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Usage of Online Public Access to Catalogue (OPAC) by Library Users in Catholic University College, Ghana

Silas Adjei[1], Isaac Kojo Agyeman[2], Patience Adetsi[3] and Franklin Owusu Agyei[4]
[1&2]Pentecost University Accra, Ghana
[4]Department of Information Studies,
[3&4]University of Ghana, Ghana
E-mail: sadjei@pentvars.edu.gh, ikagyeman@pentvars.edu.gh, patience.edinam@gmail.com, willfrank746@gmail.com
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***Abstract* - The study examines the use of online public access catalogues (OPAC) at the Catholic University College of Ghana. The research aims to assess the awareness of OPAC among library users, analyze its usage, identify related challenges, and determine user satisfaction. A quantitative research approach was employed, targeting students at the Catholic University College of Ghana as the study population. Data were analyzed using version 25 of the Statistical Package for Social Sciences (SPSS). The findings revealed challenges related to the limited availability of computers for OPAC systems, with users experiencing delays due to others occupying the available computers. Additionally, respondents showed a lack of sufficient IT knowledge. To address these issues, the study recommends that the library authority invest in more hardware or computers to improve accessibility. It also suggests ongoing training for patrons to enhance their IT skills and familiarity with the system.**
***Keywords*: Adoption, Online Public Access to Catalogue (OPAC), Library Users, Open Source Software, Information Technology, Library Services, Catholic University College, Ghana**

I. INTRODUCTION

Academic libraries play a vital role in teaching and learning. Yusuf and Iwu (2010) and Ntui and Edem (2011) assert that libraries are responsible for providing the essential information needed for this cycle. With a plethora of scientific articles and independent publications available, the use of IT has greatly influenced publishing methods. However, keeping track of these published articles without the use of computers can be quite challenging. Additionally, libraries are now compelled to make all of their services accessible to users (Afebenda & Nna-Etuk, 2019).

The OPAC (Online Public Access Catalog) has revolutionized frequent access to library services, not only in university libraries but in general. It is a data retrieval system that allows researchers to access library services through multiple access points. Instead of scanning and retrieving the entire text of database content, the traditional method involved scanning bibliographic documents on pieces of material. This has greatly improved the quality and speed of searching and retrieving bibliographical records. Studies suggest that most data researchers prefer using easily accessible sources of data rather than valuable resources. For instance, library users want to be able to quickly, conveniently, and accurately scan the collection to find what they need.

Libraries use an array of online public services. These services provide reliable information to authors and their books. This modern approach offers simplicity in cataloguing, making information immediately available on computers (Sankari, Chinnasamy, & Balasubramaniam, 2013). According to Devendra and Khaiser (2013), the program can be seen as an archive of the library's stocks and a resource for accessing shares stored in the library or remotely. Antell and Huang (2008) note that OPAC supports indexing catalogues and textual databases, connecting them so that library visitors can compare products and access information from remote locations. The system is an ICT-based service accessible to libraries, and it has been adopted by numerous universities and public libraries worldwide. Rattan (2013) asserts that OPAC can also be used with external resources like the Internet, online databases, and audio materials.

The research gap on OPAC acceptance or review in Ghana appears to be very small. The tentative literature review suggests that not much progress has been made in this area, particularly in the sub-region, compared to other countries. For instance, OPAC work in Ghana is minimal compared to Nigeria. Despite numerous research efforts, only two experiments have been conducted on OPAC in Ghana (Amekuedee, 2005; Larson, 2018). Adjei (2023) study revealed that most university libraries in Ghana do not have an operational OPAC. However, a recent study by Larson (2018) found that the OPAC library at Winneba University of Education was highly efficient. Drawing on literature from other countries, several surveys have shown a decrease in library usage among the university community.

According to Okon (2007) and Ajiboye, Ovedipe, & Akwiye (2013), library resource utilization is limited to specific libraries relevant to the study. In terms of awareness, there seems to be a lack of knowledge on how to use these systems in libraries (Oghenekaro, 2013). Library trends typically involve the use of manual catalogues, but the CUCG library operates on an OPAC system. This study aimed to assess

students' familiarity with the OPAC Library, their usage of the OPAC, and their reasons for frequently relying on manual catalogues instead. Students need to have access to the OPAC library, whether through their homes, schools, hostels, or smartphones, to find and obtain the content they need before arriving at school. Improving the simplicity and usability of the OPAC system will inevitably enhance its quality. The research would benefit stakeholders in the library as it will explain the usage of the OPAC in libraries. Additionally, the research will serve as a point of reference for other researchers who intend to do similar research.

II. OBJECTIVES OF THE STUDY

1. To evaluate the level of knowledge library users at CUCG have regarding the OPAC.
2. To examine how library users at CUCG utilize the OPAC.
3. To identify the challenges faced by library users when using the OPAC at CUCG.

III. LITERATURE REVIEW

This section examines the literature that is crucial for understanding the use of these systems in different libraries. It aims to explain the concepts, principles, and facts that arise when implementing and utilizing OPAC.

A. Theoretical Framework

The Technology Acceptance Model (TAM) is a framework that identifies factors driving customer motivation, including anticipated future benefits, expected ease of use, and user behaviour. However, to more accurately assess the user's mindset, the model should also incorporate two additional core values: perceived value and comfort of use, as these factors have a significant influence. It is important to evaluate these factors as both weaknesses and strengths of the technology. TAM also considers external variables, such as user preparation, application capabilities, user involvement in design, and process complexity (Lin, Fofanah, & Liang, 2011). TAM is widely used for technology implementation (Wu, 2009), but it does have limitations when it comes to addressing the social impact of technology acceptance outside of professional settings.

To get a more accurate estimation of system implementation, it is essential to include external variables in the TAM (Taherdoost & Masrom, 2009; Taherdoost, Zamani & Namayandeh, 2009). TAM focuses on a market context where technology adoption and use extend beyond tasks to also address emotional needs.

According to Davis (1985), the mindset and aspirations of potential adopters significantly influence their willingness to adopt innovations. The TAM framework aims to simplify the understanding and application of technology, thereby enhancing personal or workplace efficiency (Straub, 2009). Davis suggests that ease of use directly affects perceived utility, which increases the likelihood of adopters using and benefiting from the technology (Davis, 1985). In a later study, Davis found a stronger correlation between perceived usability and technology implementation compared to the correlation between perceived utility and adoption. He concluded that individuals are more likely to adopt a technology if it is easy to learn and enhances efficiency (Davis, 1989). An example of applying the TAM framework for consumer acceptance testing is a study conducted in the UK, which examined the key factors influencing individuals' engagement with an online travel network. This study evaluated factors such as reliability, perceived ease of use, and usage, among other TAM elements. The findings indicated that all these factors significantly contributed to online participation in travel groups (Agag & El-Masry, 2016).

B. Awareness and Use of OPAC

The origins of Online Public Access Catalogs (OPAC) date back to the 1970s with the development of the first generation. This initial model faced several limitations, such as a loss of control over name and topic headings, insufficient materials, incomplete book information, and poor quality and availability of books. The 2000s saw the advent of the second generation of OPAC, featuring enhanced capabilities like remote access, advanced search functions, improved user interfaces, email delivery, access to other library collections, public knowledge programs, material circulation and ordering, and file storage (Sridhar, 2004).

Despite significant technological advancements made by libraries globally to improve access and use of their collections, students still need to be educated about OPAC to enhance their literacy, learning, and study through the effective use of library information services. Ruzegea (2012) highlights the importance of familiarizing students with OPAC to improve their use of library education services.

In contrast, studies have demonstrated the widespread value of OPACs, with many university libraries employing them to access information. An OPAC survey by Gohain & Saikia (2013) found that 72.05% of respondents recognized OPAC and 51.03% used it daily. Ansaar and Amita (2008) reported high usage of OPAC resources in their study on public awareness and use across five libraries in Delhi. Kumar and Vohra (2011) found that many users searched for information through OPAC in their investigation of professor awareness and use of OPACs.

Similarly, various organizations in Africa have promoted effective OPAC use. Yusuf (2012) studied OPAC usage at the Lagos Polytechnic Library and discovered that 91.14% of respondents used OPAC to access library materials, while 8.86% did not. This increase in usage is attributed to heightened awareness, a sufficient number of access points, and consumer education programs encouraging the use of databases for books and other information sources.

C. Challenges in Using OPAC

The user-friendliness of the OPAC greatly impacts the number of undergraduate students drawn to the OPAC desk. Users need to navigate various service areas within a single virtual system to discover services, request materials, update personal information, and access content. This process must be repeated if they visit another library. In today's world, which values convenience, accessibility, and instant gratification, an environment with multiple barriers and discontinuities is no longer acceptable, as exemplified by "Amazoogle." Lin, Fofanah, and Liang (2011) have linked an easy-to-use OPAC with a Web 2.0 environment. This integration aims to ensure users feel comfortable and confident using the OPAC library from any device, without needing specialized training.

Students often find OPAC confusing because it appears unfamiliar when they approach the OPAC desk. This confusion stems from the OPAC library's unique interface, which differs from other system websites and interacts with users in varied ways. This disparity can be frustrating, especially when users seek specific information. They navigate through databases, tables, file servers, and OPAC across different locations. The OPAC system often seems disconnected from the rest of the network and the Internet, making it challenging to transition from the catalogue to the Internet or from the library website to the OPAC.

OPAC library users are diverse; some have limited web browsing skills, while others are complete novices. For students who type search terms and seek information via OPAC, the process can be daunting. The absence of a spell checker in OPAC exacerbates the issue, leading to misinterpretations and hindering efficient searches. Students often try to use OPAC like they would Google, which typically results in frustration. Unlike user-friendly online search engines, the OPAC interface fails to guide users on how to proceed when issues arise.

Undergraduate students' limited library knowledge contributes to their vague understanding of OPAC's features and structure. Challenges such as inadequate space and ICT infrastructure, unreliable power supply in universities, and a shortage of skilled ICT personnel impede the use of OPAC. Missing metadata like descriptions, abstracts, summaries, contents tables, and full text further complicates the use of OPAC. Consequently, students know only the titles, authors, and ISBNs of materials in the OPAC library but lack detailed information. This necessitates reading abstracts directly in the library, wasting time, energy, and resources.

Other factors affecting OPAC use include insufficient funding for ICT support, lack of staff training, poor user education, and a weak maintenance culture. To address the demands for maintaining content access and affordability, library catalogues must indicate what is available and where it can be accessed. Kumar and Vohra (2013) note that by including multiple bibliographical fields or access points, OPAC offers flexibility and various options for accessing library information. However, these numerous search options often complicate the user experience. Regardless of the format, user preferences should make the necessary information readily accessible.

Despite the global focus on OPAC, little progress has been seen in Nigeria. Studies indicate that users struggle with developing effective search behaviours. Wilson & Given (2010) report that developers find it difficult to utilize OPACs, lacking the expertise to maximize their services and features (Markey, 2007a).

Besides OPAC, the preference for internet search engines, particularly Google, poses another challenge (Adjei, 2024; Urquhart and Rowley, 2007). OPAC is a valuable tool for finding library resources, but its use is declining (Danskin, 2006). Adenike & Akin (2014) suggest that users tend to formulate questions at stages where they can articulate queries more effectively. In his review of library automation in Ghanaian university libraries, Amekuedee (2005) identifies issues such as lack of funding, expertise, employee training, frequent computer and internet disruptions, poor computer quality, and inadequate maintenance. Ahenkorah-Marfo & Borteye (2010) also highlight funding releases and equipment provision as primary challenges in networking studies at KNUST.

IV. METHODOLOGY

The study employed a quantitative approach to collect and analyze data from library users at Catholic University College, Ghana. The target population included both graduate and undergraduate students, with an estimated population size of 2616 (CUCG Academic Report, 2023). A convenient sampling technique selected 336 respondents, ensuring a 95% confidence interval, a 5% error margin, and a response distribution of 50%. The formula used for sample size calculation was $n = N*X / (X + N - 1)$, where n is the sample size and N is the population size. Questionnaires were used to gather data, and Statistical Package for the Social Sciences (SPSS) software analyzed the data.

The questionnaire was coded using software, and descriptive statistics such as mean and standard deviation were calculated. The inferential analysis examined multiple relationships, with findings presented in tables and figures. Before data collection at the University of Energy and Natural Resources, a pre-test ensured consistent context and proper classification of analytical variables. Confidentiality was maintained throughout, with data collected solely for study purposes.

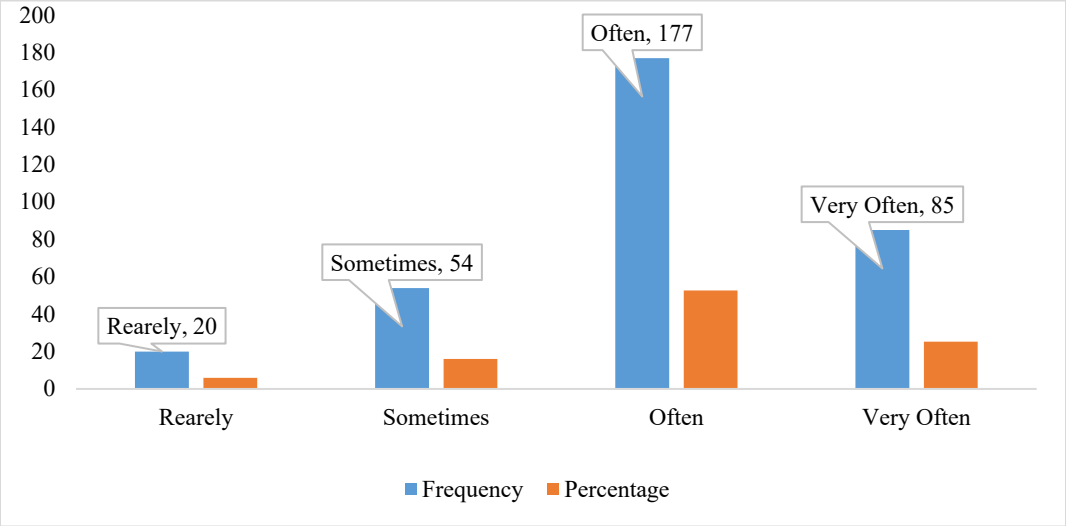
The study utilized a quantitative approach to gather and analyze data from library users at Catholic University College, Ghana. The target population included both graduate and undergraduate students, with an estimated total of 2,616 (CUCG Academic Report, 2023). A convenience sampling technique was employed to select 336 respondents,

achieving a 95% confidence interval, a 5% error margin, and a response distribution of 50%. The sample size was calculated using the formula n = N*X / (X + N – 1), where n represents the sample size and N denotes the population. Data were collected via questionnaires and analyzed using Statistical Package for the Social Sciences (SPSS) software. The questionnaire responses were coded using the software, and descriptive statistics, such as mean and standard deviation, were computed. The results are presented in tables and figures. A pre-test was conducted before data collection at the University of Energy and Natural Resources to ensure context consistency and proper classification of analytical variables. Confidentiality was upheld throughout the study, with data collected exclusively for research purposes.

VII. RESULTS AND DISCUSSION

The section aims to present the study results obtained through a questionnaire. The results are categorized according to the grouping of questions under various study objectives.

A. Awareness of OPAC

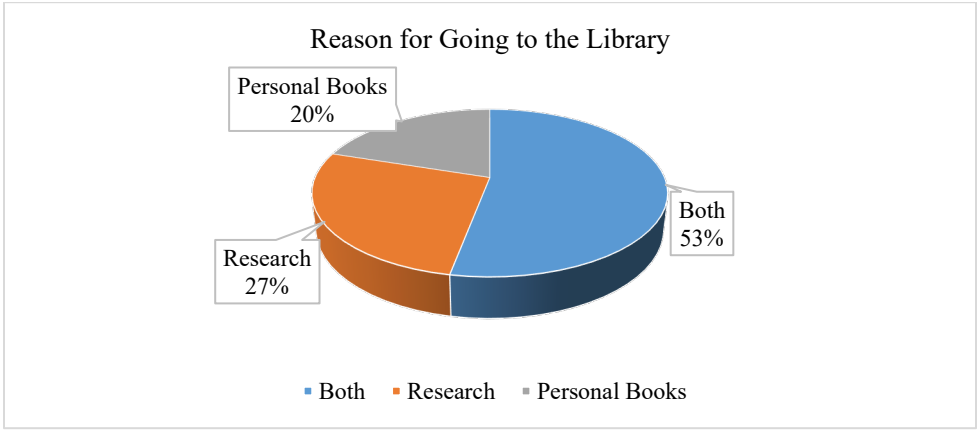


Source: Field Data, 2024

Fig. 1 How often users visit the library

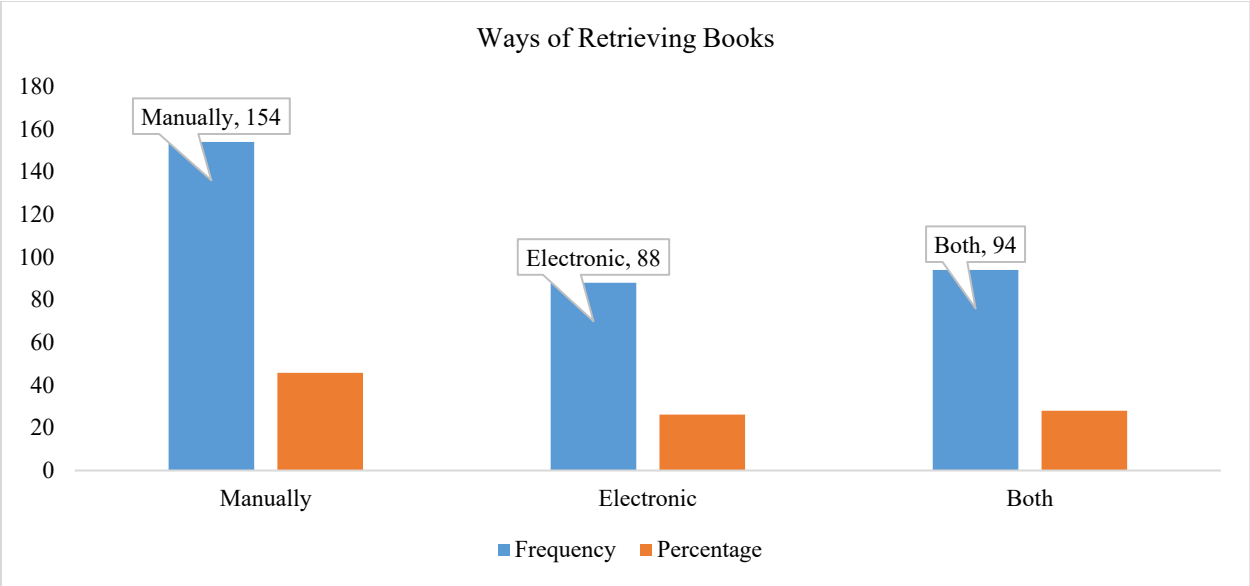
The study results indicated that 52.68% (177) of respondents use the library regularly, while only 5.95% (20) rarely visit the library.

Regarding the reasons for visiting the library, 53% of respondents go to read their books and conduct research, 27% visit specifically for research purposes, and 20% go solely to read their books.



Source: Field Data, 2024

Fig. 2 Reason for going to the library



Source: Field Data, 2024

Fig. 1 Ways of retrieving books

Regarding how respondents retrieve information in the library, the majority (45.83%) reported using manual methods. Additionally, 27.98% of respondents use a combination of manual and electronic methods, while 26.19% rely exclusively on electronic means.

TABLE I AWARENESS OF OPAC AT CUCG

Response	Frequency	Percentage
Yes	230	68.5
No	95	28.3
No Responses	11	3.3
Total	336	100.0

Source: Field Data, 2024

When asked if the respondents were familiar with OPAC, 68.5% replied affirmatively, 28.3% indicated that they had no idea, and 3.3% did not respond.

B. The Extent of Use of OPAC

TABLE II THE USES OF OPAC

Response	Frequency	Percentage
Search for Books	104	31.0
Search for References	85	25.3
Search for subject areas	57	17.0
No Response	90	26.8
Total	336	100

Source: Field Data, 2024

The study results revealed that 31.0% of respondents primarily use OPAC to search for books. Furthermore, 25.3% use OPAC to search for references, 17.0% use it to search for subject areas, and 26.8% do not respond to the question.

C. Challenges of OPAC

TABLE III CHALLENGES OF OPAC

Challenges	N	Mean	Std. Deviation
Inadequate I.T skills	336	3.5536	1.51907
Inadequate Computer terminals	336	3.2589	1.36313
Erratic Power Supply	336	3.1696	1.48960
Network Failure	336	3.2321	1.45366
Lack of Awareness	336	3.1339	1.55206
Limited Search language	336	3.0804	1.29848
Others	336	3.0714	1.26052

Source: Field Data, 2024

The study findings indicate that the most significant challenge is inadequate IT expertise, with an average rating of 3.5536 on the Likert scale. This challenge is compounded by issues such as ineffective computer terminals, network malfunctions, limited troubleshooting capabilities, lack of awareness, and constraints related to the questionnaire's language, among other variables.

VIII. DISCUSSION OF FINDINGS

A. Awareness of OPAC

The study included respondents who were regular users of the library, indicating that the data collected came from individuals with significant experience using the library and its OPAC system. About 80% of the respondents relied on the library's resources instead of bringing their reading materials, highlighting the consistent use of the library's offerings by its patrons. While the library mainly used manual shelf-searching for finding resources, most

respondents showed awareness of the OPAC system. This is different from Ebiwolate's (2010) findings, which suggested underutilization due to a lack of understanding, indicating a higher level of familiarity among the respondents in this study. On the other hand, the results differ from Bamidele *et al.,* (2014) and Adedibu (2008) but align with Gohain (2013), and Ansaar and Amita (2008), who observed widespread awareness of OPAC systems in their respective studies. However, despite this awareness, the utilization of the OPAC system by patrons of the CUCG library was found to be low.

B. The Extent of Use of OPAC

The study provides strong evidence that respondents at CUCG have some training on the OPAC system implemented at the library, although this training has been inconsistent. Despite being familiar with the system, most respondents primarily use manual methods instead of the OPAC system. This is different from Yusuf's (2012) study in Lagos, where the majority of respondents actively use the OPAC system. In terms of information retrieval methods, the majority of respondents (45.83%) prefer manual methods, while 27.98% use both manual and electronic methods, and 26.19% rely solely on electronic means. The main purpose of the OPAC system is to search for books. Students often use the system to check required books listed by lecturers and search for references related to books they have read. However, there is limited use of the system for searching references and books specific to their study subjects. Danskin's (2006) study highlights the role of the OPAC system in accessing library resources, but similar to findings from other libraries, its usage among patrons seems to be declining.

C. Challenges of OPAC

The challenges identified by participants in this study are similar to those reported in other research. The major difficulties cited include insufficient IT skills, a lack of computer terminals, network failures, inconsistent power supply, a lack of awareness, limited search capabilities, and related factors.

These findings align with the conclusions of Fabunmi and Asubiojo (2013), whose study identified similar issues contributing to system underutilization, such as irregular power supply, network problems, and a shortage of available computers. A prominent challenge emphasized by the participants was the lack of IT skills, which echoes the observations made by Kumar and Vohra (2013) that OPAC search functionalities can often be too complex for users to navigate effectively.

This sentiment is also reflected in studies conducted across various regions of Africa, where a general deficiency in the necessary skills for using OPAC systems has been noted. Wilson & Given (2010) and Markey (2007) similarly identified usability challenges associated with OPAC usage. At Adeyemi College of Education, Ogunniyi & Efosa (2010) found that a lack of understanding of the system's application posed a significant barrier to OPAC adoption.

IX. CONCLUSION

The analysis shows that respondents at CUCG have a general understanding of the OPAC system. Although library staff have provided some training on the OPAC program, it has not been consistently implemented. As a result, the utilization of the OPAC system among respondents is very low, mainly due to insufficient IT knowledge. Additionally, issues with computer availability have emerged as significant challenges. While respondents expressed dissatisfaction with the OPAC system itself, they reported being comfortable with the behavior of the library staff. Future studies could investigate whether the design of the OPAC system contributes to its underutilization. Specifically, these studies could focus on evaluating the system's interface and other features to identify potential usability issues that may hinder its effective use.

REFERENCES

[1] Abbasi, M., Tarhini, A., Elyas, T., & Shah, F. (2015). Impact of individualism and collectivism over the individual's technology acceptance behaviour: A multi-group analysis between Pakistan and Turkey. *Journal of Enterprise Information Management, 28*(6), 747–768.

[2] Abu Tair, H., & Abu-Shanab, E. (2014). Mobile Government Services: Challenges and Opportunities. *International Journal of Technology Diffusion, 5*(1), 17-25.

[3] Adedibu, L. (2008). Catalogue used by science students at the University of Ilorin, Ilorin, Nigeria. *Libri, 58*(1), 58-66. Retrieved from https://www.degruyter.com/view/j/libr.2008.58.issue1

[4] Adenike, O., & Akin, O. (2014). Online Public Access Catalogue [OPAC] In Nigerian Libraries: A Case Study of the Kenneth Dike Library and University Of Lagos Library). *Ozean Journal of Social Sciences, 6*(3).

[5] Adjei, S. (2022). Examining Information Seeking Behaviour among Students in Selected Senior High Schools in Greater Accra Region, Ghana. *Asian Journal of Information Science and Technology, 12*(2).

[6] Afebenda, & Nna-Etuk. (2019). Online Public Access Catalogue [OPAC] In Nigerian Libraries: A Case Study of the Kenneth Dike Library and University Of Lagos Library). *Ozean Journal of Social Sciences, 6*(3).

[7] Agag, G., & El-Masry, A. (2016). Understanding consumer intention to participate in the online travel community and its effects on consumer intention to purchase travel online and WOM. An integration of innovation diffusion theory and TAM with trust. *Computers in Human Behavior, 60*, 97-111.

[8] Ajiboye, O., Ovedipe, & Akwiye. (2013). Catalogue use in the Ladoke Akintola University of Technology Library Ogbomoso Nigeria. *Journal of Cataloguing and Classification Quarterly, 49*(1), 33-41.

[9] Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes, 50*(2), 179–211.

[10] Amekuedee, J. (2005). An evaluation of library automation in some Ghanaian university libraries. *The Electronic Library, 23*(4), 442–452. https://doi.org/10.1108/02640470510611508

[11] American Institute for Research. (2010). Innovation configurations: Concerns-based adoption model. Retrieved from https://www.air.org/resource/innovation-configurations

[12] Antell, K., & Huang, J. (2008). Subject searching success. Transaction logs, patron perceptions, and implication for the library instruction. *Reference and User Services Quarterly, 48*(1), 68-76.

[13] Anunobi, C., & Edoka, B. (2010). Use of ICT Facilities for Serials Functions in Southern Nigeria Federal University Libraries. *Library Philosophy and Practice*. Retrieved from http://www.webpages. uidaho.edu/~mbolin/anunobi-edoka.html

[14] Arshad, A., & Shafique, F. (2014). What do users prefer, a card catalogue or OPAC? A study of Punjab University Library. *The Electronic Library, 32*(3), 286-295. Retrieved from http://www.emeraldinsight.com/doi/full/10.1108/EL-07-2012-0093

[15] Bandura, A. (1986). Social foundations of thought and action: A social cognitive theory. New Jersey, NJ: Prentice-Hall, Inc.

[16] Benbasat, I., & Barki, H. (2007). Quo Vadis, TAM. *Journal of the Association for Information Systems, 8*(4), 211–218.

[17] Burgess, S., Sellitto, C., Cox, C., Buultjens, J., & Bingley, S. (2017). An innovation diffusion approach to examining the adoption of social media by small businesses: An Australian case study. *Pacific Asia Journal of the Association for Information Systems, 9*(3), 1-24.

[18] Damiano Jr, R. (2011). What is innovation? *Innovations Technology and Techniques in Cardiothoracic and Vascular Surgery, 6*(2), 65.

[19] Danskin, A. (2006). Tomorrow never knows: the end of cataloguing? Available at www.ifla.org/IV/ifla72/papers/102-Danskinen.pdf. *IFLA Journal, 33*(3), 205-209.

[20] Davis, F. (1985). A technology acceptance model for empirically testing new end-user information systems: Theory and results. (Doctoral dissertation), Massachusetts Institute of Technology. Retrieved from DSpace@MIT Database. (Accession No. 14927137).

[21] Devendra, K., & Khaiser, N. (2013). Attitudes of Law University Library Users towards the Use of OPAC/web OPAC in Andhra Pradesh. *International Journal of Information Dissemination and Technology, 2*(4), 301-306.

[22] Doyle, G., Garrett, B., & Currie, L. (2014). Integrating mobile devices into nursing curricula: Opportunities for implementation using Rogers' Diffusion of Innovation model. *Nurse Education Today, 34*(5), 775-782.

[23] Ebiwolate, P. (2010). Nigeria Public Library Service to Rural Areas: Libraries in the Niger Delta States. *Library Philosophy and Practice (e-journal)*. Retrieved from http://digitalcommons.unl.edu/libphil prac/365

[24] Fishbein, M., & Ajzen, I. (1975). Belief, attitude, intention and behaviour: An introduction to theory and research. New York, NY: Addison-Wesley Pub.

[25] Gohain, A., & Saikia, M. (2013). Use and User Satisfaction on Online Public Access Catalogue (OPAC) Services among B.Tech. Students of School of Engineering in Tezpur University: a survey. *Library Philosophy and Practice (e-journal)*. Retrieved from http://digitalcommons.unl.edu/libphilprac/990

[26] Hall, G. (1979). The concerns-based approach to facilitating change. *Educational Horizons, 57*(4), 202-208.

[27] Larson, K. (2018). Online public access catalogue usage at Panjab University Library, Chandigarh. *DESIDOC Journal of Library and Information Technology, 31*(4), 302-310.

[28] Lin, F., Fofanah, S., & Liang, D. (2011). Assessing citizen adoption of e-Government initiatives in the Gambia: A validation of the technology acceptance model in information systems success. *Government Information Quarterly, 28*(2), 271-279.

[29] Muk, C., & Chung. (2015). Applying the technology acceptance model in a two-country study of SMS advertising. *Journal of Business Research, 68*(1), 1-6.

[30] Oghenekaro, K. (2013). A survey of catalogue use by engineering students in Nigerian Universities. *Cataloging and Classification Quarterly, 49*(3), 233-241.

[31] Ogunniyi, S., & Efosa, F. (2010). Use of library catalogue by students of Adeyemi College of Education, Ondo. *Tincity Journal of Library, Archival and Information Science, 1*(2), 47-51.

[32] Okon, H. (2007). Information retrieval technique. In Etim, F. E., & Nsien, F. U. (Eds.), Information literacy for library search. Uyo: Abaam Pub.

[33] Rattan, P. (2013). ICT usage in Government Engineering College libraries in Punjab. A case study. *International Journal of Information Dissemination and Technology, 3*(3), 167-170.

[34] Raynard, M. (2017). Understanding academic e-books through the diffusion of innovations theory as a basis for developing effective marketing and educational strategies. *The Journal of Academic Librarianship, 43*(1), 82-86.

[35] Sankari, R., Chinnasamy, K., & Balasubramaniam, P. (2013). A study on the use of online public access catalogue (OPAC) by students and faculty members of Unnamalai Institute of Technology in Kovilpatti (Tamil Nadu). *International Journal of Library and Information Studies, 3*(1), 17-26.

[36] Sridhar, M. (2004). Subject searching in OPAC of a special library: problems and issues. *OCLC Systems and Services: International Digital Library Perspectives, 20*(2), 183-191.

[37] Taylor, S., & Todd, P. (1995). Understanding information technology usage: A test of competing models. *Information Systems Research, 6*(2), 144–176.

[38] Urquhart, C., Thomas, R., Spink, S., Fenton, R., Yeoman, A., Lonsdale, R., & Rowley, J. (2005). Student use of electronic information services in further education. *International Journal of Information Management, 25*(4), 347-362.

[39] Venkatesh, V., & Zhang, X. (2010). Unified theory of acceptance and use of technology: US vs. China. *Journal of Global Information Technology Management, 13*(1), 5–27.

[40] Venkatesh, V., & Davis, F. (2000). A theoretical extension of the technology acceptance model: Four longitudinal field studies. *Management Science, 46*(2), 186–204.

[41] Wilson, R., & Given, L. (2010). The effect of spelling and retrieval system familiarity on search behaviour in online public access catalogue: a mixed method study. *Journal of the American Society for Information Science and Technology, 61*(12), 2461-2476.

[42] Wu, P. (2009). User Acceptance of Emergency Alert Technology: A Case Study. In *Proceedings of the 6th International ISCRAM Conference 2009*. Gothenburg, Sweden.

[43] Yusuf, F., & Iwu, J. (2010). Use of academic library: A case study of Covenant University, Ota, Nigeria. *Chinese Librarianship: An International Electronic Journal*.