

USE OF COLLABORATIVE TECHNOLOGIES FOR KNOWLEDGE SHARING AMONG LIBRARIANS IN FEDERAL UNIVERSITIES IN SOUTH-EAST, NIGERIA.

Celestina C. Amadi (Ph.D) CLN

Federal University of Technology, Owerri

Abstract

This study explored the relationship between the Use of Collaborative Technologies and Knowledge Sharing among Librarians in Federal Universities in South-East, Nigeria. Three research questions and two null hypotheses were formulated to guide the study. The researcher adopted the correlational design for this study. The population of the study was one hundred and thirty-four (134) librarians which were also used as the sample size. The instrument that was used to collect data for this study was a researcher-made rating scale. Data were analyzed using Pearson Product Moment Correlation (PPMC), while hypotheses were tested using the t-test of significance at the 0.05 level. The study concluded that on-line Discussion Forums and Wikis serve as effective platforms for facilitating professional collaboration, information exchange, and organizational learning among librarians. It was recommended among others that university management should provide staff with adequate training on how to make proper use of On-line Discussion Forums and wikis.

Keywords: Collaborative technologies, knowledge sharing, librarians, university libraries

Introduction

Academic librarians play a significant role in facilitating access to information and knowledge within academic institutions, public libraries, and other organizations. With the rapid expansion of technology and the increasing importance of information sharing in the digital age, collaborative technologies have become necessary tools for librarians to foster knowledge exchange and enhance their professional practices. According to Stephens, Mitchell, and Zickau (2019), the 21st century Library and Information Science (LIS) professionals and library staff must consider and prepare for the new roles they will assume

with emerging technologies and in online spaces. The landscape of how library staff offers services has also drastically changed. ICT presents an opportunity to provide value-added information services and access to a wide variety of digital based information resources to their clients. Onuoha and Obialor (2015) state that academic libraries are also using modern ICT to automate their core functions, implement efficient and effective library cooperation and resource sharing networks, implement management information systems, develop institutional repositories of digital local contents, and digital libraries: and initiate ICT based capacity building programmes for library users.

The use of collaborative technologies by librarians has changed the system of services which they offer. Collaboration is important for university librarians to remain relevant in the 21st century. Collaborative technologies offer a surplus of communication and information-sharing tools, including instant messaging, video conferencing, cloud-based collaboration platforms, and social media networks. Collaborative technologies refer to a set of digital tools and platforms that enable individuals or groups to work together, communicate, and share information in real-time, regardless of their physical location. Here are some collaborative technologies used in academic libraries although not limited to listed technologies by Stephens, Mitchell and Zickau (2019); collaboration software such as (Platforms like Microsoft Teams, Slack, or Google Workspace), video conferencing tools such as Zoom, Microsoft Teams, or WebEx, wikis is for collaborative knowledge bases like MediaWiki or Confluence, social networking; academic libraries often utilize social media platforms like Twitter, Facebook, Instagram etc. online collaboration tools (Trello, Asana, or Basecamp) data visualization tools (Tableau or Google Data Studio), citation management software: (Zotero, Mendeley, or EndNote), digital repositories (DSpace, Fedora, or Omeka) online surveys and

polling (Survey Monkey or Google Forms). These technologies play a vital role in fostering collaboration, enhancing library services, and supporting academic research and learning.

The use of collaborative technologies has had a profound impact on the extent of knowledge sharing among librarians. These technologies have transformed the way employees communicate, collaborate, and exchange information, both within their institutions and across the broader librarian community. It is based on this background that this study on the use of collaborative technologies for knowledge sharing among librarians in federal universities libraries in South-East, Nigeria is carried out.

Statement of the Problem

The setting in which librarians work is persistently shifting due to technological changes. This consequently necessitates self-motivated and knowledgeable librarians to meet the needs of their users. It is not possible for one person to know everything and therefore it becomes essential that librarians collaborate and share knowledge with one another. The use of collaborative technologies has provided platforms for knowledge sharing among librarians in recent years. However, it seems that these technologies have not been fully explored by librarians in Nigerian universities. The researcher therefore wonders if librarians are adequately equipped with these collaborative technologies such as online discussion forums and wikis which enhance knowledge sharing among them. If yes, to what extent do they make use of these technologies to share knowledge? This study therefore, explored the use of online Discussion Forums (Zoom) and wikis among librarians and assess the extent to which these tools facilitate knowledge sharing within the librarian community.

Research Questions

The following research questions were posed to guide the study:

1. What is the extent of knowledge sharing among librarians in Federal universities in South- East, Nigeria?
2. What is the coefficient of relationship between the use of wikis and knowledge shared among librarians in Federal universities in South-East zone?
3. What is the coefficient of relationship between the use of online discussion forum (Zoom) and knowledge shared among librarians in Federal universities in South-East, Nigeria?

Hypotheses

The following null hypotheses were formulated to guide the study.

H0₁: The coefficient of relationship between the use of wikis and extent of knowledge shared among librarians in Federal universities in South-East, Nigeria is not significant.

H0₂: The coefficient of relationship between the use of Online Discussion Forum (Zoom) and extent of knowledge shared among librarians in Federal universities in South-East, Nigeria is not significant.

Literature Review

Collaborative technologies denote a set of digital tools and platforms that facilitate individuals or groups to work together, communicate, and share information in real-time, in spite of physical location. These technologies are intended to make possible collaboration and cooperation among users, allowing them to collaborate on projects, exchange ideas, and share resources effortlessly. According to Goswami and Choudhury (2014) collaboration tools can be hardware devices or software programs that help users converse to accomplish a common purpose, collaboration tools have been defined as those technologies that facilitate remote collaboration.

The use of collaborative technologies in libraries has modernized the way librarians and library users interact, access information, and share knowledge. These technologies have transformed conventional library services and created new opportunities for collaboration and engagement.

Collaborative technologies could be described as hardware devices or software programs that aid users to converse so as to accomplish a common purpose. Collaborative technologies in the library enhance communications among librarians and as well the library patrons. In agreement to the discussion, Goswami and Choudhury (2014) defined collaborative tools as those technologies that enable remote collaboration. Collaborative technologies make it easier for documents and data to be available to librarians as at when due and how and where they need it, and it enables librarians to move documents and data from one device, location, or platform to another. Collaborative technologies have helped librarians to share their knowledge without much difficulty since no one person is a compendium of knowledge.

The inculcation of collaborative technologies in libraries have benefited the library such as growing interaction between employees and cultivating overall performance. Librarians that have right to use some type of collaborative technologies are able to share information and communicate within the group even if they are not physically in the same room. The evolution of information technology and the Internet has stretched knowledge sharing studies to the information atmosphere. Swift and Virick (2013) affirmed that knowledge sharing involves the delivery of task-related information, or feedback regarding a procedure and can involve communication about a particular task, direct or indirect exchange of tangible items. However, some studies exemplified the importance of knowledge sharing to be the flow of thoughts or ideas moving from an individual who owns it to another individual who needs it.

Knowledge sharing through the use of collaborative technologies in the library will enhance effective service delivery among librarians.

The use in collaborative technology in knowledge sharing among librarians has proven to be very crucial in order to meet up with varied information needs in library users. The innovative technology such as Online Discussion Forums can serve as a tool for disseminating important information among library staff especially in the federal universities. According to Goswami and Choudhury (2014) academic libraries act as knowledge repositories and mediators for dissemination of knowledge, originators of collaborative tools, transformed the places into the remote location along with the information. Similarly, Noukakis, and Aebischer (2014) rightly pointed out that Massive Open Online Courses (MOOCs) are online learning platforms that provide training to learners at little or no costs.

The use of collaborative technologies has made knowledge sharing among librarians easier breaking down barriers of time and space. It has created an exciting network of information exchange, collaboration, and continuous learning. By embracing these technologies, librarians have the opportunity to tap into a wealth of collective knowledge, enhancing their professional growth and ultimately enriching the services they provide to their users.

Use of Wikis and Knowledge Sharing among Librarians

Wikis are collaborative technologies which are interactive in nature and used as innovative technology for knowledge sharing. According to Hu, Zhao and Zhao (2007) Wiki is a kind of new software of knowledge sharing, generated along with the development of web 2.0. It can effectively help organizations achieve internal knowledge sharing, the necessity and validity of knowledge sharing inside a knowledge-intensive organization. The software that

executes wiki is called wiki-engine and there are many free open source wiki engines available to run wikis (e.g Media wikis, Seed wikis etc.). The wikis as an innovative technology is now being adopted as a collaborative tool for knowledge sharing and knowledge management among employee in which library organization is not exempted.

The management approach of wikis can also facilitate improved communication between librarians at all levels. Consequently, knowledge sharing through wiki assists librarians to remain competitive in this era of constant change in information technologies and also facilitate knowledge sharing. Gandhi (2004) states that knowledge management systems are needed in reference services because they can assist librarians in the following aspects; systematically collect and organize explicit and tacit knowledge; increase efficiency in locating answers to frequently answered questions improve knowledge sharing; improve decisions regarding sources to consult; acquire more in-depth knowledge in library and its resources; better understanding in types of questions asked at the reference desk; improve collection developments, and improve users access to information.

The use of wikis in knowledge sharing among librarians has proven to be an effective and collaborative approach to disseminate information, document best practices, and facilitate collaboration within the library community. Wikis are web-based platforms that allow multiple users to collaboratively create, edit, and organize content in a structured manner. Here's how wikis contribute to knowledge sharing among librarians: The best known example of wikis is the Wikipedia. Wikis serve as a centralized knowledge base where librarians can collectively document their expertise, experiences, and insights. Information on various topics, such as library policies, procedures, and resources, can be collaboratively curate and update.

Librarians can use wikis to compile and share best practices, guidelines, and standard operating procedures. This ensures that the latest and most effective approaches are accessible to all staff, fostering consistency and efficiency in library operations. Librarians according to Ukachi and Onuoha (2013) can continuously update and expand these resources, supporting ongoing learning and skill development. CPD is also the ongoing training and education that practicing librarians embark on with a view to maintain, develop or increase knowledge, acquire new technical skills necessary for creativity and innovativeness and keeping up to date with the rapid and numerous changes taking place in the information world.

The tool facilitates collaborative project management among librarians. Team members can contribute to project planning, share progress updates, and document outcomes, leading to transparent and productive collaboration. In the words of Katz and Martins as cited by Livina; Ukwoma and Nwamaka, (2017) collaborative (or participatory) research can be defined as researchers coming together to achieve the common goal of producing new scientific knowledge. The focus in collaborative research is on empowering librarians to take charge in research process, in library and information science education and this empowerment may be achieved via numerous methods that should be determined by the details and the rate of collaborative works of librarians in the field of librarianship. Livina, Ukwoma and Nwamaka, (2017) agreed that truly collaborative research in library and information science involves respecting and understanding the participants and recognizing the knowledge and capabilities of librarians who can work among themselves to obtain analyses and bring solutions in librarianship. It should be viewed not only as something that

should be done for ethical reasons, but also as a way to improve the quality of research among librarians in Nigeria.

By leveraging wikis as a platform for knowledge sharing, librarians can connect the collective intelligence in their community and create an important resource for ongoing professional growth and development. Wikis promote collaboration, enable continuous improvement, and empower librarians to contribute and access knowledge freely, fostering a dynamic and interconnected library community.

Online Discussion Forum (Zoom) and Knowledge Sharing among Librarians

Online discussion forum is a podium or stage where collection of students from varied features or with different characteristics but with related concern showcase their opinions, observations and philosophies etc. Majid and Tina (2009) affirmed that online discussion forum is “a platform where group of learners from diverse characteristics but with similar interest express their thoughts, views and ideas etc., on certain context”.

The original distinctive features in online forums are its learners who are from different nations and the mingling of such populace requires diverse types of information on one perspective from different standpoints. The structures of introducing the photographs, audio files and videos assist the learners to share the information successfully, as illustrative pictures are more likely to impact the knowledge acquirement process. It creates equal opportunity to all the learners to participate and acquire knowledge in a structured way and thus, conceives collaborative knowledge-building process (Laurens & Huggins, 2013).

Zoom technology as one of the platform for online discussion forum had aided librarians in knowledge sharing. According to Ayolugbe, Jidere, and Ogwo (2021) Zoom is a cloud-based video communications app that allows people to meet virtually either by video, audio or both.

Its core features are one on one meeting, group video conferences, screen sharing and recording. It is basically used for teleconferencing, telecommuting; webinars, distance education, and social interactions.

Librarians use this platform to organize workshop and webinars among themselves.. This assertion is in consonance with the study of Anene and Idiedo (2021) titled “librarians’ participation in professional development workshops using Zoom in Nigeria”. The study reviewed that zoom has increasingly benefitted librarians, organizations, and professional associations in providing professional development workshops and webinars online in order to better engage information professionals who reside at a distance or want the convenience of gaining skills and information from their homes in these trying times.

Webinars create opportunities for both educators and learners to experience different levels of interaction online, and these opportunities are essentially different from other communication approaches such as discussion-board postings and emails. Anene and Idiedo (2021) expressed that among many Computer-Mediated Communication (CMC) systems, that webinar tool is one in latest developments.

Online discussion forums facilitate peer-to-peer learning, allowing librarians to share their expertise, insights, and best practices with each other. Through discussions, librarians can learn from the experiences from colleagues and apply new approaches in their own work. Edeh et. al (2019) revealed that online discussion forum takes teaching and learning beyond a confined learning environment like the classroom, bringing flexibility and convenience to teaching and learning. Students drive the learning process in online forums, and more emphasis is placed on knowledge sharing than lesson notes.

By and large, online discussion forums offer a priceless virtual space for librarians to engage in knowledge sharing, networking, and collaboration. The forums promote a supportive and inclusive environment that encourages the free exchange of ideas, experiences, and information, ultimately enriching the knowledge and expertise in entire librarian community.

Methodology

The researcher adopted co-relational design. A correlation study determines whether or not two variables are correlated. Multiple-correlation design was adopted for the study which involves the collection of data to accurately and objectively ascertain the strength of relationship between/among two or more variables in a multiple co-relation (Nworgu, 2015). The population and sample size of the study was one hundred and thirty-four (134) librarians in the Federal universities in South-East, Nigeria.. The researcher adopted the census sampling technique, hence the whole population of 134 served as sample size. The instrument for data collection for this study was a researcher's-made rating scale titled: "Use of Collaborative Technologies and Knowledge Sharing among Librarians in Federal University Libraries" (CTEKS). The instrument is divided into two sections. Section A: elicited information on the background of the respondents, with items such as name of institution, designation, nature of job, and gender. Section B consists of five clusters based on the research questions. All the clusters have total of 56 items. The instruments was validated by three professionals in Library and Information Science and two specialists in Educational Measurement and Evaluation. The research questions were analysed using mean and standard deviation. The researcher adopted the Pearson Product Moment Correlation (PPMC) to analyze the research

questions that were answered while the hypotheses were tested using the t-test of significance at 0.05 alpha levels.

Presentation and Discussion

Research Question One: What is the extent of knowledge sharing among librarians in Federal universities in South- East, Nigeria?

Table 1: Item-by-Item Means and Standard Deviation on the Extent of Knowledge Sharing among Librarians in Federal Universities

		N = 134			
s/n	Item Statements	$\sum fx_i$	$\bar{X} = \frac{\sum fx_i}{N}$	Std	Rem.
Types knowledge shared include:					
1.	Knowledge about library activities with my colleagues	474	3.54	0.51	VHE
2.	Knowledge on issues such as reader’s services with my colleagues	424	3.16	0.73	HE
3.	New practice gained with my professional colleagues	397	2.96	0.75	HE
4.	Knowledge on latest technology used in libraries with my colleagues	386	2.88	0.8	HE
5.	Information about reader’s services and users statistics with my colleagues	400	2.99	0.79	HE
6.	Knowledge about issues with organization of library materials with my colleagues	406	3.03	0.79	HE
7.	Seminar/workshop training experience and knowledge with my colleagues	418	3.12	0.73	HE
8.	Information on the use of online databases and reference services among my colleagues	412	3.07	0.73	HE
9.	Knowledge on bibliographic data and Current Awareness services with colleagues	384	2.87	0.79	HE
10.	Information on how to write a thesis or a journal article among my colleagues	396	2.96	0.77	HE
11.	Knowledge on cataloguing among colleagues	391	2.92	0.85	HE
12.	Information regarding indexing and abstracting with my colleagues	407	3.04	0.79	HE
13.	Knowledge on library marketing with my colleagues	373	2.78	0.87	HE
14.	Knowledge concerning library policies among colleagues	357	2.66	0.89	HE
		41.98	10.79		

The data in Table 1 sheds light on the knowledge sharing among librarians in universities, as rated by the library staff. Utilizing a four-point Likert scale from Very High Extent (VHE) to High Extent (HE), the mean ratings and standard deviations offer insights into the staff's ratings of their knowledge sharing. Observed item rated as Very High Extent (VHE) is item 1 which says knowledge is shared about library activities with colleagues (mean = 3.54). On the other hand items statements such as knowledge on issues such as reader's services with my colleagues (mean = 3.16), new practice gained with my professional colleagues (mean = 2.96), knowledge on latest technology used in libraries with my colleagues (mean = 2.88), information about reader's services and users statistics with my colleagues (mean = 2.99), knowledge about issues with organization of library materials with my colleagues (mean = 3.03), seminar/workshop training experience and knowledge with my colleagues (mean = 3.12), information on the use of online databases and reference services among my colleagues (mean = 3.07), knowledge on bibliographic data and Current Awareness services with colleagues (mean = 2.87) are shared to High Extent (HE) with item mean scores approximately 3.00.

Similarly, item statements; information on how to write a thesis or a journal article among my colleagues (mean = 2.96), knowledge on cataloguing among colleagues (mean = 2.92), information regarding indexing and abstracting with my colleagues (mean = 3.04), knowledge on library marketing with my colleagues (mean = 2.78), and knowledge concerning library policies among colleagues (mean = 2.66) are also shared to High Extent (HE) with item mean scores approximately 3.00. Overall, the cumulative mean rating for all services is 41.98, with a standard deviation of 10.79, reflecting a generally positive assessment of the knowledge sharing among library staff in the university libraries under study.

The finding of the study on the rating of the extent of knowledge shared among librarians shows that all the items indicates that knowledge sharing are rated high extent by the librarians. This finding shows that the library staff to high extent share knowledge among themselves. The standard deviation which is high indicates that the rating scores of librarians on their extent of knowledge sharing are heterogeneous or spread further away from the mean and tends towards high extent. This shows that the majority of the librarians indicated that they share knowledge to a high extent among themselves. The finding in the study shows that the types of knowledge shared are knowledge about library activities, knowledge on issues such as reader's services and important library matters, new practice gained with my professional colleagues, knowledge on latest technology used in libraries with my colleagues, information about reader's services and users statistics with my colleagues, knowledge about issues with organization of library materials with my colleagues, seminar/workshop training experience and knowledge, information on the use of online databases and reference services among my colleagues. Also, shared are knowledge on bibliographic data and Current Awareness services with colleagues, information on how to write a thesis or a journal article among colleagues, knowledge on cataloguing among colleagues, information regarding indexing and abstracting with my colleagues, knowledge on library marketing with my colleagues, knowledge concerning library policies among colleagues. This finding is in line with the findings of Udo-Anyanwu and Emmanuel (2020) who found that majority of librarians agreed that knowledge is shared to high extent among librarians.

Research Question two: What is the coefficient of relationship between wikis and knowledge sharing among librarians in federal university libraries in south-east zone?

Table 2

The Coefficient of Correlation between Wikis and Knowledge Sharing among Librarians

Variable	<i>n</i>	<i>r</i>	<i>r</i> ²	Remark
Wikis	134	0.863	0.745	Positive
Knowledge Sharing				VHR

As presented in Table 6, the coefficient of correlation between wikis and knowledge sharing among librarians is 0.863, while the coefficient of determination is 0.745. The coefficient of correlation is positive and is within the range 0.81 – 1.00 for very high relationship. Hence, there is a positive and very high relationship between wikis and knowledge sharing among librarians.

Hypothesis one: The relationship between wikis and knowledge sharing among librarians in federal university libraries in South-East, Nigeria is not significant.

Table 3

Summary t-values Table for Testing Hypothesis Three

<i>r</i>	<i>t_{Cal}</i>	<i>df</i>	<i>t_{Crit}</i>	<i>p</i>	<i>Decision</i>
0.8163	19.626	132	1.646	0.000	Reject H ₀₃

In Table 3 the calculated t-value 19.626 is significant at an observed probability value (p-value) 0.000 which is less than the hypothesized probability value 0.05. Thus, the researcher rejects the null hypothesis three which states that “The relationship between wikis and knowledge sharing among librarians in federal university libraries in South-East, Nigeria is not significant”. Therefore, the relationship between wikis and knowledge sharing among librarians in federal university libraries in South-East, Nigeria is significant.

The finding in study shows that there is a positive relationship between wikis and knowledge sharing among librarians. This finding means that as the use of wikis among

librarians' increases, the extent of knowledge sharing among the librarians also increases. The coefficient of relationship falls within the range for very high relationship, indicating that the relationship between wikis and extent of knowledge sharing among librarians is very high. The statistical test carried out shows that the relationship between wikis and knowledge sharing among librarians in federal university libraries in South-East, Nigeria is significant. In other words, there is a significant and very high positive relationship between wikis and extent knowledge sharing among librarians. Wikis are collaborative technologies which are interactive in nature and used as innovative technology for knowledge sharing. This finding is not in line with the work of Sencioles, Santoyo and does Rocio Strauhs (2016) who found that the relationship between wikis and extent knowledge sharing among librarians is insignificant. This finding contradict the finding of Kiniti and Standing's (2013) research who found out that there are cases where wikis have failed to achieve this potential.

Research Question three: What is the coefficient of relationship between online discussion forum (Zoom) and knowledge sharing among librarians in federal university libraries in South-East, Nigeria?

Table 4

The Coefficient of Correlation between Online Discussion Forum and Extent of Knowledge Sharing among Librarians

Variable	<i>n</i>	<i>r</i>	<i>r</i> ²	Remark
Online Discussion Forum	134	0.735	0.540	Positive
Knowledge Sharing				HR

As shown in Table 4, the coefficient of correlation between online discussion forum and knowledge sharing among librarians is 0.735. The coefficient of determination is 0.540. The

coefficient of correlation is positive and within the range 0.61 – 0.80 for high relationship. The coefficient of determination on the other hand indicates that 54.00% in variations in the extent of knowledge sharing is explained by online discussion forum.

Hypothesis three: The relationship between online discussion forum (Zoom) and the extent of knowledge sharing among librarians in federal university libraries in South-East, Nigeria is not significant.

Table 5

Summary t-values Table for Testing Hypothesis Four

t_{cal}	df	t_{crit}	p	<i>Decision</i>
12.454	132	1.646	0.000	Reject H_{04}

In Table 5 the calculated t-value 12.454 is significant at an observed probability value (p-value) 0.000 which is less than the hypothesized probability value 0.05. Thus, the researcher fails to accept the null hypothesis four which states that “The coefficient of relationship between online discussion forum (Zoom) and the extent of knowledge sharing among librarians in federal university libraries in South-East, Nigeria is not significant”. Therefore, the relationship between online discussion forum (Zoom) and knowledge sharing among librarians in federal university libraries in South-East, Nigeria is significant.

This subheading presented the relationship between online discussion forum and knowledge sharing among librarians. The finding from the result of analysis in table 4 shows that there is a positive relationship between online discussion forum and knowledge sharing among librarians. The coefficient also falls in the range for high relationship, indicating that the relationship between online discussion forum is high. The statistical test carried out shows that the relationship between online discussion forum (Zoom) and the extent of knowledge sharing among librarians in federal university libraries in South-East Nigeria is significant.

The result of the study is in line with the result of Alzahrani (2017) who indicated that using ODFs is likely to lead students to gain better achievement and the also the statistical

analysis reveal significant and positive relationship and grade point average. Also, the study of Okwudibe and Adomi (2023) revealed that the extent in benefits derived from the Zoom meetings the librarians have participated in professional development is high. The librarians rarely experienced barriers with the Zoom meetings they have participated in. The result of finding negated the study of Aich and Banerjee (2022) which showed that the number of male persons attending the webinars are much higher compared to their female counterparts who attended the webinars. It is very interesting to note that there were a number of different platforms in webinars some of which we are very much familiar with, like YouTube, Zoom, Cisco Webex or Google Meet others like Swecha, Blizz, BlueJeans are very lesser known, but these platforms were also considered by some organizations too.

Recommendations

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

1. The library staff in university libraries should be encouraged by the library management to continue collaborating with each other and continue sharing knowledge.
2. Since wikis significantly influenced the extent of knowledge sharing among librarians, the library management should provide them with adequate training on how to make proper use of it especially with regards to knowledge sharing.
3. The librarians should often make use of online discussion forum such as Zoom and familiarize themselves with it since it significantly influences the extent of knowledge sharing among them.
4. University management should provide adequate ICT infrastructure to support effect use of collaborative technologies in university libraries.

5. Library management should organize regular digital training skills to improve librarians' competencies in using emerging technologies.

Conclusion

Based on the results of data analyses and discussions of findings, the researcher concluded that collaborative technologies such as wikis, and online discussion forum have significant relationship with the extent of knowledge sharing among librarians. Furthermore, the use of collaborative technologies has significantly impacted the extent of knowledge sharing among librarians in Federal universities in the South-East region. Through the integration of various digital tools and platforms, librarians have been able to transcend geographical and institutional boundaries, fostering a culture of collaboration and knowledge dissemination.

References

- Aich, L., & Banerjee, S. (2022). Using Web Conferencing Environment for Teaching and Learning Process in Library and Information Science in India during COVID-19: A Study. *Qualitative and Quantitative Methods in Libraries*, 11(2), 307-317.
- Anene, I. A. & Idiedo, V.O. (2021). Libraries participation in professional development workshops using Zoom in Nigeria. *Information Development*, 20(10), 1-10. journals.sagepub.com/home/idv.
- Alzahrani, M. G. (2017). The Developments of ICT and the Need for Blended Learning in Saudi Arabia. *Journal of Education and Practice*, 8(9), 79-87.
- Ayolugbe, C.J., Jidere, A.J. & Ogwo U. (2021). Utilization of zoom as an interactive platform in repositioning library administration/management for effective service delivery in academic libraries in Nigeria. *Library Philosophy and Practice (e-journal)*. 6514. <http://digitalcommons.unl.edu/libphilprac/6514>
- Edeh, M. O., Edeh, C. D., Alhuseen, O. A., Quadri, N. N. & Sumaya, S. (2019) Online Discussion Forum as a Tool for Interactive Learning and Communication

International Journal of Recent Technology and Engineering (IJRTE)8(4),
DOI:10.35940/ijrte.D8062.118419

- Escher, G., Noukakis, D., & Aebischer, P. (2014). Boosting higher education in Africa through shared massive open online courses (MOOCs). *International Development Policy/ Revue internationale de politique de développement*, (5).
- Gandhi, S. (2004). Knowledge management and reference services. *The journal of Academic Librarianship*, 30(5), 368 - 381
- Goswami P.K & Choudhury, N. (2014) Collaboration tools and its relevance in library services, 9th Convention PLANNER 2014 Dibrugarh University, Assam, September 25-27.
- Hu, C.; Zhao, Y. & Zhao, X. (2007) Wiki-based Knowledge Sharing in A Knowledge-Intensive Organization (2007)
https://link.springer.com/chapter/10.1007/978-0-387-75494-9_3
- Udo-Anyanwu, A. J. & Emmanuel, V. O. (2020). Acquisition of ICT skills by LIS educators for effective knowledge sharing in universities in Imo and Rivers States. [In Nwokocha, U. \(Ed.\). *Knowledge sharing and sustainable LIS education in Nigeria*. Lagos: Zeh Communication.](#)
- Kiniti, S., & Standing, C. (2013). Wikis as knowledge management systems: issues and challenges. *Journal of Systems and Information Technology*, 15(2), 189-201.
- Livina, D. C.; Ukwoma, S.; & Nwamaka, O. V. (2017)"Perception of librarians towards collaborative research in academic libraries in Nigerian Universities" (2017). *Library Philosophy and Practice (e-journal)*. 1596.
<http://digitalcommons.unl.edu/libphilprac/1596>
- Majid, S., & Tina, R. R. (2009, March). Perceptions of LIS graduate students of peer learning. In *Asia-Pacific Conference on Library & Information Education and Practice (A-LIEP): Preparing Information professional for International Collaboration* (pp. 6-8).
- Nworgu, B. G. (2015). *Educational research: Basic issues and methodology*, (2nd Ed.). Nsukka; University Trust Publishers
- Okwudibe, E. O., & Adomi, E. E. (2023). Relationship between ICT skills and participation in zoom meetings for professional development among librarians in universities in south-south, Nigeria. *Journal of Management and Social Science Research*, 4(1), 40-49.

- Onuoha, J. A., & Obialor, D. C. (2015). The impact of information technology on modern librarianship: A reflective study. In *Information and Knowledge Management* (Vol. 5, No. 11, pp. 52-58)
- Sencioles, S. V. O., Santoyo, A. H., & Strauhs, F. D. R. (2016). Use of wikis in organizational knowledge management. *Social Networking*.
- Stephens, M., Mitchell, S. A. & Zickau, A. (2019) Technology, collaboration, and learning: Perceptions and preferences of US Public Library *Staff Professional Development* 33(3) 1-16
- Swift, M. L., & Virick, M. (2013). Perceived support, knowledge tacitness, and provider knowledge sharing. *Group & organization management*, 38(6), 717-742.
- Udo-Anyanwu, A. J. & Emmanuel, V. O. (2020). Acquisition of ICT skills by LIS educators for effective knowledge sharing in universities in Imo and Rivers States. In Nwokocha, U. (Ed.). *Knowledge sharing and sustainable LIS education in Nigeria*. Lagos: Zeh Communication.