EDUCATIONAL LEARNING RESOURCE NEED OF 21ST CENTURY UNIVERSITY LIBRARY BUILDINGS IN NIGERIA

Oluwafemi K. Akande*[1], Lilian C. Obi-George[2], Collins A. Anyawu [3], Emmanuel M. Anikor [4], Charles Y. Makun[5] Amaka-Anolue M. Basil[6]

[1, 2, 3, 5] *Department of Architecture, School of Environmental Technology (SET),*
Federal University of Technology, Minna, Nigeria
[4]*Interstate Architects Limited, 41, Colorado Close, Maitama, Abuja, Nigeria*
[6]*Department of Architecture, Faculty of Environmental Studies,*
University of Nigeria, Nsukka, Nsukka, Nigeria

* Corresponding Author: *akande.femi@futminna.edu.ng*

A B S T R A C T

The library as a core educational learning center should reflect the current revolution in the use of information and communication technologies (ICTs) for academic learning. However, due to current advancements in the use of ICTs, old library buildings are gradually becoming obsolete. Users' visits to libraries will continue to drop until the obsolescence of the library buildings is addressed and creative learning spaces are established. Many university library buildings in Nigeria have not been modernised to satisfy the educational learning needs of the users they serve in the twenty-first century. This study examines users' perceptions of university library buildings in Nigeria. The objective is to determine users' educational learning resource demands and library building expectations that suit their 21st century needs as learners. A quantitative research methodology was used, with questionnaires (n= 484) distributed to users of libraries at selected educational institutions of higher learning in Nigeria. Findings shows that users were pleased with the indoor ambient conditions of the libraries, but were dissatisfied with the insufficient facilities and provision that met their 21st century learning demands. The paper suggests that educational institutions should constantly examine the learners' requirements in order to match their current educational needs. This would allow them to provide and/or upgrade their library buildings, which would improve users' learning while also meeting the needs of 21st century library users. It concluded that outmoded library buildings are a reflection of poor educational outcomes, which are invariably responsible for making library buildings irrelevant to users.

INTRODUCTION

In most libraries around the world, there are global shifts occurring in the social and educational domains. In order to accommodate the changing needs of scholars and students, university libraries are changing globally in the twenty-first century. Libraries

are evolving into service-rich environments that provide a variety of learning and wellbeing supports for students (Ateka *et al.,* 2023). Modern library architecture is being examined to produce areas that are in line with the needs of setting up a biotech setting (Mondal, 2021). Flexible floor plans, a wide range of digital and print resource collections, the active function of circulation spaces, shelving configurations, and natural lighting are all crucial factors to take consideration when designing library facilities (Choy and Goh, 2016).

In order to adapt the library to the needs of 21st-century users, it is imperative to comprehend the varied and complicated needs of today's library users (Abubakar 2011; Imam and Ilori, 2023). Arumuru and Tom-George (2020), stated that the twenty-first century libraries in developed nations have grown and changed to offer a variety of services utilizing a broad spectrum of multimedia to reach a large and varied audience. In the context of higher education, stakeholders understand the importance of libraries in the digital age, emphasizing digitization, improving the student experience, diversity, and teamwork (Gavin *et al.,* 2019). In the 21st century, several universities across the world are embracing new technology and consequently remodelling their library buildings. This has enhanced their collaboration and improve the research and learning experience of their users and adjusting to their changing needs.

In order to meet the needs of the twenty-first century, Nigerian university libraries must integrate digital services, information and communication technologies (ICTs), and appropriate space planning (Atanda *et al.,* 2021). Omeluzor *et al.,* (2013) posited that a library serves as a community's entry point to knowledge and offers the foundational resources necessary for lifelong learning, autonomous decision-making, and the cultural advancement of both individuals and social groupings. Numerous studies (Rehman and Soroya, 2021; Demeter, 2023; Chiemeke, 2007) have looked into and explored how people around the world view university libraries in the twenty-first century.

Few research have exclusively examined the difficulties and viewpoints of 21st-century library users. Due to this, a research of this kind was required in an effort to close that gap and rethink library services and facilities to better serve 21st-century users. Meeting user needs in the second decade of the new millennium presents a number of issues for library professionals, mostly because of the quick development of ICTs (Shonhe and Priti, 2019). This research gap highlights the significance of comprehending the consequences of inadequate 21st-century library conditions and developing workable plans for improving a sufficient university library by embracing users' perspectives to

enhance the relevance of the university library as a whole. The study objectives include (i) to determine perception of library users on the environmental condition of the library (ii) to examine the space requirement for 21st century library users. (iii) To determine the adequacy of the library design for library in the 21st century.

LITERATURE REVIEW

Library spaces in the twenty-first century are being redesigned to be more than just book repositories. Libraries are increasingly viewed as hubs for learning and community engagement, with interactive and engaging environments (Hotsonyame, 2023). The design of library spaces is changing to promote discussion, interaction, and hands-on learning (Mirna *et al.*, 2022). Sullivan (2010) suggested that academic libraries, in particular, are repurposing their spaces to support flexible learning environments that are responsive to the needs of the knowledge society. These spaces are intended to stimulate students' thinking, exploration, and creation, as well as to provide opportunities for experiential learning and collaboration (Adeogun, 2019). Several libraries in developed countries are redesigning their library buildings to meet the demands of the twenty-first century and the concept of "library as space."

Seal (2015) demonstrated that space has always been a problem in libraries particularly when it comes to how materials are kept, exhibited, and made accessible as well as where services are located, staff locations, and service points. Shonhe and Priti (2019) presented findings on twenty first century library users' information needs and challenges. The study's data, which was gathered using the online survey platform Survey Monkey, indicates that most participants (76%) anticipated that libraries in the twenty-first century would have areas for fostering community. E-learning classrooms (79%), technology hubs (73%), group work stations and video conferencing (68%), and social spaces (60%) were found to be the most anticipated library features. Online reference services (84%), Wi-Fi access (74%), personalised libraries (69%), and OPAC (61%), were the anticipated library services. Three main issues faced by users were: insufficient online services (64%), poor internet connectivity (68%), and a lack of technology resources.

The study recommended that a functional design, as opposed to a monumental one, be used for the 21st-century library building. Parbe *et al.*, (2021) demonstrated that when planning or designing a 21st-century library building, the following characteristics of an adequate library space should be taken into account: functional, extendable,

environmentally suitable, flexible, adaptable, safe and secure, suitable for information technology, accessible, efficient, varied, interactive, ambience conducive, and provision of areas for documents, staff library equipment, and services areas.

In many ways, libraries are no longer just one physical location, but rather multipurpose spaces that serve as welcoming spaces for information, social spaces, places for experimentation, and safe havens (Elmborg, 2011). Haliso (2011) listed factors to take into account when designing university library buildings in Nigeria for the twenty-first century, including the use of ICT tools, information resources, and facilities for the development of e-library services. Additionally, the role of architectural design in the efficient delivery of library services should be taken into consideration, with considerations for accessibility, functionality, and suitability for information technology (BOU 2018).

METHODS AND DATA ANALYSIS

This study's research methodology is quantitative and outlines how a social or human problem should be investigated in terms of answers to specific questions. A cross-sectional survey technique that uses the statistical data from questionnaire responses as the main tool. The data was collected through the distribution of the questionnaire using Google Forms (digitally) and paper based questionnaire physically distributed amongst library users within four universities in Nigeria. These universities include the University of Abuja (150 questionnaires), the Federal University of Technology, Minna (300 questionnaires), Newgate University, Minna (120 questionnaires), and Ibrahim Badamasi University, Lapai (20 questionnaires). Out of the 590 questionnaires distributed, 484 were retrieved amounting to 82% of the entire questionnaire. The sample population of users consists of respondents who are users of university libraries, which are the total participants that responded to the questionnaire. To achieve the study's aims, descriptive statistics and the relative importance index for ranking were used to examine questionnaire responses. Descriptive analysis was used to summarise the socio-demographic data, while statistical analysis was used to investigate the issues raised in this study. Using qualitative approach, information gathered from relevant literature and published articles from journals, conferences, and national newspapers were merged.

RESULTS AND DISCUSSION

Data analysis and reliability tests were performed to ascertain the validity of the measurement scales used for analysis in this investigation. The reliability of the instruments was determined to guarantee apparent between the test scales using Cronbach's standardised alpha (Table 1).

Tabel 1. Reliability Test

Section	Cases	Reliability	Interpretation
Section 2	6	0.753	Highly reliable
Section 3	15	0.817	Highly reliable
Section 4	13	0.888	Highly reliable
Overall	34	0.873	Highly reliable

Variables with numerical values were identified from the data set, and all parameters have reliability coefficients that are nearly equal to 1. This suggests that the data is highly reliable. Out of the 520 questionnaires that were distributed, 484 were returned. The frequency of respondents was 295 males to 189 females, or 61% and 39% on average. As indicated in (Table 2), the majority of respondents are between the ages of 18 and 22, with 53 and older being the lowest group.

Table 2. Demographic information

Variable	Frequency(percentage)				
Gender					
Male			295(61)		
Female			189(39)		
Age:		**Category of users**		**Educational qualification**	
18-22	298(61.4)	100L	202(41.6)		
23-27	154(32)	200L	61(12.6)	Undergraduate	407(83.9)
28-32	23(4.7)	300L	81(16.7)	Graduate	30(6.2)
33-37	5(1.0)	400L	47(9.7)	(HND,BSc,	34(7.0)
38-42	3(0.6)	500L	90(18.6)	B.Tech)	14(2.9)
53-57	1(0.2)	Academic staff	3(0.6)	Post-graduate	
		Non Academic staff	1(0.2)	Others	

The analysis shows that 61.4% of the respondents are within age 18-22 years old, 32% are within 23-27 years of old, 4.7% are within 28-32% years old. 41.6% of the respondents are 100L students, 18.6% are 500L students, 16.7% are 300L students and 12.6% are 200L students. 83.9% are undergraduate, 6.2% are graduate with either HND, BSc or B.Tech while 7% are postgraduate students. This implies that adequate information

concerning users' was retrieved due to the level of exposure of the respondents and all are in the academic and know the value of the library.

Table 3 shows the survey of the environmental condition of the libraries from the respondents.

Table 3. Perception of library users on the environmental condition of the library

Variable	Frequency (percentage)			Mean value
Lighting is adequate in the library	Adequacy	Independent	dependent	
Strongly disagree	20(4.1)	47(9.7)	33(6.8)	3.96
Disagree	53(10.9)	78(16.1)	75(15.5)	3.43
Neural	51(10.5)	91(18.8)	89(18.4)	3.61
Agree	163(33.6)	159(32.8)	139(28.7)	
Strongly Agree	198(40.8)	110(22.7)	149(30.7)	
Lighting provide a different and comfortable atmosphere	Comfortable Atmosphere	Illuminate Library	Sound Proof	
Strongly disagree	16(3.3)	21(4.3)	66(13.6)	4.18
Disagree	35(7.2)	34(7)	81(16.7)	4.13
Neural	50(10.3)	45(9.3)	73(15.1)	3.43
Agree	127(26.2)	149(30.7)	106(21.9)	
Strongly Agree	257(53.0)	235(48.7)	159(32.8)	
Insolation of the building keep out noise pollution	Noise Pollution	New Furniture	Comfortable Furniture	
Strongly disagree	58(12)	60(12.4)	21(4.3)	3.5
Disagree	79(16.3)	72(14.8)	48(9.9)	3.4
Neural	75(15.5)	97(20)	84(17.3)	3.82
Agree	129(26.6)	121(24.9)	173(35.7)	
Strongly Agree	144(29.7)	135(27.8)	159(32.8)	
There a variety of seating types		Furniture Adequate	Rearrange Furniture	
Strongly disagree	41(8.5)	30(6.2)	75(15.5)	3.54
Disagree	80(16.5)	42(8.7)	77(15.9)	3.85
Neural	87(17.9)	72(14.8)	60(12.4)	3.46
Agree	129(26.6)	167(34.4)	98(20.2)	
Strongly Agree	148(30.5)	174(35.9)	175(36.1)	

The analysis shows that 50% of the respondents agree and strongly agree that environmental condition are adequate and comfortable for the users. This is consistent with the research by Okorie and Akanwa (2018), which demonstrates that: all categories of information resources mentioned are used in the university libraries under

investigation, and there is an adequate correlation between environmental factors and information resource use.
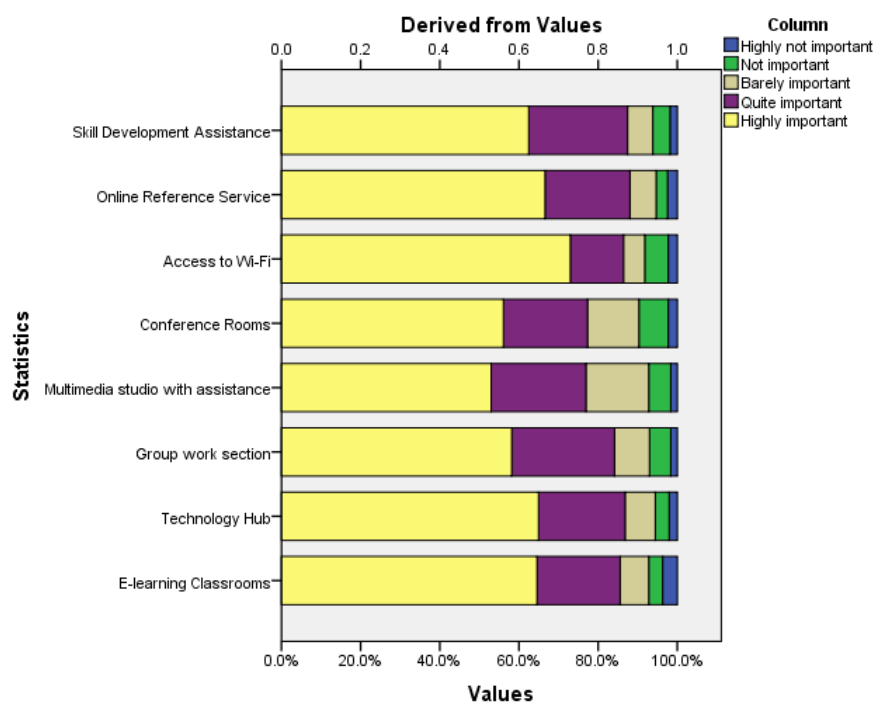

Figure 1. Space requirement for 21st century library users

Figure 1 and 2 shows the survey of space requirements needed for 21st century library users. According to the survey, over 75% of the respondents agree and strongly agree on the listed spaces are required on the 21st century library users. While the average of below 5.5% disagreed and strongly disagreed of the spaces for the 21st century library users. This result agrees with the study Seal (2015), which highlights the importance of the "library as space" in enhancing the function of college and university libraries. The study found that in order to meet user needs for technology access, group work, social interaction, and knowledge creation, academic institutions must establish areas known as information commons, learning commons, research commons, etc. at the urging of librarians. It implies that having enough space in the library is one of its key values and supports the need for resources that are meant to serve as educational learning tools for users in the twenty-first century.
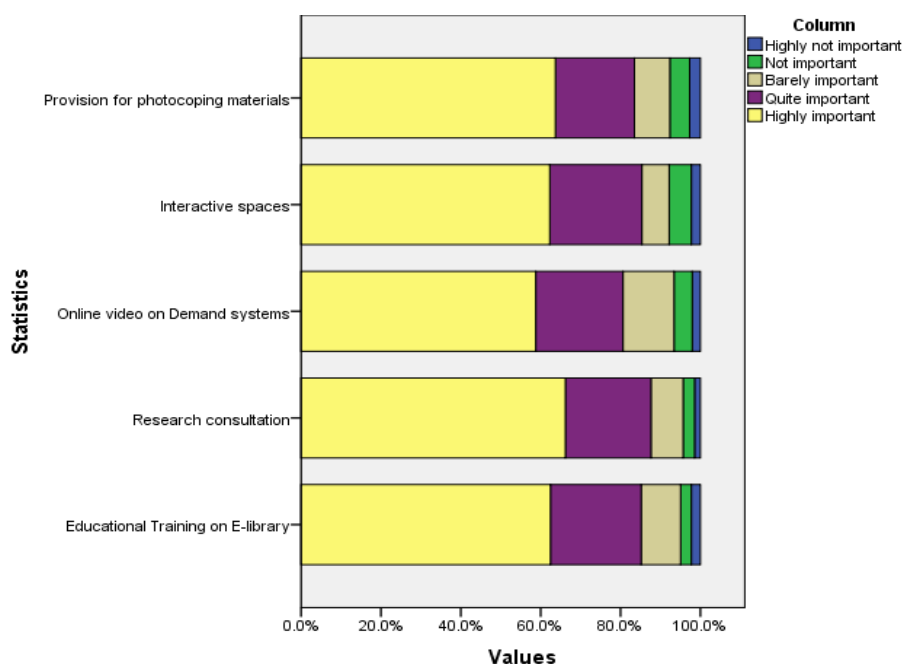
Figure 2. Space requirement for 21st century library users

Table 4 shows the adequacy of the library design for a typical 21st century library.

Table 4. To determine the adequacy of the library design for library in the 21st century

Variable	Frequency (Percentage)	Mean value	Variable	Frequency (Percentage)	Mean value
Provision of Window			**Provision of Air condition**		
Highly inadequate	17(3.5)	4.28	Highly inadequate	59(12.2)	3.41
Inadequate	18(3.7)		Inadequate	67(13.8)	
Barely adequate	38(7.8)		Barely adequate	106(21.9)	
Quite adequate	153(31.5)		Quite adequate	121(24.9)	
Highly adequate	259(53.4)		Highly adequate	132(27.2)	
Provision of Fan			**Ventilation**		
Highly inadequate	24(4.9)	3.94	Highly inadequate	12(2.5)	4.08
Inadequate	26(5.4)		Inadequate	26(5.4)	
Barely adequate	98(20.2)		Barely adequate	80(16.5)	
Quite adequate	146(30.1)		Quite adequate	158(32.6)	
Highly adequate	191(39.4)		Highly adequate	209(43.1)	
Illumination			**Accessibility to natural light**		
Highly inadequate	9(1.9)	4.04	Highly inadequate	18(3.7)	3.93
	36(7.4)		Inadequate	40(8.2)	

Variable	Frequency (Percentage)	Mean value	Variable	Frequency (Percentage)	Mean value
Inadequate	74(15.3)		Barely adequate	93(19.2)	
Barely adequate	172(35.5)		Quite adequate	141(29.1)	
Quite adequate	194(40)		Highly adequate	193(39.8)	
Highly adequate					

From the analysis, it shows that average of over 60% of the respondents strongly agree there is adequate library design in the surveyed library suitable for 21st century library users. This study is in relation to Demeter (2023) where the study highlights how crucial it is to design welcoming and inclusive library spaces that serve to a wide spectrum of users from various backgrounds. Table 5 shows the analysis of the survey on the visit frequency of library users to the library. The data shows that 13.8% of the respondents never use the library, 29.7% rarely use the library, 31.5% of the respondents sometimes use the library, 12.2% always use the library, and 12.8% often use the library. This shows that the library is not visited by users. This analysis is not in agreement with Hussain and Abalkhail (2013), where the study recorded the average percentage of users that use the library daily at 51.67%, weekly at 22.85%, fortnightly at 14.8%, monthly at 7.22%, and occasionally at 3.22%.

Table 5. Survey on how frequent the users visit the library

How often do you use the library	Frequency (percentage)
Never	67(13.8)
Rarely	144(29.7)
Sometimes	153(31.5)
Always	59(12.2)
Often	62(12.8)

Table 6 shows that there is a significant relationship between the environmental condition of ergonomics and the use of the library, with a coefficient of 0.111 and a p-value of 0.001, which is less than 0.05, which implies that as the environmental condition of ergonomics increases, the use of the library also increases. It is also observed that environmental conditions in daylight and acoustics do not influence the use of libraries, with a p-value of 0.073 and 0.741, respectively, which is greater than 0.05. This finding is in agreement with the Udo and Edidiong (2022) study, which stated that there is a significant influence of library environmental factors on students' patronage of library services in universities.

Table 6. Survey on the effects of environmental condition on library usage

		How often do you use the library
Environmental on Day lighting	Correlation Coefficient	.063
	Sig. (2-tailed)	.073
	N	485
Environmental on Acoustic	Correlation Coefficient	-.012
	Sig. (2-tailed)	.741
	N	485
Environmental on Ergonomics	Correlation Coefficient	.111**
	Sig. (2-tailed)	.001
	N	485

From the table 7 above, library facilities and spaces does not influences the use of library with a p-value of 0.631 which is greater than 0.05.

Table 7. Survey on usage of available spaces and facilities by the respondents

		How often do you use the library
Library facilities spaces	Correlation Coefficient	.017
	Sig. (2-tailed)	.631
	N	485

Table 8 shows the significant impact of library design on the use of library facility. The analysis shows that a significant impact on the use of library with coefficient of 0.071 and a p-value of 0.041 less than 0.05. From the result in the Table, it could be seen that a weak positive correlation between the impact of library design and library use is indicated by the value of 0.071. In simpler terms, a coefficient of 0.071 indicates a small effect size. Statistical significance is shown by the p-value of 0.041 (which implies that significance is normally considered at $p < 0.05$). Therefore, even while the impact of library design is statistically significant, it does not have a large or substantial effect. However, as the library design get better it influences more people to visits the library.

Table 8. Significant impact of library design on the use of library

		How often do you use the library
Library design	Correlation Coefficient	.071*
	Sig. (2-tailed)	.041
	N	485

CONCLUSION

Libraries in the twenty-first century have seen a significant transformation due to the digital revolution. Because academic libraries did not adequately digitise their services and resources using relevant ICT applications to stay current, this presented a challenge

to their patrons. This study, however, focused on academic libraries in Nigeria and found that while some of the library's resources are in good shape, they do not have the amenities of the twenty-first century, which discourages patronage. In spite of this, Nigerian library managers have to work extremely hard to keep up with their international counterparts. Therefore, one of the coping mechanisms for the academic library service in Nigeria in the twenty-first century should be their capacity to overcome some of the major obstacles impeding their efforts to provide the desired services to their communities in this information age.

REFERENCES

Atanda, A., Owolabi, K., Ugbala, C. (2021). Professional competence and attitudes of library personnel towards digital services in selected university libraries in Nigeria. Digital Library Perspectives. ahead-of-print. 10.1108/DLP-08-2020-0076.

Arumuru, L., & Tom-George, N. (2022). Library and Information Science Education and the New Normal in a Developing Economy: The Survival Strategies in Nigeria. *Journal of Education and Society.* 11. (3) 2055-2062.

Abubakar, B. (2011). Academic Libraries in Nigeria in the 21st Century. Library Philosophy and Practice. https://www.researchgate.net/publication/277262052_Academic_Libraries_in_Nigeria_in_the_21st_Century

Adeogun, M. (2019). Library Space as a Teaching and Learning Resource: The Experience of One Class. https://www.researchgate.net/publication/332061565_Library_Space_as_a_Teaching_and_Learning_Resource_The_Experience_of_One_Class

Ateka, A., Maseh, E., Bosire, E. (2023). Learning support in the 21st century university library space: Strategies for success. *Journal of Access Services.* 19(4), 139-153, DOI: 10.1080/15367967.2023.2165928

BOU, N. (2018). The role of architectural design in effectivedelivery of library services: A case study of university libraries in Edo State, Nigeria. Acad. J. Edu. Res. 7(3): 099-106. https://academiapublishing.org/journals/ajer/pdf/2019/Mar/Ngozi.pdf

Chiemeke, S., Longe, O., Umar, S. S., Shaib, I. (2007). Users' Perceptions of the Use of Academic Libraries and Online Facilities for Research Purposes in Nigeria. *Library Philosophy and Practice*, 9(2) 1522-0222.

Choy, F. C., & Goh, S. N. (2016). A framework for planning academic library spaces. Library Management. 37. 13-28. 10.1108/LM-01-2016-0001. https://www.researchgate.net/publication/298429880_A_framework_for_planning_academic_library_spaces

Demeter, M. (2023). Review of Designing Libraries for the 21st Century. *Journal of New Librarianship*, *8*(1), 64–68. https://doi.org/10.33011/newlibs/13/7

Elmborg, J. (2011). Libraries as the Spaces Between Us Recognizing and Valuing the Third Space. *Reference and User Services Quarterly.* 50. 338-350. 10.5860/rusq.50n4.338.

Gavin, B., Angela, G., Amy, H., Jacky, H., Chris, J., Gary, M., Maria, M., Rosa,   S., (2019). Visions of value: Leading the development of a view of the University Library in the 21st century, *The Journal of Academic Librarianship,* 45 (5), 102046, 0099-1333,

Haliso, Y. (2011). Factors Affecting Information and Communication Technologies (ICTs) Use by Academic Librarians in Southwestern Nigeria. *Library Philosophy and Practice*.

Hussain, A., & Abalkhail, A. (2013). Determinants of library use, collections and services among the students of engineering: A case study of King Saud University. Collection Building. 32. 100-110. 10.1108/CB-07-2012-0033.

Hotsonyame, G. (2023). Significance of Academic Libraries in Recent Times: A Significance of Academic Libraries in Recent Times: A Review of Articles By. *Library Philosophy and Practice.* https://www.researchgate.net/publication/371487813_significance_of_academic_libraries_in_recent_times_a_significance_of_academic_libraries_in_recent_times_a_review_of_articles_review_of_articles_significance_of_academic_libraries_in_recent_times_a_rev

Imam, A &. Ilori, M. E. (2023) Library Services and Information Management: The Role of Academic Librarians in the 21st Century Nigeria, Internet Reference Services Quarterly, 27:2, 103-109, DOI: 10.1080/10875301.2023.2172637

Mondal, H. (2021). library building: planning, principle & standards in the perspective of 21 st century. https://www.researchgate.net/publication/353211306_library_building_planning_principle_standards_in_the_perspective_of_21_st_century

Mirna W. L., Shaimaa, K., Doaa K. H., Mohamed, E. (2022). Academic libraries as informal learning spaces in architectural educational environment, *Ain Shams Engineering Journal,* 13 (6) 2090-4479, https://doi.org/10.1016/j.asej.2022.101781.

Okorie, O., & Akanwa, P. (2018). Environmental factors as correlates of use of information resources in public university libraries in Imo and Abia States, Nigeria. Library Philosophy and Practice. 2018. https://www.researchgate.net/publication/329208242_Environmental_factors_as_correlates_of_use_of_information_resources_in_public_university_libraries_in_Imo_and_Abia_States_Nigeria

Omeluzor, S. U., Itunu A. B., 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, https://academicjournals.org/article/article1379698314_Omeluzor%20et%20al.pdf

Parbe, S., Phuti, R., Barfi, K. (2021). Users' Perception of Library Facilities: Evidence from the University of Cape Coast. Library Philosophy and Practice (e-journal)

Rehman, H. A., Soroya, M. S. (2021). "Users' Perceptions about 21st Century University Libraries in the Federal Capital of Pakistan: Current Status and a Way Forward". *Library Philosophy and Practice (e-journal).* 5979. https://digitalcommons.unl.edu/libphilprac/5979

Shonhe, L., & Priti, J. (2019). Reshaping Libraries for the 21st Century: User Perspectives. ***Zambia Journal of Library & Information Science (ZAJLIS),*** 3, 1 & 2 ISSN 2708-2695. Available at: https://zajlis.unza.zm/index.php/journal/article/view/29

Sullivan, R. M. (2010). Common Knowledge: Learning Spaces in Academic Libraries, College & Undergraduate Libraries, 17:2-3, 130-148, DOI: 10.1080/10691316.2010.481608.

Seal, R.A. (2015), "Library spaces in the 21st century: Meeting the challenges of user needs for information, technology, and expertise", *Library Management*, Vol. 36 No. 8/9, pp. 558-569. https://doi.org/10.1108/LM-11-2014-0136

Udo, C. S., & Edidiong, N. B. (2022). Library Environmental Factors and Students' Patronage of Library Services in the University of Uyo Main Library. Library Philosophy and Practice (e-journal). https://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=13745&context=libphilprac