OPTIMUM CURRICULUM FOR EFFECTIVE DIGITAL MANAGEMENT OF CULTURAL HERITAGE: THE UGANDA PERSPECTIVE

By

Professor Isaac M. N. Kigongo-Bukenya, (PhD)

Introduction

LIS Education curriculum in Uganda is as old as the East African School of Library and Information Science (EASLIS) which started producing Information Professionals (IPs) since 1963. This paper probes whether Uganda LIS Education Curriculum currently offered by EASLIS is capable of graduating IPs specialized in digitization. It is premised on the hypothesis that an optimum curriculum is key to Digital Library Education in producing IPs to spearhead effective digitization management. Ma, O'Brien and Clegg (2006:165-174) concur that Digital Library Education (DLE) has assumed increasing importance. Sreenivasulu (2000: 12-20) agrees that the best IPs to implement digitization, are those "combining librarianship and technology".

Background

The concern about cultural heritage is not a new phenomenon in Uganda. Many cultural institutions have preserved and passed on cultural heritage to the future generations. For example, the Africana Section of Makerere University Library has collected traditional cultures on tombs, shrines, marriage and other customs in Uganda.

Several legal deposit acts have been adopted in Uganda. They include the Makerere University Library Legal Deposit Ordinance, 1958 revised to the Makerere University College (Deposit Library) Act, 1964; The Deposit and National Documentation Act, 1969; and the National Library Act (2003). These acts are supplemented by the Copyright and Neighbouring Act, 2006.

Digitization of the cultural heritage began at Makerere University Library in the late nineties. In 2007 the World Digital Library started digitizing the Uganda Cultural Heritage and pooled it with other cultural heritages of other WDL partners throughout the world.

Methodology

The paper used EASLIS and Uganda Christian University (UCU) LIS programmes curricula as case studies to compare and contrast content on digitization taught to the students. Literature and comparative webometrics analysis was made of the curricula of the selected LIS Education institutions - the Swedish School of Library and Information Science, the City University and Strathclyde University from Europe; Hong Kong University from China; and the Queensland University of Technology from Australia. The choice of case studies was based on the institutions offering specialized programmes, course modules or short courses on digitization. The scope of this paper is "curriculum content" and does not dwell on other elements - delivery, evaluation and review. These are assumed to be well catered for in Uganda.

The Digital Librarian

Digitization is the storage, predominantly in an electronic or digital medium. This may include digital books, digital scanned images, graphics, textual and numeric data, digitized films, and audio-video clips.

A digital librarian maintains all, or a substantial part, of its collection in computer processed form as an alternative, supplement, or complement to the conventional printed and microform materials that currently dominate library collections.

The component characteristics of digital processing and transfer protocol are the storage of information in digital form, direct usage of communication networks for accessing, obtaining information, and copying by either downloading or online/offline printing from a master file. Digital approach enables managing very large amounts of data, preserve unique collections, provide faster access to information, facilitate dealing with data from more than one location, and enhance distributed learning environments. It also helps to perform searches that are manually not feasible and offer to protect the content of the owner's information.

Skills and Competencies for Digitization

The following skills and competencies are required in the management of digital information systems (Owen, 1999: 7-16)

1. Internet, WWW:
    - navigation, browsing, filtering
    - retrieving, accessing, digital document analysis
    - digital reference services, electronic information services
    - searching network databases in a number of digital sources and Web sites
    - creating home pages, content conversation, downloading techniques
    - Web publishing, electronic publishing
    - archiving digital documents, locating digital sources
    - digital preservation and storage
    - electronic messaging, connectivity skills
    - Web authoring

2. Multimedia, digital technology, digital media processing:
    - multimedia indexing, image processing, object-oriented processing
    - interactive digital communications and visualization
    - cataloguing and classification of digital documents, digital content
    - searching and retrieval of text, images and other multimedia objects
    - speech recognition, image visualization
    - advanced processing capabilities exploiting digital medium;
    - conferencing techniques including teleconferencing, video conferencing

3. Digital information system, online optical information:
    - interfacing online and off-ramps, twists and turns of digital knowledge
    - development of digital information sources
    - digitization of print collections
    - competency to manage CD-ROM network station
    - development of machine readable catalogue records
    - design and development of databases
    - design and development of software agents for digital libraries
    - conversion of print media into digital media
    - knowledge in digital knowledge structures

The Need for the LIS Optimum Curriculum

LIS Optimum curriculum in the context of this paper construes relevant programme content, methodology/strategies to deliver content of that curriculum, evaluation of that curriculum and the review of such curriculum. It targets educating and training digital managers/librarians.

The study cases have tackled the issue of teaching digitization based on appropriate curricula. The efforts are surveyed briefly before probing EASLIS current efforts related to digitization. The way forward is projected.

Digitization Curriculum at the Case Studies

A Study by Yongqing Ma, O'Briene Ann and Clegg Warwick (2008: 165-174) reveals interesting facts on Digital Education in UK, USA and Canada. It reveals that 28% of all universities with accredited programmes by CILIP in the UK and over 60% of library schools accredited by ALA in the USA and Canada offer specific Digital Education either as specialized independent or Certificate programmes. The traditionally based programmes offer CORE or ELECTIVE modules. Table 1 portrays an international view of digital education coverage

Table 1. Programmes, Load and Percentage Offered by Sampled Universities Offering Digital Education

UNIVERSITY	TYPE	TAUGHT CREDITS	DL CREDITS
City University	2Cores	120	30 (25%)
Strathclyde University (UK)	4Cores	120	60 (50%)
Nanyang Technological University (Singapore)	1 Elective	20	4 (20%)
Queens University of Technology (Australia)	2 Electives	144	24 (17%)
Hong Kong (China)	1Elective	60	12 (20%)
Victoria University of Wellington (NZ)	1 Core +1 Elective	150	30 (20%)

Compiled by: Kigongo-Bukenya (2012)

EASLIS Curriculum

The EASLIS curriculum is studied under four programmes: the Bachelor of Library and Information Science (BLIS); the Bachelor of Records and Archive Management (BRAM); the Master of Science in Information Science (MSc.Inf.Sc.) and the Doctor of Philosophy (Ph.D). Tables 2-4 show the curriculum codes, courses and loads offered by EASLIS

Table 2. Bachelor of Records and Archives Management, EASLIS Digitization Related Courses

CODE	COURSE	LOAD
BRM III	Information Technology I	4
BRM 1206	Information Technology II	4
BRM 2215	Database management systems	4
BRM 2104	Desktop publishing and editing	4

BRM 3115	Analysis of records management systems	4
BRM 3214	Automation of records management systems	4
BRM 3121	Website development and internet technology	4
BRM 3203	Management and electronic records	4

Total Credits 32.

Compiled by: Luyombya, D, (2012)

Table 3. Bachelor of Library and Information Science, EASLIS Digitization Related Courses

CODE	COURSE	LOAD
BLS 1211	Information technology II	4
BLS 1213	Analysis of information systems	3
BLS 2208	Database management and information retrieval	4
BLS 3111	Publication design and production	3
BLS3122	Web document management	4
BLS 3125	Automation of library and information systems	4
BLS 3124	Multi media librarianship	3

Total 25 Credits

Compiled by: Muwanguzi, J.B, (2012)

Table 4. MSc.Inf.Sc. Digitization Related Courses

CODE	COURSE	LOAD
MSC 7107	Information technology for library and information services	3
MSC 7108	Information systems analysis	3
MSC 7205	Information systems development and applications	3
MSC 8106	Publishing management and editing	3
MSC 8107	Multimedia productions	3
MSC 8110	Social informatics	3

Total credits 18

Compiled by: Muwanguzi, J.B, (2012)

EASLIS Commitment to Digitization in the Curriculum

EASLIS offers digitization related courses in its programmes – BLIS, BRAM, and M.Sc. Inf. Sc. Tables 2-4

At the Masters Level six individual courses related to digitization are taught with a 3-4 credit range, a total of 18 credits the whole programme. At the undergraduate level, BLIS devotes a range of 3-4 credits per course, a total of 25 credits of the program. BRAM offers 4 credits per course related to digitization; a total of 32 credit of the whole programme.

Digitization is not taught on Ph.D courses. It is a glaring omission at a time online protocol is dominant in the information transfer and preservation process.

TABLE 5. DIGITIZATION COVERAGE BY THE BLIS PROGRAMME, UCU

Year 1 Semester 1

CODE	COURSE NAME	LOAD
BLIS 1022	Introduction to Information Technology	3
BLIS 1033	Introduction to Information Science	3
BLIS 1044	Information Literacy skills	3

Total Credits 9 out of 18

Year 1 Semester 2

CODE	COURSE NAME	CORE
BLIS 1066	Information Systems	3

Total Credits 3 out of 18

Year 2 Semester 1

CODE	COURSE NAME	CORE
BLIS 2011	Community and specialized Information Systems	3
BLIS 2044	Systems Analysis & Design	3
DTHB 2205	Understanding Ethics	3

Total Credits 9 out of 18

Year 2 Semesters 2

CODE	COURSE NAME	CORE
BLIS 2088	Web Based Resources	3
BLIS 2099	Database Management Systems I	3

Total Credits 6 out of 18

Year 3 Semesters 1

CODE	COURSE NAME	CORE
BLIS 3022	Website Design	3
BLIS 3033	Documentation Work and Service	3
BLIS 3044	Database Management Systems II	3

Total Credits 9 out of 18

Recess Term

CODE	COURSE NAME	CORE
BLIS 2111	Practicum	6

Total Credits 6

Year 3. Semester 2

CODE	COURSE NAME	CORE
BLIS 3055	Legislation, Policy & Ethics in LIS	3
BLIS 3077	Indexing and Abstracting services	3
BLIS 3088	Multimedia Librarianship	3

Total Credits 9 out of 15

Compiled by: Kaddu, Sarah (2012)

Summary of Digitization Curriculum Coverage

- Amongst the selected universities in Appendix 1, the lowest and highest courses devoted to DE are 20 by Nanyang Technological University (Singapore) and 150 credits by Victoria University Wellington (NZ).

- EASLIS figures are more mean showing 18 credits lowest on MSc.Inf.Sc. program) and 32 credits highest on BRAM program)

- The picture is quite different when UCU is brought in the equation. UCU programmes: boast of a maximum of 42 credits compared to EASLIS 32 maximum credits.

From the above analysis, it is clear that both EASLIS (32 credits maximum) and UCU (42 credits maximum) coverage of Digitization Education targeting effective digitization management of cultural heritage, is still too inadequate compared to the case studies worldwide devoting a maximum coverage of 150 credits by Victoria University of Wellington (NZ)

The Way Forward: Proposal for Uganda Optimum Digitization Curriculum

Several other Uganda institutions outside the LIS profession teach digitization. For example, the School of Information Technology, (SIT), and the College of Information Sciences and Technology, College of Computing and Information Science (CoCIS), Makerere University. This paper dwelt on curriculum in LIS Education institutions namely EASLIS and BLIS, (UCU).

It is proposed that Uganda LIS Education Institutions could opt for one of the alternatives to offer fully fledged digitization teaching

1. Mounting a Specialized Digital Education Programme, like the Library and Information Science and Masters Programme on Digital Libraries, offered by the School of Library and Information Sciences (SSLIS), Sweden

Table 5. Masters of Library and Information Science and Digital Libraries, Swedish School of Library and Information Science (SSLIS)

Course	**Credits**
Users and information activities in digital environments	15 ECTS
Technology of Digital Libraries 1	7,5 ECTS
Information Retrieval for Digital Libraries 1	7,5 ECTS
Technology of Digital Libraries 2	7,5 ECTS
Information Retrieval for Digital Libraries 2	7,5 ECTS
Digital Library Management	15 ECTS
Digitizing cultural heritage material	15 ECTS
Digital library research methods	15 ECTS
Master's thesis	30 ECTS
Master's thesis continued	

OR

2. Offer core/electives in a programme for example under the MSc.Inf.Sc. Programme (EASLIS) as proposed below

Table 6. Proposed Curriculum Content

NO	**CORE TOPIC**	**RELATED TOPICS**

1	Overview	Concept of philosophy of digitization Curriculum content and management, design, implementation and review
2	Collection Development	Digitization; Doc. & E-Publishing-mark-up
3	Digital Objects	Text resources; Multimedia; File documents transformation
4	Information/knowledge Organization	Metadata, harvesting, cataloguing; Ontology, classification, categorization; Vocabulary control; Bibliographic, bibliometrics, web-biographic
5	Architecture	Interoperability; Sustainability; Interface design, usability assessment; Search engines & IR; Identifiers, handles; Info summarization, visualization; Recommender system; Applications; Web-publishing; Security
6	Space	Storage; Repositories archives
7	Services	Info. Needs, relevance, evaluation; Search strategy, info seeking behavior, reference

		services; Routing, community, filtering; Sharing, networking, Interfacing
8	Archiving, preservation, integrity	
9	Project Management	DL development for specific domain; DL project examples; DL evaluation; Legal issues; Cost, economic issues; Social issues; Future FLs
10	DLE & Research	
11	Legal issues	International Conventions; International related Laws; National Laws; Open Access, etc
12	Ethical issues	Privacy/confidentiality; Copyright violation; Freedom of Access

Compiled by: Kigongo-Bukenya, (2012)

3. Short Courses

Short courses could be run as CE courses to cover the current practices/state of the art techniques brought about by change in the work environment. The curriculum should consider theory and practice of digitization with special reference to cultural heritage.

CONCLUSION

Digitization as a constituent of LIS Education curriculum has taken firm grips internationally as the case studies in general and the Swedish School of Library and Information Science (SSLIS) in particular show. Digitization could be offered by ICTs Education Institutions in any country. This paper agrees with the Sreenivasulu (2000: 12-20.) view that the best IPs to implement digitization, are those "combining librarianship and technology". EASLIS and UCU, the custodians of professionalism in Uganda; and other LIS Education institutions in Uganda and the Eastern Africa region and beyond should adopt this philosophy if effective digitization of our cultural heritage was to be assured.

Fortunately there is no need to re-invent the wheel. We need to adopt, enhance and contextualize to our local needs the Digital Education Curricula experiences covered in this paper.

References

Deposit Library and Documentation Centre Act (1969).

Deschatelets, G (1997). "Opening LIS curricula to the new world of electronic and strategic information", FIS News Bulletin, Vol. 47 No1, pp 13-20.

Dolan, M. Developing a digital libraries education program: JCDL Workshop Summary - Lib Magazine, 11, 7/8 July/August. 2005.

Gopinath, M.A (1996). "Education for digital information system: courseware", in Malwad, N.M, Rajasekahr, T.B, Ravichandra, I.K and Satyanarayand, N.V. (Eds.), Digital Libraries: Dynamic Storehouse of Digital information papers presented at the SIS96; 15th Annual Conference, Banglore, January 10-20.

http://www.universityadmissions.se retrieved 8/5/2012.

Kaddu, Sarah. (2012) Table of Digitization courses offered at the Programme of Library and Information Science, Uganda Christian University, 2012. In: Kigongo-Bukenya, Optimum Curriculum for Effective Digital Management of Cultural Heritage:the Uganda Perspective. Table 5. (Unpublished)

Kigongo-Bukenya, I.M.N (2012) Optimum Curriculum for Effective Digital Management of Cultural Heritage: the Uganda Perspective. Table 6. (Unpublished)

Kuny, T and Cleveland, G (1998) "The digital library; myths and challenges", IFLA Journal, Vol.24 No.2, pp 107-113.

Luyombya, David (2012) Table of Digitization courses offered at the Undergraduate Programmes, of the East African School of Library and Information Science, Makerere University. .In:Kigongo-Bukenya Optimum Curriculum for Effective Digital Management of Cultural Heritage: the Uganda Perspective. Table 2 (Unpublished)

Ma, Y. O'Brien, A. & Clegg, W. (2008). Digital Library Education: the current state. In: Proceedings of the 6th ACM/IEEE-EC Joint Conference on Digital Libraries (JCDL 06, 165-174.

Makerere University College, (Deposit Library Act, 1964.)

Muwanguzi, J.B (2012) Table of Digitization courses offered by the Graduate Programmes, at the East African School of Library and Information Science, Makerere University. In: Kigongo-Bukenya Optimum Curriculum for Effective Digital Management of Cultural Heritage: the Uganda Perspective. Tables 3&4. (Unpublished)

National Library Act (2003). Entebbe: Ugandan Publishers and Printers Corporation.

Owen, J.M, (1999). "Knowledge management and the information professional", Information Services and Use, Vol.19, pp. 7-16.

Pomerantz, J. et al., Digital library education in library and information science programs - Lib Magazine, 12, 11 November 2006.

Pomerantz, J.et al., Curriculum development for digital libraries, In: Proceedings of the 6ht ACM/IEEE-EC Joint Conference on Digital Libraries (JCDL'06) ACM, New York, 2006, 175-184.

Sreenivasulu, V. (2000). The role of digital librarian in the management of digital information systems (DIS). The Electronic Library Volume 18, No. 1, pp. 12-20.

Uganda Copyright and Neigbouring Rights Act, 2006.

University College of East Africa (Deposit Library), Ordinance No. 26 1958. Entebbe: Government Printers.