Digital records curation education in Zambia

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Abstract

Governments worldwide see digital transformation (digitalization) as an avenue for efficient and effective service provision. However, with digital transformation comes rapid generation of records in huge volumes and varying formats, leading to a drastic shift in the way in which records are managed and stored. In response to these developments, there is an urgent need to review the current records management curricula and pedagogy. This paper investigates digital records curation education in Zambia in order to determine the preparedness of the Zambian higher education institutions to produce records management professionals who are ready to work in the emerging digital and knowledge economy. Using qualitative research methods, particularly interviews and document analysis, the study revealed that digital records curation has not received adequate attention in Zambia. However, there is ongoing review of curricula to address digital records curation issues at undergraduate and postgraduate levels. Numerous challenges affect digital records curation education in Zambia, including inadequate information and communication technology infrastructure (including computer laboratories), inadequate technical skills, disintegrated curricula and limited access to software packages for demonstration. Based on the findings and discussion, the following is recommended: curricula review based on a needs assessment of the required skills and knowledge set for digital curation, embark on capacity building among ARM educators, increase funding for the development of ICT infrastructure, standardise the ARM curriculum across institutions and monitor ARM training through ARM institutes.

Key words: Archive, digital curation, education, records management, training, Zambia

Introduction

The growth of digital information and digital technologies has impacted the skills requirements of information and records management professionals, as the world embraces the shift towards digital service provision (Yoon, Murillo & Mcnally 2021). The surge in digital technologies and the

resulting challenges stipulate improving education and training of archives and records management professionals in order to prepare them for the burgeoning digital economy (Kim 2015). The complex nature of digital information and the associated challenges pose a threat to the capturing, secure storage, preservation and accessibility of records. If not addressed, the tenets of accountability, transparency and all the governance and business processes in organisations become endangered (Mosweu & Ngoepe 2019). To address the various changes and challenges caused by digital information and advancements in technology, there is an urgent need for a regular evaluation and improvement of the skills and competencies required to manage digital records (Feng & Richards, 2018). Efforts to improve education and training of archives and records management professionals in many African universities have increased over the last five years (Katuu & Ngoepe 2017; Maluleka, Nkwe & Ngoepe 2018; Katuu 2018; Mosweu & Ngoepe 2019).

Like other African countries, Zambia sees digital technologies as a crucial player in realising the goal of becoming a middle-income country by the year 2030. Therefore, through the "Vision 2030, the 8th National development plan and the e-government implementation master plan 2018-2030", among others, Zambia seeks to leverage information and communication technologies (ICT) "to modernize and simplify the Governance and Service Delivery Systems in the Public Service, create a conducive environment for business investment, and enhance the welfare" of Zambians (Republic of Zambia, 2019; 2022). Achieving these goals requires a coordinated approach and well-trained human resources. Hence, the urgent need for an archives and records management programme that prepares professionals to perform digital records curation services.

Digital curation is defined as the management and preservation of digital information for current and future use throughout its life cycle (Dorbeva, Kim & Ross 2013; Doerr 2008). Digital curation work involves selecting materials, evaluating their value to users, providing secure storage and access, and ensuring long-term preservation so that future generations can access and utilize them. The national academy of science describes digital curation work as follows:

> …appraise [digital assets] value and relevance to the community of potential users; determine the need for preservation; [maintaining] document provenance and authenticity; describe, register, and catalog its content; arrange for long-term storage and preservation; and provide a means for access and use (National Research Council, 2015:10).

Thus, digital records curation is the systematic creation, management and use of digital records. To acquire the necessary knowledge and skills in digital records curation, one must undergo education and training. According to Katuu (2022a:99), education involves "introducing a learner to the theory and principles underpinning the professional practice in a discipline", while training is concerned with imparting new skills to learners, and that both education and training are essential in lifelong learning. Therefore, this paper defines 'digital records curation education' and training as the practice of introducing the principles and theoretical issues, and imparting skills required for the creation, management and use of digital records. As Katuu (2022b) points out, there is need for both education and training opportunities to develop independent and competent archives and records management professionals who are lifelong learners. Against this

background, this paper assessed digital records curation education in selected higher learning institutions in Lusaka, Zambia, in order to determine its effectiveness in preparing digital records curators.

Background to records management education and training in Zambia

In Zambia, digital technologies are seen as a vehicle for efficient public services and the country's quest to attain middle-income country status by the year 2030 (Republic of Zambia 2019). However, while digital information and technology continues to develop and be implemented in the public service of Zambia, education and training for archives and records management professionals in Zambia remain weak and inadequate. For example, Zambia only introduced a degree programme in Archives and Records Management (ARM) in 2015 and content on digital records curation was introduced in 2020 after re-curriculation of the digital records management module to include digital records curation content at the University of Zambia (UNZA). The content is based on the International Council on Archives (ICA) Africa programme for digital curation content. In 2022, Zambia had about 360 higher training institutions. However, only five of these institutions offered library and information science (LIS) education and aspects of archives and records management (Mulauzi & Njobvu 2018; HEA 2023).

The higher education authority lists 53 private universities and nine public universities. Out of these, only three public universities offer comprehensive archives and records management programmes. Since the inception of LIS education in Zambia from around the 1960s, archives and records management has never taken centre stage; it has always been treated as a subsidiary of the LIS profession. For instance, a dedicated archives and records management programme at bachelor's and postgraduate levels only began in 2015 when the LIS Department at the UNZA and the National Institute of Public Administration (NIPA) introduced bachelor's degree programmes. Currently, degrees in archives and records management are offered at the UNZA and the NIPA, respectively. Prior to this, archives and records management education and training were offered at certificate and diploma levels at the NIPA, Evelyn Hone College of Applied Sciences and Commerce, University of Zambia Department of Extension Studies and the Zambia Information and Communication Technology College (formerly ZAMTEL College) in the Copperbelt province among others.

While archives and records management programmes are generally integrated into the higher education and vocational education training as required by the legal mandate (Chifwepa 1994; Mulauzi & Njbovu 2018), it is not known whether the programmes offered in the various institutions are standardised or synchronised in such a way that they address records management issues and, more importantly, address digital records curation and the changing knowledge and digital economy in Zambia.

Statement of the problem

The growth of digital information and technologies and the need to preserve it for current and future generations are major challenges facing the archives and records management profession in the 21st century. As a way of responding to these challenges, efforts such as developing institutional repositories and preservation tools, training digital curators, initiating strategies and improving archival education, are being undertaken (Tibbo 2015). Despite these efforts, digital records management continues to be a challenge in many Africa countries. A lack of skilled personnel, inadequate infrastructure, weak or absent legal framework and insufficient financial support are some of the challenges affecting digital records curation in Africa (Mosweu & Ngoepe 2019; Ngoepe 2017; Garaba 2015; Mutiti 2005). Additionally, many researchers lament the insufficient emphasis and inclusion of digital records curation topics in universities to address the issues of digital records curation and other challenges arising from the growing digital and knowledge society (Mosweu & Ngoepe 2019; Ngoepe 2017; Garaba 2015; Katuu 2009; 2015; 2022b).

While the ARM programme at the UNZA included digital records curation content, it is not known whether other public higher learning institutions offering archival education have done so and the extent to which digital curation is taught. As such, the desired changes of digital services in Zambia have largely been met with ill-prepared records and archives staff who need educating and re-training in digital records curation. Therefore, this study sought to investigate digital records curation education in Zambia in order to determine inclusion of digital records curation content in the ARM programmes.

Objectives of the study

The objectives of this study were:

1. To assess the inclusion of digital records curation content in the records management curriculum in Zambia.
2. To determine the adequacy of ICT infrastructure in support of digital records curation education.
3. To identify the challenges faced in the education of digital curation.

Research question

1. Is digital records curation content included in the ARM curriculum in Zambia?
2. Is there adequate ICT infrastructure to support digital records curation in Zambia?
3. What challenges are encountered in digital records curation in Zambia?

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Brief literature review

Several studies have been conducted on archival education and training in Africa and issues regarding a lack of skills in digital records management standout (Mosweu 2019; Katuu 2022). As a way of remedying the situation, there are proposals to evaluate and improve the archival curriculum, align it with industry needs and Africanise it (Maluleka et al. 2018; Mosweu 2019; Ngoepe & Saurombe 2021; Zhang 2016). Katuu (2022) wrote that the discussion on archival education and training has been going on for decades with the focus ranging from "historical and socio-cultural challenges" of the profession in relation to "good governance, emerging technological innovation, and the need to break free from legacy structures." Research also shows that archival programmes offering archival education in Africa range from certificate, diploma, undergraduate and post-graduate training as well as various professional training programmes (Katuu 2022; Katuu & Ngoepe 2017). However, despite the growing number of programmes it was also noted that archival education and training in Africa generally lacked professional consensus on design and implementation of programmes (Katuu 2009) and generally lacked in terms of depth to deal with the changing digital economy (Onyancha, Ngoepe & Maluleka 2015; Katuu & Ngoepe 2017; Ngoepe et al. 2022a; Wamukoya 2015). It was clear from the literature that there are numerous challenges facing archival education and training in Africa, hence need for re-alignment of the curriculum to be able to respond to the changing digital information society.

It is generally agreed that the archives and records management curricula currently in use in many countries do not address digital records curation effectively and efficiently (Onyancha et al. 2015; Wamukoya 2015). Much of the training being done does not impart adequate computational skills and methods to archival students to enable them to apply this training in the management of archives and records and be able to securely process, analyse, provide secure storage and to ensure long-term preservation and access to records (Mosweu & Ngoepe 2019; Katuu 2022a). According to Wamukoya and Mutula (2005), the challenges brought about by the changing digital technologies, and digital records in particular, require educating and equipping archives and records management professionals with skills that will enable them to manage records in digital environments. This calls for evaluation of skills and competencies as well as training of archival professionals. Additionally, there is need to adopt new and innovative training as well application of modern technologies in training archives and records management students in order to prepare them for the digital economy. The trend on the global scale has been to ensure that archives and records management training addresses the emerging digital information landscape and digital technologies, hence the evaluation of programmes and, where possible, inclusion of digital records curation content. Efforts to improve digital curation and preservation education and training are said to be undergoing several changes over the years going as far back as the 1980s (Kim 2015; Yoon et al. 2021; Tibbo 2015) in Europe, Australia and the USA. Tibbo (2015:3), however, opines that while digital curation education and training have been taking place for decades now, the various programmes have remained insufficient to address the needs of information professionals and the digital environment. In Africa, for instance, digital records curation and preservation training in LIS schools seems to generally receive little attention when compared to other programmes (Katuu 2015; Onyancha et al. 2015). Wamukoya (2015) and Ngoepe et al. (2022) add that the archives and records management profession also lacked the necessary legal and infrastructure requirements to operate effectively, as such digital records management remains a

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weak area of practice in the African region. The resounding point from many scholars is that to be able to effectively address the changing digital information landscape, there is need to provide education, training and research in archives and records management that address digital curation (Onyancha et al. 2015) and this must be carried out at all levels of training, such as bachelor's, graduate, post-graduate and/or in continuing education situations (Lee & Archivaria 2011; Tibbo 2015). Additional specialised training is needed to expose teachers and professionals to digital curation skills that are important to improve digital records curation in low resourced countries.

Regarding the inclusion and offering of digital records management content in the archives and records management programmes, Katuu (2022) indicates that efforts are being made to improve the archives and records management curriculum across Africa to ensure that digital records and archives are managed effectively. The University of South Africa (UNISA) is one of the examples of institutions undertaking curriculum reform to include modern digital records curation topics in their ARM programme. However, the fact remains that inclusion of digital records curation content in the ARM programmes in Africa is still limited and slow. For instance, Maluleka et al. (2018) are of the view that South African public universities have not embraced digital records curation modules enough in the archives and records management curriculum and the number of universities offering archives and records management education and training are generally low. Onyancha et al. (2015), citing various scholars, also observed that the sub-Saharan region has generally given little or limited attention to archives and records management training, let alone digital records curation education.

Knowledge and skills to undertake digital records curation is crucial to teaching and undertaking digital records curation. Generally, research shows limited knowledge and skills in digital records curation. In a study of professional education and training needs in digital records curation in Europe and Ireland Cushing and Shankar (2018) observed a lack of knowledge and skills in digital curation among information professionals. In fact, individuals did not know when they were doing digital curation and whether they needed to learn more about it. *Where individuals were knowledgeable about digital curation, they would be the only ones who knew and were struggling to pass the knowledge on to colleagues and supervisors. Cushing and Kalpan, 2019) recommend comprehensive digital curation education at postgraduate level with a focus on skills impartation and knowledge sharing. Many other authors lament the lack of skills in digital records curation among archives and records management professionals in Africa and the need for re-training (Ngoepe & Saurombe 2021; Onyancha et al. 2015). Therefore, Maluleka et al. (2018) propose course alignment in the ARM curriculum in order to be responsive to digital records management needs in Africa and the challenges of the growing digital economy.

Onyancha et al. (2015) argue that archives and records management education and training in most African countries have largely been treated as a subsidiary and were often eclipsed by the LIS profession. This is true in Zambia were archives and records management had been taught as a module at in the fourth year of the bachelor of LIS programme until 2015 before introduced as a bachelor's programme. At post-graduate level, ARM continues to exist as a module in the Master of Library and Information Science (MLIS) programme at UNZA. This has largely been the

situation in other African countries until recently when changes have slowly been introduced to improve archives and records management education and uplift the profession. In terms of the specific topics to be included in the digital records management programme, Ngoepe, Jacobs and Mojapelo (2022) analysed changes made to the archives and records management programme at UNISA in order to make the programme relevant to digital transformations in the fourth industrial revolution (4IR). They recommended the "inclusion of computational archival science in the responsive curriculum" to ensure impartation of digital and technological skills, application of methods, processes and resources that ensure processing of digital records and analysis, storage and long-term preservation of archival records. Mason and Halvarsso (2017) proposes including topics on knowledge about digital preservation, practical skills in conducting digital curation activities and problem-solving approaches. The preferred learning style of staff should also be emphasised in the digital records curation curriculum.

Methodology

The study adopted a qualitative research design, implying that qualitative strategies were used in the collection and analysis of data (Bryman 2012). The population of the study comprised heads of departments and lecturers from four public institutions situated in the Lusaka province (universities and colleges) offering archives and records management. These included the UNZA department of LIS, the NIPA department of LIS, the Evelyn Hone College of Applied Arts and Commerce department of LIS and the Chalimbana Local Government Training Institute. This gave a total of eight participants (archives and records management lecturers and heads of department), and programme documents from each of the selected institutions were purposively sampled and used in the study. The study sought ethical clearance from the University of Zambia ethics committee. Anonymity of participants was achieved through the use of numbers rather than names to represent participants. The data were analysed using thematic analysis, and findings were presented using themes (Creswell 2003).

Research findings

Selected institutions/departments and programmes on offer

Out of the four institutions selected, the University of Zambia offered a Bachelor of Arts degree in records and archives management (BA RAM) launched in 2015. Prior to starting the BA. RAM programme, the LIS department at the UNZA only taught records management as a module at fourth year level of the BA LIS programme and a module in the MLIS programme. The UNZA has also been offering archives and records management training at certificate and diploma levels under the department of community education and lifelong learning (CELL), formerly extension studies department (Mulauzi & Njobvu 2018).

The NIPA was initially a provider of professional development training to government employees and is now open and broader for the general public, and was also to be the first HEA to offer a Master of Records and Archives Management in Zambia. The master's programme was launched, and the NIPA continues to play its role through offering education and training to archives and records management professionals from certificate level up to bachelor's and now master's levels

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(NIPA 2023). The Evelyn Hone College of Applied Arts and Commerce offers LIS and records management studies at certificate and diploma level, respectively. Finally, the Chalimbana Local Government Training Institute also offers records management training at certificate level (HEA 2022).

Inclusion of digital records curation topics in the archival curriculum in Zambia

To determine the inclusion of digital curation content in the Zambia curricula, we analysed curriculum documents, and the results revealed that there was little or no inclusion of digital curation topics/content in ARM programmes in Zambia. Further, digital records curation remains a new concept among archives and records management professionals. While topics such as database management systems and web-designing have been included in LIS schools and are taught, it does not happen in a synchronised way across institutions. Teaching of digital records curation with a focus on the management of digital records remains limited or non-existent.

Currently, the only programme that includes digital records curation content and topics is the records and archives management programme at the University of Zambia. The inclusion of digital records curation topics/content was done after a member of staff in the LIS department attended the ICA digital records curation training programme that resulted in the re-curriculation of the electronic records (e-records) management module to include all the topics, practical sessions and pedagogical methods of teaching digital records curation. The topics covered in the digital records curation programme at the UNZA included understating the digital culture and the information society in Africa and Zambia, authenticity and reliability of digital records, digital and hybrid records management, email management, cloud computing, information security, digital repositories and digital records appraisal, web and social media archiving, open and big data, and blockchain technology. However, this is not the case in other institutions offering ARM education and training in Zambia, as key topics/content on digital records curation have not been included or taught at all levels of training.

Upon further probing regarding intentions to include digital records curation topics in the curriculum, it was revealed that the NIPA made efforts to adopt digital records curation topics and possibly synchronise the digital records curation module with that of the UNZA at both bachelor's and master's levels. In this regard, participant #2 had the following to say:

> *I am of the view that all our programmes be synchronised so that we produce well-trained records management professionals. We have engaged our colleagues from UNZA to ensure that the e-records management module is similar* (Participant #2).

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Effectiveness of the archives and records management curriculum in Zambia to support digital records curation

To determine the effectiveness of the archives and records management curriculum in Zambia to address the burgeoning digital economy, we interviewed heads of departments to gather their views on the effectiveness of the programmes offered. The results showed that all three institutions offered aspects of e-records management; however, inclusion of topics on digital records curation was varied and only one institution had a fully fledged module on digital records curation.

Regarding impartation of digital records curation skills to ARM students, the results revealed that ARM programmes were inadequate and that more needed to be done for ARM education and training to be able to impart digital curation skills:

> *We do teach electronic records management but more from a theoretical perspective. We lack tools to use for demonstration to students regarding management of e-records from a practical perspective* (Participant #4).

On the other hand, participants from the LIS department at the UNZA were confident that the new topics and practical sessions provided to students in the digital records curation course were adequate in addressing the growing digital culture and information society in Zambia. This was observed from the new curriculum in the digital records management module that included all the topics, teaching strategies and tools from the ICA's digital records curation program (DRCP) materials.

> *The digital records management is module is quite robust at UNZA. Our students discuss e-government, and aspects of hybrid records management. They are introduced to tools that help them to appraise digital records such as DROID and JHOVE. We also tackle issues of cloud computing, Web archiving in many more* (Participant #1).

Ongoing course alignment to the digital transformation agenda in Zambia

We probed further to determine whether ARM education and training in Zambia are aligned to the country's digital transformation agenda. Participants were asked to explain activities undertaken in their institutions to ensure alignment of courses. The results revealed that alignment of courses was place at their institutions, with guidance from regulatory agencies and government departments (HEA). At institutional level, there was evidence of courses being improved and re-curriculated to ensure that they were relevant and responsive to industry needs. For example, participant #1 explained this process as follows:

> *The moment we got one of our staff trained in Botswana, we immediately asked him to work with the curriculum committee to review the electronic records management curriculum and ensure that all the topics covered as well as the teaching strategies be adopted and included into our BA.RAM programme (Participant #1).*

> *We have in the recent past tried to include and align our course with our colleagues UNZA, and the topics covered in the digital curation workshop hosted by LIAZ* (Participant, #2)

The results also revealed a desire from lecturers to one day standardise all ARM courses in universities, including digital records curation content:

> *There is need for meetings in the records management profession to ensure integration of courses and to be able to teach similar content. Once we do that, we will effectively address the challenges caused by the digital transformation taking place (Participant #3).*

Adequacy of ICT infrastructure in support of digital records curation

To ascertain the adequacy of ICT infrastructure to support digital records curation education, we asked participants to share their views concerning the state of infrastructure and carried observations. The results revealed the infrastructure was inadequate and needed upgrading. However, the LIS department at the UNZA had recently opened a new computer laboratory for teaching LIS and records management students; therefore, they have a robust infrastructure to support digital curation training. The following were some of the statements regarding infrastructure:

> *I think that we have the best infrastructure so maybe there will be a need to invest in higher performance computing systems but I think that the basic infrastructure is there. Once that decision …is made it will… supplement what already exists"* (Participant #2, UNZA, LIS department)

For those that indicated lack of infrastructure, the following was stated:

> *ICTs tools are old and not enough for teaching and demonstrating how to manage electronic records and for students to practice (Participant #6).*

Challenges faced in digital records curation education

To determine the challenges, we asked participants to talk about the problems they faced in their institutions. The results revealed that ARM education and digital records management training are hampered by various challenges, and the major challenges identified were a lack of skills in digital records curation, inadequate ICT infrastructure, a disintegrated curriculum and inadequate support.

Lack of skills in digital records curation

A lack of skills in digital records management emerged as a major challenge affecting digital records curation education and training in Zambia. The following are some of the sentiments shared by participants regarding this challenge:

> *...there is limited knowledge in digital records curation processes, as such we teach the topics theoretically without the much-needed practical sessions (Participant #4).*

> *Most of the lectures are skilled more to handle library and information science (LIS). Only the head of department of the LIS department is more specialised in the field of records management hence difficult to teach digital curation (Participant #2).*

Inadequate ICT infrastructure

Regarding limited ICT infrastructure, it was found that the infrastructure was either old or insufficient for the students' needs:

> *We have old ICTs tools and they are inadequate for teaching and demonstrating to students how exactly to do certain things in the management of digital content (Participant #6).*

> *...the labs should be fully operational to help students without personal computers. Often time the computers are not working or faulty making it difficult for all the students to fully benefit from the facility (Participant #1).*

> *...no software was bought for now; however, the management is planning to buy in the coming years when the course has been revised and updated" (Participant #2).*

> *...the internet connection can be poor at times, its cuts and often the bandwidth is limited making demonstrations difficult to do" (Participant #5).*

> *The laboratories are poor; in fact, I think we just do not have a computer laboratory to work from so that we can show the students and demonstrate different digital curation activities. The department has about/at least 30 desktop computers and the building is well built to support the program (Participant #2).*

Disintegrated curriculum

Others lamented the lack of synchronisation in the ARM curriculum and the lack of standardisation of topics taught particularly in digital records management. In this regard, Participant #2 stated the following:

> *If only we can have all our courses in records management similar across the various universities. We will have impact on the profession. The content from UNZA, NIPA and others should be made similar especially in the area of managing records and archives in the digital environment.*

Discussion of the findings

The findings of this study concurred with findings from several other studies that observed that archives and records management education and training have generally received little attention (Ngoepe et al. 2022a; Onyancha et al. 2015). Specifically, aspects of digital records curation have not been given the imperative attention and urgency required in universities (Ngoepe & Saurombe 2016; Maluleka et al. 2018; Ngoepe et al. 2022a). The study revealed that Zambia currently has only two public universities offering archives and records management education at bachelor's degree level, namely the UNZA and the NIPA, with only one (the NIPA) offering a postgraduate programme in archives and records management. Additionally, the ARM profession in Zambia generally lacked the legal and infrastructure backing required for it to operate successfully. These findings proved Onyancha et al. (2015:156) right who state that ARM education and research generally constitute a small percentage of the LIS education in the sub-Saharan region where LIS education and research progress, while archives and records management is less researched because of the limited number of institutions providing ARM education and training in the region.

With regard to the inclusion of digital curation content in the ARM programmes in Zambia, the research revealed that there was little to no inclusion of digital records curation content in the ARM programmes in Zambia. At the time of the research, only the BA RAM programme at the UNZA had been re-curriculated to include digital records curation topics into their "electronic records management" module. The re-curriculation of the ARM programme and module (digital records curation) was a response to the efforts by the ICA Africa programme to improve digital archives and records management training in Africa. A member of staff in the LIS department received training, and upon completion, proposed re-curriculation of the e-records management module to include digital records curation topics and pedagogies. The new BA RAM module at UNZA comprises topics such as cloud computing, information security, blockchain technology, web and social media archiving, digitisation and digital preservation, information security, and digital culture and information society in Africa and Zambia, among others. Before the re-curriculation process, the e-records management module was mainly theoretical and did not adequately respond to the needs of the digital culture and growing e-government services.

While the ARM programme at the UNZA included digital records curation content, this was not the case in other institutions in Zambia, as e-records management topics were still taught from a theoretical perspective with little practical skills impartation. The lack of inclusion of topics that addressed digital records curation and impartation of practical training in Zambia reflects Katuu's (2022:3) point that many universities in Africa that offer ARM education at graduate level have small numbers of qualified staff, outdated curricula and educational methodologies that train the learner to memorise. However, efforts to re-curriculate and include digital records curation content and innovative pedagogies is beginning to take place in Africa. A good example of this process is UNISA where module re-curriculation was reported (Katuu 2022; Ngoepe et al. 2022). Similarly, the UNZA also re-curriculated the e-records management module to ensure that the changes in the digital information landscape are addressed.

Concerning challenges, the results revealed that digital records curation education in Zambia faced challenges of various kinds, and the major ones included a lack of skills, inadequate ICT infrastructure, disintegrated curriculum across institutions and a lack of institutional and legal framework to support digital records curation. Many lamented the high number of challenges facing archival education in Africa (Katuu 2013 2015; Ngoepe & Saurombe 2021; Katuu 2022b); specifically, the weakness of digital records management (Mutiti 2005; Onyancha et al. 2015; Wamukoya 2015) and problems associated with teaching and training of archivist in digital records management. Katuu (2022) identified low numbers of qualified staff, poor quality of educational materials and obsolete programmes as institutional challenges affecting archives and records management education in Africa. A lack of practical skills to effectively teach and demonstrate the management of digital records and archives was a major challenge in ARM education in Zambia. It was evident from the results that educators were confident in teaching management of traditional paper records or simply theoretically talking about digital records rather than offering practical digital records management skills. Many authors within the ESARBICA region have since the early 2000s highlighted the challenges of practical skills and knowledge in managing digital records (Wamukoya & Mutula (2005; Katuu & Ngoepe 2017; Onyancha et al. 2015; Mosweu & Ngoepe 2019). In a similar manner, digital records curation education in Zambia suffered a lack of skills among archival educators to be able to effectively impart digital curation skills on students.

Other challenges identified were a lack of funds to adequately establish information and communication technology infrastructure for students to practice. It was evident from observation and interview results that ICT infrastructure was either inadequate or too limited to handle the demands of digital records curation education and training in Zambia. In a study on technological infrastructure and needs of archival institutions in the ESARBICA region, Mutiti (2005) established that limited progress had been made in terms of infrastructure development for e-records management. Two decades later, Zambia is still facing infrastructure and competency challenges. According to Wang (2009), when key technologies needed to meet the standards of digital assets management are not established and developed, it becomes to perform the required tasks. Therefore, without fully developed systems and infrastructure in institutions of higher learning as well as insufficient financial support towards the same, education and training of digital curation will remain a challenge.

Conclusion and recommendations

As others have rightly observed, digital records curation is crucial in this new and technology-driven world economy where governments seek to be efficient, accountable and transparent. As technology evolves, the nature of records evolves and so are the challenges of managing digital records and archives. To address the various challenges, there is need to improve education and training of ARM professionals by evaluating programmes and, eventually, aligning them to industry needs. This study revealed that ARM education in Zambia does not adequately prepare archival professionals for the management of digital records because the ARM curriculum in Zambia has little to no inclusion of digital records curation content, hence it was not responsive to the needs of the burgeoning digital economy. The analysis also revealed that digital records curation is still a new concept among ARM professionals in Zambia despite the BA RAM

programme at the UNZA being re-curriculated to include digital records curation content and pedagogies. It is also unfortunate to note that Zambia currently has only one ARM post-graduate programme (the Master of Archives and records management at the NIPA), which has not adequately included digital records curation content in the curriculum. The study also revealed that digital records curation education in Zambia faces numerous challenges, the biggest of which are inadequate ICT infrastructure, a lack of skills, disintegrated curriculum and inadequate support.

Based on the above conclusions, the following are recommended:

1. The need for higher institutions involved in offering ARM to conduct a thorough curriculum review based on a needs assessment of the required skill and knowledge set for digital curation.
2. The need for capacity building among ARM educators in the institutions of higher learning.
3. The need for increased funding for the development of ICT infrastructure in institutions of higher learning.
4. Standardisation of the curriculum across institutions.
5. Monitoring of archives and records training through a records and archives management institute.

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