A framework for massive online open course in archives and records management in Eswatini

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Abstract

Archives and records management (ARM) education and training is advanced in developed world. However, in African countries such as Eswatini, where this study is resident, it is still at its infancy as only one institution (Institute of Development Management) offers an ARM programme at undergraduate diploma level. Despite the effort to expand the programme, the issue of qualified staff and facilities to foster the programme remains unsolved. This is compounded the lamentation by the beneficiary of the programme, the Eswatini National Archives (ENA). The ENA expects that the programme should address the public sector needs, which have resulted in poor governance and accountability structures within government ministries. This scenario has been attributed to the inadequate and appropriate comprehensive ARM curriculum in Eswatini higher education institutions (HEIs). The criticism from ENA suggests that ARM graduates are perceived as being inadequately prepared for their workplace environment. Considering this situation in Eswatini, this study proposes a framework for the inclusion of massive online open course (MOOC) as an alternative for ARM in HEIs in Eswatini.

Key words: archives and records management, curricula, education, Eswatini, higher education, massive online open course

1. Introduction

Archives and records management (ARM) in the sub-Saharan Africa region has taken a new turn in the face of far-reaching developments sparked by the trend towards globalisation. Although the challenges for ARM in the sub-Saharan African region have been enormous, they are not impossible given our human capacity to adapt to change. Archival institutions in Africa are adapting to change, particularly on innovations brought about by the application of Information and Communication and Technology (ICT). ARM in the sub-Saharan Africa region has faced several challenges over the years, resulting in poor governance and accountability structures (Nengomasha 2013; Ngoepe & Van der Walt 2009; Wamukoya & Mutula 2005). The lack of infrastructure compounds this challenge, especially in sub-Saharan Africa, outdated legislation on managing e-records and very few institutions offering ARM programmes

(Ngoepe & Keakopa 2011; Ngoepe & Saurombe 2016; Onyancha, Ngoepe & Maluleka 2015). Indeed, several factors are working against a growing ARM field in Africa. For example, graduate-level education, which many experts argue is the preferred form of ARM education, is challenging to execute in Africa given the "low numbers of qualified staff, virtually non-existent research, poor quality of educational materials and outdated programs, educational methodologies based on the model of rote memorization that does not encourage critical thinking, problem solving and creativity" (Katuu 2015:107).

Furthermore, according to the International Research on Permanent Authentic Records in Electronic Systems' (InterPARES) study (2018) by the African Team, few programmes in ARM are offered by higher education institutions (HEI). The absence of this type of educational environment makes it extremely difficult to prepare graduates. As a result, the following challenges are encountered in the field as summarised by Wamukoya and Mutula (2005:75):

- Absence of organizational plans for electronic records management.
- Low awareness of the role of records management in support of organisational efficiency and accountability.
- Lack of stewardship and coordination in handling paper as well as e-records.
- Absence of legislation, policies, and procedures to guide the management of both paper and e-records.
- Absence of core competencies in records and archives management.
- Absence of budgets dedicated to records management.
- Poor security and confidentiality controls.
- Lack of records retention and disposal policies.
- Absence of migration strategies for electronic records.

The main challenge associated with an ARM system in the sub-Saharan Africa region is the lack of ARM programmes at most HEIs in Africa, including Eswatini. The InterPARES study (2018) reports that fully-fledged ARM training is offered by only three South African universities out of 26 universities, namely the University of South Africa, the University of KwaZulu-Natal and the University of Fort Hare. The report further states that in Botswana, the programme is only offered by the Institute of Development Management (IDM) and the University of Botswana. In Eswatini, the situation is similar as there is only one institution offering ARM training at the undergraduate level, that is, the Institute of Development Management.

Ngoepe (2017) foresees a challenge when it comes to sustaining the ARM programme by HEIs shortly because of the low number of students who enrol for these programmes. Without students, ARM institutions cannot exist. The number of students registering for ARM has declined in most ARM institutions in Africa while the number of students enrolling for ARM with diversified qualification programmes with either broader information orientation or specialised information qualification programmes has either increased or stabilised. In Eswatini, for example, in the year 2015, only 10 students registered for ARM at IDM on a full-time basis. This can be attributed to the fact that most of the ARM personnel are already working and thus their schedules do not allow them to study full time.

Although the Eswatini government is reported to be the biggest employer of ARM graduates in Eswatini, increasingly, career opportunities in the emerging ARM markets are noted. For example, there are rapidly growing career opportunities in the private sector. The emerging market has forced IDM to re-orient their curricula to the new market to survive. As mentioned, only one diploma and certificate programme is offered by the Institute of Development Management in Eswatini (InterPARES 2018). This programme is not without problems as the primary beneficiary, the National Archives of Eswatini, and the regulator, the Eswatini Higher Education Council, regrets that the programme does not deal with the public sector needs in the country and is below the expected standards. The criticisms from ENA and EHEC suggest that the ARM graduates are perceived as being inadequately prepared for their jobs. The ARM education and training programmes are blamed for failing to meet the immediate needs of the current ARM work environment. The criticisms further suggest a widening gap between the demands of work environments and ARM education and training systems. There is, therefore, an urgent need for an in-depth empirical study into the quality of ARM education to define gaps in ARM curricula and to suggest ways of empowering students to fulfil the demands made on graduates about to enter the job market. If the problem under study is not addressed, ARM education and training programme will stray from their principal mission of producing skilled human capital for the society and the profession. In other words, the relevance, and ultimately the survival, of the ARM academic discipline are threatened.

This study attempts to discuss the strategies for developing an ARM curriculum through Massive Online Open Courses (MOOCs) in Eswatini viz-á-viz the perspective of the rapidly changing ARM environment. It equally takes into consideration the global requirements in e-learning in the age of digital

technologies. The study proposes that such a programme can be offered through the University of Eswatini (UNESWA) to accommodate students within and outside the country. MOOCs have created new opportunities for lifelong learning characterised by costless high-quality education beyond time zones and physical boundaries (Sonwalkar 2013). According to Edegbo (2011), the adaptation of ICT in HEIs has changed the way and manner in which training is conducted. Edegbo (2011) asserts that apart from providing opportunities for MOOCs and collaboration, ICTs also pave the way for a new pedagogical approach by providing for independent learning. Students can communicate, create and share presentations in multimedia format. The interaction amongst colleagues and teachers is enhanced through the use of technology, among other things. It is imperative to note the ARM field is professional discipline that is drastically being transformed due to the emergence and proliferation of ICTs. The area is equally amenable to such inevitable changes. This is evident in the appearance of novel concepts and aspects within the ARM profession particularly; for example, the development of digital records, metadata, and a lot of other e-related issues that have become topical in the twenty-first century. The rapid change in ARM has spurred educators to always propose a significant revision to course content and programme directions in line with current global trends.

Such significant initiatives have seen some ARM institutions introducing new degrees with new nomenclature. The ARM literature illustrates the considerable efforts to provide relevant curricula to educate ARM professionals. One of the case studies undertaken by Team Africa is entitled *Curriculum alignments at institutions of higher learning in Africa: preparing professionals to manage records created in networked environments*. The study was envisaged to do a systematic analysis of the curricula in different educational institutions in Africa by investigating the extent to which the dynamic environment can be dealt with. The main objectives of the project were to identify the gaps that exist and to suggest ways of filling those gaps, cognisant of the fact that different nations require specific interventions rather than the usual one-size-fits-all approach (Katuu & Ngoepe 2015).

While many aspects of curriculum development in ARM education and training have been thoroughly discussed (programme directions based on environmental information issues; curriculum content based on professional competencies; and programme structure based on adult learners' needs), designing MOOCs for ARM curriculum has received relatively little attention. This study presents a framework to offer ARM education through MOOCs in eSwatini.

2. ARM education and training in sub-Saharan Africa

Over the last two decades, the ARM profession has witnessed a series of transformation and significant changes, particularly around ICTs and the internet. Thus, such changes are naturally shaping and influencing how ARM professionals are educated. Similarly, Katuu (2015) notes that changes in the ARM profession have been swift – as evidenced by the incorporation of ICTs in the ARM curriculum. Therefore, issues relating to the direction of ARM programmes, curriculum changes, subjects to be taught, and required knowledge and skills the ARM graduate students should possess have been widely discussed. The nature of the curricula in ARM education has been changing drastically due to technology and the advent of the information/knowledge society (Katuu & Ngoepe 2015). Above all, the intellectual content of the curriculum for any programme should keep pace with the demands of the profession (Edzan & Abdullah 2003).

Efforts have been made to deal with the challenges associated with the lack of educational opportunities in the field of ARM on the continent in the past. Katuu (2015) reports that in the mid-1960s, the International Council on Archives (ICA), with support from the Society of American Archivists (SAA) and the United Nations Educational, Scientific and Cultural Organization (UNESCO), conceptualised regional centres that would be associated with particular universities and would offer archival training. Two centres were formed, one for Anglophone and the other for Francophone countries (Smith 1976; Evans 1988). However, due to various fiscal and logistical challenges, these efforts did not last more than a decade, and since their demise, national education and training programmes have emerged. It is worth noting that the Director of the National Archives of Eswatini (2003–2019) was one of the beneficiaries of the programme in the early 1980s. Despite the intervention by several organisations including UNESCO and ICA, the provision of ARM education is still an Achilles heel in many African countries, including Eswatini (Katuu & Ngoepe 2015; Ngoepe & Katuu 2017). As mentioned, Eswatini has only one diploma and certificate programme offered by the Institute of Development Management (InterPARES 2018). This programme has its obstacles as its beneficiaries, the National Archives of Eswatini, and the regulator, the Eswatini Higher Education Council, regret that the programme does not meet the public sector's needs in the country and is below the expected standards (Tsabedze & Ngoepe 2019).

3. ARM education and training in Eswatini

Ever since ARM became recognised as a critical profession, there are challenges of education and training in Eswatini, which include how to make ARM education relevant and effective. It is no secret that the circumstances affecting ARM education and training in Eswatini have changed drastically over the last decade. There are several factors related to this change such as technological development in the field of ARM, which includes the adoption of the use of computers by organisations and government ministries. This technological change has continued to pose a challenge to the ARM field and in Eswatini, the challenges facing ARM education and training are many, which include the following.

(i) Inadequate ARM education and training institutions

There is a reasonably large number of registry officers whose professional interests need to be addressed in Eswatini and do not have the opportunity to receive training. However, there are still inadequate institutions for ARM in terms of standard and quality to meet the high intake due to the high demand for higher education. Therefore, Eswatini has been sending prospective professionals for ARM higher education in other countries due to inadequacies in its education and training programmes. Scholarships for prospective students have been mainly available for ARM institutions situated in Botswana, Namibia, and South Africa. The government of Eswatini, through the Ministry of Education and Training (MoET) and the Ministry of Public Service and Information (MoPSI), has been the main sponsor of incumbent professionals who have been trained at different degree levels.

Education and training outside the country may also increase dependence on the external environment and encourage the impression that valuable training can only be attained outside the country. Another challenge is that of cost, as education and training outside the country require a considerable amount of money, thus limiting the number of ARM applicants that may have access to education and training at a given time. In Eswatini, the IDM is the only institution which provides ARM professional training to public and private sector staff. The IDM alone cannot meet the demand of ARM with a graduate qualification. To make matters worse, there is nobody who has so far graduated with a degree in ARM from the IDM since the programme was launched in 2012 to help fill the human resources gap. This is partly attributed to the fact that the pioneer students are both busy, working people and time to dedicate to the programme has been a problem, another problem has been the lack of funding.

The IDM's diploma and certificate programmes have been criticised by the Ministry of Public Service (MoPS), Eswatini National Archives (ENA) and Eswatini Higher Education Council (EHEC) for failure to address problems experienced by the ministries and departments in the country. The EHEC was established in 2015 in terms of the Higher Education Act of 2013 to regulate higher education provision in the country. Its mandate is to develop and implement a quality assurance system for higher education, covering, among other areas, registration, accreditation, institutional audits, quality promotion and setting of standards. The Higher Education Act (2013) defines higher education as all learning programmes commenced after secondary education and leading to a higher qualification. For an institution to operate and be recognised in ESwatini, it must be registered in terms of the Higher Education Act, 2013 (EHEC 2019). The ENA and the EHEC complained that the ARM programme which is offered by the IDM was insufficiently addressing the existing job market requirements due to shortage of lecturers, insufficient ICT course content, domination of the programme by many modules borrowed from other disciplines such as human resources and occupational health, which have nothing to do with ARM, inadequate duration of the course and inadequate industrial attachments for ARM students.

The ENA recommended the review and redesign, of the curriculum in line with the demands of the job market; they also suggest that "since more and more organisations are moving towards digitising their business processes., it may be advisable for ARM institutions to integrate a hands-on module on e-records management in the curricula". Lastly, they recommended that students should be allowed to have field attachment during formal education through more practical work (for example, experiential learning, field assignments, and service-learning). On the other hand, MoPS complained that the ARM training programme "does not sufficiently address current job market requirements due to, inadequate teaching resources, and inadequate industrial attachments for ARM students". They also recommended that the curricula should be overhauled drastically to be in step with the market requirements. The EHEC also raised a concern over the failure to engage the relevant stakeholders when the programme was developed and the inability to conceptualise it to the local context. They recommended that a curriculum review should be re-aligned with job markets, and this was meant to enhance collaboration among stakeholders to overcome challenges. This has created a challenge for ARM graduates who completed the programme to apply their knowledge in the ministries and departments. The graduates from this programme are viewed as lacking diversity with limited

knowledge allowing them to specialise in narrow areas and lacking variety in terms of relevant skills and competencies. The ENA also stated that in the present era of information and communication technology (ICT) and the implementation of e-government, higher education in ARM needed a stronger e-records management education component. They also emphasised that the IDM must strike a balance between theory and practice and maintain contact with the industry to remain relevant. The rapid change in ARM has caused educators in Africa to propose a significant revision to course content and programme directions so significant that some ARM institutions are introducing new degrees (Ngoepe 2017; Katuu 2015, Nengomasha 2006). The ARM literature illustrates the considerable efforts are underway to provide relevant curricula to educate ARM professionals.

(ii) Inadequate ARM lecturers

It is universally recognised that in our knowledge and the technology-driven global village, each country's economic and social well-being depend on its ability to harness its human resources through a dynamic and innovative educational system that thrives on and propels technological development. This required link between educational and technological development is particularly critical at the higher levels of the educational system, especially university education. Unfortunately, there are inadequate lecturers, especially at postgraduate level and in the fields of the ARM programme. Most of the lecturers in Eswatini have a postgraduate qualification in library and information science (LIS) (4) and only a few have a postgraduate qualification in ARM (2).

(iii) Challenges of ARM in Eswatini government ministries

Studies conducted in Eswatini government ministries and departments (Tsabedze & Kalusopa 2018; Msibi 2015; Tsabedze, Mutula & Jacobs 2012; Maseko 2010) have established that several registry staff did not have the competencies and skills required in ARM, although they were tasked with demanding managerial roles as records managers in their ministries. These studies showed that the government ministries and departments are adopting the use of digital technologies. Each office that creates e-records had its strategy of maintaining, retrieving and storing e-records. There is no documentation of records in electronic form, which made them inaccessible to other officers. Similarly, Msibi (2015) argues that the Eswatini government reforms require registry staff and archivists to have a firm grasp of recordkeeping so that they can conduct their responsibilities effectively and according to ENA standard practices. The need for archivists as keepers of evidence to be equipped with in-depth knowledge of e-records is evident in the statement made by the Director

of ENA in 2016. It reveals a strong pressure in support of multidisciplinary approaches and possibilities for cooperation between administrators, registry staff, archivists and IT officers, who should work together to implement electronic document records management system (EDRMS) which support the e-government initiatives (Tsabedze & Kalusopa 2018).

The introduction of e-government in the public service sector mainly requires professionals who can "understand trends and developments in technology, keep up with changes in the field, and need enough expertise to communicate with technology experts" (Dearstyne & Barlow 1999:138). The literature supports the view that common understanding among those involved in ARM-based education and training is crucial to developing a credible ARM programme across organisations. This means that education and training should provide the platform for partnership building between various key players through a common education and training programme. If this is the case, for many registry staff, these needs entail a significant amount of relearning, and this cannot be achieved through the kinds of in-service training methods now used, most often in Eswatini, as the changes in work practices demand a deeper understanding of record-keeping as suggested in the literature review. There is an urgent need to develop education and training tailored to the needs of the archivist and registry staff. Most scholars still believe that the lack of relevant training is a contributing factor for poor records management. ARM education needs should be analysed and evaluated to devise a practical ARM curriculum that deals with the problem of poor records keeping in Eswatini. Given the challenges alluded to above, this study proposes an ARM curriculum for MOOCs within the context of a rapidly changing ARM environment.

4. The rationale for developing the ARM curriculum through MOOC in Eswatini

The rationale for designing a MOOC for ARM in Eswatini would unveil the accessibility of the ARM programme to prospective students such that ARM professionals already working in diverse sectors in the country would improve their knowledge and skills regarding ARM practices. Catherall (2005) points out that the preparation of MOOC offers immense benefits to learners because of its convenience, flexibility, accessibility, and cost-effectiveness. Kala (2009) also states that the MOOC approach allows quick, easy and relatively cheap sharing of information and ideas with people across the world. Abu Bakar, Harande and Abubakar (2009) state that a MOOC has the potential to provide quality education.

The literature shows that there are record-keeping challenges faced by Eswatini, which have resulted in poor governance and accountability structures within government ministries. This resulted in a lack of a comprehensive ARM curriculum in Eswatini's higher education institutions. Therefore, there is a need to design a robust ARM curriculum for MOOC to cater for the needs of the stakeholders. Additionally, MOOC provides opportunities for intending part-time students who may not have the chance to attend a formalised ARM programme, since the majority are already working in the public and private sector. Bearing in mind this situation, Huang (2010) contends that MOOC can be regarded as an alternative to traditional instruction for students who want to enrol in a part-time postgraduate programme, but are hindered because of job responsibilities and time factors.

Curriculum development can be both challenging and exciting, because a curriculum development exercise is time-consuming and needs the participation of all stakeholders. Equally, the ARM curriculum is expected to reflect the Eswatini situation without compromising the current global trends and standards in ARM. Therefore, in designing a MOOCs curriculum for ARM institutions in Eswatini, the following strategies are recommended:

- Firstly, there is a need for organised workshops by an ARM institution in Eswatini where the focus will be on identifying and dealing with the potential learners and what they are expected to learn, the objectives of the ARM programme, market demands, as well as the mode of delivery of the ARM programme.
- Secondly, there is a need to determine the various levels of the programme, the assessment and evaluation criteria, and the expected learning outcomes should be clear. These processes would ensure the establishment of comprehensive and vigorous curriculum content for a MOOC. Govindasamy (2002) notes that for any MOOC implementation exercise to succeed, it must be rooted in robust teaching methods.
- Thirdly, the ARM curriculum should be jointly developed by the respective stakeholders, especially, Eswatini National Archives, academia, students, professional bodies, and the employers of the ARM graduates.

The contribution of stakeholders in curriculum development is non-negotiable. Indeed, numerous professional associations like the Eastern and Southern Africa Regional Branch of the International Council on Archives (ESARBICA) and the

ICA have for long recommended the participation of stakeholders in ARM curriculum development. This is meant to ensure that the interests of the local condition of the respective countries in which the ARM institutions operate are sufficiently dealt with in the curricular content. The involvement of stakeholders also helps to ensure relevancy and recognition.

Concerning the above, ARM institutions in Eswatini should ensure conformity with the requirements of the established standards for MOOCs. Furthermore, these institutions should develop their standard that will serve the interest of Swazis without compromising on standards. Concrete decisions regarding the modalities of curriculum review and revision period should be outlined explicitly in policy documents. In this regard, ARM institutions in Eswatini are expected to keep abreast of the current trends in the ARM field, as well as in the e-learning world. For the curriculum to succeed, all the ARM institutions in Eswatini are expected to make adequate arrangements for or installations of state-of-the-art e-learning technologies, infrastructures and all other necessary teaching aids ensure proper curricular implementation. The platforms of delivery of the MOOCs should be determined. Possible ways of delivering ARM programmes are the following six MOOCs platforms:

(i) EdX
(ii) FutureLearn
(iii) Coursera
(iv) Udemy
(v) Udacity
(vi) Iversity

According to the structure of the platforms, generally, MOOCs courses vary depending on the period of that particular course and do not present a general structure. These six platforms imply that a course is divided into 6 to 14 units, which have a learning period of one week each. The course's duration varies from 6 to 14 weeks (FutureLearn 2019; Lomas 2013; Coursera 2019). In FutureLearn, a descriptive name is given for each week so that students know what to expect during the corresponding week. Furthermore, ARM students can navigate different weeks of the course, allowing access to information regarding the content to be learnt and how they can catch up with the course if they had started late. Likewise, the students' time engagement varies depending on the unit in each module, and the individual choice of the students. Usually, some of the modules require 2 to 3 hours, and others between 5 and 8 hours a week. According to students' assessment, in all the platforms, the lecturer chooses the instrument for evaluation. Projects, quizzes, and peer assessments, in which

students are assessed and provide feedback to each other are the most common evaluation methods (Lomas 2013; Coursera, 2019). Notably, in Coursera, literature about the process of peer assessment is given to students, and a grading rubric is used to score random tasks. In this way, students are guided to understand the process of scoring (Coursera 2019).

At EdX, Iversity and Udacity, the educational videos are available on the YouTube video channel of their universities. Moreover, all the platforms, except for Iversity and Udemy, where it depends on instructor choice, have the educational material available for download so that students can have access to course material without an internet network. Platform and course material accessibility presents less common characteristics concerning the six platforms. As for the general characteristics, the researcher explored the six platforms to elicit good practices. FutureLearn enables commenting at the bottom of every educational material page, aiming to create discussions among students, while academic staff coordinate and answer questions (FutureLearn 2019). Udemy and FutureLearn provide a complete activity button at the end of each activity. This information assists students in creating a list as to what they must do and in knowing all the activities that they have left (FutureLearn 2019; Udemy 2019a).

All of the MOOC platforms provide the ability to display to each ARM student a progress page, which updates students with useful information and data, while there is the possibility to unregister from a course or module at any time (FutureLearn 2019; Udemy 2019a; Coursera 2019; EdX 2019; Lomas 2013). Most of the MOOCs platforms exploit popular social networks like Twitter and Facebook with great success and popularity among thousands of users who follow the pages of MOOCs for quick and immediate updates (EdX 2019; Coursera 2019; Udacity 2019). Table 1 shows the categories of ARM curriculum and configuration best practices, and for each category, examples are presented with the corresponding literature.

Table 1: ARM curriculum and configuration (Spyropoulou, Pierrakeas & Kameas 2016)

Category	Examples	Platforms
Structure	The ARM modules should be divided into units that include activities aimed at completion within a week	FutureLearn, Iversity, Edx, Coursera
	Each module should describe what ARM students are going to learn during the corresponding week.	FutureLearn
	Each module should contain at least one educational video.	Udacity
	Besides video tutorials, each module should contain hypertext, video comprehension questions, tasks, exercises, discussion topic(s) and additional educational material.	Udemy
	Course materials and modules – students should know what activities will be carried out, when and why.	Iversity
	Students should be able to navigate in different ARM modules – for example, how many weeks is the duration of the module; be able to find out what they will learn next in the next module.	Coursera
Duration	The ARM course is divided into 6-modules, which have a maturity of one week each. The period of the course is 6–14 weeks.	FutureLearn, Iversity, EdX, Coursera
Enrolment dates and deadlines	Students should be informed about the days of the commencement in the module description page. At the end of the module, all registered students should be able to enter the module, but there should not be an option for new enrolments.	FutureLearn, Iversity, EdX, Coursera
Engagement time	Suggested time engagement of students could be between 3–4 hours to 10 hours per week. The information should occur in the module description page	Iversity
Certification	After successful completion of the ARM course, students obtain a free certificate of attendance, which certify that they have completed the course, without confirmation of the student's identity. A certificate with a verified identity could be provided by paying a certain fee.	EdX
Communication and collaboration	ARM lecturers should encourage students to support a network of partnership, with the active contribution of all and to exploit the power of community for continuous online	EdX, Coursera, Udacity,FutureLearn

	support, where everyone can become an instructor and students.	
Assessment	During the course duration, the students undergo a series of evaluations such as exercises or tasks (which usually comes at the end of each module). The assessment can be an open response, multiple-choice, gap filling and matching	Coursera, Udacity, FutureLearn,EdX, Iversity
Downloadability	It is recommended to make the ARM course material downloadable	Udemy
Accessibility	The ARM course material is proposed to be created for compatibility with the web content accessibility guidelines (WCAG)2.0, to maximise learner participation, including the involvement of students with disabilities	FutureLearn

The University of Eswatini (UNESWA) needs to choose any of the six platforms. Networking with other ARM institutions in the region is crucial for cooperation and benchmarking. Further to this end, networking among other institutions ensures that consultation and advice may be sought from peers regarding the experiences and best practices of the ARM institutions about the MOOCs platforms. It is also anticipated that such networking would bring about the exchange of resources and technology in the ARM institutions. Another crucial strategy is the need for the continued professional development (CPD) of the ARM lecturers at UNESWA, particularly about new ICTs and other emerging technologies and fields in the profession. Refreshing academic staff's knowledge is a critical factor to the success of the MOOC. The University of Eswatini should avoid overloading the ARM curriculum with modules that are not directly relevant to the programme of study, as indicated by the ENA. There is a need to determine the level(s) of the ARM programmes and the modules to be offered at those level(s). A further strategy may involve the need for an academic staff exchange programme among other ARM institutions in the neighbouring countries such as the University of South Africa (UNISA). This could bring cross-pollination of ideas from the experiences of the academic staff concerning the MOOC courses. Since UNISA is well advanced technologically, it would be ideal to network with for the benefit of UNESWA.

5.1 ARM course material development in MOOCs

The second phase includes ARM course material development for MOOCs. All six of the platforms that are presented use educational videos as a significant

component of their course. The EdX platform refers to videos as learning sequences which consist of videos of 5 to 10 minutes in duration, with intermediate self-regulated quizzes comprising multiple-choice questions (EdX). Likewise, Udacity uses open-to-answer questions at regular intervals of the video for more complex queries (such as to write code). Moreover, on the EdX platform, free videos are used as tutorials. These tutorials provide additional videos that look like recitations concerning useful information.

Furthermore, the audio that is accessible with the educational videos includes the voice of the instructor guiding the teaching (Udemy 2019a). However, differences occurred in the use of additional course material. In FutureLearn, documents (e.g. articles) in different formats such as hyperlinks or PDF are accessible to students in each course.

On the other hand, at EdX, documents with literature to study are given at the courses. Some of the platforms (Coursera, Udacity, and EdX) are also using wikis to encourage students to add additional course material. At Iversity, projects are given to the students, and these are assessed by other students (peer assessments). Moreover, Udemy, which allows everybody to offer a MOOC, has created a checklist with the best practices and standards that, as they mention, "will guide creators along the way and every course published on Udemy is reviewed and approved based on these standards" (Udemy 2019b). Table 2 presents the types of educational material that are used by the platforms.

Table 2: Types of the ARM course material at six MOOCs platforms (Spyropoulou, Pierrakeas & Kameas 2016)

Category	Coursera	Future Learn	Udemy	Udacity	edX	Iversity
Educational video	√	√	√	√	√	√
Audio files	√	√	√	√	√	√
Documents Quizzes	√	√	√	√	√	√
Presentation files	√	√	√	√	√	√
Hypertexts	√	√	√	√	√	√
Projects	√	√	√	√	√	√
Wikis	√	×	×	√	√	√

The categorisation was done based on the educational types mentioned in Table 2, and each category was divided into subcategories relating to general, technical and instructional best practices. Examples can be found in Table 3, showing good practices with the corresponding literature.

Table 3: ARM course material (Spyropoulou, Pierrakeas & Kameas 2016)

Category	Examples	Platforms
Educational video	ARM videos should often be stopped for asking the students to answer simple questions about the content of the video (General)	Coursera
	The ARM video should cover at least 60% of the educational ARM course material (General)	Udemy
	The period of the videos should be 5 to 20 minutes (depending on the content) (Technical)	Udemy
	The size of the video file should be up to 1 GB (Technical)	Udemy
	The ARM presentations should contain photos, charts or/and diagrams (Technical)	Udemy
	The training video should be clear, 720p or High Definition (Technical)	Udemy
	The course guidance should be clear, attractive and easy to follow by ARM students. Is should also include examples for understanding concepts (Educational)	Udemy
	The course guidance should not only provide information but also help students to apply their learning through interactive activities (Educational)	Udemy
Presentation	The course presentations should contain useful additional material (e.g. presentation slides, springs, Zip files, resources) (General)	Udemy
	The recommended applications to create presentations are: PowerPoint, Keynote, and Prezi (Technical)	Udemy
Hypertext	Combination of elements on each page (if possible), such as text and image – without overloading the page (General)	Udemy
Document	Online literature (such as an e-book) should be available in each module (General)	EdX
	Online articles should be available in each module (General)	FutureLearn
	The available documents/essays of each module should be downloadable. (Technical)	Udemy
Audio	Video lectures should contain audio where the voice of the trainer guides the students (Technical)	Udemy

Quizzes	The ARM course should include quizzes to enhance learning in educational activities (General)	FutureLearn
	Feedback should always be included in quizzes (Educational)	FutureLearn
	Quizzes could be used to count the total score of the learners (Educational)	FutureLearn
	Open answer quizzes are suggested to be used when it is needed (Educational)	Udacity
	Quizzes should be created based on the real-world context to help students transfer their knowledge to real-life situations (Educational)	Udemy
Wiki	By using wikis, students will be able to submit additional resources and concepts on each module (Educational)	EdX
Projects	Projects are recommended for assessment by other learners (peer review) (Educational)	Coursera, Iversity

5.2 ARM course implementation for MOOCs

To be able to implement the ARM programme, communication and support offered by the academic staff to the students are mostly performed by announcements and news via electronic mails and discussions forums. For example, at Udacity, the academic staff send notifications almost every day about the ARM course process or even irrelevant news aiming to attract the students' interest and to enhance their engagement with the course. The academic staff in all platforms create discussion forums to encourage and involve students in discussions. At Coursera, separate analyses are used for technical problems and problems to which the technical department continually responds, and provide help when needed. At EdX, once or twice per week, the academic staff are online and create specific discussions, where students can ask questions on the ARM course provided and receive answers to their questions. Additionally, on the Coursera platform, academic staff members have Google Hangouts meetings, during which students can ask their questions. The session is usually recorded and uploaded onto the ARM course portal for the students to view at any time. Social networks are used on all the platforms to provide announcements and to collect the students' queries on each ARM module (usually with the help of hashtags). The best practices were considered and the guides were established, which are divided into components such as general, e-mail, discussion, forum and popular social networks best practices. In table 4, examples are presented with the corresponding platform.

Table 4: ARM students' support and communication practices (Spyropoulou, Pierrakeas & Kameas 2016)

Category	Examples	Platforms
General	Academic staff should be available during limited hours a week and indicate the level of communication they could have, for students to be informed on the appropriate time the academic staff will be available for questions, messages, coaching or feedback.	EdX
	Academic staff should set clear expectations/requirements for the students concerning their response time (i.e. whether they meet; with daily comments; answer questions once a week; sending announcements every day with updates on courses, etc.).	EdX
	Academic staff should encourage students to publish their opinions, questions and technical issues in discussion forums and social networks (such as Twitter).	FutureLearn,Udemy, Coursera, EdX
	Technical staff should provide continuous technical support, and answer e-mails and messages on respective forum topics related to technical problems.	FutureLearn,Udemy, EdX, Coursera, Ivercity, Udacity
E-mail	Academic staff should maintain contact with the students throughout the educational process regularly (either at the beginning of the day, in the middle or at the end of the day). They could send e-mails, announcements, news, refeeds or interesting alternative subjects to enhance students' participation.	Udacity
Discussion forum	Academic and technical staff should be involved in discussions as well as forums answering questions where necessary.	FutureLearn, Udemy, EdX, Coursera
Social networks	Social networks such as Facebook or Twitter are recommended for use by academic staff and students, hence the quick and immediate updating. The academic staff could publish announcements on social networks and students could use them to inform, or to post their questions and discussions.	EdX, Coursera, Udacity

The article was written in response to a need to develop a framework that takes into consideration critical aspects in curriculum development. The diagram in

Figure 1 is the diagram of the proposed framework for developing the MOOC curriculum.

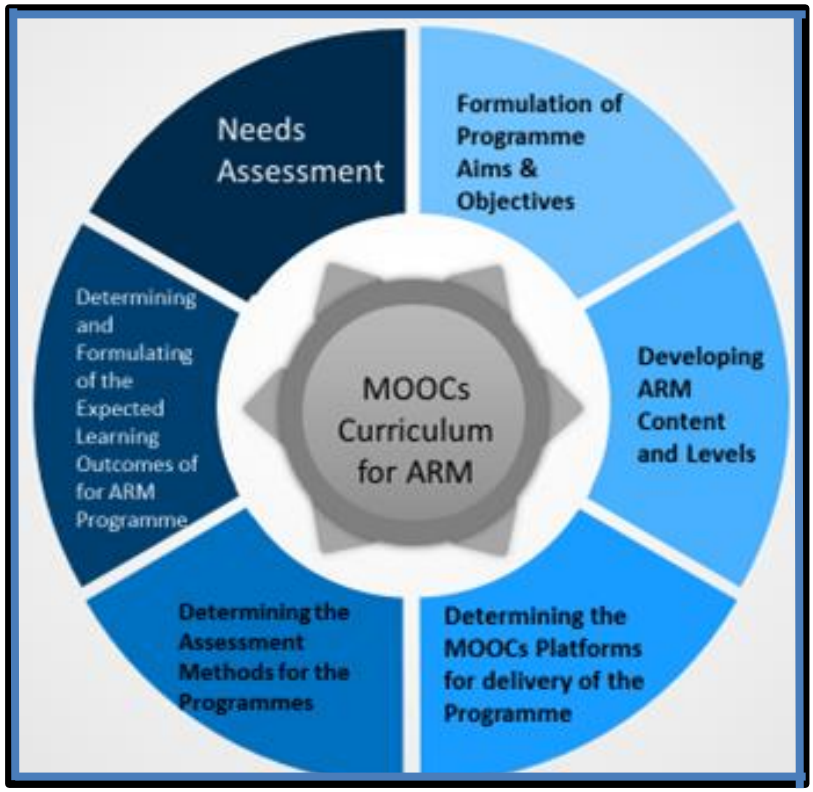

Figure 1: A proposed framework for developing a MOOC curriculum for ARM

5.3 Prospects of MOOCs at the University of Eswatini's ARM

The prospects of MOOCs at the University of Eswatini are many, including, for example:

- widening opportunities of ARM education at Eswatini
- facilitating knowledge transfer between the University of Eswatini and other institutions
- facilitating change and innovations in ARM education in Eswatini.

6. Conclusion

Based on the study on MOOC as an alternative for ARM in higher education in Eswatini, it was established that a new insightful curriculum for an ARM programme required a thorough analysis of the challenges and opportunities that could advance the development in preparing students to succeed in their careers. The study reflected on the benefits and strategies related to developing a MOOC curriculum in ARM courses at Eswatini. It discussed the challenges of ARM in Eswatini government ministries and departments, which necessitated this study. Therefore, it was evident from the preceding discussions and accounts that MOOCs have broad implications for the curriculum development of ARM. MOOC has been applied in other contexts and content but not in Eswatini, hence this approach for instruction in tertiary institutions. This study guides ARM academic staff in how to design and apply an ARM course in the educational material for MOOCs. Furthermore, during the educational process, they were guided on how to support and communicate with many learners at the same time.

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