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Library and Information Science Education and Training and Employability Skills in Zimbabwe

Pedzisai Katuli-Munyoro
Information Studies Programme,
University of KwaZulu Natal,
Pietermaritzburg, South Africa.
munyorop@ukzn.ac.za

and

Stephen Mutula
Information Studies Programme,
University of KwaZulu Natal,
Pietermaritzburg, South Africa.
mutulas@ukzn.ac.za

Abstract

The study addresses the question why library and information science education and training programmes are purportedly reproached for not producing industry ready graduates. The population of the study included five deans/ heads of departments (Deans/HODs), forty-seven LIS faculty and 17 LIS practitioners. A census was done for the Deans/HODs and LIS faculty. Seventeen LIS employers were purposively selected. The Deans/HODs and LIS employers were interviewed, and LIS faculty were given a survey questionnaire to complete. The findings suggest that it is not the goal of LIS education and training to produce industry ready graduates but to inculcate a general professional foundation applicable in diverse information environments. The alleged reproach that LIS graduates are inadequately prepared for their roles was attributed to inadequacies in the requisite resources (funding, policy and regulatory frameworks, equipment, human capital, and ICT infrastructure) needed to develop the required skills in graduates. The study recommended that LIS education and training programmes build mutual linkages with practitioners and devise mechanisms and strategies to understand, envision, inform and respond to the changes taking place in the wider community and the LIS field.

Keywords: LIS education, LIS training, Library science, LIS employability skills, Zimbabwe.

Introduction

The principles, nature, structure, mission, practice and services of the library and information science (LIS) field have been fundamentally transformed because of the impact of information and communication technology (Mckendrick, 2012). Campbell (2006), Whalen and Costello (2002) assert that the ubiquitous nature of information, and communication technology environment have compelled LIS professionals to extend their presence to reach cyberspace through:

- collaborating and linking local libraries at the regional, national and global levels;
- placing full content of institutional scholarly resources online for public access;
- publishing information about the library and archival resources;
- creating vibrant and interactive library websites that link the library holdings and its users;
- placing finding aids online;
- creating online Information Literacy Skills (ILS) tutorials; and
- offering reference services via emails, text messaging and mobile interfaces.

LIS professionals have become "system designers, knowledge managers, web designers and

administrators, educators, problem solvers, navigators and publishers" (Huckle and Watson, 2007 and Campbell, 2006); technology officers, project managers, data administrators, data curators, data modellers, data architects, web librarians, digital librarians, cyber librarians, information scientists, and knowledge analysts (Ugwuanyi and Ezema 2010).

The changing roles and the work environments in the information industry signify that LIS professional practice has evolved from a narrow 'Bibli' or book centred focus to 'information transfer and ICTs have become enablers' of professional tasks. This has brought major structural changes that have transformed long standing set of practices, definitions, technologies, standards, tasks, principles, skills sets and core competencies required in the LIS community of practice. The changes have brought serious concerns about disciplinary core knowledge in LIS curricula (Lewis, 2010) and created a major misalignment on supply and demand.

Background to the Study

LIS education and training programmes in Zimbabwe are offered in five public Higher Education Institutions (HEIs). These include three polytechnics (Harare, Bulawayo and Joshua Mqabuko Nkomo) and two universities: namely National University of Science and Technology (NUST) and Zimbabwe Open University (ZOU). Polytechnics offer three levels of qualifications (Hikwa, 2010), namely: the National Certificate (NC) in Library and Information Science (a one-year long programme that prepares candidates for basic assistance in library and information practice), the National Diploma (ND) in Library and Information Science (a three-year long programme that prepares candidates for paraprofessional engagement in library and information practice), and the Higher National Diploma (HND) in Library and Information Science (a year-long programme) that prepares candidates for all kinds of semi-professional work in library and information practice.

NUST offers three levels of qualifications that include (Hikwa, 2010) a Bachelor of Science Honours Degree in Library and Information Science (a four-year long programme that prepares candidates for professional work), postgraduate diploma (an 18-month programme that prepares graduates who wish to join the LIS profession, having acquired a first honours degree in other disciplines), a Master of Science degree in Library Science (a two-year programme that prepares candidates for managerial work or teaching), and a doctor of philosophy degree in LIS (a three to five year programme that prepares LIS administrators, academics and researchers). Zimbabwe Open University (ZOU) offers one level of qualifications that is a Bachelor of Science Honours Degree in Library and Information Science (a four-year long programme that prepares candidates for professional work) and currently it is preparing to launch a Master of Science degree in Library Science.

Munyoro (2014) in her study on LIS education and training programmes in Zimbabwe found that institutions offering LIS have integrated ICTs related competences and generic skills in their curricula in response to perceived environmental needs. However, LIS practitioners consider the curricula to have too many gaps in knowledge and employability skills which need to be addressed through continuous curricula reforms (Chikonzo, 2013). Furthermore, Chikonzo (2013) findings show that the LIS curricula were mostly theoretical in nature with limited application in the contemporary LIS work environments. This finding was substantiated by Munyoro (2014) who found that the LIS curricula were dated and limited in application to the work environment. Munyoro concluded that the inadequacies in funding, ICT infrastructure and connectivity, teaching and learning resources, skills, regulatory and policy framework, as well as lack of support from leadership and lack of deep rooted curricula changes have misaligned LIS education and training to the work environments (Munyoro, 2014).

Statement of the Problem

Findings from a series of empirical studies have shown that LIS graduates are often reproached for being inadequately prepared for their jobs. In Australia, a study by Anderson (2007) shows that LIS graduates were not 'work ready'. In America, Moran and Marchionini (2012) study confirmed the claim that LIS education and training programmes have been reproached for failing to meet the immediate needs and requirements of the current LIS work environments. Kavulya (2007) in Kenya also

reaffirmed the frequently noted concerns among employers that LIS graduates were not well suited or prepared for the job market. Munyoro (2014) findings in Zimbabwe corroborated the assertions in literature that LIS graduates were inadequately trained for the contemporary work environments.

The purported reproach that LIS graduates were inadequately prepared for their roles, though a global concern that is also highly debated in scholarly discourse, has remained under-researched topic. This study therefore sought to address the following research questions:

1. What competencies are encapsulated in LIS curricula in Zimbabwe?
2. What LIS skills are needed by the information industry in Zimbabwe?
3. What human and physical resources are available for delivering LIS curricula in Zimbabwe?

Literature Review

The American Library Association (ALA) commissioned Kellogg-ALISE Information Profession and Education Reform Project (KALIPER) to examine the state of library and information science education in America (KALIPER Report, 2000). The KALIPER study found that LIS education had transformed, in response to the demands of the information society and technological developments (KALIPER Report, 2000). Six major trends in LIS education were identified:

(1) LIS professional education was focusing on broad-based information environments and information problems;

(2) Diverse multi-disciplinary perspectives have been incorporated in the curricula;

(3) Educational programmes have become predominantly user-centred;

(4) Heavy investments in ICT infrastructure and infusion of ICT in LIS curricula were observable;

(5) Specialised components have been integrated within the LIS curriculum; and

(6) LIS students were provided with flexible options of study and ICT related degrees at undergraduate, master and doctoral levels have been introduced (Durrance, 2004).

Tam, Harvey and Mills (2007) in Asia conducted a Delphi study in Hong Kong and China analysing the core competencies and generic personal qualities of LIS curricula in the region. The study found that curriculum content of LIS programmes in Hong Kong and China was focused in the following areas: "Information service skills, research and analytical skills, communication skills, collection development skills, management skills, subject knowledge and information services organisation skills as well as employability skills and personal qualities. Employability skills were listed as willingness to learn and continue to learn, flexibility, creativity, innovative, change, awareness of wider professional issues, ability to conceptualize, people oriented, collaborative partnership, ability to learn from others and teamwork" (Tam and Mills, 2006).

In Africa, a study by Shiholo (1999) revealed a high rating for competency in information technology and management. The study found that LIS programmes focus on knowledge of automation activities, networking, databases, online searching, and systems development, computer technology, indigenous knowledge systems, introductory courses in Information and Communication Technologies (ICTs), management of information and knowledge management. The diversity and transdisciplinary nature of the competencies encapsulated in LIS curricula globally shows that LIS educational programmes have adopted a general model of education. Hazeri, Martin and Sarrafzadeh (2009) praised this educational approach, stating that the education of LIS professional has transcended traditional boundaries to include wider professional horizons. This suggests that LIS education programmes have discarded the discipline-specific model of education and adopted a more liberal and general education model.

SCANS Report for America (2000) asserts that the advanced technological advancements in the LIS environment require a behaviour and orientation towards work that goes beyond step-by-step task performance to include:

(1) interpersonal skills: ability to participate as a team member, train others, service clients, exercise leadership, negotiate and work with diversity; (2) information skills: ability to acquire, evaluate and add value to information; (3) technology skills: select technology, apply technology to tasks, maintain and trouble shoot equipment; (4) systems skills: understand systems, improve or design systems, monitor and correct performance; (5) resources skills: identify, organise, plan and allocate resources; (6) personal attributes: self-esteem, sociability, self-management, integrity, honest; (7) thinking skills: thinking creatively, making decisions, solving problems, visualizsng, knowing how to learn and reason (8) basic skills: reading, writing, performing arithmetic and mathematical operations, listening and communication.

The employability skills and attributes listed in the SCANS Report for America (2000) suggest that job-specific technical skills in a given field are no longer sufficient for work environments. Most of the skills valued in contemporary work environments are outside the boundaries of "what a university education all-too-often provides" (Barber, Donnelly and Rizvi 2013:12). This prompted Kennan, Willard and Wilson (2006) to declare that the LIS employment landscape has become highly variable and heterogeneous, resulting in a vague set of skills which employers seem to value. Bhasin (2012) noted that the most important resource for any industry is its human resource, and the most essential attributes of the workforce are its competencies. He suggests that the effectiveness and viability of LIS education and training programmes is dependent on the competencies of its faculty.

Besides skills, effective curricula delivery needs to be supported by adequate and sustainable human, physical and technological resources (Van der Linde and Braak, 2011). Ely (1993) confirms this, asserting that education systems that are not adequately supported by resources such as hardware, software, money, and highly competent human resources cannot take off let alone be successful. This was also substantiated in Singh and Wijetunge (2006) study which found that most higher education institutions (HEIs) in developing nations are resource starved.

McLeod (2012) asserted that a well-developed information infrastructure is a major foundation base for the development of ICT related competencies and skills. Minishi-Majanja (2004) in her study found that LIS schools in Sub-Saharan Africa need to invest heavily in ICT infrastructure to facilitate the transfer of ICT competencies and skills in graduates. Aswalap (2005) suggests that a country needs to be e-ready to effectively develop ICTs competencies and skills in its citizenry in terms of ICT infrastructure, policies and regulatory frameworks, and human capital base. Chakraborty and Sarkhel (2009) assert that most HEIs lack strong educational infrastructure that can facilitate the development of highly skilled human capital base.

Methodology

The study was informed by the post positivist paradigm combining qualitative and quantitative methodologies. The qualitative methodology was dominant over the quantitative. The study also used a survey design within a case study (Creswell, 2009). The holistic units of analysis were institutions offering LIS education and training that included: NUST, ZOU, Harare, Bulawayo and Joshua Nqabuko Nkomo Polytechnics. The population of study comprised key stakeholder groups in LIS education and training including LIS academic faculty, Deans/ HODs, and LIS employers (major libraries). These groups were targeted due to their expertise, authority, experience, responsibilities and interest in the problem under study (Pickard, 2007). According to the NUST website, the LIS department had fifteen faculty while the ZOU website stated that the LIS department had ten faculty (NUST, 2012 and ZOU, 2012). The prospectuses of Harare, Bulawayo and Joshua Nqabuko Nkomo polytechnic colleges stated that the staff establishment of the LIS department at Harare Polytechnic was ten; Bulawayo, eight; and Joshua Nqabuko Nkomo, four (Harare 2007; Bulawayo 2013 and Joshua Nqabuko Nkomo, 2009). The total population of LIS academics at the time of study was forty- seven. There were five Deans/HODs heading the LIS departments.

The list of LIS employers in Zimbabwe was provided by the Zimbabwe Library Association (ZimLA). LIS major employers comprised twelve university libraries, two special libraries (United States

Information Services (USIS) and the British Council Library), one national library (represented by the National Archives of Zimbabwe), two public libraries (Harare City Libraries and Bulawayo City Libraries). The total number of libraries selected as major employers of LIS professionals was seventeen. The population of the study is summarized in Table 1.

Table 1: Population of the Study

Institutions	Deans and HODs	Faculty	LIS Employers
National University of Science and Technology	1	15	
Zimbabwe Open University	1	10	
Harare Polytechnic College	1	10	
Bulawayo Polytechnic College	1	08	
Joshua Nqabuko Nkomo Polytechnic College	1	04	
Major LIS employers (ZimLA)			17
Total	5	47	17

Seventeen LIS employers were purposively selected because the number of major LIS employers in Zimbabwe cannot be easily determined. Babbie (2005) and Burns and Grove (2005) recommend that in large scale surveys where the elements are not easily determined the use of the purposive sampling technique is considered appropriate. A census was done of LIS faculty (47) and Deans/HODs (5). Israel (2009) recommended this approach, noting that it is advisable to conduct a census for a small population as it eliminates sampling error, achieves desirable levels of precision and provides data on all the individuals in the population. The relative sample population of respondents is summarised in Table 2.

Table 2: Relative Sample of Respondents

Targeted respondents	Total Population	Sample Population	Sampling Method used
Deans/HODs	5	5	Census population
LIS Academic Faculty	47	47	Census population
Major LIS Employers	17	17	Purposive

A total of 22 respondents (five Deans/HODs and seventeen LIS employers) were interviewed, and 47 LIS faculty were surveyed using questionnaires. In-depth face-to-face interviews were used. Open-ended questions were utilised to enable the respondents to respond in their own words (Whittemore and Grey, 2006). A survey questionnaire enabled the researcher to collect anonymous and confidential data cheaply from a large and geographically dispersed population and also enabled the researcher to gather responses in a standardised manner (Pickard, 2007). Data was collected for a period of five months (April to August 2014). SPSS 20 and NVivo 10 were used to compute and analyse the data.

Findings and Discussion

On the question, “What competencies are encapsulated in the LIS curricula?” the findings revealed nine broad competencies: foundational or core, technological, business/managerial, communication and community services, "work place competencies and interpersonal skills, legal framework for practice, practicum, research, and specialized competencies.

The findings validate Boll's (1972) assertion that LIS professional knowledge is continuously enlarging making it practically impossible to devise a curriculum. The continuous changes in LIS curricula prompted Raju (2005) to query “whether it is practical for LIS departments to teach all that has to be taught”. Stilwell (2004) argues that "no single department is likely to have the capacity to span the full spectrum of programmes required". This suggests that LIS education and training programmes lack the capacity to meet perceived environmental demands, and this might be attributed to the widely held view that LIS graduates are inadequately prepared for their roles.

The findings corroborate Raju's (2005) assertions that new skills are required in LIS work environments as new technologies are released in the market. The findings also confirm Minishi-Majanja's (2009) claim that "there continues to grow a diversity of fields that are considered as core competencies, which when pitched against the need for market-ready graduates, make the task of preparing a curriculum difficult".

The findings further revealed that there was no standardised approach to ICT integration in LIS curricula in terms curricula content, breadth and depth of ICT modules, available ICT resources and faculty ICT competencies. This finding can be attributed to lack of a formal and established ICT policy and regulatory framework that fosters the integration of ICTs in education and training in Zimbabwe. Isaacs (2007) noted that policy and regulatory frameworks on ICT use in education provide specification and guidelines, as well as standards and frameworks for ICT integration in the curricula.

The findings also revealed that the employability skills in the LIS curricula are not homogeneous across LIS schools in Zimbabwe. Furthermore, the competencies integrated in the LIS curricula were dissimilar to those demanded in work environments. Archer and Davison (2008) in their study found that "there is a contrast between what some universities are promoting and what is required by industry". The findings suggest lack of a common conceptual framework that can be used by both HEIs and industry to define and assess employability skills in Zimbabwe.

The findings revealed disparities in the employability competencies integrated in LIS curricula in Zimbabwe. The findings were corroborated by Knight (2011) in Australia when she states that:

> … although there has been a publicly expressed consensus for the need to embed employability skills within HE, the methods of ensuring that students gain these skills through their discipline-based degrees are neither clear nor easy.

The findings suggest lack of a national educational policy and regulatory framework on the development of employability skills in Zimbabwe. This finding signifies the need to foster a collective response to the development of employability skills in HEIs in Zimbabwe.

Competencies Needed in LIS Work Environment in Zimbabwe

LIS employers were asked to answer the question: What skills are required of LIS professionals in the contemporary workplace? The findings revealed that a combination of knowledge and applied skills were perceived to be critical for LIS graduates. The views of LIS employers are indicated by their varying perspectives, needs and preferences. The majority (11 out of 17) of LIS employers emphasised ICTs and their applications. A senior university librarian noted:

> We need graduates with knowledge of ICTs and their applications. Competencies in virtual research environments, open access, programming, software development, social media, ability to use and apply information technology in library

> operations, ability to compare, evaluate, select technologies and software, ability to translate print based services to electronic services, web designing and administration, networking and consortia management as well as trouble shooting and system diagnosis.

A significant number (9 out of 17) of LIS employers emphasised employability skills. An experienced university librarian highlighted:

> ...We need LIS professional able to communicate and train or teach, able to work as a team, negotiate, work with diversity, willing to continuously change, able to work under pressure, and someone who is honest and sociable.

Similarly, 5 out of 17 respondents cited project management as a required competency. This view was highlighted by another librarian who noted,

> We are running most of our functions and activities such as library automation, web design and administration, and digitisation as projects. We need LIS professionals with project management skills, able to design business plans, evaluate projects, source funding, negotiate, advocate, and manage funds and human resources. These professionals should also be motivators, team players, time conscious and committed to the profession and continuous learning.

A library director in a specialised public library identified another set of competencies. These are training, copy cataloguing, knowledge management, Resource Description and Access (RDA), licensing and quality control, noting:

> ... We require LIS graduates with competencies in training/teaching, Information Literacy Skills (ILS), knowledge management (to manage institutional repositories), knowledge of Resource Description and Access (RDA), copy cataloguing skills, quality control competencies, licensing and negotiation skills with database vendors and publishers.

The findings suggest that LIS work environments are demanding graduates with a profile of knowledge, skills and attitudes that include, but go beyond, the disciplinary expertise or technical knowledge that traditionally formed the core of most LIS curricula. A similar study by Barber, Donnelly and Rizvi (2013) also found that the skills and competencies required in contemporary work environments in America were outside the boundaries of "what a university education all-too-often provides".

A study by Kennan, Willard and Wilson (2006) found that the LIS employment landscape has become highly variable and heterogeneous, resulting in a vague set of skills which employers are demanding. This finding highlights the question posed by Raju (2005) "whether it will continue to be practical or desirable for a single institution to provide education and training for all types of work settings?" NIACE (1998), in similar vein observes that particular aptitudes, values and personal attributes valued in contemporary work environments are highly contextual and must be learned on the job.

The differences in the competencies encapsulated in the LIS curricula and those required in the labour market suggest power dynamics between LIS faculty and LIS employers. This signifies struggle for control of LIS education and training products and educational processes between educators and industry. This view is also shared by Becher and Torowler (2001) when they assert that conflicts concerning industry and HEIs symbolize power dynamics in terms of who defines what counts as useful core competences and whose discourse achieve dominance". Longhurst (2007) asserts that employers are dissatisfied with the existing practice whereby academics devise degree schemes and offer these to the market with little or token input from industry.

Resources Needed for Curriculum Delivery in LIS Education and Training

LIS education and training faculty were asked to establish the resources integral to delivering LIS

curricula. The findings point to human expertise, infrastructure, equipment, funding, up to date curricula, policies and regulatory frameworks, quality cohort of students and information resources as essential for delivering LIS curricula. The findings are presented in Figure 1.

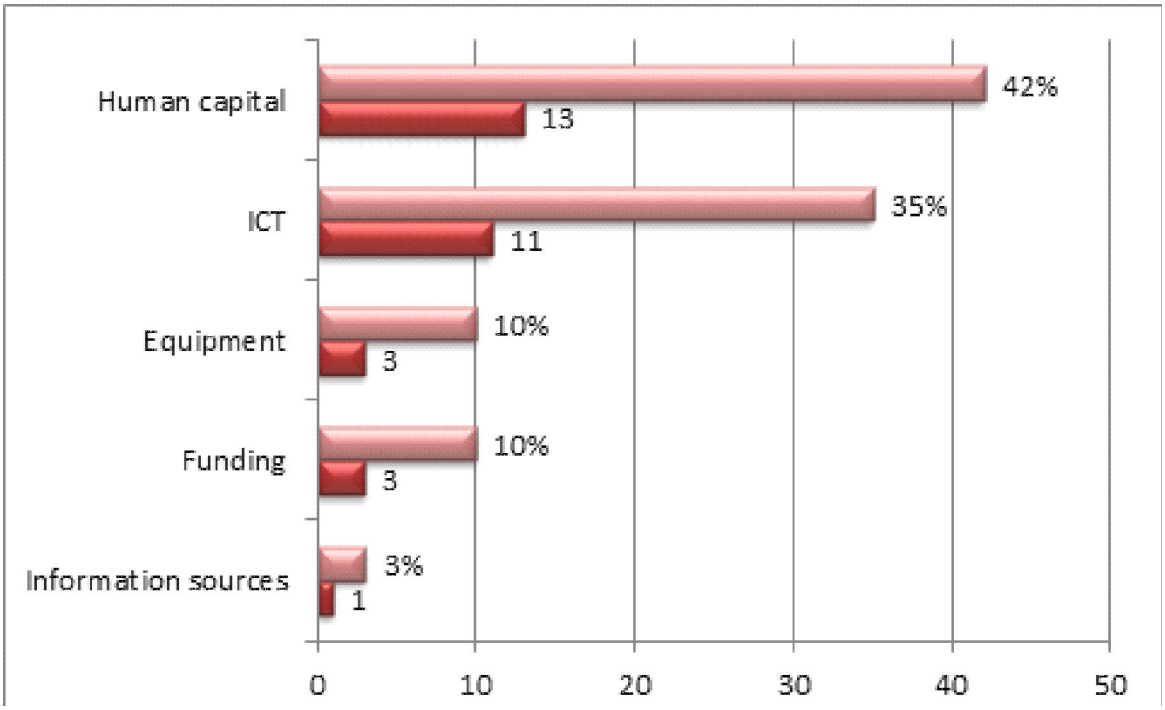

Figure 1: Resources for delivering LIS curricula (N=31)

Results in figure 1 show that 13 (42%) of respondents specified human capital; 11 (35%) noted infrastructure; 3 (10%) itemised equipment; 3 (10%) listed funding; and 1 (3%) identified both print and digital information resources as integral for delivering LIS curricula. A senior lecturer commented on the question of human expertise stating that, "… skills, the right skills are integral for delivering LIS education curricula". One lecturer remarked on the scarcity of highly qualified LIS faculty noting that:

> …there is need for highly qualified LIS faculty competent in ICT, research and inter-disciplinary knowledge … but we are experiencing shortages of highly qualified LIS staff due to brain drain.

The Southern African Regional Universities Association (SARUA, 2010) study reported that universities in Zimbabwe were understaffed as a result of brain drain. The study further pointed out that HEIs in the country were unable to attract highly qualified and experienced faculty because of poor working conditions, lack of robust research and low remuneration. Many highly qualified and experienced academics were forced to leave the country for greener pastures. Bhasin (2012) points out that the effectiveness and the utility of LIS education programmes largely depend on the expertise of the teaching staff and their availability.

Nearly 35% of the respondents identified ICT infrastructure as a key component in delivering LIS curriculum. However, these respondents presented diverse views on what constitute infrastructure. One lecturer identified telecommunication as an essential infrastructure. She stated that:

> …telecommunication systems are essential for delivering LIS curriculum, however, these are not widely spread as there are areas in Zimbabwe where access to telecommunication is impossible and the postal system is very poor. This makes the delivery of distance education very difficult.

Internet connectivity was noted as a vital ICT infrastructure needed for delivering LIS curriculum. A junior lecturer raised the need of sustainable internet connectivity, stating:

> … Internet connectivity is crucial in the contemporary digital environment for the delivery of LIS curriculum however, connectivity is very poor here due to limited bandwidth and at times we experience down turns and electricity outages.

Another academic further identified computer laboratories as a necessary fundamental ICT infrastructure needed for the delivery of LIS curriculum and remarked that:

> …well equipped computer laboratories are critical for the delivery of LIS curricula. However, our computer laboratories are few and not well equipped. For example in our Bulawayo region the computer student ratio is 1:90.

Brown (2008) and Rosenberg (2007) emphasised that successful implementation of technological innovations requires supportive infrastructure. Rosenberg (2007) further contends that the state and the level of a country's e-readiness in terms of infrastructural and capacity development are important determinants of the adoption and use of ICT in its educational system. The World Economic Forum (2013) found Zimbabwe as having low levels of e-readiness.

Adams (2003) claims that the problem of underdeveloped ICT infrastructure is a major problem in most African countries. He attributed the problem to underfunding, lack of commitment and political will, and lack of perceived need to develop ICT infrastructure. Adams (2003) states that most HEIs have been experiencing major budget deficits and cannot afford to invest in the requisite physical and ICT infrastructure. Adams (2003) attributes the poor ICT infrastructure in HEIs in Africa to the exorbitant initial costs required to put ICT infrastructure in place. Hall and Khan (2002) observed that without the requisite ICT infrastructure, inculcating ICTs competencies in HE graduates becomes a mammoth task.

About 10% of LIS faculty noted equipment as an important resource for delivering LIS curricula. A senior lecturer stated:

> …We need equipment such as overhead projectors, printers, microphone, television, videos, Power Point projectors, laptops and other peripherals to help us effectively deliver LIS curricula.

Another lecturer indicated the need for relevant software, suggesting that:

> …relevant software … we are struggling to purchase or buy licenses and we end up relying on Free and Open Sources Software's (FOSS) like CDSIS which no longer speaks to the current situation. We want relevant and applicable software's in teaching.

Rosenberg (2000) found that there was a general lack of teaching and learning equipment in HEIs in Africa. The SARUA (2010) in a similar study confirmed that HEIs lacked access to basic educational resource essential for teaching and learning.

Ten percent (10%) of LIS faculty suggested funding as an essential resource for delivering LIS curricula. The different faculty perspectives on funding were summarized by a lecturer, who stated:

> … Funding is of paramount importance for delivering LIS curriculum. We need funds to procure essential equipment and rehabilitate dilapidated infrastructure and complete ongoing building projects, reengineer the curricula, retrain or retool our faculty, and fund research. Without funds it becomes a challenge to balance educational strategies with economic realities…

Minishi-Majanja (2004) reported that the rapid pace and transient nature of the changes in the wide society, and the LIS field require sustained funding. SARUA (2010) confirmed that financial resources in HEIs are insufficient to sustain teaching, learning, research, infrastructural investments, human capital

development and for effective operations. HEIs in Zimbabwe have been experiencing declining government funding and have resorted to alternative means of funding for survival. Many of them have resorted to donor communities for support (Isaacs, 2007). However, due to prevailing political conditions and imposed sanctions in the country, most donors have withdrawn funding in protest at the human rights abuse by the current government (SARUA, 2010).

About 3% of the participants indicated that information resources were important. A lecturer stated that:

> … We have libraries …due to budget cuts, we can no longer afford to stock current materials and subscribe to certain journals, although our library is a member of the Zimbabwe University Libraries Consortium (ZULC) which subscribes to several databases such as EBSCO host, Emerald, JSTOR… We also have access to e-journals through Programme for the Enhancement of Research Information (PERI).

Rosenberg (2007) noted that there was a general lack of teaching and learning materials in Africa. SARUA (2010) reported that teaching and learning capacity in HEIs is further eroded by inadequate library resources, lack of full access to digital resources and lack of robust institutional repositories. The report further stated that currently the student and information resource ratio at Midlands State University in Zimbabwe is 20:1 as opposed to a desired ratio of 3:1.

An up-to- date and relevant curriculum was cited as an important resource for delivering LIS curricula. A dean noted that "A relevant and up-to-date curriculum is indispensable". The dean's response implies that LIS curricula are not up-to-date and this was attributed to lack of adequate funding for curricula review. Lawal (2000) advocated for continuous reviews of LIS curricula to reflect and align with the changes, challenges, needs, employment market, contemporary professional thoughts, manpower forecast and the trends of research interests of the profession. Virkus (2012) points out that LIS education and training programmes need vibrant and up-to-date curricula. Use of dated curricula might be the reason why LIS graduates are considered to be inadequately prepared and not work ready.

Conclusion

The broad spectrum of competencies and skills encapsulated in the LIS curricula suggests that LIS education and training programmes have discarded the discipline-specific model of education and adopted a more liberal and general education model adaptable in diverse information environments. The findings pointed to the need to view LIS education and training not only for producing industry ready graduates but also for providing a broad professional base applicable in diverse information environments.

Furthermore, the diversity of the competencies encapsulated in LIS curricula suggests that LIS education programmes are not synchronised, and there are no common standards guiding the educational sectors, and there are no quality control measures in place. This suggests that a professional accreditation body for the LIS profession needs to be urgently developed by the Zimbabwe Library Association, to assure accountability, quality control, compliance, and standardization of LIS education programmes. Similar schemes have yielded observable results in countries such as the United States of America and the United Kingdom

The diversity and transdisciplinary nature of the competencies required in LIS work environments suggest that LIS work environments have expanded beyond the library. This diversity makes it very difficult for LIS education and training programmes to devise and provide a one-size-fit all educational programmes. This study recommends that LIS education and training programmes continue: (1) offering generalised professional education programmes applicable in diverse information environment; or (2) introduce specialised professional tracks in the curricula; or (3) expand curricula contents, as well as the credit hours.

The findings revealed that LIS graduates lacked the required competencies needed in the work. LIS education and training in Zimbabwe should build collaborative teaching linkages with practitioners to help rectify the problem of resource inadequacies. This strategy is used in the contemporary digital information environment at the Sukhothai Thammathirat Open University (STOU) in Thailand.

Collaborative teaching initiatives, as practised at STOU, have helped in bridging the mismatch between LIS education and training programmes and practice.

It is recommended that LIS professionals, practitioners, professional associations and policy makers devise mechanisms and strategies to understand, envision, analyse, and develop adaptive strategies to the changes in the field. Similar strategies have been developed in the United Kingdom.

The study suggests that it is not the goal of LIS education and training to produce industry ready graduates but to inculcate a general professional foundation applicable in diverse information environment. The alleged reproach that LIS graduates are inadequately prepared for their roles was attributed to inadequacies in the requisite resources (funding, policy and regulatory frameworks, equipment, human capital, and ICT infrastructure) needed to develop the required skills in graduates. The study recommended that LIS education and training programmes devise mechanisms and strategies to understand, envision, inform and respond to the changes taking place in the wider community and the LIS field. Further, the study recommended that LIS education and training programme nurture mutual collaborative synergies with practitioners to help rectify the problem of resource inadequacies.

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Pedzisai Katuli-Munyoro is a Post-doctoral Research Fellow in the Department of Information Studies at the University of KwaZulu Natal, South Africa.