Adapting OER: Addressing the Challenges of Reuse When Designing for HE Capacity Development

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Adapting OER: Addressing the Challenges of Reuse When Designing for HE Capacity Development

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Abstract: Changes in learning and teaching due to COVID-19 have prompted higher education (HE) institutions to develop strategies and skills related to technology-supported education, creating development opportunities that help staff teach and support students in online or blended situations. Using open educational resources (OER) meant training could be developed and localised quickly. However, there has been little research into the use of OER to meet urgent, unanticipated teaching needs. This paper provides a critical reflective account of learning design for the use of OER in a national capacity development initiative in Kenya as part of the Foreign, Commonwealth and Development Office (FCDO) funded Skills for Prosperity Kenya project. Development of this OER was led by The Open University in partnership with 37 Kenyan universities. The initiative was designed to develop the knowledge and skills of educators, educational leaders, and support staff. The contribution of this paper is that it identifies challenges encountered when adapting OER for use in a technologically low-resourced context, showing how these can be addressed successfully at different learning design stages. Challenges were identified using the 7Cs of Learning Design (Conole, 2014): conceptualise, create, communicate, collaborate, consider, combine and consolidate. The paper concludes with recommendations for design practice and creating and remixing OER.

Keywords: Learning design; capacity building; CPD; OER; online learning; accessibility

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1. Introduction

COVID-19 forced educational institutions worldwide to move from face-to-face to online teaching within days or weeks. Many institutions had neither the skills nor the resources to change their pedagogic approaches to follow best practices developed and trialled in online educational settings over the past three decades. As remote education became the norm, 'a central challenge concerned sustaining educational visions and ideals in such circumstances' (Stracke et al, 2022: p1). There was an urgent need for contextually relevant professional training for educators that could be accessed at a distance.

Good quality professional development takes time to develop but OER offered the opportunity to access relevant content, including resources developed by expert researchers and practitioners. OER are "teaching, learning, and research materials that are either (a) in the public domain or (b) licensed in a manner that provides everyone with free and perpetual permission to engage in the 5R activities of Retain, Reuse, Revise, Remix and Redistribute" (Creative Common, 2010). However, although high quality OER relating to moving teaching online were available, there are challenges associated with locating appropriate materials and adapting them to their new context(s). Moreover, as Amiel (2014) notes "Remix is touted as one of the most

important practices within the field of open educational resources (OER). But remixing is still not mainstream practice in education and the barriers and limitations to remix are not well known."

Amiel (2014) discusses the development of an OER to support Brazilian teachers in their use of OER. Challenges included: licence type compatibility, translation, dominance of English language resources and bias, understanding learner and educator contexts, and ensuring the final remixed OER enables further use and remix.

In an analysis of the TESSA and TESS-India teacher education projects, Buckler et al (2014) describe challenges encountered during the collaborative remix process. These included the duration and nature of the localising process; "cultural differences" including familiarity with this type of collaboration and critique of others' work; and the project's restricted approach to remixing OER. They highlighted dominance of Global North, and specifically English-language resources, particularly in relation to one-way, non-reciprocal sharing of OER and "neo-colonial practices". As the current paper highlights, the process of localisation and meaningful collaboration is critical.

Ivins' (2011) study of OER reuse in Nepal identified a range of logistical and technical considerations and barriers. Localisation as "making knowledge more useful and relevant for local needs" (Ivins, 2011, p.118) requires "customizing content to reflect local resources" (Ibid); appropriate use of language, particularly in contexts with many dialects and languages within one country; "embedding content within a local cultural framework" (p.122), and "incorporating gender sensitive messages" (p.123). This requires an understanding of the context, appreciation of regional differences, identification of and seeking solutions to "shared problems" to promote cohesion (p.126) and ensuring that materials reflect strength in diversity/differences and similarities. Like Buckler et al (2014), Ivins noted reluctance to make changes to existing materials due to perceptions of 'expertise'.

When developing teaching or training, challenges can be identified and addressed at the learning design stage. This is particularly important with online learning, as courses are often developed at scale, with input from subject-matter experts concentrated at the development stage. Unlike synchronous face-to-face teaching, where the design can be adjusted while the course is running, changing an asynchronous online course in progress is difficult as some students may already have completed the section being changed.

Among the many models of learning design (Dalziel et al, 2016), one of the best known is the 7Cs of Learning Design (Conole, 2014; Conole, 2018). This supports educators' design decisions from initial conceptualisation of learning to final evaluation, while supporting replication of learning and teaching experiences. As the name suggests, there are seven elements to this approach: conceptualise, create, communicate, collaborate, consider, combine and consolidate. These can be divided into three activity periods: before, during and after the course run.

Before the course, educators define what, why and who the course is designed for and decide its principles and pedagogical approach (Conceptualise). While the course is running, students are supported to engage in activities that provide opportunities for learning; creating new materials or repurposing existing ones (Create), communicating and interacting (Communication), working together (Collaborate); and then reflecting and working on assessment tasks (Consider). As the course ends, learning designers and educators can reflect on the success of the design and how it could be modified, taking into account factors such as time required for tasks, activity types, and timeline of different activities (Combine). Finally, course effectiveness is evaluated, and changes are made (Consolidate).

2. Methodology

The 7Cs approach provides a structure for identifying and addressing challenges at each step of the learning design process and can also be used to structure reflection. In order to answer our research question, 'What are the challenges involved in adapting OER for use on a nationwide professional development course and how can these be addressed?', we used the 7Cs Framework to structure a critical reflection.

This study focuses on the learning design of an online capacity development course in digital education for staff in all Kenyan public universities. *Digital Education for Universities in Kenya (DEUinK)* forms part of the Skills for Prosperity Kenya programme. It introduces HE staff to principles of effective, inclusive and accessible online education, strengthening their skills and capabilities for delivering online university education.

The Kenyan HE sector lacked sufficient expertise to design and deliver digital education (Neyrey, 2020; Tarus et al, 2015), a challenge identified in the country's National Education Sector Strategic Plan 2018-22. The government (Kenya Vision 2030) therefore prioritises enhancement and development of digital education as a key route to improving access to HE nationwide and providing socio-economic benefits to learners (Kibuku et al, 2020). DEUinK was developed to close the gap in required expertise.

In order to address the research question, the three educators who designed the course reflected critically on each stage of the learning design, focusing on the use of OER. Sources of data for this critical reflection were: individual accounts; learning design documents including course outline, meeting notes, and reflective email conversations; the course; course engagement; post-course survey responses; and learner activity following completion. Individual narratives and personal experiences of the three lead educators were used to strengthen the overall account.

3. OER

DEUinK used a wide variety of OER, developed around the world. Two were fundamental to its structure. The first was 'Take Your Teaching Online', a badged open course from The Open University (UK), hosted on the OpenLearn platform, and available as CC BY-NC-SA 4.0, a Creative Commons licence. This OER course covers understanding digital tools, selecting technologies, developing support networks, accessibility in online teaching, and evaluating change.

In addition, JISC's (2015; 2019a; 2019b; 2019c; 2019d) Digital Capabilities Framework for the roles of teachers, leaders and professional services was used to identify gaps in digital skills and knowledge and set the learning outcomes for DEUinK. This framework was developed with a range of stakeholders using a co-design approach to identify challenges faced by institutions when developing digital capabilities of staff and students. It describes the skills needed by those in academic, administrative and professional roles to thrive in a digital environment. This framework includes life-long learning, scholarship and self-development, which are neglected by other frameworks (Biggins et al, 2016).

4. Learning design process

DEUinK requires 24 hours of study and shares 'the fundamental knowledge needed to deliver effective teaching online'. This section outlines the challenges associated with the 7Cs of the course and discusses design, production, accessibility and inclusion considerations taken into account when addressing these.

Table 1. Challenges of Adapting OER for DEUinK

Challenges of adapting OER for an online nationwide capacity development programme	
Meeting national needs	Retention and completion
Adapting to local context (Kenya)	Technical support
Variation in local context	Low resources (e.g., internet connection)
Individual learner needs	Staffing levels
Learner agency	Inclusivity
Constraints on learners (e.g. time, workload)	Accessibility
Range of learner roles	COVID-19 conditions
Learner unfamiliarity with online learning	Creation of new OER where appropriate
Appropriate pedagogical approach	Consultation and forward planning
Assessment and recognition of learning	OER sustainability

4.1 Conceptualise and create

The course introduced principles of effective online education to HE staff, strengthening their digital skills and capabilities. It also provided a good example of accessible and inclusive online learning experience for participants to replicate. To do this, learning design and course pedagogy had to meet national and local needs; be responsive to individual learner needs; consider a range of learner levels and roles including educators, managers and support staff; learners' unfamiliarity with online learning; constraints on learners (e.g. time); limited resources (broadband, devices used); and conditions caused by COVID-19. In addition, challenges related to learner motivation, retention and recognition of their achievements had to be taken into account while ensuring appropriate technical and learning support were available. Course sustainability and forward planning were further considerations.

The Open University's "supported open learning" pedagogical model was used to address many of these challenges. This model is flexible (learners work where and when they choose to fit in with their professional and personal commitments), inclusive (needs of different learners are accommodated) and social (learners have opportunities to communicate and meet). It emphasises learning support (staff provide academic expertise, support and guidance) (McAndrew and Weller, 2005). This was consistent with the chosen OER's pedagogy and avoided confusing learners by using multiple pedagogies, which often occurs when OER are remixed and repurposed.

To attend to national, local and role-related needs, a needs assessment based on the JISC Digital Capabilities Frameworks was conducted. This identified digital needs and skills gaps, learning preferences and context (connectivity, device), and individual differences including type and level of any disabilities. This helped when setting course aims, identifying learning outcomes and support requirements. Course learning outcomes were mapped to OER learning outcomes to identify gaps in content and areas that were not relevant to the training. Learning outcomes were revised based on three groups of learners: educators, managers and support staff. Content was produced for topics not covered by the OER, course activities relevant to all learner groups were created, assessment (multiple-choice questions were used for formative and summative assessment) was aligned with the new learning outcomes, and the course balanced four activity types: assimilative, reflective, productive, finding and handling information. A local representative in Kenya supported this process by providing insights into local and regional needs and professional learning culture. This supported the enriching and contextualisation of the learning design, localising and revising OER content by directing us towards replacing (and where necessary co-creating bespoke) OER images to represent Kenyan culture, and educational context in a gender-balanced manner, using local examples and sometimes terminologies, ensuring different ethnicities are represented as much as possible, and removing culturally taboo references. Since English is one of Kenya's official languages, the translation of OER was not required and saved us production time and costs.

The course ran during the pandemic when most learners were in full-time employment. Five delivery considerations were therefore critical: flexible scheduling, retention challenges, Internet access, learners' limited experience of online study, and inclusion / accessibility. The course had to be delivered online, offering flexibility with minimum demand on staff time. An asynchronous self-paced delivery mode was chosen. The flexible scheduling enabled learners to engage at their own pace, fitting study around their work and family commitments. This flexibility was also valuable for learners with disabilities such as dyslexia or long Covid that can make concentrating and remembering information difficult.

The disruption caused by the pandemic to personal and professional lives meant there was a risk learners would be unable to complete the course. ICEBERG design principles for retention (van Ameijde et al, 2016) including integrated, balanced, reflective and gradual curriculum design were therefore applied. In addition, a distributed award system of digital badges and a certificate was developed to encourage participation and completion. Badges were awarded for successful completion of the first and second halves of the course, and everyone who completed the course also received a certificate.

The pandemic meant most university staff in Kenya were working off-campus. This had connectivity and access implications (i.e. limited or unreliable internet). The course was therefore available in multiple formats that

could be downloaded. This allowed learners to download learning resources when they had Internet access and then work on them offline.

Most learners did not have experience of online or distance learning; so an introduction to online learning was created, supporting staff to study the course and prompting them to reflect on what their students would need to know in order to become effective online learners.

Accessibility and inclusion strategies included provision of technical support and guidance through an accessible learning platform, downloadable learning content, an online community of practice and a technical team. Learning content and activities were designed to meet international accessibility standards, all images and diagrams were accompanied by alternative text for screen readers, and all videos had transcripts. Transcripts accommodated not only the needs of some learners with disabilities but also the needs of learners who did not have the bandwidth to view a video but were able to download a transcript. In addition, when revising the content, local images and examples were used, clip-arts were repurposed, and examples of inclusive practice were provided.

Flexible scheduling enabled learners to engage at their own pace. The option to study in short bursts and return to challenging material provided the time necessary to process and engage with content. However, although most of the measures taken to support learners were successful, when the course ran, this flexibility affected peer interactions and the course community activities negatively.

4.2 Communicate

Aspects of challenges related to inclusivity, staffing levels, technical support requirements and course sustainability as well as constraints on learners (e.g. limited time) were addressed by creating opportunities for different types of communication. The course design used learner-content interaction to enable flexible scheduling. To ensure deep and meaningful interaction with content, reflective activities relating to learners' roles and practices were built in. Additionally, learners were encouraged to engage in peer interaction through communicative activities that used the course online community of practice (a Facebook group). This was a space that enabled learners to interact with the educators and the technical team for support; network and provide / receive peer support and develop a digital education national community.

When the course was implemented, the online community was successfully used for social and resource sharing purposes. However, there was little discussion of course activities, perhaps because the self-paced nature of the course meant learners worked on activities at different times.

4.3 Collaborate

To meet the Kenyan government's national training requirements (a compact course designed for self-study), as well as adapting to the local context by considering the different composition of teams of learners from each university, collaboration opportunities were not built into the course. In most cases, learners did not know each other, were based in different departments and had different roles. As a result, pedagogies that involved collaboration were not considered suitable for the context, and OER that required collaborative work were either set aside or adapted for individual use.

4.4 Consider

This stage of learning design, which focuses on assessing learning, addressed challenges including staffing levels, learning conditions caused by COVID-19 and recognition of achievements while supporting forward planning.

Following the course's supported pedagogical approach, a continuous assessment strategy was used to help learners check and regulate their learning while helping course authors identify areas to be revisited. Each session included a quiz with a variety of question types aligned with the learning outcomes. Automated feedback to incorrect responses prompted learners to revisit relevant content and activities. Quizzes thus played formative and summative roles, providing immediate feedback without requiring synchronous staff engagement. The course platform, itself an OER, would normally require learners to achieve a certain score on

summative quizzes and to visit every course page. However, as some learners studied offline due to connectivity issues, the assessment was adjusted and the requirement to visit every page was removed.

University staff found that taking time to complete the course was difficult because they were not only learning the skills necessary to teach online, but the pandemic also forced them to apply these skills immediately. The distributed award system, described in 4.1., was developed to support motivation and retention.

4.5 Combine

As the course ran, the course authors reflected on the learning design and necessary modifications. The course map (which identified each session's learning outcomes, their links to JISC digital categories, details of learning resources, activity types and time, wordcount and related reading time) was examined to audit the course outline, check the sequencing of sessions and the learning path, ensuring activity types and times were spread reasonably across sessions. This helped with forward planning while ensuring the course was relevant to different learner roles, constraints on learners were adequately addressed, and the course supported non-linear learning paths. In particular, many OER relating to online teaching are addressed to teachers. However, many course learners had other responsibilities in relation to online teaching – they included managers in charge of the curriculum, ICT officers, and those providing technical or pastoral support to students (see Figure 1). The course included 254 HE staff (64% male, 36% female) nominated by their universities (i.e. 29 public HEIs) for the training. Nearly half of learners (48%) were educators; however, the rest were ICT officers (17%), staff in a managing role (15%), heads of departments (6%), deans (3%), and staff from academic and support services. Figure 2 displays the breakdown of learners based on their department. This meant OER had to be adjusted to take these different perspectives into account.

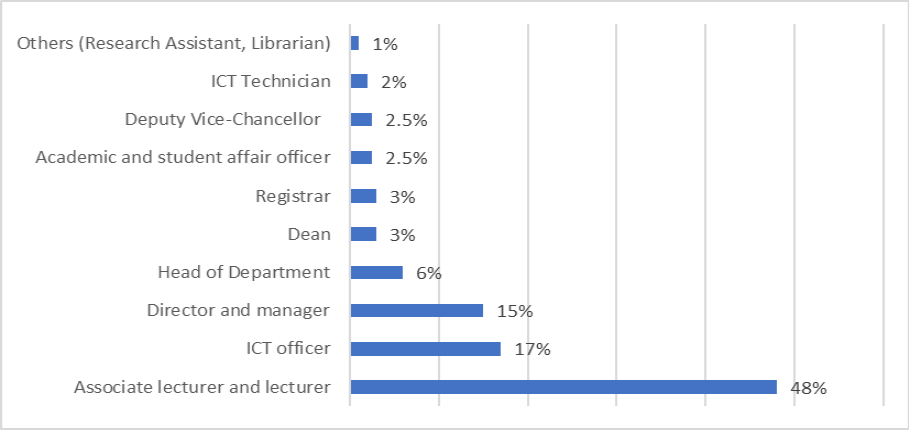

Figure 1. Learner roles involved in DEUinK

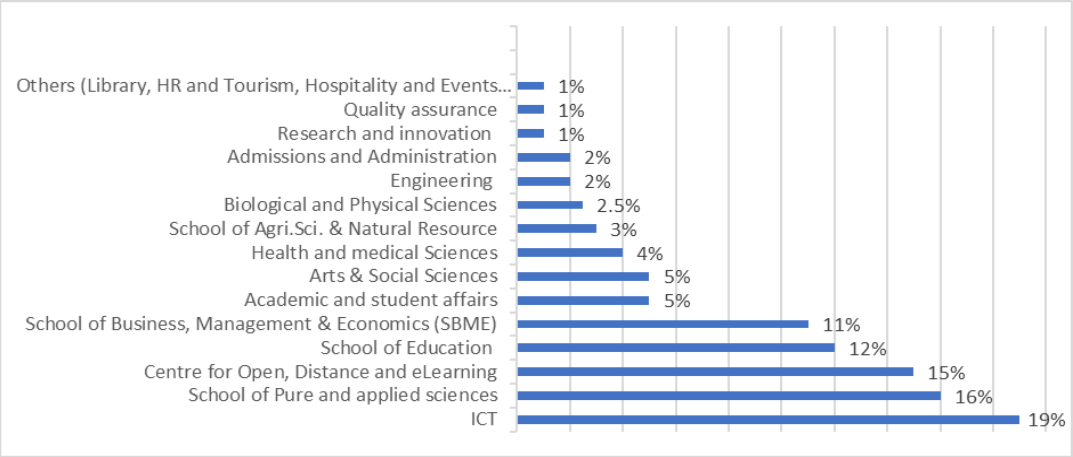

Figure 2. Participating departments in DEUinK

Another aspect to review was guidance and support for learners. A session about online study skills was created as an OER to help learners develop these skills. However, many learners skipped this session, which led to demands for individual support. In future, this session will also be available as a webinar. Technical support was delivered through FAQ, a course technical team; and discussion in the course online community. The technical team also supported disabled learners on a one-to-one basis. An in-country co-ordinator dealt with inquiries that could not be addressed at a distance. Technical support requirements, local needs and staffing were thus dealt with using a combination of OER and staff support.

To support retention and minimise dropouts, in addition to the distributed award system, a two-week break for catching-up and processing information was built into the course. Live events were included at the beginning, middle and end of the course. These provided an induction to the course, a mid-point progress check and support, and a course conclusion and celebration of achievements. The online community of practice was the main mechanism for peer and educator support and meant that learners could receive individual support even though staffing levels on the course were low. These strategies resulted in 70% of enrolled learners (n=177) engaged with at least half of the course and received their first badges and 65% (n=165) completed the training and were awarded a second badge and certificate. As shown in Table 2, the strategies supported learners in several roles. Deans, ICT technicians, academic and student officers and Deputy Vice-Chancellors engaged fully with the course. However, fewer lecturers, ICT officers, Heads of Departments and registrars moved beyond the first half of the course. Although this drop in most cases is not considerable.

Table 2. DEUinK badge award based on role

	Lecturer & AL	ICT Officer	Director & manager	Head of Department	Registrar	Dean	ICT Technician	Academic & Student Officers	DVC	Librarian
No. of Badge 1	78	34	30	9	7	5	5	4	4	1
No. of Badge 2	77	30	25	8	6	5	5	4	4	0

A final aspect to examine was the creation of new OER, where appropriate, and course suitability. The course is licensed under Creative Commons and will be openly available after the funded period. This will extend course availability for those who do not complete it within the project lifetime, increase the reach of the course, and enable reuse of OER (Ivins, 2011).

4.6 Consolidate

The experience of adapting OER and re-presenting it demonstrated that different learning design elements can work effectively if challenges are addressed before and during course delivery, and options for future reuse and repurposing are taken into account. The course met national, local and individual needs through a supported pedagogy that emphasised accessibility and inclusivity and attended to constraints on learners. This is evident from the first set of post-course survey responses (n=121). They showed that 98% of learners agreed or strongly agreed that the course met their needs and helped them:

- learn more about online education
- acquire knowledge and skill that is relevant to their job
- incorporate new practices related to online education/ services into their practice

The post-course survey as a way of developing learner agency and involving them in the adaptation process also showed that the course pedagogy, together with course flexibility, mostly supported learning and retention, since 73% of learners reported no challenges in engaging with and completing the course. In addition, more than half of (54%) participants who declared a disability completed the course. However, as

educators we identified a number of challenges to be addressed in future iterations. The flexibility of the course meant learners could complete it at their own pace, but this limited opportunities to engage with the online community of practice. Although this was used as a space for peer interactions and communications with the course team, it did not foster much discussion around course activities. It was used mainly for social support and resource sharing purposes, fostering social presence. A second challenge was that attending to national and local needs limited opportunities for collaborative and practical activities, which was identified as a weakness by some learners. In future iterations of the course this could be addressed by including such activities but making them optional and learner directed. To meet national needs, the needs assessment, desk-research and support of a local representative were important; however, deeper insight into professional learning culture and expectations would allow the OER to be further tailored as an online professional development programme. A final challenge was that the creation of new OER to develop learners' online study skills did not work in all cases as some learners skipped the relevant session. In future, offering a webinar alternative to the online study skills training would address the professional learning preferences of more learners.

5. Implications and conclusions

This paper has provided a critical reflection on the challenges associated with adapting and re-presenting OER for a nationwide online professional development and capacity building of HE staff in a low-resourced context and has outlined ways to address these challenges. The reworked OER had to meet national, local and individual needs; be adapted to local context; present a consistent pedagogy; be accessible to all staff, including those with disabilities; include not only teachers but all staff responsible for the design and delivery of online courses; take into account low levels of resource, particularly restricted internet access; acknowledge constraints on learners such as workload and limited time; run successfully with low staffing levels; address learner unfamiliarity with distance and online learning; include measures to encourage retention and completion; recognise and celebrate learners' achievements; offer technical support requirements; create new OER; and plan for future use and sustainability of OER. All this in a global context where the activities of everyone involved were restricted by the COVID-19 pandemic.

Before adapting the OER, desk research together with a needs assessment and insights provided by local stakeholders supported the identification of gaps and helped to set learning outcomes and priorities. In addition, they highlighted areas of contextualisation such as enriching material on accessibility and inclusion, changes to visual material such as images to ensure balance in gender and ethnicity representation and relevance of material to local and national needs for the design and delivery stages. This in turn, led to choosing an appropriate pedagogical approach compatible with the pedagogies of the original OER that minimised confused pedagogy.

At the design stage, accessibility and inclusion strategies were important considerations. Accessible design and delivery included accessible learning materials and activities; flexible scheduling and a distributed award system; technical support and guidance through an accessible learning platform (itself an OER); downloadable learning content and technical support. These strategies helped address challenges ranging from individual learner needs, through limited resources and constraints on learners, to difficulties caused by COVID-19. Decisions in these areas were supported by a continuous assessment strategy and a distributed award system to maximise learner motivation, retention and course participation and an online community of practice for peer and educator support and communications. While delivering the course, the learning support was extended by offering wraparound webinars, an online community of practice, and responses from the local representative to issues that were not resolvable at distance. After the course end, the post-course survey and learners' reflections supported forward planning and strategies for sustainability of the created course and expanding its reach.

Kenyan universities are now developing training based on the DEUinK to extend its use beyond the project. DEUinK will be available as an OER after the funding period and will enable universities in both Kenya and other countries to reuse and remix this OER to develop staff capacity.

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