Transforming Library and Higher Education Services in Support of Industrialization and Modernization

On

Staying in the Game: Redefining Academic Library Service to Meet 21st Century User Needs

By

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ABSTRACT

The major findings discovered throughout the research study were that the transformation and redefinition of academic library service in the higher education sector in support of industrialization and modernization is inevitable in order for the sector to stay relevant and that this critically hinges on functionalizing the productive involvement of Information Communication Technology (ICT) based digitalization of traditional higher education academic library service in the current global communication circuit of creation, organization, distribution, preservation and use of knowledge and information to efficiently meet current 21st century technologically and digitally inclined user needs. The objective of this paper was to examine the significance of ICT based digital transformation and redefinition of higher education academic library service in support of modernization and industrialization to staying relevant by meeting 21st century technologically and digitally inclined user needs. The research design was of a descriptive survey nature based on a critical analytical literature review methodology sourcing relevant purposively sampled literature from Library and Information Science (LIS) data bases and the world-wide-web for grey literature using a purposively selected higher education academic library service provider target population. The conclusion arrived at was that ICT based higher education academic library service digital transformation was a significant necessity for the service to stay relevant to 21st century modernized industrialized user needs.

Keywords: academic-library, higher-education, modernization, industrialization, transformation

Introduction

Background

The relevance of academic library services in the higher education sector within an industrialized and modernized 21st century digital tech-savvy academic environment requires that academic libraries be robustly compliant with any and all emerging trends in information communication technology (ICT) applications in order to stay relevant and have a meaningful competitive advantage in today's digitally and technologically inclined higher education market-industry sector.

As academic library functions, activities and services in higher education continue to evolve with associated technological advancement in knowledge and information communication systems, academic libraries in the higher education sector have made great strides in broadening the comparatively outdated traditional non-digital library service delivery model which focuses on management of physical resources and activities to include a digital academic library service delivery model, transforming and redefining resources and services into digital formats to support teaching, learning and research in an industrialized and modern 21st century world.

This transition has affected academic library professionals' roles and activities due to new required skills and competencies in a re-examination of their pre-requisite qualifications for professional positions involved in digital resources, services and technologies as changing aspects in academic libraries within the higher education sector.

To reach the future while staying relevant in this present digital age, forward thinking librarians are leading the charge of inevitable change by redefining and transforming academic library services to meet 21st century user needs in support of industrialization and modernization in their professional transformation from an outdated traditional non-digital to a digital hybrid academic library service delivery model in the higher education sector.

Objective

The objective of this research study is to critically examine the significance of the apparent need for the ICT based digital transformational shift to the currently required 21st century higher education academic library service LIS professional qualifications for current and relevant academic library staffing criteria. There is an overwhelmingly inevitable need for higher education academic libraries to conform to the digital 21st century library client needs in order to stay relevant; stressing its various LIS educational and occupational implications in this industrialized modern digital era.

Research Question

What is the significance of the apparent need for the ICT based digital transformation of academic library service in higher education to staying relevant in meeting 21st century modernized industrialized user needs?

Methodology

The research study methodological approach was of a descriptive survey nature based on a critical literature review and analysis design sourcing literature from available referenced library and information science data bases relevant to the research study objective and the world-wide-web for supporting grey literature using a purposively selected higher education academic library service provider target population.

Scope

The content scope centered on an investigation of the significance of ICT based digital transformation of academic library service in the higher education sector with respect to the relevance of the sector to its 21st century tech-savvy end user needs in a modernized industrialized economic environment.

<div style="text-align: center">**Literature Review**</div>

Higher education academic library ICT based digital transformation significance to meeting current relevant 21st century modernized industrialized user needs

There is a lot of supporting literature revealing of higher education academic library digital transformation successes realized in many areas of the world, including but not limited to Africa and developing countries, such as the largely successful South Sudan Juba University Library Automation Project (JULAP) having a multiplier effect in Nigeria, Ghana and Sudan in collaboration with Oslo University College - Faculty of Librarianship (OUC), University of Bergen Library (UoBL) and the East African School of Library and Information Science (EASLIS) at Makerere University in Uganda supported by the Norwegian University Cooperation Programme for Capacity Development in Sudan under the Norwegian Programme for Development Research and Education as noted by Musoke & Landoy (2009), with associated automation challenges such as budgetary shortfalls, staff incompetence, low technology literacy, poor infrastructural development and political instability not with-standing.

In 2001, Lynch and Smith concluded that "the library as a passive warehouse of collections was no more. The library as an active agency providing information services based on information collections of all forms inside and outside the library is the new model" (p. 418). By 2003, that new model meant better pay, greater need for good communication, and a more diverse mix of professional preparation.

In 1996, Evan S. t. Lifer conducted a survey of mid-career librarians to determine the degree to which technology had changed their jobs. He found out that librarians were spending longer hours trying to balance their normal workload while learning, teaching, and or developing new web-based information resources. Many job titles became new by 2003, including library educational technology coordinator, director of preservation, reformatting and digitization, technology coordinator, electronic resources librarian, digital information services librarian, visual resources director, information technology specialist, and software analyst. Notably, the terms *instruction* and *services* had clearly become very popular ways to describe traditional library activities just as *visual resources* and *multi-media* had replaced *audio-visual*.

Stoker (1999) contended that these and similar changes in library terminology stem not only from desire to promote the library and information profession, but also from the increasingly complex role of information in society.

Dolan and Schumacher (1997) reviewed job postings on national employment websites, library-related electronic mailing lists, newspapers and journals. They found a similar growth in such new job titles as network librarian and geographic information systems librarian. Writing during the height of the dot-com boom, they declared, "Opportunities have never been better".

Cronies and Henderson (2002) studied job advertisements in *College & Research Libraries* from 1990 through 2000 and found "an increasing number of 'electronic' or 'digital' position announcements, and a greater diversity of functional areas involved" (p. 233).

The internet is an increasingly popular medical information resource for consumers. At least 10,000 health and medical sites are on the world-wide-web and are maintained by entities ranging from academic medical centers and professional organizations to individuals and vary widely in quality (Ferguson, 1998).

Further roles and opportunities in academic library services are emerging in the area of electronic medical/health record (EM/HR) data systems management as noted by Mary et al (2013) in the research article "Emerging Data Management Roles for Health Librarians in Electronic Medical Records", a peer reviewed recipient of the 2013 Login Canada Student Paper Prize.

Library activities are migrated from their conventional form to digital form through the application of ICT. ICT helps library professionals to provide value added quality information service and give more remote access to the internationally available information resources (Saleem, Shabana & Batcha, 2013).

Vijayakumar and Vijayan (2011) and Saleem, Shabana & Batcha (2013) posit that ICT is fundamentally crucial in library management, library automation, library networking, audio-visual technology, technical communication and digital library.

Some of the impacts of ICT in ensuring library development, as recognized by Vijayakumar and Vijayan (2011), include but are not limited to; aiding word processing, text editing, character recognition, voice recognition, electronic publishing, magnetic storage, proficient classification and cataloguing, indexing, bibliographic compilation and abstracting.

The quantification of academic and work experiences of recent library and information science graduates provides a better understanding of what factors most significantly influence the outcome of their academic library job searches. The job outlook is most positive for candidates who applied early, obtained academic library experience (preferably employment), participated in professional conferences, gained familiarity with committee work and improved on their technology skills (Ferguson, 1998).

In 1983, 30.81% of the advertised jobs were for positions that required some type of computer skills. Another 10.93% of the positions preferred candidates with computer skills, for a total of 41.74%. The comparable total for the year 2003 was not dramatically larger at 45.36%, but a greater number, 39.89%, came from positions "requiring" as opposed to "preferring" the skills. This suggests that technical skills were becoming a more integral part of library work. Another story emerges from studying the job descriptions themselves. In 1983, a typical computer skill request included "online databases required" (Science/Reference Librarian, 1983).

Many advertisements mentioned library system implementation projects underway or planned for the near future. Some jobs mentioned specific on-line databases or bibliographic utilities in the hopes of attracting applicants with relevant experience. In 2003, however, the announcements requested an entirely new level of computer expertise, as indicated in this advertisement for systems librarian who should have the "ability to specify requirements of network security; [and] documented knowledge of LAN and WAN network infrastructure and protocols" (Systems Librarian [new position], 2003).

In this announcement for an electronic services position, the person filling the position would be expected to "maintain integrated library system (Endeavor), web catalog, circulation clients software, electronic reserves, and Access reports" (Electronic Services Librarian, 2003).

Another example is that for a reference librarian who should have "knowledge of HTML or web authoring software" (Reference/Instruction Librarian, 2003).

Zhou (1996) found a dramatic growth in the demand for computer skills from 1974 to 1994, with the biggest leap occurring in the 1970s when libraries were just beginning to adopt automated systems.

Lewis (2002) drew a related conclusion, observing that computer skills requirements began in the technical services areas of libraries, moving over into administrative jobs in the 1980s.

Beileand Adams (2000) found 66.9% of all positions required computer skills in1996 compared with the 40.5% found by Reser and Stuntman (1992) in 1988.

In the modern period, the link between research skills and ICT application as the basic tools for ensuring sustainable library development has been appreciated in many literature (Kate, Parris & Leiserowitz, 2005; Lee, Holland & McNeill, 2000).

Libraries are by all standards at the forefront of the digital transformation and provision of digital information infrastructures. This ushers in modern ways of involvement with information and knowledge and the need to rethink skills and competency profiles that will enable academic librarians to support e-research all along the research cycle (Schmidt, Calarco. Kuchma & Shearer, 2016).

Modern libraries are being shaped by emerging technologies that are transforming the way information is created and disseminated (Aina, Okunnu & Dapo-Asaju, 2014). Progressive changes in technology and associated paradigm shifts in research and scholarly communications are obviously changing the role of libraries in the 21st century.

The advent of e-research has brought about new ways of doing research across the globe, mandating libraries to adopt new services, which include helping with the development of research data management plans, hosting collaborative virtual research environments, managing institutional repositories, and disseminating research findings through open access mechanisms (Schmidt, Calarco, Kuchma, & Shearer, 2016).

Proficient use of ICT is becoming obligatory in the academic environment. It has even become one of the appointment requirements in the modern days. 21st Century librarians are required to be technologically-savvy (Canadian Association of Research Libraries, 2010). Librarians are expected to excel in the digital environment. They should be expected to be actively involved in the exploration and implementation of modern technologies in their libraries.

ICT refers to tools and as well as means used for collection, capture, process, storage, transmission and dissemination of information (Ebijuwa, 2005; ToAnyakoha, 2005). ICT is the

application of computers and other technologies to the acquisition, organization, storage, retrieval and dissemination of information.

Swift and unobstructed access to the required information is of major importance in academic libraries. Information processing, storage, communication, dissemination of information automation, etc, coupled with the advent of the Internet and development of the World Wide Web, revolutionized the information communication technology (Saleem, Shabana & Batcha, 2013). As a result of this, the application of ICT in libraries becomes important in an effort to provide information in soft form to the user community.

Discussion

The findings of this research study clearly reveal the significant need for the new age ICT based digital automation, transformation and redefinition of the traditional non-digital higher education academic library information data management systems and services delivery model, especially in developing countries, as the dependent variable in order for higher education academic libraries to stay relevant by supporting modernization and industrialization to meet 21st century digitally and technologically inclined end user needs as the independent variable amidst the various higher education academic library digitalization and automation challenges, more largely encountered in developing countries, such as poor internet connectivity, lack of technology literacy, operational budgetary constraints and lack of library staff competency among others as the intervening variable.

The findings of this research study explicitly imply that for the higher education academic library service economic market-industry sector to stay relevant by meeting its digitally inclined end user needs in the current age of modernization and industrialization, digitally and technologically inclined transformation and redefinition of the sector to effectively and efficiently satisfy and conform to current global knowledge and information communication trends is obligatory and mandatory, to say the least!

Kabale University Library (Mukombe) as a higher education academic library in an ever increasing industrialized and modernized digital academic environment is in total agreement with the assertion of the research study findings as it fully subscribes to the digitalization of its services in order to efficiently and effectively meet the needs of its 21st century digitally and technologically inclined end user intellectual community.

Kabale University Library (Mukombe) Recommended ICT based digital Innovations

Kabale University, still in its relatively infant development stage as a higher education institution of learning within the greater Kigezi region of South Western Uganda, a developing country, has none the less made tremendous strides in ensuring the transformation and redefinition of its academic library service delivery model in order for it to meet its 21st century digitally inclined and tech-savvy end user needs in support of industrialization and modernization in its bid to stay relevant by having a meaningful competitive advantage in this digital age in the academic library and higher education sector.

The following recommended ICT based digital innovations at Kabale University Library (Mukombe) Kikungiri main campus are actively utilized by the School of Medicine; Institute of Languages; Faculty of Engineering Technology Applied Design and Fine Art; Faculty of Science; Faculty of Education (Sciences); Faculty of Education (Arts); Faculty of Computing, Library And Information Science and the Faculty of Arts and Social Sciences.

- ➢ **Mukombe Library Local Digital Collections (MLLDC) –** Electronic books and journals collections downloaded from subscribed databases and open access electronic resources (Pdf drive.com, open access journals) stored locally and accessed off-line with a current total of 3,561 e – books and journals and still counting. An in house E – Book smart phone application, developed by our very own library staff,

that will enable e – book and journal access via smart phone on-line is in its final stages of completion and should be fully functional by the commencement of the next semester two of academic year 2018/2019.

➢ **Kabale University Institutional Digital Repository (KABIDR) –** Uploaded submitted Kabale University academic staff publications (still inadequate), student project work reports (not yet assessed), community information (not yet gathered), conference-workshop-seminar power point presentations and teaching modules (yet to be uploaded).

➢ **E - Library –** Kabale University School of Medicine electronic library containing all available electronic books and journals uploaded in the library's database. The main campus E – Library is currently still being worked upon by the ICT director and his team but should be fully functional by the commencement of the second semester of academic year 2018/2019.

➢ **Koha –** An open electronic information resource library system with e – books and journals being entered on a daily basis with approximately more than 4,000 especially new titled e – books so far entered and still counting (full functionality still pending).

➢ Kabale University Library (Mukombe) computer network establishment and development.

➢ Library system software development and training of library and academic staff on its applications.
➢ Cataloguing new books using the electronic library system and retrospective records conversion of the existing books in manual catalogue.

➢ Kabale University Faculty of Engineering Technology Applied Design and Fine Art's Nyabikoni (off main campus) e – library and information resource center establishment and development that is currently fully functional and catering specifically for all of the faculty's course programmes and disciplines well away from the main university campus.

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