OPEN EDUCATION RESOURCES and OPEN PEDAGOGY

in

Lebanon & South Africa

Jako Olivier & Fawzi Baroud

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Open educational resources and open pedagogy in Lebanon and South Africa

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Research Justification

This book, *The improvement of skills and talents in the workplace*, is a compilation of original research, and is not entrenched in previously published manuscripts, and it does not contain plagiarised chapters. All the chapters entered in the book were written by scholarly specialists in the field.

This book has undergone rigorous double-blind peer review by independent experts in the field via the Scholastica platform. The peer-review process was conducted in accordance with the publisher's guidelines, and the final decision to publish this book was based on its scholarly merits and relevance to the field. The identities of both the reviewers and authors were kept hidden from each other. The reviewers are independent of the publisher and/or authors. According to the reviewer's positive remarks and recommendations the chapters were accepted and when the reviewers recommended revision and / or improvements to the chapters the authors responded appropriately and changes was implemented prior to publication.

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Preface

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When open educational resources (OERs) and open pedagogy are explored in the context of Lebanon and South Africa, this concept should be considered within a wider open education movement. This movement is specifically associated with the emergence of open and distance learning in higher education and also the emergence of open licensing and open source when it comes to computer software.

Central to this book is the concept of OERs and this is generally understood in terms of the UNESCO (2019) definition of it being "learning, teaching and research materials in any format and medium that reside in the public domain or are under copyright that have been released under an open license, that permit no-cost access, re-use, re-purpose, adaptation and redistribution by others". This fairly broad definition emphasises the different purposes OERs may serve, the variety of formats and especially the importance of licensing and adaptability inherent to such resources. In a systematic review of research done on open pedagogy (Clinton-Lisell, 2021), open pedagogy mainly involved for example students creating openly licensed materials or renewable assignments and it was clear that students and teachers perceived this as being very positive.

This book explores the current state of OERs and open pedagogy in terms of practices and the latest in research in both Lebanon and South Africa. It relates to open pedagogy, which despite no common agreement regarding the definition (Tietjen & Asino, 2021), but broadly relates to "teaching and learning techniques made possible through open licensing" (Clinton-Lisell, 2021, p. 256). Lessons from open educational resources (OERs) and open pedagogy practices are derived from Lebanon and South Africa. Despite, the fact that these two countries are different, there are some parallels in terms of historical conflicts, diversity, and socio-

economic divides. South Africa also has a sizeable community of people from Lebanese origin and hence ties between the countries extend more than a century.

In addition to this preface, the book is composed of seven chapters.

In the first chapter the implementation of OERs in Lebanon is explored in terms of the contextual factors of lack of access to quality education, textbook quality problems, lack of continuing training opportunities for schoolteachers, the predominance of teacher-centred pedagogy, and the limited use of technology in teaching and learning. It is clear from this chapter that advocacy campaigns, training, piloting, designing policies as well as establishing quality assurance standards for OER content are pre-requisites for OER implementation in the curriculum and by implication also as support to open pedagogy.

The second chapter makes a case that Creative Commons, OER, and open-source activists in Lebanon have for years had to deal with the dual threats coming from the culture of impunity at locally and cultural hegemony internationally. The chapter covers the experience of the authors at the Faculty of Law and Political Science at Notre Dame University – Louaize as a private institution and the public Lebanese University over the past two decades to the present. For these authors who regard themselves as teachers, scholars and social activists the open-source movement is considered a tool which allows them to speak truth to power in the classroom, online, and in the media.

Chapter three involves testing the effectiveness of an OER-based solution implemented at a Lebanese university to ensure teaching and learning continuation, and also aim to overcome the challenges and obstacles caused by the pandemic during within the context of an economic and financial crisis. From this research, the evaluation of this experience and the positive feedback received from the students, it can be concluded that the solution that was implemented met the objectives and helped solve most of the obstacles for which the broader intervention was designed. It is also clear that the proposed solution that employed OER helped to ensure educational continuation regardless of the disruption.

From the fourth chapter, the focus turns to South Africa. This chapter involved investigating the awareness, use and challenges of open educational resources across a number of South African open distance e-learning-based institutions. This research found that students had an average level of awareness about OER, and that the majority of students were positive about the use of OER for various activities.

However, some challenges such as issues around relevant skills and access to facilities were highlighted. This chapter concludes by noting that universities should engage further and provide additional support towards effective use of OER within the distance education context.

The fifth chapter explores the localisation of OERs in academic libraries in South Africa. In this chapter it is argued that the localisation of OER has the potential to contribute to the decolonisation of teaching practices in South African academic libraries. It is noted in this chapter that existing research on OER localisation in South Africa has mostly been done by academics and scholars in education. This is considered a limitation as there is a need to know how academics and scholars in library and information science are addressing the issue. This chapter concludes by recommending that the Collections, Alternatives, and Students Framework be used in providing localised opportunities for collaboration between librarians and postgraduate students towards OER creation/reuse and the decolonisation of teaching practices in the context of South African academic libraries.

Chapter six presents guidelines for the development of OERs at a higher education institution through the lens of domestication. Domestication theory as lens involved considering three phases (commodification, appropriation and conversion), to contribute to the successful application of the seven guiding principles for OER development. These principles involve collecting users' experiences; conducting an induction; identifying OER enablers; identifying a pedagogical framework; defining e-learning approaches; and designing the OER dissemination procedures. This chapter also emphasises the role policy development would play within this process.

The final chapter, chapter seven, reports on a project that analysed the effectiveness of eleven key African OER initiatives in higher education and their influence on developing and supporting effective OER practices. The first significant theme identified in this research is the impact that OER localisation had on improving the number of contextually relevant educational materials. Furthermore, the research identified successes and challenges of OER advocacy. Thirdly, insights about sustainability efforts for the initiatives, including funding, inter-institutional support, and champions to advocate for OER were identified. The chapter concludes by noting the need for comprehensive data and tracking mechanisms to promote the success of OER initiatives.

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CHAPTER 1: Open Educational Resources and Open Pedagogy in Lebanon: A Steppingstone into Openness

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Abstract
This chapter discusses the processes and outcomes of utilizing Open Educational Resources (OER) in Lebanon for addressing five challenges that represent barriers to incorporating 21st Century Competencies (21st CC) and aspects of the Sustainable Development Goals 2030 (SDGs) in the curriculum. It draws on the experience of the UNESCO-OER Chair for Access and Success housed at Notre Dame University-Louaize (NDU). The work promoting Open Pedagogy (OP) enabled OER in Lebanon a priori. The OER activities set to address Lebanon's educational problems are aligned with the Recommendation on OER promulgated by the United Nations Educational, Scientific and Cultural Organization (UNESCO) in 2019. Results show that OP enabled OER is a promise for widening access to teaching and learning as guided by quality assurance standards of OER materials and policies in a context where the notion of OER is still in its preliminary stages of implementation and diffusion.

Keywords:
OER, Open Pedagogy, Education, Policies, Lebanon

1.1 Introduction

This chapter discusses the implementation process of utilizing Open Educational Resources (OER) in Lebanon prioritized to address five challenges plaguing the educational system: (i) lack of access to quality education; (ii) textbook quality problems; (iii) lack of continuing training opportunities for schoolteachers; (iv) the

predominance of teacher-centred pedagogy; (v) and the limited use of technology in teaching and learning. These challenges represent barriers to current educational reform efforts, particularly the need to incorporate 21st Century Competencies (21st CC) and aspects of the Sustainable Development Goals 2030 (SDGs) in the curriculum, namely Goal 4 'Quality Education' and 5 'Equality'. Against this backdrop, a critical point for consideration is to explore innovative pedagogies that would potentially tackle protracted curricular challenges in the curriculum that dates to 1997, foremost among which is cultivating critical thinking and problem-solving skills among learners.

The overwhelming emphasis of the national curriculum on content-based knowledge acquisition at the expense of engaging students in critical thinking and problem-solving activities is clearly discernible in Lebanon's underachievement over the years in the Programme for International Student Assessment (PISA)[1] and the Trends International Mathematics and Science Study (TIMSS)[2] in which participating Lebanese students have sharply scored below the international mean score of these tests that are designed to measure ability, problem-solving and critical thinking skills, focusing on proficiency in reading, mathematics, science and innovative domains[3]. These results indicate the need to reform the educational system by capitalizing on local needs while aligning with international standards in curriculum development. As Lebanon reforms its educational system, one key area worth considering is Open Pedagogy (OP) enabled by OER, defined here as at its core, it is the application of open-source principles to teaching (Bonica et. al., 2018)

The fact that OP includes self-direction alongside using and creating OER as documented in the pertinent literature (e.g., Bonica et al., 2018) potentially allows for numerous pedagogical innovations (Jhangiani, 2017) in the curriculum, transitioning it from the current content-based nature to a competency-based one (Kazley et al., 2016), depending on how it is used. For instance, OER can allow learners to critically revise the teaching resources in which knowledge transforms from a stable asset (e.g., books) into a flexible process in which students can actively

[1] The Programme for International Student Assessment (PISA) is a survey of 15-year-old students. It is designed to assess the key knowledge and skills essential for full participation in society among students. The assessment focuses on proficiency in reading, mathematics, science, and an innovative domain (see https://www.oecd.org/pisa/).
[2] https://www.the961.com/lebanon-intl-educational-study/
[3] See https://timssandpirls.bc.edu/

and critically engage (Nascimbeni & Burgos, 2019) in multiple ways including group work, problem-solving as well discussions and deliberations depending on the nature of the course and topics covered. Further, "Open Pedagogy engages students as co-creators of knowledge while making education more meaningful, participatory, and democratic" (Werth & Williams, 2021, p. 35). We hypothesize that OP enabled OER as a vehicle for fostering social justice (Bali et al., 2020) and promoting critical pedagogy in education is worth implementing as a lever for educational reform efforts aiming at redressing educational issues in Lebanon's K-12 system.

From the onset, it should be clear that this chapter does not claim that OER is the sole panacea for redressing Lebanon's K-12 educational challenges but is perceived as a precursor for bolstering curricular reform aiming at widening opportunities for learning on par with contemporary international trends utilizing OP enabled OER in the curriculum. A case study about OER implementation in Lebanon illustrates and exemplifies opportunities and barriers to implementing OP-enabled OER in educational contexts. In so doing, this chapter draws on the experience of the UNESCO-OER Chair for Access and Success housed at Notre Dame University-Louaize (NDU) in Lebanon and the work being done on promoting OP enabled OER in Lebanon a priori.

The various OER activities set to address Lebanon's educational problems are aligned with the Recommendation on Open Educational Resources (OER) promulgated by the United Nations Educational, Scientific and Cultural Organization (UNESCO) in 2019[4] , accenting five objectives: (i) Building the capacity of stakeholders to create, access, re-use, adapt and redistribute OER; (ii) Developing supportive policy; (iii) Encouraging inclusive and equitable quality OER; (iv) Nurturing the creation of sustainability models for OER; and (v) Facilitating international cooperation (p. 6).

Since the concept of OER in Lebanon and the Arab world is new, a prefatory note about the advent of OER into the region would furnish background information to understand related OER initiatives and activities further. We first describe the trajectory of OER development and then discuss current initiatives in the Arab region as derived from the literature. As a caveat, data on OER in the Arab countries is scant, save a few briefings and conference proceedings. Tlili et al. (2000) confirmed

[4] https://en.unesco.org/news/unesco-recommendation-open-educational-resources-oer

that no study had been conducted to cover the entire Arab region; in fact, their study that compared attitudes to OER in 22 Arab countries does not compensate for what we term here as 'OER Information Deficit' in the region because there is a near absence of data repositories that track and document various OER initiatives and publications accessible to the public. Comparatively speaking, research on OER in the Arab countries falls behind international trends that showed a steady increase in publication rates on OER from 2002 to 2016 (Wang, Liu, Li, & Gao, 2017). This chapter attempts, partly at least, to bridge the OER information gap in the Arab countries by sharing grounded knowledge about OER implementation in Lebanon and the region.

1.2 The Trajectory of Open Educational Resources

The concept of OER is a developmental one. It morphed from its early founding term "Learning Object", coined by Wayne Hodgins in 1994, to "Open Content", coined by David Wiley in 1998. Wiley provided a four-stage chronology of the OER evolution, as shown in Figure 1.1.

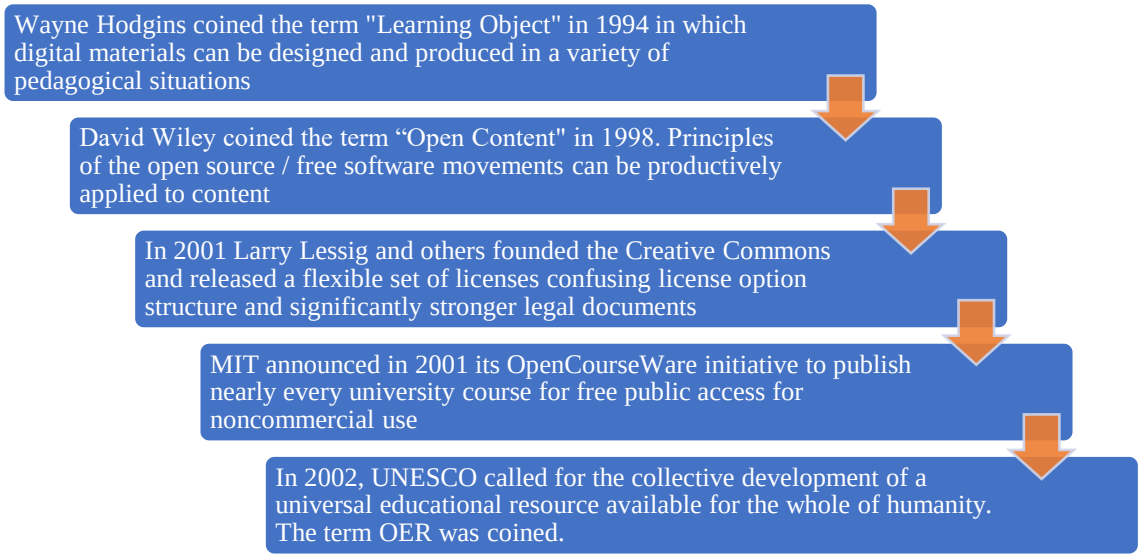

Figure 1.1: The Trajectory of Open Educational Resources[5]

Thus, the origination of OER pivoted first on digital materials, then on flexible licenses that have attempted to confront the supremacy of commercial licenses that limit access to knowledge, and thirdly providing free access to courses to the public

[5] https://hewlett.org/library/history-of-open-educational-resources/

for non-commercial use. It was not until 2002 that UNESCO declared OER as a universal educational resource for the whole of humanity[6]. This declaration has set the tone for the OER movement that has seeped into education, promoting innovative styles of pedagogy and fostering social justice, foremost among which is widening access to learning resources that are free and reside in the public domain. It is worth noting that OER started recently to attract the interest of researchers, policymakers, educationalists, and governments, given its utility in enhancing pedagogy and promoting access to learning; such concepts have been at the core of governments and the United Nations agenda in education, both in formal (FE) and non-formal (NFE) sectors of education.

The commencement of OERs into the educational arena with its promise to optimize access to learning resources and promote pedagogical innovation has attracted heightened attention to its utility in teaching and learning, underlining the ability to "remix, tweak, and build upon" (About The Licenses, 2017)[7]. The term 'build upon' chimed with constructivism in learning, adding credence to the potential role of 'OER-enabled pedagogy' (Wiley & Hilton, 2018) that is positioned to shift education from content-based to competency-based approaches in teaching and learning that rest primarily in learners.

Apart from its pedagogical connotation as derived from burgeoning research on OER as an Enabled Pedagogy (Werth & Williams, 2022), such as being conducive to fostering constructivist learning and moving teaching from the "Sage on the Stage to Guy in Audience" (Bonica et al., 2018, p. 9), OER has also been perceived as a lever for nurturing social justice (e.g., Bali, Cronin, & Jhangiani, 2020). The latter has received little attention in the literature. It is worth noting that social justice in the Arab countries is a pressing issue considering rampant discrimination and the limited participation of women in political and social spheres, let alone corrosive political corruption (Khechen, 2013). In addition to discussing the implementation of OER as a vehicle for supporting OP, this chapter approaches social justice from the prism of providing equal access to quality education and promoting equity among learners.

In our view, OER coalesces with the broad principles of widening access to education in the framework of promoting social justice enunciated by the Jomtien-Thailand (1990) Education for All, Article III - Universalizing access and promoting

[6] https://unesdoc.unesco.org/ark:/48223/pf0000371129
[7] https://creativecommons.org/licenses/

equity.[8] A decade later, the Dakar Framework for Action in 2000 accented that governments need to show commitment to Education for All (EFA) by widening access to education[9]. However, it underscored the challenge of implementing the consequential assignment of promoting access. Both the EFA and the Dakar Framework for Action were instrumental in enticing a renewed discourse and opening a policymaking path centred on promoting access to education in the context of social justice in line with Article 26 of the International Declaration of Human Rights 1948. However, the EFA and the subsequent Dakar Framework for Action lacked a universally standardized system and agreed-upon mechanism for implementing ensuing recommendations pertaining to access. Building on international experiences and research in the field, we envisage that OER is not only a vehicle for promoting OP that potentially migrates teaching and learning to modes of learner-centred education but also serves to foster social justice and promote lifelong learning as integral components of the Sustainable Development Goals (SDGs-2030) and 21st Century Competencies (21st CC).

In the framework of social justice and access to lifelong learning, the 2017 Ljubljana 2nd World OER Congress sets out 41 recommended actions to mainstream open-licensed resources to achieve Goal 4 on quality and lifelong learning, which enunciates: "Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all". In tandem, the Ministerial statement of the 2nd World OER Congress endorsed the various United Nations declarations and recommendations, particularly The Incheon Declaration in 2015, which reflects the commitment of the education community to Education 2030 and the 2030 Agenda for Sustainable Development, highlights the key role of education as a main driver of development[10]. Notably, the 2nd World OER Congress has operationalized five axial points focusing on the following: building the capacity of users to find, re-use, create and share OER; language and cultural issues; ensuring inclusive and equitable access to quality OER; developing sustainability models; and developing supportive

8 https://bice.org/app/uploads/2014/10/unesco_world_declaration_on_education_for_all_jomtien_thailand.pdf

9 https://sustainabledevelopment.un.org/content/documents/1681Dakar%20Framework%20for%20Action.pdf

10 http://uis.unesco.org/sites/default/files/documents/education-2030-incheon-framework-for-action-implementation-of-sdg4-2016-en_2.pdf

policy environments.[11] The UNESCO 2019 set out five objectives on OER that echoed the recommendations of the 2nd World OER Congress. This chapter is pillared on these five axial objectives upon which much of the activities undertaken by the UNESCO-OER Chair for Access and Success at NDU have been conducted. These activities have not been limited in geographic scope to Lebanon but expanded to other Arab countries to build capacity and develop supportive policies, without which OER initiatives and activities would remain fragmented and un-institutionalized. Cognizant of the importance of an OER policy in Lebanon, a key project undertaken by the UNESCO-OER Chair was to develop an OER policy in collaboration with the Center for Educational Research and Development (CERD) in Lebanon in 2020. It is worth noting that the OER policy is the first of its kind in Arab countries. This policy will be further discussed in the appropriate section of this chapter.

1.3 Open Educational Resource Development in the Arab Countries

The movement of OER is only now beginning to appear in parts of the Arab region, though some headway has been made with such platforms as Edraak, the Arab World's portal to MOOC[12]. There is also a MOOCs provider called Rwaq[13]. Thus, it would be unfair to say that no effort has been exerted to incorporate OER in education in the Arab region. Some piecemeal initiatives aiming at utilizing OER in teaching and learning in the vast Higher Education Institutions (HEIs) landscape have been in place since 2014. We wish to provide statistics on OER in the Arab countries; however, accurate data about the spread of OER in the Arab countries are non-existent.

Consequently, there is a distinct paucity of empirically developed OER indicators and data repositories in Arab countries. As a result, educationalists, policymakers, and curriculum developers are likely to work with arbitrary and dispersed information about OER activities in HEIs, the General Education sector, and Vocational Education and Training (VET). At the policymaking level, the lack of reliable information about the status of OER initiatives and collaborations in the

[11] https://www.oercongress.org/woerc-actionplan/
[12] see http://www.edraak.org
[13] https://www.rwaq.org/

Arab countries often obfuscates evidence-driven policymaking processes relating to OER.

In a study covering 22 Arab countries, Arab and Chinese researchers (Tlili et al., 2000)[14] described the current state of OER in the Arab region as unclear, has no explicit vision or policy to support OER adoption, except for the Kingdom of Bahrain and the Kingdom of Saudi Arabia, two affluent hydrocarbon countries which have witnessed some OER deployment activities. To exemplify, Saudi Arabia has created a popular OER repository involving a consortium of HEIs called Shms[15] or Sun in Arabic, sponsored by the Saudi Research and Innovation Network, ISKME, and the Ministry of Education. It holds 81,095 different open resources that we broke down into percentages (see Figure 1.2).

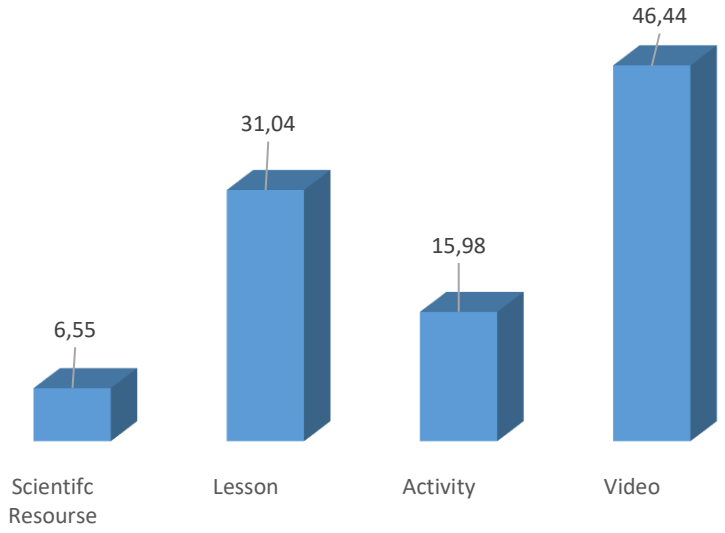

Figure 1.2: Distribution of Resources at Shms in Percentages

The Arab League Educational, Cultural and Scientific Organization (ALECSO), conceived of as the Arab world's equivalent of UNESCO, has set up a Pan-Arabic OER Community to promote OER (see Box 1.1).

[14] https://slejournal.springeropen.com/articles/10.1186/s40561-020-00120-z
[15] https://shms.sa/

Box 1.1: ALESCO OER[16]

"The creation and sharing of Open Educational Resources (OER) is in line with ALECSO's goal to enhance the fields of education, culture, and science at regional and national levels, and to foster cooperation between Arab states thereon. The ALECSO OER hub is aimed at promoting the use, development and sharing of OERs in the Arab region. This hub contains collections of OER curated by ALECSO and partner countries".

The ALESCO's website shows the subject areas and material types of the open resources available to the public. We are interested in exploring the space of the social sciences in OERs because of the limited presence of the social sciences and the humanities in higher education in the Arab countries (Bamyeh, 2015), so future OER activities would give priority to these marginalized disciplines that have lost ground to applied sciences. We conducted a z-score transformation[17] to show the ranking of subject areas and material types separately to provide a portfolio of the OERs by discipline. Table 1.1 shows the number of subject areas and their ranking.

Table 1.1: Ranking of OER Subject Areas

Subject Area	Number	Z-score
Applied Science	8352	1.30
Life Science	8224	1.25
Physical Science	7219	0.88
Arts & Humanities	6591	0.65
Mathematics	6560	0.64
Social Science	5297	0.17
Education	5253	0.15
English Language & Arts	3819	-0.38
History	3051	-0.66
Business & Communication	1723	-1.16
Career and Technical Education	1708	-1.16
Law	317	-1.67

[16] https://www.oercommons.org/hubs/ALECSO#about-the-alecso-oer-community

[17] The Z score reflects a standard normal deviate - the variation of across the standard normal distribution, which is a normal distribution with mean equal to zero and standard deviation equal to one. Z score: Z = (x-sample mean)/sample standard deviation. https://www.statsdirect.com/help/data_preparation/transform_z_scores.htm

Subject areas were above the mean in Applied Science, Life Science, and Physical Science but then dwindled to lower ranks in Arts & Humanities and Social Sciences. English Language and Arts, History, Business & Communication, Career and Technical Education, and Law were below the mean, indicating low priority in providing OERs for these areas. Table 1.2 shows the number of material resources using z-score transformation.

Table 1.2: Ranking of OER Material Types

Material Types	Number of Resources	Z-Score
Activity/Lab	12127	2.858
Lesson Plan	9558	2.031
Reading	7163	1.260
Lesson	6198	0.949
Lecture	5031	0.573
Module	4739	0.479
Textbook	3428	0.057
Assessment	3192	-0.019
Teaching/Learning Strategy	2597	-0.210
Interactive	2347	-0.291
Homework/Assignment	2335	-0.295
Full Course	2147	-0.355
Diagram/Illustration	2089	-0.374
Unit of Study	1977	-0.410
Lecture Notes	1742	-0.485
Simulation	974	-0.733
Primary Source	904	-0.755
Syllabus	796	-0.790
Case Study	685	-0.826
Student Guide	538	-0.873
Data Set	533	-0.875
Game	409	-0.915

Activity/Lab and Lesson Plan and reading scored the highest above the standard mean of zero, while assessment and teaching strategies scored far below the mean. These figures indicate that OER material resources were not equitably distributed across subjects with a low emphasis on key areas needing reform in the Arab countries, i.e., assessment and teaching/learning strategies (Abouchedid, 2017).

Briefly, while progress has trudged over the last 15 years in the Arab countries region towards achieving specific actions of SDG4, such as literacy rates and gender parity in access to formal education, the region is in dire need of feasible strategies to overcome political, social, and economic hurdles and achieve the target areas set in the SDG4 and SDG5. This can be facilitated by an overarching OER strategy for the region. In this respect, existing OER initiatives in the Arab counties are still limited, scattered, and existing ones are weakened by insufficient funding to diffuse OER as a catalyst for potentially aiding the SDGs implementation in the region. One reasonable starting point for successfully adopting OER for SDG4 and SDG5 implementation involves awareness campaigns and advocacy about the utility of OER, capacity building, and curriculum development targeting higher education institutions and schools. As far as the latter (pre-primary through secondary) education levels is concerned, there is a clear need for OER Arabic content and localisation since most OERs are produced in the non-Arabic Western language (Richter & McPherson, 2012), which is a lacuna in notions of access to resources emphasized in the discourse on OER.

1.4 Situational Analysis and the Consequential Assignment of OER

In tackling the role of OER in promoting social justice in education, this chapter investigates five areas in which OER initiatives were undertaken in Lebanon through the UNESCO Chair for Access and Success. These initiatives sought, as far as possible, to mitigate inequalities in access to education and render continuing learning opportunities to students and schoolteachers in line with the five axial recommendations set out by the 2nd World OER Congress held in Ljubljana, Slovenia, in 2017 and later replicated in UNESCO General Conference at its 40th session in November 2019. As participants in Ljubljana, Slovenia congress, we gathered information informally from participating country delegates regarding OER implementation for social justice in their own countries. Informal discussions with some participants were instrumental in shaping much of what we attempt to address in this chapter, i.e., promoting access to quality education, developing OER policies, and engaging students in critical pedagogy as optimized by OP-OER enabled pedagogy to mention but a few. At one point, the authors of this chapter compared the serious developments taking place in the United States and Europe instead of the piecemeal and personal initiative in Lebanon and those slow-paced OER

developments taking place in some Arab states. We observed a difference in OER planning and implementation: the United States and Europe involve think-tanks in OER policymaking that is research-driven instead of personal initiatives, as is the case of OER-Lebanon and regional non-governmental organizations championing OER as is the case of ALESCO. The reason for this decalage could be attributed to the fact that OER in Lebanon and the Arab region is neophyte compared to established OER experiences in Europe, the USA and that advocacy, training and funding are needed to promote OER as a vehicle for promoting OP in educational institutions through inducting schoolteachers into its dynamics. In a hierarchy of priorities, the works of OER-Lebanon and the UNESCO-OER Chair for Access and Success had to focus first on addressing pressing educational issues within available resources, both financial and human, which are meagre overall. These priorities are discussed in the section that follows as a prelude to substantiate the various interventions contrived first by OER-Lebanon and then pursued by the UNESCO-OER Chair at a later stage.

1.5 Inequitable Access to Quality Education

Like many other countries in the Arab region, Lebanon's educational system suffers from inequitable access to quality education, and there is a longstanding gap in students' access to schooling. Some statistics are helpful to contextualize the issue of access. The distribution of students across schools and regions in Lebanon largely and overwhelmingly reflects inequality of access to schooling. Poorly funded state-run schools house 36.6% of the student body compared to semi-subsidized schools partly financed by the state (11%). On the other hand, the fee-paying private schools enrol 49% of the student body in Lebanon, and schools run by the United Nations Relief and Works Agency for Palestine Refugees in the Near East (UNRWA) schools for Palestinian refugees accommodate 3.56% of the student body in Lebanon (CERD, 2021). In terms of Governorates, 38% are enrolled in the capital, Beirut and Mount Lebanon. In comparison, the remaining 62% are dispersed across the fringes of rural-agrarian or semi-urban governorates characterized by poor public service provision by the government, lack of equipped schools, and shortage of qualified schoolteachers.

Further, in a region known for the dominance of patriarchal behaviours and practices (Sharabi, 1988), statistics on gender equality in education raise several questions that merit further exploration. The 2005 Arab Human Development Report found gender

inequality as one of the most significant obstacles to human development in the Arab region[18]. Even a legal framework that is "gender-neutral" may have gender-differentiated outcomes such as employment opportunities and their ascendency to careers that are traditionally demarcated as "masculine" (Nasser & Abouchedid, 2021). In other words, while there have been significant improvements in widening women's access to education in Lebanon and the Arab countries, their participation in social, political, and economic spheres sharply falls behind those attained by men[19]. The issue of inequality represents a global challenge that agitates for immediate reforms that hinge upon a change in the mindset and culture that perpetuate patriarchy. Pillared on the praxis of emancipatory education (Freire & Ramos, 1970), OP enabled OER can be seen as a foothold upon which discourse and action towards achieving equality can evolve.

1.6 Capacity-Building of Schoolteachers

Schoolteachers in Lebanon need capacity development through training and teacher preparation programmes, which is not atypical in education systems worldwide. However, schoolteachers' demographic and certification issues are staggering in Lebanon, raising questions about what type of training and teacher-preparation programs are suitable for remediation. Some statistics might be helpful. Half of the schoolteachers (50.2%) in private and public schools hold university degrees. In contrast, those who hold a teaching certificate (diploma, qualification, educational license, educational baccalaureate) constitute only (20.2%) of the total teaching staff in the two sectors of education (CERD Statistical Bulletin, 2020-2021).

Further, full-time schoolteachers constitute approximately (55.97%) of the total number of teachers in the public and private sectors, while 37.9% teach on contractual bases, 1.54% are volunteers, 1% are trainees, and 1.89% are hired. In 2021, the public sector housed approximately (42.5%) of all schoolteachers in Lebanon. The public and private sectors are predominated by females, constituting 80.5% of all teachers.

[18] UNDP, Arab Human Development Report 2005: Towards the Rise of Women in the Arab World, 2005. http://hdr.undp.org/sites/default/files/rbas_ahdr2005_en.pdf.
[19]Responsible Competitiveness in the Arab World Report, 2009.

Teachers are considered young since their age ranges between 31 and 40 years, and more than half of them work in the private sector (Ibid). These figures illustrate the diversity of schoolteachers in terms of background, certification, and employment status underpin a dire need for capacity development and lifelong being at the core of fulfilling the vision and goals set out in the national curriculum. A teacher-trainer in Training in the Ongoing Teacher Training program (OTTP) offered by CERD described the situation of teacher-training in Lebanon as follows: "So teacher education is a dilemma. The situation is much worse in the poorer areas of Lebanon"[20]. ("Ongoing Teacher Training | CRDP Lebanon")

Thus, teacher training remains a focal point for consideration given the declining rates of trained teachers for most levels of formal education in Lebanon. It is worth noting that existing teacher-training programs in Lebanon take the form of sporadic sandwich courses, which teachers do not always attend. On the other hand, teacher training in private schools is mandatory. The reason is that private schools enjoy a constitutional prerogative to run their own educational affairs as they see fit, according to Article 10 of the Lebanese Constitution of 1926 (Introduction, 1989).

There is a lack of data on teacher training regarding the content of the training and outcomes in the private sector. However, training in the public sector was conducted following the implementation of the 1997 curriculum to familiarize schoolteachers with the new curriculum and introduce them to the shifts that occurred in the content of the curriculum for all grades. From the anecdotal evidence that we have gathered for this chapter, we conclude that teacher training for capacity development is a key area for enhancing the teaching skills of school teachers, particularly in remote areas.

1.7 Textbooks

Another issue that requires attention is the textbook as a primary learning resource in Lebanon's largely and overwhelmingly content-based curriculum. The textbooks for K-12 were issued by CERD successively during the years of implementation of the curriculum in 1997. It did not develop or correct its typographical or factual errors in most subjects (the errors were corrected in 2001, and Errata was sent to publishing houses to correct any book issued after that). No content development took place, despite the issuance of subsequent circulars about the assessment and updating the

[20] https://www.crdp.org/magazine-details1/660/757/755

descriptions of the official exams, which put the teacher in front of the dilemma of using the official mandatory book or resorting to an alternative textbook published by the private sector publishers. Also, there was no clear general policy for preparing and producing textbooks.

On the other hand, it is significant that the textbook's content is compatible with the educational approach, which is the social constructivism on which the curriculum was built. According to a study conducted by Nahas (2005), the following results were found:

- The books in the series differ in their interest in the cognitive and developmental dimensions.
- The books are unbalanced, neither in content nor in style.
- There is no structural effort in the content but a hierarchy in the narration of the information.
- There was control of procedural information at the expense of other conceptual fields.
- Indigenous pictures and illustrations are absent in favour of artificial ones.
- Attention to competencies is limited and replaced by procedural techniques.
- The absence of the interfering dimension in many books in the series.
- Most textbooks are void of critical thinking exercises.
- There is nothing in the book to suggest that the learner is called to make a personal contribution to acquiring knowledge.

Other studies also showed the limited position of females compared to males in textbooks and a clear stereotyping of personalities and professional groups in the interest of the leading personalities in the first place. The image of the authoritarian leader and the long-serving leader who cannot be held accountable has emerged. Emphasis was also placed on the duties of the learner-citizen and the neglect of their rights (Vision Document 2007). The need for OERs as supplemental material to make up for learning loss due to obsolete textbooks that are gendered and suffer from factual errors was an objective worth striving for.

1.8 The Use of Technology

The national curriculum suffers from limited use of technology in developing and employing students' competencies for life. The vision document prepared by the Lebanese Association for Educational Studies (Ibid) indicated that the 1997 curricula

did not include any goal about information and communication technology within its general objectives, and was satisfied with one general goal, which is the formation of citizens "aware of the importance of technology and able to use, develop and interact with it in a conscious and proficient manner." (The 1997 Curriculum, Decree 10227). The curriculum is also limited to grades 7-12, with one class per week for technology. It turns out that technology is a marginal subject in the curriculum, despite its importance in developing skills for employment in the labor market, as it is not given weight in school assessment or in official national exams. Also, the density of content at the expense of developing the life skills that students need to invest in the labor market further separates public education from higher education and the labor market. The study of Abdel -Reda (1998) showed that there are semi-closed circles that provide pre-university studies, university studies, and the labor market, where half of university students tend towards the occupational geographic focus (working in the same study area), compared to about half expecting to work in an area other than the one in which they live. It is worth noting that the trend of professional geographic movement from other regions is limited. As for the tendency to exchange between regions, it is almost non-existent (zero-1%). In addition, it is noted that the tendency towards migration and work abroad is more important than the tendency towards professional geographic mobility between geographic areas inside Lebanon.

1.9 Styles of Pedagogy

It is common knowledge in Lebanon that the school system largely and overwhelmingly adheres to traditional education models in its various manifestations, including an emphasis on lectures and teacher-centred approaches that downplay constructivist learning approaches (Abouchedid, 2020). Private schools outperform public ones when it comes to teaching and assessment. One reason is attributed to the lack of teacher training in public schools compared to training patterns offered to teachers in private schools. Schools scattered on the fringes of traditionally marginalized regions in Lebanon are affected mainly by the lack of training and capacity building opportunities addressing teachers' professional needs. These deprived areas have been the focus of the training activities conducted by the UNESCO-OER Chair, as will be explained in the appropriate section of this chapter.

1.10 The Open Educational Resource Experience in Lebanon: Addressing Educational Issues

OER-Lebanon and the UNESCO-OER Chair housed at NDU have addressed the above pressing issues while mapping its scope of work strategically with the UNESCO Recommendations of 2019 as guiding principles (see table 1.3).

Table 1.3: Issues in Lebanon's Education System Mapped with OER-UNESCO Chair in line with the UNESCO 2019 Recommendations

	The UNESCO 2019 Recommendations				
Issues in Lebanon's Education System	**Building Capacity**	**Language & Cultural Issues**	**Inclusive & equitable access to quality OER**	**Sustainability models**	**Developing supportive policy environments**
Inequitable Access to Quality Education	X		X		X
Schoolteachers	X		X		
Styles of Pedagogy		X	X		X
The Textbook		X	X		
Teaching	X	X		X	
The Use of Technology	X	X	X		X

OER in Lebanon started with a personal initiative led by the now UNESCO-OER Chairholder for Access and Success housed at NDU in Lebanon. This initiative is credited to the U.S. government-sponsored Alumni Exchange Program, which seeks to bring education leaders from the region of the Middle East and North Africa (MENA) to meet with their counterparts in the United States. Following the participation of the now UNESCO-OER Chairholder at NDU, a strategic direction of OER implementation has been incepted since 2014 at NDU as its main hub of activities for promoting advocacy about the utility of OER in teaching and learning as well as for textbook cost reduction, capacity building, and diffusion across educational institutions in the country. We believe that the dwindling number of students attending private higher education in 2014 in Lebanon was a harbinger of the economic collapse in the country that has taken a toll on Lebanese, migrant workers, and refugees since 2019. For instance, considering the economic dissolution in Lebanon, reducing textbook costs was an appealing idea to university students. Thus, OER functioned as a workable solution to alleviate some financial

burdens on students by providing them with access to university textbooks that are free and reside in the public domain. Another reason that created a fertile ground for endorsing OER was the rising interest in quality education since NDU has been engaged in institutional accreditation by the New England Commission of Higher Education (NECHE) since 2007. Thus, OER was promoted as a lever for ensuring student access to quality learning while reducing textbook costs. OER implementation at NDU has sought to remove the barriers to learning propped up by ever-increasing textbook costs and deal with the problem of accessibility of quality learning material in an Arab setting outside the circuit of textbook publishing and design. It also sought to substitute the "static" nature of the traditional textbook as the primary instrument of learning by open educational resources and open textbooks, the total of which constitutes a dynamic, shifting classroom textbook with which students must interact by nature of its digital format.

1.11 Institutionalizing Open Educational Resources: Towards a Policy

The institutionalization of OER in Lebanon followed a two-pronged strategy: institutional at the university level and national at the K-12 level.

1.11.1 University Level

The implementation of OER was institutionalized in 2015 through the University-wide strategic plan titled "Vision 20/20", which calls for continuous training of faculty members and students on using OER in teaching and learning. One manifestation of such initiatives was the adoption of open textbooks that are free and openly licensed. In 2015, the university co-signed an Affiliate Agreement with Creative Commons, providing copyright licenses known as Creative Commons Licenses for the free use and sharing academic and creative resources. The start of OER at NDU enticed collaborations with the broader community, which was materialized in signing a Memorandum of Understanding (MoU) in 2017 with the official national curriculum developer in Lebanon, the Center for Educational Research and Development (CERD). The MoU stipulated that NDU would provide training to the staff, trainers, and academic personnel at CERD, so they become themselves trainers for schoolteachers in public schools. Further, as an institutional affiliate of Creative Commons, the University has led the way among other HEIs in Lebanon to promote open pedagogy and open access.

1.11.2 K-12 Level

The UNESCO-OER Chairholder for Access and Success developed an OER policy with CERD to remove educational barriers through sharing and repurposing high-quality OER, increasing access and affordability as the main foundations of OER production. The policy provided guidelines on adhering to open licensing standards applied to the Lebanese and international copyright laws and abiding by legal policies and procedures adopted by CERD. The OER policy sets out OER Quality Assurance (QA) standards and procedures for CERD employees to produce and curate high-quality OER materials. The OER policy for providing a legal framework and QA standards for ensuring the quality of OERs represents a milestone in the region since there is a paucity of policies and QA standards in Arab countries.

Briefly, OER -Lebanon has sought to promote a culture of openness in formal and non-formal sectors of education through the following:

- Promoting awareness about the use of OER in educational contexts.
- Strategizing the development of OER policies and practices.
- Encouraging open licensing of educational materials.
- Promoting capacity building in rural areas and educational settings, both formal and non-formal.
- Creating a Community of Practice around OER in Lebanon and the MENA region.
- Encouraging research in the field of OER.
- Establishing an OER website that hosts Arabic initiatives and resources.
- Developing standards for assuring the quality of OER materials.

1.12 Steps for Implementation: Preparing the Ground

The OER implementation process followed several steps to ensure a smooth process that rested on preparing faculty members, students and libraries through advocacy and capacity building as essential pillars for adopting OER and integrating it into the curriculum. The implementation process at NDU served as a pilot run in which lessons learnt would be utilized for OER implementation in the Lebanese curriculum.

1.12.1 Training Faculty Members

OER training workshops were conducted for faculty to reduce possible cultural barriers to using OER in the curriculum and engage faculty in sharing and

collaboration in teaching and research. The training workshops have fostered wider participation of faculty members in discussing the benefits of OER and exploring ways to diffuse it to other courses. Faculty members and course coordinates became "champions" crafting policies and procedures for implementing OER being part of the university's strategic plan.

1.12.2 Training Librarians

A training workshop was offered to all staff members of the University library to support faculty members and students and help them benefit from the use of OER. A Creative Commons Licenses and OER workshop was offered on May 22, 2015. The workshop focused on the critical role that the library plays in offering the learning environment of NDU with open and free resources released under Creative Commons (CC) licenses. The training of trainers sought to enable librarians to guide faculty members in selecting the appropriate OERs and integrating them into their teaching and learning.

1.12.3 Training Students

Being part of the strategic plan to promote awareness among faculty members and students about the use of OER in education, a workshop offered to M.A. Education students was conducted in 2015. Students' attitudes to the training workshop were positive. A student said:

> *I have acquired this understanding of OER through the presentation held by Dr. Baroud where he presented a clear definition of OER and their uses. This presentation was beneficial and informative. It presented clear and well stated definitions of OER, several examples, conditions of use and their benefits followed by a list of the most well-known OERs.*

Another student added:

> *It was a big pleasure to attend this clear and valuable presentation. I hope that I will have the chance to attend another session to continue and apply what I learned because practice is essential. I am glad to be aware of the OER mission and vision because I really believe that education is for all people everywhere at any time.*

One of the outcomes of the workshops addressed to students was the writing of an M.A. thesis by a student. The thesis designed a Flexbook in Physics for Grade 10 in

the official Lebanese curriculum. The Flexbook incorporated simulations to add a practical aspect to the lessons and facilitate understanding since the official physics textbook is static and lacks interactive and critical thinking activities, let alone factual errors.

1.12.4 Implementing Open Educational Resources in Teaching and Learning

One of the most significant initiatives in Lebanon was to incorporate OER into the curriculum at NDU. The implementation process started with piloting OER in an English communication course offered as a General Education Requirement (GER) in the Liberal Ars sequence to deepen student engagement and instil the value of self-directed learning as a strategy of success transferable to other HEIs in Lebanon[21]. Following the university's decision to incorporate OER in teaching and learning in 2014, 500 undergraduate students enrolled in 25 sections of the Sophomore Rhetoric course formed the first cohort to pilot the OER, reducing textbook costs and fostering a collaborative academic environment that rests on sharing, discussion, and deliberation among faculty members implementing OER[22]. The incorporation of OER in the Sophomore Rhetoric course was prepared for by conducting training workshops for faculty members, course coordinators and students. The workshops provided hands-on simulations to familiarize faculty members with substituting current university textbooks in the English language sequence with OER (Baroud, 2017). Following the successful implementation of OER in the English communication course, training workshops involved the Faculty of Natural and Applied Sciences (FNAS) at NDU for adopting OER in science courses, namely Mathematics, Physics, and Biology[23].

1.13 Diffusing the Notre Dame University-Louaize Open Educational Resource Implementation Experience into Schools

Diffusing OER into schools followed two tracks: working closely with CERD and reaching out to communities in marginalized areas. The aim was to set a cooperative course of action upon which OER can operate to serve schools to address the educational challenges outlined earlier.

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[21] https://oerworldmap.org/resource/urn:uuid:cb14132c-798f-44b6-bd79-272421078766
[22] https://creativecommons.org/2016/03/03/notre-dame-university-louaize-adopts-oer-cc-licenses/
[23] https://oerworldmap.org/resource/urn:uuid:cb14132c-798f-44b6-bd79-272421078766

1.13.1 Center for Educational Research and Development

Established by virtue of Decree 2356 in 1971, the Center for Educational Research and Development (CERD) is a public institution with a legal personality that enjoys financial and administrative independence. The Minister of Education and Higher Education exercises guardianship over it[24]. Being the official agency that develops and assess curricula in Lebanon, it was advantageous to collaborate with CERD on many fronts pertaining to diffusing OER and OP in Lebanese schools.

As implementation of the MoU co-signed between NDU and CERD for collaboration and training in OER and Creative Commons (CC), the UNESCO-OER Chairholder has conducted a series of workshops since. The overall objective of the training workshops was to build capacity and promote experience sharing among CERD's personnel in OER and CC licenses. Participants registered their satisfaction with the utility and worth of learning about OER throughout the training sessions. Trainees, who are now trainers also implementing OER in the new national curriculum as guided by the developed OER policy and QA standards, have succeeded in including OERs in the new national curriculum's draft Orientation and National Framework documents. However, it is difficult to assess how stakeholders will endorse the new curriculum framework for Lebanon due to political wrangles and disputes among political parties and confessional communities. Thus, a concurrent step for implementing OER in the curriculum is to continue offering awareness campaigns and training workshops to build the capacity of school teachers, particularly those in remote areas and marginalized settings where educational provision is weak and inadequate. An example of this is the piloting training project in a remote in Lebanon, as explained in the following section.

1.13.2 Building a Community of Practice at the Grassroots Level

A series of grassroots training workshops extending to the outskirts of Lebanon in the Bekaa Valley took place in Deir El- Ahmar was conducted as a supporting capacity-building initiative on the use of OER and OP among school teachers and school principals, complementing the training workshops conducted for CERD. Around fifty schoolteachers and principals from different public and private schools in the region participated in the training workshops. The aim was to engage education professionals with the concept of openness and familiarize them with cutting costs

[24] https://www.crdp.org/en

through OER and open textbooks, in addition to widening student access to educational materials that are free and open. The training workshops have stimulated discussions and interest in OER among participants. Moreover, the training provided to the women's organization indicated that OER gave women a voice and an opportunity to reflect on their training needs for eventually engaging students in teaching and learning in a participatory manner that fosters mutual learning away from the stagnant curriculum and static nature of the textbook.

1.14 Concluding Remarks

This chapter has demonstrated the trajectory of the implementation process and diffusion of OER in Lebanon longitudinally through the lenses of the UNESCO-OER Chair for Access and Success. The main challenge encountered in OER implementation and diffusion in educational institutions has been our dealing with a topic that falls outside the frontiers of research and national policies on OER in Lebanon and the Arab world. The information presented in this chapter attempted to de-marginalize knowledge about OER in Lebanon by sharing some experiences with the international OER community. These experiences underpin the necessity for advocacy campaigns, training, piloting, designing policies and establishing quality assurance standards for OER content as key pre-requisites for OER implementation in the curriculum, particularly as a supporting tool for OP. In addition, our experience has shown that collaboration with government bodies and grassroots organizations is a necessary condition for successful OER implementation.

In addition, the focus of OER initiatives and activities in Lebanon has shown a focus on widening access to education and training in remote areas beginning with capacity building of school teachers and school principals within the guiding principles of promoting social justice in marginalized communities within available resources and despite financial constraints.

Overall, this chapter sought to trigger a reflection on the status of OER implementation, taking Lebanon as an explanatory case study. So, our focus was not merely on the outcomes of OER implementation as measured by Key Performance Indicators (KPIs) but only on how it is working and attempting to find a footing in Lebanon's educational system, both K-12 and higher education for championing OER.

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CHAPTER 2:
Completing the circle: Returning to blended learning in a culture of impunity

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> *Yes, we shall overcome because the arc of the moral universe is long, but it bends toward justice. We shall overcome because Carlyle is right: "No lie can live forever" (Dr. Martin Luther King Jr., 1965).*

Abstract
The prevalent approach to Open Educational Resources (OER) and Creative Commons (CC) in Lebanon during the last two decades has been a manifestation of the 'Tragedy of the Commons' in the digital sphere. The experience of the 2019 popular uprising ('Thawra') and ensuing 2020-2021 Covid 19 Lockdown, however, provide examples of an alternative 'Governing the Commons' in which users of shared goods and resources can transcend narrow self-interest and work for sustainable value management collectively.

Using a contrapuntal approach, two intertwined storylines will be assessed, one based primarily on mere consumption and the other rooted in resource regeneration. Together they provide practical examples on the ground which this article will attempt to evaluate theoretically. Based on Ostrom's Law: "A resource arrangement that works in practice can work in theory", this chapter will juxtapose the tragedy and the restoration of the commons. It will argue that creating open content in the Global South provides one of many paths out of the 'free rider' impasse in which societies find themselves.

The three phases through which OER has transitioned in Lebanon during the last two decades will be presented here. This study documents the attempts made by professors and students at the government Lebanese University (LU) and Maronite-Catholic Notre Dame University (NDU) to promote respect for intellectual property

rights and original research with the support of the Creative Commons (CC) movement in Lebanon. The contours of struggle against the pervasive culture of impunity in the Middle East was accentuated by the gradual collapse of the Lebanese state in the months prior to the outbreak of the Covid 19 pandemic in February 2020.

The authors will focus on the introduction of OER and other online education formats and platforms starting in the early 2000s. They will demonstrate that this foundation facilitated the transition from blended learning to online education in 2019/2020. Finally, they will present the steps that are currently being developed to transition back to blended learning, research, and activism during the academic year 2021-2022.

Finally, the authors will offer concrete examples that demonstrate how OER helps educators, students, and administrators promote rule of law and a restoration of the commons in teaching, conference organizing, collaborative research, sustainable development, and social activism. The authors are both researchers/theoreticians and practitioners and are utilizing OER to complete the circle of academic integrity and a culture of sharing in the MENA region as of the summer 2021. The preliminary results of this final phase will be reflected upon at the end of the article, which will be completed in summer 2022.

Keywords:
Open Source, ICT in education, Structural Design

Preface: a dedication to the late Professor Rima Malek

This article is a tribute to Professor Rima Malek, who passed away due to cancer on 4 July 2022. The authors started coordinating their work on Creative Commons (CC) and implementing active learning strategies during the last decade. This informal collaboration between us as professors at the Lebanese University (LU) and Notre Dame University – Louize (NDU), led to formal collaboration in 2018. We began work on this article during the COVID-19 lockdown in the spring of 2020. As an expert in educational technology in the Faculty of Pedagogy at the LU, she worked closely with us and augmented our knowledge in the fields of communication, political science and cultural studies.

Rima taught and helped develop information and communication technology (ICT) integration into education, ICT for special needs and digital humanities, e-libraries, e-heritage and e-diplomacy. She took part in many international educational projects. She was a recipient of the UNESCO/Keizo Obuchi research fellowships programme. She advocated for the value of e-learning and for institutional and government

accreditation for distance learning, not only in Lebanon but also in the region, a struggle which is ongoing. She was a well-respected professor, a friend and philanthropist, continuing the work of her mother since 2001 by heading the "Hand of Mercy" local association. Her aim was to protect the human dignity of the underprivileged and marginalized. Rima was the first woman to be elected as a member of the municipal council of the town of Ajaltoun (Mount Lebanon), a position in which she served with a high level of ethics and effectiveness, being able to initiate many projects, targeting youth and developing a wide range of cultural activities. She also worked as an advisor for many educational organizations. She had a PhD in ICT from l'Université de Rouen, France. During the past two years her responsibilities towards her students intensified because of political unrest, lockdown, the financial collapse in the country, and her deteriorating health. Rima continued her work and creativity using online platforms. Her support for the needy families in Lebanon was also exemplary; she witnessed former donors becoming recipients of her support. She never stopped checking on her friends and colleagues and she gave help and support endlessly, even during her illness. In addition to being an excellent scholar in her field, Rima Malek was a distinguished service-oriented woman, humble, high-principled, with profound wisdom, deep knowledge and a kind heart. She will be remembered as one of the ICT pioneers in Lebanon.

2.1 A pedagogical and political introduction

As professors of pedagogy, ICT, political science, and cultural studies, we have always gravitated towards activist scholarship and an interactive relationship with our students. Viewing our classrooms as a point of departure, we promoted service learning, student projects, field research, as well as work with civil society partners and external research organisations long before this became easy through advances in the internet. We began 'flipping' our analogue classrooms and then moved to the digital sphere as time and technology progressed. On 17 October 2019 a popular uprising broke out in Lebanon, sparked by new taxes announced by the already partially failed state, in attempts to deal with the country's collapsing economy. The uprising also transformed the world of education in Lebanon: The entire fall semester of 2019 was filled with challenges that made it difficult to meet with our students on a regular basis. In a multidisciplinary spirit we collaborated to develop a new approach to course design, transfer our classrooms to the internet and social media in a climate in which all things digital and online had been viewed with suspicion. We changed our syllabi to make them relevant to the political context and adapted

and applied social tools that would give our students the ease and freedom to learn openly. For the first time Open Educational Resources (OER) and other CC based skills and infrastructure were tested on a massive scale.

During this phase the technical and pedagogical support Rima Malek gave us was remarkable. Furthermore, many of the students wanted to learn the terms and concepts for the reality they were experiencing in the country without following a specific textbook, which reflects the reality of the Global North in many occasions. As for us, we saw in the blocked roads and lack of mobility a way to test our knowledge of OER content creation.

Despite its failure, the Lebanese uprising was a "teachable moment", in that it gave us a chance to be prepared for what would come next. While in many countries around the world "pandemic pedagogy" forced an immediate transition "from frontal teaching in classrooms and lecture theaters to online-teaching on various video conference platforms" (de Vries TJ 2021) we had the chance to prepare. Loepp (2021) discusses his own adoption of "pandemic pedagogy" and e-learning strategies for political science and international relations (IR) which paralleled ours. Many Lebanese scholars have discussed the challenges and opportunities of teaching during an economic collapse and uprising, followed by a pandemic. For example, Karam (2022) reflects on his "three-C approach", El Hage and Yehya (2022) highlights the Lebanese educational system and the weakness of information and communications technology (ICT) implementation, Mouchantaf (2020) explores the impact of the Covid-19 pandemic through an online survey comparing in-class and online learning methods. All of these were essential steps to cope with the "teachable moment", but nevertheless did not highlight open and original content creation.

In following, we will focus on the CC, OER, and Open Source (OS) movements in Lebanon as they have impacted professors, students, staff, and the larger community at Notre Dame University – Louaize (NDU), a private Catholic university established in 1987, and the Lebanese University (LU), the country's only public university, founded in 1951. This article will cover chronologically the experience of the authors at the Faculty of Law and Political Science (FLPS) at NDU as a private institution and the public Lebanese University (LU) over the past two decades to the present. It will combine three strands of information. These include pertinent aspects of the ongoing academic discussion on the topic; literature dealing with the impact of the 2020-2021 lockdown on education; and most importantly a personal report on our experience developing and implementing OER at NDU and LU, which is the core of

our methodology. We will draw conclusions that are not only relevant for Lebanon and the West Asia North Africa (WANA) region[25] but also for the ongoing debate on the future of open content creation on a global scale.

As we restructured our courses and developed additional content for the 'cultural commons', remote teaching became common place; both synchronous and asynchronous; online merged with offline; independent learning and project-based teaching were terms our students understood and embraced; we had to upskill and reskill not only or students, but also ourselves. The potential for augmented connectivity and accentuated responsibility seemed endless. And then the revolution failed, followed by the Lebanese state and its collapsing economy. The Lebanese commons is now experiencing a tragic disintegration. Henceforth we will reflect on the key issues and concepts involved in analysing this process from a historical, cultural studies, and technological perspective.

2.2 Toward justice within the creative commons

The struggle to 'set the record straight' has long been seen as a key to human progress. As stated by American civil rights leader Martin Luther King Jr. and British author Thomas Carlyle before him, we are constantly striving to write our own stories and control how they are shared. This article focuses on the role played by both the medium and the message. How do they contribute to bending the long arc of the universe in the direction of justice? Emphasis will be placed on open content creation, or the lack thereof, in the WANA, and Lebanon in particular, during the first decades of the 21st century. As authors, teachers, and researchers we are directly impacted by the efforts to use digital technologies in order to criticize existing inequalities, while at the same time promoting respect for intellectual property rights. This article will begin with the historical struggle for change and follow this path forward to the current political crossroads at which Lebanon finds itself. As activists and scholars, we must make decisions about social justice and sustainable development which impact students, our communities, and our country's wellbeing. Understanding the dialectical relationship between communication and technology

[25] The authors are redefining the colonial discourse and perception of the region by referring to what is alternatively known as Middle East and North Africa (MENA) as WANA. This discourse was initiated by the WANA Institute, URL:https://wanainstitute.org/en/about-us, founded in 2009 as the West Asia-North Africa Forum, which challenged the hegemony of the Global North URL: https://wanainstitute.org/en/why-wana..

will help illuminate the path forward and highlight the manner in which open content creation can be a key to the country's very survival.

Can the global CC and OS movements play a role in the struggle against impunity, systemic corruption, sectarian oppression, and systematic disinformation in a country like Lebanon? King's and Carlyle's above cited quotes would seem to indicate that there is reason to hope. Information, power, freedom, coexistence and justice are closely intertwined. Each one of these key issues plays a role in the development of open education and the advancement of digital resources. As we shall see below, the problems faced today by OER activists in the WANA are not new. They are also not unique to the Global South or to the Global North.

Returning to King's assertion that with enough courage and perseverance 'We shall overcome', we observed how the revolutionary changes in technology and communication have impacted the struggle for a better world, and how these movements inversely have had an effect on the use of ICT. More specifically, we explore the process of merging education, research, and social activism and how it has benefited from the revolution online and how this integrative process has reciprocally driven changes in technological development. We have experienced these changes and the endeavours to promote them first hand at NDU and LU.

In his famous "Remaining Awake through a Great Revolution" speech, King drew a line from the campaigns against slavery in the 1850s, through the liberation movements of his time (1940s-1960s), to a future world in which oppression, exploitation, corruption, and the power of lies and deceit would be 'overcome' (1965). Advances in the digital world have facilitated this struggle in unexpected ways, both in the Global North and Global South. Many of us have shared part of the journey on this arc towards justice over the last several decades. The CC and OER revolutions, rooted as they are in the 'Copy Left' opposition to commercialization of the digital sphere as of the 1970s (Vainshtein, 2021), are also part of this trajectory. Open Education built on the spirit, discourse, and the energy of the emancipatory movements of the mid-20th century, including - on the one hand - the thorny issue of free and equal access to learning, culture and recreation, while - on the other - simultaneously respecting intellectual property rights. The open content movement maintains that both options are possible and can coexistence in a dialectical, albeit contentious, relationship. According to the CopyLeft agenda private property rights and communal use are not mutually exclusive, but rather that they complement each other and help promote sustainability, profitability, and just governance in both

sectors. We will illustrate that this also applies to the global terms of trade and the manner in which the Global North has historically exploited and undermined development in the Global South while at the same time promoting relationships of mutual benefit.

Coming full circle before and after the lockdown, we will maintain that the movement to create open online content with an emancipatory perspective highlights two trends. First, that the technologies already available for use prior to the pandemic have been mainstreamed in the last few years more out of necessity than intent. Nevertheless, the impact has been far-reaching. Throughout the world, the gatekeepers who were 'holding the door closed' on free access to information have had their doors knocked off their proverbial hinges. This struggle between a traditional technological mindset and digitally literate reform activism is ongoing.

It should be mentioned here that this liberating tendency within higher education (HE) through the pandemic also opened the door for corporations to undermine the knowledge commons and attempt to (re)privatize it. According to the global labour union federation, Education International (EI), steps should be taken to protect the commons from both those in HE administration who wish to undo the progress made during the lockdown, as well as to counter the encroachment and exploitation of HE by the corporate sector.

> *Educators, students, and the unions representing them should dedicate themselves to identifying effective practices and approaches, countering the imposition of commercial models that primarily focus on profit margins or pedagogically questionable practices, and developing alternative imaginaries that might be realised through collective deliberation and action. (Williamson & Hogan, 2021, p. 4)*

The second trend we are focusing on is developments in the interaction between users and providers. Pre-COVID emancipatory movements and individual activists made big strides in the use of pre-existing technologies; web and social media developers and designers created new approaches to support intersectional movements bending the arc towards justice. We will provide concrete examples of this dialectical relationship, in which the needs of educators, media activists, and NGOs impact the online industry and the developments in the commercial and open content technology sectors. To meet the challenges of online learning effectiveness and amplify student engagement, we have established a clear 'purpose for learning'

mechanism in order to enable students to generate original content through a mapping and assessment process. This pedagogical practice positioned the students at the center of the classroom and sparked a high level of motivation. In his report for the Carnegie Foundation for the Advancement of Teaching in 1990 titled "Scholarship Reconsidered: Priorities of the Professoriate" Ernest Boyer discusses the educational system in the US and how knowledge is acquired while looking for a new vision of scholarship. Boyers sees that "good teaching means that faculty, as scholars, are also learners" (p. 24). Today 'Scholarship of Teaching and Learning' (SoTL) has become the infrastructure of choice on which evidence-based results are being produced by faculty and students; where they are turned into open online content and uploaded as OER under CC licence (Murphy, M.P.A., Heffernan, A., Dunton, C. et al, 2023). Details of this process will be provided below. Before dealing with specific developments in Lebanon and the WANA in general, we will reflect on the origins of the 'crisis of the commons' and the attempts to build on this crisis to 'restore the commons' in our lifetime. In Lebanon, there is a direct link between the current deep-seated, intentional and systemic political and societal crisis and the two centuries' old crisis of the commons on a global scale, which threatens the very concepts of communal responsibility and mutual development. However, as Winston Churchill is attributed to having said, "Never let a good crisis go to waste", we maintain that confronting the tragedy of today's Lebanon and the tragedy of the commons go hand-in-hand. Perhaps more by default than intent, open content users and creators are playing a role in restoring our shared cultural commons for future generations.

As mentioned above, this article draws on three sources in order to illustrate how the circle of the 'Commons' has been completed. We will travel between time, place, and perspective. This path starts in the early 19th century with the 'Tragedy of the Commons' (Lloyd, 1833) and is now returning to its point of departure in the early 21st century with global attempts at the restoration of the commons (Block, 2021; Niemandt, 2015; Restoring, 2022). Along with theoretical and speculative writings on the nature of the 'Commons', the 'Global Village' and the struggles against commercialization of knowledge and culture, we will build on almost half a century of our own hands-on experience in the field. The current debate on the 'Circular Economy' (Boulding, 1966; Türkeli & Schophuizen, 2019) and the possibility of developing and sustaining a 'Cultural Commons' (Doran, 2018) globally will serve as a background. Reflecting on it, we will rely on practical examples from the last two decades of the CC movement in Lebanon and link this to developments in South

Africa, which is the context of this book. This comparison is of particular interest because in many ways both countries share a common past, as well as a potential future in which the arc of history's 'bend towards justice' will benefit the establishment of a global digital commons. Secondly, we will overview some of the literature which has played a role in our thinking since the beginning of the forced digital migration of education, research and community service from 'Online and Offline (OnO)' to a fully online format beginning with the Lebanese uprising in late 2019, and back again at the end of 2021. Here we will deal with the transition from OnO to 'Online merge Offline (OmO)' (Xiao, 2019; Huang, 2021) and ask whether the same lessons that have been learned in other regions have also been learned in Lebanon. Thirdly from a methodological perspective, the story of open education in Lebanon will be told from an autoethnographic and practical perspective as we experienced these changes in our own lives. This narrative will be self-reflexive, intersectional and contrapuntal. It will show how OER became the interface for our dedication to freedom of expression, rule of law, and counterhegemonic approaches to education and social activism. Finally, we will look back on the tragic death of our co-author, digital 'companion-in-arms', and long-time friend, Rima Malek, ICT professor in the Faculty of Pedagogy at LU.

2.3 Formulating an alternative to North-South confrontation

With the shift from analogue to digital formats in text processing and curriculum design at the beginning of the century, the contrapuntality (Said, 1994) of two interrelated narratives became more evident. Two stories will be told here. Firstly, we will describe our attempt to counter the pervasive culture of impunity experienced in the WANA through the introduction of CC. Secondly, we will challenge the prevalent logic of cultural hegemony in the region. By demonstrating how dependency in Lebanon on cultural and educational institutions in France, the UK, and the United States is impeding the production of local Lebanese content, a case will be made for the creation of open educational content in the Global South, this being one of the core objectives of the OER and CC movements in Lebanon. By juxtaposing the perspectives of the Global South and Global North we by no means intend to imply that the interests of the two regions are mutually exclusive, i.e., that the one side can only improve its lot at the expense of the other. Recognising that these "intertwined and overlapping" narratives are interdependent allows us to "formulate an alternative both to a politics of blame and to the even more destructive

politics of confrontation and hostility" (Said, 1994, p. 51) so common on North-South dialogue.

The story of open education in Lebanon is directly linked to the development of OER in the United States. By promoting key democratic principles such as rule of law, transparency, and accountability, the logic of the commons also impacts the success or failure of US objectives in the WANA. Contrapuntal awareness enables researchers, teachers, and students to understand how their lives are intertwined. Maintaining and stewarding the wealth of digital data uploaded online under CC license – as a mutual project and challenge for the entire 'global commons' – speaks to both storylines. It highlights the struggle against the pervasive culture of impunity in the WANA and facilitates the creation of original creative content from a regional perspective. Thus, the maintenance of the commons helps us to jointly criticize, develop, and transform our shared 'cultural archive'.

> *As we look back at the cultural archive, we begin to reread it not univocally but contrapuntally, with a simultaneous awareness both of the metropolitan history that is narrated and of those other histories against which (and together with which) the dominating discourse acts. (Said, 1994, p. 88)*

It is almost impossible today to discuss the relationship between the WANA and the former imperial powers in the region – Britain, France, and more recently the United States – without taking Edward Said's 'Orientalism' (1978) into consideration. In the fields of communication, the arts, and education, his 'Culture and Imperialism' (1994) is of similar significance. The story of Anglo-American and French culture, science, and education is closely linked to their imperial past and current involvement in the 'Orient'. The creation of open content is positioned within these intertwined and overlapping narratives. However, these stories or texts – be they for example OS software, university curricula, research reports, audio and video material, websites, GIS-based virtual museums, or MA and PhD theses – are not stand-alone documents. They exist not only within a contrapuntal narrative of the Global North and the Global South, where academics and artists from the former colonies invariably reference cultural and scientific production from the former 'mother countries'. They are part of the larger body of intertextual cultural production which references and is impacted by texts on an interpersonal, local, regional, and global scale. This is the case for all texts, irrespective of their origin and region of production (Barthes, 1967; Kristeva, 1966).

The link between texts within the larger 'cultural archive', both on the part of the author and the audience, is particularly evident in the field of OER, where users are encouraged to make use of CC licensed digital production within the commons, adapt and rework it, and then upload it again on the commons for use by others. Thus, the global cultural commons online is by its very nature explicitly interlinked, interdependent, and intertextual. In this article, we will be using the nexus linking contrapuntal and intertextual analysis to help understand how texts are used, abused, and re-evaluated in the Global South. The 'Tragedy of the Commons' (Lloyd, 1833), as the term was established almost 200 years ago, and popularized more recently by Garret Hardin (Hardin, 1968), assumes that users exploit the commons without taking the needs of the overall community into consideration. Based on the story of OER in Lebanon below, we will attempt to illustrate that this tendency does indeed exist within the CC community in our region, but that alternative voices are also strong. The line between blatant violations of intellectual property rights and creatively using the 'pool of content that can be copied, distributed, edited, remixed, and built upon' (Creative Commons License, 2022) is fluid and often difficult to decipher. However, along with the issue of attribution and fair use, there remains a distinct reluctance in the WANA to give back in kind. Value is therefore constantly being removed from the digital commons without it being replenished, updated, and recreated. Based on anecdotal evidence gathered from our experience in the field in Lebanon during the last two decades, OER is largely seen as a place to go to get useful material and insights for teaching, research, and community service. The fact that any commons – be it analogue or digital – can only survive and thrive if value is not only taken away but also generated and contributed on a reciprocal basis, is still not understood by many professors, teachers, students, and social activists in the WANA. This lack of understanding for the 'Tragedy of the Commons' and need for its restoration has a particularly detrimental impact in the Global South, where there is a need for original content creation which speaks truth to power and simultaneously respects the property rights of journalists, academics, web designers, programmers, and artists. The need to confront the power elites is relevant on all levels, globally, within the WANA as a region, on the national level, as well as within institutions and movements, be they commercial, governmental, or based on civil society. By constantly extracting value from the commons without restoring it, we are perpetuating an 'intellectual resource curse' which accepts content at face value without confronting it with alternative voices of our own.

The nexus linking contrapuntal and intertextual analysis can only be understood when we move from theory to praxis. By linking the thinking of Said (1994), Kristeva (1966), and Barthes (1967), scholars and activists alike can harness the dynamism of CC, OER and Global South content creation, question the exploitative nature of the trade-related aspects of intellectual property rights, and navigate the territory which lies between adaptation, reworking, creative fair use, plagiarism, property theft, and criminal fraud on the one hand, and replenishing, restoring, shepherding, and maintaining shared content on the other. According to British economist William Forster Lloyd (1833), a commons where the users primarily withdraw and do not replenish will invariably end tragically. This assumption is contradicted by Elinor Ostrom's more recent work, 'Governing the Commons' (1990), according to which in many cases users in local communities develop ground rules over time which counter the tendency toward one-sided use and mismanagement. This ultimately leads to de facto arrangements which work to the benefit of all. Dubbed 'Ostrom's Law' by Lee Anne Fennel, these ad hoc but binding relationships can be transferred into the realm of legal and economic theory. Accordingly, "[a] resource arrangement that works in practice can work in theory" (Fennel, 2011), ultimately laying the foundation for economically and ecologically sustainable development. A practical example of this creative space and tension can be found by returning to the quote by King (1965) used at the outset of this article. His reference to the arc of history bending towards justice is inscribed on the Martin Luther King Jr. Memorial monument in Washington DC's National Mall, and was woven into the carpet in the White House Oval Office during Barack Obama's presidency. It was extracted from an 1853 sermon by the 19th century abolitionist and Unitarian minister Theodor Parker. Was King's use of Parker plagiarism, an example of the tragedy of the commons, or perhaps something worse?

According to Clayborne Carson, professor of history at Stanford University and director of the Martin Luther King Jr. Research and Education Institute, it was more likely a typical example of intertextuality, although he does not use the term. In a 2010 interview with National Public Radio, Carson responds to NPR journalist Melissa Block as follows:

> *Block: Now, many times in his speeches, Dr. King did attribute sources of quotes. He would mention Thomas Carlyle or William Cullen Bryant. Did he also mention Theodore Parker by name?*

> *Carson: I don't recall him mentioning him by name. He may well have. Often what happens is the first time they use a quote, they do cite it. The second time, it's probably someone once said. And then the last time, it's as I've said previously. So it goes through a process in which the person kind of incorporates that into their own oratory. And as King became more famous, the fact that he said it became more important than the fact that somebody might have said it many years before. (Carson, 2010)*

Taking, reshaping and using original content without continuous attribution, as was done by a moral pillar of global stature such as King, would thus seem to be an illustration of intertextuality and verification of 'Ostrom's Law'. It would thus speak against the Tragedy of Commons being inevitable as was claimed by Lloyd. As will be illustrated below, anecdotal evidence would indicate that CC and OER use in Lebanon is primarily passive, i.e., content is taken from the commons for teaching, research, and activism, without actively replacing it on a reciprocal basis.

We will attempt to determine whether the lack of active content creation within the commons in Lebanon is indicative of a tragedy of the commons or Ostrom's Law. Expressed more simply, are OER, CC and Open Content in Lebanon a manifestation of the neo-colonial dependency of the WANA and Global South in general, on hegemonic content providers, donors and project directors located in the Global North? Or, viewed more positively, are we currently seeing a set of new ground rules being laid for the good governance and restoration of the commons described by Fennel?

2.4 Governing the Commons in the Global South

We will argue that the 2019 uprising in Lebanon was the beginning of the open content revolution in Lebanon, which saw those who had already been working in the field for many years transition more easily into the new online world. It was also the 'dress rehearsal' for the two-year global lockdown, which would begin five months later as of mid-March 2020.

The transition to online has a history. Both at LU and NDU – as the chronology below will indicate – individual instructors and researchers, and later the administration, embraced what Jun Xiao et al. (2019) dubbed OnO by the late 2000s, as described above. However, OnO met with significant resistance in Lebanon in the early years, both on the institutional level and within the respective government

ministries responsible for the transition to digital research and education. A more recent article by Ronghuai Huang and colleagues (2021) – and significantly co-authored by Daniel Burgos of NDU's South African partner, the Research Unit Self-Directed Learning, Faculty of Education, at North-West University in Potchefstroom – draws on pre-COVID research in China and makes a clear distinction between the merging of online and offline (OmO) and the more prevalent side-by-side OnO use of computers in the classroom and internet and social media applications in course curriculum in the 2000s and 2010s (Huang, 2021).

> *The development of virtual (online) and physical (offline) learning environment has allowed learners at all levels of schooling to access to global communications and various resources. In this case, the combination of online and offline (OnO) features could be regarded as OnO modes. However, that is not enough or supportable for open education in modern society – which is responding to the latest evolution of the internet, the so-called Web 2.0. A learning environment of open education in the context of Web 2.0 is not only an OnO platform that expands access to all sorts of resources from offline to online (and vice versa) but also an interactive environment blurring the boundary between producers (e.g. traditional teachers) and consumers (e.g. traditional students) of content. (Xiao, 2019, p. 135)*

The other strands of this storyline will be integrated into the chronology section below. We will illustrate how Said's concept of contrapuntality and the concept of intertextuality – according to Kristeva (1966) and Barthes (1967) – play a role throughout the twenty-year period we are reviewing. This is particularly significant when dealing with the conflict between the 'CopyLeft' movement, which challenged the privatisation of online data and software as early as the 1970s and 1980s, and attempts to deal with challenges to intellectual property rights in general, as they transitioned from analogue or hard copy to digital or soft copy violations in the early 2000s. Finally, we will speculate whether the potential 'governing of the commons' will play a role in promoting a 'Circular Economy' (Boulding, 1966) and the possibility of developing and sustaining a 'Cultural Commons' (Doran, 2018) globally within the fields of education, research, and cultural production.

2.5 Creation of open content in the Global South – the narrative of OER in Lebanon

This is a story spanning over two-decades of a journey of struggle against impunity, unfair global terms of trade, and for open content creation in Lebanon. The culture of impunity has deep roots in Lebanon and is directly related to the 19th century European colonial legacy. It predates the digital age by over a century. Analogue content produced in the Global North, such as cultural and educational text material, still images and moving pictures, graphics, sheet music and audio recordings, or scientific research reports were all being reproduced in violation of international copyright laws for many decades prior to the introduction of the internet and social media. The cultural influence of France, the UK and the United States, and to a lesser extent Italy, the Soviet Union, Germany and the Netherlands, strongly impacted the educational sector in Lebanon and created a large market for French and English language curricula and educational materials generated in the Global North. By design or default, this process had tragic consequences for the 'cultural commons'. The high cost of these pre-packaged products led students and academics alike to make use of unauthorized copies of European and North American textbooks and teaching material, a practice that became standard procedure with the introduction of cheap photocopying machines in the 1990s. This tradition of systematic violations of copyrights and patents in Lebanon would be exacerbated by the widespread introduction of digitisation in the communications, cultural, and education sectors at the turn of the century.

2.6 Chronology of a revolution

The three phases through which OER has transitioned in Lebanon during the last two decades will be presented here. This study documents the attempts made by professors and students at LU and NDU to promote respect for intellectual property rights and original research with the support of the CC movement in Lebanon. The contours of struggle against the pervasive culture of impunity were accentuated by the gradual collapse of the Lebanese state in the months prior to the outbreak of the COVID-19 pandemic in February 2020. The authors demonstrate that this foundation facilitated the transition from blended learning to online education in 2019/2020. We will offer concrete examples that demonstrate how OER helps educators, students, and administrators promote rule of law and a restoration of the commons in teaching, conference organising, collaborative research, sustainable

development, and social activism. The preliminary results of the final phase back to face-to-face teaching will be reflected upon at the end of the article, which was completed in the summer of 2022. Because of the tragic death of our co-author Rima Malek, most of the story-line below will focus on the experience of FLPS at NDU. Following her passing in the summer of 2022, much of her knowledge and experience was taken with her into another sphere. Her extensive files and papers have not yet been properly archived and were thus not available for use in the writing of this article. We will however reflect on our work with Rima during the last decade.

As mentioned above, various strands from the literature will be woven into this chronological narrative. These will include the shift from OnO to OmO; the struggle of the alternative and oft-times counter culture 'CopyLeft' movement against the 'CopyRight' power elite; the implications of contrapuntality and intertextuality for Lebanese cultural, scientific, and educational development; the dichotomic relationship between the struggle against the culture of impunity and cultural hegemony; and the significance of the OER, CC, and the Open Content movements for the circular economy and cultural commons. Finally, has the digital and online revolution helped bend the arc of the moral universe towards justice or contributed to the Tragedy of the Commons?

The first projects at NDU directly related to the CC agenda, as well as the protection and promotion of intellectual property rights in the Global South, were initiated in the year 2002. They date back to the World Trade Organization's (WTO) 1990 'Agreement on Trade-Related Aspects of Intellectual Property Rights' (TRIPS) focusing primarily on medicine and education, and the 2001 Doha Declaration providing special rules when applying TRIPS to developing countries (World Trade Organization, 2003). The implications of the Doha Declaration, which went into effect in 2003, became immediately evident to instructors in Lebanon because of the prevalence of photocopied textbooks and other pirated analogue materials. The grace period according to Doha was to expire in 2005. For this reason, professors at NDU who were members of the American Political Science Association (APSA) and/or Modern Language Association (MLA) carried out a straw poll in 2003 among colleagues at the American University of Beirut (AUB), Balamand University, Haigazian University, Lebanese American University (LAU), Near East School of Theology (NEST), NDU, and Saint Joseph University (USJ). This informal and highly unrepresentative survey determined that all institutions did have a policy on compliance with TRIPS, but that illegal photocopying and other forms of pirating

were common place. The justification for this discrepancy was the high price of imported textbooks from the Global North. In order to deal with the impending expiration of the Doha Declaration in 2005, APSA and MLA members approached the publishers of the MLA Style Manual and negotiated the extension of their licensed edition from the Indian market to the entire WANA market as of 2004. The logic behind this endeavour was to use the MLA pilot project not only as a role model for other textbook publishers, but to also expand the logic of fair, licensed editions to fields such as food sovereignty and fair trade, medicine and healthcare in the region, and fair working conditions for labour migrants. Unfortunately, this grassroots 'wishful thinking' never spread to other publishers, let alone other sectors, and the MLA role model was allowed to expire. As assessed by the organizers, this attempt at reform failed because of the lack of anchoring of this academic rule-of-law movement in the larger NGO and civil society networks in Lebanon.

The second phase began as educational resources started to shift from analogue to digital during the 2000s; the MLA experiment took on new relevance in the online sector. NDU introduced the Blackboard Education Technology system in 2002 and launched it as an OnO provider linking in-class instruction with computer-based services. Between its introduction and 2007, Blackboard (BB) use expanded rapidly and by 2007 enjoyed general acceptance, despite its limitations as a technology available only to participants registered in a specific course at NDU, with a time limitation of one semester. As of 2008, instructors began to experiment with links between BB and Facebook (FB), later with WordPress (2011) and YouTube (2010). This grassroots 'knitting together' of various technologies and providers allowed instructors and students to transcend the limitations of BB and make teaching both on-campus and online more interactive. With the acquisition of Skype by Microsoft in 2011, and the introduction of its free messaging service in 2013, many instructors also integrated this online platform into their teaching. Skype would play a big role in the early days of the 2019 uprising before Zoom became predominant in 2020 during the lockdown. A major breakthrough in the thinking of instructors and students alike was provided by the first 'Open Sesame' Bar Camp, organized in February 2009 by Creative Commons activists in Syria and Lebanon, AUB, and the Lebanese digital media NGO 'Rootspace'. More significant than the technical expertise which was provided, this full-day exchange, which we attended with both undergraduate and graduate students, made us aware of the full potential of open education as a concept, as well as the CC-based technology movement. At this time CC Lebanon and CC Syria maintained a vibrant level of collaboration, which was to

come to an end with the beginning of the uprising across the region during the Arab Spring (Merkley, 2017).

Building on the momentum of the 2007 Cape Town meeting of open education activists and the resulting Cape Town Open Education Declaration published in January 2008 (Cape Town, 2008), professors and students at NDU attempted to formalize their collaboration with the cultural and educational commons movement in the Global South. Following a presentation by CopyLeft pioneer Richard Stallman at NDU in June 2010 and the founding of Creative Commons Lebanon at AUB with the support of CC CEO Joichi Ito and OER pioneer Prof. Lawrence Lessig in October of the same year, the APSA Student Society organised a CC and OER event in December at NDU with CC Syria activist Donatella della Ratta and CC Lebanon founder Pierre El Khoury. A variety of online events were organised by CC student activists and instructors in 2011, primarily using existing online conferencing technology at the campus computer centre and weaving it into BB, FB, YouTube, Blogspot, and WordPress. Rima Malek was one of the leaders during these formative years (Malek, 2021). The early pioneers of CC and OER were aware of the inherent danger of integrating the logic of TRIPS into their work on the commons. Simultaneously, it was clear to all that the pervasive culture of impunity in the educational and cultural sectors was not only harming big business interests, but also researchers and artists on the ground. We thus attempted to illustrate the distinction between fraud and plagiarism on the one hand, and intertextuality on the other, while simultaneously referring to Said's work on Orientalism and contrapuntality in our use of textbooks, software, and other instructional material from the Global North. Because this was often limited to the work of a handful of activists on campus, the results remained marginal.

The third phase began with a major breakthrough provided by the 'On-demand Exchange Program Promoting the Development of Open Educational Resources in Middle East and North Africa (MENA)' – a programme funded by the U.S. Department of State (DoS) - which approached the CC group at NDU in the summer of 2013. This resulted in the OER exchange programme 'Promoting Open Educational Resources MENA', organised by the DoS and the Arab League Educational, Cultural and Scientific Organization (ALECSO), which took IT specialists from various Arab universities to the US for three weeks in March of 2014, including NDU. During the same period, the CC team video recorded a course taught by Eugene Sensenig, the first fully OER course offered at NDU with a total

of 18 sessions[26], between February and May 2014. This was the first time that OER content creation could become available online outside the restraints of BB. The fully OER course included 18 c. 100-minute videos on YouTube, with the rest of the material (tests, readers, exercises, notes) uploaded on FB. In 2015 the NDU Libraries uploaded the videos in its institutional repository (IR). Between 2015 and 2019 OER became one of the major projects supported by the university in the technology sector. The mainstreaming of CC and OER at NDU will be reported on in much greater detail in others' articles on Lebanon included in this volume. Of significance for this article is the pioneer role played by the CC activist team in launching the CC licensed e-book series with the NDU Press in collaboration with the IR, including two volumes by the authors of this article.

As the uprising began in October 2019, NDU was well prepared to take a significant segment of its activities online. On 1 March 2020 the schools and universities were closed for a preliminary period of one week, which was to be extended in various forms for almost two years. In deference to the other articles in this volume reporting directly on the role played by OER at NDU before and during the lockdown, we will now focus on the impact of forced migration of OnO to fully online instruction (March 2020-August 2021) and the attempts to implement OmO from September 2021. As of September 2022, courses at NDU are fully face-to-face and on-campus, with OER components optional as was the case before the lockdown.

Studies on the Arab region and Lebanon specifically have determined that there is inadequate awareness on the use of OER. More importantly, these studies could not determine any trends on content creation let alone a coordinated strategy to promote open content creation (Assaf et al., 2022; Ray, 2021; Tlili, 2020). The reflections presented here are based exclusively on personal experience, discussions with colleagues, anecdotal evidence, and our work with our deceased colleague Rima Malek until the beginning of spring semester of 2022 when her illness prevented her from working on the project. Focus will be placed on the link between classroom experience, social activism, and community service within the commons in order to ascertain whether we are moving in the direction of an accelerated tragedy or towards grassroots good governance (Fennel, 2011). Of primary interest will be the attempts made to move away from the 'resource curse' of mere extraction of overly abundant content to the creation of innovative teaching, research, as well as community service

[26] https://www.youtube.com/channel/UCJaKTcnPyruCMj3StKfYAjw/videos

approaches linked to content dealing with the unique issues facing the Global South, the WANA, and Lebanon in particular.

One of the main attributes of teaching and field research in many parts of the Global South, which distinguished it from the realities in the Global North, is the lack of a stable social environment, which is seen as the bedrock of scholarship in traditional pedagogical and academic thinking (Sensenig, 2019).

> *Researchers, academics and activists – as part of civil society – must deal with this intentional lack of security, social justice and freedom. In it we can recognize a form of elite-produced, and potentially indefinite, postcolonial, systemic liminality (p. 106).*

In our opinion, teachers, students, researchers, and activists must not only speak truth to power; they must develop open content from a perspective which simultaneously promotes respect for communal and personal intellectual property, counters the pervasive culture of impunity, and jointly criticises, develops, and transforms our shared 'cultural archive'. By working in a collaborative manner with critical scholars in the Global North and Global South, the conflicts caused by the 'politics of blame', and 'even more destructive politics of confrontation and hostility' (Said, 1994, 51) can be avoided. CC, OER, and OS activists can bridge these gaps because the open content movement provides a global technological platform from which to build a cultural commons. Along with the above mentioned IR and YouTube based OER courses, the ongoing programs mentioned below have facilitated – albeit on a modest level – this global bridge building.

A variety of informal initiatives and cooperative agreements were developed at FLPS and LU during the uprising and lockdown (2019-2021) and in the OmO phase (2021-2022) coming out of it. Along with the pedagogical training provided on campus, the CC teams offered courses dealing with online and blended learning for local schools. One of the unexpected advantages of online courses and student projects was their positive impact on mainstreaming education for students with disabilities. We worked with several students during the lockdown who were able to overcome the physical barriers traditionally impeding their integration. This allowed them to not only become equal team players, but in a few cases to take on leadership responsibilities, for example in the Model Nobel Peace Prize (MNPP), Global Sessions, and United Nations human rights project mentioned below. Because the lockdown and online education had become a global phenomenon, existing

collaborations with universities both in Europe and North America were expanded to include weekly scheduled classes throughout a given semester, along with focused conferences and joint webinars with students in other Lebanese universities and in the European Union (EU). Projects ranged from a joint Model Nobel Peace Prize (MNPP) competition, which was part of a three-credit course taking place over a full semester, and is now in its third year between FLPS and Rider University in Lawrenceville, New Jersey, to the Global Sessions programme on social welfare and health care services and policy, which was carried out on-site in cooperation with universities in Northern and Central Europe, India and Lebanon over an entire week. These projects went online in 2020 and 2021; they took place in 2022 and are planned for 2023 in a hybrid format. The advantage of international blended learning and conferences is that they not only allow participants from the Global South to take part on an equal footing, but that their preparation can be planned gradually, long in advance, and be drafted and implemented incrementally using Zoom, Teams, or similar online conferencing platforms. Thus, online mobility tends to level the proverbial playing field and allow students and instructors from all regions to play an equal role in planning, design, implementation, and follow-up.

2.7 Open content creation at Notre Dame University-Louaize

A variety of research projects, training programmes, periodically scheduled events, and even online holiday celebrations were initiated at FLPS, with partners in other WANA countries and the Global North. Creative use of free, introductory, and teaser versions of existing software packages and applications and the knitting together of OS technology allowed professors at FLPS to develop fully online and blended programmes during the lockdown. These included the production of three different youth-oriented, educational radio shows remotely with university students from different Lebanese universities: LU, NDU, and AUB under the title “Radio Talk” for UNESCO’s World Radio Day in February 2021, designed and supervised by Rouba El Helou. The project was planned and mentored to become a youth initiative relying exclusively on free, OS digital technologies from home. The group was trained on CC, OS values, digital rights, gender equality, environmental protection, and the ‘resource curse’ in the oil and natural gas sector, all of which was fully uploaded on SoundCloud[27]. Other innovations included a series of podcasts with Houston-based

[27] https://soundcloud.com/radiotalk-lebanon

'Women Offshore[28]', dealing with access for girls and women in the fields of science, technology, engineering and math (STEM) and professional positions in the extractive industries; a 'Virtual Barbara Day' celebration blending the traditional Eid il-Burbara (Saint Barbara's Day) in the WANA with the international day for miners, geologists, and metallurgy engineers on 4 December 2020, including presenters and participants from the US, UK, and various universities in Lebanon; and finally, plans for a GIS-based, online, virtual museum on the Anglo-American cultural heritage and footprint in Lebanon, which were launched in 2018, but interrupted because of the uprising and lockdown between 2019 and 2021, kept alive online during this period, and re-started in 2022 with the support of various NGOs, church congregations, professors and students at AUB and NDU, individual artists, and the US and British embassies. All of the above examples combine the creation of original online content from a Global South perspective, a contrapuntal reading of relations between the WANA and former colonial powers in the region, an OmO approach to blending onsite and online activities, learning and research, and a clear commitment to respecting intellectual property while simultaneously speaking truth to power locally and internationally.

Finally, a novel research approach was developed with UN support at NDU which enabled the creation of a unique set of five online fact sheets (five lessons) titled "The Political Economy of Sectarianism and Coexistence in Lebanon". These sheets include trainer and learner activities, class discussions, in addition to educational videos[29] hosted on a purpose-built microsite using WordPress and the content was licensed under CC. This research is an attempt by the authors to anchor the OER approach at FLPS and to create synergy with the academic community in Lebanon and abroad. It is gendered, intersectional, and based on the principles of diversity, equity and inclusion (DEI). This has thus laid the foundation for ongoing original content creation in the field of social sciences and humanities and their application to the solution of the existing acute problems in Lebanon.

Notably, the last event that we three authors, researchers, and activists designed and carried out together as a joint team presentation, was 'Transitioning from OER to

[28] https://womenoffshore.org/championing-women-in-lebanon-episode-29-2/ and https://womenoffshore.org/first-woman-offshore-lebanon-episode-28/

[29] https://www.youtube.com/@gcgmlebanon

Online Instruction in a Culture of Impunity – Lebanon', which took place online at the Florida Virtual Campus, OER Summit in May 2021. The re-launching of Lebanese participation in Global OER week in March 2022 (Open Education Week, 2022) was prepared in cooperation with Rima, but took place without her because of her life-threatening illness. She died four months later.

The above-mentioned March 2022 Open Education event 'Creating Open Content in the Global South: A Dialogue Between Lebanon and South Africa' was organised by FLPS at NDU and the UNESCO Chair on Multimodal Learning and OER at North-West University (NWU) in Mahikeng, South Africa. Along with the hosts, it included presentations from professors and librarians from NWU, NDU, and AUB, as well as over 40 participants from universities in Lebanon, Austria, Lithuania, the United Arab Emirates (UAE), the US, as well as various NGOs, and individual activists. One of the common assumptions shared by most of the Lebanese speakers and members of the audience was that OER was primarily a passive tool and repository to which teachers, researchers and students can go to access abundant resources for free. Despite the title of the event, which focused on the creation of open content, the need for replenishing, restoring, and shepherding the cultural commons was not seen as a priority in Lebanon. Although the South African participants focused on content creation during their presentations, they did understand the initial need for passive use as an introductory step in Lebanon, which should be followed later by active contributions to the commons.

This lack of appreciation for open content creation went hand-in-hand with an underestimation of the value of purpose-built online platforms for those activists in a given university, NGO, or training institution who have developed open content on their own and needed an integrated repository in which to upload and host it. The problem described at the outset of this article, i.e., that active OER content creation today in Lebanon is still based on a 'self-knitted fabric' of various open-access and OS software platforms, social media such as FB, YouTube, Blogspot, and WordPress, along with the respective universities' educational technology systems (Blackboard or Moodle) and IR, has not improved significantly during the last 15 years. Nevertheless, the existence of a broad spectrum of CC and OER-generated content providers and activists does seem to indicate that Ostrom's Law can be applied to Lebanon, despite the pervasive culture of impunity, systemic corruption, and sectarianism within the power elite and population in general.

2.8 Conclusion: Bending the arc and governing the commons

The case has been made here that CC, OER, and OS activists in Lebanon have attempted from as early as the formative years of the movement to deal with the dual threats emanating from the culture of impunity at home and cultural hegemony from abroad. As early as 2003, members of the MLA and ASPA at NDU worked with partners in Lebanon and the US to find solutions to the systematic violation of intellectual property rights. Starting in 2009 they helped create an informal Creative Commons initiative, and later formed a student CC Society at NDU in collaboration with CC Syria, CC Lebanon (founded in 2010), and the university library. Simultaneously, individual activists at LU followed a similar trajectory.

Lebanon is experiencing an intentional crisis at the hands of its power elite, with tacit participation of almost the entire population. This is rooted in the proverbial 'patron-client' relationship which provides tangible rewards to the citizenry in exchange for loyalty. What is currently surprising many observers of the country is that as the sources of this payback are gradually drying up, the population remains nevertheless loyal to its respective power brokers and corrupt leaders on all levels. Sectarianism, a Lebanese variant of the toxic discrimination known in South Africa as Apartheid and the US as 'Jim Crow', is often seen as the energy source which keeps the country running despite a failed state and collapsed economy.

As teachers, scholars, social activists we view the OS movement as a tool which will allow us to speak truth to power in the classroom, online, and in the media. By countering what Carlyle termed the 'lies that [cannot] live forever' (King, 1965), we have attempted during the last 20 years to influence both the message and the medium. Creative Commons provides a platform (medium) through which to not only access alternative sources of information for free, but also allows us to create new content from a contrapuntal perspective, challenging cultural hegemony and simultaneously countering the culture of impunity plaguing our country. It would appear that, as a country, Lebanon is a good example of the 'Tragedy of the Commons' destroying an entire people. The exploitative mindset driving this gradual undermining of the country's resources is shared by individuals on all levels and in all walks of life.

In contrast to Lloyd's bleak picture of a downward spiral of disaster and destruction within the commons, Ostrom has recognized spontaneous and grassroots forces which are able to renegotiate the game rules and thus regenerate the commons (Hess

& Ostrom, 2007). The 'Governing of the Commons' in the pedagogical, communications, and training sectors would seem to be one of the few areas in which the Lebanese people, individually and collectively are resisting the logic of ultimate disaster in the country. As has been illustrated in this article, a variety of open content and grassroots initiatives are now developing alternative scenarios which are interfacing with university administrations and providing space for recovery of the commons in the WANA, despite the overall crisis in the region. Within the narrow confines of the CC, the arc of history does seem to be bending toward justice, while setting the record straight by linking content creation in the Global South to the rest of the moral universe.

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CHAPTER 3:
A Case Study of Open Educational Resource Implementation at Notre Dame University-Louaize, Lebanon

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Abstract
Considering the recent paradigm shift in education brought about by the Covid-19 pandemic, educational institutions have shifted to optimizing the use of technology for distance teaching and learning. This shift has propelled educational institutions worldwide to experiment with innovative teaching and learning methods—a de facto measure employed to ensure educational continuation previously disrupted by pandemic-related closures. Lebanon is not an atypical case; in addition to the pandemic, closures have been inflicted on the education sector by the events of October 17, 2019, and the unprecedented economic meltdown. Against this backcloth, the current chapter reports the findings obtained from a case study conducted at Notre Dame University-Louaize (NDU) in Lebanon on the use of Open Educational Resources (OER) as a depository of open content provision for creating a course amalgamating synchronous and asynchronous teaching, communication, and collaboration via the university's Learning Management System (LMS). The proposed course involved transforming OER content into interactive SCORM placed on the LMS to widen students' active learning, engagement, and interactivity, with an eye to having the learners gain 21st-century competencies. The perceived learning experience of 60 students enrolled in Introduction to Computers (CSC201) at NDU is documented below, reflecting on the utility of the proposed course model in enhancing student learning. The study concludes with highlights on the usefulness of this OER-based model in reducing textbook costs and providing students with equal opportunities for access to learning.

Keywords:
e-Learning, OER, technology, NDU, LMS, SCORM, Covid-19 pandemic, distance learning, active learning, synchronous learning, asynchronous learning, creative commons.

3.1 Introduction

The post-Covid-19 educational system should be radically reshuffled by integrating innovative tools, ideas, and initiatives. Post-pandemic learning requires innovative solutions, and thus, at the November 2021 conference, UNESCO posed the following questions: "Shall the World get back to normal? Which wasn't really normal in terms of Human and Basic rights?" (UNESCO, 2021). Academic institutions should not go back to the “old” normal, but should follow visions redefining and refining a future for our young generations that respects basic human needs and fundamental rights.

A 2021 study entitled "The Transformation of Higher Education After the COVID Disruption: Emerging Challenges in an Online Learning Scenario" focused on education. It claimed that "[h]igher education institutions are undergoing radical transformations driven by the need to digitalize education and training processes in record time with academics who lack innate technological capabilities for online teaching" (García-Morales et al., 2021). In other words, one of the core problems higher education institutions faced because of the COVID disruption was the paradigm shift in pedagogy and delivery methods, to which academia had to respond efficiently within a very short period.

During the shift from traditional to online pedagogy, discussions arose concerning the nature of online learning. Online learning should not emphasize delivering content online only, nor should it be considered a tool used separately from pedagogical approaches. Online learning has been conceived as an expertise that requires competencies in teaching (Branch & Dousay, 2015) with an eye for 21st-century skills, including critical thinking and problem-solving. Subsequently, if online pedagogical approaches are to be a common teaching method in academic institutions, virtual teaching methodologies will have to be reconceived to optimize the usage of the dedicated platforms.

In Lebanon, the initial process of adapting to online teaching was encumbered by the country's lacking infrastructure. According to Kamal Abouchedid (2020), power outages, poor connectivity, and limited bandwidth frequently disrupted online sessions. The complex situation thus necessitated the use of asynchronous teaching

methods, such as pre-recorded sessions and Learning Management Systems, in our case Blackboard or Moodle. Technology has thus provided faculty members the opportunities to overcome debilitating hurdles, enriching the teaching and learning experience.

Despite the abrupt shift to online learning shift and the various economic and political difficulties countries such as Lebanon were facing, institutions and faculties' efforts elevated the standards of teaching. From asynchronous, pre-recorded lessons to live classroom sessions and independent projects, the current teaching curriculum has acquired diverse methodologies that may have existed before the pandemic but were previously not implemented. According to Dian Schaffhauser, the rapid use of online classrooms during the COVID-19 pandemic has led to an increased adoption of online resources (Schaffhauser, 2020). In the article entitled "Teaching with OER during pandemics and beyond," Jennifer Van Allen and Stacy Katz observed that the potential of OER to improve equity in learning beyond the pandemic is compelling. They also referred to the Creative Commons blog notes which stated that "[o]pen education is not a short-term fix to a passing problem, it is a long-term solution to ensuring equitable, inclusive access to effective educational resources and learning opportunities" (Van Allen & Katz, 2020). To achieve this type of access, Van Allen and Katz urge educators to adapt, reuse, or adopt OER to increase student access to learning materials and maximize their engagement and learning experiences.

In this chapter, the OER movement at the regional, national and international level is highlighted. Then the methodology adopted, research question & steps for proper OER implementation within Notre Dame University-Louaize are examined. Finally, some recommendations are shared based on findings and analysis.

3.2 Literature Review

UNESCO defines Open Educational Resources (OER) as "teaching, learning and research materials in any medium – digital or otherwise – that reside in the public domain or have been released under an open license that permits no-cost access, use, adaptation and redistribution by others with no or limited restrictions" (UNESCO, 2021). Those resources have gained worldwide attention in recent years as means of providing free and accessible educational materials. UNESCO's UNESCO on OER

built on the Ljubljana OER Action Plan 2017[30] to mainstream these resources in order to help all Member States to create inclusive knowledge societies and achieve the 2030 Sustainable Development Goals (SDGs). The main SDGs that OER has the potential to help achieve are: SDG 4 (Quality education), SDG 5 (Gender equality), SDG 9 (Industry, innovation, and infrastructure), SDG 10 (Reduced inequalities within and across countries), SDG 16 (Peace, justice and strong institutions) and SDG 17 (Partnerships for the goals) (UNESCO, 2019). According to the 2020 EDUCAUSE Horizon Report on Teaching and Learning, OER is rapidly expanding far beyond the traditional textbook boundaries (O'Brien, 2020). Within the framework of this expansion, OER initiatives have been launched by governments, educational institutions, and non-profit organizations.

Daniel Otto complimented UNESCO's declaration in his article entitled "Adoption and Diffusion of Open Educational Resources (OER) in Education: A Meta-Analysis of 25 OER-Projects" (Otto, 2019). In his article, he presented the findings of a meta-study that critically reviewed 25 state-funded OER projects located in Germany. Based on his findings, he declared that OERs are frequently being used in all areas of education, and they cannot be disregarded in the context of teaching and learning. In parallel, in the EDUCAUSE report referred to previously, John O'Brien stated that, despite an increase in available resources, most students and faculty remain unaware of OER. He added that, although those numbers are gradually improving, institutions still have the duty of educating faculty and students on the use of OER (O'Brien, 2020). Assaf et al. (2022) also raised this issue in their article entitled "Promoting the full potential of Open Educational Resources (OER) in the Lebanese educational community" (Assaf et al., 2022). They observed that, although a number of the surveyed instructors had previous knowledge of OER, they misunderstood the concept of OER due to their lack of awareness of open licenses.

In a recent study entitled "Current state of open educational resources in the Arab region: an investigation in 22 countries," the analysis of the obtained results showed that OER progress is inconsistent within the Arab countries, several of which still lack behind in incorporating these resources in their education systems (Tlili et al., 2020). The quality of the available OER is also an issue, as reported by Maha Bali, associate professor of practice at American University in Cairo, who mentions that Egyptian students generally lack access to high-quality textbooks, and those that are

[30] https://www.oercongress.org/woerc-actionplan/

available are usually expensive and written in English, not Arabic (Koenig, 2020). Furthermore, O'Brien considered that the cost savings generated from OER use are significant. He stated that students spend roughly $82 to $100 per textbook, and textbook purchases are sometimes delayed due to their prices. Moreover, some students elect not to purchase textbooks, while others consider textbook prices as the deciding factor for choosing a major, and others still choose to drop their courses due to their inability to fund the necessary materials (O'Brien, 2020).

On the Lebanese national level, according to the National Educational Technology Strategic Plan (2012)[31], one of the recommended actions to be executed during the period between 2012 and 2017 was to adopt a concerted approach towards developing, procuring, and using high-quality digital content. It was also suggested to build a national repository for educational resources, which are either produced or curated in alignment with the Lebanese curriculum. The strategic plan also advised classifying those resources according to specific metadata and making them accessible to the educational community; nevertheless, these plans were not executed until March 2020 when they were implemented as a response to COVID-19. Moreover, few resources were published and made openly accessible - for a limited time only - and this excluded the possibility of downloading or sharing them (Assaf et al., 2022).

In recent years, Lebanese education institutions have become increasingly interested in OER, though it was not until the US State Department's initiative that actions started to solidify. The program, entitled "On-Demand Exchange Program Promoting the Development of Open Educational Resources in the Middle East and North Africa (MENA)," invited MENA region experts to learn about the Open Book Project, after which a non-governmental organization, OER Lebanon, was launched. Its mission is to promote the benefits of OER to local universities, seeing it as a reliable and accomplished alternative that provides equal opportunities to students regardless of racial, religious, and economic backgrounds.

At the 2015 Creative Commons (CC) Summit, representatives of OER Lebanon, Dr Fawzi Baroud and Dr George Abdelnour, explained that the organization was devised to address pressing problems in the Lebanese educational sector, the first of which is the steep cost of higher education due to its nature as a primarily private

[31] https://tech.ed.gov/files/2017/01/NETP17.pdf

sector. Due to the difference in quality between the private and public education systems, the latter became a minority rarely sought after amongst the citizens. However, private primary, secondary, and higher education tuition fees are relatively expensive compared to the average Lebanese household's income; considering that this cost is on a rising curve, alternative resources such as OER aid in managing this increase. Another problem that OER Lebanon seeks to address is the need for Arabic language resources; as such, it sought to tailor established resources to the needs of the region. Thus, higher education institutions (HEIs) formulated ways to implement OER throughout faculties and included it in their strategic plans. In parallel, IT departments conducted workshops for faculty members, students, and librarians to introduce them to CC and OER. At a later stage, advanced seminars and workshops were conceived to help diverse attendees learn how to create and curate resources. Committees dedicated to the initiative also drafted policies and strategic reports that standardized OER usage in private and public education. Likewise, OER advocates such as Dr. Fawzi Baroud held meetings with the Ministry of Education and Higher Education (the MEHE) to discuss plans concerning the OER initiative. Furthermore, HEIs formed clubs that brought together students and faculty members alike that worked alongside committees to raise awareness.

OER Lebanon initiatives were nevertheless met with resistance at the faculty, administrative, and ministry levels due to the misconceptions concerning the quality of the resources. HEIs feared that, due to the reduced cost of OER, the quality would not be up to par. Thus, OER Lebanon scheduled discussions concerning quality control and student performance in courses that implemented these resources. The strategic document helped alleviate these concerns, as it covered sets of policies and procedures that would govern the integration and adaptation of a broad range of OER resources.

3.3 Methodology

The case study conducted in this paper sought to share the implementation and delivery of OERs to CSC201 students. Subsequently, the findings analyzed are based on student perceptions, feedback, and preferences about online learning via OER. The case study’s aim is to validate the research question by testing the effectiveness of those resources and the delivery method used to overcome the obstacles related to the pandemic and the economic crisis.

The research followed the quantitative method in collecting and analyzing data. Only one open-ended question was included in the Microsoft Forms survey that catalogued the students' remarks about their experience. The questionnaire consisted of seven sections, with the first section targeting students' feedback about online learning and OER. In the second section, the students were asked to evaluate their attitude toward the use of OER in the course on a Likert scale from 1 to 5, where 1 designated "strongly disagree" and 5 meant "strongly agree." In the third section, they were asked to rate their experience with the presentation of OER in SCORM format on Blackboard. In the fourth and fifth sections, they had to rate the quality of the resources, as well as the effectiveness of the methods of instruction and assessment used in the course. As for the sixth section, there they were asked to rate how likely they would choose a course that adopted OER over one that used a printed textbook in the future. Finally, in the seventh section, we collected personal and general information about the students, to provide context to their answers. The data was downloaded from MS Forms to Excel, which was then organized and sorted by question, then subjected to statistical analysis in Excel.

The survey was first shared with 3 faculty members from different backgrounds and a statistician to check its validity pedagogically and statistically. Subsequently, the survey was amended accordingly and disseminated online in the diverse sections of the course on the university Learning Management System (Blackboard). 51 out of 60 students registered in the two sections of the course responded to the survey.

3.4 Research question and objectives

The present case study aimed to highlight an initiative to implement OER at Notre Dame University-Louaize, Lebanon, specifically in the course entitled "Introduction to Computers" (CSC201). Through this study, we sought to answer the following research question: Will OER provide opportunities to faculty and students to overcome debilitating hurdles caused by the Covid-19 pandemic, especially during an economic and financial crisis, and help them to ensure teaching and learning continuation?

Various related questions arose from our initial question:

- Will online learning expand the students' scientific knowledge via access to OER?
- Will the use of OER improve the quality of the learning experience?

- Will online learning positively affect students' self-paced learning by presenting OER in the SCORM format?
- Will the presentation of the OER in the SCORM format serve as a substitute for other resources provided such as the printed textbook, pdf files, videos, and online resources?

Although OERs reside in the public domain, an open license makes it possible for educators to use the work of others, as well as to share their own work freely and legally; these are known as Creative Commons licenses. More details about those licenses can be found on the Creative Commons website[32], where they also provide a license chooser tool for users to build their own licenses (Creative Commons, 2021). Examples of alternatives to Creative Commons are GNU General Public License[33], Mozilla Public License[34], and WTFPL[35].

Furthermore, the use of OERs is framed by the following 5R activities: Retain, reuse, revise, remix, and redistribute (Wiley, 2014). The details relating to the 5Rs will be discussed later in this chapter. We profited from the characteristics of these resources to create the course content and present it to students on our Blackboard Learning Management System (Blackboard Learn[36]). Our main objective was to ensure education was not disrupted by closures related to the pandemic and the unprecedented economic meltdown. For this purpose, we decided to find and adopt OER with specific open licenses to help meet the following objectives:

a) Fit OER within the context of the course and align them to the course learning objectives. Learning objectives describe learners' capabilities upon the completion of the course and are already defined in the course syllabus. All course activities and assessment methods are chosen to help learners meet those objectives.
b) Curate the content and ensure expanded access to learning. The main objective of curating content is to organize, update, and maintain information for access and consumption. By curating OER on Blackboard, we provided students with opportunities to access their courses anywhere and at any time.

[32] https://creativecommons.org/licenses/
[33] https://alternativeto.net/software/gnu-general-public-license/about/
[34] https://alternativeto.net/software/mozilla-public-license/about/
[35] https://alternativeto.net/software/wtfpl/about/
[36] Blackboard Learn is an application for online teaching, learning, community building, and knowledge sharing.

c) Assure quality, completion rates, and increased performance. Research has proven that providing resources of good quality to learners increases their performance, improves end-of-course grades, and completion rates (Murphy, 2021). Hence, one of our main concerns while searching for OERs was to make sure the resources were of good quality.
d) Meet students' educational and financial needs. Research shows that many higher education students do not purchase the required textbooks and even defer certain subjects due to the high cost of teaching/learning materials (Kramer, 2018). In Lebanon, the financial and economic crisis complicated students' purchasing power, which may have affected their educational performance.
e) Lower the cost of creation, use, and maintenance for faculty. Faculty members have greater freedom in selecting and customizing course materials by opting for the use of OERs framed by the above-mentioned 5Rs. Moreover, they will copy and reuse this digital content on Blackboard.

3.5 Implementation at Notre Dame University-Louaize

Among the higher education initiatives in Lebanon, the OER process was institutionalized at Notre Dame University-Louaize (NDU) and a dedicated committee was formed. The university IT department held training sessions for top administrators, such as deans and vice presidents, as well as staff and faculty members. In the spring of 2016, a pilot was administered by NDU's Department of English and Translation in the Faculty of Humanities, with close to 500 students enrolled in a freshman English composition course. Students' feedback reveals overwhelming satisfaction and engagement levels when using OER. Given the success of the pilot course, the university planned to expand the use of OER in other disciplines in the future. The publication is shown in Box 3.1 below.

Box 3.1. Notre Dame University-Louaize Adopts OER under CC Licenses (Zarif, 2016)

Notre Dame University-Louaize Adopts Open Educational Resources under CC Licenses

"Currently, NDU students across three campuses are taking part in the university's first pilot English course fully based on open educational resources (OER). Following the university's strategic decision to integrate

OER in teaching and learning, students enrolled in Sophomore Rhetoric, the university's core English requirement, are the first cohort to pilot the use of open educational resources in the classroom, reducing textbook costs while promoting a culture of sharing and sustainability on campus.

"Students have been demanding innovation in the classroom for a long time now," Department chairperson George Abdelnour explained, "and by blending digital technology and high-quality academic resources that are freely and openly available online, we are trying to make the learning of writing more effective and engaging." The piloting takes place in 25 sections of English Rhetoric with a total student enrollment of 500.

The adoption of OER follows NDU's signing of an Affiliate Agreement with Creative Commons, the non-profit organization providing copyright licenses for the free use and sharing of academic and creative resources. OER used in the pilot course has been licensed by Creative Commons and is thus freely available to students and faculty, thus avoiding any copyright infringements. As an institutional affiliate of Creative Commons, NDU is leading the way among higher education institutions in Lebanon to promote open education and open access.

The development of this new, OER-based course was the product of collaboration between the Department of English and Translation at the Faculty of Humanities and the Division of Computing Services under the leadership of Assistant Vice-President for Information Technology, Dr Fawzi Baroud. A committee of three faculty members from the Department of English and Translation led efforts to identify, integrate, and redesign the course, namely Drs. Sandra Doueiher and Ena Hodzik, both Assistant Professors of English and Applied Linguistics, and adjunct faculty member in English Nathalia Geha".

In line with the university's vision and its strategic decision to support the OER movement by expanding the use of OER in various disciplines, the committee decided to implement OER in the CSC201 course as an attempt to overcome the challenges faced during the pandemic and the economic crisis.

CSC201 is among the Liberal Arts Curriculum courses required at NDU. A description of the course can be found in the syllabus: "CSC201 is an undergraduate course that exposes students to a broad view of computer literacy by examining computer fundamentals, the system unit, input/output and storage, system and application software, the Internet and the WWW, networks, computer ethics, and security. In addition, the course aims to provide students with skills in managing data, word processing, electronic spreadsheets and presentations, web browsing, and e-learning" (NDU, 2017). Below are the nine chapters that cover the course's main topics:

- Chapter 1: Introduction to Computers
- Chapter 2: Hardware
- Chapter 3: Software
- Chapter 4: Networks and the Internet
- Chapter 5: Computers and Society
- Chapter 6: Windows
- Chapter 7: Microsoft Word
- Chapter 8: Microsoft Excel
- Chapter 9: Microsoft PowerPoint

The course's main resource is an imported print textbook covering the first five chapters in the previous list. The remaining four chapters are explained by the instructor and are accompanied by lab practice. Students must buy the textbook, as it is their only reference for the first five chapters.

However, due to the textbook’s price in United States dollar, the cost proved to be a hurdle to students due to Lebanon’s economic situation. In addition to the financial issues, the pandemic resulted in border closures, and Lebanon’s economic status and unstable infrastructure caused unreliable power supply and internet unavailability. With all these challenges at hand, the course lecturers were obliged to find a suitable solution to ensure the continuation of the course; hence, the adoption of OER.

3.6 Planning the use of Open Educational Resources

Various options are available to include OER in teaching and learning materials, amongst which is the educators’ adoption of high-quality resources with no need for modification. Other options included the creation and licensing of their own materials, the adaptation of existing materials, or merging multiple resources and

tailoring them to the course topics (Shumway, 2021). The process followed by the instructors echoes the path followed by the Community College Consortium for Open Educational Resources (CCCOER), which “promotes the awareness and adoption of open educational policies, practices, and resources" (CCCOER, 2021). CCCOER defines the following five steps for OER adoption:

- Step 1: Review the Materials
- Step 2: Modify the OER (if necessary)
- Step 3: Attribution of OER
- Step 4: Curriculum Approval (if needed)
- Step 5: Delivery of OER to Students

In our case, we chose to adapt or adopt existing materials depending on the quality of the resources and their alignment with the course topics and objectives. We followed the five-step process illustrated in Figure 3.1 below: Find OER, Review, Adapt and License, Deliver OER, and Evaluate the Delivery. Those steps are based on those of the CCCOER, though some steps were combined, and others were added. We list each step below and explain its application in the coming sections.

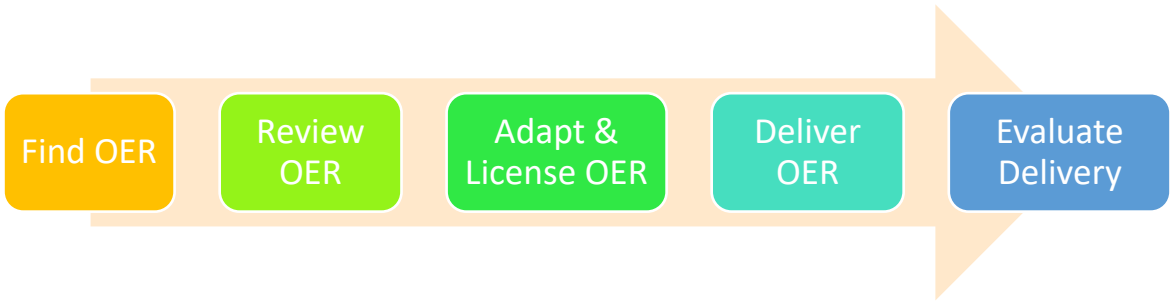

Figure 3.1. Planning the use of OER

3.6.1 Finding Open Educational Resources

OER can be found by using search engines or by browsing OER-dedicated repositories. Resources can include complete courses or books, and may contain several types, such as text, images, videos, audio, etc. BC3 Library at the Butler County Community College[37] divides the search methods used to find OER into the following categories: Open Textbooks, Complete Courses, Searching the Commons, Open Access Collections and Repositories, OER Content from Publishers, OER Search Engines, and Google Advanced Search (Shumway, 2021). Despite trying

[37] https://bc3.edu/

some of the search engines listed under those categories, we did not find suitable resources for our CSC201 course. However, using Google Advanced Search, we found the open book entitled "Introduction to Computer Information Systems" on WIKIBOOKS (WIKIBOOK, 2017). WIKIBOOKS is an open-content textbooks collection that anyone can edit, search, and view the history, as resources residing on WIKIBOOKS are available under the Attribution-ShareAlike Unported (CC BY-SA 3.0) shown in Figure 3.2 below. According to this license, "users can share, copy, and redistribute the material in any medium or format, just as they can also adapt, remix, transform, and build upon the material for any purpose, even commercially" (Creative Commons, 2021). Subsequently, the OER committee at NDU decided to adopt the textbook, as it matched the criteria required to form the CSC201 curricula.

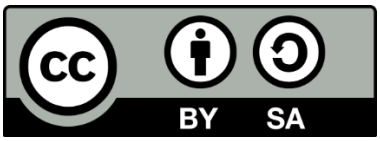

Figure 3.2. Creative Commons Attribution-ShareAlike Unported (CC BY-SA 3.0)

3.6.2 Reviewing Open Educational Resources

The above cited book is divided into six parts, covering most of the topics discussed in CSC 201. The first five parts that could be tailored to the first five topics/chapters were shared with the four course instructors for review, which was done using the rubric in Table 3.1 below. We built this rubric based on six OER Evaluation Criteria published by Affordable Learning Georgia (Gallant, 2015). As for the quality of the resources, we evaluated the criteria on a scale between 0 and 4 (Bad, poor, fair, good, excellent), where 0 is Bad, and 4 is excellent.

Table 3.1. OER Evaluation Rubric

Criteria/Quality		Bad	Poor	Fair	Good	Excellent
1	Clarity, Comprehensibility & Readability					
2	Content Accuracy and Technical Accuracy					
3	Adaptability and Modularity					
4	Appropriateness					
5	Accessibility					

6	Supplementary Resources					

In general, the evaluation of the resources was deemed more than satisfactory. The content is clear, comprehensible, readable, and appropriate to the course topics. Moreover, according to the book version history, the content was published for the first time in 2013, and the last updated chapters are dated between 2018 and 2020, which marks the content as recent. Although the topics constantly evolve due to their nature as being computer- and technology-based, we considered the resources accurate and up to date, since the course targets a general audience. Furthermore, the resources are organized by topic, facilitating their adaptation and organization in a modular design consistent with the course structure.

Additionally, at the end of each chapter, there are supplementary resources such as a glossary, the definition of the key terms, some review questions with their answers in the form of true/false, multiple-choice and fill-in-the-blank questions, as well as a list of references for the topics covered in each chapter. As for accessibility, the e-book content design meets most of the standards defined by WCAG 2.1[38] (Web Content Accessibility Guidelines). Following these guidelines enabled us to make the content more accessible to a wider range of people, including people living with a disability (WCAG, 2017).

3.6.3 Adapting and licensing Open Educational Resources

As the Creative Commons license attached to the book allows for adaptation, and seen that users described the resource to be of good quality, we decided to modify the information and present it to students in a simpler, interactive, and well-organized method on Blackboard. We collected the essential information related to the chapter topics and organized this in a PowerPoint presentation for each chapter. We applied the same template and design on the presentation slides and followed the Web Content Accessibility Guidelines. In addition, we recorded the presentation script, saved it in mp3 format, and distributed the recordings with the presentation slides. We also added some animations and interactively presented the content. Moreover, we used a PowerPoint-based authoring tool to create interactive quizzes between the slides and at the end of the presentation. The quiz questions were selected from the review questions provided at the end of each chapter. By submitting the quizzes,

[38] Web Content Accessibility Guidelines (WCAG) 2.1 covers a wide range of recommendations for making Web content more accessible. https://www.w3.org/TR/WCAG21/

students could test their knowledge about the chapter topics using an unlimited number of attempts. The results of those attempts were saved in Blackboard Grade Center, which enabled us to monitor student progress and performance in the course.

Note that the original text was organized by topics and saved in PDF format to provide alternative resources to students on Blackboard. We also provided the URL to the original resources for each chapter. As for licensing the adapted resources, there was no need, since the original text is available under the Creative Commons Attribution-ShareAlike Unported (CC BY-SA 3.0), we can reuse it under the terms shown in Figure 3.3 below.

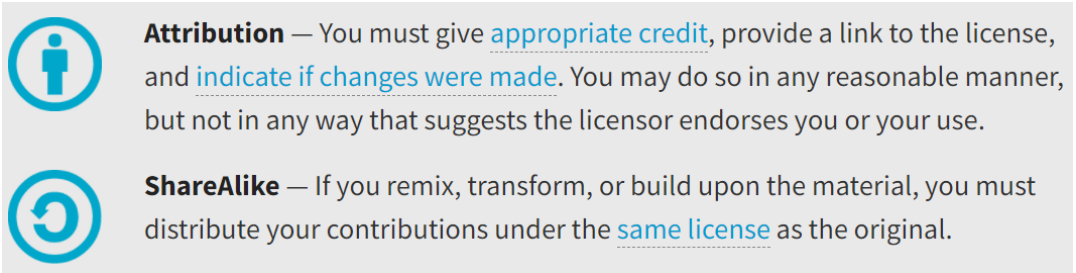

Figure 3.3. Licensing OER

By respecting the author's original license of the content, we kept the same license as shown previously in Figure 3.2, which is the Attribution-ShareAlike Unported (CC BY-SA 3.0).

Figure 3.4 below is a screenshot taken from PowerPoint that shows how the attribution to the original author was added to the content of chapter 3 after adaptation, and how the new license was added.

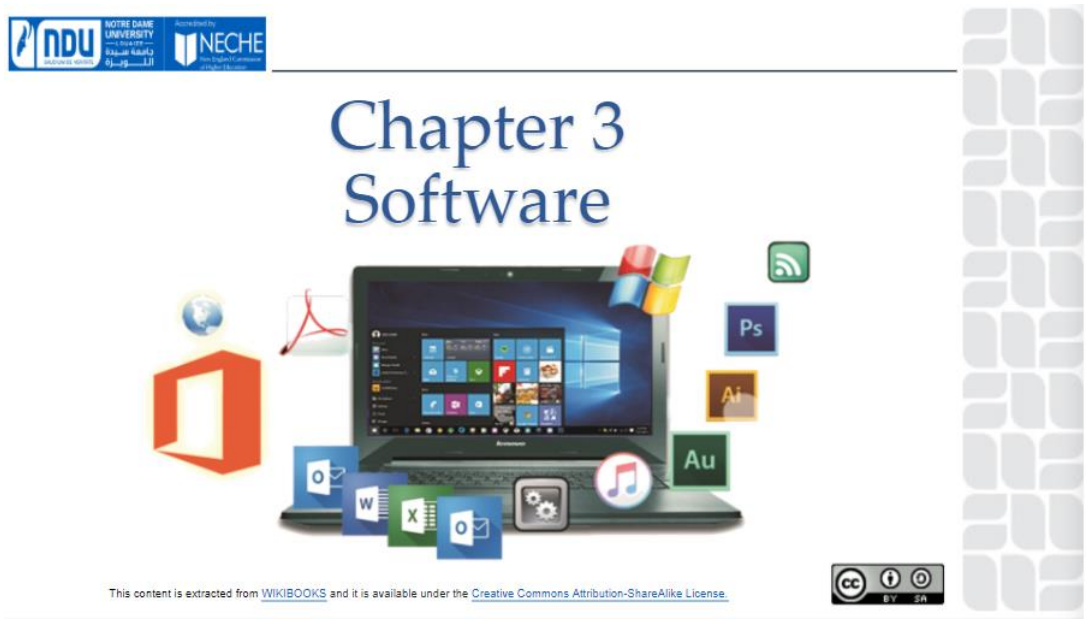

Figure 3.4. Chapter 3

3.6.4 Delivering Open Educational Resources

At this level, some instructors decided to deliver the resources on Blackboard in PDF format, while we chose to deliver it in the SCORM format (Sharable Content Object Reference Model). SCORM is an international standard for e-courses, allowing simple integration of content in Learning Management Systems. SCORM has many advantages such as interoperability, flexibility, reusability, consistency, and compatibility. Moreover, it allowed to save user progress, provide feedback, and helps in designing a clear course structure (Colman, 2020). We used the iSpring[39]authoring tool to create a SCORM package for each of the five chapters. In some cases, we divided the chapters into sections and created a SCORM package for each section. Sectioning content is efficient and increases learners' engagement, acts as a checklist focusing the learners on a particular topic, speeds up curriculum development and updating, improves learner outcomes, and helps trainers create more engaging assessments (Firmwater, 2021). The course structure on Blackboard is modular, and the module duration is one week on average. We uploaded the corresponding SCORM packages to each module and restricted access by date.

[39]https://www.ispringsolutions.com/?utm_source=google&utm_medium=cpc&utm_campaign=fr_en_ispring_general&utm_term=ispring%20website&utm_content=137047004531&ad_group=ispring_general&gclid=CjwKCAjw_YShBhAiEiwAMomsELdDxw5YraXfd6X-xcs07exZ-4wRI_sVI3alWVgKn1-C6vRKQcjT9RoCC8kQAvD_BwE

Furthermore, we added supplementary resources to each module, such as the original OER chapters we saved as PDF, the URL of each online chapter, and relevant YouTube videos. Figure 3.5 below shows the structure of Week 4 on Blackboard, including the SCORM of the two sections of chapter 3 and the folder containing additional resources related to this chapter.

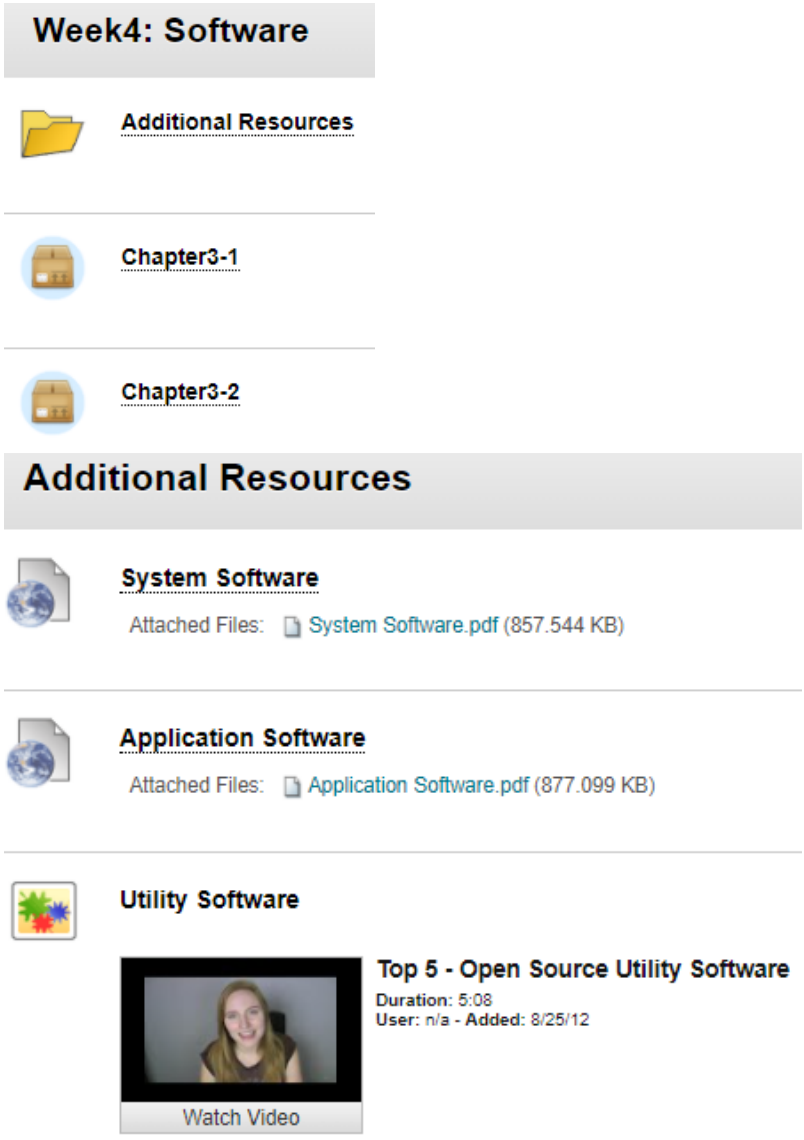

Figure 3.5. Course Structure on Blackboard

More details about the course structure and the delivery model are shown in Table 3. below. For example, during week 1, we organized three synchronous sessions to explain the basics of OER, introduce the course structure on Blackboard, and

demonstrate how the students should participate in the synchronous and asynchronous sessions according to the course plan. Additionally, as shown in the course plan, the duration of chapters 1, 2, 3, 8, and 9 was one week. Those chapters contained the OER we transformed to SCORM, including the self-test, and were delivered asynchronously. Students had one week to read each chapter's content and profit from an unlimited number of attempts to test their knowledge. Each week, a synchronous session was scheduled to summarize the chapter topics, answer students' questions, and organize individual and group activities. Throughout Weeks 2, 3, and 4, students had to participate in Blackboard discussion forums about the first three chapters and reply to their peers. For the remaining chapters, all sessions were delivered synchronously on MS Teams, and the duration of each chapter was two weeks, with a total of 3 hours per week. At the end of each chapter, the students had to submit an assignment as proof of understanding of the chapter topic. Three main assignments were given, one at the end of each MS Office chapter: MS Word, MS Excel, and MS PowerPoint. Test 1 was scheduled during Week 6, covering the content delivered during the first five weeks. Meanwhile, the final exam was scheduled at the end of the semester and covered the content delivered during weeks 13 and 14.

The marking scheme is shown in Table 3. below. To widen students' active learning and engage them in the learning process, we assigned a total weight of 10% of the final grade to reading and completing the five SCORM-based chapters (2% per chapter). We also assigned 5% to the discussion and 10% to each assignment. The remaining 55% were distributed on test 1 (20%) and the final exam (35%).

The course structure, especially the content and its presentation on Blackboard, should be evaluated, updated, and improved periodically. In the next section, we explain the evaluation process we applied after delivery to students on Blackboard.

Table 3.2. Course structure and delivery model

	From	To	Chapter	Delivery mode	Activity
Week1	06/09/2021	12/09/2021	Introduction	Synchronous sessions (3)	
Week2	13/09/2021	19/09/2021	Chapter 1	Content and Self Test	Discussion
	15/09/2021			Synchronous session (1)	
Week3	20/09/2021	26/09/2021	Chapter 2	Content and Self Test	
	22/09/2021			Synchronous session (1)	
Week4	27/09/2021	03/10/2021	Chapter 3	Content and Self Test	
	29/09/2021			Synchronous session (1)	
Week5	04/10/2021	10/10/2021	MS Windows	Content and Quiz	
	06/10/2021			Synchronous session (1)	
Week6	11/10/2021	17/10/2021			Test 1
	13/10/2021				
Week7	18/10/2021	24/10/2021	MS WORD	Synchronous sessions (3)	Assignment 1
Week8	25/10/2021	31/10/2021	MS WORD	Synchronous sessions (3)	
Week9	01/11/2021	07/11/2021	MS Excel	Synchronous sessions (3)	Assignment 2
Week10	08/11/2021	14/11/2021	MS Excel	Synchronous sessions (3)	
Week11	15/11/2021	21/11/2021	MS PowerPoint	Synchronous sessions (3)	Assignment 3
Week12	22/11/2021	28/11/2021	MS PowerPoint	Synchronous sessions (3)	
Week13	29/11/2021	05/12/2021	Chapter 8	Content and Self Test	
	01/12/2021			Synchronous session (1)	
Week14	06/12/2021	13/12/2021	Chapter 9	Content and Self Test	
	08/12/2021			Synchronous session (1)	
Week15	15/12/2021	23/12/2021	Final Examinations		Final Exam

Table 3.3. Marking Scheme

Grades' Distribution	
SCORM Completion (Chapters 1,2,3,8 & 9)	10%
Online Discussion (Chapters 1,2,3)	5%
Assignments: MS Word, MS Excel, MS PowerPoint	30%
Test 1 (Chapters 1,2,3 & 4)	20%
Final Exam (Chapters 8 & 9)	35%
Total	100%

3.6.5 Evaluating Open Educational Resource implementation

To evaluate the delivery model that we applied and the effectiveness of OER, we conducted an evaluation survey at the end of the semester. 51 out of 60 students registered in the two CSC201 sections responded to the survey, resulting in an 85% response rate. The participants were gender-distributed equally and originated from different faculties. Most of the students were in their first year (53%) and 37% were in their second or third year.

Furthermore, we asked the students how often they purchased the required textbooks for the courses they took. The answers distribution in Table 3.2 below shows that 20% of the students never buy the book, 24% rarely buy it, 18% buy it about half the time, 16% often buy it, and 24% always buy it.

Table 3.2. Purchasing textbooks

Never	20%
Rarely	24%
About Half the Time	18%
Often	16%
Always	24%

Moreover, we asked them if they had access to any OER before taking CSC201. 59% confirmed that they already accessed OER in previous courses, and 73% confirmed that online learning via unlimited access to OER and online lectures and material expanded their knowledge.

In order to assess students' attitudes toward using OER in CSC201, we asked participants to rate their learning experience on a Likert scale from 1 to 5, where 1 is "strongly disagree" and 5 is "strongly agree." The results in Table 3.3 below confirm that the students enjoyed learning in CSC201 because it incorporates OER, and declared that OER directly improved the quality of their learning experience. They also confirmed that the OER content matches the course learning objectives of CSC201. In addition, most participants agreed that the use of OER in the course offers them significant advantages, renders CSC201 a more interesting course, and offers them a sense of independence. Moreover, a number of students agreed that online learning affected positively their self-paced learning when using OER resources presented in the SCORM format. The option to replay those resources enhanced their overall comprehension level and their confidence regarding how the material is assessed and grasped at various speeds and time intervals.

Table 3.3. Attitude toward the use of OER in CSC 201

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
I enjoyed learning in CSC 201 because it incorporates OER.	0.00%	1.96%	17.65%	43.14%	37.25%
OER directly improved the quality of my learning experience in CSC 201.	0.00%	0.00%	21.57%	52.94%	25.49%
The learning objectives of CSC 201 match the content of the OER used.	1.96%	0.00%	11.76%	45.10%	41.18%
A CSC 201 course that uses OER is of less value to me because anyone can access the open educational resources used.	11.76%	33.33%	37.25%	13.73%	3.92%
A printed textbook would help me understand topics better than OER in CSC 201.	19.61%	37.25%	19.61%	13.73%	9.80%
The use of OER in CSC 201 offers significant advantages to me.	0.00%	1.96%	15.69%	49.02%	33.33%
The use of OER makes CSC 201 a more interesting course.	0.00%	1.96%	13.73%	41.18%	43.14%
I have had difficulties accessing digital OER due to internet connectivity issues.	19.61%	15.69%	35.29%	25.49%	3.92%
I feel that I am a more independent learner as a result of my CSC 201 course because of the use of OER.	0.00%	1.96%	19.61%	47.06%	31.37%
Online learning affected your self-paced learning using OER-based SCORM?	1.96%	3.92%	52.94%	29.41%	11.76%
The option to replay OER-based SCORM enhanced your overall comprehension level with confidence that the material is assessed and grasped at various speed and time intervals?	0.00%	0.00%	31.37%	43.14%	25.49%

We also asked the students to use a scale from 1 to 5, where 1 is "very poor," and 5 is "very good," to rate their experience with the presentation of OER in SCORM format on Blackboard. Additionally, we asked them to rate on a scale from 1 to 5, where 1 is "strongly disagree" and 5 is "strongly agree," how much the presentation of OER in SCORM format was effective and served as a substitute for the additional resources provided such as PDF, videos, and online resources. As shown in Figure 3.6 and Figure 3.7 below, 84% of students offered very positive feedback for both

questions, which also supports our previous analysis on the effectiveness of OER-based SCORM.

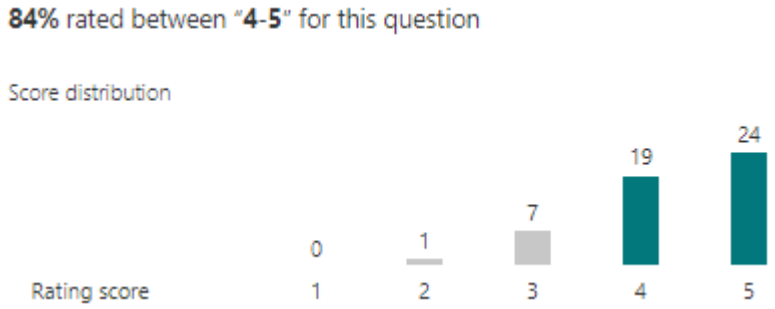

Figure 3.6. Presentation of OER in SCORM format on Blackboard

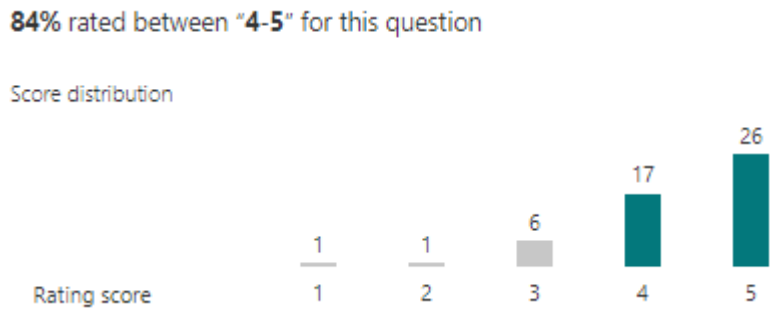

Figure 3.7. Presentation of the OER in SCORM format was effective.

To supplement our study of the OER-based SCORM's quality, we relied on student responses, as shown in Figure 3.8 below: most students (86%) rated the quality between good and very good. Moreover, as shown in Figure 3.9 below, 71% of the students prefer to be enrolled in the future in a course that uses OER rather than in a course that uses a printed textbook.

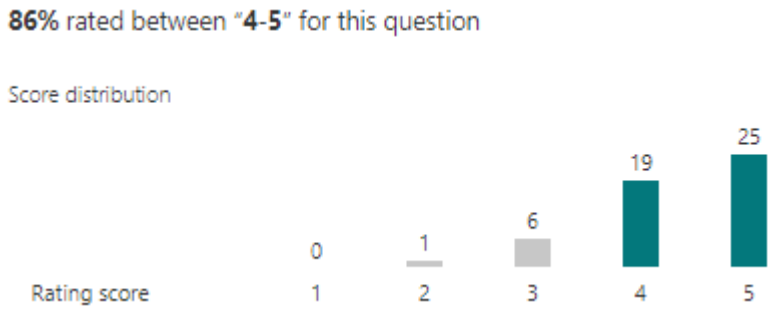

Figure 3.8. Quality of OER-based SCORM

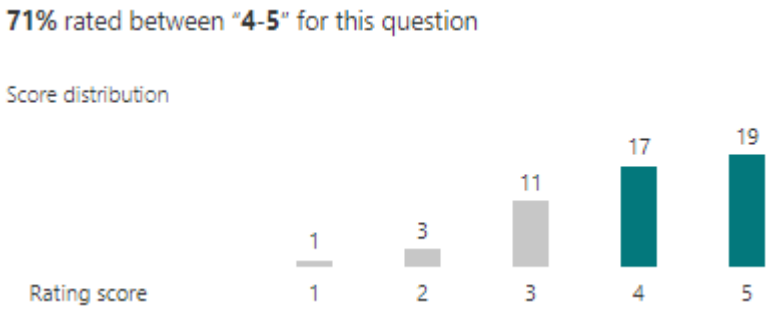

Figure 3.9. OER vs printed textbook.

As for the students' general remarks about OER, some students highlighted the effectiveness of OER in online education. One stated that "online education was somewhat better than I expected, especially while using OER and all the new technology, but it cannot replace the benefits of face-to-face learning. Although for the course of CSC201, online learning was way better than the face-to-face sessions." Two other students noted that "the course was very effective, I found that the use of OER helped a lot with understanding information" and that "OER helped understand more the concept of CSC 201 and in a fun/easy way." One of the students stressed the financial advantage of OER and remarked that "due to the economic situation, students can't afford to buy books anymore." In parallel, another asserted that "using OER was great because I could save money on textbooks." As for the presentation of OER in SCORM format and its delivery through Blackboard to facilitate self-paced learning, one student stated: "It was nice, I enjoyed learning independently, and we got the chance to meet in MS Teams meetings and ask for any clarification we needed."

Figure 3.10 below shows the students' insight about the course in general, and displays the terms frequently used by the students in the evaluation survey.

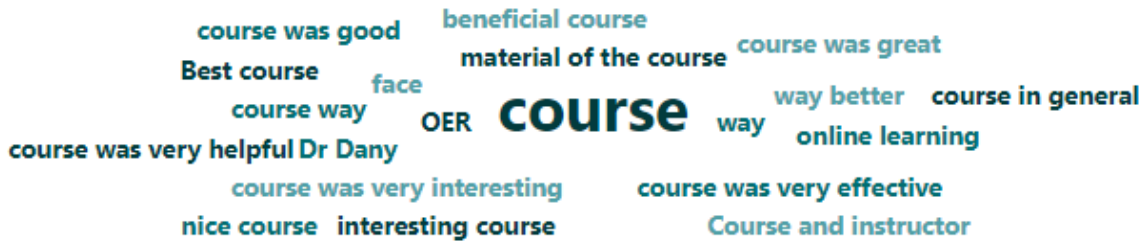

Figure 3.10. General insights about the course

In general, students agreed that the overall experience was good, smooth, and that they would like to repeat it in other courses.

3.7 Conclusion and recommendations

Will teaching be elevated? It is an educator's responsibility to integrate tools, activities, and experiences to improve students' understanding of the material given. However, we must not forget to look backward as we go forward toward a future with more certainty and efficiency in our educational programs. The future generation depends on our critical initiatives to grant our students an ameliorated educational system, or else we are at risk of failing their potential, skills, and ambitions. The choice is in the hands of the current academics to overcome the pandemic's difficulties and seize whatever positive consequences it has brought.

In this study, we responded to the main research question through which we wanted to test the effectiveness of the OER-based solution implemented to ensure teaching and learning continuation, and overcome the challenges and obstacles caused by the pandemic during an economic and financial crisis. Based on the evaluation of this experience and the positive feedback received from the students, we can conclude that the solution we implemented met the objectives and helped solve most of the obstacles for which it was designed. In general, this solution helped to ensure educational continuation disrupted by pandemic-related closures and the unprecedented economic meltdown. Furthermore, transforming OER to interactive SCORM and uploading the SCORM to Blackboard helped widen students' active learning, engagement, and interactivity with learning. Moreover, by curating the content, we ensured expanded access to learning and provided students with equal opportunities for access to learning anywhere in the world and at any time. The students' feedback confirmed the need for and the utility of this OER-based model in reducing textbook cost and its burden on students, especially during a financial crisis.

As for the advantage of this solution and its benefits to faculty members, based on our experience, we can confirm that this solution has a lower cost of creation, use, and maintenance for faculty in the long term. Since the content is uploaded to Blackboard, faculty can reuse and improve it periodically, thus saving time and money. Additionally, they have great freedom in selecting and customizing course materials. In other words, they will have the ability to Retain, Reuse, Revise, Remix, and Redistribute content for educational purposes, which are the main advantages of using OER.

Despite the various benefits accompanying this solution, its implementation and design were obstructed by some hurdles. We not only faced hurdles in finding the appropriate OERs and aligning them with the course learning objectives, but also in dividing these OERs into sections to later turn them into SCORM. In addition, student motivation proved to be particularly challenging. Spreading awareness among students about the benefits of OER in general, and this solution in particular, requires a strategy that needs to be well devised. Not only that, but motivating students to both complete the readings and test their knowledge can present a challenging obstacle to overcome. This should be highlighted given that students play an important role in implementing this solution, which is why we need to rise to that challenge and encourage students to evaluate the solution and share their experiences by submitting the survey.

In the future, further research studies could be conducted to test the effectiveness of the OER by comparing the overall class performance with other classes not using those resources or classes using OER and delivered in blended or hybrid mode. We aim to test if the resources we provide to learners will increase their performance, improve end-of-course grades and completion rates. Once proving its effectiveness, the generalization and implementation of such models will surely have great implications for curriculum development and for the integration of new styles of pedagogy across the higher education curriculum.

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CHAPTER 4:
Investigating the awareness, use and challenges of open educational resources: A survey of an open distance e-learning-based institution in South Africa

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Abstract
The global digital world of innovation and technology usage in education and how to fully maximise resources have prompted the development and adoption of open educational resources (OER) that are openly licensed and available to students at no cost. OER's attention and current vogue have shifted more to open distance e-learning (ODeL) institutions due to their mode of teaching and learning and nomenclature. Although several studies have investigated students' perception and use of OER in both developing and developed countries, there have not been many published studies on the awareness, use and challenges of OER among ODeL students in South Africa. This chapter reports on a survey of 1970 students at an ODeL-based institution in South Africa. Krejcie and Morgan's (1970) sample size calculation was used to draw the sample from the total population of over 400 000 students at the ODeL institution. The survey investigated students' level of awareness and degree of usage of OER, as well as the challenges they faced when using OER. A structured questionnaire titled OER awareness and usage Questionnaire, with a Cronbach alpha coefficient of .954, was used to collect data. The data were analysed using frequency count, simple percentages, mean, and standard deviation. In this chapter, the results of the study in relation to the research questions are discussed. Finally, the study recommended that the ODeL institution puts more effort into creating modules and following up to engage with students with the help of ICT

usage because the model of the ODeL institution has to cling to the use of technology in this century.

Key words:
Open educational resources, open distance learning, education institution, awareness, use, challenges, ODeL students.

4.1 Introduction

In recent years, open educational resources (OER) have gained wide attention throughout the globe. However, OER is more strongly connected to some institutions than others. Butcher (2015) defines OER as any educational resources – such as course materials, curriculum maps, streaming videos, podcasts, and multimedia applications – and any materials that are openly available for teaching and learning by teachers and students. One of the most significant attributes of OER is that they allow both students and educators the opportunity to access e-resources without royalties or license fees attached to them. OER, a major trend, is part of open distance e-learning (ODeL). ODeL is an instructional strategy that involves different technological approaches to learning. It embeds the components of distance and online learning and emphasises a learning landscape where facilitators use technologically assisted instruction to reach students who are physically separated. Over the years, researchers have proved that this kind of technology can be cost-effective and that time, location, space independence and pace are not of importance (Akintolu et al., 2019; Jegede, 2016).

ODeL provides learning opportunities to various categories of students at institutions of higher learning, both within and outside the continent of Africa, irrespective of their geographical location. Hence, students can engage with learning materials at different locations, times and spaces that fit their circumstances and requirements. The attention and current vogue of OER have shifted more to ODeL-based institutions due to their mode of teaching and learning and nomenclature (e.g., the University of South Africa) to complement the usage of learning management systems (LMS) adopted by different higher education institutions. However, students at ODeL-based institutions have faced numerous challenges, ranging from dispositional challenges, such as believing that they are too old, and lack of confidence and interest, to institutional-related challenges, like poor infrastructure, poor internet access and lack of learning support, as well as situational problems, such as job and home responsibilities (Ibrahim & Silong, 2000; Itasanmi, 2020).

Similarly, Musingafi et al. (2015) highlighted ICT access and use, insufficient time for study, inadequate study materials and ineffectual feedback mechanisms as challenges ODeL students face in their course of study.

It is worth noting that continuous partnerships among different stakeholders and the advent of ICT in the ODeL arena of university education have diminished a portion of the difficulties students encounter with the delivery of instructional content in an ODeL environment. This has improved accessibility to educational resources, consequently improving learning and providing enormous resources to ODeL learners to support both their academic and scholarship journey. In their manner, learners can learn at their own time, pace and convenience, thereby improving the approach they learn. The technological revolution – particularly the Internet, combined with different online platforms and tools for academic innovation – has made a paradigm shift possible from scarcity to an abundance of learning resources. Examples of the most commonly accessible OER are online course materials, videos, modules, journal articles, and so forth. OER refers to technology-mediated learning related to education and training, aimed at widening their accessibility and usage beyond the formal background and boundaries of compliant systems and stimulating participation and inclusion in the current technology society (Puccinelli et al., 2020).

As of late, the rise of OER has without a doubt turned into the subject of discussions and interest among researchers, experts and scholars at various institutions of higher learning, and this has prompted the investigation of the idea and the potential for working fair and square of education all over the globe, particularly in ODeL-based institutions. An outstanding educational movement arising development perceived in the 21st century is OER (Shear et al., 2015). The concept of OER is defined in numerous ways, but what remains essential in all the existing definitions is the fact that OER involves a free range of innovative resources for pedagogical purposes to engage with both learners and educators. UNESCO recently made the following recommendation on OER:

> *The judicious application of OER, in combination with appropriate pedagogical methodologies, well-designed learning objects and the diversity of learning activities, can provide a broader range of innovative pedagogical options to engage both educators and learners to become more active participants in educational processes and creators of content as members of diverse and inclusive Knowledge Societies. (UNESCO, 2019)*

This statement illustrates how an aspect of the open education movement is emerging – i.e., the relationship between the use of OER, the adoption of innovative pedagogical models, and the engagement of educators and, most importantly, learners in both formal and non-formal learning environments, as expressed in the concept of open educational practice (OEP). However, open teaching has not yet been a strong force to be associated with regarding ODeL, nor has there been a need for it to be supported by further research. Of great significance is the adoption and impact of OER and, more recently, of OEP (Ehlers, 2011; Koseoglu & Bozkurt, 2018), which is a range of practices involved in the creation, use and management of OER with the aim of improving quality and fostering innovation in education. Both last-mentioned topics have been investigated through case analysis and debated from a conceptual viewpoint (Cronin & MacLaren, 2018; Nascimbeni et al., 2018). However, research on the awareness and incorporation of OER in teaching and their contribution to innovative and experimental pedagogical approaches as well as on the impact of openness on teaching and learning innovation, institutional development, motivation and other aspects, is still at an early stage in our institutions of higher learning. This chapter contributes to closing this gap by investigating the awareness, usage and challenges of OER among ODeL students at an ODeL-based university in South Africa.

4.2 Research Questions

- This chapter aims to provide answers to three research questions:
- What is the OER awareness level among ODeL students at an ODeL-based institution in South Africa?
- What is the OER usage level among ODeL students at an ODeL-based institution in South Africa?
- What are the challenges faced by students at this ODeL-based institution when using OER?

4.3 Methodology

4.3.1 Research design

A quantitative approach and a survey research design were adopted in this study. Brink et al. (2014) describe a research design as a complete procedure and plan to point to the direction of an investigation or how it will be conducted. The procedure

includes the types of data collection instruments, data collection strategies, and methods or techniques appropriate for data analysis.

4.3.2 Research approach

A quantitative research approach was adopted. This approach was employed because it gave the researchers room to cover a wide range of respondents and diverse opinions about the phenomenon under study. Data were collected using a structured questionnaire. According to Maree and Van der Westhuizen (2011), the structured-questionnaire approach is one of the fundamental rudiments in research that involves data collection, analysis and interpretation.

4.3.3 Population

Bulmer (2017) describes a study population as a group of elements that match the exact criteria for a study, aimed toward generalising the study results. Students registered for the ODeL programme of a South African university participated in this study.

4.3.4 Sampling procedure

According to Kandace (2010), a sample is a portion of the population that is used by a researcher to represent the whole population under study. In the current study, Krejcie and Morgan's (1970) survey sample size calculation was used to determine the sample size for this study. More than 387 students were sampled from the total population of students at an ODeL university. Simple random sampling was used to select ODeL students as respondents. This sampling method was used because it gave every student an equal chance to be part of the respondents (Gravetter & Forzano, 2011). Thus, each participant was chosen by chance, and each representative of the population had an equal opportunity to be selected for the study. The sample size was taken from the total registered students in ODeL university.

4.3.5 Research instrument

A structured questionnaire titled OER awareness and usage Questionnaire was used as a research instrument. This questionnaire was validated by ODeL experts in the field. It was pilot tested among ODeL students at other public higher education institutions and Cronbach's alpha coefficient was calculated. Across all faculties of the institution under study, 1 970 online questionnaires were distributed to students. The instrument consisted of two sections: A (the demographic section) and B (the research variables).

4.3.6 Data collection

The research instrument (i.e., the structured questionnaire) was administered online via a Google Form. The researchers also prepared an informed consent form to seek the respondents' consent to be part of the e-survey. Hence, the survey was made available online for the total population of students in the ODeL institution for the period of 3 weeks and 1970 participants completed the online survey.

4.3.7 Data analysis

The collected data were analysed using frequency count, simple percentages, mean, and standard deviation.

4.3.8 Validity and Reliability

Validity and reliability are important aspects of research that rely on the skills of the researcher because researchers are sometimes prone to error. According to Taber (2018), the validity of any test is primarily concerned with the extent to which it measures what it is supposed to measure. Moreover, the researchers engaged ODeL experts to validate the structured questionnaire, and a pilot test was conducted among students at other public higher education institutions to obtain a Cronbach alpha coefficient of .954.

4.3.9 Ethical Considerations

The respondents were assured that the data would be treated with the utmost confidentiality and that the results of the findings would be used for research purposes only. The results of the findings were reported in such a way that the respondents' identities were confidential and anonymous, and they were assured of the credibility of the research report. The researchers obtained permission to conduct the research and worked per the regulations of the ethics committees of the University of South Africa. A brief consent letter with the ethics clearance number was attached to the electronic survey.

4.3.10 Presentation of Results

The results – i.e., the demographic profile and descriptive statistics for the variables – are presented in this section.

4.3.11 Demographic information of respondents

Figure 4.1 below presents the age demographic of the respondents. The figure reveals that most respondents were in the age bracket of 21–30 years (43.9%), followed by

respondents between the ages of 31–40 years (26%) and 41–50 years (16.1%). This implies that most of the students registered for the programme were not ideal for the business model of an ODeL-based institution, i.e., they were young people.

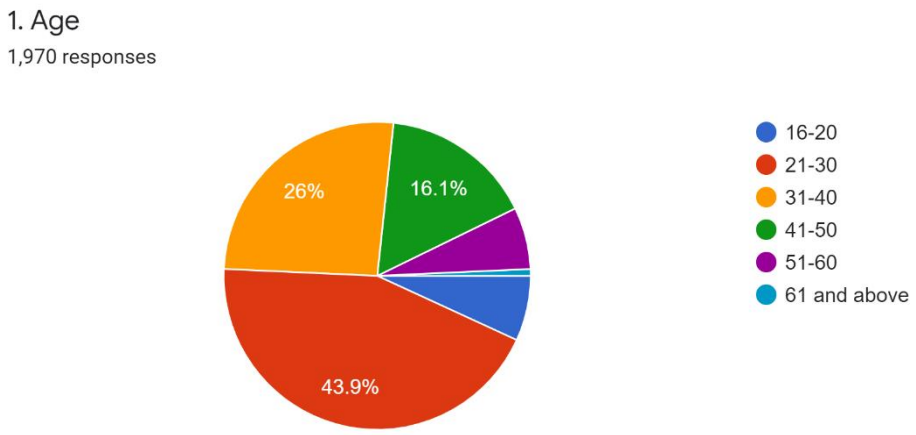

Figure 4.1: Age demographics of respondents

Information about the sex of the respondents is presented in Figure 4.2, which reveals that more females were registered for the programme of the ODeL-based institution. Females represented 67.7% and males represented 32% of the respondents. This implies that fewer males were registered for the programme as compared to their female counterparts.

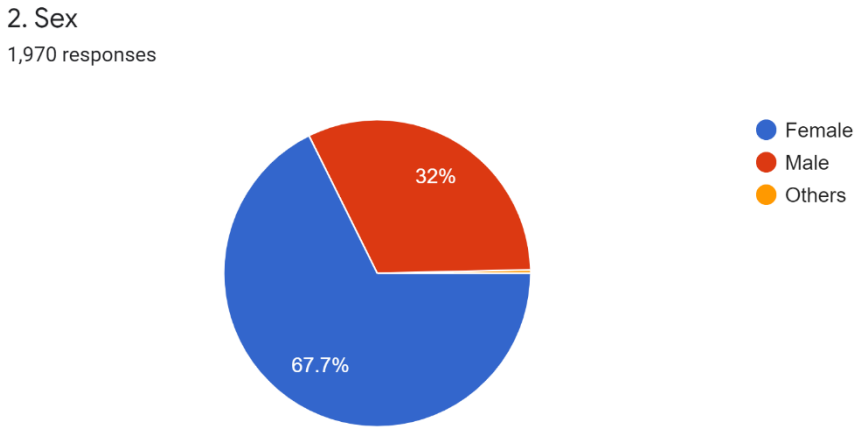

Figure 4.2: Distribution of respondents based on sex

Figure 4.3 reveals that 71.4% of the participating ODeL students were single. Married respondents constituted 25.2% of the sample, and respondents who were separated and divorced constituted 0.8% and 2.7%, respectively. As regards marital status, the majority of those who studied through ODeL mode were single.

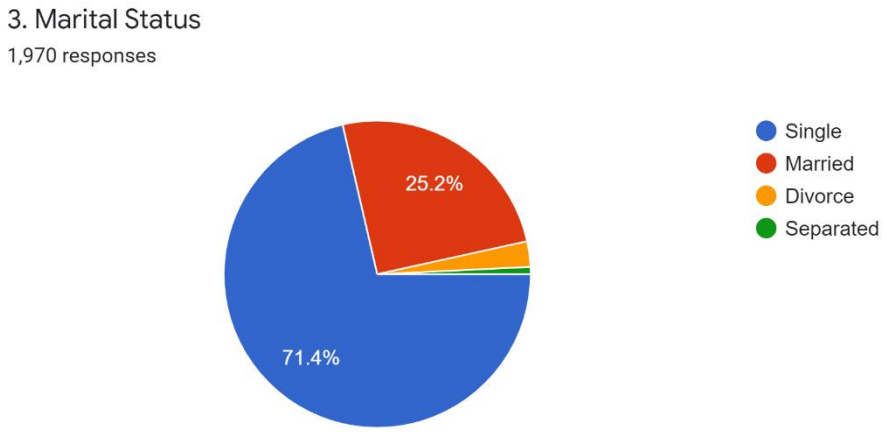

Figure 4.3: Marital status of respondents

4.4 Descriptive Results

Research question 1: What is the OER awareness level among ODeL students at an ODeL-based institution in South Africa?

Scale: Very unaware (1); Unaware (2); Aware (3); Very Aware (4)

Table 4.1: OER awareness level among ODeL students

S/N	Items	Very Unaware N %	Unaware N %	Aware N %	Very Aware N %	Mean	Std. Dev
1	Open educational resources (OER) are free to use. They reduce the cost of learning	121 6.1	604 30.7	796 40.4	449 22.8	2.80	.860
2	OER available are created by teachers in prestigious and famous teachers across the globe	140 7.1	856 43.5	703 35.7	271 13.8	2.56	.815

3	OER are on YouTube	131 6.6	656 33.3	859 43.6	324 16.4	2.70	.820
4	There are so many OER accessible to help to learn	98 5.0	521 26.4	980 49.7	371 18.8	2.82	.788
5	I can track down OER in the library	146 7.4	644 32.7	861 43.7	319 16.2	2.69	.770
6	I can use my mobile phone to find OER	82 4.2	288 14.6	967 49.1	633 32.1	3.09	.791
7	I can access OER from anywhere	86 4.4	447 22.7	875 44.4	562 28.5	2.97	.828
8	OER are not difficult to track down online	100 5.1	433 22.0	979 49.7	458 23.2	2.91	.805
9	OER are accessible in audio and video format	99 5.0	524 26.6	930 47.2	417 21.2	2.85	.809
10	My school makes it easy for me to find OER	153 7.8	564 28.6	892 45.3	361 18.3	2.74	.845
11	Some OER are produced locally	98 5.0	704 35.7	910 46.2	258 13.1	2.67	.762
12	OER can be accessed on any social network	137 7.0	811 41.2	747 37.9	275 14.0	2.59	.813

Table 4.1 shows the awareness level among ODeL students at an ODeL-based institution in South Africa. As indicated in the table, the student's awareness of OER was at a moderate rate (see all mean scores). It was revealed that 63.2% of the students were aware that OER were free to use. Most of the students also indicated that OER reduced the cost of learning. Most were unaware that OER were created by teachers from prestigious and famous schools across the world (43.5%). However, the majority of the students indicated that there were many OER available to support learning (49.7%), with 46.2% of them aware that some OER were produced locally. They were aware that they could find OER in the library (43.7%) and anywhere (44.4%), including using mobile phones (49.1%), and online (49.7%), both in video and audio format (47.2%), as well as on YouTube (43.6%).

Research question 2: What is the OER usage level among ODeL students at an ODeL-based institution in South Africa?

Scale: Strongly Disagree (1); Disagree (2); Agree (3); Strongly Agree (4)

Table 4.2: OER usage among ODeL students

S/N	Items	Strongly Disagree N %	Disagree N %	Agree N %	Strongly Agree N %	Mean	Std. Dev
1	Using OER can be described as supportive to make learning interesting	48 2.4	166 8.4	1256 63.8	500 25.4	3.12	.649
2	OER make me feel more engaged with my learning	48 2.4	166 8.4	1256 63.8	500 25.4	3.12	.649
3	OER directly improve the quality of my learning experience	58 2.9	249 12.6	1210 61.4	453 23.0	3.04	.682
4	OER are not as good as purchased textbooks	51 2.6	240 12.2	1198 60.8	481 24.4	3.07	.682
5	I use OER to do my assignments	118 6.0	915 46.4	690 35.0	247 12.5	2.54	.787
6	OER complement what I learn in my formal classes	63 3.2	324 16.4	1177 59.7	406 20.6	2.98	.706
7	I learn better from using OER	56 2.8	340 17.3	1238 62.8	336 17.1	2.94	.674
8	OER enable me to learn at my own pace	66 3.4	465 23.6	1104 56.0	335 17.0	2.87	.723
9	OER helps me prepare for classes	44 2.2	265 13.5	1129 57.3	532 27.0	3.09	.697
10	OER help me to get ready for tests and exams	61 3.1	380 19.3	1155 58.6	374 19.0	2.94	.709
11	I use OER to acquire current data in my space of study	51 2.6	324 16.4	1152 58.5	443 22.5	3.01	.702
12	I use OER to refresh my insight on a specific theme or area of research	57 2.9	263 13.4	1182 60.0	468 23.8	3.05	.696

13	I use OER for individual review	50 2.5	239 12.1	1215 61.7	466 23.7	3.06	.675
14	I see others utilising OER to help their learning	67 3.4	334 17.0	1161 58.9	408 20.7	2.96	.697
15	I use OER to enhance my review materials	55 2.8	350 17.8	1176 59.7	389 19.7	2.97	.716

Table 4.2 indicates the OER usage level among ODeL students at an ODeL-based institution in South Africa. Most of those who responded to the items felt positive about the usage, except for some (46.3%) who disagreed that they did not use OER for their assignments. Almost two-thirds of the respondents (63.8%) reported that using OER supported their learning in an interesting way and made them feel more engaged with their learning. Just over half (60.8%) of the respondents reported that OER directly improved the quality of their learning, and 59.7% agreed that OER complemented what they learnt in formal classes. However, most respondents (60.8%) agreed that OER was not as good as purchased textbooks. Over half of those surveyed reported that they learnt better using OER (62.8%), and 56.0% agreed that OER enabled them to learn at their own pace. Of the 1 970 students who responded to the question on the usage of OER, 1 681 (85.4%) reported that OER helped them with personal study. Moreover, approximately 80% of the respondents reported that they saw other students utilising OER to help their learning as well as supplement their study materials. They used OER to refresh their insight on a specific theme or area of research (60.0%), to prepare for class (57.3%), and to help them get ready for tests and exams (58.6%).

Research question 3: What are the challenges faced by students at this ODeL institution when using OER?

Scale: Strongly Disagree (1); Disagree (2); Agree (3); Strongly Agree (4)

Table 4.3: Challenges faced among ODeL students when using OER

S/N	Items	Strongly Disagree N %	Disagree N %	Agree N %	Strongly Agree N %	Mean	Rank
1	Lack of ICT facilities in the school to get to OER materials	92 4.7	430 21.8	1163 59.0	285 14.5	2.83	2nd
2	Absence of direction on the accessibility	149 7.6	561 28.5	939 47.7	321 16.3	2.73	4th

	and utilization of OER to help students						
3	Difficulty in finding related OER materials	170 8.6	671 34.1	916 46.5	213 10.8	2.59	7th
4	Erratic power supply	149 7.6	561 28.5	939 47.7	321 16.3	2.73	4th
5	Poor internet access	153 7.8	619 31.4	933 47.4	265 13.5	2.66	5th
6	Insufficient/Lack of ICT abilities to look for required OER materials	142 7.2	351 17.8	900 45.7	577 29.3	2.97	1st
7	The challenge of tracking related resources in my subject area	187 9.5	523 26.5	805 40.9	455 23.1	2.78	3rd
8	Excess material on the Internet for use	223 11.3	661 33.6	839 42.6	247 12.5	2.56	9th
9	Access for students through the library is very difficult	169 8.5	719 36.5	864 43.9	219 11.1	2.58	8th
10	When faced with difficulties personnel response is very slow	166 8.4	649 32.9	866 44.0	289 14.7	2.65	6th

Table 4.3 provides the challenges indicated in the anonymous online survey. According to the results presented in the table, based on the ranking of the mean scores, Insufficient/Lack of ICT abilities to look for required OER materials and Lack of ICT facilities in the school to get to OER materials were the major challenges the ODeL students faced using OER, followed by the challenge of tracking related resources in my subject area. Erratic power supply and absence of direction on the accessibility and utilisation of OER to help students are 4th on the list of challenges. Other challenges were poor internet access when faced with difficulties, very slow personnel response, difficulty in finding related OER materials, the school library not having such access for students, and information overload on the Internet. These challenges are ranked 5th, 6th, 7th, 8th, and 9th, respectively.

4.5 Limitations of the Study

In this study, the researchers investigated OER awareness and usage among students at an ODeL-based institution in South Africa and the challenges they faced when using OER. However, the study is used to reach specific conclusions, it genuinely

deserves note to recognize the limits of the concentration with the goal that it tends to be seen in the setting in which it was conducted.

The number of students examined may not be a genuine portrayal of the entirety of the students at the chosen ODeL institution because of its huge populace. It is basic to take note that the number of respondents who partook in the web-based survey was accounted for as an example for the review. However, the incapability of some of the students to respond to the web base survey may be due to some of the constraints identified in the study (i.e., challenges such as poor internet access and lack of ICT skills).

The study covered only three variables – i.e., the awareness, use and challenges of OER among ODeL students. Further research must be conducted to investigate variables such as learning effectiveness, attitude, and satisfaction.

Also, this study was limited to an institution operating with the ODeL model to train students. For future research, awareness, usage and challenges of OER in a more traditional campus-based institution can be considered.

4.6 Discussion of findings, conclusion, and recommendations

The study aimed to investigate the awareness, use and challenges of OER among students at an ODeL-based institution in South Africa. The first research question involved ascertaining the OER awareness level among the students. The findings revealed that the ODeL students had an average level of awareness. Therefore, OER is expanding and gaining popularity among students at our institutions of higher learning, as most universities – especially distance learning institutions in Africa – are fashioning policy from OER usage and implementation. While the majority of ODeL students agreed that OER interestingly supported their learning and made them feel more engaged with their learning, most still felt that OER was not as good as purchased textbooks. The study shows that there is an agreement between the level of awareness and usage. This finding supports Wiley's (2014) study, which concluded that, in the coming years, there would be an upsurge in the adoption and use of OER. However, referring to table 1, most of the students were unaware that OER were created by teachers from prestigious and famous schools across the world. This contradicts the findings of Itasanmi (2020) – most of the respondents in Itasanmi's study were aware that OER is created by educators from respected and well-known schools across the world. It is also clear from this table that several

respondents were aware that OER could be found on YouTube and that some OER were produced locally. However, interestingly, this is again contrary to Itasanmi's study, which revealed that a larger percentage of respondents were unaware that OER could be found on a video platform like YouTube and that some OER were produced locally.

As regards the level of usage among ODeL students in South Africa, the majority of the students were positive about the use of OER for various activities. This alludes to the communique from the ICDE 2014 report on the UNESCO policy forum that accessing open, online and flexible learning is critical to overcoming development challenges and advancing the necessities of all societies in the current century. Furthermore, the use of OER was listed as one of the six critical means to accomplish this. The present study concurs with Wiley (2014), who predicted that OER would see an upsurge in its usage in the coming years, even in the developing countries of Africa. However, some proponents question why the widespread adoption of OER has been so slow to date, for over a decade of development, if this prediction is correct. The study further revealed that most of the respondents agreed that OER were not as good as purchased textbooks, contrary to the study by Itasanmi (2020) in the Western region of Africa on OER usage in which it was reported that most of the respondents disagreed with this statement. Annand (2014) also claims that the use of OER is a significant threat to commercial publishers.

The third research question involved identifying the challenges faced by students at the selected ODeL institution when using OER. The data showed that the insufficient/lack of ICT abilities to look for required OER materials and the lack of ICT facilities in the school to get to OER materials ranked first and second as significant challenges faced by the ODeL students. This result corroborates the findings of Adeyemo et al. (2013), who established inadequate computer skills as one of the major challenges responsible for learners' inability to actively engage with materials to stimulate the learning experience using technology. Hassan and Olaniran's (2011) study emphasised that there is a need for institutions of higher learning to expose students to the necessary skills that will prepare them for 21st-century academic resources. However, Itasanmi (2020) found that a lack of orientation on the availability of OER was the most significant challenge. Other challenges the respondents identified were the challenge of tracking related resources in their subject area, the absence of direction on the accessibility and utilization of OER to help students, and erratic power supply, among others. This may be due to a

lack of training for the respondents or an inability to access the required training that would assist in finding OER learning materials. This finding is also consistent with findings of past studies (Adelore & Akintolu, 2016; Akintolu & Uleanya, 2021; Akomolafe et al., 2014; Itasanmi, 2020; Gambo & Aliyu, 2017) which identified ignorance of OER websites, erratic electricity, unfamiliarity with OER websites, and difficulties locating relevant learning materials when browsing OER as significant challenges students at institutions of higher learning face. Similarly, in addition to the findings of the above-mentioned studies, Mwinyimbegu (2018) revealed that the absence of familiarity with OER existence and the way that lecturers don't suggest OER are significant difficulties influencing OER advancement and use.

This study aimed to fill the research gap with regard to the awareness, use and challenges of OER among ODeL students at one of the largest ODeL institutions in Southern Africa. Based on the study findings, it is recommended that the ODeL institution puts more effort into creating modules and following up to engage with students with the help of ICT usage because the model of the ODeL institution has to cling to the use of technology in this century.

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CHAPTER 5: Localisation of open educational resources in academic libraries: A South African experience

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Abstract
While there is a gradual uptake of Open Educational Resources (OER) in South African academic libraries, little scholarly research exists on the localisation of OER-enabled student-centred teaching and learning. The purpose of the chapter is to explore OER localisation and advance student-centered pedagogy toward decolonising South African academic library teaching practices. The chapter employs a concept analysis and literature review strategy that identified the presence of words such as OER and localisation as they relate to student-centred open pedagogy in university library websites and strategic documents. Findings show that 5 out of 26 South African university libraries enforce OER localisation development by naming research data repositories using indigenous African languages and translation from the source language to the target language. This chapter recommends the Collection Alternatives Students Framework for practices with OER and student-centred open pedagogy towards responsible decolonisation of library teaching practices.

Keywords:
Academic libraries, localisation, open educational resources, student assistants, open pedagogy

5.1 Introduction

In many countries around the world, "academic library roles have extended beyond places of collecting, accessing, and preserving print materials to accommodating evolving technologies and testing grounds for new ways of teaching and learning" (Freeman, 2005: 1-10). Academic libraries are extending their roles by promoting open educational resources (OER) through LibGuides (Springshare, 2020) and portals (Mncube, 2020). In South Africa, university libraries, or academic libraries are gradually promoting OER to solve challenges of access to subscription educational materials for students. A survey report by Bueno-de-la-Fuente,

Robertson, and Boon (2012: 32) indicates that "the role of libraries in OER initiatives is indispensable". According to Mncube (2020: 304), "only 3 out of 26 universities promote open educational resources through their library portals", namely the University of Cape Town, University of KwaZulu-Natal, and University of South Africa. Most universities in South Africa provide information about OER on their Libguides. Mays (2020) notes that although the use and development of OER in South Africa has a strong footprint, the phenomenon is not mainstream. Advocacy activities of OER date back to a forum hosted by the United Nations Educational, Scientific, and Cultural Organization (UNESCO) in the early 2000s.

Most of the individual and organisational signatories in the Cape Town Open Education Resources Declaration are "members of various governmental and non-governmental organisations in South Africa and elsewhere in the world" (Open Society Institute & Shuttleworth Foundation, 2007). Except for the University of Cape Town, most of the universities in South Africa are not signatories in the declaration, including academic libraries and librarians. The declaration also notes that open education is not limited to OER but collaborative education technologies, flexible learning, and the sharing of teaching practices (Open Society Institute & Shuttleworth Foundation, 2007). All declarations and guidelines on OER recognise the right of all people to education.

This chapter argues that the localisation of OER can contribute to the decolonisation of teaching practices in South African academic libraries. According to Pym (2001), localisation refers to a general thinking process that involves the adaptation of texts across cultures in areas such as software, product development, web technology, and international news. The next section presents the problem statement.

5.2 Addressing the problem

Few authors have written on the localisation of OER in terms of creation and use, the role of local languages, and self-directed practise by teachers and learners in South Africa (Jimes, Weiss & Keep, 2013; Olivier, 2018; Olivier, 2020). Jimes, Weiss, and Keep (2013) found that teachers find it easier to adopt open educational textbooks created, developed, and evaluated with the local socio-economic and cultural context in mind. Olivier (2018) argues that there is a need for peer-reviewed Afrikaans OER for quality. In addition, Olivier (2020) asserts that self-directed learning for open educational practices is achievable when teachers and students use languages of their choice in the process of sharing OER. Furthermore, existing

research on OER localisation in South Africa is mostly done by academics and scholars in education. This is a limitation because there needs to be more knowledge on how academics and scholars in library and information science are addressing the issue. No scholarly publications on localisation exist in South African university libraries, let alone by librarians. Similarly, very little scholarly research exists on OER promotion and development in South African university libraries, especially by librarians. Mncube (2020) notes that the lack of development raises questions of whether portals are useful tools for hosting OER. Another factor for the lack of scholarly research is the focus of librarians on the traditional support role of the academic library. Grover and Hale (2014) propose that instead of librarians providing passive and reactive service levels, they should be proactive in research activities. Similarly, Chigwada (2020) recommends that university library librarians collaborate with faculty staff to generate research ideas to understand the kind of services needed for research. The scarcity of OER development in South African academic libraries presents a research gap, which this chapter seeks to close. The research gap justifies the need for new knowledge on OER practices and the extent to which their localisation can support open learning and teaching in South African university libraries. The chapter makes a valuable contribution to knowledge by providing a perspective on how librarians and libraries can drive the localisation of OER.

Exploring OER practices in South African university libraries is necessary, given the need for librarians to lead the implementation of OER initiatives and spark debate and encourage further research (Molepo, 2021). The purpose of the chapter is to explore OER localisation and advance student-centered pedagogy toward decolonising university library teaching practices.

The chapter sought to answer the following research question:

How can the localisation of OER contribute to student-centered pedagogy toward decolonising teaching practices in South African academic libraries?

The next sections address the literature review, findings and discussion, and the way forward: a framework for localisation practices of OER and student-centred pedagogy.

5.3 Literature review

A literature review was necessary to ground the chapter in available knowledge related to OER.

5.3.1 What are open educational resources?

UNESCO first used the term OER in a Forum on the Impact of Open Courseware for Higher Education in Developing Countries. The report defined OER as "open materials facilitated by information and communications technology and consulted, used, adapted by users for nonprofit purposes" (UNESCO, 2002: 25). The report by UNESCO laid the foundation for subsequent declarations and guidelines on OER. The Cape Town Open Educational Resources Declaration (Open Society Institute & Shuttleworth Foundation, 2007) took place in South Africa. The Dakar Declaration on Open Educational Resources (UNESCO, Agence Universitaire de la Francophonie & International Organization of la Francophonie, 2009) represented francophone Africa. The Paris Open Educational Resources Declaration (UNESCO, 2012) and the Commonwealth of Learning and UNESCO Guidelines on Open Educational Resources in Higher Education (UNESCO & Commonwealth of Learning, 2011) took place in France, respectively. In the context of South Africa, the Cape Town Open Educational Resources Declaration outlined strategies for OER as follows:

- Active participation of educators and learners in the OER movement
- The release of OER by creators, authors, educators, learners, and publishers for reuse and redistribution
- Governments, schools, universities, colleges make open education policies by prioritising OER and promotion through repositories (Open Society Institute & Shuttleworth Foundation, 2007)

5.3.2 The transformative role of open educational resources in South African university libraries

South African academic libraries can play a key role in creating conditions for OER to thrive by leading the process and supporting the university community. According to UNESCO (2015), OER can assist institutions of higher learning deal with challenges presented by the growing demand for higher education and continuous ICTs rollouts. "OER can play a key role, amongst others, by improving the quality of materials through contextualisation, personalisation, and localisation" (UNESCO, 2015: 3).

Considering the UNESCO statement, University libraries in South Africa can reap great benefits from UNESCO's (2015) guidelines on the transformative role of OER. University libraries are the custodians of the infrastructure used to organise, store, archive and disseminate OER. For example, most university libraries identified in this chapter manage the OER data repository on Figshare. In most cases, OER and virtual environment librarians review OER submitted through Figshare before publishing. Thus, there is a need for an OER localisation framework that can guide South African university libraries to optimise the transformative role of OER. OER can also assist transform teaching and learning in South African universities.

5.3.2.1 Transformation of teaching and learning

South African university libraries teach users how to utilise their resources through library instruction. OER has the potential to transform the role of librarians as educators in South African university libraries, where library instruction is used as a site to argue for educational activities between librarians and library users (e.g. students). Library instruction, also called user education or information literacy, consists of activities designed by librarians to teach users about library services (Tiefel, 1995: 319). For this chapter, the term information literacy suffices. It is also important to emphacise the difference between library instruction and information literacy. Library instruction equips users with skills to make good use of information resources in a library. Information literacy focuses on the ability of individuals (e.g., library users) or groups of people (e.g., local communities) to identify information needs from an abundance of information sources at different times for different purposes (Zurkowski, 1974).

According to Tewell (2018), the term information literacy originated in the United States of America (US) in the 1970s, developed in the 1980 and adopted largely by academic libraries in the 1990s. The American Libraries Association (2021) defines information literacy as the ability of an individual to recognise the need for information and find, evaluate and use it effectively. A library user is considered information literate to the extent that they critically think about the information found and used. Influential American documents on information literacy include the American Library Association's Presidential Committee on Information Literacy Final Report, the Association of College and Research Libraries' Information Literacy Competency Standards for Higher Education and the Framework for Information Literacy for Higher Education (Tewell, 2018: 10). Although it is not clear to what extent these documents influence information literacy programmes in

South African universities, the modus operandi is similar. Information literacy programmes are prevalent in South African universities. In some instances, libraries initiate and implement information literacy programmes, while in other cases, Centres of Teaching and Learning oversee them. The localisation of OER in South African university libraries can be located within information literacy programmes because they occur within the universe of librarian-student relationships.

OER can assist transform teaching and learning activities in information literacy programmes if librarians are interested in the information's social, political, cultural, and economic dynamics. Interest in the dynamics of information can create conditions for the localisation of OER and open pedagogy. In addition, it can harness collaboration between Centres of Teaching and Learning and academic libraries in information literacy programmes.

UCT libraries are the first to adopt Ex Libris Leganto Reading List Solution. The platform assist UCT libraries align their teaching and learning strategy with the university's 2030 vision plan. Strategies include the adoption of transformative pedagogies, renewal of curriculum, and establishing strong collaboration between the library, teaching staff, research and students (ExLibris, 2020). Collaboration in UCT libraries is also visible in information literacy initiatives. Unlike UCT libraries, strong collaboration on transformative pedagogies between the library and the broader university community receives little or no attention in other South African university libraries. No documents indicating alignment with the teaching and learning of the university in areas such as localisation of OER exist on library websites. The unavailability of publicly available strategic documents that explicitly detail the alignment of academic libraries with the university in terms of localisation of OER implies that alignment with the teaching and learning strategy of the university receives less attention.

A way forward is for South African university libraries to acknowledge the limitations of information literacy programmes as a prerequisite for the localisation of OER and support for open pedagogy.

5.3.2.2 Limitations of information literacy programmes

Technological change and societal market forces influence information literacy programmes in South African university libraries. Information literacy programmes teach users how to identify, use and evaluate information sources. OER forms part of collections that provide information sources to library users in information literacy

programmes. Luke and Kapitzke (1999: 1) argue that change in literacy education does not occur in a vacuum but can be plunged into historical processes that spotlight shifts in the "political economies of language, textual practice and text-based social relations". The authors further claim that the introduction of new technologies and the reliance of transnational economies on markets precipitated the need for the reconceptualisation of literacy education centres and practices (Luke and Kapitzke, 1999: 1). Several limitations of the concept of information literacy in post-modern societies are worth noting.

One of the limitations of the concept of information literacy is its focus on the systems used to store and diffuse information. Based on the academic library experience of the author, the notion of teaching information literacy from a systems perspective is prevalent in South African university libraries. Tewell (2018: 11) posits that earlier pre-conceptions of information literacy draw from a mechanistic approach that teaches users how to use systems to find and use information. This mechanistic approach to information literacy seems to continue unabated despite growing evidence of literature pointing to sensitivity to information's social, cultural, political and economic dynamics. The mechanistic approach to information literacy can affect how librarians in South African university libraries interface with the foundations of OER, localisation, and student-centred teaching and learning.

Another limitation of information literacy is its association with ideological underpinnings. According to Seale (2016), influential documents such as the Framework for Information Literacy for Higher Education should be analysed for ideological underpinnings. Seale (2016) further cautions against a neoliberal ideology that underpins literacy education in American college and public libraries, putting a spotlight on the library discourse that makes a connection "between libraries and Enlightenment ideals such as democracy, freedom and reason to be self-evident and fundamentally beneficial" (Seale, 2016: 82). The government in post-colonial Africa has embraced enlightenment ideals such as democracy and freedom, emphasising information literacy as being essential for development.

In South Africa, the government recognises information literacy as beneficial for teaching and learning development. The South African government hosted the 10th Annual UNESCO Media Information and Literacy Week from 25 to 29 October 2021. The event focused on empowering the public with information skills through ICTs (South African Government, 2021). Libraries in general and academic libraries in particular play an important role in the government's vision. Durodolu and

Mojapelo (2020) note that although donor agencies invest effort, time, and financial resources in South African information literacy programmes, there are still imbalances in technology access, owing to apartheid separate development policies. The authors highlight the importance of an informed South African citizenry in making better choices for political leadership (Durodolu & Mojapelo, 2020: 66). While the 10th Annual UNESCO Media Information and Literacy Week proceedings are noteworthy, the emphasis on the information society approach raises questions about the government's acknowledgement of ideological underpinnings of the concept of information literacy. Librarians responsible for the localisation of OER in South Africa should be critical of the nuances of information literacy as represented by librarians and practitioners worldwide.

5.3.2.3 Critical information literacy

Having worked in South African university libraries for several years, the author is privy to the approach adopted by colleagues in facilitating information literacy programmes. Due to factors such as time expectations from faculty and library management, it has become normal for librarians in South African university libraries to resort to the demonstration of database usage as a de facto teaching approach in information literacy programmes. This approach seldom allows users to be critical of the forces behind the systems and information mediated by academic libraries. According to Tewell (2018), critical information literacy seeks to respond to the limitations of information literacy by putting a spotlight on the social and political dimensions of information and education in university libraries. Critical information literacy draws from critical theory to locate academic libraries as a site for social change through teaching and learning methods that spotlight oppressive systems. Librarians and students can act on these systems by embracing critical teaching and learning methods and techniques (Tewell, 2018: 11).

Without deviation from the focus of this chapter, which is the localisation of OER for student-centred open pedagogy, the author argues that librarians in South African university libraries can benefit from locating their educator roles in the available literature on critical information literacy and critical pedagogy for social justice. Examples of notable sources on critical information literacy and critical pedagogy published over the past twenty years include Tewell's (2018) The Practice and Promise of Critical Information Literacy and the recent volume of chapters Critical Library Pedagogy in Practice edited by Brookbank and Haigh (2021). Other related texts include hooks (1994) Teaching to Transgress: Education as the Practice of

Freedom and Freire's (2007) Daring to Dream: Toward a Pedagogy of the Unfinished. The future of the localisation of OER for student-centred open pedagogy in South African university libraries will rely on the intentionality in bringing student experiences to the centre of information literacy programmes.

5.3.2.4 OER and student-centred open pedagogy

The gradual growth of the introduction of digital research data repositories (e.g. Figshare) in South African universities signals the beginning of a new era for teaching and learning practices. This is true in a South African education system that faces challenges with the high rise of traditional textbook reading materials. According to the South African Book Development Council (2019), industry role players report that the increasing cost of academic reading material is due to small print runs. While OER can supplement traditional academic reading material, the intentionality of South African educators will determine the extent to which OER is employed to enhance student-centred open pedagogy.

Using Wiley's (2014) 5R framework, South African university libraries can initiate projects that put student experiences at the centre of OER retention, reuse, revision, remix and redistribution. The 5R framework can add a sixth R (Recontextualisation) to reposition OER (Olivier, 2021). OER enabled student-centred open pedagogy projects can transform library educators towards the decolonisation of teacher education in South African universities.

5.3.2.5 What is open pedagogy?

The changing needs of societies worldwide gave rise to openness in education. Openness encompasses generic terms such as open education, open learning, open educational resources and open educational practices (Bozkurt, Koseoglu & Singh, 2019). The historical development of openness in education and its subsequent associated generic terms differs from country to country. A few examples are worth mentioning.

Corney (2006: 21) notes that in Australia, the notion of openness and open pedagogy is associated with scholarly works on societal factors influencing the phenomenon of youth service work. Corney (2006) further argues that although the notion of youth service work is entrenched in Australian society, the phenomenon faces challenges such as conflict of interest between professional teachers and youth workers in schools. Corney (2006) suggests that from a Gramscian framework perspective, the

conflict between teachers and youth workers reveals pedagogical differences between teachers and youth workers.

Holmberg (2005: 10) notes that distance education and open learning are used distinctively in the United Kingdom. The former refers to a method of access, and the latter refers to ways used to remove restrictions to learning. According to Holmberg (2005), the United Kingdom version of openness has roots in establishing the British Open University in 1917. The British model of open universities influenced countries such as Germany, The Netherlands, Spain, Israel, and Venezuela (Holmberg, 2005:20-21).

In South Africa, the concept of openness in higher education can be associated with the British Open University model because of colonial ties. Founded in 1873 as the University of Good Hope, the University of South Africa (UNISA) prides itself as the "largest open distance learning institution in Africa and the longest standing dedicated distance education university in the world" (UNISA, 2021). As in the case of UNISA, the terms distance and open are used simultaneously to refer to both a method of access and ways used to remove restrictions for learners from different social, racial, cultural and economic backgrounds. UNISA opened its learning doors to political prisoners such as former President Nelson Mandela and many others at the height of apartheid segregation policies that prevented people of colour from accessing higher education. UNISA's teaching and learning practices embrace distance and openness and are associated with the university's mission, which is to become an African university in the service of humanity (UNISA, 2021). Seemingly, open pedagogy is defined based on a consideration of societal and geographic factors.

According to DeRosa and Jhangiani (2021), understanding open pedagogy should not only begin with a definition but a set of questions for the educator. DeRosa and Jhangiani (2021) further suggest posing questions to the educator before defining open pedagogy. For example, What is the educator's hopes for higher education? What is the educators' vision for daily professional practice? What are the roles of learners and teachers? What are the challenges the educator faces in their environment? How does the educators' pedagogy help solve the challenges? These questions are relevant to teacher librarians in South African university libraries.

There are numerous definitions of open pedagogy in the literature. Morgan (2016) traces the concept of open pedagogy to the cultural revolution of Quebec in Canada,

taken from the translated work of Claude Paquette. Wiley (2013) states that open pedagogy consists of teaching and learning practices that operate within the context of free access and the 4R framework. DeRosa and Jhangiani (2021) define open pedagogy as:

a site of praxis, a place where theories about learning, teaching, technology, and social justice enter into a conversation with each other and inform the development of educational practices and structures. This site is dynamic, contested, constantly under revision, and resists static definitional claims. Nevertheless, it is not a site vacant of meaning or political conviction.

For this chapter, the definition by DeRosa and Jhangiani (2021) suffices. Based on the quotation, it seems South African university libraries are a perfect site for the practice of OER student-centred open pedagogy. As already indicated in sections 2.1.2, 2.1.4, 2.1.5, South African universities, through their libraries, employ a combination of learning, teaching and technology through research data repositories such as figshare. In addition, the quotation speaks to the seminal scholarly literature on pedagogy that liberates the oppressed and marginalised in society, such as Freire's (1972; 2007) and hooks (1994). However, very little or no research exists on how learning, teaching and technology can be combined to advance social justice in South African university libraries. The absence of discourse on how OER can advance student-centred pedagogy towards the decolonisation of university library teaching practices is worrisome. Especially since many South African universities have transformation plans, which seek to transform the curriculum and decolonise higher education (see section 2.2).

5.4 Methodology

A preliminary literature review was adopted as strategy to ground the chapter in existing knowledge, and identify gaps. According to Jennex (2015: 140), "good research relies on what has been researched before, and grounds current research in theory with a view to interpret the results". Furthermore, the chapter employs a concept analysis strategy that identified the presence of words such as OER and localisation as they relate to students centred on 26 university library websites and strategic documents. According to Morse, Mitcham, Hupcey, and Lenz (1996: 255), concept analysis is "a process of inquiry that explores concepts for their level of maturity as revealed by their level of development or maturity as revealed by their internal structure, use, representativeness, and/or relations to other concepts.". The

literature review and concept analysis strategy assisted with the interpretation of the findings.

5.5 Findings and discussion

The author mapped current OER practices in 26 South African university libraries was undertaken, focusing on practices that reflect OER localisation in support of open teaching and learning. It was found that fewer South African university libraries show sensitivity to OER localisation.

Only five of 26 university libraries are included in the overview because the information found on their websites points to institutional sensitivity to transformation issues in terms of local languages usage for OER portals and the curriculum. The map overview excludes 21 South African university libraries because their OER practices focus on using libguides and portals as tools for enhancing traditional academic support roles, which is not the focus of this chapter (see Table 1). Most of the libguides of the 21 excluded South African university libraries focus on guidelines on open access (OA), OER, and subject guides. The key point in the next sections is that there is less initiative for the localisation of OER in South African academic libraries due to the sole focus on standardized libguides and portals. The focus seems to be on the use of standardised libguide content that is apathetic towards OER localisation.

5.5.1 The use of lib-guides and portals for open educational resource practice

South African university libraries use LibGuides to promote, curate, share, organise and display information about OER. LibGuides is a content management system used in many libraries and librarians to curate, share, organise and display library knowledge on hosted websites. Since the establishment of LibGuides in 2007 by Springshare, 100 libraries in 82 countries have adopted the system, with 130 000 librarians with active profiles. (Springshare, 2020). According to Logan and Spence (2021), LibGuides in libraries are cared for using an honour system, meaning that librarians are trusted to abide by the rules, and most of the guidelines focus on quantity at the expense of abstract concepts. In order words, the LibGuide content management system has no rules that stipulates the extent to which content can be localised. Librarians are trusted to be bound by their honour not to be self-critical. The popularity of LibGuides by Springshare is evident on South African university library websites. Twelve universities use LibGuides.

5.5.1.1 University of Cape Town

The University of Cape Town (UCT libraries) subscribes to LibGuides by Springhare to curate, organise, and share information about general information that is research, course, and subject-specific. However, UCT libraries curate, organise and share information about OER to the university community through a news portal separate from the libguides content management system (University of Cape Town, 2020).

UCT libraries take the lead in promoting OER on technology-enabled connected platforms such as Wikipedia to enhance open teaching and learning. According to Bernardo (2020), UCT libraries made their first case on why Wikipedia should be used in open teaching and learning practices. The insistence of using Wikipedia in UCT Libraries came against the backdrop of scepticism by academics. UCT Wikibrarian Ingrid Thomson is perhaps the most decorated promoter of Wikipedia as an open pedagogical tool in South African universities. Her advocacy of Wikipedia as a pedagogical tool took centre stage at the UCT Teaching and Learning Conference in 2020. The promotion of Wikipedia as an open educational tool in UCT libraries coincides with the growth in research on the use of Wikis and Wikipedia as pedagogical tools, and the integration of information and communication technologies from the framework of technological pedagogical content knowledge (TPACK) (Öztürk, 2012; Chen, Jang & Chen, 2014; Chai, Koh & Tsai, 2013). A focus on the African continent in UCT libraries has culminated in a research platform aimed at research in Africa.

UCT libraries' continental platform allows the African research community to create, share, and collaborate on content, thereby contributing to the growth of research in Africa. The continental platform uses a diamond open access model, meaning that the reader has access to the knowledge that the author does not pay to publish. The continental platform consists of open journals spanning four African countries, namely: South Africa, Namibia, Zimbabwe, and Botswana, and open monographs and open textbooks (University of Cape Town, 2021). UCT libraries are leading in localising OER practices to support open teaching and learning.

5.5.1.2 University of KwaZulu-Natal

The University of KwaZulu-Natal (UKZN) libraries use the libguide content management system by Springshare (2020) to curate, organise, and disseminate information about OER. Importantly, the university uses figshare to store online open research data. Figshare is an online repository that allows researchers to share

data such as figures, software, presentations (Figshare, 2021). The UKZN figshare repository is called Yabelana – an IsiZulu word meaning to share. The renaming of the repository is in line with the university's language policy. The language policy argues for the conscious use of African languages in instruction, innovation, science, mathematics, and logic carefully (UKZN Language Planning and Development Office, 2018). The use of IsiZulu in the naming of the Figshare repository implies sensitivity to the localisation of OER practices. The use of local languages to name universal online research repositories such as figshare is relevant to the localisation of OER in South African university libraries, which is the focus of this chapter.

5.5.1.3 University of South Africa

UNISA has a long-standing reputation as an open distance learning institution. Since 1964, UNISA has provided people from different racial, social, and cultural backgrounds with open distance education (University of South Africa, 2021). Similar to the UCT and UKZN, UNISA libraries use LibGuides and Figshare to curate, organise and share information about OER. However, unlike UKZN, the title of the Figshare repository shows no sign of any local languages. Recently, UNISA signed a memorandum of agreement with the Common Wealth of Learning (CoL). According to Mphaphuli (2020), the agreement with CoL is aimed at forging a multi-lateral collaborative agreement in strategic areas such as higher education, quality assurance, open distance learning research, teacher education, and OER. With the Academic Development Open Virtual Hub (ADOVH) launch in 2021, UNISA is revaluating its teaching and learning strategy by empowering staff with the technological tools needed to work in a technology-mediated space. The focus is on open courses, open webinars, and OER (Legodi, 2021). To this end, various departments at UNISA also offer Massive Open Online Courses (MOOC) aimed at open teaching and learning practice. An example is the MOOC offered by the Department of Communication Science available at www.futurelearn.com.

5.5.1.4 Cape Peninsula University of Technology

Universities of technology in South Africa consist of libraries that support research, learning, and teaching activities. The Cape Peninsula University of Technology (CPUT) libraries curate, organise and disseminate guides on OER through Springshare's LibGuides content management system (CPUT, 2021). In addition, CPUT libraries manage and host OER on Figshare, also known as eSango (Smith, 2018). According to Smith (2018), the research repository Figshare was renamed eSango after the word was a winning entry in a competition. The word eSango means

gateway in IsiXhosa and IsiZulu. Like UKZN libraries, CPUT libraries are sensitive to the local context in their OER practice. The use of local languages to rename research repositories at CPUT aligns with the discourse on decolonisation and renewal of the curriculum noted in the Teaching and Learning Report (CPUT, 2018). The naming of the OER data repository in IsiZulu implies a sensitivity to the language geographic location of CPUT. The province of the Western Cape in South Africa consists of IsiZulu and IsiXhosa language speakers, among others.

5.5.1.5 North-West University

Similar to UCT, UKZN, UNISA, and CPUT, the North-West University (NWU) employs Springshare's LibGuide content management system to curate, organise and disseminate library information and services. What sets NWU libraries apart from other university libraries is their explicit effort to naturalise English source language words to target local Setswana language words. For example, their referencing library guide is referella – a partial translation and adaptation of the word referencing into the local Setswana language. Aulia (2012: 1) asserts that "a translator should apply translation strategies such as naturalisation, cultural equivalent, functional equivalent, descriptive equivalent, synonymy, modulation, addition, and borrowing". These strategies can be applied to give local languages a competitive advantage. Aulia (2012) further suggest that each strategy can work if applied appropriately and within the right context and purpose. In addition, NWU libraries refer to their OER data repository as Dayta Ya Rona, an adaptation of the phrase "our data" into the Setswana language (North-West University Libraries, 2021). Similar to IsiZulu in KwaZulu-Natal, Setswana is the majority local language in the North-West province of South Africa. Whereas most university libraries in South Africa mention OER in their LibGuides, very few (e.g., 7) have OER data repositories (see Table 5.1). Even among those university libraries with OER data repositories, very few rename their OER research repositories using local languages.

Table 5.1: South African university libraries excluded in the overview, Adapted from Mncube (2020).

Traditional university	OER in libguides	OER data repository
University of Fort Hare	Yes	No
University of the Free State	Yes	Yes
University of Limpopo	Yes	No
University of Pretoria	Yes	Yes
Rhodes University	Yes	No

Sefako Makgatho University	No	No
Stellenbosch University	OA not OER	No
University of the Western Cape	Yes	No
University of the Witwatersrand	Yes	Yes
University of Mpumalanga	No	No
Comprehensive universities		
University of Johannesburg	OA not OER	Yes
Nelson Mandela University	No, but OER on general website	Yes
University of Venda	Yes	No
University of Zululand	OA not OER	No
Walter Sisulu University	Yes	Yes
Universities of Technology		
Central University of Technology	Yes	No
Cape Peninsula University of Technology	Yes	Yes
Durban University of Technology	Yes	No
Mangosuthu University of Technology	No	No
Sol Plaatje University	OA not OER	No
Tshwane University of Technology	No	No
Vaal University of Technology	No	No

As indicated in Table 1, many university libraries do not have repositories for OER. The use of LibGuides for OER in South African university libraries is widespread and follows a similar pattern. The pattern indicates OER practice that focuses on a standardised Springshare content management system to curate, organise and share guides on OER in support of open teaching and learning. Guides on LibGuides contain links such as declarations on OER, creative commons licenses, and instructions on creating and using OER. Guides with links to open access information, open journals, and similar sites for open educational resources also feature prominently in South African university library LibGuides. A few university

libraries (e.g., UKZN, NWU, CPUT) seem to be sensitised to the notion of replacing universal names of OER research repositories such as Figshare with local languages. However, localisation challenges abound.

5.5.2 Challenges for localisation of open educational resources in South African university libraries

Social, cultural, and economic challenges facing universities in the global south, particularly Africa, directly affect how university libraries operate. According to Arinto, Hodgkinson-Williams, King, Cartmill, and Willmers (2017: 6), challenges facing education in the global south include "unequal access to education, variable quality of educational resources, teaching and student performance, and increasing cost and concern about the sustainability of education." Bateman (2008) posits that "the African university has yet to establish for itself a leading role in the process of critical enquiry into ongoing societal issues such as cultural dependency, development, democratisation, good governance, and intellectual leadership, as well as nation-building, regional integration and globalisation." The quotation implies that the African university is not proactive in finding new ways to transform from the identity created by former colonial powers in light of changes taking place in society.

Therefore, it is not surprising that universities in South Africa started drafting transformation frameworks post the 2015 and 2016 student protests. Because of the student protests, most universities have since included the word "transformation" in their strategic documents. This is not to say that the discourse on transformation began in 2015 and 2016. The #feesmustfall movement re-energised a historical problem. A few examples include Tshwane University of Technology (2017) and the University of the Free State, where the author worked as a librarian. The universities drafted their transformation frameworks in 2017, respectively. Subsequently, teaching, learning, and assessment policies in South Africa embraced transformation, as in the case of North-West University (North-West University, 2019). The reactionary approach by South African universities to changes taking place in society can negatively affect OER localisation initiatives in university libraries.

Despite the existence of transformation frameworks in South African universities, the role of academic libraries in transformation is not clear. Molepo (2018) notes that academic libraries do not feature prominently in debates and discussions about "Africanization" and "Decolonisation" of the university curriculum. Where university libraries appear in transformation frameworks, their role is symbolic. This

raises questions on how universities plan to transform the curriculum when their libraries feature less on the transformation agenda. This makes the study of the nature of university libraries worthwhile. According to Suttie (2006: 284), "the embeddedness of university libraries within the institution reveals the diverse constituencies they serve, often with competing ideologies and interests". The fact that South African university libraries service a diverse constituency poses a challenge to the localisation of OER. New skills for librarians and faculty members are necessary to adapt to a diverse and complex environment.

5.5.2.1 Programmes to support the reskilling of librarians and faculty members

Since the creation and reuse of OER depend on information and communications technologies (ICTs), there is a need for support programmes aimed at reskilling librarians and faculty members. Bateman (2008: 41) indicates that reskilling teachers to function within the OER movement can enhance teaching and instructional design capacity. Such programmes should create conditions for faculty members to understand the challenges faced by higher education institutions in developing countries. According to Bates (2008), most OER projects for the African continent are undertaken in developed countries where the context differs significantly from developing countries. One way of dealing with the dominance of developed countries in the OER movement is to ensure that support programmes encourage critical thinking. This requires that librarians in university libraries overcome the challenge of passive and reactionary service by collaborating with faculty members in research projects. Collection development practices should align with transformation initiatives happening at the institutional level to overcome the challenge.

5.5.2.2 Collection development practices

OER provides endless opportunities for South African university libraries to develop new collections enabled by ICTs. However, a major obstacle towards realising this goal is that university libraries store collections that are centuries old. Ngugi (2011: 234) notes that because the cost of newer copyrighted material prohibits the use, university library collections in Africa consist of outdated resources. Thus, most collections in university libraries remain untransformed. While older sources assist with historical research, other factors that perpetuate their infinite storage include the consideration of diverse interest groups in the library (see also Suttie, 2006), the slow pace of transformation in the curriculum, and stagnant collection development practices of South African university libraries.

Out of 26 university libraries in South Africa, only 5 have publicly available collection development policy documents. These include the University of the Free State (UFS), University of Limpopo (UL), Rhodes University (RU), Nelson Mandela Metropolitan University (NMMU), and Durban University of Technology (DUT). Fewer university libraries have publicly available annual reports, namely UCT, University of Pretoria (UP), University of the Witwatersrand (WITS), and UNISA. These documents were analysed by conducting searches using search terms such as open educational resources, transformation, and localisation. At the UFS, the criteria for selecting information sources considers "the languages of the province, and the selection rules emphasise the South African context". (University of the Free State Libraries, 2012: 5-6). At the UL, issues of collection development are addressed comprehensively in one document referred to as "Library Policy." A brief section on collection development emphasises "the development of information resources according to the university's changing needs" (University of Limpopo, undated). According to the Rhodes University Libraries (2011: 3), regular reviews challenge "entrenched practices and legacies associated with the collection." Liaison with stakeholders within and outside the university enforces the collection's relevance to the university community. At NMMU, the collection development policy notes that faculty and information librarians are responsible for developing the collection. Information Librarians need to consult with faculty before the final selection of information resources (Nelson Mandela Metropolitan University Libraries, 2006: 5). At DUT, the Library Information Resources Policy informs collection development practices. "Academics, subject librarians, and managers are responsible for collection development" (Durban University of Technology, 2013: 5). The availability of public collection development policies allows for understanding current practices and existing gaps.

From the analysis of the collection development policies emerged several gaps. A major gap is the absence of OER nomenclature in the documents. The absence of OER nomenclature implies reviewing the collection development policies. In addition, most collection development policies reveal irregular updating since policy updating covers 2006 to 2013. Due to the absence of OER nomenclature, discourse about the localisation of OER does not feature in all the analysed collection development policies of university libraries in South Africa. It is unclear what holds in the rest of the university libraries without publicly available collection development policies. More information about developments in South African university libraries exists in library reports.

Only six library reports were publicly available in South African university libraries at the time of the research. These include the UCT, Tshwane University of Technology (TUT), Central University of Technology (CUT), UP, WITS and UNISA. UCT Libraries seem to take the lead on OER sensitivity. According to the UCT Libraries Annual Report (2020: 33), principal librarians were involved in initiatives to "support the publication of open educational resources and the depositing of those into OpenUCT for wider dissemination and accessibility." The TUT and CUT Libraries have publicly available reports with no OER nomenclature. In quantitative style, TUT Libraries Annual Report presents graphs and charts depicting the services provided (Tshwane University of Technology, 2018). The CUT Library and Information Services Annual Report narrates activities undertaken by staff in providing services (Central University of Technology, 2013).

Similarly, WITS and UP Libraries do not feature OER nomenclature, let alone the localisation of OER. Despite the absence of OER nomenclature, WITS Libraries Annual Report (2017: 3) indicates that "the University Task Team recommends clearing open shelves to create space and the growth of digital collections". The University of Pretoria (2020) Annual Review focuses on "Rethink, Reimagine & Reposition Academic Libraries." While UP Libraries have a strong technological and artificial intelligence presence, the Annual Review does not mention OER. However, the Annual Review mentions Open Access Week. UNISA introduced its open data repository provided by Figshare in 2019. The Libraries Annual Report does not discuss OER and their localisation (UNISA, 2019).

The mapping of current practices in South African university libraries indicates OER and localisation require attention. The absence of OER nomenclature in collection development policies and annual reports of university libraries in South Africa opens a window of opportunity for the transformative role of OER. The way forward is to develop a framework for the localisation of OER for student-centred open pedagogy.

5.6 Framework

This section presents the proposed framework consisting of three frames namely: Collections, Alternatives, and Students (also abbreviated CAS). CAS provides comprehensive theoretical guidelines on how best librarians and academic libraries can provide localised opportunities for collaboration with students towards OER creation/reuse and the decolonisation of teaching practices in academic libraries. In addition, CAS answers the research question in this chapter.

CAS is born out of the belief that OER's localisation can contribute to the decolonisation of teaching practices in South African university libraries. This framework draws from the strategies for localising OER (Olivier, 2021), critical information literacy (see also Tewell, 2018), and the progressive ideology of critical and open pedagogy for marginalised communities, as exemplified by the scholarly work of Freire (1972; 2007), and hooks (1994). Freire (1972) justifies the need for a pedagogy of the oppressed by highlighting the contradictions between the oppressor the oppressed and overcoming the challenges. Freire's (1972) highlights the importance of critically reflecting on the meaning of teaching and learning. Hooks (1994) writes about education as a practice of freedom and teaching students to transgress against racial, sexual and class boundaries. Critical and open pedagogy discourse is important to South African university libraries in light of changes taking place in higher education. In the absence of frames, the localisation of OER enabled student-centred open pedagogy is insurmountable.

5.6.1 The frames

The CAS framework (refer to Figure 5.1) proposes the following frames for practices with OER and student-centred open pedagogy towards the decolonisation of library teacher education:

5.6.1.1 Collections

University library collections represent the cumulative recorded knowledge acquired over time in support of learning, teaching and research activities. Therefore, collections should be viewed within a [local] context. The context implies a focus on geographical, social-cultural, linguistic, epistemological and individual aspects (Olivier, 2021). Due to the colonial segregation policies of apartheid in South Africa, university libraries served the interests of mostly white, English and Afrikaans speaking ruling classes at the exclusion of the diverse black ethnic tribes and their ways of knowing. Therefore, it is not surprising that the post-modern knowledge system exudes Anglo-Saxon and Afrikaner social-cultural, linguistic, and epistemological dynamics. Within this context, [university] libraries have a role in transformation and decolonisation (Molepo, 2021). Diversity is ubiquitous in South African university libraries. Therefore, prioritising individual student needs should be a top priority. The omnipresence of outdated collections in university libraries (see also Ngugi, 2011) associated with colonial and apartheid-era policies necessitates collections as a frame for the localisation of OER for student-centred open pedagogy.

Reflective practice on collections is necessary to review and update collection development policies in South African university libraries. A mapping of South African university libraries shows that collection development practices overlook the revision and updating of collection development policies (see subsection 2.1.1.2). OER qualifies as a special type of collection that should feature prominently in collection development policies. Recognising the uniqueness of OER in localisation creates conditions for learning, technology, and critical library teaching to interface. The discourse on OER in collection development policy should be elaborative and intentional on localising student-centred open pedagogy. To avoid an optimistic account on OER publishing and less focus on reuse in institutional OER policy (Chikuni, Cox & Czerniewicz, 2019), South African university libraries should consider alternative ways of supporting faculties.

5.6.1.2 Alternatives

Currently, faculty librarians in South African university libraries embed within academic departments as part of the extended mandate to bring library services closer to faculty members and students. An alternative approach is to embed beyond the walls of the academy. Since localisation is a collaborative process (Olivier, 2021), South African university libraries can benefit from embedding in local communities. Examples of communities to embed in include traditional institutions of leadership and governance, alternative publishing houses, schools and non-governmental organisations. This frame can work best as Alternative Embedded Librarianship (AEL), a radical scholarly response to passive library practice that overlooks the influence of broader societal forces that underpin information resources, systems, and teaching practices in South African university libraries. AEL emphasises the importance of collaboration between librarians, students, and content experts in finding solutions for the localisation of OER for student-centred open pedagogy. Central to AEL are students and language as cultural carriers of the motivation needed to remove learning and teaching barriers in library education.

5.6.1.3 Students

The author claims students represent their diverse geographical, social-cultural, linguistic, epistemological and individual zones of influence. A relevant group of students suited as a frame for the localisation of OER are postgraduate student's assistants in university libraries. South African university libraries employ student assistants to assist librarians in their support functions. The employment of student assistants in university libraries is equivalent to the phenomenon of youth services

work (see Corney, 2006). While recognition of challenges of poor academic performance brought by working scholars is noteworthy (Bagabaldo, Vallermosa, Oba-o, 2015), OER localisation should be located in the job profile of student assistants in university libraries. This would require a change in perception by university libraries that see student assistants as extra employees. Instead, student assistants should collaborate with librarians in information literacy programmes to co-create new knowledge on the localisation of OER. Targeted recruitment of student assistants should occur for OER localisation for open student-centred pedagogy. The same pattern of OER localisation practice in university libraries should suffice in respective departments that hire student assistants. Using Tewell's (2008) themes for critical library education as a basis, student assistants in South African university libraries can participate in a sample OER localisation activity as follows:

A librarian facilitating library training can employ the problem posing technique to allow student assistants to lead a synchronous discussion group on a classification system such as Dewey Decimal Classification (DDC) used to organize information in the library. The student assistant can ask other students in the class to critically reflect on the racial, cultural, gender, and linguistic biases by comparing it with other types of organizational structures in language groups such as Afrikaans, Sesotho, Setswana and IsiZulu to mention a few. A translation of the term DDC to the target language source such as Northern Sesotho could be Peakantšho ka Magoro. The discovery of alternative types of knowledge organization in their respective language groups is bound to spark debate and initiative. The result could be the compilation of a guide by students comparing DDC to local classification systems, the identification of gaps and a call to action. Once published under open license, other students to evaluate progress on the decolonisation of library classification systems can reuse the guide. The guide should be available in various formats (e.g. MP3 audio, video, graphic and text) for wider access. South Africa university libraries can centre OER localization and student-centred open pedagogy practices in a discussion group, blog or e journal. The librarian can moderate a blog while content experts peer review the student e journal for quality.

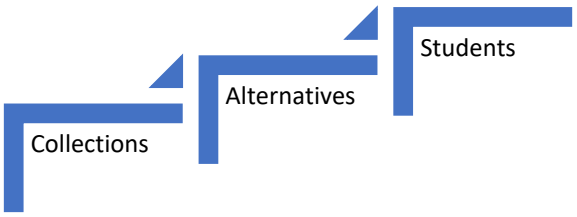

FIGURE 5.1. CAS Framework for providing localised opportunities for collaboration between librarians and students towards OER creation/reuse and the decolonisation of teaching practices in South African academic libraries

5.7 Conclusion

This chapter argues that the localisation of OER can contribute to the decolonisation of teaching practices in South African academic libraries. Existing research on OER localisation in South Africa is mostly done by academics and scholars in education. This is a limitation because there needs to be more knowledge on how academics and scholars in library and information science are addressing the issue. The lack of scholarly research on OER localisation and open pedagogy provides South African university libraries with ample research opportunities. The absence of concepts such as OER and localisation in South African university library websites and strategic documents points to OER localisation immaturity. The research gap justifies the need for new knowledge on OER practices and the extent to which their localisation can support open learning and teaching in South African university libraries. The chapter makes a valuable contribution to knowledge by providing a perspective on how librarians and libraries can drive the localisation of OER. This chapter recommends the CAS Framework for providing localised opportunities for collaboration between librarians and postgraduate students towards OER creation/reuse and the decolonisation of teaching practices in South African academic libraries.

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CHAPTER 6: Guidelines for the Development of Open Educational Resources at a Higher Education Institution through the Lens of Domestication

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Abstract
In spite of the managers and administrators at higher education institutions (HEIs) advocating the use of open educational resources (OER), there are insufficient guidelines for the development, adoption and sharing of these resources among academics. Therefore, we need to encourage institutions and academics to develop their own OER, which can be achieved if guidelines were in place to assist them in this process. This chapter presents a set of guidelines for the development and adoption of OER at HEIs. In order to develop these guidelines, semi-structured interviews, focus groups, artefact observations and document analysis were used to collect data on OER development. By using the domestication theory as a lens, thematic analysis was initially employed to make sense of the collected data, thereby deriving the guidelines for developing OER at HEIs. These guidelines comprise of the following seven principles: the gathering of users' experiences; conducting an induction; identifying OER enablers; defining a pedagogical framework; defining e-learning approaches; formulating mechanisms for OER promotion; and designing disseminating procedures.

Keywords:
Open educational resources, Open educational resource development, Open educational resource adoption, guidelines for open educational resource development, higher education institutions

6.1 Introduction

Globally, the appropriation of open educational resources (OER) is trending. The term OER refers to any educational material that is freely available to the public and, under certain licenses, allow others to use, reuse, change and redistribute them, as long as they follow certain rules (D'Antoni, 2009; Hewlett Foundation, 2013). The essence of OER complements open education, teaching and learning, so as to enhance student access to learning resources (Gunness, Tarling & Haipinge, 2021). The OER initiative was established to increase access to educational resources especially in developing countries (UNESCO, 2002) – a shift that is recognised by numerous HEIs, as academics adopt and share OER for collaboration. The OER movement, which has progressed from theory to practice, provides HEIs with the opportunity of rapidly achieving their educational goals (Shams & Waqar, 2020; Alamri, Watson & Watson, 2021).

The OER trend continues to escalate, in spite of prevailing hindrances, such as the shortage of information and communication technology (ICT) infrastructure and resources for access and distribution. In the literature, it is evident that numerous studies on OER still raise concerns and offer solutions related to ICT infrastructure (Tlili, Ofosu & Zhang, 2021), network coverage (Mncube, Tanner & Chigona, 2021b), electricity (Zaid & Alabi, 2021), design methodologies and evaluation mechanisms that allow designers to use technologies (Miranda, Navarrete, Noguez, Molina-Espinosa, Ramírez-Montoya, Navarro-Tuch & Molina, 2021). Although these challenges cannot be ignored in the continuation of OER and their innovations, the rise in OER practice and knowledge demonstrates that OER knowledge and the scholarly contribution progress expanding (Julia & Marco, 2021).

The existence of inequalities around access to resources and infrastructure does not deter academics and institutions from seeking possible solutions to support OER usage. One of the key aspects of developing and deploying OER in teaching and learning is policy to define technical and legal frameworks and to sustain open education initiatives (Hylén, 2021). In the OER domain, a policy expresses a concerted and planned effort to achieve specific goals (UNESCO & Commonwealth

of Learning, 2019). However, the issues of OER policies, guidelines and strategies are underdeveloped, which may impact on the appropriation and transformation of OER.

This study was conducted at the University of South Africa (Unisa), one of the largest universities in Africa, which delivers some of its programmes through e-learning. Therefore, this open distance e-learning (ODeL) institution relies on ICT and other online innovations for functions and services, such as teaching and learning, research, data management and administration. The relationship between ODeL and OER involves the principles of cost-efficiency guiding student-centredness, flexibility and accessibility, which are, in turn, facilitated by means of different technological media (Mncube, Tanner, Chigona, 2021a). In addition, ODeL institutions have proven their relevance in terms of increasing access to higher education through online realities and by using open resources for tuition and the deduction of textbook costs (De Hart, Chetty & Archer, 2015).

Unisa is one of the first universities to develop an OER strategy, which gives institutions a broader scope for OER uptake among academics (De Hart, Chetty & Archer, 2015). This strategy points to the use of OER as a public good by reducing cost barriers to study material, while expanding the integration of teaching and learning technologies. In 2017, another strategy was developed, which emphasised the need to review institutional policies that incorporate the development and use of freely accessible, digitally-enabled, openly licensed instructional materials. However, in the context of the current study, there is an existing strategy that appears to lack the logic and steps involved in the actual development of OER. The existing initiative is to develop a practical strategy that benefits all academic institutions that need to develop OER. It is necessary to design guidelines that academics can consult in the OER development process. Therefore, this chapter aims at providing answers to the following question:

What are the possible guidelines for OER development at HEI?

The study opted for the inductive and deductive reasoning approaches to answer this question. Deductively, the researchers were guided by the domestication theory to conduct the relevant literature review and to collect data to reach empirical findings. Inductively, empirical observations of actual artefacts were valuable for the design of the suggested guidelines.

6.2 Open educational resources in higher education

Globally, HEIs are the primary sources of OER adoption and development, attesting to the vast potential of OER for global educational transformation. According to the UNESCO Ministerial Statement (2017:301), which was adopted during the Second World OER Congress in Slovenia, "… for OER to reach its full transformative potential for supporting the realization of SDG4, OER must be more integrally a part of educational policies and practices from early childhood education to post-secondary, technical vocational educational training and in higher education". This statement points to the significance of OER in education, which not only involves the higher education sector, but all phases of education.

In spite of advancing in teaching and learning innovations, HEIs still face challenges, such as unequal access to education – particularly in higher education – which is a serious concern in the global south (UNESCO, 2015). This demonstrates that, in most developing countries (global south), the imbalance in higher education has not been addressed properly. Although ICT is commonly used in developing countries, it is still a challenge in the context of OER (Hinostroza, 2018). Moreover, HEIs in developing countries, such as in Asia and Africa, are still facing a shortage of qualified academics, who are skilled in curriculum development and educational technology.

Although OER are under-developed in the global south, universities with sufficient resources frequently operate in accordance with worldwide norms. However, in poorer areas, the educational system is often dysfunctional on numerous levels (UNESCO, 2015). This may be caused by unequal access to education, varying quality of educational resources, insufficient teaching and low student performance, rising costs, and concerns about the long-term viability of education (Cox, Masuku & Willmers, 2020). This situation requires serious attention. A study conducted in Latin America suggests that stakeholders, government entities, academics, administrators and researchers should commission research that demonstrates the development of open policies HEIs employing OER and open access (Toledo, 2017).

Student enrolments and student numbers have been continuously growing in the global south (World Bank, 2013). For example, in sub-Saharan Africa, “tertiary education enrolments have increased by 8.7% every year from 1991 to 2005, double the global average” (World Bank, 2009:46). This shows that numerous countries recognise the significance of education, which, in turn, results in a significant

increase in the demand for higher education (Teferra, 2013). Because of the high demand, costs may rise. Developed economies, such as New Zealand, Canada and the United Kingdom, have been associated with high access to quality education (Biswas-Diener & Jhangiani, 2017), but in developing countries like South Africa, the situation is the exact opposite. Therefore, there is a need for South African HEIs, government and other stakeholders to consider possible ways of easing access to education. The provision of different open education institutions may support traditional universities in accommodating large numbers of students.

6.3 Open educational resource policy for higher education institutions

A policy is a critical tool for OER sustainability and, therefore, governments all over the globe advocate OER policy developments. In education, an OER policy emphasises the need to "widen the distribution of high-quality educational resources and reduce barriers to learning opportunities" (UNESCO and Commonwealth of Learning, 2019:iii). The essence of policies is to coordinate, strengthen and drive initiatives in a country, which involves "actors and institutions on various levels working together to achieve common goals around OER" (UNESCO and Commonwealth of Learning, 2019:1). Furthermore, OER allow stakeholders in education to improve the quality of learning content by expanding access to textbooks and other types of learning content, thereby accelerating new uses of the information and encouraging knowledge development and expansion (UNESCO, 2015).

OER are gradually gaining popularity in different spheres of education, resulting in the need for active policies (Hylén, 2021). This has generated a new opportunity to promote openness, although the absence of OER policies may cause confusion among academics and institutions as to the adoption and utilisation of OER. Therefore, there should always be an OER policy in place to guide academics and other stakeholders and to overcome any confusion (Judith & Bull, 2016; Huang et al., 2020). Operations without a proper policy may lead to inappropriate procedures, such as non-compliance with OER standards. In order to promote the best processes in the development, distribution, access, utilisation and dissemination of OER, the policy should be enforced in all structures of academia.

A policy helps to safeguard the best interests of institutions, academics and students when accessing or mainstreaming OER (Abeywardena, 2017). Therefore, institutions need to develop OER policies to align with their context. In order to comply with policy initiation, it is essential to include all the following elements in a comprehensive policy statement: policy declarations and statements, policy objectives, scope and applicability, copyright and license specifications, the quality assurance and review system, liabilities and institutional arrangements (Abeywardena, 2017).

The lack of OER policies has challenged numerous African institutions, resulting in a recent paradigm shift in the formulation of such policies (Butcher, 2012; Chikuni, Cox & Czerniewicz, 2019). The universities guided by policies seem to have a strong focus and reliable strategies for accommodating OER. For example, at Kenyan universities, the policy and regulatory framework is gradually becoming more conducive to mainstreaming ODeL offering and integrating OER (Adala, 2016).

6.4 Development of open educational resources

The development of OER initiatives has been made possible by advancements in various technologies, such as Internet bandwidth quality, accessible computers and mobile technologies (Fulgencio & Asino, 2021). In the absence of such devices and Internet access, OER development would have been impossible. HEIs promote open access by creating more opportunities for students and staff to access educational content, once the development has been completed. It also promotes collaboration and online visibility on a global level (Condruz-Bacescu, 2020).

Developing countries cannot be compared to European countries, which are digitally more advanced. Developing countries are confronted with the following challenges: the lack of resources to create OER; the lack of institutional support, which manifests as the lack of training for academics on OER creation and the lack of understanding of copyright (Hodgkinson-Williams & Arinto, 2017; Rodés, Gewerc-Barujel & Llamas-Nistal, 2019). Additionally, there are no institutional policies, support and rewards for academics engaging in the integration and use of OER (Jung & Lee, 2020). These challenges are associated with the lack of knowledge of introducing creative commons (CC), in that academics do not seem to understand how they should apply the CC (Gulley, 2013). The main disadvantage of CC is that numerous OER developers do not experience it as being user-friendly (Koscik & Savelka,

2013). Therefore, it can be concluded that knowledge of OER and CC plays a significant role in limiting OER growth (Miao, Mishra & McGreal, 2016).

Collaboration among HEIs and academics is relatively common and usually occurs in several developing countries, such as the RSA (Czerniewicz, Deacon, Walji & Glover, 2017). However, challenges prevail in the process of OER development, as academics still face challenges such as the lack of knowledge, limited skills, time constraints, technical barriers and other obstacles (Naidu & Karunanayaka, 2017; Nascimbeni, Burgos, Spina & Simonette, 2020). Based on these hindering factors, some academics and educators are of the opinion that a third party needs to do OER development on their behalf (Walz, 2015). Nonetheless, despite the challenges and obstacles, it is important for academics to develop and implement OER in their teaching practices and the learning content of their subjects, so as to build an understanding and create an awareness of what OER involve and how they can be used (Hood & Littlejohn, 2017).

6.5 Theoretical framework

The domestication theory is generally used to investigate how social contextual factors influence the way in which individuals adopt and benefit from the IT artefact (Silverstone, Hirsch & Morley, 1992; Haddon, 2011). The domestication theory was created to define and analyse the processes of technological acceptance, rejection and adoption (Berker, Hartmann, Punie & Ward, 2006). Domestication not only involves people's adoption of technology; it also involves humans building a technologically mediated environment (Berker et al., 2006).

Given the dynamics and capabilities of the domestication theory, it was employed in the current study as the lens for developing OER as an IT artefact in the context higher education. The study aligns with the view of Silverstone and Haddon (1996:3), in that "design and domestication are the two sides of the coin of innovation. Domestication is anticipated in design and design is completed in domestication". The three phases of domestication – i.e. commodification, appropriation and conversion – were adopted to achieve this (Silverstone and Haddon, 1996).

6.5.1 Commodification phase

The first stage in the domestication theory, which involves commodification, refers to the marketing of a technological product to the users (Berker et al., 2006). At this

stage, symbolic and functional claims about the product are noted, commodification "encompasses the various activities that transform new or unfamiliar commodities into objects with the potential to raise interest in the mind of their potential users" (Habib & Sønneland, 2010:87). In the full description of the commodification process, this study was influenced by Mncube et al. (2021a), who posit that, before marketing the commodity to the user, it is necessary to determine their prior and current knowledge of the product. Knowledge should also be gathered from the marketers or informers to establish user behaviour. This is done to obtain the overall perception of the artefact, which may give a clear picture of whether users are actually interested in the product. Insights gathered in the commodification phase contributed towards the formulation of the first two phases of the guidelines proposed in this study – i.e. gathering of academic experience and induction.

6.5.2 Appropriation

The appropriation phase, which is associated with adaptation or adoption, involves the process of incorporating a technical product in uers' lives and routines. It is also the method of bringing a technological product from the market to consumers' lives (Carroll, Howard, Peck & Murphy, 2002). The users evaluate technology more thoroughly by exploring and using it (Herszfeld, Carroll & Howard, 2003), thereby learning how technology can support their practice of domestication through the provision of functionality (Fidock & Carrol, 2006). The adoption or rejection of technology is decided in the appropriation phase (Silverstone & Haddon, 1996). There are different influences that serve to encourage or discourage appropriation (Fidock & Carrol, 2006). Furthermore, the appropriation phase can be used to describe people's reacttion to new situations and/or wild and strange technologies (Silverstone et al., 1992). The appropriation phase was relevant in formulating Principles 3, 4 and 5 of the guidelines in this study – i.e. enablers of OER development; pedagogical aspects; and the e-learning approach.

6.5.3 Conversion

As the final phase in domestication, conversion involves the display of a developed artefact that links with the outside world (Pierson, 2005). During the conversion phase, resistance occurs, when cultural expectations and social resources collide with the challenges of technology, system/s and content, as well as refusal and transformation (Silverstone, 2005). The conversion phase "involves display, the development of skills, competencies, literacies as well as discourse and discussion, the sharing of pride of ownership, as well as its frustration" (Berker et al., 2006:234).

In the conversion phase, academics demonstrate to others that they have developed OER; they talk about OER to others and they "show off" their command of the final product. During the entire development process, academics have acquired competencies, and some are willing to share their newly acquired skills. This phase of domestication enabled the study to determine how academics demonstrate their use of new knowledge. The conversion phase was useful in formulating the last two principles of the guidelines, namely: the promotion of OER and the dissemination process.

6.6 Methodology

The study was influenced by the views of Gregor (2018), who postulates that an information system researcher should rely on more than one logic of inquiry. Therefore, the study adopted both a deductive and an inductive reasoning approach. Deductive reasoning was suitable, because the study relied on the domestication theory. Deductive reasoning is relevant to any study that relies on existing theories to explain the research phenomenon (Wilson, 2010). Inductive reasoning is considered as "a theory-building process, starts with observations of specific instances and seeks to establish generalisations about the phenomenon under investigation" (Fereday & Muir-Cochrane, 2006: 83). Inductive reasoning was employed in the interpretation and discussion of the research findings, which was the point at which the gaps were observed. In this way, the possible themes for the guidelines were established.

6.6.1 Sample and sampling

Purposive and snowball sampling were used in the study. The sample was obtained in a large, diverse ODeL setting that included eight colleges at Unisa (Unisa website, 2021). To obtain permission to conduct semi-structured interviews, e-mails were sent to all colleges. The initial participants in each college aided in the identification of other suitable participants involved in the adoption and development of OER. Academics, who were regarded as OER adopters and developers, were then contacted for interviews. Academics of various ranks responded, including junior lecturers, senior lecturers and professors. To be eligible for participation, these academics were required to be involved in teaching and learning or teaching any subject within the ODeL setting.

Table 6.1: Characteristics of research participants

No	Characteristics	Number of participants
1.	Academics	52
2.	OER champions	5
3.	Librarian	1
4.	Documents	3
5.	Actual artefact	2

The population consisted of 52 participants, who were purposively targeted to participate. The main participants were academics from all academic ranks: junior lecturers, lecturers, senior lecturers and professors. The academic sample comprised 46 academics. The key informants were academics, because they were the people responsible for the development of OER at one particular HEI (i.e. Unisa).

The second sample, which involved OER champions, consisted of five participants, including one OER UNESCO chair and one librarian. The second sample was considered, because these participants were responsible for assisting academics with OER development. – Once the OER have been developed, they have to be taken to the library to be publicised. The documents and actual artefacts were consulted for validation of data.

6.6.2 Data collection and analysis

In order to achieve a robust data set, the study used a variety of data collection approaches. Semi-structured interviews, focus group interviews, actual artefact observations, document analysis and field notes were among the data collection approaches employed. This allowed participants to speak about and clarify subjects that were significant to them in their own words (Longhurst, 2010). The steps in the domestication theory were used to build the research instrument. In the pre-2019 period – i.e. before the COVID-19 pandemic – data collection was conducted by means of face-to-face interviews, while data was collected online by means of virtual platforms. such as MS Teams, in 2020. Physical and online interviews were conducted on several ODeL campuses, in participants offices and at their homes. The interviews lasted between 30 and 60 minutes. The data was recorded during the data collection process and afterwards transcribed into text format.

For the data analysis, the transcribed data was coded in NVIVO. Thematic analysis was applied in the research. Reading the interviews, re-reading the codes, making NVIVO memoranda on various subjects by returning to the individual interviews,

and refining the analysis through further data questioning were used to identify themes. In addition, the researchers checked all the coded data and topics to establish the primary themes and linkages. Following the identification or amalgamation of themes, the researchers began to redefine and label the final themes, thereby completing the analysis.

6.6.3 Ethical aspects

This research was part of a doctoral programme at the University of Cape Town (UCT) and, therefore, ethical approval was obtained from the University of Cape Town. As the UCT research policy stipulates, all registered research projects must be ethically cleared before data collection occurs (UCT, 2022). The study was conducted at Unisa, which means the participants were Unisa employees. The researchers applied for and obtained permission to conduct the study at Unisa. The ODeL policy stipulates that any study conducted at Unisa involving students and staff members be ethically cleared (Unisa, 2013). Permission to conduct research was acquired from both institutions, on the condition that all ethical consideration were followed, including anonymity, the protection of participants, the right to participate and participants' right to withdraw from the research at any point, if they so desired.

6.7 Seven guidelines for developing OER

This section describes the seven guiding principles supporting OER development. These guidelines were based on an engagement with the literature, theory, empirical findings and observations from the broader study on the domestication of OER by academics at an ODeL institution (Mncube, Tanner & Chigona, 2022). These guidelines were also influenced by UNESCO and COL (2019: v), as they postulate that "appropriate policy development at the national, institutional and project levels is a major driving force for the successful adoption of OER". It should be pointed out that this chapter is not aimed at policy development, but rather on appropriate and practical guidelines for OER development.

Table 6.2 summarises the guiding principles for the development of OER. The stakeholders who should be involved/consulted during the development of OER are listed first. The guiding principle relevant to each stakeholder is also listed. The guiding principles, main actions and their descriptions, and expected outcomes are also captured.

Table 6.2: Guiding Principles for Developing OER

STAKEHOLDERS	GUIDING PRINCIPLE	MAIN ACTIONS	DESCRIPTION AND EXPECTATIONS (EXTRACTED FROM EMPIRICAL FINDINGS)	OUTCOMES
COMMODIFICATION PHASE				
Institution management	Gathering data on users' experiences	Prior knowledge	Acquire a broader understanding of user knowledge.	Gathering knowledge of OER
		Background information	Acquire knowledge based on teaching offering, disciplines and fields	Gathering knowledge of OER
		Users' perceptions and value of OER	Acquire users' perceptions of the phenomenon.	Attitude towards OER
		Purpose of OER	Why are academics interested in adopting and developing OER?	Benefit target audience
	Conducting an induction (onboarding)	Training and skills	The institution must provide OER training to new academics. Train academics on creative commons and copyrights.	Increased knowledge and skills
APPROPRIATION PHASE				
Academics	Identification of enablers of OER	Information systems	Ensure that the relevant systems, infrastructure and platforms are in place to support OER adoption and development.	Users can adapt and develop OER
		Shadow IT	Empower users to choose the relevant system that suits their existing needs. Freedom to choose the relevant systems.	Avoid ecosystem IT limitations
		End-user support	When users encounter technical difficulties with systems, they should know which ICT specialist to consult for assistance.	Enhance user support
Academics	Defining pedagogical frameworks	Lesson objective	OER should be selected to meet the learning objectives, and these objectives should inform the choice of OER in a particular module.	Achieve teaching objective/s
		SAQA framework	The choice of OER should be aligned with SAQA requirements.	Remain relevant without overloading students with information
		Initial development of OER	At this stage, when the system, pedagogy, SAQA standards and lesson objective/s have been addressed, the OER development begins.	Ease usage and confidence
		Creative commons	Academics should adhere to ethical standards when developing OER. Academics should stipulate the specific CC for copyright.	Protection of knowledge
		Quality assurance	Academic institutions should establish a committee to ensure quality assurance for OER development.	Adherence to ethics and quality

	Defining e-learning approaches	Web platforms	The developed OER must be suitable for any web platform.	Online realities
		Schools' common platforms	The department, school and college must have a common platform for the storage of internally developed OER.	Online realities
CONVERSION PHASE				
Academics, Institution management	Formulation of mechanisms for the promotion of OER development	Social capital	Individuals with high social capital to motivate OER	Increased capacity
		Incentives	Developers should be made aware of available incentives to encourage the use of OER.	Increased capacity
Academics, library and institution management	Formulating dissemination procedures	Institutional repository	The central institutional repository for all OER developed by academics should be easily available.	Increased access and collaboration
		Social media	Academics should be allowed to disseminate OER via preferred social media.	Enhanced visibility

6.7.1 Gathering of users' experiences

The gathering of prior knowledge is a crucial starting point in the process of OER development. There are large numbers of diverse users at higher education institutions, some of whom are newly employed from other institutions or organisations, and some who are beginning their careers in academia. The diverse pool of academics at an ODeL institution may signify that academics have different opinions of and views on the adoption and development of OER. In such a diverse context, the ODeL institution should rely on collected information on the artefact, including the relevant stakeholder's prior experience, before considering OER development. Gathering academic experiences is necessary to acquire their perspectives on the purpose and value of OER. Due to the user's diverse backgrounds and experiences, it cannot be assumed that all users are well vested, or not, about the artefact.

> *I didn't have an experience about OER, because I recently join the institution, since I have been working from the corporate (Lecturer 17).*

The literature affirms that commodification sheds light on how users' experiences are valued and measured in terms of their authenticity (Axelsson, 2018). It is necessary to understand the complex academic experiences about OER before any development occurs. The commodification in advancing societies or institutional impressions sets the boundaries between reliable social human relationships and materialistic affairs – a situation to which Heinrich (2012: 71) refers as "commodity fetish". For example, OER are designed to fulfil the educational expectation, rather

than that of the individual. However, academics are employed by the institution and, therefore, they become part of the institution. To achieve this, the establishment of relevant experience in, and knowledge and views of OER must be acquired (Mncube et al., 2021a).

Furthermore, commodification has directly affected the way in which users experience identity and self-presentation (Marwick, 2005). The literature and research findings concur with the lens of commodification. Once the institution has complied with all relevant perceptions, the institution should be able to develop the new OER development strategy. Additionally, that brings more opportunities for organisational improvements of OER advancement or declines immediately. Therefore, it is suggested that the lack of information on users' experiences with OER, creates the possibility of unsuccessful tools or development strategies.

6.7.2 Conducting an induction

Once the users' experiences have been collected, the institution is in a better position to decide on conducting the necessary induction. The OER experts, such as OER champions and librarians, should use the opportunity to train users – particularly users with no previous knowledge of or experience in OER development and adoption – or to provide them with an OER induction. For example, the one OER champion revealed that they promoted OER to academics to encourage and motivate them. The other champion opined that they introduced OER among academics by focusing on infusing OER when reviewing and developing the curriculum. The study found the academics, who lacked the relevant knowledge and experience, were inducted, encouraged and assisted in the use of OER when developing any study material for teaching and learning.

> *We've done workshops, we did quite a few workshops … so we`ve done some training workshops with the college in various phases and I think some of the academics like it (Champion 2).*

The second guiding principle relates to conducting induction for different groups of academics. Although this is particularly important for newly employed academics, induction can also be conducted for existing (experienced) academics, who have been at an ODeL institution for quite some time. Indeed, some seasoned academics may not have been introduced to OER, as this initiative is emerging in academia. For instance, some academics who may be experienced in and knowledgeable about

OER, are still unclear about the creative commons and copyrights assigned to OER. Therefore, induction is important as part of knowledge or skills transfer for key stakeholders in the domain.

> *I have a brief understanding of Creative Commons licenses and they can be very confusing (Lecturer 18).*

The literature observes that Creative Commons, which is an open organisation associated with OER, is responsibly initiating any type of educational material that is freely available for academics and students in the 5R activities, such as retaining, using, adapting and sharing resources (Huang et al., 2020). Also, Creative Commons licenses are compatable with copyright, because a violation of creative commons is also a violation of copyright (Hagedorn, Mietchen, Morris, Agosti, Penev, Berendsohn & Hobern, 2011). Literature and findings agree on the need to inform academics about creative commons, as they are often unaware of how to assign copyright to developed OER.

It is noted that most school teachers and university lecturers do not understand the regulations involved in the sharing of OER (Hodgkinson-Williams & Arinto, 2017). Therefore, induction and regular training are a relevant solution to transform the development of OER in academia.

6.7.3 Identifying OER enablers

The third guiding principle relates to the identification of enablers of OER. Typical enablers of OER development are ICT systems and structures categorised as information systems, shadow IT, and end-user support. It cannot be denied that the existence of OER depends on active ICT systems. Human capacity can conceptualise the ideas of OER, but ideas cannot be implemented if no information systems structures are in place. Information systems are considered to be the primary enabler in OER development.

> *We must become techno-savvy because it can be very easy for you to use the information systems for OER development, you can even design your platforms that would create open education for the students (Professor 2).*

In addition, shadow IT can also be considered as a significant enabler in the development and advancement of OER. Shadow IT relates to any hardware or software in an enterprise that is not supported by the central IT department (Kopper,

Westner & Strahringer, 2020). In spite of the institution being dependent on institutional ICT, some academics may opt for different information systems for OER development. The most significant hindering factors that may lead academics to opt for shadow IT are: the existing systems not always being compatible with the development of OER; limited capacity of some institutional systems to handle and store OER; some institutional systems may be limited, in that they can only be accessed via the ODeL ecosystem; and the institutional systems may be guided by the institutional intellectual property policy, which limits the ability to promote OER to a wider audience, in line with the OER philosophy.

> *There are some limitations though with myUnisa [Unisa LMS], I think we only allowed to upload 10 megabytes per upload, which is if it was a video to be uploaded it would be approximately 10 minutes (Lecturer 14).*

The literature affirms that, because of solutions to interact and communicate at work, many organisations rely on shadow IT, instead of organisational systems, which may ultimately improve their performance (Mallmann & Maçada, 2021). Shadow IT systems are not workarounds of enterprise systems, but allow user departments to perform much-needed work.

It is confirmed that the academic departments and/or faculties at universities regularly install and implement their systems to perform tuition (Chua, Storey & Chen, 2014). Digital technologies with various IT systems are important in promoting greater autonomy and self-regulation in the learning process, thereby allowing students to appropriate any IT, including shadow IT (del Arco, Silva & Flores, 2021).

Based on the literature and the research findings, the study assumes that, when academics use different institutional or shadow IT systems, there is a critical need for an end-user support specialist. This specialist, who is an ICT-qualified person with the relevant knowledge of (Field engineer, 2021) or interest in OER, would be responsible for providing support to academics during the development of OER. Most academics are not necessarily digitally literate and some are still struggling to interact with ICT systems. When they encounter system problems, some may get stuck and decide to stop the development process. In order to avoid this situation, it is important to provide adequate end-user ICT support for the advancement of OER in academia. Therefore, the merger of the use of institutional IT and shadow IT seems

to be a better option for OER development, which are freely accessible for global education.

6.7.4 Defining pedagogical frameworks

Because OER cannot be developed in isolation, it is important to define relevant pedagogical frameworks to support the use of OER. In the current context, the pedagogical frameworks could comprise lesson objectives, the SAQA framework, the actual development of OER, the initiation of creative commons, and quality assurance.

Lesson objectives are essential components of any course or module development. When designing active learning, the learning objectives should be kept at hand (Kovarik, Ott, Robinson & Wenzel, 2022). The lesson objectives are considered as the guidelines of any achievable lesson. In this regard, any OER being developed should be relevant to and align with the lesson objectives. This is essential for achieving the learning outcomes.

Once OER have been aligned to the lesson objectives, the South African Qualifications Authority (SAQA) framework needs to be considered – particularly SAQA credit bearings in a particular subject or module. SAQA is the South African organisation responsible for creating a single integrated national framework for learning achievements for South African qualifications in adherence to the National Qualifications Framework (NQF) Act, No 67 of 2008 (SAQA, 2014). The SAQA framework is considered as a relevant tool for open course development, which plays a significant role in formulating relevant content.

> *I think I`ve realised that when utilise OER sometimes you also bombard students with too much information because they already have study materials, they already have a textbook sometimes and there is no need to give them too much OER. I should not give what is beyond their knowledge and levels at the same time not to limit them. When it comes to content, it should be in line with the NQF levels requirements as prescribed by South African Qualifications Authority (SAQA) (Lecturer 3).*

Academics should be ready to start developing, once the lesson objectives and the SAQA standards have been met. At this stage, academics are free to develop OER in any relevant format (e.g. text, video, audio, graphics, etc.). OER are learning, teaching and research materials in any format and medium in the public domain

(Velychko, Fedorenko, Soloviev & Dolins'ka, 2022). In the presence of various OER in different formats, the literature affirms that the most preferred OER format is that of MOOC (Kumar & Mahendraprabu, 2021), which provides material and enables the exchange of knowledge (Wei, Saab & Admiraal, 2021). Also, OER on MOOC allows participants to start using OER (Kumar & Mahendraprabu, 2021). It must be noted that OER on MOOC are easier to develop, save time, and are easily sharable.

Once the OER have been developed, creative commons should be initiated to make a source become an official OER (Huang, et al.,2020). Wiley (2015:6) elaborates by pointing out that "the permissions granted to an educational resource by an open license that is licensed in a manner that provides users with free and perpetual permission to engage in the 5R activities:

- Retain: the right to make, own, and control copies of the content (e.g., download, duplicate, store and manage);
- Reuse: the right to use the content in a wide range of ways (e.g., in a class, in a study group, on a website, in a video);
- Revise: the right to adapt, adjust, modify, or alter the content itself (e.g., translate the content into another language);
- Remix: the right to combine the original or revised content with other open content to create something new (e.g., incorporate the content into a mashup); and
- Redistribute: the right to share copies of the original content, your revisions, or your remixes with others (e.g., give a copy of the content to a friend".

Therefore, if OER are created and not initiated by some creative common, they do not qualify as OER; instead, they become open electronic resources. This still creates confusion for many academics, who develop OER and do not initiate creative commons. The study on academics' domestication of OER confirms that academics confuse "open electronic resources" and "open educational resources" (Mncube, 2022).

The last step associated with the pedagogy is quality assurance. OER should undergo a thorough review before publicising them, so as to ensure quality and adherence to standards. The literature poses that, in the absence of a thorough examination of the methods used to determine OER quality attributes (de Oliveira, Paschoal & Barbosa, 2021; Hylén, 2021), the educational officials and school administrators should

encourage the implementation of effective solutions, such as a quality assurance system (Tang, 2020).

6.7.5 Defining e-learning approaches

Once all the pedagogical aspects have been met, it is necessary to consider the e-learning approaches to OER, which becomes the fifth stage. The development of OER must align with the e-learning approach, since the administration and distribution occur on an online platform. Apart from being suitable for online learning, OER are associated with long-life learning, as it encourages continuity in the distribution of resources. OER are widely shared on the Internet and on numerous digital platforms.

In that regard, the creation of OER content should always align with the e-learning approach. OER was the best approach for fostering collaboration in HEI spaces globally. Also, they recommended school or common departmental platforms on which OER are shared among scholars. The e-learning approach is crucial for the promotion of online realities.

> *OER promote e-learning neither the students nor the academics must waste time walking to the library since they could easily access OER resources anytime and anywhere if they have online access to virtual learning platforms (Lecturer 4).*

The appropriation of OER relates to e-learning approaches, because it includes "full courses, training materials, modules, textbooks, streaming videos, tests, software, and any other tools, materials, or methods used to support access to knowledge" (OER Africa Saide Initiative (2018: 3). All these takes place on virtual platforms and makes learning content accessible.The research findings and literature agree that the dissemination of OER on virtual platforms and modern distribution channels may play a significant role in e-learning (Burgos & Corbí, 2018). Therefore, the study suggests that the existence of OER contributes to the advancement of e-learning.

6.7.6 Formulating mechanisms for the promotion of OER development

The sixth guiding principle relates to the formulation of mechanisms for promoting OER development. The promotion of OER development is expected at an institutional level. Two significant aspects should be considered in the promotion of OER, namely social capital and incentives. In the current context, social capital is associated with institution management, which should encourage the users

(academics) to develop OER (Mncube, 2022). In other words, stakeholders with a high degree of social capital are best suited to promote OER for local content.

> *OER allows teaching to contextualise the way students learn within our environment so that they can easily grasp or understand contents (Senior Lecturer 3)*

As part of the promotion, some participants viewed OER as an initiative that promotes social justice and fairness among students, as OER allow them to access quality tuition services. OER provide clarity in related content to promote success in teaching and learning. In terms of fairness, the academics revealed that they posted all relevant sources to develop their students' level of knowledge. Academics perceived OER as good for acquiring knowledge for free. They indicated that OER fulfills the "Ubuntu" social order and enable the production of more African knowledge. OER have the potential to fulfill social justice, in that all students must have access to educational resources (Mncube, 2022). Therefore, OER should be distributed and promoted: they support self-development and contribute to information access to the global knowledge society.

The incentive approach is considered as another appropriate approach for promoting OER. For instance, once the OER have been developed, the developer could be incentivised because of the time and resources spent in the process. There are different views on OER and incentives, as scholars dispute the incentivising on OER, because they believe that academics are performing their duties by developing OER. On the other hand, some scholars advocate for OER development incentives. The literature alludes that incentive benefits are at the forefront of educator and institutional interests as global use of OER (Henderson & Ostashewski, 2018).

There is also a need for incentives, because they may contribute to motivating academics to develop and adopt and OER (Nagashima & Hrach, 2021). The institution may consider using stakeholders with high social capital and different incentive approaches. The decision should be based on the sustainability of the chosen approach for increasing OER development capacity.

6.7.7 Designing the OER dissemination procedures

The final guideline relates to the formulation of the OER dissemination procedure and it deals with the marketing of the developed OER. At this point, the users have

finalised the development and they are expected to develop an innovative marketing approach, so that the OER can be accessible to the relevant information seekers.

Two major dissemination mechanisms may be considered: institutional repository and social media. The institutional repository is often considered as the main official marketing source for institutional OER. Academics can publicise and disseminate OER in different formats on the institutional repository: text, audio, video, and any other formats. Social media – such as Facebook, ResearchGate, LinkedIn, WhatsApp, etc. – may also be considered when designing the OER dissemination procedure.

> *... wonderful idea to use your social media identity to disseminate OER, I think that's an excellent way (Senior Lecturer 9).*

The institutional repository can take the form of an online academic library system for data collecting, archiving and distribution of the institutional research and/or intellectual output (Lynch, 2003). The literature confirms that all data stored on the institutional repository is widely accessible to global scholars and information seekers (Chisita & Chiparausha, 2020), which aligns with the notion of open education and open access.

From the social media perspective, the literature indicates that the majority of students use OER and social media for education (Hettige, Dasanayaka & Ediriweera, 2022). Students may benefit from using social media to improve their learning performance, knowledge sharing and teamwork (Arif, Qaisar & Kanwal, 2022). Students can readily communicate with their peers, teachers and subject specialists by using social media as a learning platform (Khan, Ashraf, Seinen, Khan & Laar, 2021). Although social media may have a downside in disseminating education, it allows both academics and students to be alerted of OER dissemination. Therefore, both the institutional repository and social media initiatives are relevant for increasing access, collaboration and enhancement of the visibility of developed OER.

6.8 Conclusion and recommendations

This chapter suggested potential guidelines or practical steps of OER development at HEIs. The study opted for the lens of the domestication theory, which involves considering three phases (commodification, appropriation and conversion), to

contribute to the successful application of the seven guiding principles for OER development. These seven steps are as follows: collecting users' experiences; conducting an induction; identifying OER enablers; identifying a pedagogical framework; defining e-learning approaches; and designing the OER dissemination procedures.

These OER guidelines should be applied logically, in order to be successful in OER development because they have shown a positive impact on research and practice, as proposed the following:

- The lack of gathering users' experiences in OER creates the possibility of unsuccessful tools or strategies for development.
- The induction, together with the regular training, is a relevant solution for transforming the development of OER in academia.
- The merger of the utilisation of institutional IT and shadow IT is a more meaningful option for developing OER that will be freely accessible for global education.
- In defining the pedagogical approach the following four approaches should be considered: lesson objective, qualification standards, quality assurance, and creative commons, which result in the creation of successful OER.
- The existence of OER contributes to the advancement of e-learning.
- The institution may consider social capital and incentive approaches, and the decision should be based on the sustainability of the chosen approach for increasing OER development capacity.
- The institutional repository and social media initiatives are considered as relevant for increasing access, collaboration and enhancement of the visibility of developed OER.

Due to the timeframe and resources, the chapter highlights the implications of a study conducted at a single, ODeL institution. There may be crucial contributions from other South African HEIs that should still be investigated. However, through the in-depth investigation of the OER development status at one HEI, the study was able to identify the seven guidelines and their main contributions. The study recommends the further testing of these guidelines for OER development in different educational contexts. Furthermore, the study recommends that the developed guidelines are considered as part of policy development whenever HEIs decide to develop their OER policies.

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CHAPTER 7: African OER Initiatives in Higher Education: Insights into OER Localisation, Advocacy and Sustainability

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Abstract
In the last decade, a number of OER initiatives in African higher education have sought to address challenges related to the access, supply and contextualisation of educational materials. However, limited information is available on the effectiveness of such initiatives. To gain deeper insight into this, OER Africa conducted research between September 2019 and February 2022. The project analysed the effectiveness of eleven key African OER initiatives in higher education and their influence on developing and supporting effective OER practices. The research team used a mixed-methods approach which included a short survey, desktop research and in-depth online interviews with initiative representatives to develop eleven case studies (one for each initiative). They also developed an analytical summary report which drew key findings across the case studies together. Three significant themes emerged from the research, which are explored in this chapter. First, the research highlighted the impact that OER localisation had on improving the number of contextually relevant educational materials. Second, it identified successes and challenges of OER advocacy. Third, it contributed insights about sustainability efforts for the initiatives, including funding, inter-institutional support, and champions to advocate for OER. This chapter explores these themes using the case studies and the accompanying report findings.

Keywords:
Sustainability, Advocacy, Localisation, Open Educational Resources

7.1 Introduction

Several African Open Educational Resource (OER) initiatives have, over the past decade, aimed to provide opportunities for educators, students and higher education institutions to tackle issues relating to the access, supply and contextualisation of educational materials, but little is known about their long-term effectiveness. Such initiatives operate within the context of efforts to improve access to educational materials (Hodgkinson-Williams & Arinto, 2017), on the one hand, and significant resource constraints (Glennie et al., 2012), on the other. In parallel, it has become clear that OER should not be viewed as a panacea for solving these challenges, as their adoption is not always without complexity (Mishra, 2017).

The definition of OER was coined in 2002 by UNESCO, while OER activities first found expression in the Global North through initiatives like the Massachusetts Institute of Technology's (MIT) OpenCourseWare initiative which launched in 2001. By November 2019, the 40th UNESCO General Conference adopted the UNESCO Recommendation on OER, "the only international standard setting framework in this area worldwide" (UNESCO, nd). The OER Recommendation stresses the role that investments in OER can play in realising Sustainable Development Goal (SDG) 4, which aims to promote inclusive and equitable quality education and lifelong learning opportunities for all. It notes:

> *One key prerequisite to achieve SDG 4 is sustained investment and educational actions by governments and other key education stakeholders, as appropriate, in the creation, curation, regular updating, ensuring of inclusive and equitable access to, and effective use of high quality educational and research materials and programmes of study (UNESCO, 2019).*

OER has gained traction in Africa over the last decade, with an increasing number of OER initiatives focusing on OER advocacy, practice and research (OER Africa, nd). With this growth, OER Africa embarked on research to analyse the effectiveness of eleven key African OER initiatives in higher education. The research sought to assess the initiatives' long-term contribution to establishing sustainable OER

practices and what might be learned to enable better development and support of such practices.

The research process[40] entailed developing case studies of the eleven African OER initiatives in higher education, followed by an analytical summary report which drew key findings from the case studies together. Three key themes emerged. First, the research highlighted the effects of OER localisation in producing contextually relevant educational materials. Second, it foregrounded the successes and challenges surrounding OER advocacy efforts, with varying forms of institutional support and staff capacity building in OER being key to these efforts. Third, it provided insight into the complexities of ensuring the sustainability of these initiatives, which included funding, inter-institutional support, and champions on the ground. This chapter explores these themes and is based on the findings from the case studies and accompanying report.

7.2 Background and methodology

The OER Africa research team conducted desktop research to identify a list of potential initiatives. The following qualifying criteria were used:

1. Active participation of African organisations (though the lead organisation did not have to be based in Africa).
2. Evidence of at least some OER-related activities in higher education (though the overall initiative could extend beyond higher education).
3. Sufficient availability of documentation online in English to compile a profile of the initiative (with preference given to initiatives for which there was an evaluation report).
4. Attempts to develop, adapt and/or harness OER or policy development, rather than being limited to advocacy or research.
5. Evidence that the initiative had been operational for at least two years to enable meaningful assessment of its effectiveness.
6. Ability to identify and contact at least one key individual who remained in a position to comment meaningfully on the long-term effects of the initiative.

In addition, selections aimed to accommodate the following:

[40] This research was conducted under the auspices of a grant from the William and Flora Hewlett Foundation.

1. Representation of initiatives across three African regions (West, East, Southern Africa).[41]
2. Combination of single-institution initiatives and initiatives involving collaborations between multiple institutions.
3. Incorporation of some initiatives involving national governments.
4. Incorporation of initiatives that included:
    a. Initiatives led by OER Africa and others in which OER Africa was not directly involved.
    b. Initiatives led by African organisations and some by international organisations.
    c. Initiatives led by universities and others (NGOs, donors, etc.).
    d. Some donor-funded initiatives and some funded by governments and/or institutions.

Once the initial list had been compiled, the OER Africa management team reviewed it and selected the final sample of initiatives. The sample included representation from across the continent, including Nigeria, Ghana, South Africa and Tanzania, and initiatives that have operated in multiple African countries. Due to language limitations in the research team, the focus was on initiatives in Anglophone countries. The research sample included a diverse set of initiatives (in line with the criteria above), consisting mainly of once-off OER initiatives and instances where institutions have engaged in multiple OER-related activities. Two initiatives included in the final selection did not respond to requests to participate in the research and were thus not documented.

The research team used a mixed-methods approach to gather data: a short survey distributed online via Survey Monkey, desktop research and in-depth online interviews with initiative representatives. The most appropriate method/s were selected on an initiative-by-initiative basis. Table 7.1 below lists the profiled initiatives and indicates the number of survey responses and interviewees for each initiative.

[41] The initial search did not preclude North African initiatives from selection, but due to language limitations in the research team, the focus was on initiatives in Anglophone countries.

Table 7.1 List of initiatives covered in the research sample

Initiative	Country/ies	Survey responses	Interviewees
Open Education for Eye Health (OEEH)	East and Southern Africa	1	2
Teacher Education in Sub-Saharan Africa (TESSA)	Sub-Saharan Africa	1	1
OER Term Bank	South Africa	1	1
Open Education Influencers at Nelson Mandela University (OEIs at NMU)[42]	South Africa	1	1
Kwame Nkrumah University of Science and Technology (KNUST)	Ghana	0	3
Virtual University of Small States of the Commonwealth (VUSSC)	Multiple African countries	2	2
National Open University of Nigeria (NOUN)	Nigeria	1	1
University of Cape Town (UCT)	South Africa	2	2
African Veterinary Information Portal (AfriVIP)	South Africa	0	4
African Teacher Education Network (ATEN)	West, East and Southern Africa	0	1
Open University of Tanzania (OUT)	Tanzania	1	4

The research was conducted using generally accepted research ethics principles. All contributors who had agreed to participate in the research were notified about the research process, data handling and how the findings would be shared. Data from

[42] The OER Africa team added Nelson Mandela University's Open Education Influencers (OEI@NMU) to the sample once the research process was already underway. Note that although this initiative did not fit all the criteria mentioned above (for example, it had been operating for less than two years when it was selected), the team still thought it was worth profiling because of its innovative approach and influence on Open Educational Practices (OEPs) at NMU, and so decided to include it in the sample.

each initiative was collated and prepared as a set of case studies. Each case study was submitted to contributors for feedback, verification and approval. Once the case studies had been finalised, a cross-sectional analysis was conducted, and the team compiled a summary report outlining key findings and lessons learnt. The case studies, together with the final report – which contains a summary of the case studies and comprehensive analysis on which this chapter is based – were shared with contributors. They are available on the OER Africa website.[43]

The research process provided rich insights into successes, challenges and lessons that initiatives had learnt in conceptualising and implementing their activities. Three themes frequently emerged, prompting the researchers to explore them in this chapter. These were: localisation, advocacy and sustainability.

7.3 Localisation

As the OER Recommendation explains, using open licences in educational materials presents opportunities for "more cost-effective creation, access, re-use, re-purpose, adaptation, redistribution, curation, and quality assurance of those materials (UNESCO, 2019)." Central to repurposing and adapting OER is the concept of localisation. Localisation involves the process of adapting educational resources that have been developed for one context into resources that are suitable for other contexts. This can include geographical, pedagogical, political or technical contexts. The process of localisation involves more than simply translating materials into a local language or replacing an image to reflect cultural alignment. It seeks to promote diversity, openness and reusability through the process of adaptation (OpenStax CNS, nd).

Localising OER has proven beneficial for participants and initiatives themselves. In most cases, such activities were undertaken by individual institutional initiatives but they were also the result of inter-institutional collaborations in others. Findings from the case studies demonstrated that localisation efforts have improved the quantity and relevance of educational materials.

In terms of increasing the quantity of such materials, the research revealed that initiatives had developed different kinds of resources suited to local contexts. For example, Teacher Education in Sub-Saharan Africa (TESSA) created approximately

[43] See https://www.oerafrica.org/resource/oer-initiatives-african-higher-education

100 OER in English, 75 of which are also available in kiSwahili, French and Arabic. The materials cover primary school curricula, handbooks, and toolkits for teachers and teacher educators. The Open Education Influencers (OEIs) at Nelson Mandela University (NMU) developed the Becoming an #OpenEdInfluencer (BOEI) course, a practical online course that supports influencers of, and for, open education (Open Education Influencers, 2020). In doing so, it encouraged researchers at NMU to contribute to the open education movement by providing access to valuable, relevant, Africanised content (Nelson Mandela University, 2019). These examples demonstrate how initiatives have created OER that are relevant to the contexts in which they operate, as well as the subject matter with which they deal.

Initiatives have also adapted or repurposed resources to be more contextually appropriate. In 2020, for example, the Virtual University of Small States of the Commonwealth (VUSSC), an initiative of the Commonwealth of Learning, developed and piloted two online professional development courses for the disability sector. The materials were openly licensed and have since been customised for the Ministry of Education in Tonga, which is currently offering the courses. In addition to creating full courses and programmes, VUSSC has developed openly licensed units of content that countries can adapt to fit into their own courses. The localisation activities have allowed the content to be used more widely than in just one programme.

Localisation efforts that initiatives undertook also prioritised the quality and responsiveness of resources. For example, Open Education for Eye Health (OEEH) steering groups had external members based in Lower- and Middle-Income Countries (LMICs) and were familiar with the context for which they were writing. Steering groups carefully selected content authors and facilitators, and brought in subject experts, thus ensuring that evidence-based best practice was shared and contextually relevant. Due to OEEH's activities, more than 300 OER, created with 110 collaborators from 25 countries, are available to download, reuse, share and adapt for local training needs (Commonwealth Eye Health Consortium, 2020).

Some initiatives created useful frameworks and guidelines to enhance and facilitate localisation activities. This provided structure to OER-related activities of VUSSC, the National Open University of Nigeria (NOUN) and the Open University of Tanzania (OUT), while also being used as a tool to mainstream OER-related practices. VUSSC developed a Transnational Qualifications Framework (TQF), allowing countries to compare their qualifications to transfer credit from one

programme to another. The TQF aims to make qualifications more readable and measurable, thus contributing to a more flexible workforce and easier comparison of qualifications (Keevy et al., 2010). The Framework allows courses and degree programmes that VUSSC creates to be adapted into recognised courses that students can take for credit through educational institutions in small states (Lesperance, nd). The TQF has promoted OER use and increased the value of the materials by accrediting them and transferring accreditation to other qualifications. Because the TQF undergirds all courses or content that VUSSC develops (all of which are openly licensed), this has created a culture that is accommodating of localisation efforts.

Inter-institutional collaboration and knowledge sharing have also shaped an environment conducive to localisation. NOUN reported that it had been approached by some institutions in Nigeria to use its educational materials. In cases where materials that institutions requested were not openly licensed, NOUN developed and added an institutional licence template to the materials so that other institutions could use and adapt them (OER Africa, 2022d). Kwame Nkrumah University of Science and Technology (KNUST) partnered with the University of Michigan for the Health OER initiative. The latter institution provided an intern and visiting staff to upskill KNUST staff and share lessons learned about OER creation. This partnership was crucial in creating momentum for OER-related implementation at KNUST (OER Africa, 2009).

Despite successes in localisation, initiatives also faced several challenges. The first was a lack of time to undertake resource creation and adaptation, which both students and academics raised. For example, some academics who participated in Digital Open Textbooks for Development (DOT4D) hoped to collaborate with others but could not, either because of conflicting schedules or the unwillingness of some peers to be involved. The DOT4D team tried to resolve this by introducing incentives such as the annual Open Textbook Award to recognise open textbook authors' efforts. For the Vice Chancellor's (VC) OER Adaptation project at the University of Cape Town (UCT), students struggled to balance the time required to gather content and adapt the OER with their course loads. At the end of the project, students revealed that they would have preferred a more structured, production-focused model with regular workshops to support adaptation activities (King, 2017).

Another challenge was a lack of specialised OER-related skills needed for OER localisation or development, including adaptation, searching and licensing, along with insufficient professional development opportunities to improve such skills.

OUT has a shortage of trained instructional designers to develop course materials, which also applies to the country more broadly. OUT thus observed a need to develop skills in integrating OER into teaching resources, searching for appropriate OER, and writing and editing course materials. Likewise, both VUSSC and UCT's VC OER Adaptation project found that initial hesitance from academics to participate in the initiatives was compounded by a lack of understanding of open licensing, as some found Creative Commons licences confusing. The VC OER Adaptation project concluded that students were only responsible for partial knowledge transfer about Creative Commons licensing and copyright when collaborating with academics (King, 2017). But initiatives also sought to bridge such gaps. For example, VUSSC sought to address knowledge gaps by offering periodic Continuous Professional Development (CPD) workshops on these topics. It was noted, however, that sustained CPD activities and monitoring these activities would have been valuable.

Despite these challenges, the research demonstrated the power of localisation efforts. TESSA's materials for teachers and teacher educators remain relevant even though some were developed a decade ago. Their relevance is evidenced by the enthusiastic response to the materials in Zambia, where they are being integrated into the existing structures and processes for school-based CPD and into the curriculum of all the government-run colleges of education. Initiatives like OEEH have brought in subject experts and participants from LMICs, ensuring that evidence-based best practice is shared. This has had a significant impact on the relevance of the materials. Efforts to localise materials have been extensive and welcome, particularly because contextually relevant materials enhance teaching and learning while also ensuring that local knowledge is incorporated into formal education (OpenStax CNS, nd).

Importantly, the research demonstrated that localisation efforts should be balanced with using existing resources from similar contexts, particularly because such efforts are resource-intensive. The contributor representing the African Teacher Education Network (ATEN) observed that:

> *Every country thinks that its curriculum is unique and wants to create its own content. However, there is much overlap and topics common across countries, and initiatives will be more sustainable if focus is placed on collating content of common topics across countries into one platform (OER Africa, 2022a: 4).*

This suggests we should view localisation efforts practically, paying attention to what content is already available for use and ensuring that initiatives function as efficiently as possible.

Overall, the evidence above suggests that, while significant gains have been made in developing and localising OER and creating conditions conducive to this, notable barriers remain. These include a lack of time and a lack of skills to undertake localisation. Key lessons are that localisation activities should be balanced with efforts to use existing OER that may be relevant to one's purposes and that there is a need to provide CPD for academics and students on how to create, adapt and license OER.

7.4 Advocacy

Initiatives have conducted advocacy in various forms, concentrating on promoting the initiatives themselves and OER use and adoption. These efforts have included capacity building and skills' development for OER users and creators, and creating networks of champions. Activities have transpired at several levels, including workshops on the benefits of OER and collaborations with governments to promote OER nationally.

The case studies showed that advocacy activities encompassed capacity building for both OER creators and users, impacting teaching and learning practices. As a result of such activities, academics have started using OER in their work, as was the case with the OEIs at NMU, where four permanent staff started using OER because of the OEIs' advocacy efforts. The OEI Project Lead also successfully advocated for one of the Key Performance Indicators (KPIs) for staff to include reference to using OER. Other initiatives reported that academic staff's awareness and understanding of the concept of OER had improved, resulting in OER becoming more integrated with institutional practices. For example, at OUT, contributors observed that the advocacy aspect of their initiative was very important in raising awareness of OER, while the workshops and seminars provided capacity for staff members to become active OER users. The result was that staff developed themselves professionally and honed their pedagogical skills.

Initiatives have used capacity-building strategies such as training staff and students in OER advocacy, which proved to be an impactful way of spreading OER knowledge and skills through the institution. For example, the OEIs and the VC OER

Adaptation project trained student facilitators on copyright, Creative Commons licencing and OER advocacy. These students then shared their knowledge with other staff and students at the institution, with demonstrable impact evident in some (though not all) staff embedding OER into their work. Thus, these initiatives have shown that students have played a part in advocacy aimed at academics.

The findings reinforced the connection between advocacy and capacity-building activities, which have encouraged skills' development for initiatives such as DOT4D, VUSSC, the African Veterinary Information Portal (AfriVIP) and OUT. This involved skills such as OER policy writing, OER licensing, content development, repurposing and accreditation of OER courses. For example, VUSSC aimed to develop capacity in OER creation and use from the beginning, which was essential because of high participant turnover, so the team had to train both OER users and OER creators regularly. VUSSC used its training to ensure that OER creators developed skills to train other people in their own countries. This had a cascading effect that spread awareness about OER throughout the countries (OER Africa, 2022k). As a result, more than 2,000 participants from 31 countries were directly involved in VUSSC training courses and formal programmes, and approximately 110 courses and modules were developed (OER Africa, 2022k). This demonstrates significant reach in OER capacity building.

Regarding AfriVIP, the OER Africa project manager approximated that 60 to 80 teaching staff were trained during capacity-building workshops run by OER Africa and during 'Mixed Matters' CPD workshops, where academic staff were encouraged to reflect on OER and teaching and learning methods while being equipped with skills to find, adapt and license OER. General OER awareness training was provided to small groups of staff during visits made by the University of Pretoria (UP) and OER Africa staff to the Dean's Forum member institutions. In addition, the workshops and seminars that OUT hosted improved awareness and understanding of the concept of OER among academic staff, and OER reportedly became more integrated with institutional practices.

Champions have been central to advocacy and capacity building for initiatives like ATEN, those at NOUN and TESSA. Teachers involved in ATEN often became aware of the concept of OER for the first time through ATEN's activities, and some went on to become champions advocating for OER to supplement or complement prescribed textbooks. A crucial lesson from ATEN was that advocacy could highlight the role that OER can play in tackling challenges that teachers experience:

> *By and large, you only get buy-in when teachers have an immediate need for something. If they have a challenge and OER helps them with that, then they will engage (OER Africa, 2022a: 2).*

At NOUN, the Academic Director adopted the champion function by using her context and networks to advocate for OER:

> *Coming from an ODL institution, I thought my institution was better suited to learn about OER because we have materials online and are funded by government. So I wrote a proposal and submitted it to the VC. Before then, we had brief workshops in that area (2013). [I also] attended a workshop in 2013, [for the] Economic Committee of West Africa States. If we were able to get our institutions to buy in, they would support us with capacity building. I reached out to UNESCO, the then- coordinator came to Lagos to talk to the senate members- they educated us about OER, the ability of OER and why my university should buy into it (OER Africa, 2022d: 5).*

TESSA has dedicated a great deal of time to selecting and supporting champions, including those in senior positions such as Deans or Heads of Department and people who saw their involvement in the programme as a way to improve their standing and expertise in their respective institutions. The TESSA team observed that local champions were highly effective in promoting OER adoption because, when they introduced new resources or ideas, champions would emerge to implement them. One such example was the development of the TESSA Ambassador Scheme, through which TESSA sends ambassadors a package of resources to help them publicise the initiative. They also have a WhatsApp group to exchange ideas about using the materials.

The main constraint in measuring the impact of advocacy efforts was a lack of data, particularly information about what happened after advocacy had occurred. For example, though NOUN encouraged other institutions to openly license their materials, which – anecdotally at least – improved OER awareness and use amongst these institutions, cumulative statistics were unavailable to demonstrate the extent of sustained OER adoption (OER Africa, 2022d). This is a substantial area for improvement in OER initiatives as tracking and data analysis can help measure OER impact and provide a more accurate sense of strengths and challenges that initiatives face.

As with localisation efforts, there were also obstacles in terms of staff time and capacity to conduct advocacy. Although participants found the capacity building and advocacy efforts valuable, several contributors raised the issue of gaining and sustaining participation, which was often linked to a lack of time and capacity. In some cases, OER initiatives were viewed as requiring extra work and time commitments, which was met with resistance. There were numerous reasons for this, including that advocacy around understanding OER takes time and effort, and that initiatives tended to underestimate the time and energy required for such advocacy.

The transience of champions was another significant issue that led to a loss of institutional memory and stalling of advocacy. In some cases, the workload was borne by one person or a small group, often comprising those selected or who had volunteered to be champions. Though TESSA has been highly dependent on champions to drive the initiative, ambassadors have been promoted to higher positions over time, and their involvement in the initiative has ebbed, thus leaving a gap in promoting the use of TESSA materials. This raises the question of why champions did not always become active advocates after promotion. To address this, a contributor from TESSA recommended creating a meritocracy in institutions whereby people are rewarded for OER advocacy, and the profile of OER champions in the institution is raised.

Initiatives like the OEIs at NMU, the UCT VC OER Adaptation project, and AfriVIP also experienced turnover of staff and students, which made it difficult to build capacity over a sustained period. This is an important consideration for sustaining initiatives long-term. While champions are charged with core aspects of implementation, because professional positions change over time, well-established handover and continuity plans should be in place to ensure that activities can continue without losing momentum.

A final challenge was that initiatives experienced some resistance to OER adoption following advocacy. For example, participants at UP found it difficult to see the benefit of OER because academics were ‘at the top of their game’ in terms of producing quality resources (OER Africa, 2022b). This compounded the issue that the OER they found during their searches was reported to be of inferior quality to their own. While some staff were amenable to developing and sharing their resources, most saw no personal benefit in sourcing existing OER. OEIs, NOUN and DOT4D experienced similar resistance and reluctance, as summarised below.

- *OER were sometimes seen as competition to published textbooks.* OEIs experienced resistance from publishers and vendors on campus in their efforts to assist academics to find 'textbook equivalents' that were openly licensed.
- Initial efforts were greeted with hesitance, particularly when staff were asked to share their courses with other instructors in the institution or externally. However, in cases such as NOUN's, as the initiative gained traction, using OER made staff more amenable to sharing their own content.
- *Some academics were concerned about the exposure that the use of their materials for OER adaptation might entail.* This is known as the 'sunflower effect', where academics are comfortable creating and sharing materials for students to use but feel exposed if they are shared more widely as it might expose them to critique (OER Africa, 2022j).

This highlights the intricacies of OER advocacy and CPD, especially concerning participants' time limitations, sustaining OER activities and ensuring that participants have the appropriate skills. Although it is difficult to provide solutions to these challenges, there is evidence that sustained advocacy efforts can have an impact in the long-term, thus emphasising the need to ensure that initiatives prioritise sustainability, develop innovative strategies to mainstream their activities, and contribute to changing academics' mindsets.

This section has highlighted that OER advocacy is an ongoing need, both for initiatives and the institutions within which they operate. Initiatives have implemented innovative mechanisms to ensure the continuation of advocacy efforts, and champions play a fundamental role. Thus, supporting them should be central to advocacy planning. The departure of champions was a significant challenge, suggesting that there should be well-established handover and continuity plans to proceed with work without losing momentum when there is personnel turnover. The research also highlighted a need for more comprehensive data on the impact of advocacy activities.

7.5 Sustainability

Building sustainability into OER activities is crucial to develop a robust OER ecosystem. It is thus a core component of documents like the OER Recommendation, which contains an action area on nurturing the creation of OER sustainability models, and the Ljubljana OER Action Plan 2017, which recognises a need to

"identify the full spectrum of possibilities for innovative sustainability models and the benefits they provide government, institutions, educators, librarians and learners (Ljubljana OER Action Plan 2017)." Initiatives have employed various approaches to ensure that their work is sustainable in the long-term. The key to this has been planning and adapting to changing circumstances. Initiatives can play an important role in ensuring that OER activities move from the periphery to the mainstream of institutional processes through mechanisms such as innovative models, the use of metrics and policy implementation. However, the findings show that such interventions have come with challenges, such as resource constraints and compromises in autonomy.

The case studies demonstrated the use of various approaches to ensure sustainability of the initiative or its activities. Initiatives like the Open UCT Initiative (OUI), OEI and TESSA reported noticeable success in mainstreaming OER into institutional practices and achieving a level of continuity, in some cases, even after the initiative had ended. OUI was especially successful in this regard. Once the initiative ended, stakeholders agreed that the library should start maintaining the OpenUCT repository. This was a significant success because the initiative's outputs became entrenched in the institution's operations. The OUI also introduced small grants of up to ZAR10,000 (approximately US$680) for staff and students to develop OER or adapt teaching and learning content into OER. The grants were mainstreamed when they were incorporated into the university's general teaching and learning grants. This was also a precursor to UCT's Open Textbook Award,[44] which recognises open textbook authors and supports the development and reuse of OER, thus officially recognising and rewarding open practices at the institution.

Embedding OER into CPD has been another important element of mainstreaming, as in the case of OEIs, which integrated OER-related CPD into institutional processes. As mentioned, the Project Lead advocated for one of the KPIs for staff to reference OER use. Moreover, all new contract staff in the Learning and Teaching Collaborative for Success (LT Collab) Academic Literacy Writing Programme are required to complete the BOEI course, providing a focus on OER-related CPD that assists staff with teaching and learning. OUT also embedded OER knowledge into

[44] See http://www.cilt.uct.ac.za/cilt/open/otaward

the library-led information literacy training for staff and students in each academic year (OER Africa, 2022h).

Initiatives have also achieved increasing levels of sustainability by being adaptable. TESSA demonstrated the value of adaptability in its efforts to mainstream practices by continuously modifying elements of its programme to suit environmental factors on the ground. The commitment to adapting practices according to grassroots requirements has been essential to ensure continued success, relevance and OER adoption for TESSA.

OER-related policy development has also been a commonly used tool to mainstream the use of OER in institutions, though there was limited evidence that institutions have been able to sustainably implement such policies. KNUST's OER policy, which was developed because of the Health OER initiative, was approved by the College Board, Academic Board and Council; NOUN created a comprehensive OER policy for the institution; and OUT developed an institutional OER policy while also amending other policies to include OER. For the AfriVIP initiative, participants at UP realised that the Intellectual Property Policy was conservative and did not support the use of OER. Participants pushed the university to review the policy, a process which, at the time of writing, was still underway (OER Africa, 2022b). Although several policies have been developed and revised to support OER, and despite initiatives reporting that policies guide OER development and use, efforts to gather statistics to support this were often unsuccessful, suggesting a lack of data. The lack of data points to the idea that operationalisation has been tenuous in some cases, which begs the question of how such policies can find expression in ongoing institutional practices going forward.

Achieving sustainability has sometimes come at a price, most notably a lack of autonomy in the initiative's future trajectory. There were several reasons why OER initiatives have not been sustainable in the long-term. Whilst this research did not tackle these exhaustively, it did highlight the most frequently raised sustainability challenges, which are addressed below.

The compromise between autonomy and sustainability was observed when initiatives needed to consider mainstreaming their activities into existing university structures. For some, this had the effect of compromising on the initiative's goals. NOUN merged provisions for OER creation with its course materials' development budget instead of making it a separate budget item. While this mainstreamed the use

and development of OER, the funding arrangement has also meant that there were insufficient funds available to implement OER optimally. A separate budget would assist OER development and adaptation, as converting existing government-funded course materials into OER requires dedicated time and resources (Hoosen & Butcher, 2019).

Similarly, AfriVIP had limited external funding; its portal was hosted on an OER Africa server which UP continued to fund until 2020. At first, the faculty maintained the platform to assess its use and whether it was financially viable to sustain. It also explored alternatives such as commercialising some resources with an external partner to provide CPD points, where the resources would be open but earning CPD points would be a paid service. However, this model did not rely on an OER platform, so the idea was abandoned. UP also considered including advertisements on the site, but because the veterinary science discipline is small, realised there would not be sufficient traffic to generate revenue in this way. Subsequently, the faculty stopped hosting the platform. These examples highlight a missed opportunity in building on the successes that initiatives have had regarding OER adoption. They also foreground the importance of longitudinal support, including financial support, peer recognition, design, copyrighting and publishing support.

The insights from the case studies revealed that structural drivers are a core requirement for sustainability. As a contributor from the OUI noted, if teaching, resource development and OER are not specific criteria measuring success, it is hard to shift OER as a peripheral activity towards being a core activity within an institution (OER Africa, 2022j). This makes OER initiatives far more vulnerable to changes in faculty and shifts in institutional practices or priorities.

Initiatives have demonstrated that embedding activities into the institution and mainstreaming them can be highly effective. As noted above, ensuring that initiatives' gains are sustained and built upon is a complex issue. Although the research did not explore these implications comprehensively, it did reveal key lessons regarding the contributing factors undergirding sustainability. These can broadly be separated into developing innovative implementation models, creating reward systems and fostering an enabling environment for OER to flourish.

7.5.1 Innovative models, agreements for continuation and institutional embedding

In cases where initiatives had no sustainability plan or resources to continue their activities, sustainability was particularly challenging. This raises the question of how to embed projects within the structure of an institution from the design phase (OER Africa, 2022c). Initiatives employed innovative approaches to ensure that their work left a legacy and continued after the initiative had finished.

Developing a sustainability plan early on has benefited initiatives, providing them with an opportunity to find alternative support mechanisms. OER Term Bank prioritised the sustainability of its platform while the initiative was still running. The initiative put funding aside to host the project for three years when the project ended. Similarly, once OEEH's funding cycle ended in 2019, it secured additional funding until the end of 2020, through which it tried to find ways of ensuring that the content remained relevant and up to date. Since 2021, the project has been delivering courses on demand. When they were interviewed, OEEH contributors anticipated moving to a mixed funding model, potentially increasing their revenue stream by formalising their courses.

Initiatives have also mainstreamed their activities into institutional practices by being absorbed into existing departments or organisations. OpenUCT was incorporated into the UCT library, while the OEI initiative is situated in the student support arm of NMU, within the Academic Literacy Writing unit in the LT Collab. Being linked to an established segment of an institution means that these initiatives can draw on resources and networks from that segment, which contributes to their sustainability.

7.5.2 Rewards and incentives for participation

Rewards and incentives, both financial and otherwise, have shown to be a successful mechanism to entrench OER practices. Initiatives achieved this in different ways, such as including criteria for OER use and creation as part of KPIs and introducing awards for those who have developed OER. Initiatives such as DOT4D and the VC OER Adaptation project at UCT provide evidence that incentives, such as grants and awards, can change behaviour and encourage OER development.

The findings highlighted the benefits of rewarding an open education culture at higher education institutions, without which OER will most likely remain at the periphery. This might include incorporating OER into academics' KPIs, offering greater exposure for the OER that individuals produce, absorbing OEPs into existing

committees and structures, and amending criteria for the University World Rankings by placing greater emphasis on OER outputs to incentivise academics to use OER. However, the question remains: what are the fundamental drivers for OER adoption at higher education institutions in Africa, and how can stakeholders align these drivers with operational realities?

7.5.3 Policy, the necessary implementation vehicles, and an enabling environment

A key element of sustainability is using policy and practice to embed OER creation, use and advocacy into institutional practices. One example of this was how the mainstreaming of OpenUCT was influenced by UCT's Open Access Policy. UCT's Centre for Innovation in Learning and Teaching also adopted a principle of openness in its own work, thus promoting Creative Commons licences as a default starting point both internally and when working with academics.

In terms of practice, the identification of, and support for, champions and advocacy efforts can play a significant role in implementing sustainable practices at higher education institutions because they form a core part of an enabling environment. Initiatives have implemented innovative mechanisms to ensure that advocacy efforts continue, and champions have a crucial role to play in this advocacy. Thus, supporting them should be a priority in advocacy planning.

Much has been written about how OER policies can sustain OER activities at higher education institutions (see, for example, Janssen et al., 2014; Cox & Trotter, 2016), and this research has noted OER-related policy development as a key success of initiatives such as OUT, NOUN, and KNUST. Case studies such as VUSSC also reiterated the importance of policies at the national level to support OER adoption and sustainability.

However, just as important as policy development is creating both an enabling environment and accountability for policy implementation so that institutions do not risk deprioritising OER activities once the policy is approved. Within an institution, OER could be considered in strategic plans, including an outline of focus areas and who is responsible for driving the activities. Moreover, while policies create structures and rules for implementation, if they are overly complex and prescriptive, they act in opposition to the concept of openness, contributing to unnecessarily complex education systems. This points to a need to simplify national and

institutional policies to aid in ‘opening up’ opportunities for OER use (see World Bank, 2018).

7.6 Conclusion

The research provided insight into successes, challenges, and lessons regarding OER localisation, advocacy, and sustainability. Although initiatives have manifested successes in terms of creating and adapting contextually appropriate resources, notable barriers still endure, including a lack of time and lack of skills to localise resources. This suggests that localisation efforts should be balanced with efforts to use existing OER that may be relevant to one’s purposes, together with provision of CPD for academics and students on how to create, adapt, and license OER.

OER advocacy remains critical for promoting OER, and champions on the ground have been central to this. Initiatives also used capacity-building strategies such as training staff and students in OER advocacy, which effectively cascaded OER knowledge and skills through the institution. However, the transience of champions was a challenge, suggesting that initiatives might benefit from well-established handover and continuity plans and raising the question of how to ensure that champions continue their advocacy once they are promoted.

The findings regarding sustainability successes that initiatives have experienced indicated a need for concerted efforts to mainstream OER practices and embed OER into CPD. They also demonstrated the benefits of adaptability in maintaining the relevance of the initiatives’ work. However, sustainability has not come without a cost, as some have had to compromise by reducing resource usage or relinquish autonomy over the initiative to ensure the initiative is sustainable. Despite these compromises, several factors were successful in supporting sustainability including developing innovative implementation models, creating reward systems, and fostering an enabling environment for OER to flourish.

Finally, a key lesson that emerged from this research was the need for comprehensive data and tracking mechanisms to promote the success of OER initiatives. Data is a critical enabler that will facilitate an accurate analysis of what works and what does not, thus allowing initiatives to derive context-specific lessons for OER initiatives in African higher education and beyond.

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