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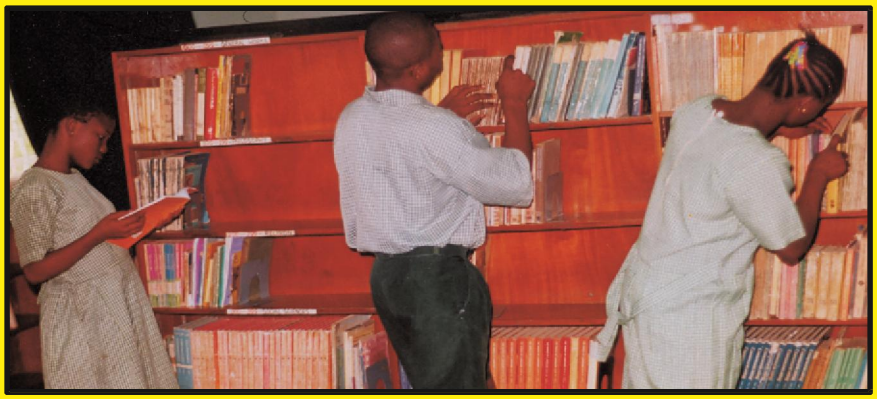

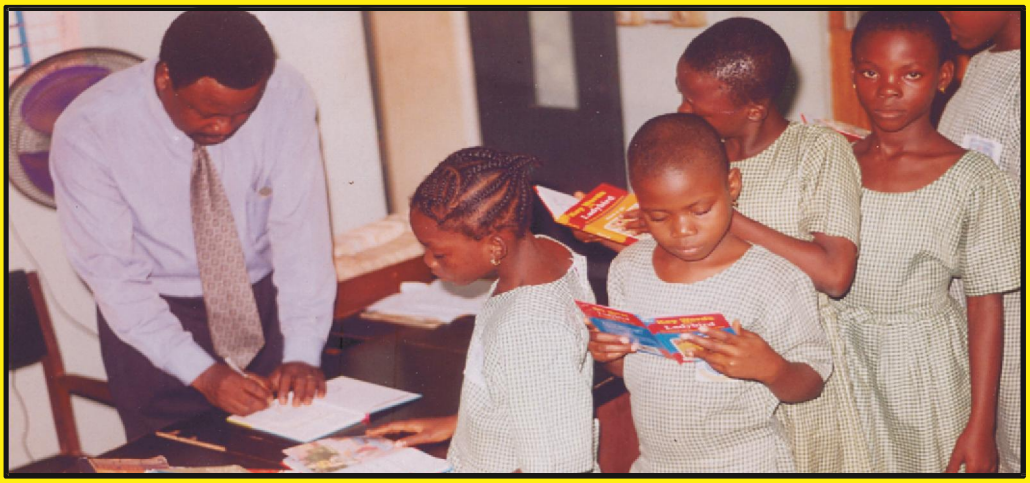

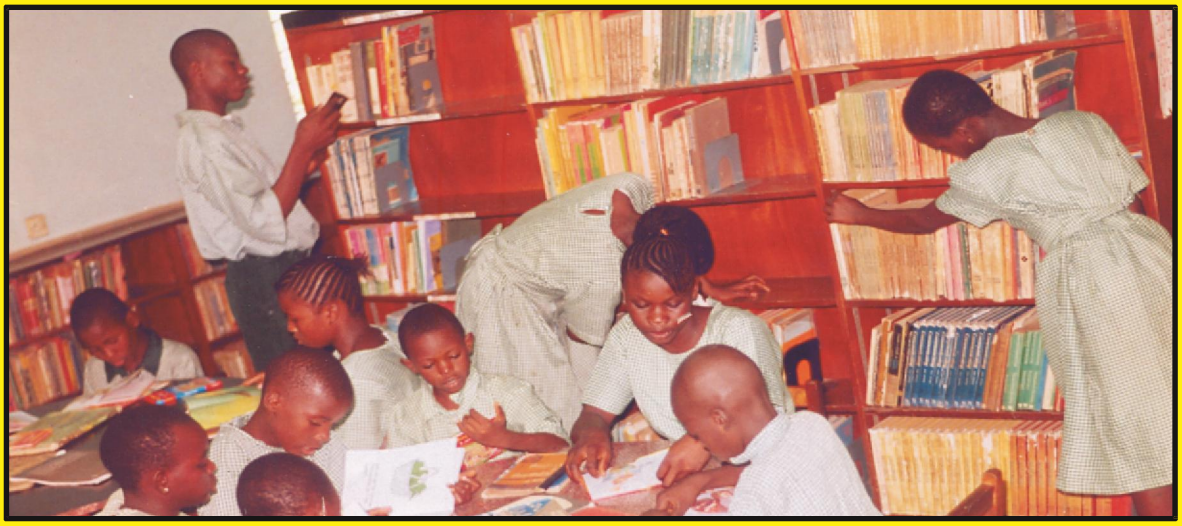

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Nigerian School Library Journal, March, 2024

Editorial

The volume 23, March 2024 issue of the Nigerian School Library Journal (NSLJ) is out for your consumption. I have no doubt that it will surely be a useful addition to your resource collection on school librarianship and other library and information science issues.

The issue features articles on issues relating to school librarianship and other library and information science areas. It is, indeed, a volume that will enrich your knowledge on contemporary school librarianship and other librarianship knowledge domains.

I, therefore, commend it for your selection as new addition to your stock.

We seek your support in submitting publishable articles on time. The Journal continues to be indexed by AJOL and it has been accorded a higher status that will reflect in its visibility.

Your sustained interest in NSLJ is highly appreciated.

Prof. David F. Elaturoti

Editor-in-Chief

Nigerian School Library Journal, March, 2024

Revitalising School Library Services in Niger State using Digital Technologies

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Abstract
This paper explores and describes some important digital technologies and tools school libraries in Niger State can leverage to revitalise the poor services school libraries in in the state offer. A peruse of existing literature and verbal interaction with some school librarians in Niger state by the researchers revealed that, abysmal services related to digital technologies were provided in schools where libraries existed. Some of the school libraries do not have computers and electronic resources, because the focus of those schools has shifted to the Information and Communication (ICT) laboratories/rooms. The researchers inferred that this shift and poor services may be due to the fact that school librarians have not been able to champion the use of digital technologies to enhance learning in their libraries. Thus, this paper highlights some of the tools can used to revitalise library services in post-primary schools in Niger-State to make them vibrant learning spaces for users in the fourth industrial revolution.

Keywords: *School library services, Revitalising, Digital technologies, Niger State*

Introduction
Education is focused on the intellectual growth of children, and to fulfil its aims and objectives, it needs the right tools and abilities (Ilori, et.al., 2020). Consequently, the library provides information resources to help achieve the objectives of education by improving learning activities. School libraries are pertinent infrastructures in post-primary institutions because they meet the teaching and learning needs of both the teachers and pupils. There are several definitions of school libraries, however, the definition of Petters and Ottong (2012) resonates with what school libraries should be in the fourth industrial revolution. According to the authors, a school library as a learning laboratory that provides opportunities for pupils to develop information skill. In line with this definition, the International Federation of Library Association (IFLA) Guidelines on School library (2015) explained that school libraries exist throughout the world as learning environments that provide space (physical and digital), access to resources, and access to activities and services to encourage and support student, teacher, and community learning.

The advent of Information and Communication Technology necessitated computers and the Internet as educational tools, thus integrating technology education into the responsibilities of school librarians. (Everylibrary, 2021). School libraries are now expected to integrate digital technologies and tools, and teach students to access resources and information online to meet their information needs. Librarians had to adapt, as technology-based resources rose to be at par with print resources as a pertinent component of teaching and learning. School librarians in developing countries hesitated in this new role partly due to lack of capacity and knowledge (Arif & Khalid, 2012), as technology was not part of core librarianship *ab initio*, thus, ICT laboratories took over these responsibilities in post-primary schools. However, the gap of librarians was visible; the use of digital and media technologies for searching and retrieval had to be taught and librarians have since evolved and adopted digital technologies into their workflow. The services which school libraries are expected to provide in the fourth industrial revolution era in addition to the traditional library services include but not limited, to the following: Provision of electronic books, ICT skill training for pupils, reading and online/web resource lists to pupils and teachers and computer classes for pupils/users. (Adomi, 2012).

The question is, are school libraries in Niger State, vibrant centres of learning or just spaces for reading? A perusal of existing literature on the state of school libraries in Niger State (Akawu, et.al., 2017; Abdullhamid & Yusufu, 2016; Abdullhamid et. al. 2017; Oyedum,et.al., 2019) and verbal interaction with some school librarians in Niger state by the researchers revealed that, minimal and abysmal services related to digital technologies were provided, where school libraries exist. Some of the school libraries do not have computers and electronic resources, because the focus of these schools has shifted to the Information and Communication (ICT) labs/rooms. The researchers inferred that this shift and poor services may be due to the fact that school librarians have not been able to champion the use of digital technologies to enhance learning in their libraries. Interestingly, this assertation is not peculiar to Niger State alone; Muazu, et. al. (2021) stated that lack of technical knowledge and exposure of librarians to library automation affect the efficient use of information technologies in school libraries in Giwa Local Government Area in Kaduna State.

It is pertinent to note that despite the advantages of integrating these technologies into school library services as indicated in the literature; many school libraries face challenges such as limited budget and technology infrastructure (Hasibuan et al., 2023). However, it can be noted that in some school libraries, its usually lack of information about alternative open digital technologies that can be integrated to their services with limited funds. Consequently, this paper highlights some of the tools that can be used to revitalise library services in post-primary schools in Niger-State to make them

vibrant learning spaces for users in the fourth industrial revolution. By leveraging these technologies, students and teachers can gain access to a wealth of resources and opportunities that traditional libraries alone cannot provide; thus, bringing back school libraries to its place of pride.

Literature Review

In today's rapidly evolving digital world, the integration of technology has proven to be a driver for transformation across various sectors, including education. As educational paradigms shift towards more dynamic and interactive learning environments, the role of libraries within schools becomes even more critical. Interestingly, the call for and suggestions for transforming school libraries have been on for over two decades globally.

Bello (2013) stated that the automation and digitisation of school libraries is a driving force for effective teaching and learning; and since school libraries have one objective of improving teaching and learning in primary and post primary schools, it is imperative that these technologies are integrated into their services to complement and supplement the curriculum. Kirmani (2007) paper discussed transforming school libraries with digital content, enhancing access, saving time, and adapting to e-learning. It also emphasised the importance of libraries in transitioning to digital education. Furthermore, student engagement and enthusiasm for learning have been successfully improved by revitalising school libraries, via the incorporation of modern technology and innovative facilities like the multimedia corner, educational board games corner, and printing corner which has successfully increased student engagement and excitement for learning (Cortez, 2024). Hasibuan et al (2023) study provides insights into essential steps for developing digital collections, such as analysing user needs, mapping collection sources, and evaluating development progress, offering a comprehensive guide for other school libraries. Additionally, the study suggests strategies like collaboration with other libraries and downloading free digital resources to enhance digital collections, providing practical recommendations for improving library resources in the digital age.

However, according to some sources in the literature, school libraries face challenges such as limited budget, staffing and technology infrastructure, especially for digital collections that require substantial costs to obtain licenses or purchase access to digital information resources (Hasibuan et al. 2023). Interestingly, these evidences from the literature were also observed by the researchers. Furthermore, insufficient technological infrastructure like internet networks and software for smooth and safely accessing to the digital collection can hinder some school libraries especially the public-school libraries from integrating digital technologies to their services.

Digital Technologies that can improve school library services in Niger State

i. **Digitisation & Digital Libraries using calibre**

Digitisation in this context refers to the conversion of print information resources (question papers, notes of lesson, newsletters) whose copyright are owned by the school to digital information resources using a simple scanning machine (which most school libraries have) and a computing device. Some of the information resources are also born digital-i.e., they come in soft copies. Apart from the digitised resources, open education resources in both academic and other genres that are free of copyright restrictions are available online and can be accessed. Interestingly, some textbooks and reference materials like Dictionaries and Atlases also have soft copies that can curated and managed in the libraries.

There are a number of digital tools that are useful for the curation and management of these digital resources (either digitsed or born digital). Notable amongst them is the *calibre* E-book Management software. The application can be installed on computer devices in the libraries. Although *calibre* application has advance features from acquisition to dissemination which are the crux of librarianship, school libraries can adapt features that works for them in other to avoid been overwhelmed. Any library that wants to adopt its usage must develop its own in-house classification and sorting scheme to enable easy search and retrieval for the students. (Salau, 2015).

Figure 1: Calibre interface on display with digital books

ii. **Current Awareness Services using Open Educational Resources**

Open education resources and teaching and learning materials in any format that are free of any copyright restrictions. Libraries can leverage these resources to revamp their current awareness services. A number of open education resources repositories exists that school libraries can leverage to

provide current awareness to their students, particularly in areas outside core academics like robotics, public speaking to mention but a few. Libraries can provide OERs to school clubs to facilitate their activities. Some of the free OER sites include Khan Academy, OER Commons, Academy Earth, Learning Pod, Open Learning Initiative, DOAB.

iii. Digital Educational Games

Games offer narratives and information that are presented in novel ways that promote critical thinking and problem-solving while achieving teaching and learning goals. Consequently, with the ubiquitous nature of digital technologies, digital game-based learning is now been discussed as one of the twenty-first century global pedagogical approaches (Kukulska-Hulme et al., 2021), with unique advantages in enhancing education compared to other pedagogical strategies (Ishak et al., 2021). Digital games have become pertinent in the learning space and no longer play only the function of entertainment, but could assist students in more active learning and deeper and broader learning, when being applied to instructions. (Yen-Chun, 2017). Furthermore, digital educational games can serve as an effective learning environment, providing players with ample opportunities for simulation, real-world questions, and rich instructional support (Gui et. al., 2023).

Librarians can benefit by proactively, creatively, and most importantly affordably incorporating gaming into the services and initiatives already provided at school libraries. According to the Aina (2013), gaming programmes frequently ranked among the most well-liked ones that a library can provide. According to the researcher, libraries are now more than ever focusing on video games in an effort to entice teens back inside. Thus, given all of the advantages of digital games, school libraries as support hubs for learning must position themselves and leverage the use of digital educational games to revitalise their services.

iv. Digital Reading/Book Clubs

Reading is indispensable in the everyday activities of humans; whether it is devotional, recreational or achievement, reading makes one mentally alive at all times and keeps one abreast of the latest developments in and around the world (Nnaemeka et al., 2023). However, over the years, reading has become an avoided activity for students; the reading culture has dropped significantly due to a lot of distraction especially social media. White (2017) believes that to create a reading culture school librarians must, *"Work with teachers and parents to find ways to instil in students the joy of reading while helping them build the reading habit."* One of such ways is the creating and management of reading/book clubs and by extension digital reading clubs.

Freeware, cross platform applications like WhatsApp and Telegram are examples of digital tools that can be leveraged to form digital book clubs. A

rule of thumb in the administration of the digital book clubs is that reading-activities must be fun-driven as it is a chance for children to enjoy reading and discussing their views of books with others. For instance, due to the interoperable nature of digital tools, the social media handles of authors whose books have been read can be tagged for comments to encourage the students.(https://literacytrust.org.uk/blog/library-lifeline-part-5-running-a-school-library-book-club/).

It is pertinent to note that in the context of this paper, most post-secondary students may not have access to their own mobile devices for the digital book clubs, However, the devices of the parents or guardians can serve. It can run at alternate times with the physical reading clubs. Digital club can be active while the students are on holidays, while the physical club will be active while the students are in school. Thus, digital reading clubs will be the stop-gap measures for sustaining the reading culture while the students are on holidays.

Maker Space

Makerspace generally refers to physical spaces where people have access to digital and physical tools and community members' expertise in making, it also includes the intangible communities and programming for creating and sharing Soo Hyeon (2022). School libraries in Niger state can collaborate with science-related school clubs to either provide spaces for their activities or provide Do-It-Yourself tools which can range from simple home tools like sewing needles, glue, scissors, cardboards, drill bits to other advanced tools like 3D printers and drones. The use of school library makerspace by secondary school students is critical if they are to develop important skills associated with problem solving and critical thinking. These skills can be sharpened with the interactions with colleagues and collaborative opportunities that the makerspace provides. Keshinro, Deborah and Oyewole, Olawale (2021).

Conclusion

Incorporating digital technologies into school library services in Niger State is not merely an option but a vital step toward ensuring relevance and quality education. This article has highlighted the potential of digital integration and provided insights into implementing these changes effectively. By embracing these strategies, school libraries in Niger State can pave the way for enhanced learning experiences and improved services.

References

Adomi EE. (2012). Basic Computer Application in School Library Services. *Delta Library Journal,* (1& 2) 43-49.

Aina, A.J. (2013) The roles of libraries in the use of games as strategy for pedagogy of primary science in schools. *International Journal of Library and Information Science.* 5(8), 240-246.

Arif, D. & Mahmood, Khalid. (2012). The Changing Role of Librarians in the Digital World: Adoption of Web 2.0 Technologies in Pakistani Libraries. *The Electronic Library*. 30. 469-479. 10.1108/02640471211252184.

Bello, S. (2013) Automation and digitisation of primary/post primary school libraries as an impetus for effective teaching and learning. J*ournal of Educational and Social Research*,3(10), https://www.richtmann.org/journal/index.php/jesr/article/view/2345

Everylibrary, (2021). The rise of school libraries as technology hubs. Accessed from https://medium.com/everylibrary/the-rise-of-school-libraries-as-technology-hubs-e85e71a1ce42 on 5/9/2023

Gui, Y., Cai, Z., Yang, Y. et al. (2023). Effectiveness of digital educational game and game design in STEM learning: a meta-analytic review. *International Journal of STEM Education,* 10 (36) https://doi.org/10.1186/s40594-023-00424-9

Hasibuan, P. A., Fadhli, R., Igiriza, M. (2023). Redefining school sibraries for the digital age: Developing comprehensive digital collection strategies. J*urnal Manajemen Pendidikan*, 5(1), 58-68.

Ilori, M.E., Oluwafemi, V. S., & Odusina, E. S. (2020) School Library Services as a Catalyst for the Better Basic Education in Nigeria. *Indian Journal of Information Sources and Services,* 10(1), 1-6.

Ishak, S. A., Din, R., & Hasran, U. A. (2021). Defining digital game-based learning for science, technology, engineering, and mathematics: A new perspective on design and developmental research. *Journal of Medical Internet Research,* 23(2), e20537. https://doi.org/10.2196/20537

Kukulska-Hulme, A., Bossu, C., Coughlan, T., Ferguson, R., FitzGerald, E., & Gaved, M. (2021). *Innovating pedagogy: Open university innovation report 9*. The Open University.

Keshinro, D. and Oyewole, O (2021). Predictors of use of school library makerspace by secondary school students in Ibadan, Nigeria. *Library Philosophy and Practice (e-journal).* 5608. https://digitalcommons.unl.edu/libphilprac/5608

Kirmani (2007) The changing face of a school library with the advent of e-content, *IASL Conference Proceedings. Taipei, Taiwan* DOI: https://doi.org/10.29173/iasl7614

Mariel Kristine M. Cortez. (2024). Revitalising the school library: Embracing technology and innovation. *EPRA International Journal of Multidisciplinary Research (IJMR)*, 10(2), 162–163.

Murjanatu Abdullhamid, M. & Yusufu, A. (2017). Assessment of Information Resource Provision in the Staff School Libraries of Niger State. *J*ournal of Information Resource Management. 5(2).

Nnaemeka, U. E, Udemezue J. O.& Amarachi Jovita Ikeagwuani (2023). Towards Enhancing Reading Culture in an Era of social media and Get-Rich-Quick Syndrome Distraction: The Nigerian Perspective. *Global Online Journal of Academic Research (GOJAR)*, 2(1).

Oyedum, G.U., Abubakar, A. S., Obaje, A. M., Uno, C. A. (2019). Use of School Library and Students' Satisfaction in two Secondary Schools in Minna, Niger State. *University of Ibadan Journal of Library and Information Science*. 2(2). 64-77

Petters, S. J. and Ottong, E. J. (2012). Correlates of School Library Development in Calabar, Nigeria: Implications for Counselling. *Journal of Education and Practice, 3(12), 67- 71.*

Salau, S.A. (2015) Managing E-Books in Nigerian Academic Libraries Using Calibre Software: A Case of Federal University of Technology Minna Library. Middlebelt *Journal of Library and Information Science*

Soo Hyeon Kim, Yong Ju Jung, Gi Woong Choi, (2022) A systematic review of library makerspaces research. *Library & Information Science Research,* 44(4)

White, B. (2017). Recreational reading in secondary schools through book clubs. *Graduate Research Papers.* 216. https://scholarworks.uni.edu/grp/216

Yen-Chun C., (2017) Empirical Study on the Effect of Digital Game-Based Instruction on Students' Learning Motivation and Achievement. *Eurasia Journal of Mathematics, Science and Technology Education* 13(7). DOI: 10.12973/eurasia.2017.00711a

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Promoting Quality Education: Implications of Awareness-creation, Support, and Interest in STEM Education among Private School Students in Ibadan, Oyo State, Nigeria

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Abstract
This qualitative study explored teacher librarians' awareness, support, and interest in promoting STEM (Science, Technology, Engineering, and Mathematics) among school children in Nigeria. The study adopted a qualitative approach with 30 secondary school students from Ibadan, Nigeria in a focus group. The 8-week discussion group was guided by predetermined questions about students' STEM perceptions and teacher librarians' roles. This also include the pre and post behaviour of the students. Findings revealed teacher librarians significantly impact STEM education by curating STEM collections, collaborating with educators, and facilitating STEM programs and hands-on activities. The study concludes that teacher librarians are important for effective STEM instruction by creating supportive, engaging learning environments. Recommendations include reviewing policies guiding school libraries and STEM education, providing teacher librarians with more STEM-focused training and professional development, and encouraging teacher librarians to regularly promote STEM learning experiences. This study emphasises the vital role of teacher librarians in improving STEM education quality in Nigeria.

***Keywords**: STEM, SDGs, Teacher librarian, Quality Education*

Nigerian School Library Journal, March, 2024

Introduction

In September 2015, the United Nations general assembly formally adopted the 2030 agenda for Sustainable Development which includes 17 Sustainable Development Goals (SDGs). The SDGs built on the Millennium Development Goals (MDGs) and aim to end poverty, protect the planet, and ensure prosperity for all as part of a new global sustainable development agenda (United Nations Development Programme, 2018). Each of the 17 SDGs has specific targets to be achieved by 2030. In addition, the SDGs present an urgent call to action by all countries and stakeholders to collaborate in tackling the pressing economic, social and environmental challenges facing the world. Generally, libraries of all types, as centers of research and education have a profound role to play in advancing the SDG agenda (Mensah, 2019). This article explored how teacher librarians in particular are using their expertise to enhance the promotion of quality education as regards SDGs with focus on STEM.

The SDGs Target 4.7 specifically calls for education to promote sustainable development and global citizenship in knowledge and skills (DuBoff, 2019). As centers of learning, secondary schools have a key role to play in educating youth to become sustainability change-agents. Integrating the SDGs into science, technology, engineering and mathematics (STEM) education can help catalyze this transformation (Babalola, Fakoyede, Ojobola & Abiona, 2023). STEM subjects provide the perfect gateway for introducing secondary students to sustainability issues and solutions. Mathematics can be used to analyze trends and projections related to SDG topics like renewable energy expansion, greenhouse gas emissions or income inequality. Students can apply technology and engineering design principles to invent solutions that advance sustainable production and consumption. In science courses, systems thinking and life cycle assessment activities allow students to comprehend interconnected SDG challenges surrounding food security, water scarcity and climate change (Mensah, 2019).

According to Mahmod (2019) project-based learning is an effective instructional approach for connecting STEM curriculum with sustainability. Secondary school students could be challenged to collaboratively design an energy-efficient home that utilizes renewable resources, aligned with SDG7 on clean energy. Alternatively, students may develop software applications to reduce food waste in schools, which could be linked to SDG12 on responsible consumption. Through such, hands-on projects can be connected to real-world issues. Likewise, students deepen their STEM knowledge while developing critical thinking skills to create innovative solutions for local sustainability problems. However, this would only be possible when more students are encouraged to take up STEM subject. Similarly, getting more students to take up STEM subjects and engage in innovative practices requires cross-disciplinary collaboration and flexibility.

Teacher librarians, as custodians of information and experts, are saddled with the responsibility of supporting school curriculum, enrich STEM teaching and encourage more students to take interest in stem subjects. The school library run by teacher librarians is a fertile ground for boosting quality of STEM education by providing the facilities, resources, and expert support which promote innovative thinking, self-directed study and a guided sense of adventure among students. This equips secondary students with the knowledge, skills required to become engaging citizens and future sustainability leaders (Costa, Ferreira & Pinho 2023). In addition,

with the requisite support from the school library, STEM teachers can effectively teach key scientific and technical concepts through the lens of sustainable development goals. However, there is a paucity of studies on the role of teacher librarians in creating awareness, support, and stimulating interest in STEM education among private school students. This gap in literature is behind the current study

Research Questions (Pre-behavioural questions)

1. What is your understanding of Science, Technology, Engineering, and Mathematics (STEM) education?
2. How interested are you towards Science, Technology, Engineering, and Mathematics (STEM) education?
3. Do you think there are benefits or job opportunities if you take the subject related to Science, Technology, Engineering, and Mathematics (STEM) education very seriously?
4. Does the method of teaching STEM by your teachers affect your view towards Science, Technology, Engineering, and Mathematics (STEM) education?
5. Does your Science, Technology, Engineering, and Mathematics (STEM) teacher spur awareness in you?

Literature Review

The STEM education, encompassing science, technology, engineering, and mathematics, is increasingly acknowledged as pivotal for national development. In Nigeria, education plays a vital role in fostering or promoting innovation, improving individuals ' standard of living, and driving economic growth. Nevertheless, regardless of its implication, Nigeria is still faced with challenges inhibiting the advancement and widespread implementation of STEM education. Moreso, the importance of STEM education in Nigeria is underscored by the growing demand for STEM professionals in the labour market. The rapid technological advancements across sectors like healthcare, energy, and communication amplify the need for individuals with a robust STEM foundation. Elevating Science, Technology, Engineering, and Mathematics (STEM) education can thus create employment opportunities, ultimately enhancing living conditions and reducing poverty (Michael-Onuoha, Nkiko & Okuonghae, 2020; Ezema, 2022).

In addition, STEM education plays an important role among students because it gives room for creativity and innovation. Hence, the role of Science, Technology, Engineering, and Mathematics (STEM) education is indispensable for a lifelong education. Preparing and training students with important abilities, skills and knowledge to think and analyze lessons critically, resolve complicated hitches, and bring in new technologies is assumed important in developing countries like Nigeria, where progress hinges on technological advancements. Moreover, Science, Technology, Engineering, and Mathematics (STEM) education encourages business mindset among students, and as such improves economic growth. Apart from economic benefits, STEM education also holds cultural and societal relevance in Nigeria. This helps many of the students to understand their environment and this also contributes to their enrichment (DuBoff, 2019).

School Libraries and Quality Education

School libraries are very necessary and important means for ensuring quality student education. Hence, the school libraries provide access to an array of

information, resources, and technology, which reinforces the learning and academic achievement of secondary school students. Furthermore, provision of quality education requires that secondary schools are equipped with a serene learning environment, enabling independent or collaborative work on school assignments, research projects, and educational endeavors. The role of school libraries in education can be categorized into three major domains: information accessibility, promotion of literacy and learning, and technology support (Johnston, 2018; Phillips, Lee & Recker 2018).

1. Information Accessibility: School libraries serve as gateways to diverse resources like books, journals, databases, and multimedia materials. This information resources fosters student learning, broadens horizons, and nurtures critical thinking. Librarians play a crucial role in cultivating information literacy skills among students, information source evaluation, information synthesis, and adept technology use, which is vital for academic and personal development.
2. Promotion of Literacy and Learning: School libraries champion literacy and learning by providing a platform to engage with various texts and media. It grants access to books spanning genres from fiction to non-fiction and graphic novels, nurturing a penchant for reading and enhancing reading comprehension. Additionally, school libraries orchestrate educational programs such as book clubs, author interactions, and writing workshops.
3. Technology Support: School libraries facilitate technology access, a cornerstone for learning and academic progress. Computers and digital devices enable students to complete assignments, undertake research, and access online resources. Librarians bolster students' technological aptitude and safety, priming them for future academic and professional accomplishments. As a linchpin in education and student learning, school libraries play a crucial role by providing information access, promoting literacy and learning, and offering technology support as essential components for 21st-century student skills.

Current State and Challenges of STEM Education

The state of STEM education in Nigeria is a pivotal concern for the government and stakeholders. Recognising the economic growth, job creation, and improved living standards stemming from STEM education, attention is focused on this domain. However, challenges mar the quality of STEM education, necessitating targeted interventions. One major obstacle is inadequate funding. The government's limited education budget compromises STEM education's quality and accessibility. Consequently, institutions often lack necessary resources — laboratory facilities, modern technology, and qualified educators—depriving students of practical STEM experience crucial for growth (Benson, Anyanwu & Onuoha, 2016).

Outdated curricula present another hurdle. Failure to keep pace with evolving scientific and technological advancements hinders students' exposure to the latest innovations, restraining their potential and career prospects. Misalignment with labor market needs complicates employment prospects for STEM graduates. The dearth of qualified STEM educators is equally concerning. Schools and universities struggle to provide a comprehensive and high-quality STEM education due to the scarcity of trained educators. This impacts the quality of education students receive and dissuades them from pursuing STEM careers (Phillips, Lee & Recker, 2018).

Inadequate laboratory facilities impede practical learning, a cornerstone of STEM education. Insufficient resources hinder students' development of essential skills,

limiting their career readiness. Despite these challenges, Nigeria has made strides. Initiatives like Tertiary Education Trust Fund (TETFUND) support STEM research, while private organizations foster STEM education awareness. The integration of technology enhances access, engagement, and learning efficacy. Yet, efforts persist in tackling teacher shortages, enhancing facilities, modernizing curricula, and bridging the gap between education and market demands (Benson, Anyanwu & Onuoha, 2016).

Research Methodology

The study adopted a qualitative approach using a focus group discussion. The population of this study is junior secondary school student in year two (JSS 2 / Basic 8) from two private schools in Ibadan, Oyo State. A purposive selection of thirty (30) students, fifteen (15) students each in the schools, who were willing to participate actively in the study were selected. The focus group discussion lasted for eight weeks with activities and resources tailored across wide range of STEM topics, purposively selected by the teacher librarian to demystify the complexity or challenging idea towards STEM and to allow engagement through exploration in a self-directed manner. The subject selected was Integrated Science, also known as Basic Science which includes the aspect of Biology, Chemistry and Physics. Due permission was taken from the school principal in order to have the full support and access to the students, teachers and the school laboratory. The researchers with the support of the teacher librarian in the schools, engaged the students in experiments using items or materials easily found from their environment.

The following are the scheduled activities for the 8weeks:

Week	Activity	Remark
1	Pre Focus group discussion	General introduction and Sensitization Students from both schools were respectively grouped into 5; each group having 3 students each. A pre- focus group was conducted and recorded.
2	Nutrition	Test for food using various food items
3	Biodegradable and non-bio degradable (refuse and sewage)	Visit to Refuse dump site to identify biodegradable and non-biodegradable material, the importance and how to handle the materials.
4	Earth in space	Globe used to explain eclipse and change in day
5	Force	Demonstration of our force works using ballon.
6	Boiling point / evaporation	Convention & conduction using spoon, wooden spoon.
7	Identification of	Litmus paper used in

	chemicals	identification of chemicals in easily accessible substances
8	Post Focus group discussion	Students in their respective groups had the last section of the focus group discussion which was also recorded. Closing remarks Refreshments

Presentation of Results and Discussion of Findings

The finding from the pre-focus group discussion showed that majority of the students have little knowledge of the word STEM, larger percentage of the students gave the meaning of the word based on the acronym and were able to relate it to their school subjects. The students also established interest in STEM as some found the acronym captivating, some assumed it is part of the achievement of science whereas to some STEM might be helpful in some unimaginable ways; considering the opportunities attached to it to extend to the subject areas that STEM covers. Likewise, the students' view of STEM based on their teachers' teaching methods is two sided that is, both negative and positive. Some of the participants assumed that STEM can lead to confusing idea and on the positive side; it might help to broaden ideas and knowledge. The students agreed to the fact that their awareness of STEM could enhanced by the teachers.

On the other hand, the post focus group discussion revealed a clearer understanding of the concept of STEM, students were able to give broad description of STEM and with this understanding, the participants were so excited and interested in STEM and in the light of these, they saw greater opportunities and benefits; career-wise, mentally, economically and socially. In respect to the students' view of STEM based on the teachers' teaching methods; the participants acclaimed it to be excellent and creative, the teaching is made real and easy to remember and apply. The teacher teaching method was found to be a boost to the awareness of STEM among the participants. It was observed that during the demonstration period that lasted for six (6) weeks, the students were more enthusiastic hoping that the session will not end. These sessions promoted individual participation, collaboration and team work among the participants.

The STEM in education is both a curriculum and pedagogy which means that knowledge must be explicit covering various disciplines and going beyond the disciplines. Teachers are to facilitate STEM as student-led process that will enable them solve challenges (Margot and Kettler, 2019), which was the objective of the practical session in this study. The pre and post focus group discussion session conducted before and after the practical session is to build a foundation from the perspective of STEM knowledge among the participant. It was observed that the student knew a little but demonstrated a good mental knowledge to handle the discussion during the pre-focus group discussion session. The practical session revealed a great sense of confidence and good understanding of the concepts in the topic treated which is, as a result of achievement of STEM skill in the participant. However, STEM learning skill demonstrated include collaboration, critical thinking,

communication and creativity during the learning process. Therefore, it can be deduced that quality education should be hinged on STEM learning skills for a sustainable development goal.

According to Association for the Development of Education in Africa (ADEA), report on situational analysis of the status of STEM education at Basic Education in Africa (ADEA in UN policy brief, 2022), STEM education can be used for evaluating pedagogical practices in order to ensure continuous improvement in quality education. Teacher librarian as learning facilitators and instructional designer needs to possess advanced skill for adequate implementation of STEM learning skills. Teachers play a role in developing STEM talent in the students they either promote or hinder its implementation.

The STEM education is not a well-defined experience in schools despite the fact that STEM programme provides opportunities, supports, understanding and experiences required by students to maximize their potential (Phillips, Lee & Recker, 2018). The focus group discussion corroborated this as the participant mentioned that majority of the teachers fail to demonstrate STEM teaching skills in their teaching methods. This might be in agreement with Leisseig, Slavit, Nelson and Seidel (2016) findings, that teachers need support in planning and implementing STEM for students' academic success and this support should be an ongoing professional development programmes. However, it was also noticed that there are inflexible curricular challenges whereby, teachers found it difficult to integrate STEM curriculum into the existing curricular. Some felt their domain study did not integrate well with STEM discipline (Margot et al. 2019). Similarly, apart from flexible curriculum challenges, for adequate implementation, it was also observed that more time is required, as teachers are saddled with increased workload when STEM is to be considered. There should be time to plan with other subjects and prepare the material as well as presenting it for student.

Conclusion

In Nigeria, STEM education's value in shaping a prosperous future is undeniable. Its role in innovation, employability, and societal progress underscores the urgency of addressing current challenges. School libraries complement STEM education by providing essential resources, fostering literacy, and offering technological support. While Nigeria grapples with funding, outdated curricula, teacher shortages, and facility constraints, concerted efforts, like government initiatives and private sector engagement, aim to enhance STEM education's quality. The journey toward a robust STEM education system requires investment in teachers, resources, and curricula to empower students for a future characterised by scientific and technological advancements.

Recommendations

This study recommends the followings:

1. Ministry of education and librarians should see to reviewing policies guiding school libraries and STEM education collaboratively for a better result.
2. Teacher librarians should be equipped with more STEM-focused trainings by their professional associations to ensure professional development.
3. The management of secondary schools should encourage teacher librarians to regularly promote STEM learning experiences among the students.

References

Babalola, F.E ,. Fakoyede, S.J,. Ojobola, F.B. & Abiona, F G. (2023). Fostering library usage among science students towards Sustainable Development Goals. *The Reference Librarian*, 64(1), 51-67.

Benson, O.V., Anyanwu, E.U., & Onuoha, C.O. (2016). Priorities and challenges of actualizing Sustainable Development Goals: perspectives of library and information professionals in Owerri Nigeria. *Journal of Applied Information Science and Technology*, 9(2).

Costa, M.C., Ferreira, C.A. & Pinho, H J. (2023). Physics of sound to raise awareness for
Sustainable Development Goals in the context of STEM Hands-On activities. *Sustainability Journal*, 15 (4), 3676, 2023.

DuBoff, B.R. (2019). Using science fiction with school librarians to interest and engage middle schoolers in STEM activities and topics. *ND Annual Journal*, paper 356.

Ezema, I.J. (2022). Academic and Research Libraries as change agents for community transformation: Exploring innovative Technologies to achieve Sustainable Development Goals (SDGs) in Nigeria. *Journal of Information Technology*, 13(2).

Johnston, M.P. (2018). Supporting STEM education: Needs assessment of southeastern rural teacher librarians. *School Libraries Worldwide* 24 (2), 62-79.

Lesseig, K., Slavit, D., Nelson, T. H., & Seidel, R. A. (2016). Supporting middle school teachers' implementation of STEM design challenges. *School Science and Mathematics,* 16(4), 177-188. https://doi.org/10.1111/ssm.12172.

Mahmoud, M. (2018). Sustainable Development Goals: The role of Technology and Innovation. *Dow jones sustainability index (DJIS) conference*: Seoul Korea.

Margot, K.C., & Kettler, T. (2019). Teachers' perception of STEM integration and education: a systematic literature review. *International Journal of STEM Education*, 6(2), 1-16. https://doi.org/10.1186/s40594-018-0151-2.

Michael-Onuoha, H.C., Nkiko, C., & Okuonghae, O. (2020). Poverty eradication: The role of Nigerian libraries towards the achievement of the Sustainable Development Goals (SDGs). *Library Philosophy and Practice*, 2020

Mensah, J. (2019). Sustainable Development: meaning, history, pillars and implications for human action: Literature review. *Cogent Social Science Journal*, 5(1).

Phillips, A.L., Lee, V.R., & Recker, M.R. (2018). Supporting school librarian learning: new opportunities for instructional technology collaboration with school librarians. *Educational Media and Technology Yearbook*, 41, 53-60.

United Nations (2018). *Sustainable Development Goals*

United Nations (2022). *Policy brief: STEM education and inequality in Africa.*

Appendix I

GROUP	Understand STEM as	Interest towards STEM	STEM Subject Benefits/ opportunities	View of STEM based on teacher's teaching method	Teachers boost awareness of STEM
Group 1	Science, technology and Mathematics, essential to help with everyday life in technological age.	Very interested as boring subjects are more interesting	STEM increases the way we learn science subjects and increases knowledge and understanding in the future	It affects me negatively, different approaches by individuals to a concept, may be confusing to me	It makes me want to learn more about science and technology, identifying peculiarities in the various subjects and using different teaching methods(experiments) makes the learning fun
Group 2	Subjects topics capture daily activities that makes everyday activities easy and gives Fast way of solving problem	interested with the name STEM and it helps to solve problems in a creative way	Different categories of career will depend on STEM benefits and more job opportunities	It affect positively helps in experimenting, broaden knowledge, and other learn from such experiences	As a result of the awareness i can apply what is taught in my day to day activities, not only that my teacher brings out creativity in me through researching on assignments
Group 3	STEM is about using technology and science in our daily life activities in our environment. It's a description of how we live what we do and how we work	Am interested; daily activities are made easier and faster. Later in future i may need it.	It gives opportunities of various job in science, technology/ engineering; which help in day to day activities	Am now interested in learning Basic science because of the approach	Very well. Teaching is adaptable. Natural things in the environment are used in teaching to learn better

Pre- Focus Group Discussion

Post- Focus Group Discussion

GROUP	Understand STEM as	Interest towards STEM	STEM, Subject Benefits/ opportunities	View of STEM based on teacher's teaching method	Teachers boost awareness of STEM
Group 1	I can define it as it relates to subjects; Science Technology Engineering and Mathematics. It's an approach that can help in several things /ways of how to process things. Like calculating faster, it can help in exposure to the world we are in	Very interested there is a world of endless space in the world of STEM which makes it the easiest route that can be used in our day to day activities.	Yes there are benefits in STEM, all that we learn from STEM opens us up to several job opportunity. Likewise, it provides better job opportunities and good profiled Mathematician, scientists, technologist engineers are made through the impact of STEM.	The way the basic science teacher teaches make it interesting and we are more ready to practice the subject again on our own	Our Teachers does, science, maths, technology- they make us to be eager to know more about the subjects
Group 2	STEM can be used to solve problems and can be used to solve day to day activities, it can be used for several other things, to improve economy and standard of living and to understand what is good for us. e.g what is good to eat.	It teaches us to understand our day to day activities e.g. all the experiment that we did teaches us how substances can be affected by chemicals, how to improve our day to day living and how to solve problems when in trouble	Lots of benefits if STEM is taken serious and so many job opportunity emerged from the knowledge of STEM	Best method is used in Basic science, it makes it more real and I understand better as the subject becomes clearer.	Yes in the aspect of Basic Science, the way she teaches and did practical helps such that if am joining a science class at the senior level I won't find some of the.basic things in science difficult because of what I have been taught in junior school
Group 3	STEM, the Science is	It has been so interesting, we	STEM gives opportunity of	The basic science teacher	All the practical

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Influence of School Libraries on Reading Skills in Private Primary Schools

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Abstract
This paper explores the critical role of school libraries in fostering reading skills development in private primary schools. As literacy forms the cornerstone of educational success, this paper argues that well-resourced and accessible school libraries are fundamental in nurturing students' reading abilities. By synthesising existing research and case studies, the paper examines how school libraries contributed to improved reading proficiency through access to diverse reading materials, structured reading programs, and a conducive learning environment. It further discusses the positive impact of library-led initiatives, such as reading clubs and storytelling sessions, on students' engagement and motivation to read. The paper advocates for increased investment in school libraries by private primary schools, emphasising that libraries are not merely supplementary resources but essential components of an effective educational strategy. Ultimately, this paper calls for policymakers, educators, and school administrators to recognise and enhance the pivotal role of school libraries in promoting literacy and lifelong learning.

Keywords: *School libraries, Reading skills development; Private primary schools*

Introduction
Reading is the foundation upon which other academic skills are built as it offers a productive approach to improving vocabulary, and language skills which makes way for a better understanding of experience and an exciting voyage of self-discovery. Thus a child who forms the habit of reading is always different from the peer at school because he becomes more knowledgeable than them and understands better than his colleagues what they are being taught in class (Onyeke & Niyi, 2020). According to Plessis (2023), reading skills refer to cognitive abilities that enable an individual to decipher, read, understand, and analyse written language. Reading skill is an essential ability that children must develop, as they need to learn how to read before they can use reading to acquire knowledge. Therefore, reading is often seen as more than just a talent; but considered an art form in its own regard. Before constructing a dwelling, it is necessary to provide a solid base, hence, preliminary and auxiliary abilities exist that children must acquire before proficiently grasping the skill of reading. Although it is crucial to become proficient in reading, a significant number of children fail to develop this ability. Plessis (2023) reporting Lyon's (n.d) study states that around 20 to 30 percent of children of school age experience challenges in acquiring reading skills just as approximately 15 million American adolescents lack access to the educational and recreational benefits of books and other forms of written material. Although these estimations are concerning, they are relatively cautious.

School libraries are libraries in primary and secondary schools whose collections are mainly for the children and young adults. Thus, school libraries are expected to strive to collect and make accessible relevant and appropriate materials for literacy development. In order to achieve this goal, school libraries provide access to

reading resources within the physical location of the school as well as through taking a proactive role of reaching out to underserved community children with literacy materials through mobile library service (Oraekwe & Emenari, 2021). Vuzo (2022) reveals that an effective school library encourages reading habits and makes teaching more interesting and learning easier through the provision of books and a conducive environment for learning. How much a child reads today predicts the amount of reading that will be done in the future. Hence reading culture forms the key to continuous success in school as well as personal enrichment of the teachers and students.

According to LeNoir Foundation (2023) school libraries play a crucial role in improving knowledge and the overall quality of education for many children in school since inculcating the habit of library use in the children is more effective effective when adopted at a younger age. The development of library use habit at a younger age foster in the children a love for learning, and create an inclusive environment for personal and intellectual growth. Consequently, school libraries serve as vibrant hubs of knowledge that contribute to education in several significant ways through the offering of various educational resources such as books, magazines, academic journals, research papers, and multimedia materials.

Statement of the Problem

The existence and quality of school libraries have a crucial impact on the advancement of reading abilities among primary school students. Inadequate availability of varied and suitable reading materials might impede the development of literacy skills and a passion for reading in children and young adults. In addition, the absence of professionally qualified librarians to provide guidance and inspiration to students might further reduce the potential advantages derivable by children and young adults from school libraries. Ultimately, the creation of age-appropriate library programmes has the potential to ignite a passion for reading in primary school students, resulting in more visits to the library and enhancing their reading abilities.

Objectives of the Study

The specific objective of the study are to;

1. examine how the limited access to diverse and appropriate reading material influences the development of reading skills of pupils in private primary school;
2. evaluate the role of a skilled librarian in the development of reading skills of pupils in private primary school;
3. determine how school library programmes foster the love for reading among pupils in private primary schools.

Literature Review

Oraekwe and Emenari (2021) found out that the role of the school library in the literacy development of school children is to teach literacy skills and promote independent and life- lifelong learning. The school library achieves all these through book talks, creative writing activities, organising library week, and book exhibitions. Their study also found that challenges that hinder the literacy development of school children in these schools were poor funding, insufficient library materials, and lack of current materials, poor library awareness, and use of unskilled school librarians. The study recommended improved funding, provision of current reading materials in adequate quantities, library awareness

campaign, and recruitment of professionally qualified school librarians in school libraries. Furthermore, the study recommends that attractive picture books and children's literature with bold characters should be procured for these school libraries.

Influence of Limited Reading Material on Primary School Pupil's Reading Skills

Oluwatosin and Akporunor (2021) reported that it is the responsibility of every school library to promote and support the National Policy of Education by providing equitable school library resources. The results from their findings revealed that most of the sampled schools have library resources; however, most of the resources were obsolete. Their results showed that most of the respondents do not make use of the resources regularly and that the respondents are majorly interested in text related to their subject in school. It was discovered that none of the schools have a trained librarian working in their libraries. Findings from Onyeke and Niyi (2020) state that majority of the students believe their school library is fairly equipped to meet their educational needs. Also, most of the students affirm that the library motivates and directly affects how often they read. However, though the library serves as a motivating factor for reading, the students complained of having little or no time to utilise the library. The findings from their study further revealed that the students read majorly for tests and examinations and rarely read books that are not school-related. Textbooks constitute the main source of reading materials for the students. Social media, lack of interest, and insufficient materials were cited as the major impediments to reading.

Vuzo's (2022) findings revealed that school libraries are not used by teachers and students to enhance learning of extensive reading skills in English language. Most of the school libraries do not have authentic materials to encourage interest in reading but old books, past papers, and subject-specific books. The study recommended that school libraries should be improved, well equipped and made to be functional in order to encourage students to read extensively to improve their learning of the English language through exposure to various language inputs. English subject teachers will consequently integrate the use of the school library to teach extensive reading skills. School libraries promote equity in education by offering resources to individuals who may not have access to them at home, thereby creating a level playing ground for students from different socio-economic backgrounds and ensuring everyone has an equal opportunity to learn and succeed. The National Literacy Trust in the United Kingdom (2022) recommends considering the advantages and disadvantages of different techniques of categorizing and shelving when arranging books on shelves for easy student access.

The Role of a Skilled Librarian and its Impact on the Reading Development of Primary School Pupils

Merga (2020) explained that librarians in schools are expected to play an important role as literacy educators and have a positive impact on young people's literacy learning. However in the context of their diverse workload, relatively little is known about how this aspect of their role sits within its competing demands, and the exact scope of the literacy educator requirements. The Northeast Comprehensive Center also reviewed research conducted from 2011 through 2019 on a range of topics, including the evolving roles of school librarians; and the transformation of the

school library with growing digital demands of technology integration in teaching and learning.

The American Association of School Libraries emphasises on the role which the school librarian plays as a teacher as that which empowers learners to become critical thinkers, enthusiastic readers, skillful researchers, and ethical users of information. The school librarian supports students' success by guiding them to read for understanding, breadth, and pleasure; use information for defined and self-defined purposes; build on prior knowledge and construct new knowledge; embrace the world of information and all its formats; work with each other in successful collaborations for learning; constructively assess their work and the work of their peers and become their own best critics" (AASL 2018, 14 as cited in Cohen, Mickens & Shirali 2019). Therefore, school librarians are considered as having a closer working relationship with students and teachers who require educational resources.

Although the specific responsibilities of a school librarian may differ depending on their employer, they typically encompass work related to administration, maintenance of resources, provision of media services, and development of the library's collection. Employers seek specific skills and qualifications when recruiting school librarians. A school librarian will start by earning a B.Sc degree in Library Science or Library and Information Science. For instance, employers frequently favour candidates with a strong affinity for books and the capacity to motivate children by instilling in them a passion for reading. Other skills required of school librarians include; communication skills, organisational skills, cataloging skills, documentation skills, and computer skills (Indeed Editorial Team, 2022). Thus, a competent and skilled school librarian is expected to demonstrate capability, capacity and competency in the, management and preservation of the collection and resources of a school's library, granting of access to library resources to students and staff, organisation of educational initiatives for pupils through library outreach programmes, organisation and tidying up of school library by arranging books on shelves, responding to inquiries from students and educators, discovering of educational materials and resources that meet students needs, and assisting educators in locating supplementary resources to enhance their instructional plans.

Moreover, the school librarian is to oversee the administration of library media materials, manage financial resources and oversee library initiatives, arrange a meeting with the school principal and administrators to engage in a discussion regarding objectives, assist in the maintenance or enhancement of the library's technological infrastructure, adhere to the guidelines set by the district when choosing and getting rid of library materials. Although all librarians assist anybody who enters a library, school librarians specifically support pupils and teachers. In contrast to other librarians, they are employed at an educational institution (Indeed Editorial Team, 2022).

It has also been contended that some school librarians are often enthusiastic to collaborate with classroom teacher in areas such as literacy learning and related reading engagement, there is concern that the teaching community more broadly does not understand what school librarians have to offer in this capacity, they can be seen as an unaffordable luxury (Merga, 2019 as cited in Merga 2020). Odunewu and Odeyemi (2019) established that librarians are experts at finding and organiing

information and at interpreting information needs. Libraries provide quiet areas for studying as well as common areas to facilitate group study and collaboration. Libraries provide public facilities for access to other electronic resources and the Internet. Modern libraries are increasingly being redefined as places to get unrestricted access to information in many formats and from many sources.

Libraries extend services beyond the physical walls of a building, by providing materials accessible by electronic means, and by assisting librarians in navigating and analyzing very large amounts of information with a variety of digital tools. ICT is expected to provide quick and unhindered access to information-gathering, information-processing, information-storing, and data presentation. Public sensitization by the librarians on library establishment in schools, library usage, packages, and accessibility should be carried out, as it will further strengthen people's interest and desire for reading. Most primary and post-primary schools in Nigeria are void of functional libraries. This notion makes it a necessity for libraries and librarians to be given more support and importance, to aid their cause towards the promotion of reading culture in Nigeria.

The Use of School Library Programs in Fostering the Love for Reading Among Primary School Pupils.

The period of primary school is crucial for cultivating a passion for reading. During this developmental phase, children exhibit a strong sense of curiosity and imagination, displaying a keen enthusiasm to investigate various domains and concepts. School libraries, with their extensive collections and captivating programs, have the potential to significantly contribute to the development of a strong interest in reading. The researcher aims to examine how well-designed school library programs might inspire and motivate primary school students to become avid readers, fostering a lifelong passion for literature.

Ogbonna and Eze (2015) assert that a crucial school program for cultivating children's love for reading is to ensure they have access to a diverse range of books. Multiple research studies have demonstrated that pupils cultivate a fondness for reading when they are provided with ample access to reading resources. Reading advice is a crucial program in school libraries that promotes the cultivation of independent reading skills in children. Reluctant readers might be encouraged to read by providing them with reading guidance. Assisting readers in selecting captivating reading materials will enhance their inclination to read extensively.

Displays and exhibitions are other programs used in the promotion of free voluntary reading. School libraries use these mediums to advertise to students what the library has in stock. Displays and exhibitions are effective resources in a school library's collection to serve as valuable resources that promote and encourage pupils to engage in independent reading. These graphic presentations serve as captivating adverts, arousing curiosity and displaying the library's varied collection. Other school library programs such as pleasurable experiences, shared reading, and dramatising stories are reading programs that motivate and sustain free voluntary reading. In the studies of Ogbonna and Eze (2015) it has been revealed that generally, the school library influences the free voluntary reading of students through access and exposure to books and other reading programs. Sarvesh (2023) stated that schools have a crucial impact on fostering academic brilliance and a deep passion for reading.

Fostering a love for literature among students extends beyond the prescribed academic syllabus; it involves developing a lifelong practice that surpasses the confines of the classroom. The study examines techniques that schools might use to cultivate an authentic passion for reading in their students. Regular book groups, author visits, and reading challenges are organized to foster an engaged and captivating atmosphere that ignites a passion for reading. Furthermore, implementing peer reading programs enables older students to serve as mentors for younger pupils, promoting a strong bond and a mutual passion for reading. Hosting reading-focused activities, such as book fairs, literary festivals, and storytelling sessions, can invigorate and enhance the enthusiasm for reading.

Summary and Conclusion

This study has revealed the significant importance of having easily available and varied reading materials, knowledgeable librarians, and comprehensive school library programmes in fostering a passion for reading among elementary school students. Insufficient access to suitable resources impedes the progress of reading proficiency. Nevertheless, a proficient librarian can serve as a guide, suggesting captivating and age-appropriate books. At the same time, efficient school library programmes can establish a hospitable atmosphere that nurtures a lasting passion for reading. By prioritizing these components, teachers and librarians may enable children who read to engage in a fulfilling adventure of literacy and exploration.

Recommendations

The following recommendations are proposed based on the discoveries of this study:

1. Funds should be set aside by private primary schools for the creation and upkeep of school libraries. Schools ought to guarantee a varied selection of current, age-appropriate books that suit a range of reading levels and interests.
2. Employing competent librarians who are passionate about advancing literacy and have experience in library science should be a top priority for schools. Current librarians should have access to professional development opportunities so they can stay current on topics like digital literacy and encourage a love of reading.
3. School libraries need to create and execute engaging programmes that go beyond simple book borrowing. These activities, which can include book clubs, author visits, storytelling sessions, reading challenges, and book fairs, are all intended to create an engaging atmosphere that promotes curiosity and a love of reading.

References

Adedoyin, O. & Akporhonor B. (2021). Availability and usage of library school resources as predictors of reading habits among secondary school students in Oredo Local Government, Edo State, Nigeria. *Record and Library Journa*l, 7(2), 320-332. https://typeset.io/papers/availability-and-usage-of-library-school-resources-as-27o5pj3k1j

Indeed Editorial Team (2022). What does a school librarian do? (Plus skills and salary). https://www.indeed.com/career-advice/finding-a-job/what-does-school-librarian-do

LeNoir Foundation (2023). What role do libraries play in improving the quality of Education? https://www.linkedin.com/pulse/what-role-do-libraries-play-improving-quality-education-lenoirfdn

Merga, M. (2020). School libraries as literacy educators within complex roles. *Journal of Library Administration,* 60(8), 889-908. https://www.tandfonline.com/doi/full/10.1080/01930826.2020.1820278

National Literacy Trust (2022). Library lifeline part 6: How do I arrange my school library collection? https://literacytrust.org.uk/blog/library-lifeline-part-6-how-do-i-arrange-my-school-library-collection/

Odunewu, K. O. & Odeyemi, B. V. (2019). The roles of libraries and librarians in developing information management and reading culture in Nigeria. *International Journal of Social Science and Humanities Research,* 7(4), 687-694 www.researchpublish.com

Ogbonna, J. & Eze, J. U. (2015). Reviving the reading culture: School library programmes in promoting voluntary reading amongst students: the Case of Imo State, Nigeria. *Library Philosophy and Practice (e-journal)*. 1241. http://digitalcommons.unl.edu/libphilprac/1241

Onyeke, E. O & Ajagbe, M. N. (2020). The impact of the library on the reading culture of senior secondary school students: a case study of some selected secondary schools. *International Journal of Academic Libraries and Information Science,* 8(2): 45-54. ISSN: 2360-7858. http://www.academicresearchjournals.org/IJALIS/Index.htm

Oraekwe, I. N. & Emenari, B. C. (2021). The role of school library in literacy development of school children in Nekede community in Owerri, Imo state. *Library Research Journal*, 4(1), 138 – 147. https://journals.unizik.edu.ng/lrj/article/view/560

Plessis. D. S. (2023). Reading skills: 8 types that matter and how to improve them. https://www.edubloxtutor.com/reading-skills/

Sarvesh, Q. (2023). How can schools foster a love for reading among students? https://medium.com/@sarvesh.quibus/how-can-schools-foster-a-love-for-reading-among-students-f89c9a9bf5b0

Stephanie C., Ivy, P., Khaila, M., & Anushka, S. (2019). Roles of the school librarian empowering student learning and success. *The Northeast Comprehensive Center.* https://www.nysl.nysed.gov/libdev/slssap/ncc-roles-exec-summ.pdf

Vuzo Mwajuma (2022). The role of school libraries in enhancing extensive English language reading skills. *University of Dar es Salaam Library Journal*, 17 (2), 171-187, ISSN: 0856-1818. https://www.ajol.info/index.php/udslj/article/view/240001/226865

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Innovative Approaches to Enhance In-School Adolescents' Reading Skills and Attitudes in Nigerian Schools: An Empirical Perspective

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Abstract
The educational landscape in Nigeria faces significant challenges in cultivating effective reading skills and positive attitudes toward reading among in-school adolescents. Traditional instructive methods have often failed to address these issues, resulting in low literacy rates and students disconnected from reading. This research explores innovative approaches capable of enhancing reading skills and attitudes in Nigerian schools, focusing on empirical evidence from three secondary schools in Oyo City. The study utilises a descriptive survey method, involving sixty students from Junior Secondary Class 3 to Senior Secondary 3, to assess the impact of innovative strategies to improve the reading skills and attitudes of the students. The findings reveal the possibilities of significantly improved reading skills and attitudes when exposed to these innovative approaches. This study underscores the necessity of adopting creative and engaging approaches to reading to foster more literate and motivated students, ultimately contributing to better academic performance and lifelong learning. The results provide valuable insights for school librarians, teachers, policymakers, and stakeholders aiming to contribute to improved literacy in Nigeria.

Keywords: *Reading skills, reading attitudes. Innovative approaches, in-school adolescents, Nigerian schools, Reading by adolescents.*

Introduction
The role that reading plays in helping in-school adolescents achieve lifelong learning cannot be overemphasized because reading is still the principal way by which a high-quality, comprehensive education can be achieved. Reading is necessary for in-school adolescents to attain comprehensive and holistic development since the more a student reads, the more opportunities he has to explore and significantly impact his world (Main, Hill and Paolino, 2023). Reading is an essential tool for lifelong learning. Learning in the twenty-first century is expected to equip students with strategies to cope with social and technological changes that are fast occurring, through reading. Therefore, reading is considered necessary for learning new information and skills through the use of a variety of media, including newspapers, books, radio, television, and computers. As a result, both young and adult learners must establish good reading habits and reading skills to achieve quality basic education (Noor, 2011).

Despite numerous efforts targeted at improving literacy rates in Nigeria, in-school adolescents continue to exhibit inadequate reading skills and negative attitudes towards reading. Traditional teaching methods, which often underscore memorisation of facts and ideas over comprehension and engagement, have proven inadequate in addressing these issues. The lack of access to diverse and engaging reading materials further exacerbates the problem, leading to low motivation and poor academic performance. There is a critical need for innovative approaches that

incorporate digital technologies such as gamification, interactive instructions such as story hour, and book clubs among others, as well as academically relevant content to enhance reading skills and foster positive reading attitudes among in-school adolescents in Nigeria. This research aims to empirically examine the effectiveness of such innovative strategies in Nigerian schools, providing evidence-based insights to inform educational practices and policies.

Objectives of the study

The objectives of the study are to:

1. ascertain the imperatives for reading by in-school adolescents in Oyo town, Oyo state, Nigeria;
2. determine the reading skills of in-school adolescents in Oyo town, Oyo state, Nigeria;
3. examine the reading attitudes of in-school adolescents in Oyo town, Oyo state, Nigeria;
4. explore innovative approaches to improve the reading skills and reading attitudes of in-school adolescents in Oyo town, Oyo state, Nigeria.

Research Questions

The study was guided by the following research questions:

1. What are the imperatives for reading by in-school adolescents in Nigerian Oyo town, Oyo state, Nigeria?
2. What reading skills do Nigerian in-school adolescents possess in Oyo town, Oyo state, Nigeria?
3. What are the attitudes of in-school adolescents to reading in Oyo town, Oyo state, Nigeria?
4. Can innovative approaches improve the reading skills and reading attitudes of in-school adolescents?

Literature review

The importance of reading to in-school adolescents cannot be over-emphasized since it is a fundamental skill that serves as a gateway to knowledge, critical thinking, and personal development. Reading improves literacy skills and to thrive academically and in future careers, in-school adolescents need to hone their reading skills. Vocabulary, grammar, comprehension, and writing abilities are all enhanced by reading (Gallagher, 2023). Effective thought expression, information analysis, and comprehension of complicated texts are all facilitated by proficiency in reading such that success in every topic, from literature to science and beyond, depends on having these skills (Kamil, Borman, Dole, Kral, Salinger, and Torgesen, 2008).

Reading exposes students to a variety of viewpoints and ideas and enables. Thus, in-school adolescents can learn about many cultures, historical moments, and societal challenges through reading as it enables them to put themselves in the characters' shoes from different backgrounds, which promotes empathy and understanding. Exposure to a wide range of literature broadens the worldview and helps in-school adolescents become more open-minded and tolerant individuals, develop critical thinking skills and so can make decisions and solve problems. (Hollis, 2021; Sumaira, Saman, Zahid, Nargis, Noor, 2023).

Reading also enhances communication and language skills by providing the students who are exposed to well-written literature to grow in their mastery of the

language, which improves their capacity for effective communication. Communication skills are crucial not only for academic performance but also for interpersonal interactions and potential future employment (Moses and Muhammed, 2019). Also, reading can help in-school adolescents escape the strains and demands of everyday life because academic requirements, extracurricular activities, and social pressures can make life difficult for adolescents. Reading provides a break from these demands by enabling in-school adolescents to unwind, relax, and lose themselves in engrossing stories. In addition to providing entertainment, it also promotes self-care (Paige, 2020; Hashmi and Fayyaz, 2022). Reading is critical to the development and success of in-school adolescents as it enhances academic success, language proficiency, intellectual activities, empathy, personal growth, and a lifelong love of learning. Therefore, encouraging and promoting reading is crucial for the entire development of in-school adolescents and their future accomplishments. In-school adolescents need to read to establish good reading habits in today's highly technologically advanced environment.

Reading skills connote the comprehension and interpretation of textual materials. It involves several abilities, such as decoding, fluency, vocabulary, comprehension, and critical thinking (Murray, 2016). Decoding is a basic reading skill that requires accurate word recognition and pronunciation. It is the process of converting written characters, single letters, plural letters, and combinations of letters into sounds. Readers' comprehension and ease of reading are enhanced by decoding as a skill. Decoding is an essential skill in the process of building reading lists and learning how to understand new words for upcoming readers. With practice, decoding becomes automatic, allowing readers to focus on understanding the content rather than stumbling over words (Diab, 2018).

Fluency is another important reading skill that should be possessed by in-school adolescents. Fluency is the ability to read quickly and accurately. Fluent readers are better able to understand what they are reading. Teachers can help improve fluency by providing opportunities for students to practice reading aloud, using appropriate tone and expression. In-school adolescents should practice reading aloud and participate in activities aimed at boosting fluency including vocal reading, peer reading, and rereading renowned books. (Paige, 2020; Gedik and Akyol, 2022).

Vocabulary as a reading skill refers to the comprehension of phrases along with their definitions. In-school adolescents are better able to comprehend and decipher terms and their meanings as they come across them in texts when they have strong vocabularies. Regular reading, exposure to a wide range of literature, and getting involved in vocabulary-building exercises like reading games can all help achieve this (McKeown, 2019; Darling-Hammond, et al. 2020; Insuasty, 2020). Critical thinking denotes the evaluation and analysis of the information provided in a text. It involves drawing conclusions and judgements as well as assessing and evaluating the facts that are presented in texts. In-school adolescents should be encouraged to read critically, taking into account the author's intentions, biases, and supporting details. (Shea and Ceprano, 2017; Smith, et al. 2021).

The reading skills of in-school adolescents could be improved by engaging in extensive reading. This entails offering them a wide- range of reading resources, including newspapers, periodicals, and books, as well as being guided to read independently. (Almutairi, 2018; Ameyaw and Anto, 2018). Also, adolescents need

to have a strong vocabulary to understand what they are reading. Teachers can help by providing opportunities for students to use new vocabulary in a variety of contexts through activities such as discussion, writing, and extended reading (Swanson, et al. 2017).

In-school adolescents can improve their reading skills through writing and thus become better readers. The effects of writing are more likely to be maximized if students write for real purposes and audiences. Having students write about a text should enhance reading comprehension because it affords greater opportunities to think about ideas in a text, requires them to organize and integrate those ideas into a coherent whole, fosters explicitness facilitates reflection, encourages personal involvement with texts, and involves students transforming ideas into their own words (Ferlazzo, 2020).

Reading attitude refers to an individual's overall disposition or approach towards reading. It encompasses the attitudes, convictions, and actions about reading which are shaped by the experiences of each reader. A positive reading attitude is depicted by having a genuine interest in reading, appreciating literature, and being open to interacting with various forms of texts (Yamashita 2013). A negative reading attitude, on the other hand, can include disinterest, boredom, or even an outright dislike of reading. A negative attitude towards reading, according to Haugsnes (2022), may directly influence motivation, which in turn may directly impact reading-based learning. Students' motivation will therefore probably suffer if they have a negative attitude about reading.

Therefore, negative reading attitudes will probably harm students' motivation, and cause in-school adolescents to make negative reading choices. Cultivating a positive reading attitude is important because it can have a significant impact on one's reading skills and overall literacy development. In-school adolescents' reading attitudes can vary greatly depending on a variety of factors, ranging but not limited to their interests, educational background, and upbringing. (Yildiz and Kızıltaş, 2018; Gunobgunob-Mirasol, 2019; Bacong and An, 2020).

Peer pressure is a factor that affects how in-school adolescents feel about reading as their reading attitudes might be influenced by their peers, who have a big influence on them. They could be less inclined to read if their pals think it is not cool to read. However, kids might be more likely to adopt a favourable attitude towards reading if their peers are voracious readers. Bamise (2023), opined that in-school adolescents are influenced by their peers in the choices they make and this does not except reading as Cooc and Kim (2016) observed a strong correlation between the reading skills of in-school children ' s peers and their reading achievement and good reading attitudes are correlates of good reading skills.

The availability and accessibility of reading materials can significantly impact the reading attitudes of in-school adolescents. Schools that provide a wide range of reading materials, including books, magazines, and digital resources, can foster a positive reading culture. Conversely, schools with limited resources may struggle to provide students with diverse reading options, which can hinder their reading attitudes (Ohakamike-Obeka, 2016; Cain and Hattie, 2020).

Furthermore, students' attitudes towards reading can be influenced by the ways that reading is taught in the classroom and by the techniques of instruction. Students may grow to dislike reading if they think of reading as just another task to be completed or if it is not taught engagingly and interactively. Students are more likely to acquire positive reading attitudes, though, if reading is incorporated into a variety of courses and taught in creative ways that make it engaging and relevant. When examining the reading attitudes of teenagers enrolled in school, parents' roles are crucial to consider. The reading attitudes of their offspring are typically positively impacted by parents who value reading and actively support reading. Conversely, parents who do not value reading or who do not give their children access to reading materials at home may prevent their children from developing a love of reading (Echedom, et al. 2017).

In-school adolescents often have a wide range of interests, and this can be reflected in their attitudes toward reading. Some may read novels they like, but others might read internet articles, graphic novels, or non-fiction and the relevance of the reading materials to the personal lives of the students may also affect their attitudes to reading. If students can connect what they read to their interests or life experiences, they are more likely to have a positive view. Therefore, reader choices have an impact on students' attitudes to reading. Reading may either be viewed as a pleasure or a means of escape, reading may be seen as a chore by some people, but not by others.

Students' reading attitudes might also be impacted by their academic workload and assigned readings, particularly if they experience difficulty with the volume or complexity of the materials. Creel (2021) observed that assigned reading by teachers leads to a loss of interest in reading and consequently a negative reading attitude in students but if allowed to input in their reading lists, it could lead to students having greater pleasure and interest in reading and invariably, a positive attitude to reading. The Reading attitudes of in-school adolescents may be influenced by their preferences for the use of digital media. Electronic books, CDs, and internet articles may be more appealing to certain students than traditional materials as Allcott (2021), opined that students should be exposed to both online and offline reading to have the best of both worlds of reading.

To improve the reading skills and attitudes of in-school adolescents, innovative and imaginative solutions that take into account their interests and abilities are needed. It is the responsibility of school librarians, teachers, parents, and other relevant parties to employ creative approaches to improve the reading abilities and dispositions of teenagers who are enrolled in school (Oriogu, 2015; Oyewole, 2017). Teachers and school librarians can collaborate to create games centred around reading that will help in-school adolescents build better reading habits. Things like obtaining badges, points, or prizes for finishing books or hitting reading benchmarks. Students can also be encouraged to discuss their ideas and insights from their reading experiences thus helping to build a community and promote collaborative learning (Kizildag, 2023).

Book clubs involve encouraging students to join peer-to-peer reading initiatives, discussion groups, or reading in their communities or schools so they can talk and share their opinions about books with peers in a casual setting. Other innovative approaches that could improve reading among in-school adolescents include

forming partnerships with neighbourhood bookstores, libraries, or community organisations to create reading programmes, author visits, or literacy events (Hawthorne, 2021). Providing students with a broad selection of reading materials, such as graphic novels, poetry, short tales, and magazines, and allowing them to be part of the selection, can encourage their exploration of many literary genres and pique their interest in a variety of literary works (Thanya and Suganthan, 2023). To promote deeper comprehension and engagement with reading materials, teachers and school librarians should also encourage students to undertake reading-focused projects in which they might produce multimedia projects, artwork, or presentations based on the information they have read.

Enhancing the reading abilities of teenagers in school also involves letting students choose and suggest books to their friends via newsletters, social media, and bulletin boards as recommendations from peers tend to be more persuasive to fellow students. They include planning gatherings where students can give or trade books they have read, thus encouraging a common love of reading (Organisation for Economic Cooperation and Development (OECD), 2016). With the help of these innovative approaches, school librarians, teachers, parents, and other stakeholders can foster an inclusive reading environment that inspires in-school adolescents to see reading as more than just a necessary academic obligation.

Research Methodology

Sixty in-school adolescents from Junior Secondary Class 3 to Senior Secondary 3 were randomly selected from 3 secondary schools from the government areas in Oyo township, Oyo State, Nigeria viz: Afijio, Atiba and Oyo East Local government areas. A questionnaire titled "Survey of Innovative Approaches to Enhance in-school Adolescents' Reading Skills and Attitudes in Nigerian Schools "was the title of the self-administered instrument created by the researcher for the study. The study adopted the survey research method. Twenty pupils in JSS3 to SSS3 were randomly selected in each of the chosen schools and administered the questionnaire after explaining the objectives of the research to them. Out of the sixty copies of the questionnaire administered, only fifty-nine were accurately completed and were suitable for analysis, yielding a response rate of 98.3. Data collected from the questionnaire was analysed using descriptive statistics of frequency count, percentages, mean and standard deviation.

Presentation and Interpretation of Results

Table 1: Demographic Information of Participants

S/N	Description	Frequency	Percentages (%)
1	**Name of School**		
	Winner International Group of Schools, Oyo	14	2 3.7
	Ajayi Crowther College, Oyo	15	
		15	
	Olivet Baptist High School, Oyo	15	25.4
	Awe High School, Oyo		25.4
			25.4
	Total	**59**	**100.0**
2	**Gender**		
	Female	29	49.2
	Male	30	50.8
	Total	**59**	**100.0**
3	**Age**		
	10-11	10	17.0
	12 – 13	15	25.4
	14 – 15	18	30.5
	16- 17	16	27.1
	Total	**59**	**100.0**
4	**School**		
	Public	31	52.6
	Private	28	47.4
	Total	**59**	**100.0**
5	**Classes**		
	JS3	16	27.1
	SS1	16	27.1
	SS2	27	45.8
		59	**100.0**

The students' demographic data is shown in Table I. There were more males (50.8%) than females (49.2%) among the respondents. There were more participants in the age range of 12-15 at 55.9% Majority of the respondents 27(45.8%), are in SS2.

Table 2: Imperatives of reading to in-school adolescents
Descriptive Statistics

Items	N	Minimum	Maximum	Mean	Std. Deviation
Reading can enhance my understanding of things around me	59	2.00	4.00	3.6441	.54969
Reading can improve my vocabulary development	59	2.00	4.00	3.5424	.56697
Reading can improve my academic performances	59	2.00	4.00	3.7627	.46753
Reading can give me the courage to sit for an examination without being involved in examination malpractices	59	3.00	4.00	3.8983	.30484
Reading can make my creativity blossom	59	2.00	4.00	3.6271	.52188
Reading can improve my communicatio n skills	59	3.00	4.00	3.7627	.42907
Reading can give me a better understanding of my environment	59	2.00	4.00	3.7288	.51963
Reading can help me to write better	59	1.00	4.00	3.6949	.62296
Reading can help me learn effectively	59	3.00	4.00	3.7797	.41803
Reading ensures intellectual development	59	1.00	4.00	3.5593	.74905
Valid N (listwise)	59				
Grand Mean				**3.7**	

Table 2 depicts the imperatives of reading to in-school adolescents in the selected schools. The mean value of 3.64 was reported for respondents who believed that reading can enhance their understanding of things around them. The mean value of 3.54 was reported for respondents who opined that reading can improve their vocabulary development. The mean value of 3.76 was reported for respondents

who agreed that reading can improve their academic performance. In contrast, the mean value of 3.89 was reported for respondents who felt that reading could give them the courage to sit for an examination without being involved in examination malpractices. The mean value of 3.62 was reported for respondents who thought that reading could make their creativity blossom. The mean value of 3.76 was reported for respondents who opined that reading could improve their communication skills. The mean value of 3.72 was reported for respondents who believed that reading could give them a better understanding of their environment while the mean value of 3.69 was reported for respondents who agreed that reading can help them to write better. The mean value of 3.77 was reported for respondents who thought that reading could help them learn effectively. The mean value of 3.55 was reported for respondents who agreed that reading ensures intellectual development. It can be deduced from the table that the mean value of each item is close to 4.00 which is the maximum mean value obtainable. This shows that a good number of in-school adolescents are aware of the imperatives of reading. With the grand mean of 3.7, it can be said that in-school adolescents identify the imperatives of reading.

Table 3: The reading skills of in-school adolescents
Descriptive Statistics

Items	N	Minimum	Maximum	Mean	Std. Deviation
I can comprehend school-based textbooks when I try to read them	59	1.00	4.00	2.9661	1.06619
I can read textbooks with ease	59	1.00	4.00	3.3390	.82232
I can easily recall what I read later	59	1.00	4.00	3.3898	.87132
I can give a title to a reading passage after reading	59	1.00	4.00	2.6949	.87601
I am indifferent to reading	59	1.00	4.00	2.6780	1.00757
I cannot find detailed information in the texts if I read them speedily	59	1.00	4.00	2.6102	1.08305
I cannot analyse long sentences and phrase	59	1.00	4.00	2.6102	1.12980
After finishing reading, I cannot summarise a reading text.	59	1.00	4.00	2.4068	1.00204
I find it difficult to evaluate texts after reading	59	1.00	4.00	2.6441	.86628
I cannot read a bulky text speedily and get an overall idea about it.	59	1.00	4.00	2.9153	.85678

Valid N (listwise) Grand Mean	59			**2.82**	

The reading skills of in-school adolescents are shown in Table 3. In-school adolescents who agreed that they could comprehend school-based textbooks when they try to read them have a mean value of 2.96 while those who agreed that they could read textbooks with ease had a mean value of 3.33. Those who could easily recall what they read had a mean score of 3. 33 later and those who could easily give a title to a reading passage after reading had a mean score of 2.69. Those indifferent to reading had a mean value of 2.67 and students with a mean value of 2.61 could not find detailed information in the texts if they read them speedily. A mean value of 2.40 was recorded for students who agreed that they could not analyse long sentences and phrases and students who could not summarise a reading text after reading had a mean value of 2.64. Those students who find it difficult to evaluate texts after reading had a mean value of 2.83 and those who could not read a bulky text speedily and get an overall idea about it had a mean value of 2.91. The grand mean of 2.82 shows that a good majority of the study participants have some of the fundamental reading skills that are expected of them.

Table 4: The reading attitudes of in-school adolescents
Descriptive Statistics

Items	N	Minimum	Maximum	Mean	Std. Deviation
I love reading lengthy books	59	1.00	4.00	3.4068	.81195
I love to read to obtain high grades in examinations	59	2.00	4.00	3.2034	.82587
I am inspired by reading	59	2.00	4.00	3.6780	.60002
I prefer reading what interests me	59	1.00	4.00	3.0847	.79412
I prefer reading print to digital materials	59	1.00	4.00	2.9322	.99766
I lost interest in reading because most of my friends dislike reading	59	1.00	4.00	2.8814	1.01853
I prefer to spend my time doing other things other than reading	59	1.00	4.00	2.5593	.89580
I prefer watching a story on the screen to reading it in a book	59	1.00	4.00	2.7119	1.09939
I find reading boring	59	1.00	4.00	2.8305	1.06920
I become easily tired when I ' m reading	59	1.00	4.00	2.9831	1.12175
Valid N (listwise) Grand mean	59			**3.02**	

Table 4 shows the reading attitudes of the participating in-school adolescents. It was observed that in-school adolescents who opined that they love reading lengthy books had a mean value of 3.40 while those who agreed that they love to read to obtain high grades in examinations had a mean value of 3.23. Students who were inspired by reading had a mean value of 3.67 and those who believe that they prefer reading what interests them had a mean value of 3.08.

Those who preferred reading print to digital materials and those who lost interest in reading because most of their friends disliked reading had a mean value of 2.93 and 288 respectively. In-school adolescents who preferred to spend their time doing things other than reading had a mean value of 2. 55 and those who preferred watching a story on the screen to reading it in a book had a mean value of 2.71. Students who find reading boring and those who become easily tired when they are reading had a mean value of 2.98. A good number of the respondents reported that they love reading books, and were inspired to read to score high grades in examinations. The grand mean of 3.02 indicates that a good number of the study's participants have a positive attitude toward reading.

Table 5: Innovative approaches frequency table

S/N	Innovative Approaches	Yes	Percentage	No	Percentage
1	Reading club	3	5.1	56	94.9
2	Writers' club	4	6.8	55	93.2
3	Reading Corner	5	8.5	54	91.5
4	Paired reading	4	6.8	55	93.2
5	Story Hour	9	15.3	50	84.7
6	Book Summary	6	10.2	53	89.8
7	Bibliotherapy	4	6.8	55	93.2
8	Makers space	4	6.8	55	93.2
9	Literary and Debate	23	38.9	36	61.1
10	Reading games (e.g predictions, inferences)	2	3.4	57	96.6
11	Author ' s visit	4	6.8	55	93.2

Table 5 outlines in-school adolescents, responses to exposure and participation in the innovative approaches that can be used to improve students' reading skills and attitudes. The results show that 56 respondents, or 94.9 per cent, indicated that their schools did not have reading clubs. A significant percentage of the respondents—55 (93.2%), 54 (91.5%), and 55 (93.2%)—had never participated in a writers' club, had no reading corners in their schools, and had never been exposed to paired reading. Furthermore, a sizable portion of the respondents, 53 (89.8%), were not exposed to book summaries, and many of the respondents, 50 (84.7), did not participate in story hour.

Moreover, it is evident that 55 (93.2%) of the respondents had no prior exposure to bibliotherapy and 55 (93.2%) had no idea what makers' space was. Almost all of the respondents did not play reading games like inferences and predictions, and only a small percentage of the respondents, 23 (38.9%) had any exposure to literature and debate. Of the in-school adolescents involved in the study, the majority, 55 (93.2%) reported they had not been exposed to the author's visits.

Discussion of Findings

The study investigated the innovative approaches that could be employed by school librarians and other stakeholders to improve the reading skills and reading attitudes of in-school adolescents in Oyo, Nigeria. Judging by their responses, it can be deduced that in-school adolescents are aware of the various imperatives of reading ranging from vocabulary development, good academic performances, and entertainment to intellectual development among others. This affirms the assertion of Hollis (2021) about the indispensability of critical thinking which can be acquired through reading, to the survival of individuals in today's society. It also substantiates the findings of Paige (2020) on the possibilities of being exposed to various viewpoints and ideas through reading. A good number of the respondents indicated their awareness about the imperative of reading to good communication skills as confirmed by the findings of Moses and Muhammed (2019). Thus, it can be deduced from the findings of the study that in-school adolescents in Nigeria are aware of the imperatives of reading to all-around development.

Comprehension, fluency, vocabulary, evaluation, and analysis of facts that are presented in the texts are indispensable reading skills that should be possessed by in-school adolescents. The study investigated the reading skills of in-school adolescents. The findings established that ranging from comprehension, recalling, analysis, and evaluation to summarization of texts, the respondents possessed some reading skills. It was affirmed that while a good number of the study respondents possessed the reading skills expected of them, there were a few others who did not have the reading skills. This finding supports the assertion of Shea and Ceprano (2017), and Insuasty (2020) of the need to expose in-school adolescents to techniques and approaches aimed at improving their reading skills because of its importance such as the acquisition of declarative knowledge, critical thinking, as well as clear communication.

The attitude of the in-school adolescents to reading could be negative or positive and these could impact the reading skills and overall literacy of in-school adolescents. From the findings of the study, it could be inferred that while many of the students love reading lengthy books, read to obtain high grades and read only what interests them, some others prefer to watch a story to read it and prefer digital books to print. The response of the respondents affirmed the assertion of Yildiz and Kızıltaş (2018) and Bacong and An, (2020) that in-school adolescents' reading attitudes can vary greatly depending on a variety of factors, ranging but not limited to their interests, educational background, and upbringing. The study respondents affirmed that they are affected by the attitude of their friends to reading. This confirms the opinion of Bamise (2023) that students who enjoy reading and read whenever possible positively impact their friends' attitudes towards reading and that in-school adolescents are influenced by their peers in the choices they make and this does not except reading.

The study findings showed that most of the study respondents were not exposed to innovative approaches capable of improving their reading skills and attitudes. Most of the respondents had not been exposed to reading clubs, writers' clubs, reading corners, paired reading, reading games, and authors' visits among others. Only about half of the respondents had been exposed to literature and debate. This is a clear departure from the observation of Oriogu (2015) that innovative and imaginative approaches are needed to improve the reading skills and attitudes of in-school adolescents. The findings of the study contradict the observation of Hawthorne (2021), and Kizildag (2023) that innovative approaches such as authors' visits, peer reading, book summary, book clubs, and choice reading are needed to enhance reading skills and consequently the reading attitudes of in-school adolescents.

Conclusion

The importance of improved reading skills and good reading attitudes to in-school adolescents cannot be over-emphasised. The Nigerian in-school adolescents are aware of the imperatives of reading and when a good number of them possess required reading skills a few others do not possess such skills. The in-school adolescents in Oyo had varied attitudes to reading and the need for innovative approaches to improve their reading skills and reading attitudes.

Recommendations

1. The in-school adolescents should be made to appreciate the imperatives of reading
2. School librarians should work with other stakeholders to train in-school adolescents to possess fluency, comprehension, evaluation, analysis, and other reading skills.
3. Provision of a wide range of materials, involving students in the selection of books, and making reading materials available at home can improve the reading attitude of in-school adolescents among others.
4. School librarians, teachers, parents, and other stakeholders should be proactive in introducing in-school adolescents to innovative approaches capable of improving their reading skills and attitudes.

References

Allcolt, L. (2021). *Reading on-screen vs reading in print: What's the difference for learning?* National Library of New Zealand. https://natlib.govt.nz/blog/posts.

Almutairi, N. R. (2018). Effective reading strategies for increasing the reading comprehension level of third-grade students with learning disabilities Dissertations. 3247. https://scholarworks.wmich.edu/dissertations/3247

Ameyaw, S. K., & Anto, S. (2018). Read or perish: Reading habits among students and its effect on academic performance: A case study of East Bank Senior High School-Accra. *Library Philosophy and Practice.* 1748. https://digitalcommons.unl.edu/libphilprac/17 48.

Bamise, O. (2023). Peer influence as a predictor of reading habit among public secondary school students in Osun Central Senatorial District, Osun State, Nigeria. *Library Philosophy and Practice (e-journal).*7954. https://digitalcommons.unl.edu/libphilprac/7954

Bacong, M. & An, I. (2020). Attitudes toward reading and reading performance of high school students from a private academic institution in the Philippines.

Asia Pacific Journal of Education, Arts and Sciences (3): 21-27. https://apjeas.apjmr.com/wp-content/uploads/2020/06/APJEAS-2020.7.3.04.pdf

Cain, T., & Hattie, J. (2020). Attitudes to school and reading achievement among secondary school students. *Australian Journal of Education*, *64*(1), 5-24. https://doi.org/10.1177/0004944119890139

Cooc, N., & Kim, J. S. (2017). Peer influence on children ' s reading skills: A social network analysis of elementary school classrooms. Journal of Educational Psychology, 109(5), 727 – 740. https://doi.org/10.1037/edu0000166

Creel, S(2015). "The Impact of Assigned Reading on Reading Pleasure in Young Adults*." Journal of Research on Libraries & Young Adults*: n. page. Web. 5. http://www.yalsa.ala.org/jrlya. Accessed 15 May, 2024

Darling-Hammond, L., Flook, L., Cook-Harvey, C., Barron, B., & Osher, D. (2019). Implications for educational practice of the science of learning and development. *Applied Developmental Science,* 24(2), 97 – 140. https://doi.org/10.1080/10888691.2018.1537791

Diab, A. (2018). Using the Content and Language Integrated Learning (CLIL) approach to develop student-teacher EFL receptive skills. *Journal of Faculty of Education Benha University*, 31 (2): 12-22. https://jfeb.journals.ekb.eg/article_142944_1759a7681225b9e02ac7e7b1988cef16.pdf

Echedom, A. U., Nwankwo, T. V., & Nwankwo, T. V. (2018). Relationship between reading attitudes and perceived parenting styles of secondary school students in Anambra state, Nigeria. *Library Research Journal*, *2*(1), 66−83. https://journals.unizik.edu.ng/lrj/article/view/16

Ferlazzo, L. (2020). Author interview: Culturally responsive education in the classroom. Educationweek.com. https://www.edweek.org.

Ghalagha, K. (2023). *Deeper Reading: Comprehending challenging texts.* Routledge. New York. 240p. 9781032680989. Taylor and Francis Group. taylorfrancis.com/books.

Gedik, O. & Akyol, H. (2022). Reading difficulty and development of fluent reading skills: action research. *International Journal of Progressive Education,* 18(1), 22-41. https://doi.org/10.29329/ijpe.2022.426.2.

Gunobgunob-Mirasol, R. (2019). Vocabulary size, reading motivation, reading attitudes and reading comprehension performance among Filipino College learners of English. International Journal of Evaluation and Research in Education, 8(1), 64–70. https://doi.org/10.11591/ijere.v8.i1.pp64-70.

Haugsnes, E. (2022). Student attitudes towards extensive reading: A mixed methods study about Swedish upper secondary school students' attitudes and perceptions of extensive reading in English (Dissertation). https://urn.kb.se/resolve?urn=urn:nbn:se:oru:diva-100506

Hashimi, K. and Fayyaz, H. (2022). Adolescence and academic well-being: parents, teachers, and students ' perceptions. *Journal of Education and Educational Development 9(1):27 – 47* https://files.eric.ed.gov/fulltext/EJ1347671.pdf

Hawthorne, H. (2021). Understanding the importance of motivation in education. *High-Speed Training*. https://www.highspeedtraining.co.uk/hub/motivation-in-education/

Hollis, H. (2021). Readers ' experiences of fiction and nonfiction influencing critical thinking. *Journal of Librarianship and Information Science 55: 18-32* https://doi.org/10.1177/09610006211053040

Insuasty Cárdenas, A. (2020). Enhancing Reading Comprehension through an Intensive Reading Approach. *HOW*, 27(1), 69 – 82. https://doi.org/10.19183/how.27.1.518

Kamil, M. L., Borman, G. D., Dole, J., Kral, C. C., Salinger, T., & Torgesen, J. (2008). Improving Adolescent Literacy: Effective Classroom and Intervention Practices: A Practice Guide. Washington DC: National Centre for Education Evaluation and Regional Assistance, Institute of Education Sciences, U.S. Department of Education.

Kizildag, A. (2023). Improving reading comprehension through visual literacy tools in innovative practices to improve EFL reading skills. Nobel Publishing Group. 87p

Main, S., Hill.S., and Paolino, A. (2023). Improving the reading skills of struggling secondary students in a real-world setting: issues of implementation and sustainability. *Australian Journal of Learning Difficulties 28:72 -95*. https://doi.org/10.1080/19404158.2023.2210588

McKeown, M. G. (2019). Effective vocabulary instruction fosters knowing words, using words, and understanding how words work. *Language Speech, and Hearing Services in Schools, 50, 466 – 476*. https://doi.org/23814764000300140072

Moses, R. and Mohamad, M. (2019). Challenges faced by students and teachers on writing skills in ESL contexts: A Literature Review. *Creative Education, 1: 3385-3391*. https://doi.org/10.4236/ce.2019.1013260

Murray, M. (2016). Word recognition skills: One of two essential components of reading comprehension in Steps to Success: Crossing the Bridge Between Literacy Research and Practice. https://milnepublishing.geneseo.edu/steps-to-success/chapter/3-word-recognition-skills-one-of-two-essential-components-of-reading-comprehension/

Noor, N. M. (2011). Reading habits and preferences of EFL postgraduates: A case study *Indonesian Journal of Applied Lin*kills, OECD Publishing, Paris *guistics,* I: 1-9. www.researchgate.net.

OECD (2016). Innovating Education and Educating for Innovation: The Power of Digital Technologies. http://dx.doi.org/10.1787/9789264265097-en

Ohakamike-Obeka, N. (2016). The School Learning Environment and Sudents ' Attitude and Achievement in English Language. *Research on Humanities and Social Sciences,* 6(2):31-37. www.iiste.org.

Oriogu, C. D. (2015). Assessment of internet use in the provision of information students in university libraries in Nigeria: A case study of Afe Babalola University Library, Ekiti State, Nigeria. *Advances in Social Sciences Research Journal*, 2(1). https://doi.org/10.14738/assrj.21.827.

Oyewole, O. (2017). Impact of poor reading culture among selected secondary school students in Owo local government area of Ondo state, Nigeria. *Developing Country Studies,* 7 (10), 88 – 101

Paige, D. D. (2020). Reading fluency: A brief history, the importance of supporting processes, and the role of assessment (ED607625). ERIC. https://eric.ed.gov/?id=ED607625

Shea, M., & Ceprano, M. A. (2017). Reading with understanding: A Global expectation. *Journal of Inquiry and Action in Education,* 9 (1). https://digitalcommons.buffalostate.edu/jiae/vol9/iss1/4.

Smith, R., Snow, P., Serry, T., & Hammond, L. (2021). The role of background knowledge in reading comprehension: A critical review. *Reading Psychology*, 42(3), 214-240. https://doi.org/10.1080/02702711.2021.1888348.

Sumaira, Y., Saman, N., Zahid, A., Nargis, Y., and Noor, U. (2023) A study of the relationship between critical reading and critical thinking abilities of undergraduate learners. *Journal of Positive School Psychology*, 7 (4): 1640-1647.

Swanson, E., Vaugh, S., & Wesler, J. (2017) Enhancing adolescents ' comprehension of text by building vocabulary knowledge. *Teaching Exceptional Children*, 50, 1-11. http://dx.doi.org/10.1177/0040059917720777

Yamashita, J. (2013). Effects of extensive reading on reading attitudes in a foreign language. *Reading in a Foreign Language,* 25, 248–263.

Yıldız, M., & Kızıltaş, Y. (2018). The Attitudes of Secondary School Students Toward School and Reading: A Comparison In Terms of Mother Tongue, Gender And Class Level. *International Journal of Education & Literacy Studies*, 6(1), 27-37

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Work Environment and Job Satisfaction of Librarians of Tertiary Institutions in Calabar Metropolis, Cross River State, Nigeria

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Abstract
This study examined work environment and job satisfaction of librarians of Tertiary Institutions in Calabar Metropolis in Cross River State Nigeria. Two research questions and one hypothesis were formulated to guide the study. A survey research design was used while a sample of 55 professional and 118 paraprofessional librarians constituted the sample size using purposive and accidental sampling techniques. For appropriate data collection, a structured instruments entitled " Work Environment and Job Satisfaction Questionnaire (WEJSQ) ". The instrument was validated by two experts in Measurement and Evaluation, Faculty of Education, University of Calabar and the reliability test was established with Split-half reliability method. The research data was analysed using One-way Analysis of Variance (ANOVA). The findings revealed that working conditions significantly influence job satisfaction of librarians of tertiary institutions in Calabar Metropolis, Cross River State. It was concluded that the variables under study were found to enhancing librarians ' job satisfaction. Therefore, the study recommended that library management should ensure that top-level management of the tertiary institutions should maintain regular salary increment and bonuses as at when due to both professional and paraprofessional librarians and also expose them to constant training so as to boost their morale in their workplace. This will ensure free flow of work activities and job satisfaction on all library staff in the library.

Keywords: *Work Environment, Job Satisfaction, Librarians, Tertiary Institutions.*

Introduction
Libraries in tertiary institutions are considered an important entity and the employee of the library have a key role to play in disseminating knowledge to the public because tertiary institutions occupy an important position in shaping future generations in terms of imparting knowledge through teaching and learning. Tertiary institutions exist as a result of the human capital performing the task and duties of managing the organization. This is one of the reasons for a continued interest in employees' job satisfaction. The tendencies of employees to manifest some features such as productivity, efficiency, team spirit and truancy among others are directly or indirectly tied to the degree of their job satisfaction. The execution of these functions and acquisition of competences by librarians in providing information services befitting of tertiary institutions depends on their job satisfaction within the context of a work environment.

A work environment is the surroundings where people work together to achieving common purposes. It entails an organizational setting where different people come together to achieve a common goal. Job satisfaction connotes the overall feeling of an employee about people, rewards, the extent of emotional stability of the job and the working environment. Job satisfaction is a complex and multi-faceted concept which can mean different things to different people. According to

Udomisor and Haruna, (2010), job satisfaction is an emotional response to work environment, it can only be ascertained through the worker's expression of his or her personal feelings about the job and its environment which depends on working conditions and library facilities which influence his or her job satisfaction.

An effective work environment must be attractive, comfortable, satisfactory and motivating to employees so as to give employees a sense of pride and purpose in what they do (Humphries, 2005). With an overview of the concepts of job satisfaction, it is assumed that an "when an employee feels a satisfaction about the job, he/she is motivated to give more to the organization thereby increasing the overall performance of the organization" (Pushpakumari, 2008). The job satisfaction of librarians remains central in for any library to be effective and efficient in accomplishing its statutory mandates. The librarians in tertiary institutions in Calabar Metropolis seem not to be meeting up to the duties of providing quality services which may be due to the poor access and utilization of its resources by users. Okojie, (2009) argued that "the poor services are due to librarians' working condition which is characterized by low morale, non-functional library facilities, obsolete library collections, lack of manpower to provide services to the increase number of users. And since the services of the libraries are essential, it is necessary for the researcher to study the work environment and job satisfaction among librarians in tertiary institutions in Calabar Metropolis, Cross River State so as to identify reason for their ineffectiveness and to proffer solution on ways of making them more committed and productive in the job. The study therefore examined work environment and job satisfaction of librarians of Tertiary Institutions in Calabar Metropolis in Cross River State Nigeria.

Statement of the Problem

Libraries in tertiary institutions apart from preserving the intellectual heritage is involved in the management of information resources. During a preliminary visit to the libraries, it was observed that the level of encouragement, motivation and job security are less satisfactory compared to their task at work. Most librarians seem to be reluctant and uninterested in assisting registered library users in getting the services they are searching for and that information also seems to be unavailable or unorganized despite its proliferation brought about by information and communication technology to manage them. This may be as a result of poor staff working condition, lack of well-trained staff and majority of the available ones are not strong enough in terms of their age to attend to users' needs.

The inability of tertiary institutions to take staff job satisfaction as a priority may be jeopardizing the organizational productivity. There have been series of decline in the use of the library as a result to librarians' absenteeism, lateness to work, malingering, low intellectual growth in the library. The situation is having adverse effect on the growth of library as well as the information service delivery of these libraries. Librarians may not be able to perform their work effectively which may adversely affect the quality-of-service delivery being rendered to users. Librarians' job satisfaction with particular reference to Tertiary Institutions in Calabar Metropolis in Cross River State has not been investigated. It is against this background that the problem of this study was therefore conceptualized to determine the extent to which work environment influence job satisfaction of

librarians of tertiary institutions in Calabar Metropolis in Cross River State Nigeria?

Research questions

To guide this study, the following research questions were raised:

1. What is the level of job satisfaction of librarians of tertiary institutions in Calabar Metropolis, Cross River State?
2. What is the level of conduciveness of the work environment of librarians of tertiary institutions in Calabar Metropolis, Cross River State?

Research Hypothesisis

The following research hypothesis was formulated to guide this study:
Working conditions does not significantly influence job satisfaction of librarians of tertiary institutions in Calabar Metropolis, Cross River State?

Literature review

Sustaining a work environment is vital for any job satisfaction. Experiencing healthy work environment entails making work atmosphere attractive, comfortable, satisfactory and motivating to employees so as to give them a sense of purpose that will enable them put in their best at all times. Library workers will exhibit satisfaction in the course of carrying out their functions in the workplace. This study corroborates with that by Samson and Waiganjo (2015) on effect of workplace environment on the performance of commercial banks employees in Nakuru town. The findings showed that the physical aspects did not have a significant effect on employee performance while the psychosocial and work life balance factors were significant. It is recommended that attention be given to the other influences of workplace life environments consisting the physical and work life balance aspects. Also, Agba, and Ocheni, (2017) study on the effects of work environment on job performance of academic staff in Nigerian public and private universities. The study revealed that work related factors like internet facilities, good library, conducive work environment, regular and good remuneration, training opportunities, regular promotion, access to a ff ordable medical care, recognition/ awards are significant determinants of the job performance of academic staff in Nigerian Public and Private Universities.

Awan and Tahir (2015) study on impact of working environment on employee's productivity: A case study of Banks and Insurance Companies in Pakistan. The result revealed that the factors like supervisor support, relation with co-workers, training and development, attractive and fast incentives and recognition plans, adequate work load at work place are helpful in developing a working environment that has positive impact on employee's level of productivity in the organizations. The findings recommend the organizations to develop strategies which are useful in developing a conducive working environment at the workplace. Similarly, Manu (2015) conducted a study on the effects of work environment on employees' productivity in government organizations. a case study of Obuasi Municipal Assembly. It was found that, each of the components that define work environment were statistically significant to productivity of the Municipal Assembly. It was recommended among other things that for the productivity of the Obuasi Municipal Assembly to be enhanced, the Assembly must improve upon its psychological environment so as to improve upon the psychological health of its employees.

Dukic and Dukic (2014) study on job satisfaction level of Croatian Librarians. The result found that despite all difficulties and economic crisis overall librarians were satisfied with their jobs. But there is dissatisfaction with salary, working conditions, training facilities and ICT equipment. Ogunlana, Okunlaya, Ajani, Okunoye and Oshinaike (2013) study examined the relationship between job stress and job satisfaction among academic librarians in selected federal universities in South West Nigeria. The study revealed that the mean scores for satisfaction were low for workplace characteristics. Positive correlation was found between job satisfaction and librarians' job stress. The findings also revealed that majority of the librarians had low job satisfaction level and higher levels of job stress. These results have implications for addressing job stress and job satisfaction in academic libraries.

Research Methodology

The study adopted the descriptive survey design. Professionals and paraprofessionals from three tertiary institutions in Calabar Metropolis - University of Calabar library, Cross River University of Technology Library and College of Health Technology Library, were used as respondents. The study population (SP) comprised of 85 professionals and 185 para-professionals totalling 270 librarians using proportional sampling with a sample of 55 professional and 118 paraprofessional librarians constituting the sample size (64%) for the survey. For appropriate data collection, a structured instruments entitled " Work Environment and Job Satisfaction Questionnaire (WEJSQ) " . The instrument was validated by two experts in Measurement and Evaluation, Faculty of Education, University of Calabar and the reliability test was established with Split-half reliability method and later converted to Spearman Brown Prophesy Formula to help step up the coefficient. The research data was analysed using One-way Analysis of Variance (ANOVA) to test the hypothesis.

Presentation of Results and Discussion of Findings

The main dependent variable of the study was job satisfaction. The mean and standard deviation of the major variables of the study was calculated and presented in this section. The result of data analysis tested is presented. Each hypothesis was tested at .05 level of significance.

Testing of hypotheses

Hypothesis: Working condition does not significantly influence job satisfaction on librarians in Calabar metropolis.

Table 1: One-Way ANOVA with the influence of working conditions on job satisfaction

Sources of variations	Sum of Squares	df	Mean Square	F-value	P-value
Between Groups	54.049	3	27.024	5.589*	.004
Within Groups	821.928	170	4.835		
Total	875.977	173			

*P<.05 df=3,170 F-critical =2.65

Table 1 shows the summary of one-way ANOVA on the influence of working conditions on job satisfaction. Between and within group sum of squares are 54.049 and 821.928; at 3 and 170 degrees of freedom, the mean squares between and within are 27.024 and 4.835, with F calculated value of 5.589 found greater than critical F-value at 2.65. Therefore, the null hypothesis of there is no significant influence of working conditions on job satisfaction was rejected (F=5.589; P=.0004). It is obvious that there is a significant influence of work environment and job satisfaction of librarians of Tertiary Institutions in Calabar Metropolis in Cross River State Nigeria. It is evident from Table 3 with the descriptive statistics that the total of 30 librarians responded that the working conditions in their work place was high with a mean and standard deviation of 12.93 and 2.02. For those that moderately agreed constituted 57 respondents with mean of 13.75 and standard deviation of 2.39. while those that indicated low level were 86 respondents with mean and standard deviation of 12.50 and 2.13 respectively.

Table 2: Descriptive Statistics

Levels of working conditions	N	Mean (X)	Std. Deviation
High	30	12.93	2.02
Moderate	57	13.75	2.39
Low	86	12.50	2.13
Total	173	12.99	2.26

The result of the finding shows that there is a significant influence of work environment and job satisfaction of librarians of Tertiary Institutions in Calabar Metropolis in Cross River State Nigeria. This is because job satisfaction of library personnel remains a critical criterion for the attainment of the goals and objectives among librarians of Tertiary Institutions in Calabar Metropolis, Cross River State Nigeria. The findings revealed that librarians agree that working conditions influence their job satisfaction. They rated their working conditions low which is reflected on their job satisfaction. The finding is in agreement with Agba, and Ocheni, (2017) study on the effects of work environment on job performance of academic staff in Nigerian public and private universities. Findings revealed that work related factors like internet facilities, good library, conducive work environment, regular and good remuneration, training opportunities, regular promotion, access to affordable medical care, recognition/ awards are significant determinants of the job performance of academic staff in Nigerian Public and Private Universities and recommended among others that concerted efforts should be made by government and managers of Nigerian universities to ensure functional internet facilities, good library, regular and good remuneration, conducive work environment, training opportunities, access to well-equipped and regular promotion since they are known to have positive effects on the effective performance of the duties of academic staff.

Awan and Tahir (2015) study on impact of working environment on employee's productivity: A case study of Banks and Insurance Companies in Pakistan. The result revealed that the factors like supervisor support, relation with co-workers, training and development, attractive and fast incentives and recognition plans, adequate work load at work place are helpful in developing a working environment that has positive impact on employee's level of productivity in the organizations. Abdalkrim and Abd Elhalim (2016) study on attitude toward work, job satisfaction, and job performance: An empirical study among non-Saudi academic member of higher education institutions. Result showed all the independent variable has significant effect dependent variables. And recommendation for future research and limitations of this study are proposed.

Similarly, Manu (2015) study on effects of work environment on employees' productivity in government organizations. a case study of Obuasi Municipal Assembly, found that, each of the components that define work environment were statistically significant to productivity of the Municipal Assembly. It was recommended among other things that for the productivity of the Obuasi Municipal Assembly to be enhanced, the Assembly must improve upon its psychological environment so as to improve upon the psychological health of its employees.

Conclusion

Based on the findings of the study, it can be concluded that, librarians (professional and paraprofessionals) work environment is tied to their job satisfaction and have a higher-than-average satisfaction with their working conditions.

Recommendations

Based on the conclusion of the study the following recommendations were made:

1. The high level of satisfaction showed by the findings should be sustained by the top-level management of the tertiary institutions through regular salary increment and bonuses as at when due to both professional and paraprofessional librarians and also expose them to constant training so as to boost their morale in their workplace.
2. The library administration should formulate ways of mentoring of younger librarians by using both older ones and more accomplished librarians from within their libraries or outside these libraries to inspire and spur younger librarians on their job performance.

References

Abdalkrim, G. M. & Abd Elhalim, T. A. (2016). Attitude toward work, job satisfaction, and job performance: an empirical study among non-Saudi academic member of higher education institutions. *International Journal of Academic Research in Business and Social Sciences, 6*(12), 750-757.

Agba, M. S. & Ocheni, S. I. (2017). An empirical study of the effects of work environment (Electric Power Supply) on job performance of academic staff in Nigerian public and private universities. *Higher Education of Social Science, 12*(2), 11-20.

Awan, A. G. & Tahir, M. T. (2015). Impact of working environment on employee's productivity: A case study of banks and insurance companies in Pakistan. *European Journal of Business and Management. 7*(1), 329-345.

Berry, J. N. (2007). LJ series-job satisfaction: great work, genuine problems. *Library Journal,* 132, 26-9.

Dukic, G. & Dukic, D. (2014). An analysis of job satisfaction among Croatian librarians as support to library human resource management. *Journal of Librarianship and Information Science*, *46*(4), 289-298.

Humphries, M. (2005). Quantifying occupant comfort: are combined indices of the indoor environment practicable? *Building Research and Information, 33*(4), 317-325.

Manu, C. A. (2015). The effects of work environment on employees' productivity in government organizations. A case study of Obuasi Municipal Assembly. Master of Business Administration. College of Arts and Social Science Dissertation. Kumasi, Kwame Nkrumah University of Science and technology.

Okojie, J. O. (2009). The impact of salary differentiation on managerial job satisfaction: a study of gender gap and its implication for management education and practice in developing economy. *Journal of Business in Developing Nations, 8*(1) 23-42.

Ogunlana, E. K., Okunlaya, R. O. A., Ajani, F. O., Okunoye, T. & Oshinaike, A. O. (2013). Indices of job stress and job satisfaction among academic librarians in selected federal universities in south west Nigeria. *Annals of Library and Information Studies, 60*, 212-218.

Pushpakumari, M. D. (2008). The impact of job performance on job satisfaction: an impact analysis. Retrieved from http://202.11.2.113/SEBM/ronso/no9_1/08_PUSHPAKUMARI.pdf on June 29, 2019.

Udomisor, E. I. & Haruna, I. (2010). Job satisfaction among nonprofessional staff in Ramat Library, University of Maiduguri. Nigerian Libraries. *Journal of The Nigerian Library Association, 43*, 58-69.

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Emerging Smart Green Schools in Nigeria: Implications for Librarians.

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Abstract
As education is evolving in response to technological advancements and environmental concerns, the role of school librarians is updating accordingly. The new concept of smart green schools, which incorporates advanced technology and sustainable practices, require librarians to acquire additional set of skills. The objective of the paper is to identify the new roles and competences for school librarians working in smart green schools. The concept of smart green schools and librarians' involvement is presented through the review of existing literature. The study identified the competencies and skills that school librarians need in this new education landscape. It concluded that stakeholders ensuring that librarians are equipped with these skills is imperative. By imbibing these new roles librarians will contribute to creating a dynamic, tech-savvy, and sustainable climate learning landscape in Nigeria. It recommends that librarians should be open, flexible and proactive in adopting new roles for smart green school libraries. Also Library school curriculum modification across Nigeria is strongly advocated.

Keywords: *School librarians, Smart schools, Green schools, Digital schools, School libraries, Sustainable schools, Smart green schools.*

Introduction
Education worldwide, just like other spheres of endeavours is undergoing a significant transformation, driven by rapid technological advancements and a growing emphasis on environmental sustainability occassioned by the evolution of the Fourth Industrial Revolution (4IR). Smart green schools are one of those emerging concepts in education which involves a combination of the smart schools concept on one hand and green schools initiatives on the other. Smart schools could easily be defined as schools that incorporate the latest technologies to organise, accommodate and optimise the student learning process. Thus, using the 21st century easily accessible technologies, smart schools ensure that students are kept engaged at all times through the incorporation of all the technologies that can help in the management and the learning of the students (CloudNotte, 2024)

According to Omidinia, et al., (2013), smart schools are technology-based teaching-learning institutions meant to prepare children for the Information Age since they integrate new technologies into their content, organisation and management to maximise the students' learning process and experiences. These schools make use of the Internet of Things (IoT), cloud-computing, smart boards, artificial intelligence, and digital textbooks to set up an engaging and interactive educational environment. These facilitate personalised learning experiences and enhance students' outcomes (Karampa & Paraskeva, 2020; Georgescu & Popescu, 2015). It is a modern concept where technology is used to make teaching and learning better. Here technology tools like artificial intelligence, virtual reality,

and the internet are used with the ultimate goal of making students learn more effectively. Smart school education offers different services like virtual classrooms and online communication channels between students, teachers, and other helpers (ExtraMarks, 2024).

On the other hand, is the concept of green school. A green school is about more than curriculum and bricks and mortar. It's a school where everything works together to support global sustainability and climate action. It prepares students to lead the world toward a healthier, cleaner, more sustainable future (Centre for Green School, 2023). Green schools are now being integrated into regular and smart schools. Green schools are inclusive, climate-friendly schools designed to produce healthy students and communities through sustainable environmental management literacy and practices, incorporated into regular school programmes. They represent a vision for a more sustainable, healthier, and enlightened future, where education and environmental preservation go hand in hand, inspiring a new generation of environmentally conscious citizens.

Green schools are springing up around the world because of their benefits which promise to: improve and protect health, reduce carbon emissions, improve students' performance, create green jobs, improve indoor air, employ day lighting strategies and improve classroom acoustics quality while saving both energy and money (Boston Public Schools, 2024). The fundamental idea behind the green school is the imbibing of environmentally friendly habits into the young ones through practical education. It has emphases on hand-on activities to form part of their lifestyle for a healthy and sustainable future. For instance, it is intended that the home economics laboratories will get supplies from the students' farms and gardens. Students will have outdoor classes, garden, compost, and learn how to separate and recycle garbage. They should have projects to care for the school's animals and plants. This should start with clear climate friendly architectural designs and heavily green and natural landscapes to be powered by clean and renewable energy, particularly solar. Such a school environment shall be constructed with low-carbon and recycled materials with availability of clean water, which helps the children imbibe best hygiene and sanitation practices early in life. These dimensions inform the school librarians' vision for resource development and 'green library' activities. Libraries that conform to sustainability practices are regarded as green libraries and are recommended for school libraries.

The International Federation of Library Associations and Institutions (IFLA) succinctly defines and explains green and sustainable library as one that takes into account environmental, economic and social sustainability with the following clear agenda:

1. Green buildings and equipment: the emissions, or carbon footprint, of the building and equipment should be reduced.
2. Green office principles: environmental sustainability of routine operations and processes.
3. Sustainable economy: consumption is restrained, and circular, and sharing economy practices are advanced and are made accessible to the community.
4. Sustainable library services: relevant and current information is easy to access for users, shared spaces, devices, and environmental education is offered, and operations are efficient. The library has a positive carbon handprint.

5. Social sustainability: Good education, literacy, community engagement, cross-cultural diversity, social inclusion, and overall participation are considered. The library works actively to reduce inequality.
6. Environmental management: ensuring that environmental goals are specific, measurable, achievable, realistic and time bound (SMART). The library's environmental policy, its implementation and the results from such works are communicated to the community.
7. Commitment to general environmental goals and programmes: activities should be guided by the UN Sustainable Development Goals, the Paris Climate Agreement and related environmental certificates and programmes.

The fusion of green and smart schools produces the ideal institution for this generation. They are preferably called "Smart Green Schools". They are also interchangeably called smart schools, digital schools, green schools or sustainable schools. By whatever name the proprietors call them, 'these schools are systematically composed of physical place, educational programmes and organisational culture' (Centre for Green Schools, 2023). The activation of each of these components makes these digital schools whole and sustainable. Green schools emphasizes eco-literacy, human health, and environmental impact, while smart schools focus on the integration of advanced technologies and pedagogical innovations into the learning environment. It is all about improving educational content and format to sustain the earth.

According to the Melbourne School of Design (MSD, 2007), concurrently, education is changing from classrooms into learning environments and informational environments. Schools cannot be green without being smart and can't be smart without being green. It is then necessary to bring environmental and educational imperatives together in innovative ways. This signals a marked departure from the normal school system starting from physical configuration to instructional format and content, all targeting a sustainable healthier future. Typically, smart green schools take care of nursery/ primary schools students and up to junior secondary schools in Nigeria. New smart green schools are sprouting up, while existing schools are being remodeled and transformed to conform to the trend. This does not however exclude the greening of higher institutions in Nigeria by concerned authorities, as some green universities are already flourishing in other countries.

The contrasts between conventional schools and smart green schools are enormous with multiple implications for librarians. Now, the traditional old school methods of organisation, administration and practices are giving way to emerging dynamic methods which has found expression in smart green schools. The use of pens and notebooks is giving way to tablets and computers; the use of ledgers and cumbersome paper works is yielding to all-in-one management soft wares; teacher-centered mode is giving way to student-centered mode; static black and white boards are being replaced by activated interactive classrooms (CloudNotte, 2024) and dry, dusty and mostly unhealthy school environment is being taken over by green, clean and healthy landscapes. This departure from the old school pattern to the sustainable new, implies a shift for library practices and standards. This transformation affects the physical, content and format of the school library.

Central to the functioning of smart green schools is the role of smart librarians, whose responsibilities have evolved from traditional book management to becoming tech-savvy and versatile information specialists. Smart librarians utilise digital catalogues, e-books, and sophisticated library management systems to support both students and teachers in navigating the e-resources. Here they have to operate libraries that are technology and climate sensitive. These are sometimes called green libraries. Their role is crucial in fostering digital literacy, managing educational data, and ensuring that both students and the entire school community can efficiently access and use information.

It is of utmost importance that Nigeria joins the crop of nations proudly instituting smart green schools. This paper explores the concept of smart green schools and highlights the evolving functions for school librarians in Nigeria today under the following headings: State of the literature; UNESCO Initiatives on "Greening Education"; Enugu State's Smart and Green Schools Initiatives; the New Roles and Competencies of School Librarians; Conclusion and Recommendations.

State of the Literature

According to UNESCO (2024) a "green school" is defined as a learning institution that takes a whole-of-institution approach to Education for Sustainable Development (ESD), in particular by addressing climate change through its teaching, facilities and operations, school governance, and community partnerships. Green schools aim to promote knowledge and skills for the social, economic, cultural, and environmental aspects of sustainable development. Mogas et al., (2022) undertook an empirical study of emerging smart schools in which web-based cyber-physical environments will shape future learning environments. The study intended to get a deeper knowledge of how schools are approaching the upcoming transformation occasioned by the advent of the Fourth Industrial Revolution. The setting was in Catalonia, where 37 primary and secondary school principals were interviewed. From their results several of the schools considered themselves green schools and exhibit environmental practices, but sustainability was in question. Conclusions were drawn to show that, although schools were not yet prepared to cope with the Fourth Industrial Revolution, its impact relies on the technology's level of maturity and ease of use, as well as stakeholders as policymakers.

Another interesting article which made a fundamental input to the concept of smart schools was written by Zhu, et al, (2016). It dealt on the research framework of smart education. The paper discussed the definition of smart education and presented a conceptual framework. It was a four-tier framework of smart pedagogies with ten key features of smart learning environments. This they proposed for foster smart learners who need master knowledge and skills of the 21st century learning. The smart pedagogy framework included class-based differentiated instruction, group-based collaborative learning, individual-based personalised learning and mass-based generative learning. It also proposed a technological architecture of smart education, which emphasises the role of smart computing. The paper concluded by discussing the challenges of smart education.

Greenfield (2023) viewed green schools as educational institutions that prioritise environmental responsibility, sustainability, and health and wellness within their design, construction, and operation. They are built and operated with a focus on

minimising their negative impact on the environment and promoting a more sustainable, healthy, and environmentally conscious lifestyle. The Role of Green Libraries in Promoting Eco-friendly Reading Spaces in Nigeria was the title of a book chapter written by Enang and Kolawole (2024). This article examined the critical role that green libraries can play in promoting eco-friendly reading spaces in Nigeria. It looked at the many advantages of incorporating sustainable practices into the layout and functioning of libraries, emphasising the need for these kinds of projects in light of Nigeria's urgent environmental problems. By examining important aspects such as the choice of site selection, building materials, energy conservation, water conservation, and air quality. It underscored the transformative potential of green libraries in promoting environmental stewardship, community well-being, and sustainable development. It also addressed the challenges of starting and keeping green libraries in Nigeria and provides workable answers to these challenges. It advocated for the widespread adoption of green library policies as a catalyst for positive change in Nigeria's library sector. This idea of green libraries as propounded by the authors mirrored the model libraries needed for smart green schools.

The American Library Association (ALA, 2024) believes in and promotes sustainability as a core value of librarianship. Through its resolutions, policies and guidelines on sustainability, the Association is supporting librarians in the provision of rigorous, robust, and accurate information on the condition of the earth, its air, ground, water, and living organisms from all available sources. ALA is working for the 'greening of libraries' in America and around the world, with emphasis on practical efforts at reducing carbon footprints.

Nigeria is already lagging behind on the burning issue of greening libraries and schools from primary to the universities for environmental sustainability. Green libraries have been the policy and practice of many institutions in other countries. This was the focus of a study by Oyelude, A and Alabi, A. (2013) titled: Greening: Pluses and Minuses of Nigerian Libraries in Promoting Environmental Sustainability. The research aimed at examining green initiatives within Nigerian libraries with emphasis on analysis of related policy and practice of green librarianship, and the place of Nigerian libraries in the green initiatives. It sought to investigate the level of awareness of librarians of greening, attitude to greening libraries, efforts at greening libraries, greening policy in the libraries and ways of further advancing greening for sustainable development. They used mixed methods of literature search, interview, participant observation and survey questionnaire for data collection. The findings revealed that the level of awareness of greening initiatives among Nigerian librarians is still relatively low, despite the heating greening activities around the world. They recommended increased awareness and environmental literacy among library users and the entire community to build better green momentum in Nigerian libraries This study contributes to the body of literature on smart green schools' development and management in Nigeria, which is presently scanty.

UNESCO Initiatives on "Greening Education"

In support of green schools globally, the United Nations Educational, Scientific and Cultural Organization (UNESCO, 2024) has launched new initiatives for "greening education" in classrooms. It states that greening schools and curricula is one of the best weapons to tackle climate disruption in the long-term. It projects

the need to mainstream environmental education across school subjects, at all levels of education with an action-oriented approach that helps young people understand their power to make a difference. Following this, UNESCO made environmental education a priority in terms of the support which it provides to Member States. It also leads the Greening Education Partnership that more than 80 Member States have now joined and enables collaboration between more than 1,300 organisations, including UN agencies, civil society and youth organisations, as well as the private sector. This community provides countries with essential tools for strengthening the role of education in tackling climate issues. For purposes of uniformity, consistency and effectiveness, UNESCO also developed a practical manual on Greening Curriculum Guidance and Green School Quality Standards, which specifies the minimum requirements on how to create a "green school". It is its vision that at least 50% of schools in every country will be 'greened' by 2030.

Following the UNESCO promptings, several nations across the globe have adopted various approaches in implementing smart green schools, based on their unique educational goals and technological capabilities. Prominent among the countries already implementing smart green schools and some of their objectives are:

1. Australia focuses on building a multidisciplinary, student-centric education system through adaptive learning programs, digital resources, and online learning tools. This is to enhance both student and teacher experiences (New York Smart Schools Commission Report, 2014).
2. The Malaysian Smart School initiative focuses on fostering 21st-century skills through the integration of cutting-edge technologies to stimulate creativity, critical thinking, and personalised learning experiences (Noh et al., 2011).
3. Singapore's smart education model emphasises the use of ICT to create engaging and personalised learning environments. Their strategy includes the development of a nationwide educational infrastructure to support lifelong learning (Education and Learning Sub-Committee, 2007).
4. The United Arab Emirates aims to advance its education system by applying world-class teaching methods using the latest technologies. They adopt fostering creativity, analytical thinking, and innovation among students (Kankaanranta & Mäkelä, 2014).
5. Korea's smart education project provides customised and adaptive learning experiences to develop self-directed learning abilities. The initiative includes individualised instruction and creativity-centred education (Spector, 2014).

School Librarians are expected to be in the management team of each and every one of these innovative schools.

Here in Nigeria, the Federal Government in partnership with a Chinese firm called NetDragon announced its intention to establish what it termed " smart learning classrooms" across the country (Akeregha, 2018).This was in August 2018. In the pilot phase of this project the partnership was to provide " smart classrooms" to Pilot Nursery/Primary Schools in the Federal Capital Territory. There is no more literature on the progress of this pilot project or its extension across the country or any other attempt at the establishment of Smart green schools in Nigeria. But in the Eastern region of the country Enugu State had taken up the challenge.

Enugu State's Smart and Green School Initiative

UNESCO encourages national governments to support at least half of the country' s schools to become green climate-ready schools using the standard. Many countries are already integrating climate change issues in education. Here in Nigeria, Enugu State seems to be at the forefront. For a start, it is embarking on the establishment of 260 Smart Green, integrated schools strategically placed in each political ward. It is designed to accommodate pre-primary to junior secondary levels. This vision of sustainability goes beyond infrastructure as these schools exemplify a circular economy, constructed with low-carbon and recycled materials. They are powered by clean and renewable energy, particularly solar. The experiential learning programs, including "School Gardens and Farming Clubs", align with the United Nations Sustainable Development Goals. With these values of environmental stewardship, civic responsibility, resource management, and climate action will be instilled in the students. For what it called multimedia hybrid libraries the Enugu State Commissioner for Education had advertised for applications for Librarians. The qualifications include PhD in Library and Information Science. The application opened from May 24th - 27th, 2024.This marks the beginning of more vacancy publications like this for school librarians to work in Smart Green Schools in Nigeria and so professionals are expected to be very ready!.

The key roles and expectations from librarians in smart green schools

In running green libraries in schools, librarians should first be guided by IFLA ENSULIB Section prescriptions which takes into account the sustainable principles into the environmental, economic and social aspects of the green library development. Specifically, School librarians are expected to be involved in:

1. Promoting Green Spaces: Starting from the physical, Librarians should transform library spaces into eco-friendly zones. They should cultivate a green environment with a variety of trees, shrubs and rich gardens. Such green library landscapes can be very inspiring for outdoor reading by students. Within and outside the library also, the librarians should promote energy-efficient lighting, recycling, and sustainable materials for furniture and displays.
2. Acquisition of Sustainable Resources: Librarians select, procure and manage both physical and digital resources that comply with sustainability goals. It starts with curating eco-friendly books, e-books, online databases and other innovative curriculum -supported resources for students and teachers.
3. Collaborating with Teachers: Librarians work closely with educators to integrate green practices into the curriculum. They assist in designing lessons that emphasises environmental awareness and responsible technology use.
4. Promoting Environmental Literacy and sustainability: Green schools are about environment- compliant education. Therefore, educating students about environmental issues, climate change, and conservation is a duty for the Librarian. They organise workshops, book displays, and discussions on sustainability topics. They should practically model sustainable habits within the library, such as reducing waste and conserving energy, thereby supporting the school's overall green initiatives.
5. Training in digital Literacy: Librarians should teach students how to critically evaluate online information, with emphasis on reliable sources related to sustainability. They guide students in using technology for research and learning from the early age.

6. Partnership with Community; Engaging with the community is essential for librarians in smart and green schools. They should grow partnerships with local organisations, libraries, and environmental groups and farms to enrich the school's educational resources and programs. This includes collaborative projects that bring together students, teachers, and parents. These collaborations can provide students with real-world learning opportunities and enhance the library's role as a community hub.
7. Collaboration and Instructional Leadership: Librarians serve as instructional leaders and collaborators within the educational ecosystem. They work closely with teachers to integrate information literacy into the curriculum, design collaborative projects, and support inquiry-based learning. This collaboration ensures that the resources are age-appropriate and aligned with the educational goals of the smart and green schools. This also includes facilitating professional development for educators, helping them stay abreast of technological advancements and innovative teaching strategies
8. Information Literacy and Management: Effective information management is crucial for librarians in smart and green schools. They must guide students in navigating vast amounts of digital information, ensuring the development of critical thinking and information literacy skills. This involves teaching students how to evaluate the credibility of sources, synthesise information, and ethically use digital content.
9. Sustainability and Green Practices: Librarians in smart and green schools are also expected to promote and implement sustainable practices. This includes managing digital resources in an environmentally responsible manner and advocating for green policies within the school library. The integration of green practices not only supports environmental sustainability but also educates students about the importance of ecological responsibility.
10. Personalised librarianship: Following on the smart green school focus on student- centred learning, librarians should also practice special attention to each reader to meet up with their peculiarities.
11. Leadership in environmental education: School Librarians should be at the forefront of advocating and domesticating sustainable practices for the teachers, the students and the entire community.

Critical competencies for librarians in Smart Green schools

The integration of smart and green models in educational environments, implies additional competencies of school librarians. This shift is vital to meet the evolving demands of information management, digital literacy, technology facilitation and climate literacy. Therefore, meeting up with expected functions and following trends in smart and green schools' education requires new skills including:

1. Technological Proficiency

It is paramount that librarians in smart green schools must exhibit high levels of technological proficiency. This includes familiarity with digital tools, online resources, and educational technologies that facilitate interactive and personalised learning experiences. Smart librarians should be adept in using and teaching with digital platforms, ensuring that they can support both students and educators in a tech-driven educational landscape.

2. Information and Technology Management

Effective management of digital information and technology is critical in smart schools. Librarians must possess advanced skills in managing digital collections,

utilising library management systems, and ensuring cyber security. This highlights the importance of continuous professional development in these areas to keep pace with technological advancements and changing educational needs

3. Environmental literacy

Not being a part of their professional training and practice, smart librarians should educate and upgrade their knowledge of climate issues for a sustainable future. They should be conversant with UNESCO ' s guidelines for green schools and IFLA's policies. These are meant to systematically culminate in enhanced student well-being, academic performance, and ecological awareness. It will also inform their collection development and practices.

These fresh roles and competencies are only additions to the basic known fundamental functions and values of school librarians including: evaluation of resources, acquisition and organisation, information management and retrieval, promoting digital literacy including responsible internet practices, instituting up-to-date library management and operations systems. ensuring data analysis and reporting, enhancing reading culture and trending technology and media literacy education.

Conclusion

The competencies required for librarians in smart green schools are multifaceted, encompassing technological proficiency, information literacy, instructional leadership, environmental literacy, and community engagement. Addressing the challenges through continuous professional development and fostering a culture of adaptability will ensure that librarians can effectively support and enhance these innovative educational environments. By staying at the forefront of technological and environmental advancements, librarians not only contribute to the academic success of students but also play a pivotal role in shaping a sustainable future. In Nigeria, smart green schools are gradually sprouting up, and the pioneer librarians to take up the jobs should act proactively.

Recommendations

1. Existing and prospective school librarians should engage in continuing education programmes to up skill for a smart green school environment.
2. The Association of School Libraries in Nigeria should prioritise advocacy at all levels for the domestication of UNESCO Smart Green schools policy in Nigeria.
3. Training and retraining of school librarians with IFLA Smart Green schools agenda should be programmed by the Association of School Libraries along with other stakeholders.
4. The Nigerian Library Association (NLA) should through NUC alert the Library schools in the higher institutions of the need to include smart green school operations in the graduate and undergraduate curriculum.

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References

Abdel-Basset, M., Manogaran, G., & Mohamed, M. (2019). Internet of Things (IoT) and its impact on smart education. Sensors'.

Akeregha, A. (2018) FG Partners Chinese Firm on Smarrt Classrooms, Digital Education. The Guardian, https://guardian.ng/technology/fg-partners-chinese-firm-on-smart-classrooms-digital-education/

Ajayakumar, J., Abdi, H., & Surendra Anna, N. V. D. (2019). An IOT enabled smart school bag to help kids, parents and schools. *2019 International Conference on Internet of Things Research and Practice (iCIOTRP).*

ALA American Library Association (2024) Resource Guides. Sustainability and Libraries: ALA and Sustainability. https://libguides.ala.org/SustainableLibraries

Boston Public Schools, (2024) What is a Green School? https://bostongreenschools.org/ Retrieved 22/08/2024.

Centre for Green School (2023) Schools Can Transform Communities. https://centerforgreenschools.org/about/what-green-school

Cheounchom, S. (2007.). The Competency of Teacher Librarians for Providing School Library Services Smart. Journal of Information Science Research and Practice Education and Learning Sub-Committee. (2007). Smart Education in Singapore.

CloudNotte,(2024) The Impact of Smart Schools on Education. https://cloudnotte.com/blog/the-impact-of-smart-schools-on-education

Demir, K. A. (2021). Smart education framework. Smart Learning Environments, 8(1), 1-36. https://doi.org/10.1186/s40561-021-00170-x

Enang, U., & Kolawole, D. (2024). The Role of Green Libraries in Promoting Eco-friendly Reading Spaces in Nigeria.

ExtraMarks (2024) Chronicles. What is a Smart School & How is Smart School Education Beneficial? https://www.extramarks.com/blogs/what-is-a-smart-school/ Retrieved 18/08/2024.

Greenfield, E. (2023, November 4). The concept of green schools. Sigma Earth. https://sigmaearth.com/the-concept-of-green-schools/

Hoel, T., & Mason, J. (2007). Education and Learning Sub-Committee.

International Federation of Library Associations and Insitutions. Environment, Sustainability and Libraries Section (IFLA ENSULIB, n.d.) What is a Green Library? https://www.ifla.org/g/environment-sustainability-and-libraries/ifla-green-library-definition/. Retrieved 20/08/2024.

Karampa, V., & Paraskeva, F. (2020). Educational shift arising from Industry 4.0. Learning Environments Research. Melbourne School of Design (2007) Smart Green Schools.

Melbourne University efile:///C:/Users/user1/Desktop/smart%20schools/Smart%20Green%20Schools. file:///C:/Users/user1/Desktop/smart%20schools/Smart%20Green%20Schools.htm retrieved 05/08/2024

Mogas, J., Palau, R., Fuentes, M. et al. Smart schools on the way: How school principals from Catalonia approach the future of education within the fourth industrial revolution. Learning Environ Res 25, 875 – 893 (2022). https://doi.org/10.1007/s10984-021-09398-3.

Moore, M., Ellsworth, J. (2014). Challenges of Smart Education.

New York Smart Schools Commission Report. (2014).

Noh, J., Spector, J. M., & Møller, S. (2011). Smart Learning Environments: Concepts and Issues.

Nosalska, K., Piotrowska, M., & Mazurek, G. (2019). Industry 4.0 and Its Impact on Education. References United Nations Educational, Scientific and Cultural Organisation (UNESCO 2024) UNESCO launches new initiatives for "greening education".

Omidinia, S., Masrom, M., & Selamat, H. (2013). An examination of the concept of smart school: An innovation to address sustainability. Proceedings

of the 2nd International Conference on Advances in Computer Science and Engineering.

Oyelude,A & Alabi, A. (2013) Greening: Pluses and Minuses of Nigerian Libraries in Promoting Environmental Sustainability. Conference paper, IFLA WLC Singapore. at: https://www.researchgate.net/publication/259620215

Renz, A., Hilbig, R. (2020). Big Data and Learning Analytics in Education.

Spector, J. M. (2014). Educational Technology and Smart Schools.

Sutthinan Cheounchom, "The Competency of Teacher Librarians for Providing School Library Services Smart," Journal of Information Science Research

United Nations Educational, Scientific and Cultural Organisation (UNESCO, 2024) UNESCO launches new initiatives for " greening education.. https://www.unesco.org › greening-future › schools

Zawacki-Richter, O., Marín, V. I., Bond, M., Gouverneur, F. (2019). Systematic review of research on artificial intelligence applications in higher education.

Zhu, Z., Yu, M., & Riezebos, P. (2016). A research framework of smart education. Smart Learning Environments, 3(1), 1-17. https://doi.org/10.1186/s40561-016-0026-2

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Institutional Repository: A 21st Century tool for Scholarly Communication

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Abstract
Knowledge generated through research in universities and other research institutions is only significant when it is shared, disseminated, easily findable, and accessible to a wider audience for the benefit of the academic populace. Scholarly publications such as journals and conference proceedings, dissertations, and theses are pivotal channels of sharing such knowledge; however, the costs of these have been progressively increasing, making it ever more unbearable for many institutions to provide access to most or even all of them. This gave rise to the institutional repository. An institutional repository (IR) is a digital archive of the intellectual products created by the faculty, research staff, and students of an institution and accessible to end users both within and outside the institution with few if any barriers to access. This paper, therefore, examines historical overview of scholarly communication, 21st-century scholarly communication, the concept of IR, IR characteristics, IR policy, benefits to various stakeholders, and its implications for scholarly communication.

Keywords: *Scholarly communication, Institutional repository, Institutional repository policy, Research output*

Introduction

Generating new knowledge through research activities is the fundamental business of universities and research institutions. Products of such research activities are called scholarly work. Scholarly works are only significant when it is shared, disseminated, easily findable, and accessible to a wider audience for the benefit of the academic populace and society at large. The process of sharing scholarly work is known as scholarly communication, which comprises the evaluation of the scholarly works for quality assurance, dissemination to the scholarly community and preservation for future use (Bamigbola & Adetimirin, 2020). These intellectual products are disseminated through journals, conference proceedings, technical reports, books, theses and dissertations. Journals became the main medium of formal scholarly communication in 1665 and have continued for about three hundred years.

However, the costs of journals have been progressively increasing, making it ever more unbearable for many institutions to provide access to most or even all of them. This situation made the traditional scholarly communication model failed. Therefore, the scientific community derived some initiatives to transmute the scholarly communication process to free "scientific literature from the chains" of lucrative commercial publishers (Bamigbola & Adetimirin, 2020). One such initiative is the open access movement which comprises two primary options; gold and green. The Gold open access is where the author pays for the article processing fee to publish in an open access journal and such paper is freely accessible to the public, while green open access is where the author can self-archive a copy of a paper in any other archive apart from the original publisher's web system (Myers, 2016). An institutional repository is a type of green open

access. This chapter attempts to discuss institutional repositories as a tool for scholarly communication. The rest of the chapter is structured as follows; historical overview of scholarly communication, 21st Century scholarly communication, the concept of an institutional repository, IR characteristics, IR policy, benefits to various stakeholders, and implications of institutional repository in scholarly communication.

Historical Overview of Scholarly Communication

The Association of College and Research Libraries (ACRL) defines scholarly communication as: the system through which research and other scholarly writings are created, evaluated for quality, disseminated to the scholarly community, and preserved for future use. The system includes both formal means of communication, such as publication in peer-reviewed journals and informal channels, such as electronic listservs (Association of College and Research Libraries, 2006).

A recent definition of scholarly communication by Mulligan (2015) is the system through which research and other scholarly writings are created, evaluated for quality, disseminated to the scholarly community and preserved for future use. The Association of College and Research Libraries (2006) and Mulligan (2015) definitions of scholarly communication highlighted four key issues in the process of communicating scholarly works: creation, evaluation, dissemination and preservation. These four key functions of scholarly communication are referred to as, registration, certification, awareness and archiving (Prosser, 2003; Crow, 2002). ‘ Registration ’ : is the process of establishing the ownership of the intellectual property. The second phase, ‘certification’: is a process of confirming the quality or validity of the intellectual property through peer review. The third function is ‘awareness’: is the process of ensuring dissemination and making the researchers to be aware. The fourth function is ‘archiving’: the preservation of intellectual property for future use (Prosser, 2003; Crow, 2002). Therefore, scholarly communication is a process where scholarly writings are generated, assessed, disseminated to the scholarly community and preserved for future use.

This process originated by learned societies, for instance, the Royal Society of London, 1660 which was chartered in 1662 (Willinsky, 2006) and *Academie des Sciences* founded in Paris in 1666 were communicating on personal contact and organised meetings up till the 17th Century (Fjallbrant, 2009). However, when membership of the societies grew, many of their members could not attend their meetings. Therefore, proceedings were circulated as records of their previous meetings, and later they devised a method of publishing papers that they were not present at the meetings. This later metamorphosed into scientific journals (Bamigbola, 2018).

The first scientific journal, the *Journal des Savants,* was published in Paris on Monday, January 5, 1665. It was a private venture of *Denis de Sallo*, which repressed in 1792 during the French Revolution. It later continued as the *Journal des Savants*, Paris, 1797 and became a model for other journals. The Royal Society built upon *Journal des Savants* and published a more philosophical serial, the *Philosophical Transactions of the Royal Society*, in London on March, 6th, 1665. It was the first serial publication of a learned society edited by Henry Oldenburg. It is important to note that these two journals published by non-profit

making organizations (Walker, 1998). However, other scientific journals published by commercial groups, such as, the *Giornale de' Letterati* published in Rome in 1668, and *Acta Erutdirorum* published in Leipzig in 1682. Other forms of scholarly communication were the scientific book, the newspaper and scientific cypher or anagram systems (Fjallbrant, 2009).

In the 17th and 18th Centuries, scholarly communication involved varied stakeholders such as the authors (primary producers), the readers (academic, students and the general public) and the publishers (Learned Societies and Commercial Publishers – secondary producers). Others were libraries and booksellers (facilitators of reading), academic institutions (consumers and facilitators of production), legal organizations (to settle claims of priority of discovery and authorship), industrial organizations (consumers) and religious organizations (influencing the practice and development of science). During the period, authors, readers and publishers had serious concerns and needs in the scholarly communication system. The authors' needs were to; establish ownership, guard against "philosophical robbery", establish priority and obtain recognition, spread scientific knowledge to colleagues, and thus, derive personal satisfaction. Readers' needs were; to get new information as soon as possible and unhindered access to quality and affordable scientific information. Besides, readers wanted the issue of language resolved because each country used her native language for her scholarly communication, thereby limiting the readership. The interests of the publishers were quality control, cheap means of printing, development of much faster and cheaper printing methods (Bamigbola, 2018).

The Royal Society and other learned societies played an important role in addressing some of these concerns by setting up permanent records of publications in their archives, and authority constituted to evaluate and validate scholarly works. It marked the beginning of the peer review in scholarly communication. Furthermore, the new technology facilitated rapid communication of scholarly works, and there was an increase in the number of journals towards the end of the eighteenth-Century (Fjallbrant, 2009).

In the second half of the 20th Century, the scholarly communication system had a crisis, as a result, of two divergent but related problems of 'affordability' and 'accessibility' (Chan, 2004). The problem of 'affordability' as explained by the Association of Research Libraries, included (1) control of the scholarly journals market by few commercial publishing firms, especially in the fields of scientific, technical and medical (STM) which resulted in high cost; (2) economic meltdown that cut the library budgets and made libraries unable to afford the high cost of serials, and, therefore, unable to subscribe to the needed journals. The 'accessibility' problems, on the other hand: (1) libraries faced increased restrictive licensing terms because most electronic journals distributed in bundled databases controlled by few large commercial publishers, and (2) the attendant loss of access to back-files of journals that led to gaps in serial holdings and resulted in both short and long term accessibility (Association of College and Research Libraries, 2006). Therefore, both the 'affordability' and 'accessibility' problems of the traditional scholarly communication model resulted in limiting access to research findings which led to lower visibility and finally loss of research impact, which defeats the purpose of scholarly communication (Bamigbola, 2018).

21st Century Scholarly Communication

The affordability and accessibility problems made the traditional scholarly communication model deficient. On the other hand, the advances in technology dropped the cost of online storage, and the creation of new standards for open archives metadata harvesting which makes it easier to efficiently upload content to the web provided new platforms for disseminating scholarly works. For instance, new digital means of collaboration and dissemination of research output such as email and departmental websites emerged (Chadwell & Sutton, 2014). The facilitating technology and availability of open access software made open access initiatives possible.

The Budapest Open Access Initiative (BOAI, 2002) defined open access as:

> *"literature that provides free availability on the public internet, permitting any users to read, download, copy, distribute, print, search or link to the full texts of these articles, crawl them for indexing, pass them as data to software, or use them for any other lawful purpose, without financial, legal, or technical challenges other that those* inseparable from gaining access to the internet itself".

The only constraint on reproduction and distribution, and the only role for copyright in this domain, should be to give authors control over the integrity of their work and the right to be properly acknowledged and cited (BOAI, 2002). This definition accentuates the importance of making research findings open through the Internet, and when such scholarly works used, the authors must be credited.

There are two strategies recommended by BOAI for authors to partake in open access, publishing in open-access journals, that is open access publishing (OAP), which is popularly known as 'Gold. The second strategy is self-archiving, that is, method of depositing one's digital copy of an intellectual product into open electronic archives/repositories known as 'Green'. It might be a centralised discipline-based or subject-based repository like Cornell's ArXiv (Chadwell, & Sutton, 2014). It could also be an institutional-based repository such as MIT DSpace institutional repository (Chan, 2004). Consequently, implementation of IR as a new model of scholarly communication places responsibilities on the host institution and the authors/lecturers instead of the publishers in the traditional scholarly communication model, hence, a paradigm shift. Comparing the traditional publishing model with IR, (Johnson, 2002), in his opinion, submits that the former model limits readership, obscures institutional origin, and costs much, while the new model implies no monopoly, increases output, and awareness, which is the essence of scholarly communication.

Concept of Institutional Repository

The beginning of the 1980s witnessed free movements such as the open-access movement, open learning and the open-source movement. The concept of Institutional Repository emerged with the philosophy of sharing information at easy access, free and avoiding duplication. Several authors have defined institutional repository, but the most cited one is (Lynch, 2003). Lynch defines IR as:

> *" a set of services that a university offers to the members of its community for the management and dissemination of digital materials created by the institution and its community members. It is most essentially an organizational commitment to the stewardship of these digital materials including long-term preservation where appropriate, as well as organization and access or distribution" (p.3).*

With Lynch's definition, IR places active responsibility on the host universities in managing its scholarship, which is a departure from what it used to be with the old scholarly communication model. In essence, IR is a means through which institutions (universities, polytechnics, and research organizations) capture, preserve and disseminate the intellectual output of their staff and students (Bamigbola, 2018). Bamigbola (2021) defined institutional repositories as digital platforms created by institutions, to archive, manage, disseminate, and showcase their intellectual works.

Since institutional repositories are attached to the institutions housing them, it makes sense that it is mainly concerned with internally generated research publications such as thesis and dissertations, journal articles, conference proceedings, books, lecture notes, and administrative documents of the host institution. This is supported by Saini (2018) who opines that an institutional repository is an online archive of the intellectual output created by the faculty and researchers of an institution to enhance the visibility and promote free access to the research at a single interface. Institutional repositories are part of an emergent struggle to restructure scholarly communication and break the monopoly of journal publishers by reasserting institutional control over the results of scholarship. An institutional repository can be any collection of digital material hosted, owned or controlled and disseminated by any institution irrespective of purpose of origin.

An institutional repository (IR) is a set of services offered by a university or group of universities to members of its community for the management and dissemination of scholarly materials in a digital format created by the institution and its community members, such as e-prints, technical reports, theses and dissertations, data sets, and teaching materials. The stewardship of such materials entails their organization in a cumulative, openly accessible database and a commitment to long-term preservation when appropriate. Some institutional repositories are used as electronic presses to publish e-journals and e-books. A repository supports mechanisms to import, export, identify, store, preserve and retrieve digital assets. An institutional repository makes the intellectual output freely and openly available to general public. It might contain the documents published or unpublished by the institution, faculty, research scholars, and students of an institution.

Institutional repository is set up to serve three basic purposes; an electronic scholarly communication medium, a digital library, and a knowledge management system (Kim, 2011). Crow (2002) and Lynch (2003) described an institutional repository as having four distinctive features; institutionally defined (it captures only scholarly works of the host institution); contains scholarly content;

cumulative and perpetual and lastly it is open and inter-operable (openly accessible and interoperable with other repositories) In essence, IR is a mechanism for open access; it provides the suitable platform where the author can self-archive peer-reviewed publication, and a reader can freely access it as information source from any location. It is a strategy that higher education can employ to accelerate changes in scholarship and scholarly communication and support transformative new uses of digital media for scholarship (Bamigbola, 2018).

Characteristics of Institutional Repository

Institutional repositories are digital platforms designed to store, preserve, and provide open access to scholarly output and research materials produced by an institution or organization. These repositories play a crucial role in promoting knowledge sharing, collaboration, and long-term preservation of intellectual assets. Here are some key characteristics of institutional repositories:

1. Open Access: Institutional repositories prioritize open access to scholarly content, making research outputs freely available to the public. By removing barriers such as paywalls, institutional repositories enhance the visibility and impact of research, enabling wider dissemination and potential for collaboration.
2. Content Diversity: Institutional repositories house a wide range of research materials, including articles, preprints, theses, dissertations, conference papers, technical reports, datasets, multimedia content, and more. These repositories aim to capture the breadth and depth of an institution's intellectual output, showcasing the diverse research conducted within its community.
3. Digital Preservation: Institutional repositories emphasize the long-term preservation of digital content. They employ robust preservation strategies, including metadata management, file format migration, and backup systems, to ensure the accessibility and integrity of stored materials over time. This commitment to preservation safeguards valuable research for future generations.
4. Local Control and Curation: Institutions have control over the management and curation of their institutional repositories. They define the policies, workflows, and submission guidelines, ensuring the quality and relevance of the deposited content. Repository managers often work closely with researchers and other stakeholders to curate and organize the repository's collections effectively.
5. Metadata and Searchability: Institutional repositories employ metadata standards to describe and index the deposited content, enhancing discoverability and searchability. Rich metadata, including author names, affiliations, keywords, abstracts, and publication details, enable users to locate specific resources and browse related materials efficiently.
6. Metrics and Analytics: Institutional repositories often provide usage statistics and analytics, offering insights into the impact and reach of deposited materials. These metrics can include download counts, citation tracking, and altimetric, helping researchers and institutions gauge the visibility and influence of their research outputs.
7. Interoperability and Integration: Institutional repositories strive to be interoperable with other systems and platforms, allowing seamless integration and exchange of metadata and content. They often support standards such as

OAI-PMH (Open Archives Initiative Protocol for Metadata Harvesting) to enable data sharing and interoperability between repositories (Lynch, 2003; Crow & Boock, 2013; Pinfield, Cox, Smith & Blake, 2014).

Institutional Repository Policy

The policy issue is an important aspect of the management of institutional repositories. Institutional repository policy includes defining IR content, model of submission into the IR, that is, either self-archiving or mediated archiving, file formats, metadata formats, mandatory submission, quality control and copyright issues. In the opinion of Armstrong (2012), the mediated deposit approach "do it for them" seems to be suitable for some authors. The library staff are saddled with publishers' copyright policy, metadata creation and depositing of scholarly works. At Boise State University, in the United States, library staff were in charge of publishers' copyright policy review, getting the correct version of the publication, requesting author ' s permissions and uploading the publication into the institutional repository (Armstrong, 2012).

Publishers' Policies

As regards publishers' policies and open access institutional repositories, Right Metadata for Open Archiving (RoMEO) project one of Securing a Hybrid Environment for Research Access and Preservation (SHERPA) services of the University of Nottingham had analysed different archiving rights. It is a database of publisher ' s policies regarding the self-archiving of journal articles in open access institutional repository. RoMEO classified the archiving rights into four; 'no restrictions', 'embargo required', 'permission required' and 'paid option' (RoMEO website).

According to RoMEO, publishers with ' no restrictions ' category will publish scholarly works free of charge and also allow authors to deposit the publisher's version of their articles in an institutional repository without an embargo. Lecturers who have published their scholarly works with this category of the publisher are allowed to submit them to their university institutional repository. The second category of archiving rights is 'embargo required'. Publishers in this category allow authors to deposit the publisher ' s version of their article in an institutional repository after a while. The embargo period differs from one publisher to another. RoMEO website indicates that there were varied periods of embargo starting from one month to five years period of embargo.

The third category of archiving rights is 'permission required' and there are two classes in this category. First, the publishers in this category allow authors to deposit their articles in an institutional repository after permission has been obtained from them. The other class under the ' permission required ' category allows authors to deposit their article in an institutional repository after an embargo period and payment of a fee. Finally, the fourth category is publishers with 'paid option'. They allow authors to deposit their articles in an institutional repository after payment of a fee (Bamigbola, 2018). Armstrong (2012) believed that the responsibility of checking publishers' policies and copyrights clearance should be placed on libraries' shoulders.

Benefits of Institutional Repository

Institutional repository offers numerous benefits for authors/researchers, academic institutions, users, libraries, and society at large. Here are some key benefits:

Authors/Researchers Benefits

Institutional repository benefits authors in various ways. Some of the benefits are listed below.

i. An institutional repository increases the visibility of the intellectual output and acts as a marketing tool to reflect the research results of the researcher, along with the department and the institution.
ii. The contents of the institutional repository are openly available on the web. As a result, others can use the scholarly works without any fees which will raise the impact factor of the cited works. Therefore, it helps to identify the use of metrics in particular papers.
iii. The institutional repository provides specific links to navigate access to content in other archives by following the citation analysis mentioned in the contents.
iv. Institutional repository provides comments and feedback options where authors can give their opinions to the readers. This option facilitates communication between the author and the user which gives pathways to improve knowledge and the quality of work on the concerned subject.
v. The institutional repository maintains the researcher's profile, compiling a comprehensive list of institutional research results conducted over the years.
vi. Institutional repository gives benefits to the researchers by providing prestige, status, and prizes to them for their rewarding research work and attract different funding agencies for the support of acquiring funds for their research projects
vii. Institutional repository helps researchers comply with many funding agencies and institutions' requirements to make their research outputs openly available by providing a platform for depositing and sharing their work
viii. Open access has been shown to correlate with higher citation rates and increased public engagement with research
ix. By providing a central hub for research outputs, repositories facilitate collaboration and interdisciplinary interactions among researchers.
x. Additionally, repositories enable the integration of research outputs with other scholarly services, fostering new avenues for discovery and. analysis (Bamigbola, 2021; Hajjem, Harnad & Gingras, 2005; Swan, 2010; Piwowar, Priem, Larivière, Alperin, Matthias, Norlander, Farley, West & Haustein, 2018).

Institution's Benefits

The underlisted are some of the benefits of institutional repository of the host institutions: Institutional repository:

i. serves as an archiving centre for institutional research work, it collects, stores, and preserves all institutions ' research output including both published and unpublished works

ii. boosts the global visibility and impact of research output, thus changing the scholarly communication paradigm and improving internal communication within the institution.

iii. a novel research culture focused on meeting international standards and values.

iv. enhances the reputation of the institution through its scholarly research works. The Institutional repository can also be useful in commercial activities to attract highly qualified students, teachers or staff to join the institution and generate grants from funding agencies.
v. provides collaborative sharing of experiences between institutions.
vi. Maintains a rating of institutional records by compiling an Institutional curriculum vitae and provides navigation links to access the full text of the articles.
vii. provides usage statistics and analytics, allowing researchers and institutions to track the impact and reach of their research outputs. These metrics can provide valuable insights for assessing research impact and informing strategic decisions (Hajjem, Harnad, & Gingras, 2005; Swan, 2010; Knoth, Anastasiou, Pearce, Pontika, & Bayer, 2014).

Libraries Benefits
The institutional libraries are free from the monopoly power of the publishers' cost and access restrictions.
i. No need for a server or backup. Thus, cost-effective for libraries to give a value-added service without hampering the limited budget.

Users' Benefits
Individuals can access institutional repository and enjoy the following benefits:
i. The information materials on grey literature, such as pre-prints, patents, white papers, technical reports, project reports, documentation, manuals, working papers and discussion papers, and others are not easily found in conventional means. But with the establishment of institutional repositories, users can access these valuable resources anywhere.
ii. Repository facilitates open-access publishing by providing free access to scholarly content, removing barriers to knowledge dissemination. Users are not required to pay any fees for using the digital content of an institutional repository, and there are no subscription fees for the materials (Suber, 2012).

Society Benefits
i. Provides open access to institutional intellectual output in the global context, thus facilitate research on different subject topics.
ii. An institutional repository accommodates research outputs of large-volume and large-scale data sets.
iii. Institutional repositories improve institutional content to reach the world's population at no cost.
iv. Institutional repositories ensure the long-term preservation and archiving of research outputs, safeguarding them against loss, degradation, or format obsolescence. Digital preservation practices employed by repositories ensure continued access to research materials (Committee on Ensuring the Utility and Integrity of Research Data in a Digital Age, 2009; Pinfield., Cox, Smith & Blake, 2014).

Implications of Institutional Repository in Scholarly Communication
The emergence and proliferation of institutional repositories have had significant implications for scholarly communication. As the implementation of IRs in ivory towers continues to grow, these repositories have transformed the way scholarly information is disseminated, accessed, and shared within the academic

community and beyond. In this response, some of the key implications of institutional repositories on scholarly communication will be explored.

i. Increased Visibility and Accessibility: Institutional repositories enhance the visibility and accessibility of scholarly research. By providing open access to research outputs, repositories remove barriers imposed by traditional publishing models, making research available to a global audience. A study by Xia, Gilchrist, Smith, Kingery, Radecki, Wilhelm, Harrison, Ashby & Mahn (2012) found that open-access articles deposited in institutional repositories received significantly higher citation rates compared to non-open-access articles.
ii. Preservation and Long-Term Access: Institutional repositories play a crucial role in preserving scholarly outputs for the long term. Traditional publishing models often rely on commercial publishers and their proprietary platforms, which may be subject to changes, mergers, or even discontinuation. In contrast, institutional repositories offer a stable and sustainable infrastructure for long-term preservation and access. Digital preservation strategies employed by repositories ensure that scholarly materials remain accessible even if the original sources become obsolete or inaccessible (Kenna, Delgado López-Cózar & Ruiz-Pérez, 2018).
iii. Facilitating Interdisciplinary Research: Institutional repositories promote interdisciplinary research by providing a centralized platform for scholars from various disciplines to discover and access research outputs beyond their fields. This can lead to increased collaboration, knowledge exchange, and the emergence of new research directions. A study by Antelman (2004) found that articles deposited in institutional repositories were more likely to be cited across disciplinary boundaries compared to those published in traditional subscription-based journals.
iv. Open Science and Public Engagement: Institutional repositories contribute to the principles of open science by making research outputs openly available to the public. Open access to scholarly information fosters public engagement, facilitates citizen science initiatives, and allows policymakers, practitioners, and the general public to benefit from academic research. Studies have shown that open-access articles deposited in institutional repositories are more likely to be downloaded and read compared to articles behind paywalls (Kenna, Delgado López-Cózar & Ruiz-Pérez, 2018).
v. Data Sharing and Reproducibility: Institutional repositories provide a platform for sharing research data alongside publications, enabling transparency, reproducibility, and the validation of scientific findings. Researchers can deposit datasets, codes, and supplementary materials, making their research more transparent and facilitating future collaborations. The availability of research data in institutional repositories can help address issues related to the reproducibility crisis in science (Pampel, Dallmeier-Tiessen, Oßwald, Orth & Stocker, 2013)

In conclusion, comparing the traditional publishing model with the institutional repository, Johnson (2002) submits that the former model limits readership, obscures institutional origin, and costs much but the new model implies no monopoly, increases output, and awareness, which is the essence of scholarly communication. Institutional repositories have had significant implications for scholarly communication, offering increased visibility, accessibility, preservation, interdisciplinary collaboration, public engagement, and data sharing. As the

landscape of scholarly communication continues to evolve, institutional repositories play a vital role in advancing open access, open science, and the democratization of knowledge.

Conclusion

Scholarly publications are an essential part of any academic community and such works should be shared with the general public. The institutional repository has proven to be one of the tools for effective scholarly communication in the 21st century. This chapter has discussed the history of scholarly communication, overview of institutional repository, characteristics of institutional repository, policies guiding submission into institutional repository, the benefits of institutional repository, importance of institutional repository in scholarly communication cannot be overemphasized. It is evident that institutional repository is germane to the development of scholarly communications and by extension, research development around the globe and it will continue to evolve.

Implications for Practice

1. Institutional repository is a platform to disseminate and access scholarly works without necessarily paying high charges of subscription, thus, researchers should be duly informed to use this channel.
2. To ensure functional and sustainable institutional repository, submission of scholarly works must be encouraged, archiving policies and guidelines must be built into its development.
3. Ensuring continuous submission of scholarly works requires awareness and training; educating researchers/authors, institutional managers, and IR managers is an important part of sustaining institutional repository as 21st Century tool of scholarly communication.

References

Antelman, K. (2004) Do open-access articles have a greater research impact? *College & Research Libraries*.: 65(5): 372–382.

Armstrong, M. (2012) Institutional repository management models that support faculty research dissemination.. http://works.bepress.com/michelle_armstrong

Association of College and Research Libraries (2006). Principles and strategies for the reform of scholarly communication, http://www.ala.org/acrl/publications/whitepapers/principlesstrategies

Bamigbola, A. A. (2021) Awareness, anchor adjustment factors in the use of institutional repositories by Nigerian lecturers. *Journal of International Federation of Library Associations and Institutions.*: 47(2): 182–195

Bamigbola, A. A. (2018) Awareness, Anchor and Adjustment factors as determinants of perceived ease of use and use of institutional repository by lecturers in Nigeria Universities [thesis]. Ibadan: University of Ibadan

Bamigbola, A. A. &. Adetimirin A. E .(2020) Assessing determinants of Perceived Ease of Use of Institutional Repositories by Lecturers in Nigerian Universities, *International Information and Library Review*. 52(2), 95-107, https//doi.org/ 10.1080/10572317.2019.1662261

Chadwell, F., & Sutton, S.C. (2014).The future of open access and library publishing. *New Library World*.: *115*(5/6): 225 – 236. https//doi.org/10.1108/NLW-05-2014-0049

Chan, L. (2004). Supporting and enhancing scholarship in the digital age: the role of open-access institutional repositories. *Canadian Journal of Communication*. 29: 277-300.

Committee on Ensuring the Utility and Integrity of Research Data in a Digital Age (2009). Ensuring the Integrity, Accessibility, and Stewardship of Research Data in the Digital Age. National Academies Press.

Crow, R., & Boock, M. (2013). The Case for Institutional Repositories: A SPARC Position Paper. SPARC. https://sparcopen.org/wp-content/uploads/2016/01/IR-Case-Statement.pdf

Crow, R. (2002) The case for institutional repositories: A SPARC position paper. SPARC, Washington, DC..37. http://www.arl.org/sparc/bm-doc/ir_final_release_102.pdf

Fjallbrant, N. (2009) Scholarly communication: Historical development and new possibilities. Chalmers University of Technology. http://internet.unib.ktu.lt/physics/texts/schoolarly/scolcom.html

Hajjem, C., Harnad, S., & Gingras, Y. (2005) Ten-Year Cross-Disciplinary Comparison of the Growth of Open Access and How It Increases Research Citation Impact. *IEEE Data Engineering Bulletin*.: 28(4): 39-47.

Johnson, R. K. (2002). Institutional Repositories: Partnering with faculty to enhance scholarly communication. *D-Lib Magazine*:.: 8.11. www.dlib.org/dlib/november02/johnson/11johnson.html

Kenna, S., Delgado López-Cózar, E., & Ruiz-Pérez, R. (2018). Global use of digitized sources and institutional repositories: Comparative analysis of usage patterns in the United States and Europe. *Journal of the Association for Information Science and Technology*. 69(6): 834–847.

Kim, J. (2011). Motivations of faculty self-archiving in institutional repositories. *The Journal of Academic Librarianship*.:37(3): 246-254. http://connection.ebscohost.com/c/articles/61479647/motivations-faculty-self-archiving-institutional-repositories

Knoth, P., Anastasiou, L., Pearce, S., Pontika, N., & Bayer, V. (2014). My Repository: Supporting User-driven Harvesting and Interlinking of Open Access Publications from Institutional Repositories. *Procedia Computer Science*.:38: 195-202.

Lynch, C. A. (2003). Institutional repositories: Essential infrastructure for scholarship in the digital age. *Portal: Libraries and the Academy*. *3*(2) 327–336. http://doi.org/10.1353/pla.2003.0039

Myers, K. (2016) Libraries response to scholarly communication in the digital era. Endnotes: *The Journal of New members Round Table*.:7(1) p.13-20

Mulligan, R. (2015) "The Transformation of Scholarly Communications, Part I: Context and Background." *Research Library Issues: A Report from ARL, CNI, and SPARC*, no. 287 :2–6. http://publications.arl.org/rli287/2

Pampel, H., Dallmeier-Tiessen, S., Oswald, A., Orth, A., & Stocker, M. (2013). DataCite and DOI names for research data. *D-Lib Magazine*.

Pinfield, S., Cox, A. M., Smith, J., & Blake, M. (2014) Open-access repositories worldwide, 2005 – 2012: Past growth, current characteristics, and future possibilities. *Journal of the Association for Information Science and Technology*.: 65/12: 2404-2421. https:// doi.org/10.1002/asi.23131

Prosser, D. C. (2003). Scholarly communication in the 21st Century – the Impact of new technologies and models. *Serials*.: 16.2: 163 – 167.

Saini O.P. (2018) Understanding the role of institutional repository in Digital preservation in academic libraries: A Review of Literature. *Library Philosophy and Practice Journal* (e-journal).

Suber, P. 2012. Open Access, MIT Press. https://cyber.harvard.edu/hoap/Open_Access_(the_book)

Swan, A. (2010). The Open Access citation advantage: Studies and results to date. In: *Proceedings of the 13th International Conference on Scientometrics and Informetrics* (pp. 313 – 324). Leiden, Netherlands: International Society for Scientometrics and Informetrics.

The Budapest Open Access Initiative (BOAI). (2002). www.soros.org/openaccess/index.shtml

Walker T. J. (1998). Free Internet access to traditional journals. *American Scientist.*:86.http://www.amsci.org/amsci/articles/98articles/walkerweb.html

Willinsky, J. (2006) *The Access Principles: The case of open access to research and scholarship.* Massachusetts Institute of Technology. http://mitpress.mit.edu/0262232421

Xia, J., Gilchrist, S., Smith, N., Kingery, J., Radecki, J., Wilhelm, M., Harrison, K., Ashby, M. L., & Mahn, A. J. (2012) A review of open access self-archiving mandate policies. *Portal* (Baltimore, Md.: *12*(1): 85 – 102. https://doi:10.1353/pla.2012.0000

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Perception of Planning and Designing of Library Spaces by Librarians in Nigeria: A Systematic Review

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Abstract
This systematic review explores the perceptions of librarians regarding the planning and designing of library spaces in Nigeria. It synthesizes findings from various empirical studies, highlighting key themes such as the emphasis on user-centered design, challenges in implementation, and the integration of technology. The review reveals commonalities in challenges faced by librarians, including funding limitations and infrastructural inadequacies, while also showcasing differences based on library type and professional development experiences. Ultimately, the study provides insights that can inform future library space design, ensuring they better serve the evolving needs of their communities.

***Keywords**: Library spaces, Librarians, Nigeria, User-centered design, Library planning, Technology integration.*

Introduction
The role of libraries has undergone significant transformations in the 21st century, shifting from traditional repositories of print materials to dynamic learning and community centers. This change is driven by evolving educational needs, advances in digital technologies, and an increased emphasis on user-centered design in library spaces (Ayeni & Olawuyi, 2021). In Nigeria, the planning and design of library spaces have become a critical aspect of library management, reflecting broader trends in the global library field. As spaces that foster knowledge exchange and community engagement, libraries need to be designed to support diverse functions, from quiet study areas to collaborative learning environments. Central to this transformation is the perception of librarians, whose roles have expanded beyond information custodians to include active participation in space planning and user engagement (Akande, 2020).

The design and planning of library spaces have been recognised as crucial elements in creating effective learning environments. Well-designed libraries not only support academic and research activities but also foster a sense of community and engagement among users (Adefunke, 2022). In the context of Nigeria, where libraries serve as vital educational resources in both urban and rural areas, the design of library spaces is particularly significant. The capacity to design spaces that meet user needs is a key factor in enhancing library relevance and usage, especially in a country with diverse educational and cultural landscapes (Olowo, 2021).

Libraries in Nigeria, particularly those in academic settings, face challenges related to infrastructure, funding, and adapting to technological advances. As libraries strive to maintain their role as essential learning spaces, the focus has shifted to creating environments that are flexible, technology-integrated, and user-friendly (Chukwu & Eze, 2020). However, achieving these objectives requires a deep understanding of space planning, which is often constrained by limited resources and outdated facilities. Librarians, as key decision-makers in library

management, play a pivotal role in determining how spaces are organised, utilised, and adapted to meet the evolving needs of users.

Librarians are central to the process of planning and designing library spaces because they interact directly with users and understand their needs. Their perceptions shape how spaces are configured, influencing decisions about the allocation of study areas, technology zones, and community meeting spaces. The ability of librarians to contribute to space design is tied to their spatial literacy, an understanding of how people use physical spaces and how to optimize these spaces to enhance learning and engagement (Nwafor & Kalu, 2019). In Nigeria, the role of librarians in space planning has gained attention as libraries adapt to changing user expectations and technological advancements.

Studies suggest that involving librarians in the design process is essential for creating spaces that are not only aesthetically pleasing but also functionally effective (Adedeji et al., 2021). Their insights can ensure that library layouts facilitate easy access to resources, create comfortable study environments, and integrate new technologies in ways that enhance the user experience. However, research indicates that many Nigerian librarians face challenges in this area, including a lack of training in spatial design and limited opportunities for professional development in this field (Udo & Obong, 2023). Addressing these gaps is crucial for empowering librarians to take a more active role in the design and planning of library spaces.

The design of library spaces has a significant impact on how libraries are used and perceived by their communities. In Nigeria, libraries are often the primary spaces for academic study and research, particularly in rural areas where access to educational resources may be limited (Adeyemi, 2023). A well-designed library can attract more users, provide a conducive environment for learning, and support a wide range of activities, from individual study to group discussions and digital literacy programs. Conversely, poorly designed spaces can discourage use, leading to underutilisation of library resources and facilities.

In recent years, the concept of user-centered design has become central to discussions about library space planning. This approach emphasises the importance of designing spaces that are responsive to user needs, preferences, and behaviors (Omoniyi, 2020). For Nigerian libraries, adopting a user-centered approach can help create environments that reflect local cultural contexts and meet the specific needs of their communities. This involves considering factors such as noise levels, privacy, accessibility, and the arrangement of physical and digital resources within the library space.

Despite the growing recognition of the importance of space design, librarians in Nigeria face several challenges that hinder their ability to create optimal library environments. One of the most significant challenges is financial constraints, which limit the ability of libraries to invest in modern infrastructure and technology (Olowo, 2021). Many Nigerian libraries operate with limited budgets, making it difficult to renovate existing spaces or build new facilities that meet contemporary standards. This often results in libraries with outdated layouts that do not support modern learning styles or technological integration.

Additionally, there is a need for more targeted training and professional development opportunities for librarians in Nigeria, focusing on aspects of spatial design and management. While librarians are experts in information management, they may lack the skills required to plan and optimize physical spaces effectively (Udo & Obong, 2023). Providing training in these areas can help librarians better understand the principles of space design and how to apply them in their libraries. This is particularly important as libraries increasingly compete with digital platforms, making the physical space of the library a crucial aspect of its appeal and functionality.

Given the complexities involved in library space planning in Nigeria, a systematic review of the perceptions of librarians offers a valuable opportunity to synthesise existing research and provide a comprehensive overview of this topic. A systematic review allows for the identification of common themes, trends, and challenges in the literature, offering insights into how Nigerian librarians perceive their role in space design and the factors that influence their decisions (Adedeji et al., 2021). This approach can help to highlight best practices and innovative strategies for space planning that have been successfully implemented in different contexts within Nigeria.

Moreover, a systematic review can identify gaps in the existing research, such as the need for more empirical studies that explore the impact of spatial literacy training on librarians' effectiveness in managing and designing spaces. It can also shed light on regional disparities in library infrastructure and the unique challenges faced by librarians in various parts of Nigeria, such as urban versus rural settings (Chinedu & Agbo, 2022). By synthesizing findings from recent studies, this review aims to contribute to the development of evidence-based strategies for improving library space design in Nigeria.

Understanding the perceptions of Nigerian librarians regarding library space design is essential for several reasons. First, it provides insights into how librarians can be better supported in their roles as space planners, including the types of training and resources they need to design effective library environments. Second, it helps to identify strategies that can be used to improve user satisfaction and engagement by creating spaces that are more aligned with the needs and preferences of library users (Chukwu & Eze, 2020). Finally, the study has broader implications for policy and practice in the Nigerian library sector, offering recommendations for how library spaces can be designed to support educational goals, foster digital literacy, and serve as community hubs.

By focusing on the perceptions of librarians, this study recognizes the importance of their expertise and experiences in shaping the future of library design in Nigeria. As libraries continue to evolve in response to technological and societal changes, the active involvement of librarians in space planning is crucial for ensuring that libraries remain vibrant and relevant spaces for learning and community engagement. A systematic review of their perceptions can provide a roadmap for future improvements in library design, ensuring that Nigerian libraries are equipped to meet the challenges of the digital age while maintaining their role as centers of knowledge and culture.

The planning and design of library spaces in Nigeria are pivotal to the success of libraries in fulfilling their educational and community roles. As librarians navigate the challenges of limited resources and evolving user expectations, their perceptions of space design play a critical role in shaping the library environments of the future. This systematic review seeks to provide a comprehensive understanding of how Nigerian librarians perceive their role in planning and designing library spaces, offering insights that can inform policy, practice, and future research in the field. By synthesising recent studies and highlighting the importance of user-centered design and spatial literacy, the review aims to contribute to the ongoing efforts to enhance library spaces in Nigeria, ensuring that they remain accessible, adaptable, and welcoming for all users.

Statement of the Problem

The effective design and planning of library spaces are critical to ensuring that libraries remain relevant and user-centered in today ' s rapidly changing educational landscape. In Nigeria, libraries face numerous challenges, including outdated facilities, limited resources, and evolving user expectations, which require a reimagining of library spaces to align with contemporary needs. Despite the central role of librarians in managing and adapting these spaces, their perceptions and insights into spatial planning often remain underexplored. This oversight limits the ability to harness their firsthand knowledge of user behavior, community needs, and best practices in creating functional and inclusive library environments.

Many Nigerian libraries struggle with insufficient funding, which constrains their ability to renovate or modernise facilities, resulting in spaces that are ill-suited to the demands of digital learning and collaborative work (Olowo, 2021). At the same time, a lack of formal training in spatial design for librarians further hampers their capacity to influence space planning effectively. These challenges are compounded by regional disparities, with libraries in rural areas often facing greater infrastructural deficits compared to their urban counterparts. This inequality impacts access to quality library environments across the country.

Moreover, as user needs become increasingly diverse, ranging from traditional quiet reading zones to areas supporting group discussions and digital access understanding the role of librarians in adapting these spaces becomes more critical. Yet, there is a dearth of research that systematically reviews the perspectives of Nigerian librarians on space design, and how these perceptions shape the functionality and accessibility of library environments. Without a clear understanding of their viewpoints, efforts to improve library space design risk being misaligned with the actual needs and preferences of both users and librarians.

The problem, therefore, is a gap in understanding the perceptions of librarians towards the planning and designing of library spaces in Nigeria, and how these perceptions influence the creation of spaces that are adaptable, inclusive, and conducive to modern learning needs. Addressing this gap is essential for developing strategies that empower librarians to play a more active role in library design, thus ensuring that libraries can better serve their communities and remain relevant as centers of knowledge and engagement.

Objectives of the Study

The specific objectives of the study are to:

1. explore the perceptions of Nigerian librarians regarding the importance of space planning and design in libraries.
2. identify the key factors influencing the design decisions made by librarians in Nigerian libraries.
3. assess the challenges faced by Nigerian librarians in the planning and designing of library spaces.
4. evaluate the impact of professional training and spatial literacy on librarians' abilities to design user-friendly library environments.
5. recommend strategies for enhancing the role of librarians in library space planning and design in Nigeria.

Research Questions

The following research questions were addressed in this study:

1. How do Nigerian librarians perceive the importance of space planning and designing libraries?
2. What are the key factors that influence the design decisions made by librarians in Nigerian libraries?
3. What challenges do Nigerian librarians face in the planning and designing of library spaces?
4. How does professional training and spatial literacy impact the ability of librarians to design user-friendly library environments?
5. What strategies can enhance the role of librarians in library space planning and design in Nigeria?

Literature Review

Theoretical Framework Review

The theoretical framework for the study "Perception of Planning and Designing of Library Spaces by Librarians in Nigeria" examines the theories and models that inform the understanding of space planning, design principles, and the role of librarians in these processes. This framework situates the study within broader concepts of library space management, spatial design, user-centered design, and the organisational role of librarians in the Nigerian context.

User-Centered Design Theory

User-centered design (UCD) is a fundamental theory that informs how library spaces are planned and organized, prioritising the needs and behaviours of library users. The UCD emphasises designing spaces that align with the preferences and usage patterns of users, making libraries more accessible, functional, and welcoming. It has become a widely accepted approach in the design of library spaces, ensuring that both physical and digital elements cater to diverse user needs (Omoniyi, 2020). This theory is crucial in analysing how Nigerian librarians perceive and incorporate user needs into space planning, as their roles often involve understanding user behaviour and translating these insights into practical design decisions.

Environmental Psychology and Spatial Design

Environmental psychology focuses on the relationship between individuals and their physical environments, which is particularly relevant for library spaces where the design influences user behaviour and experiences. This theoretical

perspective provides insight into how spatial arrangements, furniture layout, and lighting impact the way library users interact with the space (Adefunke, 2022). By applying concepts from environmental psychology, the study can explore how Nigerian librarians' perceptions of space design affect their decisions in creating conducive environments for study and community engagement. The theory emphasises the importance of designing spaces that promote comfort, reduce stress, and enhance productivity among users.

Diffusion of Innovation Theory

The Diffusion of Innovation (DOI) theory, as developed by Rogers, provides a framework for understanding how new ideas and practices, such as innovative space planning and digital integration in libraries, are adopted. In the context of Nigerian libraries, DOI can help analyse how librarians perceive and adopt new approaches to library design and planning, particularly in adapting to digital advancements and modern learning needs (Chukwu & Eze, 2020). This theory is relevant because it highlights the factors that facilitate or hinder the adoption of new design practices among librarians, such as awareness, perceived benefits, and resource availability. Understanding these factors can shed light on the challenges faced by Nigerian librarians in modernizing library spaces.

Role Theory

Role theory examines how individuals perceive and enact the roles assigned to them within an organisation. For librarians, this includes their responsibilities as information managers, educators, and space planners. Role theory is useful in exploring how Nigerian librarians perceive their duties in the context of space planning and whether they feel adequately equipped and supported in these roles (Udo & Obong, 2023). This theory helps explain the variations in librarians' involvement in space design processes, influenced by factors such as organisational culture, training, and personal attitudes towards innovation. It also helps to understand how librarians balance traditional roles with newer responsibilities related to spatial design and user engagement.

Spatial Literacy and Knowledge Management

Spatial literacy, the ability to understand and interpret spatial environments, is increasingly recognised as a critical competency for librarians involved in space planning. It is linked to knowledge management, which focuses on how information is organised, accessed, and used within a library setting (Adedeji et al., 2021). Spatial literacy enables librarians to create environments that facilitate knowledge flow, ensuring that library resources are accessible and that spaces are conducive to learning and research. This theory underpins the study's exploration of how Nigerian librarians apply their understanding of spatial relationships to design library layouts that meet user needs.

African Context of Space Use and Community Engagement

The African context of community spaces, including libraries, is shaped by social and cultural factors that influence how spaces are utilised and valued. Libraries in Nigeria often serve as crucial community centers, offering resources and services that extend beyond traditional academic functions (Chinedu & Agbo, 2022). The design of library spaces must therefore reflect local cultural values and social dynamics, making this framework particularly relevant for understanding how Nigerian librarians perceive their role in creating spaces that support community

needs. This perspective emphasises the importance of designing libraries that are not only learning environments but also places for social interaction and community building.

The theories collectively provide a comprehensive lens through which analysis of the perceptions of librarians regarding space planning and design in Nigerian libraries can be done. User-centered design and environmental psychology offer insights into the principles guiding space design, focusing on user experiences and behaviours. Role theory and spatial literacy emphasise the competencies and organisational roles of librarians, exploring how their knowledge and perceptions shape space planning decisions. Diffusion of Innovation theory helps in understanding the adoption of new design practices, while the African context of space use underscores the importance of culturally relevant design strategies in the Nigerian setting. These theoretical perspectives guided the systematic review by providing criteria for evaluating how Nigerian librarians' perceptions align with best practices in space design, the challenges they encounter, and the strategies that can improve library spaces. They highlight the need for a deeper understanding of how librarians navigate their evolving roles, as well as how space design can better support the dual roles of libraries as both educational and community-oriented spaces.

Empirical Review

Library Space Planning and Design

Library space planning and design have evolved significantly in recent years to accommodate changing user needs, digital technologies, and new learning models. Research in this area has focused on how library spaces can be adapted to enhance user experiences, support collaborative learning, and provide flexible environments for diverse activities. In developing regions, such as Nigeria and similar countries, the emphasis has been on understanding how to overcome challenges like limited funding, outdated infrastructure, and the need for community engagement in the planning process.

In Nigeria, several studies have examined the current state of library spaces, highlighting the challenges and opportunities faced by librarians in designing user-friendly environments. Adefunke and Eze (2020) explored the perceptions of Nigerian librarians towards the design and renovation of academic library spaces. Their study found that while librarians recognise the importance of user-centered spaces, limited budgets and bureaucratic decision-making often hinder their ability to implement changes. The research emphasised the need for training in spatial design to enable librarians to better advocate for improvements in library layout and facilities. Similarly, Olumide and Agboola (2021) conducted a study focusing on the impact of physical space on user satisfaction in Nigerian public libraries. The research revealed that users highly value spaces that are well-lit, comfortable, and conducive to both individual and group study. However, many libraries in the study were found to have outdated designs that did not align with modern user preferences. The authors recommended incorporating more flexible spaces that can adapt to different activities, such as workshops, digital resource access, and quiet study.

In broader Sub-Saharan Africa, research on library space design has shown similar trends. A study by Chukwu and Nwankwo (2022) analysed space usage in

academic libraries across Ghana and Nigeria, focusing on how libraries are adapting to changes in learning behaviours and found that while librarians are aware of the shift towards more collaborative and digital learning environments, physical constraints, such as rigid shelving arrangements and inadequate electrical infrastructure, often limit the potential for redesign. The study highlighted the role of librarians in creatively using available space, suggesting that professional development programs should include modules on spatial planning and design. In another study, Adewale and Akinola (2019) examined the role of technology in transforming library spaces in Nigerian universities. The research emphasised the need for integrating digital workstations, e-learning zones, and multimedia rooms into library spaces to support the increasing demand for digital resources. However, the study also pointed out that the lack of digital infrastructure and funding remains a major barrier, making it difficult for many libraries to fully modernise their spaces. The study concluded that strategic partnerships with technology providers could help bridge this gap and enable more dynamic library environments.

Research from other African countries provides additional insights into library space planning in developing contexts. For instance, Karanja and Mwangi (2021) studied community libraries in Kenya, focusing on how these spaces serve as social hubs. They found that effective space design in community libraries goes beyond providing reading areas, encompassing spaces for community meetings, children's activities, and skill-building workshops. This multifunctional approach makes libraries more relevant to the community's daily life, especially in regions where access to public spaces is limited. Thus, the study recommended that librarians in similar contexts, such as Nigeria, consider adopting community-oriented design principles to increase user engagement and relevance. A similar study by Maganga and Tembo (2020) in Tanzania explored the role of library spaces in fostering digital literacy among rural populations. Their findings highlighted that, while rural libraries often lack the physical infrastructure seen in urban centers, they play a crucial role in offering digital training and access to online resources. The study emphasised the need for creating flexible learning spaces within libraries that can accommodate digital devices, emphasising the adaptability required in the design of spaces in low-resource settings.

Ndlovu and Maseko (2021) investigated user preferences in academic libraries and how librarians could incorporate these preferences into space planning and the study showed that students preferred libraries that provided a mix of quiet study zones, collaborative spaces, and areas equipped with digital resources. The findings suggested that librarians should actively seek user feedback during the design process to ensure that library spaces meet user expectations. This approach could be particularly beneficial in Nigeria, where aligning library design with user needs is crucial for increasing library usage.

In Nigeria, librarians play a critical role in the planning and design of library spaces, though they often face constraints such as limited influence over infrastructure decisions. A study by Udo and Obong (2023) examined how Nigerian librarians perceive their roles in the design process. The research highlighted that many librarians felt underprepared to contribute meaningfully to space planning due to a lack of formal training in spatial design. However, those who had received training or had opportunities for professional development were

more proactive in advocating for design changes that could improve user experiences.

Across Nigeria and other developing regions, common challenges in library space planning include limited budgets, outdated infrastructure, and the need for balancing traditional library functions with new demands for digital access and community engagement. Adebayo and Okoro (2020) analysed these challenges in a comparative study of libraries in Nigeria and Uganda. They found that libraries in both countries often face difficulties in securing funds for renovation and must rely on external grants or partnerships. The study suggested that, despite these challenges, libraries that actively involve users in the planning process tend to achieve more successful design outcomes, as this helps align the space with actual user needs. Recent studies emphasise the importance of flexibility in library space design, which allows libraries to adapt quickly to changing user demands and technological advancements. In a study by Oyeleke and Yusuf (2022), the authors explored the implementation of flexible design concepts in Nigerian university libraries. The study highlighted how incorporating movable furniture, modular workstations, and open-plan layouts allowed libraries to reconfigure spaces for different activities. This adaptability is especially important in developing regions where space constraints and resource limitations make it difficult to dedicate specific areas to single functions.

The empirical literature on library space planning and design in Nigeria and similar developing regions reveals a growing recognition of the need for user-centered, flexible, and community-oriented spaces. Despite facing challenges such as limited budgets and outdated infrastructure, Nigerian librarians are increasingly getting aware of the importance of adapting spaces to meet modern user needs. The reviewed studies underline the critical role of professional training, user engagement, and strategic partnerships in overcoming these barriers and enhancing the functionality of library environments.

Perception of Library Space Planning and Design by Librarians

Library space planning and design are crucial for creating environments that meet user needs and enhance learning experiences. In recent years, there has been growing interest in understanding how librarians perceive the planning and design of library spaces, particularly in developing regions like Nigeria. The perception of library space by librarians significantly influences design decisions and user experiences. Adefunke and Eze (2020), reported that Nigerian librarians expressed that effective space planning is essential for creating functional and welcoming library environments and highlighted that librarians view spaces not only as physical areas for book storage but as dynamic environments that facilitate learning and community engagement. The research further emphasised the importance of involving librarians in the design process, as their insights can lead to more user-centered spaces.

Librarians often face numerous challenges in the planning and design of library spaces. Olumide and Agboola (2021) conducted a study that identified common obstacles faced by librarians in Nigerian public libraries, including inadequate funding, outdated infrastructure, and limited awareness of modern design principles. The study revealed that many librarians feel their voices are not heard in the decision-making processes, resulting in spaces that do not align with user

needs. This finding highlights the necessity for empowering librarians to advocate for design improvements that reflect contemporary expectations. Professional development plays a critical role in shaping librarians' perceptions and competencies related to space planning and design. Udo and Obong (2023) examined how training programmes impact librarians' perceptions of their roles in library design. The study found that librarians who participated in professional development initiatives were more likely to embrace innovative design concepts and advocate for user-centered spaces. This underscores the need for targeted training programmes that equip librarians with the necessary skills to effectively plan and design library spaces.

User-centered design approaches are increasingly recognised as essential in library space planning. Chukwu and Nwankwo (2022) explored the application of user-centered design principles in Nigerian academic libraries and reported that librarians who actively seek user feedback during the design process tend to create more effective spaces. This research highlights the importance of understanding user preferences, such as the desire for collaborative spaces and access to technology, as librarians perceive these elements as integral to effective space design. Also, cultural context plays a significant role in shaping librarians' perceptions of library space design. A study by Adebayo and Okoro (2020) examined how cultural factors influence library space planning in Nigeria and the research found that librarians often consider local customs and practices when designing spaces, leading to a unique blend of traditional and modern design elements. This perspective is crucial in understanding how librarians perceive their roles in creating culturally relevant library environments that resonate with community values.

Research from other developing regions offers additional insights into librarians' perceptions of library space design. In Kenya, Karanja and Mwangi (2021) found that community librarians view their spaces as vital for social interaction and community engagement. Their study highlighted that librarians perceive their roles as facilitators of community development, which informs their design choices. Such perspectives can provide valuable lessons for Nigerian librarians, emphasizing the importance of creating spaces that foster community connections. Recent studies have also highlighted emerging trends in library design that influence librarians' perceptions. Adewale and Akinola (2019) discussed the integration of technology into library spaces and its impact on librarians' attitudes toward design. The study revealed that librarians perceive technology as a key driver of change in library design, prompting them to rethink traditional layouts and embrace more flexible, adaptable spaces. This trend reflects a broader shift towards creating environments that support digital learning and collaborative work.

The empirical literature indicates that librarians in Nigeria and similar developing regions have a multifaceted understanding of library space planning and design. Their perceptions are shaped by various factors, including professional development, cultural context, and emerging trends in technology. However, challenges such as inadequate funding and limited involvement in decision-making processes continue to hinder effective space planning. To enhance library spaces, it is crucial to empower librarians through training and to incorporate user feedback in the design process. By understanding librarians ' perceptions,

stakeholders can better support the creation of spaces that meet the evolving needs of users and communities.

Research Methodology

The study employs a systematic review methodology to analyse the perceptions of librarians regarding library space planning and design. This approach allows for the aggregation and synthesis of existing empirical research, providing a comprehensive overview of the topic. Data were collected from various academic databases and digital repositories, including; Google Scholar, ERIC (Education Resources Information Center), Web of Science and African Journals Online (AJOL). The inclusion criteria focus on only peer-reviewed articles, theses, and conference papers published from 2019 to date that specifically address librarians' perceptions of library space planning and design. A comprehensive literature search was conducted using a combination of keywords and phrases such as "library space planning," "librarians' perceptions," "library design in Nigeria," and "user-centered library design." Boolean operators was utilised to refine search results. Only studies that focus on Perceptions of librarians regarding space planning and design and Contexts relevant to Nigeria or similar developing regions which adopted empirical research methodologies (qualitative, quantitative, or mixed methods) were included in the study. Non-peer-reviewed articles, opinion pieces, and studies not directly addressing librarians' perceptions were excluded.

The initial search results were screened based on titles and abstracts. Relevant studies undergone full-text review to ensure they meet the inclusion criteria. Key data that were extracted from selected studies, include; authors and publication year, study context (geographic location, type of library), methodology employed and findings related to librarians' perceptions of space planning and design. To ensure quality assurance each selected study was assessed for quality using standardised appraisal tools relevant to the study's methodology (e.g., the Critical Appraisal Skills Programme (CASP) checklist for qualitative studies). Data Analysis for the study revolves around thematic analysis to identify recurring themes and patterns in librarians' perceptions. The findings were synthesised to present a comprehensive overview of the current state of knowledge regarding librarians' perceptions of library space planning and design in Nigeria and similar regions. The results were reported following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines to ensure transparency and rigour in the systematic review process.

Key Themes in the Perception of Library Space Planning and Design by Librarians in Nigeria

The perception of library space planning and design by librarians in Nigeria reveals several key themes that reflect their experiences, challenges, and aspirations such as user-centred design, challenges in space planning, professional development and training, cultural considerations, technology integration and community engagement.

User-Centered Design

A predominant theme is the emphasis on user-centered design in library spaces. Librarians recognise that spaces must cater to diverse user needs, facilitating various activities such as study, collaboration, and technology access. Chukwu

and Nwankwo (2022) emphasise that involving users in the planning process leads to spaces that are more aligned with their expectations, ultimately enhancing satisfaction and engagement.

Challenges in Space Planning

Librarians often face significant challenges in space planning, including limited budgets, outdated infrastructure, and insufficient involvement in decision-making. Olumide and Agboola (2021) highlight that these barriers hinder librarians' ability to implement effective design changes. The lack of funding for renovations and technology upgrades further exacerbates the situation, making it difficult for libraries to adapt to modern educational demands.

Professional Development and Training

The theme of professional development emerges as crucial for equipping librarians with the skills necessary for effective space planning. Udo and Obong (2023) found that librarians who participated in training programs felt more confident in advocating for innovative design solutions. Training in spatial design and user engagement techniques can empower librarians to take a more active role in the planning process, thereby improving library environments.

Cultural Considerations

Cultural context significantly influences librarians' perceptions of space planning. Adebayo and Okoro (2020) indicate that librarians often incorporate local customs and community needs into their design considerations, resulting in spaces that resonate culturally. This approach not only enhances the relevance of library spaces but also fosters a sense of ownership among users.

Technology Integration

With the increasing reliance on digital resources, technology integration has become a critical theme in library space design. Adewale and Akinola (2019) note that librarians perceive technology as a key driver of change, prompting them to rethink traditional layouts. The need for flexible spaces that accommodate various technologies is essential for supporting modern learning environments.

Community Engagement

Finally, community engagement is vital in shaping librarians' perceptions of space planning. Research by Karanja and Mwangi (2021) illustrates how community librarians view their spaces as social hubs that foster interaction and development. This perspective encourages librarians in Nigeria to design spaces that facilitate community activities and learning opportunities, thus reinforcing the library's role as a vital community resource.

The perception of library space planning and design by librarians in Nigeria is characterised by a complex interplay of user needs, cultural influences, professional development, and community engagement. As librarians navigate the challenges of inadequate resources and evolving technological demands, the emphasis on user-centered design and flexible spaces becomes increasingly important. Addressing these key themes can lead to more effective library environments that truly serve the needs of their communities.

Common Patterns and Differences in Librarians' Perceptions of Library Space Planning and Design in Nigeria

The perception of library space planning and design by librarians is a vital area of study that impacts how libraries serve their communities. This section examines the common patterns and differences identified across various empirical studies, particularly those focused on Nigeria and similar African contexts.

Common Patterns in Perceptions

User-Centered Approach

A significant pattern emerging from the literature is the advocacy for a user-centered approach to library space design. Many librarians emphasise the importance of creating spaces that cater to the diverse needs of their users. For instance, Chukwu and Nwankwo (2022) note that librarians in Nigerian academic libraries prioritise feedback from users when planning spaces, underscoring a collective desire to enhance user experience. This sentiment aligns with global trends where librarians increasingly recognise their roles as facilitators of learning and community engagement.

Challenges in Implementation

Librarians across studies commonly report facing similar challenges in implementing effective space planning. Adefunke and Eze (2020) highlight issues such as limited funding and inadequate infrastructure in Nigerian libraries, which resonate with findings in other developing regions. Olumide and Agboola (2021) further elaborate that these challenges hinder librarians' abilities to adapt spaces to contemporary needs, indicating a widespread concern among librarians about the barriers to effective design.

Integration of Technology

The integration of technology into library spaces is another recurring theme. Adewale and Akinola (2019) found that Nigerian librarians perceive technology as essential for modern library services. This perception reflects a broader acknowledgment of the need for flexible, technology-enhanced environments that support digital learning and access to information.

Cultural Relevance

Cultural factors play a crucial role in shaping librarians' perceptions. Adebayo and Okoro (2020) highlight that Nigerian librarians often consider local customs and traditions when planning library spaces. This culturally responsive approach contrasts with more Western-centric design models, suggesting that librarians are keen to create environments that resonate with their communities.

Differences in Perceptions

Variability by Library Type

Differences in perceptions are notably influenced by the type of library in question. Academic librarians, as highlighted by Chukwu and Nwankwo (2022), often focus on collaborative learning environments to support student engagement, whereas public librarians may emphasise community gathering spaces that foster social interaction (Karanja & Mwangi, 2021). This divergence illustrates how the context of the library shapes librarians' priorities in space design.

Professional Development Impact
The impact of professional development on librarians' perceptions is also a point of divergence. Udo and Obong (2023) found that librarians who had undergone formal training in design principles were more likely to advocate for innovative space solutions than those without such training. This suggests that continuing education and professional development play a significant role in shaping how librarians perceive their responsibilities in space planning.

Geographic Influences
Geographic context further differentiates perceptions. While Nigerian librarians express a strong desire for user-centered design, findings from librarians in other African countries, such as Kenya, indicate a broader focus on community empowerment and social responsibility in library spaces (Karanja & Mwangi, 2021). This variance suggests that local socio-political contexts influence librarians' priorities and perceptions. The perceptions of librarians regarding space planning and design reveal both common patterns and significant differences. While there is a shared emphasis on user-centered design and the challenges faced in implementation, variations exist based on library type, professional development, and geographic context. Understanding these dynamics is crucial for stakeholders aiming to enhance library spaces in Nigeria and beyond, ensuring that they meet the evolving needs of their communities.

Analysis of Findings in Relation to Existing Literature and Theories
The findings from the studies on librarians' perceptions of space planning and design align with existing literature in several key areas while also presenting noteworthy differences.

Alignment with Existing Literature
User-Centered Design: The emphasis on user-centered design is consistent with global trends observed in library studies. Existing literature highlights the shift towards creating spaces that prioritise user needs, reflecting a broader understanding of libraries as community hubs (Sullivan, 2020). This alignment suggests that librarians in Nigeria are part of a worldwide movement towards more inclusive and responsive library environments.

Challenges in Implementation: The challenges faced by librarians in Nigeria, such as funding constraints and inadequate infrastructure, echo findings in other developing regions. For instance, studies from South Africa and Kenya also report similar barriers impacting library services (Smith & Mavimbela, 2021). This similarity underscores a common experience among librarians in the Global South, indicating systemic issues that transcend national borders.

Integration of Technology: The perception of technology as a vital component of modern library design aligns with contemporary theories of information access and digital literacy. The findings reflect the increasing necessity for libraries to adapt to technological advancements, a theme prevalent in literature on library evolution (Jain, 2019).

Differences from Existing Literature
Cultural Context: While the importance of cultural relevance in library design has been discussed in the literature, the findings from Nigerian studies emphasise

a deeper integration of local customs into space planning. This contrasts with more generalised approaches seen in Western contexts, suggesting that Nigerian librarians may adopt unique strategies that reflect local identity and community values (Adebayo & Okoro, 2020).

Variability by Library Type: The divergence in perceptions based on library type highlights a distinction not always captured in broader literature. While many studies address general perceptions, the specificity of context in Nigeria shows how the role of the librarian can significantly shape priorities in space design, which may not be as pronounced in studies focusing on a single library type or context (Karanja & Mwangi, 2021).

Impact of Professional Development: The findings suggest a notable impact of professional development on librarians' perceptions, indicating that those with training are more likely to advocate for innovative space designs. While professional development is acknowledged in the literature, the direct correlation observed in Nigerian contexts may warrant further exploration, as it reveals potential avenues for enhancing librarians' roles in space planning (Udo & Obong, 2023).

Overall, the findings from the empirical studies reflect a blend of alignment with existing literature and distinct differences shaped by local contexts. The recognition of user-centered design, the challenges of implementation, and the role of technology underscore a shared global perspective among librarians. However, the unique cultural considerations, variability by library type, and the importance of professional development highlight the specific needs and experiences of librarians in Nigeria, suggesting areas for future research and practice.

Strategies for Improving Library Space Design in Nigeria

User Feedback Integration: Regularly collecting and analysing user feedback can inform design decisions, ensuring spaces meet community needs.

Training and Professional Development: Investing in training programs for librarians on modern design principles and technology integration can enhance their ability to advocate for innovative spaces.

Cultural Considerations: Incorporating local customs and practices into design can create more relatable and welcoming environments.

Flexible Spaces: Designing adaptable spaces that can accommodate various activities (study, collaboration, events) can maximise usability.

Collaborative Planning: Engaging librarians in the planning process encourages a more holistic approach, combining professional expertise with community needs.

Conclusion and Summary

The study on the perception of library space planning and design by librarians in Nigeria reveals essential insights that can inform future practices and enhancements in library environments. Key findings include:

1. Emphasis on User-Centered Design: Librarians prioritise creating spaces that cater to the diverse needs of users, reflecting a global shift towards user-focused library services.

2. Challenges in Implementation: Common obstacles such as limited funding and inadequate infrastructure hinder effective space planning, a concern shared with other developing regions.
3. Integration of Technology: There is a strong perception of technology as essential for modern library services, necessitating flexible, tech-friendly spaces.
4. Cultural Relevance: Nigerian librarians actively incorporate local customs and practices into their design strategies, creating culturally responsive environments.
5. Variability Based on Library Type: Different types of libraries (academic vs. public) exhibit distinct priorities in space planning, influenced by their specific user demographics and community roles.
6. Impact of Professional Development: Ongoing training and education for librarians significantly shape their perceptions and advocacy for innovative space solutions.

Recommendations

Based on the findings of this study, the following recommendations are suggested to enhance library space planning and design in Nigeria:

1. Libraries should establish regular feedback mechanisms, such as surveys and focus groups, to understand user needs better. This engagement will ensure spaces are designed to serve the community effectively.
2. Libraries must prioritise ongoing training programmes for librarians on contemporary design principles and technology integration. Such training can empower librarians to champion innovative and functional spaces.
3. Libraries should adopt flexible space designs that can accommodate various activities, such as collaborative work, quiet study, and community events. This adaptability will maximise the usability of library spaces.
4. Library planners should incorporate local customs and cultural practices into design plans, creating spaces that resonate with the community and foster a sense of belonging.
5. Libraries should actively seek partnerships and funding opportunities to improve infrastructure and resources. Collaborating with government and private entities can address the challenges of limited funding.
6. Libraries should explore the latest technological advancements and integrate them into their design plans, ensuring that spaces are equipped to support digital learning and information access.

References

Adebayo, T., & Okoro, M. (2020). Challenges in library space planning in Nigeria and Uganda: A comparative study. *Journal of African Library Science*, 13(3), 210-225.

Adedeji, A. O., Adefunke, T. A., & Eze, O. I. (2021). User-centered library design in Nigeria: Librarians' perspectives and challenges. *Journal of Library and Information Science*, 12(4), 245-258.

Adefunke, T. O. (2022). Spatial design and user satisfaction in Nigerian academic libraries. *African Journal of Library and Information Science,* 20(1), 75-89.

Adefunke, T. O., & Eze, O. I. (2020). Librarians' perceptions of effective library design in Nigeria. *International Journal of Library and Information Studies,* 10(3), 101-113.

Adefunke, T. O., & Eze, O. I. (2020). Perspectives on academic library design in Nigeria. *Journal of Library and Information Science*, 14(1), 56-70.

Adewale, M., & Akinola, S. (2019). Technology and space planning in Nigerian libraries. *Library Trends in Africa,* 10(2), 145-160.

Adewale, M., & Akinola, S. (2019). Technology integration and space planning in Nigerian university libraries. *Library Trends in Africa*, 10(2), 145-160.

Adeyemi, K. B. (2023). Inclusive design practices in Nigerian libraries: A focus on accessibility and community engagement. *African Journal of Library, Archives, and Information Science,* 32(1), 85-97.

Akande, J. O. (2020). Rethinking library spaces in Nigerian universities: Balancing digital and traditional resources. *International Journal of Library and Information Studies,* 10(2), 128-140.

Ayeni, A. O., & Olawuyi, J. S. (2021). Evolving roles of academic libraries in Nigeria: Implications for space planning. *Library Trends in Africa*, 18(3), 301-315.

Chinedu, A., & Agbo, P. (2022). Libraries as community spaces: A Nigerian perspective on design and usage. *International Journal of Library and Information Studies,* 11(3), 110-124.

Chukwu, C. E., & Eze, P. M. (2020). Innovation adoption in library services: A study of Nigerian academic libraries. *Library Trends in Africa*, 15(2), 179-193.

Chukwu, C., & Nwankwo, R. (2022). Space usage in academic libraries: A study of Ghana and Nigeria. *African Journal of Academic Libraries,* 15(4), 102-119.

Chukwu, C., & Nwankwo, R. (2022). User-centered design in Nigerian academic libraries: Librarians' perspectives. *African Journal of Library Science*, 15(4), 102-119.

Jain, P. (2019). Digital transformation in libraries: Theoretical implications. *Library Management,* 40(3), 140-152.

Karanja, S., & Mwangi, J. (2021). Community librarianship and social spaces in Kenya: Perceptions and practices. *Journal of East African Library Studies*, 9(3), 180-195.

Maganga, P., & Tembo, K. (2020). Digital literacy and space planning in rural Tanzanian libraries. *African Journal of Digital Learning,* 7(2), 88-100.

Ndlovu, K., & Maseko, S. (2021). User-centered design in South African academic libraries. *International Journal of Library and Information Services*, 11(3), 78-91.

Olumide, J. K., & Agboola, A. (2021). Challenges in library space planning: Perspectives from Nigerian public libraries. *Journal of Nigerian Library and Information Science*, 18(2), 132-150.

Omoniyi, A. A. (2020). Redefining library spaces through user-centered design: Perspectives from Nigerian librarians. *International Journal of Academic Libraries,* 8(2), 58-70.

Oyeleke, A., & Yusuf, O. (2022). Flexible design concepts in Nigerian university libraries. *International Journal of Academic Library Design,* 5(1), 67-82.

Smith, P. & Mavimbela, S. (2021). Challenges facing libraries in the Global South: A comparative analysis. *International Journal of Information Management*, 57, 102-110.

Sullivan, M. (2020). The evolving role of libraries in community engagement: A global perspective. *Library Trends*, 68(4), 465-484.

Udo, E. A., & Obong, I. B. (2023). Role perception and professional development of librarians in Nigeria: Implications for space planning. *Journal of Nigerian Library Science,* 14(1), 102-117.

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Awareness and Utilisation of ICT Tools for Community Development in Oyo State, Nigeria

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Abstract
The study aimed at investigating the awareness and utilisation of ICT tools for promoting community development in Oyo state, Nigeria. The study employed descriptive survey design and muti-stage as well as purposive sampling techniques. The questionnaire with reasonable reliability coefficient was used to obtain information from the respondents. Descriptive statistical tools comprised simple percentages, mean and standard deviation were used to analyse the obtained data. The Technology Acceptance Model (TAM) was the framework adopted in the study. The empirical finding revealed that that there was an awareness of ICT tools among the community development officer and that majority of community development officer are familiar and use ICT tools especially WhatsApp, Facebook, X, Telegram among others for disseminating information. The findings also revealed that more than half 66.7% of the respondents agreed that they are familiar and use digital technology for community development. In addition, the study found that there were challenges associated with utilisation of ICT among the community development officer which ranges from lack of electricity, poor accessibility, inadequate telecommunication infrastructure to insufficient financial resources for technology integration. The study concluded that there is high awareness level of ICT tools usage among community development officer in Oyo State, but, the utitilisation level is low.

Keywords: *Awareness, ICT tool, Utilisation, Community Development, Nigeria.*

Introduction
Digital technologies are powerful tools that drive societal transformation by empowering, enlightening, and enriching people. They foster continuous, lifelong learning, promote innovation, and build core competencies and competitive intelligence globally, thereby contributing to sustainable development. Fajimi (2020) explains that digital technologies have revolutionized community development practices and transformed communities with the advent of the internet and low-cost information and communication technology. This underscores the need to retool community development practices in Nigeria, as technology plays a crucial role in every facet of the economy and work. In today's world, technology is useful in every facet of the economy and work. Information in this age comes in multiple formats such that they help to understand or interpret certain information (Robinson, 2020). Digital technologies are increasingly prevalent in developing world and as such are being used in variety of ways to promote developmental efforts. Community development involves residents coming together to identify and address their needs, pooling resources to improve their community (Issa, 2001; Osu, 2019). ICT tools can significantly enhance this process by facilitating communication and resource coordination. Although ICT has enormous potential to enhance community well-being, there are relatively few examples of sustained community networks built around ICT, particularly in

developing countries like Nigeria. This study addresses the gap by exploring the awareness and utilisation of ICT tools in Oyo State Nigeria.

Technology has been increasingly available for up to two decades (Abiona & Osu, 2020). Early work in the field has had mixed success (O'Neal 2001), and whilst the lack of external funding for equipment can be a barrier to success, provision in itself is no guarantee of successful adoption in community (Harris 2001; Byrne and Wood-Harper 2000). Community development has recently seen a shift in approach worldwide, hence, it is expected of the people living in the various communities that they will pool their resources together and channel them toward the communities' overall growth.

Community development is a process that requires expertise, and one component of its methodology is the belief that communities cannot be assisted unless they themselves agree to the process, which is referred to as community mobilisation. In other words, communities cannot be helped unless they are mobilized. This is a process in which community action, either internally or externally promoted, is planned, carried out, and assessed by the community's individuals, groups, and organizations on a participatory and consistent basis to improve health, hygiene, and education level as well as better overall living conditions in the community. Julius Nyerere (2019). According to Kim Braun and Ukaegbu (2020), community development projects are evaluated based on the degree to which they are anticipated to contribute to an improvement in the quality of life for a specific population. Participation from members of the community is required at every stage of the implementation of activities geared toward community development. People in the community have had both explicit and implicit goals for community development throughout the course of history, with the overarching goal being to achieve, through concerted effort, a better life for themselves and future generation (Egenti, 2020).

Information and communication Technology (ICT) becomes a catalyst for social transformation in any successful community development. The function of digital technology in community development is to offer people aside the wider ecosystem power and a voice (Quadri, 2012). Information Communication Technology (ICT) and supporting technologies have a substantial impact on the socioeconomic development in various regions of the world (Sein, Thapa, Hatakka & Saeb, 2018; Alasa & Quadri, 2022). In today's world, ICT plays a vital role in improving people's lives. Even though technology has transformed every aspect of our lives, significant gaps remain. The importance of technology in promoting growth is demonstrated by straightforward solutions like informing the citizenry via the Internet-connected gadgets. The accomplishment of these ideas will be increased when they are replicated with residents' active participation. It enhances quality of life when combined with developmental therapy. Hence, charitable organisations, government agencies and civic organizations must integrate technology into their developmental efforts.

Oloruntoyin and Adeyanju (2013) reported that over the past decade, new applications of ICT enhance service delivery, information dissemination as well as public access in Nigeria’s development. This was also supported by Quadri and Quadri (2015) who reported that application ICT into services especially in the library will improve routine of professional librarian. ICT comprises a diverse set of technological tools (Blurton, 2004). Although stronger economic growth is

strongly tied to higher internet penetration, it has the potential to boost our economic status in the global economy (Ren, Conglin Huang, Ying Liu, & Jingjing Ren, 2017). Disruptive innovation technologies are crucial for addressing community needs in sectors such as healthcare and education. Therefore, it is critical to create technologies that solve community challenges in an acceptable way. By incorporating regular feedbacks from these technologies, disruptive ones can be designed for maximum acceptance. It is crucial that stakeholders in any educational system identify the need to incorporate technology into their practices.

Opportunities offered by technology that are both affordable and scalable may be swiftly expanded up across the country. India might be converted into a knowledge sanctuary by introducing new concepts that give people academic and active learning experiences. It is also possible for community development experts or agents to assist with the day-to-day activities of a community by using digital technology. Collaboration is the key to repurposing existing technology and utilizing it more effectively. The term ICT encompasses a wide range of communication devices, including radio, television, cell phones, computers, networks, satellite systems and so on, as well as all the services and applications related to them, such as video-conferencing, Zoom, and webinars (Abiona & Osu, 2016). ICT technologies are used by skilled professionals like community development officers. Community development is a multifaceted process that is defined as a practice-based profession and academic subject concerned with the organisation, education, and empowerment of individuals in their communities (International Association for Community Development, n.d.). In other words, community development is the process through which individuals aim to improve a given issue in their communities (Gallardo, 2016).

Ugochukwu (2010) suggests that community development is a restructuring mechanism with economic and social goals that is set to provide rural people with what they need and encourage them to participate in development. This includes a variety of multi-sectoral initiatives, such as improving agriculture, promoting industries, developing infrastructure and social services, and establishing a decentralised framework to involve the people. One of the most fascinating advancements of the twenty-first century is the acceptance and use of digital technology tools for community development practice delivery. Literature shows the belief that the new technologies have the potentials to promote community development practices (Fu, 2013). It is against this background; this study examines digital technologies in community development practice prospects and challenges in Ibadan.

Statement of the problem

The advent of ICT tools has transformed the landscape of community development globally. However, many communities in Oyo State, Nigeria, remain unaware of the potential benefits of ICT tools, hindering their ability to leverage these tools for sustainable development. Furthermore, even when awareness exists, use of ICT tools remains a significant challenge. Limited infrastructure, high costs, and inadequate digital literacy skills restrict the ability of community members to effectively utilize ICT tools. This exacerbates the digital divide, leaving communities in Oyo State lagging behind in terms of development. The ineffective utilisation of ICT tools for community development in Oyo State, Nigeria, necessitates an investigation into the factors influencing awareness and utilization. By exploring these factors, researchers can identify

strategies to enhance the adoption and effective use of ICT tools, ultimately driving sustainable development, improving quality of life, and bridging the digital divide in Oyo State, Nigeria.

Objective of the study

The main objective of the study is to investigate awareness and utilisation of ICT tools for community development in Oyo State, Nigeria while the specific objectives are to:

i. find out the level of awareness on ICT usage for community development in Oyo State, Nigeria;
ii. find out accessibility of ICT tool for community development in Oyo State, Nigeria;
iii. identify the problems affecting the use of ICT for community development in Oyo State, Nigeria.

Research questions

The following research question were answered in the study:

i. What is the level of awareness of community developments officers to the use ICT in promoting community development in in Oyo State, Nigeria?
ii. What is the level of ICT tools used in the practice of community development by community development officers in in Oyo State, Nigeria?
iii. What are the problems associated with the use of ICT for community development practices in in Oyo State, Nigeria?

Theoretical Framework

The present study is anchored with Technology Acceptance Model (TAM) founded by Davis, Bagozzi and Warshaw (1989). The theory is mainly useful in describing, predicting as well as explaining individual behaviour toward technology use. The TAM was mainly developed to understand the factors affecting technology acceptance and use in an institution/organisation (Ramayah 2006). Many researchers have used TAM to explain acceptance/intention of individuals to use diversity of technologies. TAM affirms that individual behavioural intention can determine technology use. The TAM posits that perceived ease of use and perceived usefulness as constructs influences individual's attitude towards behavioural intention to use information technology. The TAM theory is related to the present study by explaining community development officer intension to easily used technological tools effectively to promote or develop community. The theory is commonly used in technological environment. Hence, making it a suitable framework for the present study.

Research Methodology

The research design for the study is survey design. According to Nworgu (2006), survey design is employed in a study to collect data based on the opinions of the representative sample of the population or sometimes from the entire population. Hence, the descriptive survey design was adopted for this study as opinions of the subjects would be sought. The population for the present study comprised all one hundred (100) community development officers in Oyo State, Nigeria. There are thirty-three (33) local government in Oyo State from which six were randomly selected for this study viz: Ibadan North, Akinyele, Ibadan South East, Ibadan South West, Orelope and Itesiwaju local government. Also, the accidental sampling technique was used in selecting community development officer in the

selected local government area in Oyo government area Oyo State. Accidental sampling technique means that the researchers administered the instruments to only the community development officers that are able to reach in the process of data collection.

The study made use of questionnaire to gather information from the respondent. The questionnaire tagged " Awareness and Utilisation of ICT Tools for Community Development (AAUITCD) in Oyo State, Nigeria"**.** The questionnaire comprises 3 sections ' A, B and C. Section ' A ' contained information on the awareness of ICT tools for community development, section ' B ' contained information on the level of ICT tools utilisation for community development and Section 'C': contained information on challenges to the use of ICT in community development. The instrument undergone content and face validity. The reliability of instrument was established with the aid of Cronbach Alpha which yielded 0.70 reliability coefficients. Copies of questionnaire were administered personally with the help of three trained research assistant. The administration of the questionnaires took about four weeks. The demographic variables and research questions were analysed, using frequency counts and simple percentage, mean and standard deviation.

Presentation and Interpretation of Results
The results are presented using the research questions.

Research question 1: What is the level of awareness of community developments officers to the use ICT in promoting community development in Oyo State?

Table 1: Level of ICT tools awareness and used by community development officers in Oyo State, Nigeria

S/N	ICT Tools	SA	A	D	SD
1	WhatsApp is a device for sharing information	42 63.6%	21 31.8%	34 35.1%	0 0.0%
2	With the use of projector/slides, community development practice would be promoted	34 4 35.1 %	36 54.5%	23 34.8%	4 6.1%
3	Video is used to facilitate learning in community development practice	30 45.5%	9 13.6%	5%	20 30.3%
4	Facebook has a wider coverage in community development practice	38 57.6%	0 0.0%	13 19.7%	15 22.7%
5	Telegram is very simple to operate and disseminate information in community development practice	40 60.6%	10 15.2%	12 18.2%	35 36.0%
6	X is a type of ICT tool for community development information	41 62.1%	35 36.0%	3 4.5%	22 33.4%
7	Video conferencing/teleconferencing can be used for teaching in community development	48 72.7%	0 0.0%	2 3.0%	16 24.3%
8	Interactive whiteboard can be used in teaching	38 57.6%	0 0.0%	3 4.5%	25 37.9%
	Weighted Mean 3.52				

Note: Agree and Strongly Agree are aggregated to be Agree, while Strongly

Disagree and Disagree are Disagree.

Table 1 indicated that 63(95.4%) agreed that WhatsApp is a platform for sharing information whereas 34(35.1%) disagreed. Other ICT tools used by the respondents for sharing information and promoting community development officers in Oyo State are project/slides, Facebook, Telegram, X, video/audio conferencing and interactive whiteboard. It is obvious that the analysis above reflected that the community development officers are aware of ICT tools and also used the tools to promote and develop community in Oyo State, Nigeria. The results further revealed a high level of awareness of ICT tools for community development by community development officers in Oyo State, Nigeria since the weighted mean of 3.52 is greater than the criterion mean of 2.50 set as benchmark for high level of awareness of ICTs tools.

Research question 2: What is the level of ICT tools utilisation for community development by community development officers in Oyo State, Nigeria?

Table 2: Level of ICT tools utilisation for community development by community development officers in Oyo State, Nigeria

S/N	ICT Tools Use	SA	A	D	SD
1	I am familiar with digital technology being used for community development	44 66.7%	0 0.0%	8 12.1%	14 21.2%
2.	I use technology routinely without much consciousness	38 57.6%	1 1.5%	20 33.3%	7 10.6%
3.	I use technology such as WhatsApp, Facebook on regular basis for community development practice	38 57.6%	0 0.0%	3 4.5%	25 37.9%
4.	I aspire to acquire more knowledge about the use of technology for teaching community development	1 1.5%	19 28.8%	28 42.4%	18 27.3%
6.	I do not know how to use ICT for teaching in community development.	0 0.0%	38 57.6%	12 18.2%	16 24.2%
6.	I am capable of using ICT tools for community development practice	0 0.0%	18 27.2%	24 36.4%	24 36.4%
7.	I rarely go on Facebook to seek knowledge	0 0.0%	24 36.4%	27 40.9%	15 22.7%
7.	I stay online for about 6 hours per day	1 1.5%	29 44.0%	2 3.0%	34 51.5%
9.	I can access Facebook easily with my android phone	0 0.0%	36 54.5%	4 6.1%	26 39.4%
Weighted mean 3.58					

Note: Agree and Strongly Agree are aggregated to be Agree, while Strongly Disagree and Disagree are Disagree.

Table 2 narrates ICT tool utilisation for community development. more than half 44(66.7%) of the respondents agreed that they are familiar and use digital technology for community development, 39(59.1%) agreed that technology is used for routine without much consciousness. While 38(57.6%) attested that they do not know how to use ICT for teaching in community development. However, large proportion 48(72.8%) of the respondents disagreed on not capable of using ICT tools for community development practices, closely followed 42(63.6%) by those who disagree that they rarely use Facebook. It is evidence in table 2 that the community development officers are actually aware of the ICT tools and the utilisation by community development officer was actually high going by the weighted mean of 3.58 which is actually greater than the criterion mean of 2.50 set as benchmark for high level of ICT tools utilisation.

Research question three: Are there problems associated with the use of ICT utilisation for community development practices in Oyo State?

Table 3: Challenges associated with the use of ICT utilisation for community development practices in Oyo State

S/N	**Challenges**	SA	A	D	SD
1	Lack of information on new technologies	2 3.0%	28 42.4%	18 27.3%	18 27.3%
2	Inadequate telecommunications infrastructure	35 53.0%	2 3.0%	21 31.9%	8 12.1%
3	Inadequate access to electricity or frequent power shortages	44 66.6%	1 1.5%	10 15.2%	11 16.7%
4	Insufficient financial resources for technology integration	46 69.7%	0 0.0%	3 4.5%	17 25.8%
5	Poor technical and physical infrastructure for teaching	44 66.7%	0 0.0%	2 3.0%	20 30.3%
6	Problem of accessibility	48 72.0%	4 6.0%	2 .0%	16 24.2%
Weighted Mean 3.41					

Note: Agree and Strongly Agree are aggregated to be Agree, while Strongly Disagree and Disagree are Disagree.

Table 3 presented challenges encountered in ICT usage for community development by community development officer in Oyo State, Nigeria. Large number of the respondents 52(78.0%) affirmed that they were faced with the problem of accessibility, followed by insufficient financial resources for technology integration with 46(69.7%). Other challenges were poor technical

infrastructure for teaching, inadequate access to electricity and so on. While 36(54.6%) disagreed that they were face with lack of information on new technology. This implies that it is clear from the above analysis that there are myriads of challenges hindering ICT tools use for promoting community development in Oyo State. The implication to be drawn from the result is that, inadequate telecommunications infrastructure, inadequate access to electricity or frequent power shortages, insufficient financial resources for technology integration, poor technical and physical infrastructure for teaching and problem of accessibility are major barriers to ICT tools usage for community development in Oyo State, Nigeria.

Discussion of findings

The findings from research question one on awareness of ICT tools among the community development officer revealed that 63(95.4%) agreed that WhatsApp is a platform for sharing information whereas 34(35.1%) disagreed. Other ICT tools used by the respondents for sharing information and promoting community development officers in Oyo State are project/slides, Facebook, Telegram, X, video/audio conferencing and interactive whiteboard. This result is in agreement with Osu (2021) who reported that community development officers are mainly aware of various ICTs like WhatsApp, Facebook, projector/slides and video forums. In addition, Selwyn (2009) affirms that respondents in the United Kingdom are ware of ICTs tools such Facebook, X, Google+ and meet for community development.

Findings from research question two sought ICT tools utilisation for community development and found that more than half 44(66.7%) of the respondents agreed that they are familiar and use digital technology for community development, 39(59.1%) agreed that technology is used for routine without much consciousness. While 38(57.6%) attested that they do not know how to use ICT for teaching in community development. However, large proportion 48(72.8%) of the respondents disagreed on not capable of using ICT tools for community development practices, closely followed 42(63.6%) by those who disagree that they rarely use Facebook. This finding is in tandem with that by Degryse (2016); Ogedengbe and Quadri (2020) who reported that ICT tools are capable of improving services delivery in every sphere of human endeavour as well as fostering communication within the community. Bashir et al. (2011) further submitted that bridging digital divide between rural and urban areas depend heavily on increasing ICT awareness and use in rural areas.

The third research question sough the challenges to the use of ICT tools by community development officers and found that problems such as lack of electricity, network problem, inadequate telecommunications infrastructure, poor technical and physical infrastructure for teaching, poor accessibility were some of the identified challenges. This is in agreement with the finding by O'Neal (2001); Osu (2019) who reveals that lack of equipment, funding, poor ICT infrastructure, technical know-how and so on were the listed hiccups hampering ICT tools usage among community development officers. Similarly, Bala et al. (2002) affirmed that digital technology in communities is hampered by a number of problems ranging from expensive technology infrastructure, internet connectivity, inadequate technological skills, erratic power supply to poor technical know-how.

Conclusion and Recommendations

The study concluded that there is awareness of ICT tools among community development officer in Oyo State but the usage was low. Majority of community developmental officers agreed that ICT devices like WhatsApp, Facebook are used in sharing vital information and promoting the community. The part of the problem associated with use of ICT devices are lack of electricity, poor network, poor technical and physical infrastructure for teaching. Based on the findings of this study, the following recommendations are raised.

1. There is the need for community development experts to adopt and adapt relevant technologies in community development practices.
2. Government should introduce a workable ICT policy and liaise with other stakeholders in community development to ensure a visible improvement in community development practices.
3. There is need for alternative electricity supply like solar inverter for community development officer to have access to ICT use.
4. There is need for network provider to increase the bandwidth so as to improve on quality of internet connectivity or network.
5. There is need to sensitized community development officers to use more of ICT device in their daily work for this will improve quality of their work through training and re-training programme.

References

Abiona, I. A. & Osu, U. C. (2016). Effect of information communication technology skills on reduction of unemployment in Ibadan. Metropolis *International Journal of Continuing and Non-Formal Education*, 18(2), 1-16.

Abiona, A. I & Osu, U. C. (2020). Corporate social responsibilities and sustainable community development in Nigeria. *In: K. O. Kester; P. B. Abu; Abiona and J. E. Oghenekohwo (Eds.). Human and social development investments.* Department of Adult Education, University of Ibadan, Ibadan. pp. 324-342.

Alasa, S. A. & Quadri, G. O. (2022). E-resources usage among polytechnic students in Southwest Nigeria: evidence from federal polytechnic, Ede and The Polytechnic, Ibadan Nigeria. *International Journal of Knowledge Content Development & Technology,* 12(1), 49-65.

Bala, P., Songan, P., Khairuddin, A. R., Hamid, A. H. A., Harris, R. W., & Khoo, S. L. (2002). Digital Technology in Rural Communities: A Study of Malaysian Experience. *Journal of Rural Development,* 21(1), 43-62.

Bashir, S., Samah, B. A., Emby, Z., Badsar, S. A., Shaffril, H. A., & Aliyu, A. A. (2011). Bridging the Digital Divide: ICT Awareness in Rural Areas. *Journal of Rural Development,* 30(2), 147-162.

Blurton, C. (2004). *New Directions of ICT Use in Education.* UNESCO.

Braun, K., & Ukaegbu, V. (2020). Evaluating Community Development Projects: A Participatory Approach. *Journal of Community Development,* 51(3), 456-471.

Byrne, A., & Wood-Harper, T. (2000). The role of information technology in community development: A case study of a community network. *Journal of Community Informatics*, 1(1), 1-15.

Davis, F.D., Bagozzi, R.P. and Warshaw, P.R. (1989). User acceptance of computer technology: a comparison of two theoretical models. Management Science, 35(8), 982-1003.

Degryse, C. (2016). Digitalisation of the Economy and Its Impact on Labour Markets. *OECD Social, Employment and Migration Working Papers,* No. 184, OECD Publishing, Paris.

Egenti, N. (2020). Community Development: A Historical Perspective. *Journal of Sustainable Development,* 13(2), 123-135.

Fajimi, A. (2020). Digital Technologies and Community Development in Nigeria: A Call for Retooling. *Journal of Community Development,* 51(2), 123-135.

Fu, J. S. (2013). Community Development through Digital Technology: A Conceptual Framework. *Journal of Community Informatics*, 9(2), 1-12.

Gallardo, H. (2016). Community Development: A Multifaceted Process. *Journal of Community Practice,* 24(1), 34-47.

Harris, R. W. (2001). Community-based learning: A case study of a community network in a rural setting. *Journal of Community Development,* 32(1), 53-66.

Issa, A. (2021). Community Development: A Collective Effort towards Sustainable Progress. *Journal of Community Studies,* 11(1), 12-25.

Nyerere, J. (2019). Community Development and Participation: A Critical Analysis. *Tanzania Journal of Community Development,* 4(1), 1-12.

Ogedengbe, O. E. & Quadri, G. O. (2020). The use of social media by undergraduates in South-west Nigeria: a comparative study. *Library Philosophy and Practice (e-journal).* 3860. https://digitalcommons.unl.edu.libphilprac/3860.

Oloruntoyin, F. O., & Adeyanju, O. (2013). ICT and Service Delivery in Nigeria: An Empirical Study. Journal of Information Technology Impact, 13(1), 1-14.

O'Neal, L. (2001). Community networks: Building sustainable community development through ICT. *Journal of Sustainable Development,* 4(2), 147-162.

Osu, U. C. (2019). Prospects and challenges of information communications technology on community education. *Journal of Educational Thought,* 8(3), 69-79.

Osu, U. C. (2019). Determinants of job satisfaction levels among community development officer in Oyo State, Nigeria. *International Journal of Academic Multidisciplinary Research,* 3(5), 50-56.

Osu, B. (2021). Materials Typology for Community Development Practice. *Journal of Community Development,* 52(1), 123-135.

Quadri, M. O. & Quadri, G. O. (2015). Information and communication technology application in library services: a comparative study of two Nigerian Universities. Journal of Applied Information Science and Technology, 8(2), 34-41.

Ramayah, T. 2006. Interface characteristics, perceived ease of use and intention to use an online library in Malaysia. *Information Development,* 22(2), 123-133.

Ren, J., Conglin Huang, Y., Liu, Y., & Ren, J. (2017). The Impact of Internet Penetration on Economic Growth: A Cross-Country Analysis. *Journal of Economic Development*, 49(2), 1-15.

Robinson, L. (2020). The Power of Digital Technologies in the Modern Economy. *Journal of Information Technology,* 15(1), 1-10.

Sein, M. K., Thapa, D., Hatakka, M., & Saeb, Ø. (2018). Digital transformation in socioeconomic development: A systematic review. *Information Technology for Development,* 24(1), 1-23.

Selwyn, N. (2009). Faceworking: Exploring Students' Education-Related Use of Facebook. *Learning, Media and Technology,* 34(2), 157-174.

Ugochukwu, C. (2010). Community Development: A Mechanism for Rural Transformation. *Journal of Rural Development*, 29(3), 257-272.

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Students' Attitude Towards the Use of WhatsApp Group as a Mobile Teaching and Learning Platform in Emmanuael Alayande College of Education, Oyo, Oyo State, Nigeria

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Abstract
This study examined students' attitude towards the use of whatsApp group as a mobile teaching and learning platform in Emmanuel Alayande College of Education, Oyo (EACOED). Descriptive survey design was adopted. The population for the study was 400 which was selected from 200 level student of the college. Simple random sampling technique was used in selecting 400 students (188 male and 212 female). Three research questions were raised in the study. The researchers developed questionnaire on students' attitude towards whatsApp group for teaching and learning platform (SATWGTLP). The reliability coefficient of the instrument yielded r =0.82. The data collected from the administration of the research instrument were analysed using simple percentage and mean to answer the research questions. To ensure the content validity of the instrument, 30 copies were pre-tested using the NCE students of the Federal College of Education (Special), Oyo. The findings of the study revealed that students have positive attitudes towards the use of whatsApp group as a mobile teaching and learning platform in the college. Poor network connection can affect communication in teaching and learning and erratic power supply which affects participation were some of the challenges encountered in the use of WhatsApp for teaching and learning. Based on the findings of this study, it was recommended that whatsApp group should be adopted as a mobile teaching and learning platform in the college.

Keywords: *Mobile platform, Students' attitude, Teaching and Learning, WhatsApp group*

Introduction
The rapid advancement of mobile technology and increasing internet penetration has transformed the education landscape. Mobile learning has emerged as a viable complement to traditional teaching methods, offering flexibility, accessibility, and convenience. It has gained widespread acceptance among students due to its ease of use, affordability, and ubiquity. WhatsApp presents an attractive platform for educators to leverage its potential for teaching and learning. The world is continually changing due to scientific and technological advancements. The proliferation of technology has made it increasingly challenging to disconnect from its influence. Today, the Internet has firmly established itself in people's life and has become one of the most important means for both teachers and students to share and receive information (Richard & Haya, 2009). It may be impossible to fathom a young man who doesn't check social media for updates and read the news every day. According to Johnson and George (2014), social networking sites (SNSs) have become extremely popular among students in higher education. Notably, continual progress in mobile phone technology has contributed to improved communication. With the increased use of mobile technology such as

tablets, pads, iPhones, and personal computers among youths, particularly those in higher education, as well as the availability of Internet services and low-cost data, students have not only adopted this technology for communication, but also for learning (Oshionebo & Udenze, 2020).

Previous studies have researched into the use of WhatsApp, for example MI & Meerasa (2016) found that WhatsApp is perceived positively by learners as a mobile learning medium. This platform reportedly has a considerable impact on improving learners' writing skills (Fattah, 2015). According to Bouhnik and Deshen (2014), WhatsApp allows one to communicate with anyone who owns a smartphone, has an active internet connection, and has downloaded the software. WhatsApp has been deemed important by educators for use in classroom instruction and learning. According to research, students can track their activity off campus via WhatsApp, SMS, Facebook, Twitter, LinkedIn, Zoom, Skype, Telegram, Cisco Web-Ex, Wechat, Mikogo, Screenleap, Discord, Messenger, JitsiMeeting, Google Classroom, and Blogs (Dashti and Aldashti, 2015; Evans, 2014; Ajayi, 2020b).

Considering the popularity and widespread usage of the WhatsApp platform among Nigerian teenagers, it might be transformed into a mobile classroom in which all students are enrolled to engage in educational activities. WhatsApp, in particular, may be great for students because it is low-cost and allows students and teachers to communicate, talk, share ideas, and send audio and video messages as much as they want and at any time of day. Thus, this device allows instructors to provide audio feedback, which facilitates communication. As a result, it assisted students in developing knowledge and remaining engaged in their own study. WhatsApp boosted collaboration and communication between lecturers and students, allowing for lecture updates, assignment instructions, and conversations regarding course content. Lecturers can use WhatsApp to communicate with their students more quickly and efficiently. It can also help pupils communicate more effectively in any given setting (Muhammed & Umar, 2021). The group chat features can be used to organise teaching and learning both inside and outside of the school grounds, resulting in lessons that students can listen to at their leisure, as well as to maintain constant communication with students outside of class. When students are encouraged to participate in teaching and learning via social media networks, it may provide opportunities for them to improve cooperation and communication skills while also creating a learning environment in which they can be self-directed learners (Orji & Anikpo, 2019). Using WhatsApp groups, lecturers may easily and successfully manage enormous class sizes and from the researchers experience it was discovered that WhatsApp platform could be used to manage large class as it enable collaborative learning, discussions, peer-to-peer interaction and sharing of educational resources. It also enhances voice and video calls and facilitates real time communication between students, teachers and peers.

The frequency and manner of WhatsApp usage among students significantly influences their attitude towards utilising WhatsApp groups as a mobile teaching learning platform. Attitude is a person's behaviour, feelings, or predisposition towards a specific thing or object, whether good or bad, positive or negative, and it can also be a favourable or unfavourable evaluative reaction towards something or someone expressed in one belief, feelings, or intended behaviour (Donnie, Bambang, Ahmed & Nur, 2018). According to Norazah (2011), attitude is a

favourable or unfavourable evaluative reaction to something, events, and programs expressed in an individual's beliefs, feelings, emotions, or intended behaviours, whereas the teaching and learning process can be defined as the transfer of knowledge from teachers to students. It is defined as a process in which an educator identifies and establishes learning objectives, creates teaching resources, and implements a teaching and learning method. On the other hand, learning is a critical component that a teacher must consider when instructing students.

Statement of the Problem

Despite the growing popularity of mobile learning, there is a significant gap in understanding students ' attitudes towards utilising WhatsApp groups as a teaching and learning platform. The increasing penetration of smartphones and internet connectivity among students presents an opportunity for educators to leverage WhatsApp ubiquity and user-friendly interface to enhance learning outcomes. However, several concerns and challenges such as lack of engagement, distractions, information overload, technical issues (poor internet connectivity, device compatibility and WhatsApp limitations) and privacy concerns hinder the effective utilisation of WhatsApp groups for educational purposes.

WhatsApp has recently been a popular communication tool, particularly among students, for conversing with partners and families. Its similarity may stem from the manner it is installed in a device that students can carry about. Researchers have begun to investigate the possibilities for using it to assist students in their studies and to assess their attitudes regarding the usage of WhatsApp at college. According to the researchers' personal observations, many students have a negative attitude towards using WhatsApp groups. Against this backdrop, this study looks into students' attitudes about using WhatsApp groups as a mobile teaching and learning platform in the college.

Objectives of the Study

The general objective of the study is to investigate students' attitudes towards the use of WhatsApp group as a mobile teaching and learning platform in Emmanuel Alayande College of Education (EACOED), Oyo.

The specific objectives are to:

1. investigate factors influencing students' attitudes towards the use of class WhatsApp group for teaching and learning;
2. ascertain the implications of using class WhatsApp group on teaching and learning and
3. examine the challenges faced by students while using WhatsApp group platform as mobile teaching learning.

Research Questions

The following research questions were raised for the study:

1. What are the factors influencing students' attitudes towards the use of class WhatsApp group for teaching and learning?
2. What are the implications of using class WhatsApp group on teaching and learning?
3. What are the challenges faced by students while using WhatsApp group platform as mobile teaching learning?

Literature Review

As a mobile teaching and learning platform, the WhatsApp group is ideal for discussing a wide range of problems. To get students thinking and accumulating knowledge about any issue, the lecturers can present different themes or problems. One can both initiate the conversation in the classroom and continue it on WhatsApp with the entire class or in small groups after class, or one can initiate the conversation on WhatsApp and continue it in the classroom. From the observation of the researchers WhatsApp can be used to provide feedback on tasks and activities, as well as for academic coaching. WhatsApp makes it much easier and faster for teachers to provide feedback on work since it allows them to send audio messages and mark all parts of the correction; it also allows lecturers to communicate with students at any time and from any location without having to wait for the next session. WhatsApp allows for both synchronous and asynchronous conversation. Podcasts and movies for educational reasons can be generated and shared over WhatsApp.

The authors also observed that the students can watch video or listen to the audio as many times as needed. Additionally, WhatsApp is perfect for inspiring and stimulating students, involving students in the teaching-learning process is crucial for ensuring that they meet both the curriculum's and their personal goals. Even when discussing situations with large classes (+/- 50 students), it is much easier for the teacher to evaluate the participation of students and reward them throughout the process than limit this to a test / examination grade. Through WhatsApp, students can feel more comfortable than during face-to-face classes to ask questions or share interests. WhatsApp provides greater levels of inclusivity as a mobile learning tool because students are all unique, some are more extroverted than others, and some have visual and other hearing impairments.

Ferreira-Meyers and Martins (2020) examined students' attitude towards the use of Whatsapp group as a mobile teaching and learning platform using descriptive design and found that students have positive attitude towards the use of WhatsApp for effective teaching and learning. It was concluded that WhatsApp is a valuable environment to ensure that teaching and learning continues beyond the classroom and can be an important motivator for lifelong learning. In another similar study conducted by Mulyono, Suryoputro & Jamil (2021) investigated the application of WhatsApp to support online learning during the COVID-19 pandemic in Indonesia using Rasch modelling technique were conducted to evaluate the survey. A total of 202 students from three different departments at an Indonesian private university participated in an online survey. Result revealed that most students accepted social media use to support learning and felt connected to the learning. The findings also identified several drivers that promoted the high level of acceptance and connectedness to learning, such as students' perceived usefulness, availability of learning support, motivation, and connectedness with their friends.

Ajayi and Olajide (2022) examined the effects of WhatsApp group learning platform on senior secondary schools students' learning outcomes in Science, Technology, and Mathematics (STM) in Ekiti State, Nigeria. The sample comprised 100 SS II students from two public secondary schools in Ekiti State who were randomly selected from their classrooms. A multistage sampling technique was used to pick the sample. Result revealed that WhatsApp had

significant effect on learning outcome of secondary school students. It was recommended that the WhatsApp Group Learning Platform should be used to improve students' performance in STM. Ahmad (2020) examined students' attitude towards using WhatsApp for educational activities at federal university Dutsinma, Katsina state, Nigeria using descriptive survey design. The sample size comprised of 101 undergraduate and postgraduate students who were randomly selected from the different stratified levels of clustered departments. Results revealed that there was positive and high level of attitude towards WhatsApp among the students. It also showed how the students use the application in various modes. The general findings confirmed that WhatsApp is being used as an academic tool for both teaching and learning in Federal University Dutsinma.

Irmayanti (2021) examined students' perceptions and attitude on the use of WhatsApp as a mobile learning platform in learning English. Result shows that there were three challenges faced by students in using WhatsApp as a mobile learning platform namely, students did not understand the material, bad network and internet data. Based on the data obtained, the researcher concludes that students gave negative perceptions on the use of WhatsApp as a mobile learning platform in learning English. Alabi, Falode, Ilobeneke (2019) investigated the effect of technology supported instructional platforms on undergraduate students' attitude towards educational technology in public universities in Nigeria using a quasi-experimental research design. Result showed that students have positive attitude towards the use of WhatsApp for teaching and learning. It was also revealed that the frequency of use of WhatsApp by students was on a daily basis. It was recommended that for effective teaching and teacher-learner interaction WhatsApp should be used by lecturers and students to provide and supplement their teaching and learning materials respectively.

The platform shows a variance on balancing online activities (WhatsApp) and academic preparation, and distracts students from completing their assignments and adhering to their private studies time table. However, students enjoy using WhatsApp as a tool for learning and calls for institutions to offer internet amenities as a top urgency in contemporary instruction. Sari (2018) examined undergraduate students' attitudes to the implementation of WhatsApp group as their learning media in the EFL classroom in Indonesia using descriptive survey and result showed that the students significantly had a very positive attitude towards the implementation of WhatsApp Group. It was also found that that messages overloading; erratic power supply, mistyping, and slow internet connection were the most problems occurred.

Research Methodology

The study investigated students' attitude towards the use of WhatsApp group as a mobile learning platform in Emmanuel Alayande College of Education, Oyo. The study adopted descriptive survey design was adopted. The population for the study is 400 which was selected from the 200 level students of EACOED, Oyo. Simple random sampling technique was used in selecting 400 students (188 males and 212 female). The research was guided with three research questions. The researchers developed questionnaire on students' attitude towards whatsApp group for teaching and learning platform (SATWGTLP). The questionnaire contains 30 items. The reliability coefficient of the instrument yielded r =0.82. To ensure the content validity of the instrument, 30 copies was pre-tested using the

NCE students of the Federal College of Education (Special), Oyo. The data collected from the administration of the research instrument were analysed using simple percentage and mean to answer the research questions.

Data Analysis and Results

Table 1: Demographic Distribution of the Respondents

Variables		**Frequency**	**Percentage**
Gender	Male	188	47.0
	Female	212	53.0
Age	15-20 years	185	46.2
	21-25 years	153	38.3
	26-30 years	62	15.5
School	Arts &Social Sciences	82	20.5
	ECCPED	57	14.3
	Education	141	35.3
	Languages	55	13.8
	Sciences	38	9.5
	VTE	27	6.8

Table 1 reveals that 188 (47.0%) were males and the rest 212 (53.0%) were females. This means that females participated more in the study than their male counterparts. Also, 185 (46.2%) of the respondents were between the age range of 15-25 years, 153 (38.3%) were between 21-25 years, and the rest 62 (15.5%) were between 25-30years. It could be inferred that the respondents whose age fell between 15-20 years were the majority. However, 84.5% of the respondents were below 26 years implying that more than half of the students were below 26 years old. 82 (20.5%) were in Arts &Social Sciences, 57 (14.3%) were in ECCPED, 141 (35.3%) were in Education, 55 (13.8%) were in Languages while 38 (9.5%) were in Sciences and the remaining 27 (6.8%) were in VTE. This means that respondents who were from Education participated more in the study.

Are you computer literate	**Frequency**	**Percentage**
Yes	395	98.8
No	5	1.2

It was revealed that 98.8% of the respondents were computer literate while 1.2% were not literate.

Research question 1: What are the factors influencing NCE II students attitudes towards the use of class WhatsApp group for teaching and learning?

Table 2: Respondents attitudes towards the use of class WhatsApp group for teaching and learning

S/N	**Items**	**Yes**	**No**
1.	WhatsApp Group is simple and easy to use.	398 (99.5%)	2 (0.5%)
2.	WhatsApp Group usage is free	400 (100%)	0 (0.0%)
3.	WhatsApp Group is down-loadable.	400 (100%)	0 (0.0%)
4.	WhatsApp Group usage is end - to- end encrypted.	397 (99.3%)	3 (0.7%)
5.	WhatsApp Group is interesting and motivating	360 (90%)	40 (10%)
6.	WhatsApp group brings sense of belongingness.	373 (93.3%)	27 (6.7%)
7.	Are you aware your class has a WhatsApp group platform	382 (95.5%)	18 (4.5%)
8.	Are you aware of the rules and regulations of the of the platform	325 (81.2%)	75 (18.8%)
9.	In your WhatsApp group platform, do you have administrators monitoring the activities of the platform	400 (100%)	0 (0.0%)
10.	Do the administrators perform their duties as expected	392 (98.0%)	8 (2.0%)
11.	Do you always abide with the laid down rules and regulations.	381 (95.2%)	19 (4.8%)

Table 2 showed the attitudes towards the use of class WhatsApp group for teaching and learning. It could be revealed that all the respondents 400 (100%) affirmed that WhatsApp group usage is free, 400 (100%) affirmed that in their WhatsApp group platform they do have administrators monitoring the activities of the platform.

It could be concluded from the table that the attitude of students towards the use of class WhatsApp group for teaching and learning is positive. This means that students are very active in the use of WhatsApp for their academic activities.

Research question 2: What are the implications of using Class WhatsApp group on teaching and learning?

Table 3: Implications of using class WhatsApp group on teaching and learning

S/N	Item	SA	A	SD	D
1.	I enjoy the use of WhatsApp group platform as a mobile teaching and learning	231 (57.8%)	110 (27.5%)	50 (12.5%)	9 (2.2%)
2.	It is difficult to access and use notes, messages and other materials used in mobile teaching and learning from WhatsApp group platform	244 (61.0%)	122 (30.5%)	31 (7.7%)	3 (0.7%)
3.	WhatsApp group platform for mobile teaching and learning is not helping and useful in sharing educational activities and materials	87 (21.7%)	90 (22.5%)	198 (49.5%)	25 (6.3%)
4.	Using WhatsApp group platform for mobile teaching and learning destroys social relationships and academic achievement	34 (8.5%)	41 (10.2%)	212 (53.0%)	113 (28.2%)
5.	Mobile teaching and learning with WhatsApp group platform destroys students' manners	62 (15.5%)	96 (24.0%)	229 (57.2%)	13 (3.2%)
6.	Mobile teaching and learning with WhatsApp group platform	112 (28.0%)	216 (54.0%)	50 (12.5%)	22 (5.5%)

	encourages truancy on the part of the lecturers and students				
7.	Mobile teaching and learning with WhatsApp group platform is a waste of time and efforts if not careful	67 (16.7%)	167 (41.7%)	142 (35.5%)	24 (6.0%)
8.	Mobile teaching and learning with WhatsApp group platform enhances reading and writing	99 (24.7%)	146 (36.5%)	123 (30.7%)	32 (8.0%)
9.	Mobile teaching and learning with WhatsApp group platform is helpful in achieving educational goals	118 (29.5%)	196 (49.0%)	70 (17.5%)	8 (2.0%)
10.	Mobile teaching and learning with WhatsApp group platform is an appropriate platform for creation of interaction between the lecturer and the students	55 (13.7%)	119 (29.7%)	217 (54.2%)	9 (2.2%)
11.	Mobile teaching and learning with WhatsApp group platform provides secured environment for both the lecturers and students	84 (21.0%)	127 (31.7%)	198 (49.5%)	13 (3.2%)

Table 3 showed the implications of using class WhatsApp group on teaching and learning. It is revealed that 341(85.3%) agreed that they enjoy the use of WhatsApp group platform as mobile for teaching and learning. While 59 (14.7) disagree. It is revealed that 366 (91.5%) agreed that it is difficult to access and use

notes, messages and other materials used in mobile teaching and learning from WhatsApp group platform while 34 (8.4%) disagreed. 328 (82.0%) agreed that mobile teaching and learning with WhatsApp group platform encourages truancy on the part of the lecturers' and students while 72 (18.0%) disagreed. Also, 314 (78.5%) agreed that mobile teaching and learning with WhatsApp group platform is helpful in achieving educational goals while 78 (19.5%) disagree.

It could be inferred that the implication of using WhatsApp for teaching and learning are, it could breed truancy from the part of the students and lecturers and it is difficult to access and use notes, messages and other materials used in mobile teaching and learning from WhatsApp group platform.

Research question 3: Challenges faced by students while using WhatsApp group platform as mobile teaching learning?

Table 4: Challenges faced by students while using WhatsApp group platform as mobile teaching learning?

S/N	Item	SA	A	SD	D
1.	WhatsApp group leads to message flooding in teaching and learning.	134 (33.5%)	191 (47.8%)	50 (12.5%)	7 (1.8%)
2.	WhatsApp group wastes and consumes time in teaching and learning.	101 (25.2%)	187 (46.7%)	81 (20.3%)	5 (1.3%)
3.	Using WhatsApp group for teaching and learning can lead to eyes defect.	47 (11.7%)	85 (21.2%)	240 (60.0%)	28 (7.0%)
4.	Using WhatsApp group is stressful for teaching and learning.	114 (28.5%)	195 (48.7%)	12 (3.0%)	69 (17.2%)
5.	I am always scared of contributing to teaching and learning using whatsApp group because I might make errors.	87 (21.0%)	161 (40.2%)	48 (12.0%)	104 (26.0%)
6.	WhatsApp group platform allows posting of unrelated and irrelevant contents.	121 (30.2%)	185 (46.2%)	31 (7.7%)	63 (15.7%)

7.	Poor network connection can affect communication in teaching and learning.	130 (32.5%)	217 (54.2%)	12 (3.0%)	41 (10.2%)
8.	Erratic power supply affects participation.	112 (30.5%)	242 (60.5%)	6 (1.5%)	40 (10.0%)
9.	WhatsApp group can be disrupted by hackers.	93 (23.2%)	224 (56.0%)	42 (10.5%)	41 (10.2%)

Result from Table 4 showed the challenges encountered by students towards the use of whatsApp group platform as a mobile teaching and learning. It is revealed that some of the challenges encountered by students in the use of whatsApp group are: WhatsApp group leads to message flooding in teaching and learning, poor network connection can affect communication in teaching and learning, erratic power supply affects participation, WhatsApp Group platform allows posting of unrelated and irrelevant contents.

Discussion of the Findings

Result from research question one revealed that the attitude of students towards the use of class WhatsApp group for teaching and learning is positive. The finding lends credence with that of Ajayi and Olajide (2022) who examined the effects of WhatsApp group learning platform on senior secondary schools students' learning outcomes in Science, Technology, and Mathematics (STM) in Ekiti State, Nigeria and the results revealed that there was positive and high level of attitude towards WhatsApp group among the students. It also showed how the students use the application in various modes. The general findings confirmed that WhatsApp is being used as an academic tool for both teaching and learning in EACOED, Oyo. The finding also supports that of Alabi, Falode, Ilobeneke (2019) who investigated the effect of technology supported instructional platforms on undergraduate students ' attitude towards educational technology in public universities in Nigeria using a quasi-experimental research design and reported that students have positive attitude towards the use of WhatsApp for teaching and learning.

Result from research question two showed that implication of using WhatsApp for teaching and learning are, it could breed truancy from the part of the students and lecturers and it is difficult to access and use notes, messages and other materials used in mobile teaching and learning from WhatsApp group platform. The finding corroborates that of Mbukusa (2018) who examined the perceptions of students' on the use of WhatsApp in teaching methods of English as second language at the University of Namibia using descriptive survey and reported that WhatsApp can impact negatively on the performance of tertiary students, especially those who do not own smartphones. The platform shows a variance on balancing online activities (WhatsApp) and academic preparation, and distracts

students from completing their assignments and adhering to their private studies time table. However, students enjoy using WhatsApp as a tool for learning and calls for institutions to offer internet amenities as a top urgency in contemporary instruction.

Result from research question three showed that WhatsApp group leads to message flooding in teaching and learning, poor network connection can affect communication in teaching and learning, erratic power supply affects participation, WhatsApp group platform allows posting of unrelated and irrelevant contents were some of the challenges encountered by students using WhatsApp for teaching and learning. The finding validates that of Irmayanti (2021) who examined students' perceptions and attitude on the use of WhatsApp as a mobile learning platform in learning English and reported that there were three challenges faced by students in using WhatsApp as a mobile learning platform namely, students did not understand the material, bad network and internet data. The finding also supports that of Sari (2018) who examined undergraduate students' attitudes to the implementation of WhatsApp group as their learning media in the EFL classroom in Indonesia using descriptive survey and reported that messages overloading, erratic power supply, mistyping, and slow internet connection were the most problems occurred.

Conclusion

It could be concluded that WhatsApp is a beneficial free programme for instant chatting. Text messaging on mobile devices enables synchronous and asynchronous message sending and receiving. The WhatsApp instant messaging platform is straightforward, user-friendly, and incredibly simple to use. Learning is becoming more personal and is becoming increasingly based on online social interactions that enable collaborative, networked and portable processes with the use of WhatsApp.

Recommendations

It is therefore recommended that:

1. Lecturers in colleges of education should be encouraged to explore other ways of regular meeting and interaction with the students, using WhatsApp application in this technological area which could enhance teaching and learning.
2. Lecturers should supplement their classroom teaching with newer technologies such as WhatsApp group discussion and post materials on the platform for students to read and prepare for their test and examination.
3. Students are encouraged to improve understanding in the use of WhatsApp in their learning activities as this would bring the classroom closer to them by asking questions as they receive quick answers.
4. The use of mobile phones should be controlled in lecture rooms to restrict students chat during lectures.
5. Internet facilities should be provided and the bandwidth should be very strong for effective teaching and learning.

References

Adams, D., Sumintono, B., Mohammed, A. and Mohamad Noor, N.S. (2018). E-Learnig readiness among students of diverse backgrounds in a leading

Malaysian higher education institution. *Malaysian Journal of Learning and iInstruction*, 15(2), 227– 256.

Ahmad, S. A. (2020). Students' attitude towards using whatsapp for educational activities at federal university Dutsin-ma, Katsina state, Nigeria. *FUDMA Journal of Sciences,* 4 (2), 749 – 757

Ajayi, L. F., & Olajide, O. I. (2022). Effects of Whatsapp group learning platform on senior secondary schools students' learning outcomes in Science, Technology, and Mathematics (stm) in Ekiti State, Nigeria. *Educational Research and Reviews,* 17(8), 213-218.

Ajayi, P. O. (2020). Influence of Whatsapp group learning platform on senior undergraduates' study habit in basic science education in, Nigerian universities. *EKSU Journal of Education*, 9(2), 70 – 75.

Alabi, T. O., Falode, O. C. & Ilobeneke, S. C. (2019).Effect of technology supported instructional platforms on undergraduate Students' attitude towards educational technology in public Universities in Nigeria. *African Research Journal of Education and Social Sciences,* 6(2),53-62.

Bouhnik, D. and Deshen, M. (2014). WhatsApp goes to school: Mobile instant messaging between teachers and students. *Journal of Information Technology Education (JITE)*, 13, 217 – 231

Dashti, F. and Aldashti, A.A. (2015). EFL college students' attitudes towards mobile learning. *Journal of Education International Studies*, 8(8), 13 – 20

Davis, F.D., 1989. Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 319 –340

Evans, C. (2014). Twitter for teaching: Can social media be used to enhance the process of learning? *British Journal of Educational Technology,* 45(5), 902 – 915.

Fattah, S. F. E. S. A. (2015). The effectiveness of using a whatsApp messenger as one of mobile learning technique to develop students' writing skills. *Journal of Education and Practice*, 6(32), 115 –127

Ferreira-Meyers , K. & Martins, J. (2020). The use of Whatsapp in today's mobile language teaching and learning. *ITM Web of Conferences*, 33, 03007.

Irmayanti, E. (2021). Students' perceptions on the use of whatsapp as a mobile learning platform in learning English. Unpublished master's thesis. Makassar Muhammadiyah University.

Johnson, Y. and George, D.E. (2014). The impact of WhatsApp messenger usage on students' performance in tertiary institutions in Ghana. *Journal of Education and Practice,* 5 (6), 78–89

Mbukusa, N. R. (2018). Perceptions of students' on the Use of WhatsApp in Teaching `Methods of English as Second Language at the University of Namibia. *Journal of Curriculum and Teaching,* 7 (2),112-119

Mi, G. M.and Meerasa, S. S. (2016). Perception on M-Learning through WhatsApp application. *Journal of Educational Technology in Health Scienve*, 3(2), 57 – 60

Muhammed, W. and Umar, F. (2021). Use of whatsApp for educational purposes. Online.

Mulyono, H. Suryoputro, G., & Jamil, S. R. (2021). The application of WhatsApp to support online learning during the COVID-19 pandemic in Indonesia. *Heliyon* 7 (07)1-8.

Munna,S.A and Kalam, M. A (2021). Teaching and learning process to enhance teaching effectiveness: a literature review. *International Journal of Humanities and Innovation,* 4 (1) 2021 pp. 1-4

Norazah, M. S. (2011). Subscribers' intention towards using 3G mobile services. *Journal of Economics and Behavioural Studies*, 2(2), 67 – 75.

Orji, A. and Anikpo, F. (2019). Social media in teaching-learning process: Investigation of the use of whatsApp in teaching and learning in university of Port Harcourt. *European Scientific Journal,* 15(4), 15 – 39.

Richard, H. and Haya, A. (2009). Examining student decision to adopt web 2.0 technologies: theory and empirical tests. *Journal of Computing in Higher Education,* 21(3), 183 – 198.

Sari, F. M. (2018). Undergraduate students' attitudes to the implementation of whatsapp group as their learning media in the efl classroom. *International Conference on English Language Teaching and Learning,* 1-8.

Udenze, S and Oshionebo, B. (2020). Investigating whatsApp for collaborative learning among undergraduates. *Etikilesim,* 5, 24 – 50

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School Libraries and Future-Ready Skills Development: Bridging the Gap in 21st Century Learning

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Abstract
This paper explores the importance of school libraries in preparing students for future challenges through the development of critical, digital, and information literacy skills. Future-ready skills are now very important for the sustainability of national development as individuals with future-ready skills can contribute to the national GDP through creative employment which the government of the nation might not be able to provide. School libraries are crucial for the acquisition, development and promotion of these skills, this the school library does through; building digital literacy, encouraging collaboration and teamwork, enhancing critical thinking and problem-solving skills, promoting creativity and innovation, and facilitating lifelong learning. Suggestions on policy and curriculum recommendations were made and the way forward proffered.

Keywords: *School Libraries, Future-Ready Skills, 21st Century Skills, Digital Literacy, Information Literacy, Critical Thinking, Emerging Technologies*

Introduction
The need for pupils to adjust to a world that is becoming more complex and linked is becoming more pronounced since globalisation, and technology advancements are all driving changes in the 21st-century educational landscape. Consequently, schools are now required to provide children with a variety of "future-ready" abilities, or competencies that will enable them to excel in the future workplace environment, rather than just the traditional academic disciplines. These abilities, according to Trilling and Fadel (2009), go beyond simple memory and emphasise critical thinking, creativity, teamwork, and digital literacy, among other things. Within this framework, school libraries are becoming essential places for students to acquire these skills. From serving as a storehouse of books, the school library now serves as a vibrant learning environment that encourages inquiry, discovery, and the growth of critical thinking abilities. In the past, libraries were thought of as peaceful places reserved for reading and storing information, but in the present day, they are knowledge hubs where students interact with digital tools, engage with a variety of media, and work together on educational projects. According to Omeluzor, Bamidele, Ukangwa and Amadi (2013), school libraries now serve as innovation hubs, giving students access to the materials, tools, and assistance they need to acquire critical 21st-century skills.

As societies become more reliant on technology, students must acquire skills that will prepare them for the future, hence a change in how schools prepare children for life outside the classroom is required, according to the World Economic Forum (2016), as professions of the future will require a combination of digital competencies, creative problem-solving, and interpersonal communication. In addition to facilitating cooperation, granting access to digital technology, and

encouraging lifelong learning skills, the library's traditional role in supporting academic learning has grown. By using these strategies, school libraries can significantly contribute to students' readiness for problems in the future. Though their significance is becoming more widely acknowledged, school libraries still have some obstacles in carrying out their functions. Many school libraries find it difficult to keep up with the demands of modern education due to lack of qualified librarians who understand how to promote future-ready skills as well as restricted financing and access to digital resources. According to Todd (2012), strong infrastructure, forward-thinking policies, and continual professional development for library staff are necessary for school libraries to be successful in preparing children for the future.

In this paper, we explore the role of school libraries in developing future-ready skills among students. By examining the core competencies required for future success which include critical thinking, creativity, collaboration, and digital literacy, the study also aims to highlight how school libraries can serve as key platforms for skill development. Furthermore, It also talks about how new technology may be incorporated into libraries to better prepare students for the problems of the future. The article ends with suggestions for how school libraries may play a bigger role in helping students develop skills that will be needed in the future for legislators, educators, and library workers.

Understanding Future-Ready Skills

The range of abilities needed to prosper in a world driven by technology and constantly changing is referred to as "future-ready skills." These competencies integrate traditional academic knowledge with contemporary problem-solving and technological competence. They span the cognitive, technical, and interpersonal domains. The Partnership for 21st Century Learning (P21, 2015) states that the "Four Cs," of critical thinking, communication, collaboration, and creativity, are the four essential categories into which future-ready talents fall. Furthermore, as students are ready for a labour market that is uncertain and changing quickly, digital literacy, information literacy, and adaptability are becoming just as important. According to Trilling and Fadel (2009), the focus on creativity and adaptation sets future-ready capabilities apart from traditional academic abilities. The modern economy needs people who can evaluate complicated problems, interact across cultural and disciplinary borders, and adapt to continuous technology advances. Traditional educational paradigms placed an emphasis on memorization and repetitive work. In their work, Trilling and Fadel emphasize the need of transitioning away from content-heavy curriculum toward approaches that encourage experience learning and skill building.

Moreover, stakeholders in education across the globe have firmly embraced the future-ready skills framework. In order to develop autonomous thinkers who can adjust to a world that is changing quickly, the Organisation for Economic Co-operation and Development (OECD, 2018) encourages the inclusion of critical thinking and problem-solving in curricula. The emphasis in education has shifted from knowledge consumption to knowledge creation, highlighting the significance of acquiring skills that will be needed in the future through a variety of channels, including school libraries.

Importance of Future-Ready Skills in Education

Future-ready skills are crucial because they can help students to succeed academically as well as be actively involved in society and the workforce Foo and Chua (2023). The World Economic Forum (2016) projects that 65 per cent of today's elementary school-age youngsters will eventually work in jobs that do not yet exist. This forecast emphasizes how important it is that educational systems give students skills that apply to more than only the labour market of today. In this context, critical thinking, technological adaptation, varied team collaboration, and effective communication are considered essential skills (Deschenes, 2024). The COVID-19 pandemic also highlighted the need for education to focus on developing future-ready skills. Students who possessed high digital literacy and self-management abilities were better equipped to adjust to new learning settings when educational institutions across the globe transitioned to remote learning. Proficiency in online platform navigation, time management, and virtual collaboration has become critical, underscoring the fact that future-ready abilities are pertinent to both present educational requirements and future work opportunities (Li (2022).

School libraries provide a distinct ability to facilitate the advancement of these proficiencies. Libraries are frequently more adaptable than classrooms when it comes to providing access to digital resources and encouraging self-directed learning, as noted by Kumar, Saravanakumar, Antoniraj, Rajkumar, Jayanthi, Senthilkumar and Mirdula (2024). Libraries can make a big difference in students' capacity to deal with the complexity of the future by offering resources that promote inquiry, creativity, and problem-solving.

Connection to Global Trends

Global trends in education are more closely matched with the need to develop skills that will be necessary in the future. Initiatives that highlight the significance of acquiring skills that support employment and lifelong learning, such as UNESCO's Sustainable Development Goal 4, which centres on high-quality education, are in place. Furthermore, to address global issues like inequality, climate change, and digital disruption, future-ready skills are essential, as highlighted by the OECD's Future of Education and Skills 2030 project (OECD, 2018). The importance of integrating technology and adaptability into education is being highlighted by these worldwide trends, which makes school libraries even more vital in helping students have access to the experiences and materials they need to develop these skills.

School libraries play a vital role in fostering digital literacy, which is essential for developing future-ready abilities in a digital age. According to Umar and Yusuf (2023), digital literacy encompasses not just proficiency with technology but also the ability to evaluate digital content critically, maintain digital identities, and engage in responsible online communities. Because of the proliferation of false information and digital manipulation, children must acquire strong digital literacy abilities. School libraries, with their wide range of media and resources, are in a prime position to support this literacy.

The Role of Digital Literacy and Information Literacy

Information and digital literacy are vital abilities that will prepare students for the future. Digital literacy includes the abilities needed to interact and traverse digital settings, whereas information literacy refers to the capacity to find, assess, and

use information efficiently. When combined, these literacies provide students with the skills they need to prosper in a world where digital tools and content are becoming more and more prevalent Mokhtari (2023). The school library has evolved from being viewed as a repository for knowledge to one that is as vital for fostering digital literacy.

Studies by Ternenge and Agipu (2019) highlight how important it is for libraries to support students when they search for information by assisting them in locating sources and evaluating the reliability and applicability of those sources. The ability to efficiently sort through large amounts of information, determine what is reliable, and synthesize that knowledge is essential in the digital age. School librarians are in a good position to assist students in acquiring these competencies because of their knowledge of information management.

The Impact of Emerging Technologies on Skill Development

New technologies are becoming more and more integrated into education. Examples include coding courses, virtual reality (VR), and artificial intelligence (AI). As mentioned by Abid, Mohd, Mohd and Rajiv (2022), incorporating these technologies into school libraries can significantly improve students' abilities to be prepared for the future. For instance, although VR tools can encourage creativity and provide immersive learning experiences, coding classes can help students improve computational thinking and problem-solving abilities. Libraries that adopt these technologies provide places for students to explore, invent, and gain knowledge through practical applications.

But for technology to be successfully incorporated into libraries, careful planning and sufficient funding are needed. To successfully incorporate these tools into their classroom, Dede (2014) contends that professional development is a necessity for educators and librarians. To guarantee fair access to digital resources, schools also need to solve infrastructure deficiencies. Without these tools in place, the potential of school libraries to create future-ready skills may remain unmet. To sum up, students need to have future-ready abilities in order to navigate an unpredictable future that is being shaped by societal and technological changes. School libraries are vital in equipping students for the problems of the future because they provide access to digital resources, encourage inquiry-based learning, and promote teamwork. School libraries may continue to be essential places for students to learn the skills they need to succeed in the twenty-first century by embracing modern technologies and coordinating their offerings with international educational trends.

Role of School Libraries in Skill Development

School libraries are now vibrant spaces that are becoming more and more crucial to the development of skills that will prepare students for the future. As the world continues to embrace the digital age, the role of school libraries has extended beyond the conventional functions of storing books and supplying reading materials to pupils. Libraries of today are dynamic learning environments where students acquire essential skills to meet the needs of both higher education and the workforce. These competencies, which are essential for success in the future, include digital literacy, problem-solving, teamwork, and creativity.

Todd (2012) asserts that school libraries are dynamic environments where students interact with the material, apply it to real-world issues, and develop their intellectual abilities. Particularly well-suited for skill development are school libraries' adaptable layouts and the advice offered by its librarians. How important school libraries are in helping students develop the abilities they will need to succeed in the twenty-first century are hereby highlighted:

Building Digital Literacy

Cultivating digital literacy is one of school libraries' main functions in skill development. Proficiency in digital tool navigation and utilization is a need for success in today's environment, both in academic and professional contexts. According to Anthonysamy (2019), digital literacy encompasses more than just gadget operation; it also involves the abilities needed to manage online interactions, assess digital content critically, and negotiate the moral dilemmas presented by the digital age. School libraries act as hubs for digital literacy education by allowing access to digital materials and providing teaching on how to use these technologies effectively Inamdar (2021). When it comes to educating students on how to find, evaluate, and use digital information, librarians are essential. They assist pupils in learning how to discern between reliable and questionable sources of information as well as responsible digital identity management Inamdar (2021).

In addition, a lot of school libraries provide classes and initiatives that enhance students' technical abilities in areas like data analysis, multimedia content development, and coding Mohammed, ALI and Abdullahi (2020). With these assertions, very unfortunate that most of the public secondary schools in Nigeria are without functional school libraries. School libraries offer a place where students can practice and improve their digital abilities in addition to receiving official instruction. By using library resources, students can become skilled in digital environments, whether they are working on group projects, conducting online research, or experimenting with new technology. The need for digital literacy will only increase as technology develops more, making school libraries crucial to prepare children for the future.

Encouraging Collaboration and Teamwork

Another important ability that is taught in the school library is collaboration. It is becoming more widely acknowledged that teamwork skills are essential in the educational and in business environments. In addition to coordinating activities with others, collaboration, according to Reich and Hershcovis (2011) entails fostering interpersonal relationships, resolving problems, and working toward a common objective. The perfect environment for encouraging teamwork is found in school libraries Olubiyo and Olubiyo (2023). Libraries encourage students to participate in cooperative problem-solving and knowledge exchange because they have adaptable locations that can allow group work. Students work together on group assignments, presentations, and research projects in libraries all the time. Through these partnerships, students can work on their communication skills, settle disputes, and gain insight from one another's viewpoints.

Moreover, incorporating technology into school libraries increases the opportunity for cooperation Johnston (2012). Students can work together in real-time and across geography thanks to digital tools like cloud-based platforms,

which allow for task coordination and real-time communication. These resources are frequently made available to students through school libraries, enabling them to collaborate more effectively and creatively. Students get the ability to negotiate the challenges of teamwork through these experiences, which is a talent that is becoming more and more important in today's workforce.

Enhancing Critical Thinking and Problem-Solving Skills

The development of critical thinking and problem-solving skills is an essential function of school libraries, as these are fundamental competencies for future success. As per Todd's (2008) assertion, the inquiry-based learning approach frequently utilized in school libraries fosters students' deep engagement with the material, prompts them to pose significant queries, and looks into various approaches to difficulties Olajide and Zinn (2021). Students are encouraged to work on individual research projects in school libraries that require them to think critically about the material they come across. They learn how to assess the reliability of sources, make connections between disparate bits of data, and create new concepts by combining pre-existing knowledge. Through this process, they enhance their capacity for analytical and creative problem-solving, which is a necessary skill for creativity and leadership.

Additionally, school librarians frequently assist students in conducting research by offering guidance and advice on how to organize questions, uncover pertinent sources, and apply results. Students benefit from this mentorship by learning how to think critically about the information they consume in addition to improving their research skills. Through these inquiry-based activities, students develop their ability to think critically, weigh different points of view, and come up with well-reasoned solutions (Kotsis 2024).

Promoting Creativity and Innovation

Innovation and creativity are becoming more widely acknowledged as essential elements of a well-rounded education. According to OpenStax (2024) creativity is vital to all fields because it generates novel concepts, fresh perspectives, and original fixes for pre-existing issues. School libraries are in a unique position to encourage creativity because of their extensive collection of resources and adaptable learning environments. In school libraries, makerspaces are becoming more and more common. They provide students with the chance to try out new technology and make their own projects. These areas are furnished with resources including robotics kits, design software, and 3D printers that let students use their imaginations and participate in experiential learning.

Makerspaces, in the words of Yusuf, Segun-Adeniran, Esse, Izuagbe, Iwu-James, Adebayo, Fagbohun, Olawoyin and Owolabi (2019) inspire kids to take chances, try out novel concepts, and work together to make those concepts a reality. School libraries foster creativity by giving students access to a range of digital platforms that facilitate content creation and sharing, in addition to physical resources. Whether students are generating multimedia presentations, editing videos, or developing apps, the library gives the tools and support they need to bring their creative ambitions to life. Libraries assist students in developing the creative thinking abilities that will be necessary in the quickly evolving, technologically-driven world of the future by promoting experimentation and invention (Onuoha, Unegbu and Ukachi 2013).

Facilitating Lifelong Learning

The encouragement of lifelong learning is arguably one of the most significant functions school libraries play in the development of skills. In a world where businesses and technology are always changing, people must be able to learn new things and adapt throughout their lives. Schleicher (2020) asserts that the ability to learn on one's own, seek out new information, and adjust to changing circumstances are characteristics of lifelong learning Kungu and Machtmes (2009. This kind of thinking is fostered by school libraries, which give students access to a wealth of materials that promote independent study. Pupils are encouraged to work on projects outside the parameters of the conventional curriculum, experiment with new technology, and investigate subjects of personal interest. Librarians assist students in taking charge of their education by providing advice on where to look for and how to use information.

Furthermore, classes and workshops that introduce pupils to new ideas and abilities are frequently held in libraries. These changes give students the chance to learn new things, try out new tools, and keep up with the most recent advancements in information management and technology. School libraries promote a culture of inquiry and discovery, which assists students in forming the mental habits necessary for lifelong learning (Merga, M. 2020). School libraries provide a significant and multifaceted role in the development of skills. School libraries serve as vital hubs for digital literacy, teamwork, creativity, critical thinking, and lifelong learning, making them essential for equipping students for the opportunities and challenges of the future. With the assistance of librarians, a variety of resources, and participation in cutting-edge learning settings, students are given the tools necessary to succeed in a world that is becoming more complex and interconnected by the day.

Emerging Technologies in School Libraries

School libraries are at the vanguard of this shift in education brought about by emerging technology. School libraries, being establishments that facilitate information access and aid in student education, have to constantly adjust to incorporate novel technology that improve academic achievements. Emerging technologies like robots, augmented reality (AR), virtual reality (VR), and artificial intelligence (AI) present intriguing opportunities for enhancing information access, enabling individualized learning, and stimulating creativity and innovation. Kroski (2017) emphasizes that school libraries can provide students with the chance to interact with the digital world in ways that are not possible in regular classrooms by integrating state-of-the-art technologies. These tools improve education while preparing students for the technological demands of the workforce of the future.

Artificial Intelligence (AI) in School Libraries

One of the most revolutionary technologies being introduced into school libraries today is artificial intelligence (AI). Applications of AI have the power to completely change how librarians and students use and interact with library resources. AI is increasing the effectiveness and student-centeredness of school libraries with chatbots that respond to inquiries from students instantly and machine learning algorithms that suggest tailored reading options. Automating repetitive work is one of the main uses of AI in school libraries. Digital collection management, usage patterns tracking, and book classification can all be

streamlined by AI-powered solutions. Librarians may now concentrate on more strategic responsibilities, like helping students use technology wisely and supporting inquiry-based learning, thanks to this automation.

By making recommendations for resources based on each student's unique learning preferences and academic needs, Kroski (2017) claims that AI also makes it possible for libraries to provide personalized learning experiences. Furthermore, AI tools can help students with their research by offering more advanced search features. Natural language processing is a tool used by AI-powered search engines like Google Scholar to comprehend difficult searches and provide more relevant results. This enhances students' research skills and digital literacy by improving their capacity to locate trustworthy, high-quality material quickly.

Virtual Reality (VR) and Augmented Reality (AR)

Emerging technologies like augmented reality (AR) and virtual reality (VR) could have a big impact on school libraries. With the help of these immersive technologies, students may now participate more actively with the material, investigate difficult ideas, and have more engaging, interactive learning experiences. Oyelude (2018) claims that by allowing students to experience historical events, investigate scientific phenomena, and travel to far-off places all from the comfort of their local library VR and AR can revolutionize traditional learning environments.

VR and AR are frequently employed in school libraries to facilitate inquiry-based learning (Wen, Wu, He, Ng, Teo, Looi, & Cai, 2023). For instance, history students can virtually visit past civilizations using virtual reality goggles, while biology students can explore the human body in three dimensions. Textbooks and other print materials might benefit from augmented reality (AR) by allowing digital content like movies, interactive tests, and 3D models to be superimposed over real pages. Students gain a deeper comprehension of the material as well as a more interesting learning experience thanks to these experiences. Additionally, libraries are great places to test out VR and AR technology. With the direction of librarians, students can explore these technologies to construct their own virtual and augmented reality projects, such as designing virtual tours, creating interactive 3D models, or developing AR-enhanced presentations Oyelude (2018). In addition to encouraging creativity, this practical experience with cutting-edge technologies develops technical abilities that are becoming more and more valuable in today's workforce.

Robotics and Makerspaces

Another cutting-edge technology that is becoming more popular in school libraries is robotics. Students can design, construct, and program robots through robotics classes, giving them a practical introduction to engineering, coding, and problem-solving. As students collaborate to tackle challenging problems, robotics activities foster critical thinking, creativity, and teamwork, according to Rapti and Sapounidis (2024). Makerspaces, which offer robotics kits and other resources for experiential learning, have been established in several school libraries Okuonghae (2019). These makerspaces act as hotspots for creativity where students may work on group projects, try out new technology, and hone their technical abilities. In

addition to robotics, makerspaces frequently include equipment that allows students to realize their ideas, like electronics kits, 3D printers, and laser cutters.

Numerous educational goals are supported when makerspaces and robotics are combined in school libraries. Apart from honing technical abilities, these tasks foster critical thinking, inventive problem-solving, and teamwork in pupils. Additionally, makerspaces promote an innovative and exploratory culture by offering a welcoming setting where students of all skill levels can experiment with new technologies and follow their interests (Soomro, Casakin, Nanjappan, and Gorgiev 2023).

Cloud Computing and Digital Resource Management

School libraries now require cloud computing as a necessary technology, especially as they move toward digital collections and online services. Without the need for physical storage space, libraries may now store and manage enormous volumes of digital content, such as e-books, scholarly journals, and multimedia resources, thanks to cloud-based platforms. Students can now access digital content from any device with an internet connection, making library resources more accessible. Kroski (2017) asserts that cloud computing also makes it easier for instructors and students to collaborate and share knowledge. Research materials may be shared, group projects can be worked on, and students can co-create digital content in real time with cloud-based technologies like Google Drive and Microsoft OneDrive. These resources help students work more effectively and efficiently since they are frequently included into library services.

Furthermore, librarians may more efficiently manage digital collections thanks to cloud-based library management systems. By automating processes like cataloguing, monitoring usage trends, and overseeing digital database subscriptions, these solutions provide librarians more time to dedicate to meeting the educational requirements of their patrons. Because cloud computing allows libraries to readily grow their digital collections and add new online services as needed, it also makes library services more scalable.

Gamification and Learning Analytics

The integration of game design aspects outside of games, or gamification, is another rising technology that is finding its way into school libraries. By creating an interactive, game-like environment for learning activities, gamification can increase student motivation and engagement. For example, libraries can utilize digital badges, leaderboards, and challenges to motivate students to accomplish reading goals, explore new topics, or engage in library programs. Another significant technology being used in school libraries is learning analytics, which uses data to evaluate and enhance learning results. Learning analytics systems can monitor how students interact with digital resources and provide valuable information into their learning preferences and habits (Johnson et al., 2015). With the use of this information, librarians may better fulfil the requirements of their patrons by customizing services and materials, resulting in more engaging and successful learning experiences. School libraries are becoming tech-savvy, dynamic learning spaces that meet a variety of educational goals thanks to emerging technologies. These innovations, which range from robotics programs and cloud-based collaboration platforms to AI-powered research tools and immersive VR experiences, are improving the manner in which students access

information, interact with content, and acquire the skills they will need in the future. School libraries will be essential in helping kids get ready for the needs of a world that is changing quickly as technology advances.

Policy and Curriculum Recommendations

Introducing new technologies into school libraries is essential to helping students acquire skills that will prepare them for the future. To guarantee that these technologies are used effectively and that school libraries are prepared to assist students in gaining digital literacy, critical thinking, and collaborative skills, policies and curricula must be updated. The curriculum frameworks and important policy proposals that can assist schools in converting their libraries into vibrant centres for skill development are as outlined.

1. Ensuring Equitable Access to Technology

The digital gap is one of the biggest problems school libraries are facing. While some schools could have access to the newest technology, others might not have the infrastructure needed to support it Rajiv, B. (2016). It is imperative for policymakers to guarantee that every student, irrespective of their financial status, has access to the necessary technology and resources to cultivate talents that will be marketable in the future. In this vein, these recommendations were made:

1. Funding from the government should be set aside to assist with the procurement of cutting-edge technology equipment for school libraries, including computers, robotics kits, virtual reality (VR) headsets, and 3D printers.
2. For schools in underfunded areas to have access to the same technical infrastructure as schools in richer areas, partnerships with private groups can help provide grants, donations, or sponsorships.

By offering assistive technology and adaptable learning platforms, schools should be encouraged to create digital literacy programmes that are accessible to all students, including those with disabilities.

2. Training and Professional Development for Librarians

To effectively integrate modern technology into school libraries, librarians must possess the necessary knowledge and abilities to oversee, instruct, and administer these resources. Librarians need to change to become technology facilitators who help students use digital resources and technologies Hamad, Al-Fadel, and Fakhouri (2020). To make sure librarians are ready for these new tasks, policymakers and education authorities must give professional development for librarians top priority. The following recommendations will assist in this direction.

It would be beneficial to create regular training sessions to assist librarians in keeping abreast of the most recent developments in technology. This might be accomplished by forming alliances with academic institutions, professional associations, and tech businesses.

Librarians should be encouraged to participate in conferences, workshops, and online courses that focus on the use of emerging technology in education.

To educate school librarians for their changing duties, certification programs should include instructional design, digital literacy, and technology integration.

3. Integration of Technology into the Curriculum

Schools need to include technology and digital literacy into their curricula to guarantee that pupils are sufficiently prepared for the future. This involves a full examination of existing curricula and the development of new instructional

frameworks that embrace the use of technology to promote learning Johnson, Jacovina, Russell and Soto (2016). Suggestions made here are as follows:

i. Courses and modules on digital literacy, coding, robotics, and information management should be added to school curricula so that they are included in the core curriculum for all grade levels.
ii. Project-based learning that is collaborative and allows students to use technology in groups to address real-world problems should be prioritized.
iii. Educators ought to collaborate closely with school libraries to integrate cutting-edge technology like virtual reality, augmented reality, and gamification into classes and homework assignments.
iv. The curriculum ought to promote interdisciplinary learning, in which pupils use technology to combine knowledge from several subject areas (e.g., studying science, math, and engineering topics through robots).

4. Creating a Supportive Policy Framework for Digital Citizenship

Policies that encourage responsible digital citizenship are becoming more and more necessary as students depend more and more on digital technologies and online resources for their education Bocar and Ancheta (2023). In order to preserve their privacy and engage in critical evaluation of online content, students need to learn how to operate in the digital world in a morally and safely manner. Recommendations made are as follows:

i. Digital citizenship initiatives that educate children about online safety, privacy, and responsible technology usage should be implemented in schools.
ii. Policies need to be put in place to safeguard student information and guarantee that privacy regulations are properly followed while employing cloud-based services or other digital resources in the library.
iii. It is important to create guidelines that will assist librarians and educators in evaluating the reliability of internet sources and in teaching students how to choose trustworthy sources for their research.

5. Encouraging Collaboration between Stakeholders

Collaboration between a wide range of stakeholders, including governmental agencies, commercial companies, educational institutions, and the community, is necessary for the successful integration of technology in school libraries Jhurree (2005). Working together can make it easier to obtain money, supply materials, and exchange best practices. On this, the following recommendations were made:

i. Education officials ought to collaborate with IT firms to establish public-private alliances that facilitate the transfer of gear, software, and resources for professional development to educational institutions.
ii. To provide kids more chances to experiment with new technologies and hone their skills through extracurricular activities, schools should work with nearby libraries, colleges, and technology hubs.
iii. To make sure that parents and community people are informed of the advantages and difficulties of integrating technology into education, parent-teacher associations (PTAs) and community groups should be involved in talks concerning technology use in school libraries.

The Way Forward

Given how quickly technology is advancing and how it affects education, school libraries are essential for ensuring that students are ready for the future. In order

to accomplish this, school libraries must transform into dynamic learning spaces that support the growth of digital skills and critical thinking in addition to offering information access. This can be achievable when stakeholders embrace; vision for the future, redesigning school libraries as collaborative learning hubs, continuous professional development for librarians and teachers, promoting digital equity, fostering partnerships with industry and higher education and assessing the impact of technology on learning

Embracing a Vision for the Future: The future of school libraries lies on adopting a progressive vision that is in line with the changing requirements of society and students. School libraries need to change from being only places to store knowledge to becoming hubs for collaboration, creativity, and innovation Lance (2002). As a result, educational leaders and legislators ought to embrace a strategic vision for libraries' future that places an emphasis on integrating cutting-edge technology, creating adaptable learning environments, and providing chances for teachers and students to collaborate.

Continuous Professional Development for Librarians and Teachers: Teachers and librarians must continue their professional development as the educational landscape continues to change Moonasar (2024). Teachers need to be prepared with the information and abilities necessary to successfully incorporate digital technologies into their lessons, and librarians need to be given the authority to oversee technology-driven projects. Therefore schools ought to set up a structure for ongoing professional development that guarantees teachers and librarians stay up to date on the latest developments in technology. Access to online resources and training platforms, cooperative learning groups, and mentorship programs should all be part of this framework.

Redesigning School Libraries as Collaborative Learning Hubs: The physical design of school libraries must also develop to support new forms of learning. Conventional study tables and book stacks should make way for adaptable, multipurpose areas that promote teamwork, creativity, and experiential learning Holland (2015). Schools should spend money repurposing their library areas to incorporate makerspaces, digital media laboratories, and cooperative workstations where students may work in groups, explore emerging technologies, and participate in project-based learning. Modular furniture and equipment enable simple reconfiguration to accommodate various activities and learning requirements.

Promoting Digital Equity: A top focus is making sure all students have access to the tools and resources they need to build abilities that will prepare them for the future. Planning for school libraries should prioritize digital equity, with an emphasis on closing the digital divide and guaranteeing that all students, regardless of background, may engage in technology-enhanced learning Afzal, Khan, Daud, Ahmad and Butt (2023). Policymakers must give schools in underprivileged communities top priority when allocating funds, guaranteeing that every kid has access to top-notch digital resources, devices, and fast internet. Digital inclusion programs that give students access to technology after school hours like loanable devices or extended library hours should be implemented by schools.

Fostering Partnerships with Industry and Higher Education: To allow students the chance to investigate cutting-edge technologies and cultivate skills that are marketable to employers, school libraries ought to form alliances with corporate leaders, postsecondary educational institutions, and neighbourhood associations Johnston (2012). These collaborations can aid in bridging the knowledge gap

between academic instruction and practical application. To give students first-hand exposure to developing technologies, schools should cooperate with nearby industries and technology startups to develop mentorship programs, workshops, and internship opportunities. Through collaborations with universities, students can have access to resources, expert knowledge, and cutting-edge research methods that enhance their education beyond the senior secondary school setting.
Assessing the Impact of Technology on Learning: It is critical to evaluate the effects of emerging technologies on student learning and skill development as schools continue to invest in them. School libraries will continue to be successful in preparing children for the future if they are subjected to ongoing evaluation.

Conclusion

School libraries can lead the way in educational reform by integrating cutting-edge technologies and creative teaching methods to foster the development of skills necessary for the future. School libraries may play a critical role in equipping students for the needs of a fast-changing world by implementing progressive policies, encouraging collaboration, and guaranteeing equal access to resources. The solution is to seize these chances and make a commitment to ongoing policy and practice change.

References

Abid, H., Mohd, J., Mohd, A. Q. & Rajiv, S. (2022). Understanding the role of Digital Technologies in Education: A Review. *Sustainable Operations and Computers,* 3,275-285 https://www.sciencedirect.com/science/article/pii/S2666412722000137

Afzal, A., Khan, S., Daud, S., Ahmad, Z., & Butt, A. (2023). Addressing the Digital Divide: Access and Use of Technology in Education. *Journal of Social Sciences Review, 3(2),* 883-895.file:///C:/Users/mr%20bosun/Downloads/77-addressing-the-digital-divide-arfa-afzal%20(3).pdf

Anthonysamy, L. (2019). Digital Literacy Deficiencies in Digital Learning Environment among University Students. file:///C:/Users/mr%20bosun/Downloads/Lilianetal2020DigitalLiteracyDeficienciesinDigitalLearningEnvironmentamongUniversityStudents.. pdf

Bocar, A. & Ancheta, R. (2023). Exploring Students' Digital Citizenship: Its Importance, Benefits, and Drawbacks. *Journal of Business, Communication & Technology,* 2(2), 28-38. https://bctjournal.com/article_25_a0cff9b0e2c76853019fe850b4d2c54e.pdf

Dede, C. (2014). *The Role of Digital Technologies in Deeper Learning. Students at the Center: Deeper Learning Research Series*. Boston, MA: Jobs for the Future. https://files.eric.ed.gov/fulltext/ED561254.pdf

Deschenes, A. (2024). Digital literacy, the use of collaborative technologies, and perceived social proximity in a hybrid work environment: Technology as a social binder. *Computers in Human Behaviour Reports,* 13, https://www.sciencedirect.com/science/article/pii/S2451958823000842

Foo Seong Ng, D., & Chua, J. (2023). Future-Readiness in Education. Asia Pacific *Journal of Education,* 43(3), 633 – 647. https://www.tandfonline.com/doi/full/10.1080/02188791.2023.2236421

Hamad, F., Al-Fadel, M. & Fakhouri, H. (2020). The effect of librarians' digital skills on technology acceptance in academic libraries in Jordan. *Journal of*

Librarianship and Information Science. file:///C:/Users/mr%20bosun/Downloads/0961000620966644.pdf

Holland, B. (2015). 21st-Century Libraries: The Learning Commons. *Edutopia,* https://www.edutopia.org/blog/21st-century-libraries-learning-commons-beth-holland

Inamdar, S. A. (2021). The Role of Libraries In Promoting Digital Literacy In The 21st Century. *Journal of Emerging Technologies and Innovative Research (JETIR)*, 8(8).

Jhurree, V. (2005). Technology integration in education in developing countries: Guidelines to policy makers. *International Education Journal,* 6(4), 467-483. https://files.eric.ed.gov/fulltext/EJ855000.pdf

Johnston, M. P. (2012). School Librarians as Technology Integration Leaders: Enablers and Barriers to Leadership Enactment. *American Association of School Librarians,* 15, 1-33. https://files.eric.ed.gov/fulltext/EJ978840.pdf

Kotsis, K. T. (2024). The Significance of Experiments in Inquiry-based Science Teaching. *European Journal of Education and Pedagogy,* 5(2), 86 – 92. https://www.ej- edu.org/index.php/ejedu/article/view/815/634

Kroski, E. (2017). *The Makerspace Librarian's Sourcebook.* Chicago: American Library Association. https://blogs.lse.ac.uk/impactofsocialsciences/2017/06/25/book-review-the-makerspace-librarians-sourcebook-edited-by-ellyssa-kroski/

Kungu, K. & Machtmes, K. (2009). Lifelong Learning: Looking at Triggers for Adult Learning. The International *Journal of Learning*, 16(7), 501-511. file:///C:/Users/mr%20bosun/Downloads/Lifelong_learning_Looking_at_triggers_for_adult_le.pdf

Lance, K. C. (2002). *What Research Tells Us about the Importance of School Libraries.* https://www.researchgate.net/publication/234631242_What_Research_Tells_Us_about_the_Importance_of_School_Libraries

Li, L. (2022). *Reskilling and Upskilling the Future-ready Workforce for Industry 4.0 and Beyond. Information System Frontiers,* 13:1-16. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9278314/

Merga, M. (2020). How Can School Libraries Support Student Wellbeing? Evidence and Implications for Further Research. *Journal of Library Administration,* 60(6), 660 – 673. https://www.tandfonline.com/doi/full/10.1080/01930826.2020.1773718Invention: Ho

Mohammed, S., ALI, H. & Abdullahi, A. A. (2020). Digital Literacy Skills and Use of Library Information Resources by Nigeria Law School Students, Lagos Campus. *Journal of Applied Information Science and Technology,* 13(2), https://www.jaistonline.org/13vol2/32.pdf

Mokhtari, F. (2023). Fostering Digital Literacy in Higher Education: Benefits, Challenges and Implications. International Journal of Linguistics, Literature and Translation, 6(10), 160-167. file:///C:/Users/mr%20bosun/Downloads/Fostering_Digital_Literacy_in_Higher_Education_Ben.pdf

Moonasar, A. (2024). Continuing professional development and the changing landscape of academic libraries. *Library Management,* 45,(3/4), 226-242. https://www.emerald.com/insight/content/doi/10.1108/LM-09-2023-0100/full/pdf?title=continuing-professional-development-and-the-changing- landscape-of-academic-libraries

OECD (2018). *The future of education and skills 2030: Education and skills for a changing world.* Paris: OECD.

Okuonghae, O. (2019). Creating Makerspaces in Nigerian Libraries: Issues and Challenges. *Indian Journal of Information Sources and Services*, 9(2), 49-52. file:///C:/Users/mr%20bosun/Downloads/IJISSVol.9No.2April-June2019pp.49-52.pdf

Olajide, O. & Zinn, S. (2021). The Role of School Libraries in Supporting Inquiry-Based Methods for Teaching Science in Nigerian Schools: Challenges and Possibilities. *Libri,* 71(2), 171-182. https://www.degruyter.com/document/doi/10.1515/libri-2020-0068/html?lang=en

Olubiyo, P. O. & Olubiyo, L. M. (2023). Roles of School Library in the Education of African Child in Nigeria. *Library Philosophy and Practice (e-journal).* 7705. https://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=14869&context=libphilpr ac

Omeluzor, S. U., Bamidele I. A., Ukangwa, C. C. & Amadi, H. U. (2013). The relevance of a library in the 21st century: Students ' perception. *International Journal of Library and Information Science,* 5(6), 160-166. file:///C:/Users/mr%20bosun/Downloads/InternationalJournalofLibraryandInformationScience.pdf

Onuoha, U. D., Unegbu, V. E., & Ukachi, N. B. (2013). Training the Creative Librarian in the Age of Technological Advancement. *Information Management and Business Review* 5(6), 306-312. file:///C:/Users/mr%20bosun/Downloads/1056- Article%20Text-1056-1-10-20160308.pdf

OpenStax (2024). *Creativity, Innovation and Invention: How they Differ.* https://openstax.org/books/entrepreneurship/pages/4-2-creativity-innovation-and-invention-how-they-differ

Oyelude, A. A. (2018). Virtual Reality (VR) and Augmented Reality (AR) in Libraries and Museums. *Library Hi Tech News*, 35(5). https://www.researchgate.net/publication/325980372_Virtual_reality_VR_and_augme nted_reality_AR_in_libraries_and_museums

P21 (2015). Framework for 21st Century Learning. The Partnership for 21st Century Skills.http://www.p21.org/about-us/p21-framework

Rajiv, B. (2016). *A school library's impact on digital gap: A study based on a rural school libraries in Trinidad and Tobago*. Master's Dissertation

Rapti, S. & Sapounidis, S. (2024). Critical thinking, Communication, Collaboration, Creativity in kindergarten with Educational Robotics " : A scoping review (2012–2023). *Computer andEducation,*210. https://www.sciencedirect.com/science/article/abs/pii/S0360131523002452

Soomro, S. A., Casakin, H. Nanjappan, V. & Gorgiev, G. V. (2023). Makerspaces Fostering Creativity: A Systematic Literature Review. *Journal of Science Education and Technology,* 32(2):1-19. https://www.researchgate.net/publication/369918960_

Ternenge, T. S. & Agipu, O. L. (2019). Availability and Utilization of School Library Resources in Selected Secondary Schools in Makurdi Metropolis. *Library Philosophy and Practice (e-journal)*. 2542. https://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=5783&context=libphilpra c

Todd, R. J. (2012). School Libraries and the Development of Intellectual Agency: Evidence from New Jersey. School Library Research, 15, https://files.eric.ed.gov/fulltext/EJ994327.pdf

Wen, Y., Wu, L., He, S., Ng, N. H., Teo, B. C., Looi, C. K. & Cai, Y. (2023). Integrating Augmented Reality into Inquiry-Based Learning Approach in Primary Science Classrooms. *Education Techology Research Development,* file:///C:/Users/mr%20bosun/Downloads/0e2ba1c9-0886-4593-819e-0e3c4613916c.pdf

World Economic Forum (2016) *The Future of Jobs Employment, Skills and Workforce Strategy for the Fourth Industrial Revolution. Executive Summary: The Future of Jobs and Skills.* https://www3.weforum.org/docs/WEF_FOJ_Executive_Summary_Jobs.pdf

World Economic Forum (2020). The future of jobs report. Geneva: World Economic Forum. https://www.weforum.org/events/world-economic-forum-annual-meeting-2016/

Yusuf, F., Segun-Adeniran, C., Esse, U., Izuagbe, R. Iwu-James, J., Adebayo, O., Fagbohun, M., Olawoyin, O. & Owolabi, S. (2019). Gravitating towards Technology in Education: Place of Makerspace. *Proceedings of INTED2019 Conference.* C:/Users/mr%20bosun/Downloads/GRAVITATINGTOWARDSTECHNOLOGYINE DUCATION-PLACEOFMAKERSPACE.pdf