

Adoption and Use of Information and Communication Technology in Academic Libraries in Ghana: A Case Study of Central University, Accra Ghana

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Abstract— This study set out to examine the level of ICT adoption in private university libraries in Ghana in terms of physical infrastructure, and to find out how committed the management of private universities are in acquiring ICT tools for the libraries. The study further examined the capabilities and competence of both library staff and students in the use of ICT facilities and the level of satisfaction in the use of ICT in the various universities. The study used the mixed method approach which involved adopting both the quantitative and qualitative approaches. The study used thirty percent of the graduate students as the sample size. Therefore, sample size of the student's respondents was sixty-three (63). Since the population of the library staff was not too large the professional librarian and 2 paraprofessionals were used. The research revealed that the University has adopted well to ICT use in the library. the library staff have great knowledge in the application of ICT and ICT resources to their work. Again, student respondents have also showed in the findings that they had knowledge in the use of ICT resources. The findings also revealed that students find the ICT resources easy to use. Also, the students benefit a lot from ICT training organized by the library The recommendations given were that management of the university should invest more in ICT facilities for the library. Library staff should also be given enough training in ICT so that they can be in better position to help their users. Again, the government should constitute a body to oversee the affairs of private university libraries to ensure conformity with the library standards.

Keywords— Academic libraries, Central University, Information Communication Technology.

I. INTRODUCTION

The advent of ICT has transformed the way libraries operate in recent times. The libraries nowadays have changed from close-access libraries of earlier times to the present-day hybrid, digital, and virtual ones. The accelerated adoption and use of ICT has resulted in the globalization of information and knowledge resources (Kalam, Nasiruddin, & Sayeed, 2021).

Qutab, Bhatti, & Ullah (2014) defined ICT as the hardware and software use for information transferring and conducting communications linked by a vast array of technological protocols. It again covers internet service provision, ICT equipment, media and broadcasting of library and documentation centres, network-based information services and many more". Dunmill & Arslanagic, (2006) opined that adoption as the legal process of becoming a non-biological parent, but it also refers to the act of embracing ideas or habits.

These days' libraries and librarians have transformed from being mainly acquirers and maintainers of books for in-house use by their patrons, to that of information officers and navigators who encourage use in the vast collection of reading or information material. Librarians are busy satisfying their clients who want information anytime, in any format and anywhere. With the use of

ICT Libraries provide quicker and user-oriented services (Ashikuzzaman, 2019). Since the advent of information and communication technology, dissemination of library materials has taken a different dimension. Libraries now use the internet, aided by computers to make materials available to their users. Most academic libraries spend huge sums of money to acquire electronic resources such as E-journals and E-books for their users at a click of a button.

In recent times people prefer to use the internet in the comfort of their homes to undertake research rather than visiting a library to consult library materials. According to Adu (2009) "private universities have sprung up everywhere in Ghana". Adu (2009) further observed that, there are numerous reasons for this rapid growth in private higher education in Ghana. Firstly, Ghana's educational sector has been deregulated following a general trend of deregulation in Africa in the wake of democratization. In Ghana, the process started in 1993 when a structure for accrediting private universities was formed. Secondly, the increased growth in private institutions is because of the massive demand for higher education. Adu (2009), added that enrolments in tertiary institutions have multiplied more than ten times over the past two decades in response to social and political pressures for access to higher education.

Most private universities fund their own operations mainly through student fees. For this reason, resourcing the libraries become very difficult. As a result, libraries cannot run as effectively as they should. This has made most private university libraries not fully functional. Many of these private universities in Ghana are owned by individuals and religious organizations. A study by Halisu (2011) posited that the lack of organizational commitment towards ICT procurement constituted the highest obstacle towards ICT use. Consequently, university authorities do not want to spend money buying expensive (ICT) tools like computers, internet connection, or even subscribing to e-resources for the library. This has made the access and use of information and communication technology in private university libraries very difficult. According to Alakpudia (2010), to properly harness ICT, users should possess the needed computer literacy skills, and this has been referred to as a “comfort level someone has with using computer programmes and other applications associated with computers” The question as to whether the staff in the libraries knowledge in the use of ICT tools had depends on their readiness to acquire and use ICT facilities.

II. PROBLEM STATEMENT

The importance of information and communication technology in academic libraries cannot be over emphasized. However, there are some challenges that come with the adaptation and usage of information and communication technology in libraries. Information provision is becoming a difficult commodity for librarians to provide to their users. This is due to poor financial support to libraries by government and other stakeholders (Okeke, Urhiewhu, & Nwafor, 2015). Declining library budget is one challenge faced by most private university libraries.

Unlike the traditional public universities which are mostly funded by the government and therefore receive all the necessary support from government to fund its projects including the libraries, private universities, however, are solely established by individuals and private organizations which mostly depend on tuition fees paid by students to run their activities. This makes it difficult for most private universities to fund their libraries especially with expensive investments such as procuring ICT facilities for their libraries. Boateng (2019) posits that there is the ubiquitous lack of finances for funding ill-resourced libraries in Ghana. In relation to this, Ajaegbu and Ehioghae (2014) added that, “it has become a necessity for all Nigerian libraries to adopt and harness from the good deeds ICT has brought to library service’s and academic research”.

III. LITERATURE REVIEW

There are many libraries in the world. They are of different kinds in terms of the institutions within which they are located, the clientele that they serve, the resources that they command, their aims and objectives, their size, and the sociotechnical complexity and their organizational arrangement (Rayward, 2002).

“The term Information and communication technology had been used by academics since the 1950s. Information and communication technology has prompted traditional libraries to transform into digital libraries”. Rayward (2002), argued that the history of computerization in US libraries is intelligible only against a background of the professionalization of librarianship during the latter part of the 19th and early part of the 20th centuries. The author is of the view that, professionalization was intimately bound up with the creation and maintenance of a range of technologies that were specific to libraries. Long before the advent of computers, he suggested that the sophisticated and evolving technologies that the modern library deployed were highly adapted to its needs and purposes. The International Federation of Library Association (IFLA) (2004) noted that, librarians in 1963 did not yet have many of the automation options that are commonplace now. Integrated circuits, chips, networks, even floppy discs were still a few years away.

Parvez, (2009) asserted that, with the advent and development of ICT, academic libraries have shifted from the traditional to hybrid library, then automated library, digital archives stages, library 2.0 and mobile phone service. Rayward, (2002), opposed the view of Pervez and argued that, as a result of break down under economic, social, and bibliographical pressures emerging in the late 1950s and early 1960s and librarians began seeking relief in automation, the introduction of automation involved profound misunderstandings between librarians and early systems developers about the nature of the professional knowledge and traditions of librarianship on the one hand and of the capabilities of the new technology and what was required for its implementation on the other.

Ashikuzzaman, (2018) also researched on the role of librarians in the development of ICT and noted that, librarians have been changed from simple storekeepers who were concerned with the protection of books against theft and mutilation, to that of information officers and navigators who encourage the use of information in the vast array of information material. Information and communication technology has

changed the library and information services globally. Digital media has transformed the information society and improvements in ICT has changed information provision. The internet has provided universal access to information. ICT innovation has changed the rate of conversion of knowledge, information, and data into electronic or digital format. Ashikuzzaman, (2018), further noted that improvement in software has produced powerful knowledge management software which has transformed the way knowledge is organized, stored, accessed, and retrieved. Basically, digital revolution driven by ICT's innovation has transformed university libraries. It has impacted on every sphere of university library activity. The earlier role of university libraries as information custodian has been reduced to that of being one of many information providers.

According to Mangesi (2007), the Ghanaian tertiary education sector is the most advanced in the deployment and use of ICTs in the country. All the country's major universities have their own ICT policies, which include an ICT levy for students. This enables students to have access to computer labs with broadband connections. However not all tertiary institutions in the country are endowed and there are instances where the computer facilities are run purely by the private sector as cyber cafés on campuses.

Delić-Zimić & Gadžo, (2018) are of the view that prioritization of ICT for funding and making ICT a priority project in the universities is also important, where ICT should even be recognized as a necessary utility such as water and electricity in the development of the university. Priority is required for human resources development for sustainability as well as organizational, structural, and financial sustainability. Integration of technology into the new learning and research paradigm whilst staff and students are trained for this new academic environment is important.

Achimugu, Oluwagbemi, & Oluwaranti, (2010) identified three benefits of implementing ICT in education. The researchers outlined that, ICT can increase learner motivation as it combines the media richness and interactivity of other ICTs with the opportunity to connect with real people and to participate in real world events. The second benefit is that ICT can facilitate the acquisition of basic skills amongst people and be used to improve access to and the quality of teacher training. There should be an assessment of ICT which considers, all areas of an institution including teaching, research, administration and management, curricular development and library and archival services.

The Ministry of Education outlined the purpose of introducing ICT into the Ghanaian educational system, especially in distance education. The Ministry of Education acknowledged that for Ghana to make any appreciable progress in its socio-economic development efforts, substantial resources will need to be directed at improving educational delivery. According to the ministry, the key role that information and communication technologies can play in widening access to education to a wider section of the population and literacy education for facilitating educational delivery and training at all levels has been recognized as a key priority area under the current Education Reforms. The efforts to introduce ICTs into the sector by the Ministry and its development partners and other private sector agencies cover over ten (10) years. Initiatives have spanned pre-tertiary both public and private schools and tertiary. Efforts have largely been geared towards the deployment of ICTs to these facilities via the provision of computers and the establishment of ICT laboratories (Ministry of education 2008).

Basically, information and communication technology enhance the workflow of the library which helps in reducing manual work. This proliferates library services. One of the most prominent advantages of ICT is to provide ICT-based information services to meet the users' demands. According to Woodward (2009), tremendous development has been seen in the field of library and information science due to the faster growth in technology. In past few decades, with the use of internet and technology, the library work has become very fast. To satisfy the needs of library users, speed and accuracy is the most two important dimensions.

Osawaru & Krubu, (2010) were of the view that, the effect of information technologies is felt by libraries in every facet of their work. Computing, communication, and mass storage technologies are some of the areas of continuous development that redesign the way that libraries access, retrieve, store, manipulate and disseminate information to user. The authors further noted that, ICT presents an opportunity to provide value-added information services and access to a wide variety of digital based information resources to their clients. Furthermore, academic libraries are also using modern ICTs to automate their core functions, implement efficient and effective library cooperation and resource sharing networks.

ICT has become a necessity and is needed in today's libraries. In this direction strenuous work such as classification and cataloguing which were done manually have now been made easy with the

introduction of information technology. This has made cataloguing and classification of books uniform in most academic libraries. Khan (2016) asserted that, ICT has changed the way of acquisition, technical processing, periodical subscription, and circulation activities, in such a way that library readers can get required information and services effectively in shortest time with less manpower involvement.

IV. OBJECTIVES OF THE STUDY

The specific objectives of the study were:

- Assess the level of adoption of ICT in the university library.
- Find out how easy it is to use ICT resources in the library.
- Find out the level of management support and commitment in the use of ICT resources in the library.

V. METHODOLOGY

This study employed the sequential explanatory design. A sequential explanatory design implies collecting and analysing quantitative and then qualitative in two consecutive phases within one study. However, this study used the mixed method approach which involves adopting both the quantitative and qualitative approach. This helped to avoid any form of biases with the use of a single approach. As far as this study was concerned, the target population consisted of graduate students and the library staff of the case institution. The target population of graduate students was two hundred and eight (208). For this study, the researcher used 30% of the population as the sample size. Therefore, sample size of the student’s respondents was sixty-three (63).

In the case of the library staff, the head librarian and two (2) paraprofessional were selected for the study. The reason for choosing central University library was because they are well established as one of the oldest private universities in Ghana which has been in existence for more than ten years, and they also run graduate programmes. A proportionate random sampling technique was used to select student respondents. The researcher used purposive sampling to select librarian and 2 paraprofessionals.

VI. FINDINGS AND ANALYSIS

The study considered three different groups of library ICT facilities users and how they benefited from ICT infrastructure in the library. The category of users who took part in the study were the head librarians, paraprofessionals, and students. The questionnaire was administered to elicit information about whether

management of private universities were willing to invest in ICT facilities in the library. It also looked at enhancing the work of library staff and ascertain whether the ICT infrastructure was enhancing students learning and research. The gender distribution of students was shown using frequency table as displayed below.

GENDER DISTRIBUTION OF RESPONDENTS

The gender distribution for the library staff was 1 male and 2 females. This implies that majority of library staff were females while most student respondents were male. According to Primo, (2003), women present the main economic force in most developing countries therefore, the issue of women access to and use of ICT is growing in importance for both developed and developing countries.

There has been much debate across disciplines as to whether women's use of computers is more problematic than that of men. Women are frequently portrayed as afraid of technology, computers and the Internet – alienated by the masculine culture surrounding them (Karanja, 2017).

The response rate for students’ respondents was 97%, which was considered as high.

Table 1: Gender distribution of student respondents

Gender	Frequency	Percentage
Male	36	59%
Female	25	40.9%
Total	61	100%

Source: field work 2020

Level of ICT Adoption and Use

With the first objective being to assess the level of adoption to ICT by the library, Interview with library staff indicated that, their level of adoption and use of ICT was high.

The head librarian said that, “Our library’s adoption rate is high”.

The results showed that overall libraries in the private universities also have a high level of ICT adoption. The two paraprofessionals ascertained that they have high adoption level.

Adebayo et al., (2018), are of the view that adoption of ICT in libraries is a way of improving on information services provided in libraries.

Library Operations and ICT Use

On the question of what library operations librarians use ICT to perform in the library, the findings indicated that, ICT is used for virtually every activity in the library. The head librarian said, “We use ICT for circulation and acquisition of library materials”.

The paraprofessionals were asked the same question and their response also proved what their HL said. Paraprofessional 1 said, “We use ICT for processing of library’s new collection”.

Paraprofessionals 2 said, “We use ICT for circulation purposes”.

Level of ICT Support by Management

Objective two (2) of this research meant to find out the level of top management’s commitment and support in adopting and use of ICT in the library.

This question was posed to only the head librarian, as to whether the university management was committed to supporting the adoption and usage of ICT in the library. The head librarian said, “yes”. This meant that management of the university was committed towards providing ICT in the library. This finding is in disagreement with that of Jeliyang's (2016)who, observed that, private universities’ major problem was lack of support from university management. This showed the commitment of managers of private universities to support ICT use in the libraries. According to Omotayo & Chigbundu, (2017) it has been found out that leadership behaviour of senior management plays an important role in determining the success or failure of an ICT implementation in organizations; thus, there is the need for strong leadership in ICT implementations.

Ease of Use of ICT System

The table below represent the ease of use of the ICT system in the library. the results indicated that 5 respondents representing (8.1%) agreed that the ICT system was easy to use. 55 respondents representing (90.1%) strongly agreed that the system was easy to use while 1 representing (1.7%) were neutral about the question. This supports Khan & Qutab, (2016), assertion that digital libraries, enhance performance, and that users’ acceptance always impedes their utilization. It indicates that users’ adoption intentions are significant constructs in the success or failure of a digital library. The technology acceptance model (TAM) specifies the causal relationships between system design features,

perceived usefulness, perceived ease of use, attitude toward using, and actual usage behaviour.

Table 2: Ease of Use of ICT System

	Frequency	Percentage
Agree	5	8.1
Strongly agree	55	90.1
Neutral	1	1.6
Total	61	100%

Source: field work 2020

VII. CONCLUSION

This study investigated the level of adoption and use of information and communication technology in private university libraries in Ghana: A case study of Central University.

The study had proven that there is a high level of adoption of ICT use at the Central University library. This was because of total commitment from management who see to the ICT needs of the library. It was also established that the library staff who managed the ICT resources are very knowledgeable in the use of ICT, and this has resulted in seeing a great number of students using ICT resources in the library. Assessing the students also proved that students are knowledgeable in the use of ICT.

The students also revealed that the resources are very useful and very easy to use and therefore they have shown great satisfaction with the resources they receive from the libraries. The use of ICT has added great value in library activities, and this has satisfied the unique needs of both students, lecturers, and researchers. ICT has brought tremendous change in libraries so much that users of a library do not need to be physically present in the library to be able to use the services of that library.

VIII. RECOMMENDATION

Based on the outcome of this research the following recommendations were made to the library to improve its services.

1. There is the need for management of the university to invest more into the ICT development of the library.
2. It is recommended that there should be a devoted space for ICT facilities in the libraries provided by management where students will have the privacy and comfort to use the e-resources.
3. Management of the university should improve on the ICT facilities since there is continues changes in ICT technology.

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