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



By

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

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

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