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Planning for Digitization of University Libraries in Ghana: Challenges and Prospects

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PLANNING FOR DIGITIZATION OF UNIVERSITY LIBRARIES IN GHANA: CHALLENGES AND PROSPECTS

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Abstract

The study investigates the availability of strategic plans or policies for the development of digital libraries in selected universities in Ghana. A case study approach was adopted and interviews were held with three university librarians to determine their views on planning and budgeting for digitization. The findings reveal that all three university libraries have strategic plans, though some are outdated and therefore, rely on policies to ensure that digitization activities are enhanced. Budgetary support for digitization activities range from 16.6% - 50% of the total library budget. The study recommends that the libraries should have an up-to-date strategic plan which includes a specific mission and vision with regard to digital libraries and digitalized resources. They should also consider income-generating activities such as renting portions of their premises for workshops, conferences, exhibitions and seminars which would boost the budgetary support of libraries. This is one of the few articles which examines digitization from a cross section of university libraries in Ghana

Keywords: Strategic Planning, digital libraries, budgeting, universities, Ghana

Introduction

Digital libraries are increasingly being recognized as efficient channels for the collection, storage, organization of information in digital formats and for their ease of searching, retrieval and processing of information via improved communication networks. Digital libraries have the potential to provide timely access to information, improve facilities for information sharing and collaboration and also reduce the digital divide among (Chowdhury and Chowdhury, 2003:11).

In universities, digital libraries serve as gateways to information and knowledge offering essential support for teaching, learning and research. They provide access to the intellectual and scholarly output of the university community and play an important role in promoting the university to the rest of the world by exposing works to the wider community. Access to information and knowledge is made available through the ever-widening range of digital library resources and services, including full-text online databases, faculty research, classroom materials, multimedia digital resources, electronic journals, electronic books and digital libraries from all over the world.

Some libraries in the developed countries (for example: University of California system – California Digital Library; University of Tilburg Library, Netherlands) have put measures in place to ensure the development and management of digital libraries. Lampert and Vaughan (2009) for instance, observe in their study of the University of Nevada, Las Vegas (UNLV) libraries' digitization programmes, that the majority of libraries had made provision for digitization activities in their library's strategic plans. Within that plan, the need for financial sustainability was emphasized in order to enhance, migrate and sustain resources over time. In the opinion of Azzolini (2011:14) a digital library should be regarded as an enterprise that is meant to fulfill specific goals and from the outset designed to be sustainable in order to provide value to those who invest in it and those who use it. In other words, the need for

financial planning including short-term and long-term forecasting as well as benchmarks cannot be neglected.

This paper explores the views of university librarians from the three oldest public universities on strategic planning for the development of digital libraries and how the plan is being implemented. Specifically, the paper:

i. examines the availability of strategic plans or policies towards the development of digital libraries in Ghanaian universities;

ii. investigates sources of funding as well as disbursement of funds in respect of digital libraries in Ghanaian universities.

Theoretical insights into digital libraries

A plethora of frameworks and models proposed for the design, development and management of digital libraries has been widely discussed in the academic literature (Zachman, 1987; Yates, 1989; Levy and Marshall, 1995; Moen and McClure, 1997; Yang, Zheng & Wang, 1997; Marchionini and Fox, 1999; Rowlands and Bawden, 1999; Saracevic and Covi, 2000; Fuhr et al. 2001; Magnussen, 2003; Gonçalves et al. 2004). In the view of the different authors, these frameworks serve as the basic architecture for the development of digital libraries.

Yates (1989) for instance, explains that documents, technologies and work factors are crucial for the development of both traditional and digital libraries. Yates contends that libraries have one thing in common, that is, they house and provide access to stores of documents. These documents are created and maintained using technologies and are deployed through the

institution of the library to support work of researchers and staff. The consequences of Yates' framework for the development of digital libraries are examined by Levy and Marshall (1995) and Rowlands and Bawden (1999). Levy and Marshall (1995) stress that technical infrastructure does not, in and of itself, constitute a digital library. Digital libraries require content more specifically, managed collections of content for identified user communities. They conclude that digital libraries are characterized by documents, technology and work processes (which involves research and service). Yang et al. (1997) propose that the digital library should comprise four structural levels: user interface, networks and communications, information resources and reference service while Marchionini and Fox (1999) suggest four dimensions of digital library development, constituting community, technology, service and content.

Rowlands and Bawden (1999) on their part re-labeled the three elements of Yates as the informational (documents), the systems (technology) and the social (work) domains of the digital library. The informational domain examines knowledge organization and discovery, impacts on the information transfer chain and future studies and scenarios. The social domain examines human factors (non-machine specific), organizational factors, library management factors, information law and policy factors, impacts on the information transfer chain, future studies and scenarios. The systems domain also consists of human factors (e.g. human-system interaction), systems factors, knowledge organization and discovery (e.g. software agents), impacts on the information transfer chain (technical) and future studies and scenarios.

Saracevic and Covi (2000) also indicate that in the development of digital libraries, the social, institutional, individual, interface, engineering, processing, and content factors need to be

considered. Additionally, a scheme for digital library development which contains four dimensions: data/collection, system/technology, users and usage is proposed by Fuhr et al. (2001). They explain that data/collection assessment mainly focuses on content, description, quality/reliability attributes, and management and accessibility attributes, while system/technology assessment is related to user technology, information access, system structure, and document technology. Users and their uses are represented by the types of users, what domain areas users are interested in, how they seek information, and the purpose of seeking information.

Magnussen (2003) presents a theoretical perspective of digital libraries designed specifically for Commonwealth libraries. These include a number of inter-related factors such as legal, financial, client, personnel, organizational, management, technical, collaboration and subject discipline issues. Another theoretical framework that has attracted a lot of attention is the 5S introduced in 2004 by Gonçalves et al. The 5S framework representing Streams, Structures, Spaces, Scenarios and Societies together provide a formal foundation to define, relate and unify concepts of digital objects, meta data, collections and services.

In the absence of an agreed theory or concept, the question arises which of these perspectives present a holistic view of the development of digital libraries. In the view of the researchers, all models present some aspects of the core components needed for the development of digital libraries, namely, policies and planning, technological infrastructure and digital content and services. For the purpose of this study, the availability of policies and plans would be examined in the context of digitization in Ghanaian universities.

This study is significant as it will emphasize the need for effective strategic planning for digitization in university libraries. Furthermore, the outcome of the study will serve as a very useful tool for librarians in Ghana and indeed in other developing countries who desire to improve the digital status of their university libraries. It is hoped that the study would bridge the gap on unreported or underreported developments of digital libraries in Ghana.

The rest of this paper is divided into three main sections: a review of the literature on the strategic planning for digital library development is carried out. Then the study methodology is presented followed by the findings and discussions and recommendations for university librarians and administrators.

Review of the related literature

The term "digital library" is most certainly a recent one which can be traced from the mid-90s to 2004. It gained ground when research funding for digital libraries was made available to universities and other agencies in the United States of America (USA). It has been defined as:

> *"a managed collection of information, with associated services, where the information is stored in digital formats and accessible over a network"* (Arms 2000:1).

Digital libraries require strategic planning on who uses what, how, why, at what charges and conditions of confidentiality and privacy. It requires the expertise and experience of decision makers, library and archive managers, curatorial and technical staff members to establish guidelines or policies to make them viable. In the view of Bryson (2004:6), strategic planning is a "disciplined effort to produce fundamental decisions and actions that shape and guide

what an organization is, what it does, and why it does it". Strategic planning typically involves a process of planning which results in the organization's strategic plan. A few authors (Hosmer, 1982; Bryson and Roering, 1988; Eadie, 1983) have designed steps in the planning process. Streib (1992: 341) for instance, identifies five steps in the strategic planning process:

i. A mission statement that establishes goals and objectives

ii. An environmental scan

iii. An organizational scan to determine strengths and weaknesses

iv. Strategic objectives and implementation

v. Implementation and monitoring

Collier (2005:602) supports an organized process for establishing digital libraries and argues that digital libraries should be planned on sound business principles where the aims, products and services of the eventual system are all identified together with how the digital library service will contribute to the overall business and mission of the parent organizations. On the contrary, even though Cervone (2009:16) is of the opinion that there are no absolute rules for planning digital libraries, some libraries have a well-developed and strictly followed process in place while other libraries have a more *laissez-faire* approach where the project just develops as things go along. Chapman (2000) proposes three phases of a digital project – setting goals, planning and budgeting and managing workflow while Bishoff and Allen (2004) propose a template which comprises key components of business plans (such as the mission statement, market research, promotional strategies, financial planning, product valuation) for cultural heritage institutions.

Law (2009) notes that a surprisingly large number of digital libraries appear to have neither vision nor mission statements due to the fact that they are embedded as part of their larger institutional library. He cites certain large university libraries such as Imperial College, London; Cambridge University and Columbia University, for example, which are all silent on their large digital library programmes.

Some other libraries introduce policies regarding the development of digital libraries. Good policies, according to Fitsimmons (2011) reflect the library leader's management style and provide a framework of expectations that assures that the values held within an organization are given proper consideration in each decision made. Describing the policies for the establishment of an institutional repository, Barton (2005) identifies three kinds of policies that an institutional repository can adopt to govern its service. The first is policy decisions related to the university's policies on user authentication and identification, privacy policies and theses; the second is policies related to library policies, such as collection development or access to collections and the third is policies that the project team can resolve internally like the list of supported formats.

Anie and Achugbue (2009) however, concede that there is difficulty in implementing policies in Nigeria, a developing country in West Africa. They observe that many libraries were yet to formulate and integrate library ICT policies and this has affected the slow growth and ineffective utilization of their services and resources. This concern is reported in a study in which they assessed the views of librarians on the impact of ICT policies on the utilization of library resources and services.

Very similar to the development of policies is the introduction of a service framework. A service framework tool helps libraries to establish priorities, guide investment and anticipate future needs in uncertain environments (Lavoie et al. 2006). It is a tool for documenting a shared view of library services in changing environments, communicating it among libraries and others, and applying it to the best advantage in meeting library goals. It is a means of focusing attention and organizing discussion. An example of a service framework provided by Lavoie et al. (2006) is the Open Archival Information System (OAIS) which provides a broad sketch of what digital preservation is intended to accomplish, the major processes involved, and even some of the more granular functionalities that comprise each process.

Planning for digital libraries also requires on-going financial sustainability in order to enhance, migrate and technically sustain resources over time. A larger percentage of financing should be devoted to continuing subscription of electronic resources. For instance, the University of California San Diego libraries spent 65% of library funds on e-resources (such as databases, e-books, and large packages of electronic journals and other resources) in the 2009/10 fiscal year.

However, in developing countries, budgeting for digitization is low. Jan and Sheikh (2011) report that the majority of university libraries in Pakistan (92%) have no separate budget for automation and digitization. Only two university libraries in Islamabad claim separate budgets for automation and digitization. Furthermore, the majority (65%) of the university libraries in Pakistan have below Rs 5 million average annual budget. About one-fifth (19%) have an annual budget between 5 million and Rs 10 million. Only one university library in Islamabad has an annual budget between 15 to 20 million.

In Malawi, also a developing country in Eastern Africa, Mapulanga (2012) confirms the inadequacy of budgets for the University of Malawi Libraries and reports that the majority of them (80%) are funded below 6% of the university budget estimates. He recommends that college librarians should lobby for increased budgets for University of Malawi Libraries (UML). College librarians should also consider income-generating activities as a means to supplement funding through government subvention.

Generally, funding for academic libraries in Africa is financed from the budgets of their parent institutions (Ubogu & Okiy, 2011) which invariably comes directly from government subvention. Okojie (2010) concurs that 90 per cent of the funds for university libraries in Africa is derived mostly from government allocation. Other sources of funding include endowment funds, library fees, gifts and other miscellaneous sources (Emojorho, 2004). Furthermore, Okiy (2005) indicates that university libraries in Nigeria are among the few libraries that have a clearly defined policy on funding where they are allocated 10 percent of the recurring annual budget of their parent universities, a result of the Federal Government and Academic Staff Union of Universities agreement of 1992. A similar policy on funding applies to academic libraries in South Africa.

Baro and Asaba (2010:14) critique the sole dependence of academic libraries on government funding and state that without adequate funding, it would be absolutely impossible for the university library to live up to its mandate which is to support teaching and research. It is for this reason that libraries need to explore funding models beyond internal university funds or external grant funds (Eden 2001:55).

Research Methodology

An exploratory comparative case study was adopted to find out the extent to which three university libraries plan for the development of their digital libraries. The case study method was suitable for this study as the implementation of digital libraries involves large-scale changes for the institutions. Interviews with the university librarians of three public universities in Ghana, notably, the University of Ghana (UG), Legon, Accra, Kwame Nkrumah University of Science and Technology, (KNUST), Kumasi and the University of Cape Coast (UCC), Cape Coast were carried out. The three universities are the oldest public universities in Ghana, have the largest number of students population and the largest collections of resources in their libraries.

The three university librarians were selected for this study because they are ultimately responsible for the development of their libraries and have a fairly good idea of the status of the library.

Structured interviews with the three respondents were all taped with their permission. The interviews lasted for three hours each and were held in different locations in Accra, Kumasi and Cape Coast. The interviewing process explored areas such as the availability of strategic plans or policies for the development of digital libraries, budgeting or financial planning for the development of digital libraries.

The interviews started with the University Librarian of the University of Ghana. The results were transcribed and analysed before the interviews with the University Librarians of KNUST and UCC were held respectively. This iterative process of data collection, analysis, comparison and revision during the entire study is referred to as the "constant-comparative" method by Strauss and Corbin cited in Zach (2006:13).

Brief Overview of the three universities and their libraries

The University of Ghana was established in 1948 and currently has a student population of 42,692 (UG Basic Statistics 2012). Balme Library is the main library of the University and coordinates a large number of libraries attached to schools, institutes, faculties, departments, halls of residence of the University and the Accra City Campus. Together, they form the University of Ghana Library System. The Balme Library has over 396 thousand books, 959 microfilms (currently being digitized), CD's, tapes and impressive holdings of rare books, prints and archives in the library's collection. It has a total workforce of 153.

The Kwame Nkrumah University of Science and Technology was established in 1951 and has a current student population of 31,000 (KNUST Basic Statistics 2012). The University Library System consists of the main University Library and six College Libraries. The total collection of the University Library System stands at 293,164 volumes. The total workforce of the KNUST Library System stands at 145.

The University of Cape Coast was established in October 1962 and currently has a student population of 35,922 (UCC Basic Statistics 2012) The University Library System comprises the Main Library, the Faculty Libraries, the Departmental Libraries and Hall Libraries. The total collection of the University Library System stands at 223,901. The total staff strength is 210.

Findings of the Study

Institutional Policies and Planning

Establishing a successful digital library requires adequate planning on the part of managers of the institution. The planning process is aimed at providing guidelines for current and

future activities, as well as indicating goals and specific objectives that would enhance the development and management of digital libraries in the institutions. The researchers enquired from the university librarians whether digitization activities were indicated in their university or library's strategic plan. They were to indicate the policy or plan towards access, content and confidentiality and how these would be achieved.

All three University Librarians acknowledged the availability of strategic plans for their libraries. According to the UG Librarian action items to be implemented on digitization in the strategic plan include the acquisition of digitization equipment and software, training staff for digitization and drawing up a policy on institutional repository. The policy on institutional repository has been ratified in 2014. In confirming the availability of a strategic plan, the UCC Librarian intimated that the plan "enjoins the library to digitize rare materials and take soft copies of theses submitted by students. The library also digitizes materials that it finds very useful". Though the strategic plan for KNUST was slightly outdated, the University Librarian stated that the library's digitization efforts have made information and knowledge more accessible to students and faculty of the University. Two important policies have paved the way for advancement in digitization and these include the ICT and institutional repository policies. According to the University Librarian, KNUST was "the first to have a live open access institutional repository (IR) which enables the management and dissemination in digital format of academic and research output and learning and teaching resources that have either been created by the library or donated to the university".

There were slight differences among the three university's strategic plan towards access to digital content. Whereas two of the universities had open access policies towards digital content, one library still had restrictions. UCC Librarian intimated that "apart from theses

that cannot be copied on pen drives or sent to their emails as attachment, other materials such

as e-journals, university publications are on open access and are easily accessible through the

IR*".*

In the UG's library strategic plan, specific statements concerning access by students, faculty

and staff of the university were made under the theme "Online Access to Information." The

UG Librarian mentioned "the development and maintenance of the library website with links

to relevant resources" to ensure adequate access by all. He also mentioned the use of the

"online public access catalogue (OPAC) which facilitates access to resources in the library".

In the view of the KNUST Librarian, access to the content of the Institutional Repository (IR)

is open to all and materials include "full text of theses and dissertations, scholarly or

researched items, learning and teaching resources, conference papers/procedures and

presentations, technical reports, working papers, inaugural lectures and speeches, etc. in rich

text formats (PDF) all coming from the university community*".* The University Librarian

added that the library has also digitized all the current and back issues of the University's

peer-reviewed journals and made them accessible through the IR.

All the libraries subscribe to online databases through the collaborative efforts of the

Consortium of Academic Libraries in Ghana (CARLIGH) and also provide free access to e-

resources on the Internet. The online public access catalogues (OPACs) of UG and KNUST

provide free access to information on books and other digital materials available in the library.

UCC's OPAC requires users to authenticate themselves before usage.

Similar views were shared by the University Librarians regarding policies on confidentiality

and privacy of the different platforms available in the library. They all indicated that

provision has been made for the protection of patrons in their IR policies. Additionally, the

UG librarian, indicated that the library does not envisage to have problems with privacy and confidentiality as it would abide by the international copyright policies. The KNUST librarian, on her part, intimated that "all contributors are assured of their rights through the explicit policy statements on copyright, intellectual property and licensing issues". The UCC librarian mentioned that confidentiality and privacy "are all covered under the institutional repository policy".

Funding For Digital Libraries

Digital libraries require financial planning to ensure its sustainability. Financial planning is a process of setting objectives, assessing assets and resources, estimating future financial needs, and making plans to achieve monetary goals. To determine whether digitization initiatives in the various libraries have been planned for financially, the respondents were asked to indicate their budgetary support for these activities. This question was important as many digital libraries appear to emerge as services from grants/projects without a clear understanding of their role, function and cost (Law, 2009).

All three University Librarians stated that they had budgets for digitization even though two of them intimated that this was inadequate. For instance, the UG librarian stated that "provision made through the annual budget and estimates for the year amounts to over two million Ghana Cedis" or (approximately US$1,320,000). However, "about nine hundred thousand Ghana Cedis" (GH¢900,000), or (approximately US $600,000) "is earmarked for digital resources/services". This amounts to 45% of the total budget for library activities.

Another view by the The KNUST librarian stated that "about six hundred thousand Ghana Cedis" (GH¢600,000) or approximately US $350,000 is budgeted for all library activities. However, with specific reference to digitization activities, "the library budgeted about one

hundred thousand Ghana Cedis" (GH¢ 100,000) which is equivalent to US $58,000. This amounts to 16.6% of the total budget for library activities.

Although the UCC librarian did not indicate exactly the amount, he mentioned that "10% of the university's budget is allocated for library activities". Approximately 50% of this amount is devoted to IT-based activities. This seems to be a lot of money devoted for IT activities.

All three university librarians responded to questions on the acquisition of library materials in their libraries. Though the process was challenging, one of the Librarians seemed to have overcome the problem.

In describing the acquisition process, the UG librarian indicated that "all requests from the library are sent to the procurement unit of the university or to the Physical Development and Municipal Services (PDMS) irrespective of the amount of money involved". The UG librarian indicated that there is however, "the opportunity for sole sourcing of certain items where requests are sent to the Finance Director and for which payments are directly made to the vendor".

The KNUST librarian in describing the acquisition process also indicated that "requests for materials from companies abroad would normally go through the Finance Directorate of the University to the Procurement Office. The Procurement office would either sole source or put the request on national tender".

The UCC Librarian mentioned that he could authorize payment for materials up to two thousand Ghana cedis (approximately nine hundred US dollars). When the amount of materials was about five thousand Ghana cedis, he sought the authorization of the Vice Chancellor. Beyond that amount, the request had to be sent to the University Tender Board.

He added that he always purchased materials in small amounts so that there would not be any delays in procurement.

All three librarians were asked to comment on the university procurement process for larger amounts of money. Two of them (UG and KNUST) seemed to be unhappy with the procurement process. The UG librarian indicated that the process "does not make you get things on time. It also does not give you a say on who wins the bid for the supply of items requested and has on a few occasions, resulted in the acquisition of sub-standard products". The UG librarian stated that the library manages to spend all monies budgeted for e-resources and ICT facilities. The KNUST librarian indicated that, "there are a lot of delays in the procurement process" but she could also purchase some items which were not above a certain amount. In her opinion, this flexibility has enabled the library to spend approximately 100% of the funds budgeted for e-resources. However, regarding ICT facilities in general, only 50% of the budget has been spent. On why a lot more of the budget could not be spent on ICT facilities, the KNUST University Librarian mentioned challenges in respect of the complex procurement process.

The UCC librarian did not express any discontent with the procurement process. He added that about "60% has been expended on ICT facilities while 15% has been used for subscription to e-journals and e-books". He added that the library budgets for the resources, equipment, materials needed to sustain it annually.

On the sources of budgetary support, all three university librarians acknowledged funding from government and students' fees. The UG librarian also pointed out that its budgetary support comes from the University through user fees, the Carnegie Foundation and other

donors. The University Librarian commended the efforts of international donors who are actively supporting their digitization efforts. Notable among them are the Royal Tropical Institute (KIT), Netherlands and the Carnegie Foundation which has provided a modern machine for the digitization of books and other materials.

According to the KNUST librarian, the library depends solely on the University which obtains its funds from the Government of Ghana and from students' user fees. The library is yet to be a recipient of a grant geared towards digitization.

According to the UCC librarian the major sources of funding comes from the Government of Ghana and from the students. He added that "in 2005, the library won four different proposals through the Teaching and Learning Innovation Fund (TALIF) of the World Bank. The grants were for the Library Automation Project, Multiple Access to Theses and Dissertations Project, Provision of Assistive Technologies to Visually Impaired and Physical Challenge students and The Digital Library Project".

Discussion of Findings

According to Collier (2005:602) digital libraries should be planned on sound business principles where the aims, products and services of the eventual system are all identified together with how the digital library service will contribute to the overall business and mission of the parent organizations. The findings reveal that with the exception of UG library which specifically makes provision for digitization activities in its strategic plan, the others do not have a specific vision or mission for the development of digital libraries. What the two libraries (KNUST and UCC) have are separate policies on different digitization activities such as IR policy, ICT policy and the like. The absence of specific statements on

digitization in the two library's strategic plans could be attributed to the period in which the plans were drawn up when the current exigencies of digitization activities were not considered. The researcher observed that strategic planning exercises were university-led and until such time that the whole university considered a review, individual departments and units came up with isolated policies for the functioning of their activities.

These findings are in consonance with the views of Law (2009) and Cervone (2009). Law (2009) observes that a large number of university libraries such as Imperial College, Cambridge University and Columbia University are all silent on their digital library programmes. They appear to have neither vision nor mission statements due to the fact that these are embedded as part of their larger institutional library. Cervone (2009) is also of the view that generally most libraries worldwide do not have absolute rules for planning digital libraries and that digital projects just develop as things go along.

Regarding the development of policies or service frameworks, the findings of the current study reveal that some libraries are complying with this. Service frameworks are tools for documenting shared views of library services in changing environments, communicating them among libraries and applying them to the best advantage in meeting library goals. All three institutions have IR policies which make explicit statements on access, content and confidentiality to its patrons. This finding is in consonance with views expressed by Barton (2005) and Lavoie et al. (2006).

Funding for digital libraries

The life blood of any library system is its financial strength as the library can neither be started nor successfully run without it. Libraries require permanent sources of adequate finance to meet the needs of its patrons and proper maintenance of the libraries in every

respect. Providing sufficient funds leads to the success of libraries and this is especially necessary in an emerging ICT environment.

In budgeting, institutions are able to create short and long term plans for the sustainability of their projects. The findings confirm the availability of specific budgets by all three librarians (KNUST, UG and MUCG) for digitization activities. This ranges from a low of 16.6% to a high of 50% of the total budget for library activities. Though these percentages are lower in Ghana than what pertains in an academic library in a developed country for example, the University of California San Diego where 65% of library funds are spent on e-resources (University of California San Diego Libraries n.d.), the situation in Ghana is better than some other developing countries. Jan and Sheikh (2011) for instance, mention that the majority of university libraries in Pakistan do not have separate budgets for automation and digitization (Jan and Sheikh, 2011). Having a separate budget for digitization is laudable as it keeps the university library focused on developing and sustaining its access to digital information worldwide. University librarians need to keep the budget on digitization high on the agenda as ICT infrastructure becomes obsolete very quickly requiring new infrastructure to be acquired. In addition, the library with a low budget for digitization should as a matter of urgency increase its provision for these activities.

With the exception of UG which has a lot of external funding, all the other libraries depend on Government or their parent institution for supporting library activities. Other sources of library funding recommended by Mapulanga (2012) and Emojorho (2004) such as lobbying for increased budget, starting income-generating activities should be considered.

A disturbing finding from the two public universities has to deal with the procurement system and its attendant delays in acquiring library materials. This situation was not encountered in UCC. The researcher is of the view that UG and KNUST librarians should petition their Vice-Chancellors so that the threshold for direct purchases could be increased. This way, it would help curb the unnecessary delays in the acquisition of digital materials.

Conclusion and Recommendations

Planning is an important process in the development and management of digital libraries. For that reason, University librarians should always have an up-to-date strategic plan which includes specific mission and vision with regard to digital libraries and digitalized resources. The study notes, however, that academic libraries may be challenged in having current strategic plans as the process of drawing them up are usually university-led or university-driven. An alternative solution which is recommended is the drawing up of policies on digital libraries and digitalized resources. Incidentally, all three Ghanaian university libraries resorted to this process. However, the introduction of new policies may also have its challenges of not being ratified early enough for the specific activity to take off. This was the case with UG's IR policy which took a period of time for its ratification. Strong leadership would be required to ensure the ratification of policies as quickly as possible in order that digitization projects are not stalled.

Sustainability of any project depends to a large extent on the funding provided. It was revealed in this study that budgetary support for digitization was not adequate as it fell short of what some developed countries were using to support this activity. To a large extent, the libraries relied mainly on budgetary support from their parent institutions or from government subvention. Only one library had a massive injection of funds from an international

organization. It is recommended that a substantial amount (about 50%) of the library's budget be devoted to digitization activities. Additionally, libraries should seek partnerships and collaborations with different local and international organizations whose corporate social responsibility focuses on education. It is also recommended that the libraries should consider income-generating activities such as renting portions of their premises for workshop, conferences, exhibitions and seminars. On the procurement system, the study recommends a strong lobby group to seek the Parliament of Ghana's intervention. The group should be led by the Vice-Chancellors of the public academic institutions.

In conclusion, effective planning for digital libraries can enhance teaching, research and learning as measures would be put in place for adequate access to relevant, timely and useful information. Proper management of digital libraries would support scholarly communication within and across the universities.

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