months before proceeding to data analysis. The collected data were analyzed using IBM Statistical Package for Social Sciences (SPSS) version 25. The analysis was divided into two sections based on the research questions formulated at the beginning of the study. Firstly, socio-demographic characteristics were analyzed descriptively using frequency counts and percentage distribution. Secondly, the other part of the analysis employed the relative importance index (RII) to rank the criteria based on their relative importance. The relative importance index formula was utilized to determine the relative index value.

$$R.I. = \frac{\sum W}{A*N} \quad \text{or} \quad RII = \frac{\text{Sum of weights } W_1+W_2+W_3+\dots+W_n}{A*N}$$

R.I. = or RII
= Sum of weights

Where: **W** is the weighting as assigned by each respondent on a scale of one to five, with one implying the least and five the highest. **A** is the highest weight, and **N** is the total number of the sample. Based on the Ranking (R) of the RII, the weighted average of the two groups will be determined. According to Opele (2021), five important levels are transformed from RII values: High (H) ($0.74 \leq RII \leq 1$), High-Medium (H-M) ($0.69 \leq RII \leq 1$) and Low (L) ($0.59 \leq RII \leq 1$).

Results

The distribution of respondents in the study, as presented in Table 1, indicates several notable patterns. Firstly, a higher proportion of female respondents (57.4%) participated compared to their male counterparts (42.6%). Regarding age groups, the highest percentage of participants (55.8%) fell within the 41-50 years range, indicating a significant representation from this age cohort. The next largest group was

individuals aged 50 years and above, accounting for 28.5% of the respondents. The age range of 31-40 years constituted 15.7% of the participants. These findings shed light on the age distribution of the study sample. The age and gender distribution of the respondents complement each other and show that more females enrolled in library and information science programs at the university level in Nigeria but not many young graduates are employed upon the completion of their training. The age distribution shows that a larger percentage of academic librarians in Nigeria are middle aged compared with those below the age of 40 years, which has potential positive and negative consequences on the practice of librarianship in the country. As regards the potential positive impact of the aged population, their years of experience on the job will not only encourage patronage but will also contribute to effective knowledge management in the libraries. On the other hand, not engaging younger graduates from library schools will amount to wasting the energetic and ever-dynamic contribution of young scholars in the profession, which may negatively affect the growth of the library in terms of service delivery and brain drain in academic libraries across the country.

Table 1
Demographic Information of the Respondents

Parameter	Classification	Frequency	Percentage
Gender	Male	133	42.6
	Female	179	57.4
	Total	312	100.0
Age	31 – 40	49	15.7
	41 – 50	174	55.8
	>50	89	28.5
	Total	312	100.0
Highest Educational Qualification	BLIS/B.Sc./HND	7	2.2
	MLIS/M.Sc.	176	56.4
	Ph.D.	129	41.3
	Total	312	100.0
Current designation/Rank on the job	Assistant Librarian	45	14.4
	Librarian II	76	24.4
	Librarian I	71	22.8
	Senior Librarian	83	26.6
	Principal Librarian	37	11.9
	Total	312	100.0
Years of experience in librarianship	0 – 5	103	33.0
	11 – 15	115	36.9
	>15	94	30.1
	Total	312	100.0

In terms of educational qualifications, the majority of respondents (56.4%) held a Master of Library and Information Science (MLIS/M.Sc.) degree. Furthermore, 41.3% of the participants possessed a PhD, indicating a significant proportion of highly educated individuals in the study. A small percentage (2.2%)

had a Bachelor of Library and Information Science (BLIS/B.Sc.) or a Higher National Diploma (HND). This implies a greater engagement of people with higher educational degrees to the population of Nigerian academic librarians at large. Also, the majority (26.6%) held the position of Senior Librarian, followed closely by Librarian II at 24%. Furthermore, the rank of Librarian I accounted for 22.8% of the participants, while Assistant Librarians constituted 14.4%. The lowest percentage (11.9%) was found among Principal Librarians. Lastly, Table 1 highlights the years of experience in librarianship. The highest percentage (36.9%) of respondents had practised for 11-15 years, indicating a significant number of individuals with moderate experience. Additionally, 33.0% had worked for less than 5 years, suggesting a relatively large proportion of early-career librarians. Notably, 30.1% of participants had accumulated more than 30 years of experience, representing a group with extensive professional backgrounds.

Implications

The higher participation of female respondents in the study reflected the importance of considering gender diversity in research and policymaking within the library profession. This finding highlighted the need for gender-inclusive approaches and initiatives to address any potential gender disparities or biases in the field. Also, the concentration of respondents in the 41-50 years age range and the significant percentage of participants aged 50 years and above indicated an aging workforce in the library profession. This has implications for succession planning, knowledge transfer, and the need to attract younger professionals to ensure a sustainable future for the profession.

In addition, the distribution of respondents across different designations demonstrated the hierarchy within the profession. These findings warrant attention to career development programs and strategies that promote upward mobility and recognize the contributions of librarians at all levels. The varying years of experience among respondents highlight the presence of both seasoned professionals and early-career librarians. This diversity in experience levels can contribute to knowledge sharing, mentorship opportunities, and the cultivation of a dynamic professional environment.

Overall, the implications of Table 1 shed light on demographic characteristics, educational backgrounds, career progression, and experience levels within the library profession. These findings can inform policies and initiatives aimed at promoting diversity, and professional development, and address challenges related to gender, age, career advancement, and knowledge transfer within the field of librarianship.

Analysis of the Research Questions

Research Question One

What is the level of awareness about crowdsourcing among academic librarians in Nigeria? The findings presented in Table 2 indicate that the RII of the majority of items exceeded the threshold of 0.50. This suggests that academic librarians in Nigeria possess a high level of awareness regarding crowdsourcing practices. Their experience extends to various areas, including knowledge discovery and management (RII = 0.76), broadcast search (RII = 0.63), distribution of human intelligence tasking (RII = 0.62), and peer-vetted creative production (RII = 0.59). Additionally, responses related to crowd voting (RII = 0.59), mechanized labour (MLab) (RII = 0.52), and games with a purpose (GWAPs) (RII = 0.50) were also observed. It is noteworthy that altruistic crowdsourcing received the lowest RII score among all the practices studied. These findings have significant implications for the utilization of crowdsourcing practices in academic libraries in Nigeria. The high RII scores indicated that academic librarians are well-

versed in crowdsourcing and have actively engaged in various aspects of it. This level of awareness and experience suggested a positive environment for implementing crowdsourcing initiatives in academic libraries.

Table 2
Crowdsourcing Awareness Among Academic Librarians in Nigeria

	Well Aware F (%)	Aware F (%)	Not Aware F (%)	$\bar{X}$	RII	Ranking
Knowledge Discovery & Management	131(42.0)	134(42.9)	47(15.1)	2.27	0.76	1st
Broadcast Search	72(23.1)	131(42.0)	109(34.9)	1.88	0.63	2nd
Distributed Human Intelligence Tasking	33(10.6)	199(63.8)	80(25.6)	1.85	0.62	3rd
Peer-Vetted Creative Production	45(14.4)	146(46.8)	121(38.8)	1.76	0.59	4th
Crowd Voting	47(15.1)	146(46.8)	119(38.1)	1.77	0.59	5th
Mechanized labour (MLab)	33(10.6)	113(36.2)	166(53.2)	1.57	0.52	6th
Games with a purpose (GWAPs)	14(4.5)	132(42.3)	166(53.2)	1.51	0.50	7th
Altruistic crowdsourcing	7(2.2)	124(39.7)	181(58.0)	1.44	0.48	8th
Weighted Scores				1.76	0.59	

Key: Well Aware = (3), Aware = (2), Not Aware = (1), $\bar{X}$ = Mean, RII = Relative Importance Index

The high RII scores for knowledge discovery and management, broadcast search, distribution of human intelligence tasking, and peer-vetted creative production highlighted the potential of crowdsourcing in enhancing these areas within academic libraries. This implied that academic librarians recognize the value of harnessing the collective intelligence of their user community for tasks such as resource discovery, information retrieval, and collaborative content creation. On the other hand, the lower RII score for altruistic crowdsourcing suggested that librarians may be less inclined to engage in activities focused solely on altruistic contributions from the crowd. This finding raises questions regarding the motivations and incentives necessary to encourage active participation in altruistic crowdsourcing projects within the academic library context. The implications suggest that there is a fertile ground for implementing crowdsourcing initiatives, particularly in areas such as knowledge management, broadcast search, and collaborative content creation. However, further exploration is needed to understand the factors influencing participation in altruistic crowdsourcing projects and to identify strategies that can foster greater engagement in these endeavours.

Research Question Two

What is the extent of crowdsourcing practices among academic librarians in Nigeria? The findings presented in Table 3 indicate that the overall RII for all items in the table surpassed the threshold of 0.5. This suggests a high extent of crowdsourcing practices among librarians in Nigeria. However, when considering the extent of practice for specific areas, electronic document exchange services and e-payment platforms received the highest RII scores, both at 0.73. This indicated that academic librarians in Nigeria actively engage in crowdsourcing practices related to electronic document exchange and e-payment services. Furthermore, the RII scores indicated that crowdsourcing practices significantly

contribute to collection development (RII = 0.68) and the purchase of new items for the library (RII = 0.67). These findings highlight the positive impact of crowdsourcing in supporting resource acquisition and enhancing the library's collection. Other practices with notable RII scores included crowd voting (RII = 0.57), deployed solutions based on telework (RII = 0.57), crowd wisdom (RII = 0.55), self-organized crowd (RII = 0.54), socio-production crowd (RII = 0.52), crowdfunding (RII = 0.50), micro tasks crowdsourcing (RII = 0.50), and other crowdsourcing (RII = 0.49). However, crowd creation received the lowest RII score among the practices studied, with an RII of 0.48. These findings have important implications for the extent of crowdsourcing practices among librarians in Nigeria.

Table 3
Extent of Crowdsourcing Practices Among Librarians in Nigeria

	Every Time F (%)	Sometime F (%)	Never Practice F (%)	$\bar{X}$	RII	Ranking
Electronic document exchange services	124(39.7)	121(38.8)	67(21.5)	2.18	0.73	1st
E-payment platforms	124(39.7)	121(38.8)	67(21.5)	2.18	0.73	2nd
Crowdsourcing is good for collection development	107(34.3)	114(36.5)	91(29.2)	2.05	0.68	3rd
Crowdsourcing helps in the purchase of new items in the library	100(32.1)	119(38.1)	93(29.8)	2.02	0.67	4th
Crowd Voting	52(16.7)	116(37.2)	144(46.2)	1.71	0.57	5th
Deployed solutions based on telework	46(14.7)	132(42.3)	134(42.9)	1.72	0.57	6th
Crowd Wisdom	38(12.2)	127(40.7)	147(47.1)	1.65	0.55	7th
Self-organized crowd	32(10.3)	133(42.6)	147(47.1)	1.63	0.54	8th
Social-production crowd	26(8.3)	120(38.5)	166(53.2)	1.55	0.52	9th
Crowd Funding	19(6.1)	120(38.5)	173(55.4)	1.51	0.50	10th
Micro tasks crowdsourcing	26(8.3)	100(32.1)	186(59.6)	1.49	0.50	11th
Other crowdsourcing	19(6.1)	112(35.9)	181(58.0)	1.48	0.49	12th
Crowd Creation	25(8.0)	89(28.5)	198(63.5)	1.45	0.48	13th
Weighted Scores				1.74	0.58	

Key: Every Time = (3), Sometime = (2), Never Practice = (1), $\bar{X}$ = Mean, RII = Relative Importance Index

The high RII scores across the board indicated a widespread adoption of crowdsourcing practices. This suggests that librarians in Nigeria recognize the value of leveraging external contributions and collaborative efforts to enhance various aspects of library services. The high RII scores for electronic document exchange services and e-payment platforms highlighted the significance of leveraging crowdsourcing to improve efficiency and convenience in resource sharing and financial transactions within academic libraries. Additionally, the positive RII scores for collection development and the purchase of new items underscored the potential of crowdsourcing in supporting collection development efforts and ensuring the availability of relevant resources for library users.

While crowd creation received the lowest RII score, it is important to note that it still indicates some level of engagement in this practice. Further exploration is needed to understand the reasons behind the lower extent of crowd creation and to identify strategies that can foster greater participation in this area. The

implications suggested that academic librarians in Nigeria actively engage in crowdsourcing initiatives, particularly in areas such as electronic document exchange, e-payment platforms, collection development, and resource acquisition. These findings highlighted the potential of crowdsourcing to enhance library services and meet the evolving needs of library users.

Research Question Three

What are the challenges associated with crowdsourcing practices among academic librarians in Nigeria? The findings presented in Table 4 indicate that the RII for all items surpassed the threshold of 0.50. This suggests that academic librarians in Nigeria face various challenges related to crowdsourcing practices. The table highlights the top reported challenges, starting with inadequate institutional support, which received the highest RII score of 0.91. This indicated that insufficient support from the institutions where the librarians work is a significant obstacle to the successful implementation of crowdsourcing initiatives. The second highest reported challenge is a poor Internet connection, with an RII score of 0.87. This suggested that the availability and quality of Internet connectivity pose difficulties for librarians engaging in crowdsourcing activities. This challenge can hinder effective communication, collaboration, and the utilization of online crowdsourcing platforms.

Table 4
Challenges of Crowdsourcing Practices Among Academic Librarians in Nigeria

	Strongly Agree	Agree	Disagree	Strongly Disagree	$\bar{X}$	RII	Ranking
	F (%)	F (%)	F (%)	F (%)			
Inadequate institutional supports	221(70.8)	70(22.4)	14(4.5)	7(2.2)	3.62	0.90	1st
Poor Internet connection	198(63.5)	73(23.4)	35(11.2)	6(1.9)	3.48	0.87	2nd
Poor funding	168(53.8)	91(29.2)	27(8.7)	26(8.3)	3.29	0.82	3rd
Poor Communication among groups	126(40.4)	167(53.5)	13(4.2)	6(1.9)	3.23	0.81	4th
Sustaining Crowdsourcing in the library is high	126(40.4)	133(42.6)	47(15.1)	6(1.9)	3.21	0.80	5th
Lack of motivation for Crowdsourcing	121(38.8)	132(42.3)	46(14.7)	13(4.2)	3.16	0.79	6th
Difficulty in finding related communities	95(30.4)	145(46.5)	60(19.2)	12(3.8)	3.04	0.76	7th
Distance between community members	80(25.6)	134(42.9)	85(27.2)	13(4.2)	2.90	0.73	8th
	74(23.7)	127(40.7)	91(29.2)	20(6.4)	2.82	0.71	9th
Weighted Scores					3.19	0.80	

Key: Strongly Agree = (4), Agree = (3), Disagree = (2), Strongly Agree = (1), $\bar{X}$ = Mean, RII = Relative Importance Index

Poor funding is another prominent challenge, ranking third with an RII score of 0.82. This indicated that limited financial resources allocated to crowdsourcing initiatives within the library setting can impede their implementation and sustainability. Additionally, poor communication among groups received an RII score of 0.81, indicating that challenges related to communication and coordination between different

stakeholders or groups involved in crowdsourcing projects are significant barriers to success. Other challenges identified in the table include the high cost of sustaining crowdsourcing in the library (RII = 0.80), lack of motivation (RII = 0.79), difficulty in finding related communities (RII = 0.76), and distance between community members (RII = 0.73). These challenges further contribute to the complexities faced by librarians in implementing effective crowdsourcing practices. The findings from Table 4 have important implications for the successful implementation of crowdsourcing initiatives within academic libraries in Nigeria. The high RII scores across all challenges indicated the pressing need for addressing these issues to create an enabling environment for crowdsourcing. Adequate institutional support, improved Internet connectivity, sufficient funding, and enhanced communication channels are crucial factors that need to be prioritized. Addressing the high cost of sustaining crowdsourcing initiatives and fostering motivation among librarians are also essential to ensure the long-term viability and success of crowdsourcing projects. Furthermore, efforts should be made to facilitate the discovery of relevant communities and overcome the challenges posed by distance between community members. This can involve the exploration of online platforms, networking opportunities, and collaborative tools that can connect librarians with like-minded individuals and communities.

Discussion of Findings

The findings of this study provided valuable insights into the crowdsourcing practices among academic librarians in Nigeria. The socio-demographic characteristics of the participants provided a snapshot of the sample population. The descriptive analysis revealed important information about the librarians involved in the study. This information included variables such as age, gender, educational qualifications, years of experience, and the geopolitical zones they represent. The analysis of socio-demographic characteristics revealed a diverse sample, representing different age groups, genders, educational backgrounds, and experience levels. As recommended in several studies of similar focus, this diversity is crucial as it ensures a broad representation of perspectives and experiences in the study (Zakaria et al., 2018). The findings indicated a high level of awareness and engagement in crowdsourcing practices among academic librarians. The RII scores for knowledge discovery and management (RII = 0.76), broadcast search (RII = 0.63), distribution of human intelligence tasking (RII = 0.62), and peer-vetted creative production (RII = 0.59) suggested that these practices are well-established and actively utilized in academic library settings. These findings are in consonant with the recommendations of Berbegal-Mirabent et al. (2020). Furthermore, the analysis revealed specific areas of crowdsourcing implementation.

Electronic document exchange services received the highest RII score (RII = 0.73), followed closely by e-payment platforms (RII = 0.73). These results agreed with the findings of Adedeji (2021) and Grange et al. (2020). These findings indicated that academic librarians in Nigeria are leveraging crowdsourcing for electronic document exchange and e-payment services, which can enhance efficiency and convenience in resource sharing. These results tally with the findings of Ramos et al. (2020). Moreover, the study found that crowdsourcing practices positively impact collection development (RII = 0.68) and facilitate the purchase of new items for the library (RII = 0.67). These results highlighted the potential of crowdsourcing in supporting resource acquisition and collection development efforts in academic libraries. The results also tally with the suggestions of Hendal (2019).

In the study, we also identified challenges hindering the adoption and implementation of crowdsourcing practices in academic libraries in Nigeria. The most prominent challenge reported by participants was inadequate institutional support (RII = 0.91). This finding highlighted the importance of garnering support from library management and institutional stakeholders to create an enabling environment for

effective crowdsourcing initiatives, as exemplified by Lynch et al. (2021), who reported the benefits of crowdsourcing in terms of increased connections between stakeholders, capacity-building, and increased local visibility.

Additionally, participants cited inadequate electricity supply and unstable Internet network systems as significant challenges. These infrastructural issues pose obstacles to the seamless implementation of crowdsourcing practices, as they rely heavily on reliable power supply and Internet connectivity. As recommended in similar studies by Berbegal-Mirabent et al. (2020), who investigated crowdsourcing from the perspective of fostering university-industry collaborations through university teaching, the we also highlighted various platforms such as educational crowdsourcing platforms for knowledge exchange and application. Similarly, Hendal (2019) highlighted the impact of social media platforms in crowdsourcing in libraries. Hasan et al. (2017) argued that libraries need to develop crowdsourcing platforms that will facilitate collaborative work worldwide, thereby enhancing library patronage by all categories of users. Therefore, it can be said that addressing these challenges through improved infrastructure and technological support is crucial for maximizing the benefits of crowdsourcing in academic library settings.

Practical Implications

The findings provided practical insights for academic librarians in Nigeria regarding the extent and challenges of crowdsourcing practices. Librarians can use this information to guide the implementation of crowdsourcing initiatives in their institutions, focusing on areas with high RII scores and addressing the identified challenges. Also, the study highlights the need for adequate institutional support and funding for successful crowdsourcing projects. These findings can inform decision-making processes and resource allocation strategies within academic libraries, ensuring that appropriate support and funding are provided to facilitate the implementation and sustainability of crowdsourcing practices. The challenges identified in the study, such as poor communication and difficulty in finding related communities, emphasized the importance of fostering collaboration and networking among librarians. Practical implications included the need to establish effective communication channels, facilitate networking opportunities, and leverage online platforms to connect librarians with relevant communities.

Theoretical Implications

The study contributed to the theoretical understanding of crowdsourcing practices in the context of academic libraries in Nigeria. By examining the RII scores and identifying the extent of engagement in various crowdsourcing activities, we've added to the existing knowledge base on the adoption and implementation of crowdsourcing initiatives in the library domain. It shows that the lower RII scores for certain crowdsourcing practices, such as altruistic crowdsourcing and crowd creation, raise theoretical questions about the underlying motivations and incentives for librarians to participate in these activities. This opens avenues for further research and theoretical exploration regarding the factors influencing motivation and the design of effective incentive mechanisms for crowdsourcing projects.

Policy Implications

The study underscored the importance of institutional support for successful crowdsourcing practices in academic libraries. Policymakers and library administrators can use these findings to advocate for policies that encourage and provide necessary support for crowdsourcing initiatives, including the allocation of resources and the establishment of frameworks to promote collaboration and engagement.

The identification of poor funding as a significant challenge highlights the need for policymakers to prioritize funding for crowdsourcing projects within academic libraries. Policymakers can recognize the potential of crowdsourcing in enhancing library services and allocate adequate financial resources to ensure the successful implementation and sustainability of crowdsourcing practices.

Furthermore, the challenges related to poor Internet connection and communication gaps call for policy interventions aimed at improving the technological infrastructure within academic libraries. Policymakers can work toward enhancing Internet connectivity, providing necessary tools and resources, and promoting digital literacy to support effective crowdsourcing activities. Overall, the practical implications of this study guide librarians in implementing crowdsourcing initiatives, while the theoretical implications contribute to the existing knowledge of crowdsourcing practices. The policy implications highlight the need for institutional support, funding prioritization, and infrastructure development to foster a conducive environment for successful crowdsourcing endeavours in academic libraries.

Conclusion

This study validated the extent of engagement of academic librarians in crowdsourcing practices in Nigeria. The findings underscore the significance of institutional support, infrastructure improvement, and continuous professional development to enhance the adoption and effectiveness of crowdsourcing initiatives in academic libraries across the country. This will help leverage crowdsourcing to optimize service delivery and meet the evolving needs of the user community.

Recommendations

Based on the findings, several recommendations are suggested below.

1. Academic libraries in Nigeria should prioritize securing institutional support for crowdsourcing initiatives. This can be achieved through advocacy, raising awareness about the potential benefits, and demonstrating successful case studies from other institutions.
2. Addressing infrastructural challenges should be a priority. Collaborating with relevant stakeholders, such as information technology departments and university administration, can help improve electricity supply and Internet connectivity within library premises.
3. Continuous training and capacity-building programs should be provided to librarians to enhance their skills and knowledge in effectively implementing and managing crowdsourcing practices. These programs can foster a culture of innovation and collaboration among librarians, enabling them to harness the full potential of crowdsourcing for the benefit of library users and services.

Author Contributions

Jacob Kehinde Opele: Conceptualization (equal), Investigation (equal), Writing – original draft, data analysis and interpretation (equal) **Cecilia Funmilayo Daramola:** Conceptualization (equal), Investigation (equal), Questionnaire and administration (equal), Methodology (equal) **Glory O. Onoyeyan:** Conceptualization (equal), Investigation (equal), Writing – original draft, review & editing (equal)

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Appendix
Map of Nigeria's Six Geopolitical Zones

