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STUDENTS' PERCEPTION AND PRACTICES OF THE USE OF ELECTRONIC RESOURCES IN PUBLIC UNIVERSITY LIBRARIES IN GHANA

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ABSTRACT

Electronic resources are transforming most academic library systems and how students view and use these information sources is critical. The study thus explored students' perceptions and practices regarding the use of electronic resources in public university libraries in Ghana. The study adopted the descriptive research design, and the quantitative research approach was used; hence questionnaires were the main instrument employed for data collection. A total of 537 students were conveniently sampled from six public universities. From the results, it was found that most of the public universities have Web OPAC systems, e-books, e-databases, and e-journals available for students' use and that most of the public libraries are constrained by insufficient computer systems, difficulties in detecting the relevant electronic resources to meet students information needs, lack of skills in using the electronic resources, and unreliable internet facilities/connectivity (access). Confirming the challenge of students regarding the use of electronic resources, the study observed that the availability of electronic resources as well as ease of use negatively influenced student's willingness to patronize electronic resources. By implication, university authorities must ensure libraries are adequately resourced to facilitate the effective operation of electronic resource systems in the universities. Staff and students alike also need to be continually trained on the various electronic resource technologies deployed for use. The institution, as well as librarians, must endeavour to create awareness regarding the relevance of the electronic resources to academic work in the institutions.

Keywords: electronic resources, digital infrastructure, digital library, ICT tools, Academic library, Ghana

INTRODUCTION

The 21st century has placed enormous pressure libraries as service units in most Universities since much prominence is placed on Information and Communications Technologies (ICTs). Thus, the rapid evolution of ICTs in education has gained popularity in recent times and has primarily affected the way universities libraries and its users go about their activities, particularly in this COVID-19 era (Horsfall, 2020; Ifijeh & Yusuf, 2020; Nuere & de Miguel, 2020; Abubakar & Chollom, 2017). This has given rise to the evolution of numerous innovative jargon in education, including paperless education virtual learning, online teaching/learning, electronic resources, portal/gateway, global digital library, among others.

In the current context, all categories of libraries including academic, public, and special are not only providing printed resources to their library users but also electronic resources such as e-books and databases to meet the everyday academic as well as research requirements of all library users. The usage of ICT tools in academic libraries leads to the use of the Internet, automation systems, as well as the delivery of electronic information resources in library functions and services. No academic library is regarded as contemporary if it is not automated or if it does not deliver some rudimentary electronic information sources such as the OPAC, CDROMs, and Internet to its users (Oliver et al. 2019; Ponelis & Adoma, 2018; Tait et al. 2016).

There is a growing demand for electronic resources usage in academic libraries. This is due to its dynamic nature, interoperability, as well as flexibility, compared to print resources. Electronic resources come in diverse forms and are accessible through CD-ROMs, e-database, as well as the Internet (Muthuvennila & Kannan, 2020; Pawar & Moghe, 2014; Erich, 2013). University library information resources serve a vital purpose in teaching/learning, as well as research in institutions of higher learning. Much effort is thus made by these libraries to acquire appropriate information resources to satisfy the information requirements of library users.

Thus, the traditional functions of libraries have undergone sweeping changes in the context of the advancement of ICT (Cox, 2020; McCaffrey, 2019; Chen, 2017). Currently, most libraries and information centres have either fused or adopted various electronics resources for its collection developments to satisfy the requirements of a diverse category of library users. Electronic resources denote those materials that entail computer access, either through a personal computer, mainframe, or handheld mobile device (Rysavy & Michalak, 2020;

Tlakula & Fombad, 2017). Consequently, libraries and information hubs are increasingly being pressured to deliver more relevant, up-to-date, and timely material to a varied range of users, including students.

Library information resources are typically acquired through subscription or outright purchases and may come in print or electronic formats (Bhat, 2020; Crawford et al. 2020; Verminski & Blanchat, 2017). Most university library users patronize databases that they believe are authoritative and provides information that is up-to-date, universal in scope, and accessible. Accessibility of electronic resources has also transformed what users read or use (Todorinova & Wilkinson, 2019). Electronic resources are effortlessly disseminated as it can be copied, printed, duplicated, manipulated, shared as well as disseminated amongst library users (Jan & Ganaie, 2018; Rubin, 2017).

Electronic resources are domiciled computer hard disc as well as databases in CR-ROMs and dispersed through an electronic library at the University. Most university libraries have the required facilities for the management, access as well as dissemination of electronic resources. This usually consists of energy supply, ICT infrastructure including computers, networking, servers, internet access, router, among others (Anafo et al. 2020). The prerequisite for university library users to acquire the required skills in searching, accessing as well as retrieval of the necessary information cannot be overstated as it increases students' confidence as well as the use of these resources.

Since electronic resources are fast becoming more acknowledged and its use is growing, it is appropriate for students to attain an appreciable level of expertise in using them effectively (Abeyrathne, & Ekanayake, 2019; Odede, 2018). Before the advent of electronic resources being used in libraries, print sources were the core means of disseminating academic information as well as research findings. Nevertheless, advancement in ICTs improves information services in these libraries. As pointed out by Omeluzor et al. (2013) the development of ICT and its subsequent use in libraries, dissemination of most information was electronically managed through the Internet, catalogued, accessed, and retrieved from databases.

Electronic resources are dynamic in library information, and owing to its availability and accessibility in all academic libraries, students' perception of the library has radically shifted. The current study is an attempt to assess students' perceptions, and practices of the use of

electronic resources in public university libraries in Ghana as electronic resources are vital to research tools that complement print-based resources in a library (Jan, 2019).

Problem statement

Electronic resources afford access to material that may otherwise be restricted to the user as a result of geographical location, finances, or other limitations. Electronic resources have proven to be more convenient than print resources owing to inherent capabilities for manipulation as well as searching (Lo et al. 2017; Anunobi & Okoye, 2008).

University library users, especially students, have increased access to databases and other electronic resources that afford information that is current, with global scope and sometimes not accessible elsewhere. Electronic resources have thus exploded in popularity; use enables innovation in teaching and the creation of innovative fields of inquiry. Again, most university libraries in Ghana subscribes to electronic resources to support teaching/learning, and research of the University community. These electronic resources are accessible on the internet as well as on stand-alone systems in the libraries. Access codes to the subscribed electronic resources are given to registered library students. Besides the above, some library staff downloads some of the electronic resources on stand-alone computer systems.

However, studies (Kodua-Ntim & Fombad, 2020; Baayel & Asante, 2019; Ankrah & Atuase, 2018; Larson, 2017) demonstrate that irrespective of these efforts by librarians and library staff, these electronic resources are unacceptably underused as student fail to utilize these resources fully. The disparity in the usage of electronic resources implies the existence of a challenge that needs to be addressed. This study, consequently, attempts to explore students' perceptions and practices of the use of electronic resources in public university libraries in Ghana.

Objectives

The research objectives are as follows:

1. Investigate the electronic resources available at the six public university libraries.
2. Examine the challenges in the use of electronic resources in libraries by students in the six universities.
3. Evaluate the strategies on improving the use of electronic resources in academic libraries in Ghana.
4. Assess the effects on the availability of electronic resources on students in the six

public universities.

LITERATURE REVIEW

As indicated earlier, electronic resources are becoming progressively vital to academic libraries, particularly in University libraries, taking up an increasing percentage of their budgets and becoming the central place students seek information (Baker & Evans, 2011). Nevertheless, measuring the use of electronic resources remains challenging, as libraries are mostly dependent on the resource benefactors to provide such information. Electronic resources are viewed as the mines of information that are conserved through contemporary ICT devices, advanced and restructured and more often stored in cyberspace in the most concrete as well as compact form and can be retrieved instantaneously from unlimited points by several audiences.

Electronic resources have generally been described as information accessed by a computer, maybe beneficial as a bibliographic guide to potential sources (Jan, 2019). Electronic resources, however, denote a type of documents in digital formats that are made accessible to library users through a computer-based info retrieval system. As a result of the effective presentation with multimedia tools, electronic resources have become the source of information (Singh & Mukherjee, 2018; Kumar, 2017). Electronic resources on the Internet present themselves in several categories. Even though most of them emulate traditional publishing while others are revolutionary in their design and approach.

Thus, electronic resources are materials in digital format available electronically (Jan, 2019). Electronic resources include e-journal, e-books online databases in wide-ranging digital formats, Adobe Acrobat documents (.pdf), Webpages (.htm, .html, .asp, etc.) among others and the library proxy service allows students to access to these resources off-campus remotely. Electronic resources have several characteristics, such as access to every document by everyone, and it can be accessed from anywhere. Also, retrieval of electronic resources is faster than print resources, and users can be directed to the document by just providing a link. Furthermore, it is easy to search for any text, and the collection available in electronic format may be of any media. In an electronic environment, the interface between the user and librarian is frequent, and the software can assist the users in retrieving the desired information (Jotangia, 2020; Kenchakkanavar, 2014).

Electronic resources are transforming most library systems and how users view information sources. Internet access is a useful technique for accessing and updating documentation and interface of catalogue for libraries (Cuna & Angeli, 2020; Yi, 2016). The development of ICT, as well as the dissemination of Web environments, have a dramatic impact on user behaviours in information use. Roy & Kumar (2017) specify that the workflows from acquisitions to user services as well as the life cycle of electronic resources vary from that of print resources as it is characterized by access short of holding any physical objects. As university libraries build ever-increasing collections of electronic resources, discovering ways to manage them competently becomes a key challenge. The number of electronic resources held by most university libraries has increased speedily. Managing these electronic resources includes providing students with expedient ways to find and access them.

Accessing electronic resources is assumed to be easier for students as they can access the required material within seconds, on their personal computers, provided the equipment is available. Vast collections of information can be searched and retrieved instantaneously (Jan 2019; Lo et al. 2017). There is active dissemination of information by notifying information searchers about any new electronic resources that are acknowledged into the database. Thus, electronic resources permit intelligent full-text retrieval based on previous usage and interests (Rafi et al. 2019; Roy & Kumar, 2017). Furthermore, electronic transmission saves valuable time. Also, linkages can be allowed by hypertext and hypermedia formats among units within electronic resources (Binu, 2020; Lo et al. 2017).

Electronic resources are invaluable research tools that complement the print-based resources in a traditional library setting. Commenting on the merits of electronic resources, Binu (2020) infer that there is access to information that could have been restricted to the user as a result of geographical location or finances. Also, the user has access to more current information as well as the provision of extensive links to extra resources linked contents. This rapid advent and development of electronic resources consequently make it possible to envisage radically varied ways of arranging the collections and services the library has conventionally provided. Whereas the most libraries approach a peak in funding collection development, these innovative technologies offer possible ways of mitigating costs and revolutionizing ways to access information (Rafi et al. 2019; Lo et al. 2017).

In terms of the drawbacks of electronic resources, Roy & Kumar (2017) infer that the infrastructure required for presenting and storing electronic resources are costly. This

connotes a net increase in economic as well as ecological costs which becomes a comparatively expensive way to obtain information. Again, electronic interfaces can take a very long time to master. Thus, the complex steps to accomplish a previously simple and habitual task may frustrate users. Besides, the academic community can be divided into 'haves' and 'haves-not' because of access to equipment and network, and sometimes, network or connection speed can be plodding (Blummer & Kenton, 2020; Rajagopal & Chinnasamy, 2012).

METHODOLOGY

Kumar (2019) explained that the choice of any research design is based on numerous elements with the ultimate being the features of the variables or population being understudied. In this study, the descriptive research design was deemed appropriate as it is crucial to understand the dynamics of students' perceptions and practices of the use of electronic resources in public university libraries in Ghana. This study explores students' perceptions and practices of the use of electronic resources in public university libraries in Ghana.

This study further adopted a quantitative methodology. Quantitative research as inferred by Bloomfield & Fisher, (2019) provides exact statistical data for inference and supports larger sample sizes which translate to more generalizability over the population being studied. Again Ghauri et al. (2020) infer that one benefit of the quantitative approach is that the outcomes are valid, reliable, and generalizable to a more significant population. Consequently, six public universities were selected purposively as the focus of the study. Attempts were made to separate the public universities from private universities. From six public universities, the researcher opted to apply the quoter approach by allocating to each school a total sample of 100 students to be drawn from the universities.

In total, 600 students were conveniently sampled from the six public universities in Ghana. According to Campbell et al. (2020), purposive sampling is appropriate when the study aims to glean knowledge from targeted respondents deemed to have specific knowledge in the field of study. Convenience sampling, which involves collecting a sample from somewhere convenient to the researcher, was used to select the students. Upon identification, questionnaires were administered to the students who were given time after they had given their consent to the researcher to respond to the items on the questionnaire.

RESULTS AND DISCUSSIONS

Respondents Characteristics

Overall, 600 participants were sampled from five departments of the selected public universities in Ghana. However, there was a response rate of 89.5% amounting to a total of 537 responses that were considered valid. The final usable sample of 537 participants consisted of 255 (47.5%) males and 282 (52.5.5%) females indicating a female dominant sample size. The average age was 2.57, indicating the majority were between the ages of 21 – 25 years. There were more undergraduate students (n=370, 68.9%) than postgraduate students in the sample. Most of the students were in the 3rd year of academic work.

Table 1: Types of electronic resources available at the library

Electronic Resource	Mean	Rank
Web OPAC	10.52	1st
e-book	8.47	2nd
e-database	8.09	3rd
e-journal	7.96	4th
Repositories	3.10	5th
e-dictionaries	2.95	6th
CD-ROM	1.92	7th

Kendall's W^a=.695, N=537, $\chi 2$=1271.257, df=6, Sig=.000

Source: Field Data, 2020

In an attempt to access the type of electronic resources available at the library in the institutions surveyed; the results showed that from the 537 valid respondents the most dominant resource available was the Web OPAC (M=10.52) hence ranked as 1st. This was followed by e-books (8.47); e-database (8.09), and e-journals (7.96). The responses were analysed using Kendall's coefficient of concordance. The Kendall's coefficient showed a strong level of agreement among the respondents regarding the type of electronic resources available in their respective institutions (W^a=695; $\chi 2$=1271.257, *df*=6, p<.001) Table 1. From the result, it can be concluded that most of the public universities have Web OPAC systems, e-books, e-databases, and e-journals available in their respective libraries for students' use. The results failed to support the findings of Ikoja-Odongo and Okello-Obura (2013), who found that approximately 12% of the respondents used CD-ROM.

In figure 1, Most students (31%) visited the libraries weekly to access electronic resources. Additionally, 20% also indicated they visited the library monthly to access the resources. The results.

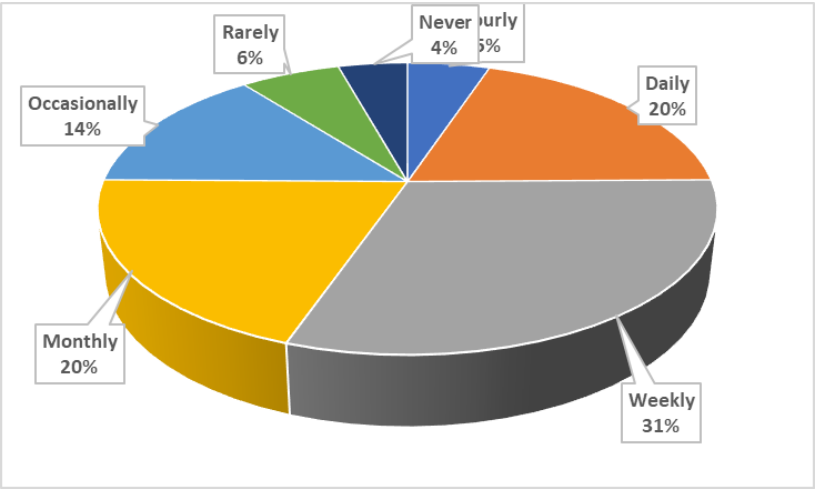

Figure 1: Frequency of student's visit to the University library

Source: Field Data, 2020

The drivers behind students' use of electronic resources are presented in Table 2. Most of the students are compelled to use electronic resources in the libraries as a research aid (M=4.81, ±SD=.629); to get printing and reproduction of documents (M=4.68, ±SD=.588); for quick search and retrieval of documents needed (M=4.28, ±SD=.789); they prefer electronic resources to printed materials (M=3.99, ±SD=.710); for the convenience of ease of use (M=3.97, ±SD=1.091). However, the students rated low the system's accessibility (M=2.76, ±SD=.594). Students make use of the electronic resources at the library due to its ability to aid students in their research work, for quick search, printing as well as retrieval of documents.

Table 2: Drivers for students use of electronic resources in university libraries

Statement	N	Min.	Max.	Mean	±SD
Aids me in my research	537	1	5	4.81	.629
Printing and reproduction	537	1	5	4.68	.588
Quick search and retrieval of documents needed	537	1	5	4.28	.789

I prefer electronic resources to printed materials	537	1	5	3.99	.710
Ease of use	537	1	5	3.97	1.091
Remote access (I can read from any remote location)	537	1	5	3.36	1.086
There are opportunities for sharing	537	1	5	3.22	.428
Helps me in my studies	537	1	5	3.04	.636
Accessible any time	537	1	5	2.76	.594

Source: Field Data, 2020

The outcome affirms the results of Jan (2019; Lo et al., 2017), which recognized that a vast collection of information could be searched and retrieved instantaneously. Students are driven to use the electronic resources at the library because it is easier for students as they can access large volumes of information within a short possible time compared to what they would have had access to relative to printed catalogues.

Table 3: Challenges of the use of electronic resources in academic universities

Statement	Mean Rank	Rank
Insufficient computer systems	10.77	1st
Difficulty in detecting the relevant electronic resources to meet my information need	9.99	2nd
Lack of skills in using electronic resources	9.85	3rd
Unreliable Internet facilities/connectivity (access)	9.43	5th
Lack of awareness of electronic resources	9.30	6th
The electronic resources are not 24/7 accessible	8.74	7th
It takes time to search through the computer systems for electronic resources	8.72	8th
Electronic resources in the library are not well structured	8.41	9th
The search method for electronic resources does not make its use interesting to me	8.29	10th
The use of the library's electronic resources is too technical for me to understand	8.15	11th

Insufficiently trained library staff	7.79	12th
The electronic resources in the library are insufficient in my study area	7.56	13th

Kendall's W[a]=.065, N=535, χ2=525.575, df=15, Sig=.000

Source: Field Data, 2020

Kendall's coefficient results on the challenges of the use of electronic resources in public universities, as presented in Table 3. The results show that students are faced with insufficient computer systems (M=10.77), difficulties in detecting relevant electronic resources to their information need (M=9.99), lack of skills in using the electronic resources (M=9.85), unreliable internet facilities/connectivity (access) (M=9.43) and then lack of awareness about the electronic resource (M=9.30) and also, the electronic resources are not 24/7 accessible (M=8.74). Analysis of Kendall's coefficient showed a low level of agreement (Wa=.065, *χ2=525.575, df=15, p<.001*) among the students concerning the challenges they encounter in the use of the electronic resources at the libraries. From the results, it can be resolved that the academic libraries are constrained by insufficient computer systems, difficulties in detecting the relevant electronic resources to meet their information needs, lack of skills in using the electronic resources, and unreliable internet facilities/connectivity (access).

Table 4: Strategies on improving the use of electronic resources in academic libraries

Strategies	N	Min.	Max.	Mean	±SD
Improving Internet connectivity and distributed access to electronic resources	537	1	5	3.55	1.816
Increasing the time of accessing electronic resources in the library	537	1	5	3.66	1.378
Creating a catalogue of available electronic resources for ease of access	537	1	5	3.81	1.268
Creating awareness and encouraging students to use electronic resources	537	1	5	3.92	1.276
Raise awareness on the importance of using electronic resources	537	1	5	4.21	.856

Development skills and capacity of both students and staff on electronic resource usage	537	1	5	4.47	.861
The electronic resources must be 24/7 available/ accessible	537	1	5	3.45	1.191

Source: Field Data, 2020

Strategies to mitigate the challenges associated with the use of electronic resources in libraries are presented in Table 4. The majority of the students agreed strongly that the development skills and capacity of both students and staff on electronic resource usage (M=4.47, ±SD=.861), raise awareness on the importance of using electronic resources (M=4.21, ±SD=.856). Additionally, the students agreed that authorities should create awareness and encourage students to use electronic resources (M=3.92, ±SD=1.276). The least of the strategies indicated was that efforts must be made to ensure that electronic resources are available 24/7. From the results, it is implied that both students and staff require some form of training on the use of electronic resources, make the university community appreciate the relevance of the electronic resources while encouraging students to use the electronic resources for their academic works.

Table 5: Effects of the availability of electronic resources on student's use of the resources

Source	**SS**	**df**	**MS**	**Number of obs**	537
Model	18.666	1	18.666	F (1, 98)	93.686
Residual	34.668	174	.199	Prob > F	0.000
Total	53.334	175	18.865	R	.592
				R-squared	0.350
				Adj. R-squared	0.346

Student's use of e-resources	**Coef.**	**Std. Err.**	**t**	**P>|t|**	**(95% Conf. Interval)**	
Availability	-.497	.051	-9.679	.000	.0231461	.06498
Training	.327	.080	4.093	.001	.143218	.02154
Ease of use	-.421	.000	-.414	.421	-2.088	.04901
_cons	2.262	.214	10.551	.000	3.2154	1.4682

Source: Field Data

Linear regression was adopted to establish the hypothesis that the availability of electronic resources influences students to use electronic resources. References to the R statistic of 0.592 indicated a moderate correlation between the variables. However, the R^2 gave an indication that the availability of the electronic resources (independent variable) only explaining about 35% of the variabilities in student's attitudes towards the use of electronic resources in public universities. This is so because there are other factors rather than those being tested influence students' patronage of electronic resources in their respective libraries. Moreover, a statistical significance *F* statistic ($F(1,98)=93.686$, $p<.0005$) indicates that the model perfectly predicts the dependent variable significantly well and that the model is a good fit for the data. The regression equation demonstrates that there is a statistically positive effect of the level of the availability of the resources on their use by students. The results further showed that training ($t=4.093$, $p=.001$) had a statistically significant positive effect on students who use electronic resources at the library. However, the availability of electronic resources ($t=9.679$, $p<.001$) as well as the ease of use of the resources inversely related ($t=-.414$, $p>.05$) with student's use of electronic resources.

$Y= a+bx_1+bx_2+bx_3$

Where a=intercept

$bx_1 - bx_n$=independent variables

Student's use of electronic resources=2.262-.497(resource availability) +.327(Training) -.421(ease of use).

The result implies that training of staff and students alike will significantly determine and also influence student's willingness to patronise electronic resources at the university libraries. However, the inverse relationship between resource availability and ease of use of the electronic resources is rather negatively influencing student's desire to patronise the electronic resources at the academic libraries. Electronic resources gradually are transforming most library systems, and university authority must prioritise improving the current state of electronic resources at the public university libraries. It is further argued that closely linked to the ease of use of the electronic resources is adequate training of staff and students on its use. The results corroborate the works of Agba, Kigongo-Bukenya and Nyumba (2004) who found in their study that electronic resources in universities were not adequately utilised due to the lack of knowledge on how to access the resources. There are benefits to be derived when students and staff know what they can obtain from the system by doing what they have

to do, and these can be done with training of all stakeholders involved when it has to do with electronic resources in public university libraries.

CONCLUSIONS AND IMPLICATIONS

Electronic resources remain a key component of academic work in public universities. This research noted that there is increasing utilisation of Web OPAC, e-books, e-database, and e-journals among students in the public universities and they continue to use the resources weekly, monthly, and daily in their respective institutions. That notwithstanding, student's primary motivation for the use of electronic resources at the library was for research purposes, to access printing and document reproduction services. They also used the resources due to the need to access information for various reasons quickly.

The study noted that most public university libraries do not have sufficient computer systems to implement an efficient electronic resource system fully. This, to a small extent, is influencing student's willingness to patronize electronic resources in their respective institutions. Also, due to the lack of training, students have difficulties in detecting relevant electronic resources relevant to their information need, whereas internet connection to the surveyed libraries was found to be unreliable. Relative to training, it is vital to assert that the lack of training on how to use the resources can be a major impeding factor to the full utilisation of the resources.

RECOMMENDATIONS

The study, therefore, recommends that:

1. The institution's understudy should ensure that the libraries are adequately resourced to fully and efficiently operate the electronic resource system.

2. Staff and students alike need to be continually trained on the various electronic resource technologies deployed for use.

3. The institution, as well as librarians, must endeavour to create awareness about the relevance of the electronic resources to academic work in the institutions.

4. More so, it is worth indicating that it should be possible to offer students 24/7 access to the electronic resources at the library through internet access. In this way, students remotely can regularly access the resources for whatever reasons they want to use the resources.

REFERENCES

Abeyrathne, D. K., & Ekanayake, S. Y. (2019). The role of academic libraries for augmenting self-directed learning in higher education. *The Reference Librarian*, *60*(1), 14-28.

Abubakar, D., & Chollom, K. (2017). Relationship of user education, computer literacy and information and communication technology accessibility and use of e-resources by postgraduate students in Nigerian university libraries. *Library Philosophy & Practice e-journal. 1555.* http://digitalcommons.unl.edu/libphilprac/1555.

Agba, D.M, Kigongo-Bukenya, I.M.N & Nyumba, J.B. (2004). Utilization of electronic information resources by academic staff at Makerere University. *University of Dares Salaam Library Journal*, 6 (1):18-29.

Anafo, P., Akpah, S., & Ofori, Y. (2020). The Information and Communication Technology Infrastructure on the University of Mines and Technology Campus and Its Impact on Library e-Resource Accessibility. *Ghana Mining Journal*, 20(1), 75-83.

Ankrah, E., & Atuase, D. (2018). The use of electronic resources by postgraduate students of the University of Cape Coast. *Library Philosophy and Practice* (e-journal). 1632. https://digitalcommons.unl.edu/libphilprac/1632

Anunobi, C. V., & Okoye, I. B. (2008). The role of academic libraries in universal access to print and electronic resources in developing countries. *Library Philosophy and Practice* (e-journal). 189. https://digitalcommons.unl.edu/libphilprac/189

Baayel, P., & Asante, E. (2019). Faculty's Information Seeking Behavior in an ICT Environment: A Study of Koforidua Technical University. *Library Philosophy and Practice*, (e-journal). 25290. https://digitalcommons.unl.edu/libphilprac/2529

Baker, D. and Evans, W. (2011). *Libraries and Society: Role, Responsibility and Future in an Age of Change*, Chandos Publishing, Sawston, Cambridge.

Bhat, N. A. (2020). Modes of Acquisition and Models of Licensing: The Electronic Sources of Information. In *Handbook of Research on Emerging Trends and Technologies in Library and Information Science* (132-145). IGI Global.

Binu, P. C. (2020). Outlook Change from Print to E-Resources: A Study of the Uses and Advantages of E-Resources on Print in the State Universities in Kerala, India.

In Measuring and Implementing Altmetrics in Library and Information Science Research (pp. 111-131). IGI Global.

Bloomfield, J., & Fisher, M. J. (2019). Quantitative research design. *Journal of the Australasian Rehabilitation Nurses Association*, *22*(2), 27-30.

Blummer, B., & Kenton, J. M. (2020). A Systematic Review of E-Books in Academic Libraries: Access, Advantages, and Usage. *New Review of Academic Librarianship*, *26*(1), 79-109.

Campbell, S., Greenwood, M., Prior, S., Shearer, T., Walkem, K., Young, S., ... & Walker, K. (2020). Purposive sampling: complex or simple? Research case examples. *Journal of Research in Nursing*, 1744987120927206. https://doi.org/10.1177/1744987120927206.

Chen, X. (2017). Managing Changes in Collection Development. *Journal of East Asian Libraries*, *2017*(165), 7-15. https://schlasarchchaive.byu.edu/jeal/vol2017/iss165/7

Cox, J. (2020). The higher education environment driving academic library strategy: A political, economic, social and technological (PEST) analysis. *The Journal of Academic Librarianship*, 102219.

Crawford, L. S., Condrey, C., Avery, E. F., & Enoch, T. (2020). Implementing a just-in-time collection development model in an academic library. *The Journal of Academic Librarianship*, *46*(2), 102101.

Cuna, A., & Angeli, G. (2020). Improving the effectiveness of subject facets in library catalogues and beyond: a MARC-based semiautomated approach. *Library Hi-Tech*. https://doi.org/10.1108/LHT-07-2019-0132

Erich, A. T. (2013). The role of the university library for an efficient use of the electronic resources. *Studii de Biblioteconomie şi Ştiinţa Informării*, 17, 75-83.

Ghauri, P., Grønhaug, K., & Strange, R. (2020). *Research methods in business studies*. Cambridge University Press, New York.

Horsfall, M. N. (2020). Marketing of Library and Information Services in the Digital Age: Challenges, Strategies and Implications. *Information Impact: Journal of Information and Knowledge Management*, *11*(2), 13-20.

Ifijeh, G., & Yusuf, F. (2020). COVID–19 pandemic and the future of Nigeria's university system: The quest for libraries' relevance. *The Journal of Academic Librarianship*, *46*(6), 102226.

Jan, S. (2019). Status of Electronic Resources in Libraries: A Review Study. *Library Philosophy and Practice*, 0_1-19.

Jan, S., & Ganaie, S. A. (2018). From Cave Paintings to Virtual Web-based Information Resources: Expedition of Library Collection Formats. *Journal of Advancements in Library Sciences*, *2*(3), 57-70.

Jotangia, N. K. (2020). Electronic Resources: Their Importance, Characteristics, Types, Issues and Challenges and Comparison with Print Resources—: An Analysis. *NOLEGEIN-Journal of Advertising and Brand Management*, 1-9.

Kenchakkanavar, A. Y. (2014). Types of e-resources and its utilities in the library. *International Journal of Information Sources and Services*, *1*(2), 97-104.

Kodua-Ntim, K., & Fombad, M. C. (2020). Strategies for the use of open access institutional repositories at universities in Ghana. *Library Management*, 41(6/7), 515-530.

Kumar, R. (2019). *Research methodology: A step-by-step guide for beginners*. Sage Publications Limited.

Kumar, R. R. (2017). Marketing electronic information resources (EIRS) in academic libraries: a conceptual study. *International Journal of Library and Information Studies*, *7*(4), 217-226.

Larson, A. G. (2017). Faculty awareness and use of library subscribed online databases in the University of Education, Winneba. Ghana: A survey. *Library Philosophy and Practice* (e-journal). 1515. http://digitalcommons.unl.edu/libphilprac/1515

Lo, P., Cho, A., Law, B. K. K., Chiu, D. K., & Allard, B. (2017). Progressive trends in electronic resources management among academic libraries in Hong Kong. *Library Collections, Acquisitions, & Technical Services*, 40(1-2), 28-37.

McCaffrey, C. (2019). Transforming the university library one step at a time: A ten-year LibQUAL+ review. *New Review of Academic Librarianship*, *25*(1), 59-75.

Muthuvennila, S., & Kannan, P. (2020). User Satisfaction with Library Information Resources and Services: Improvement and Innovation of Effective Activities of Research Scholars. In *Challenges and Opportunities of Open Educational Resources Management* (81-102). IGI Global.

Nuere, S., & de Miguel, L. (2020). The Digital/Technological Connection with COVID-19: An Unprecedented Challenge in University Teaching. *Technology, Knowledge and Learning*, 1-13. https://doi.org/10.1007/s10758-020-09454-6

Odede, I. O. (2018). *Information literacy self-efficacy in the use of electronic information resources by library and information science postgraduate students in South South Nigeria* (Doctoral dissertation, University of Kwazulu Natal).

Oliver, J. C., Kollen, C., Hickson, B., & Rios, F. (2019). Data science support at the academic library. *Journal of Library Administration*, 59(3), 241-257.

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.

Pawar, R. R., & Moghe, G. S. (2014). Need of E-Resources in Academic Libraries. In Conference: Knowledge Management Challenges for Library and Information Professionals. Kirloskarwadi, Sangli.

Ponelis, S. R., & Adoma, P. (2018). Diffusion of open source integrated library systems in academic libraries in Africa. *Library Management*, 9(6-7), 430-448.

Rafi, M., JianMing, Z., & Ahmad, K. (2019). Evaluating the impact of digital library database resources on the productivity of academic research. *Information discovery and delivery*. 7(1), 42–52.

Rajagopal, V., & Chinnasamy, K. (2012). Users' Attitudes and Approaches towards E-Resources and Services in Academic Libraries of Puducherry Union Territory: A Study. *Journal of Advances in Library and Information Science*, 1(4), 149-152.

Roy, M. B., & Kumar, N. (2017). Use of electronic resources in academic library. *International Journal of Information Movement,* 2(VI), 1-6.

Rubin, R. E. (2017). *Foundations of library and information science*. American Library Association.

Rysavy, M. D., & Michalak, R. (2020). Assessing the accessibility of library tools & services When You aren't an accessibility expert: Part 1. *Journal of Library Administration*, 60(1), 71-79.

Singh, A. K., & Mukherjee, B. (2018). Electronic information resource optimization in academic libraries: a comparative study on licensing provision of commercial publisher. *DESIDOC Journal of Library & Information Technology*, 38(3), 213.

Tait, E., Martzoukou, K., & Reid, P. (2016). Libraries for the future: the role of IT utilities in the transformation of academic libraries. *Palgrave Communications*, 2(1), 1-9.

Tlakula, T. P., & Fombad, M. (2017). The use of electronic resources by undergraduate students at the University of Venda, South Africa. *The Electronic Library*, 35(5), 861-881.

Todorinova, L., & Wilkinson, Z. T. (2019). Closing the loop: Students, academic libraries, and textbook affordability. *The Journal of Academic Librarianship*, 45(3), 268-277.

Verminski, A., & Blanchat, K. M. (2017). *Fundamentals of electronic resources management*. American Library Association.

Yi, Z. (2016). Effective techniques for the promotion of library services and resources. *Information Research: An International Electronic Journal*, 21(1),702. http://InformationR.net/ir/21-1/paper702.html