

Rwanda National Framework on MOOCs and OER



Ministry of Education



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Acronyms

EDPRS – Economic development and Poverty Reduction Strategy
ESSP - Education Sector Strategic Plan
HE – Higher Education
ICT – Information and Communication Technology
ID – Instructional Design
KFIT – Korean Republic Funds-in-Trust
MINEDUCUC – Ministry of Education (Rwanda)
MOOC – Massive Open Online Course
NICI – National Information and Communication Infrastructure Plan
OCW – Open Courseware
OER – Open Educational Resources
ODEL – Open, Distance and e-Learning
REB – Rwanda Education Board
RP – Rwanda Polytechnic
TBD – To be decided/discussed
UNESCO – United Nations Educational, Scientific and Cultural Organisation
UR – University of Rwanda
UR CE – University of Rwanda College of Education

Introduction and Background

Why MOOCs and OER?

Education globally, particularly higher education (HE), is in a process of major change. This transformation is in part being driven by a need to educate more graduates yet reduce costs in doing so. Also, educationists have begun to criticize the effectiveness of traditional pedagogies in preparing new generations to contribute positively to emerging knowledge societies. Improved access of the populace to Information and Communication Technologies (ICT) and particularly the Internet is another contributing factor to educational change. Traditional views on 'how we teach, and student learn' and 'where can learning take place' are being challenged. There is now a sizable number of students happy to study at institutions outside national boundaries. Improved quality assurance also means that courses and programmes are comparable across borders. This means that local university courses can be compared to courses held elsewhere, increasing competition between institutions.

Also, in this mix of factors impacting on HE changes is the emergence of Open Education values, services and resources. The Open Education movement is committed to providing universal access to quality education. To achieve access for all HE institutions are encouraged to organise flexible learning that break down barriers restricting access for prospective students. Students should be able to craft their own learning programmes that respond to their specific needs, that are not fixed in space, but can be accessed from anywhere, anytime. In most instances this means that ideally course resources and activities should be accessed online. High costs, often associated with HE, also need to be curtailed. One strategy is to develop courses that are cost effective is to use teaching and learning resources that have open licenses, often referred to as Open Educational Resources (OER) rather than force students to buy expensive textbooks. OER are free resources, many of which, encourage repurposing or adaptation to better align the resource to local contexts. It is also possible to find Open Courseware (OCW), entire university courses, that can be adapted and redeployed in new learning environments. It is also argued that courses created by adapting OER and/or OCW speeds up development time and makes it cheaper to build contextualised HE courses. This is especially true for generic undergraduate courses.

One approach to offering free, quality education to large numbers of learners are Massive Open Online Courses (MOOCs). These free, pure online courses have attracted enrolments often totalling tens of thousands of students drawn from across the globe. Numerous universities have developed MOOCs that use online platforms, such as Coursera¹ or EdX² among others, to showcase their signature courses and top lecturers. The reach of MOOCs has demonstrated that soon enrolment of local students will no longer be a 'given' for higher educational institutions as students, using technology and the internet, will look further afield to find study options aligned to their needs.

MOOCs are not without issues, however, and have been characterised by high attrition and low completion rates. There have also been issues with developing a full programme of study and offering recognised accreditation. For these reasons MOOCs have not attracted large numbers of learners traditionally excluded from HE. However, despite these criticisms the MOOC model has elicited much excitement in education circles. Most educationists believe that while the MOOC as it is now is not the panacea to education's woes there is a lot of promise and is worth continued development and experimentation. MOOCs are continually offered by the world's top education institutions as they try to find a model that will allow them to increase enrolments without incurring major costs.

The MOOC phenomenon, described above, is already splintering into different models. There are currently different types of MOOCs each deployed differently. Educators need to be aware of these options and design learning interventions that exploit these new MOOC derivatives. According to Caerniewicz (2015)³ MOOCs have evolved into Open Boundary Courses (OBC) that mix formal students with outsiders, Small

¹ Coursera can be visited and experienced at <http://www.coursera.com>

² Visit and experience EdX at <https://www.edx.org/>

Private Online Courses (SPOC) that use MOOC platforms but are for small groups of fee-paying students, Massive Online Courses (MOC) which are fee earning courses and are not open, and a Wrapped MOOC offered by institutions that use existing MOOCs, offered by others, and integrate them into their existing academic programme. New MOOC platforms and related models are constantly emerging.

Considering the changes taking place in HE it is important for Rwandan institutions to remain relevant both nationally and on the global stage. Rwanda HE institutions need to review current offerings and devise ways to make study options cost effective, flexible, that embrace technology and that are transferable. Universities and colleges should experiment to see which open education strategies, including the use of OER, OCW and MOOCs, result in improved access to quality education for all Rwandans, no matter their socio-economic background, nor their access to HE campuses. To this end the Government of Rwanda has developed a policy environment that fully supports embracing open education principles and practices.

Rwanda Policy Environment

The Government of Rwanda is committed to increasing access to quality education. The National Strategy for Transformation (2017-24) specifically sees education as one of the pillars of ‘Social Transformation’ and states that it is a priority to ‘ensure quality of education for all aiming at building a knowledge-based economy³.’ Rwanda’s Vision 2020, and more recently the 2050 Vision, recognises the role of ICT at large, and open, distance and eLearning (ODEL) in transforming Rwandan citizens into skilled human capital for the socio-economic development of the country. Furthermore, The second Economic Development and Poverty Reduction Strategy (EDPRS II) and the Education Sector Strategic Plan (ESSP, 2013–2018) acknowledge the role of ODeL in increasing access to high-quality education. The 7-Year Government Programme (2010–2017) recommended that at least 50% and 30% of course programmes should be delivered through ODeL mode in higher and secondary education, respectively. The National Information and Communication Infrastructure Plan (NICI III, 2011–2015), SMART Rwanda Master Plan (2015–2020) and ICT in Education Policy (2016) also identify ODeL as a priority in enhancing access and quality at all levels of education. Furthermore, the second Economic Development and Poverty Reduction Strategy (EDPRS II) and the Education Sector Strategic Plan (ESSP, 2013–2018) acknowledge the role of ODeL in increasing access to high-quality education.

While the national ODeL vision is clearly articulated, implementation is not without its challenges. For example, the National Open, Distance and eLearning Policy (2016) identifies the following weaknesses in pursuing ODeL initiatives;

- Limited number of trained academic, technical and support staff in ODeL practices;
- Inadequate availability and access to required technology for teaching and learning in ODeL;
- Low ICT literacy of teachers and students;
- Limited awareness of ODeL as a viable mode of delivery.

In terms of capacity building the ODeL policy further states that there is a need to focus staff training and development on;

- Ensuring that ODeL practitioners can:
 - Design, develop, deliver, assess and provide access to high-quality teaching, learning materials within the available resources
 - Analyse learners’ progress and take appropriate responsive actions as needed;
- Providing effective ODeL training to promote change and ensure quality;
- Training curricula developers on creating and developing digital learning materials;

³ See Rwanda Embassy Washington. (2018). Rwanda in the next seven years (2017-2024). Available online at <https://rwandaembassy.org/rwanda-in-the-next-seven-years-2017-2024.html>

- Training ODeL administrators/managers and technical and support staff in planning, management, budgeting, resource mobilisation, and monitoring and evaluation;
- Developing a cadre of technical expertise to manage and maintain ODeL systems at all levels; and
- Training ODeL staff in providing career guidance and orientation to learners.

In addition, the Ministry of Education's ICT in Education Policy (2016), also identifies the importance of ICT at HE institutions in achieving key objectives. Strategic Objective 4 states that 'enhanced teaching, learning and research through ICT integration at HLI' can be achieved in part by 'providing online services including the access of the syllabus, registrations, grades and courses'⁴.

The same policy on 'curriculum design, delivery and assessment' includes the call for the promotion of blended learning that embraces electronic content and 'enabling teachers to use open educational resources, Massive Open Online Courses, create electronic content and share knowledge experiences and practices using technology.'⁵

However, creating policy is not the same as implementation and targets identified in the ICT in Education Policy, such as 'Higher Learning Institutions will deliver 100% of the teaching using digital courses and online resources' by 2018-2019 have yet to be attained. It is hoped this document might provide a framework for Rwanda HE institutions to start moving closer to the national vision.

UNESCO Support

The vision for ICT in Education, described above, aligns with the Rwandan Government's commitment to the United Nations Sustainable Development Goals particularly goal 4 on ensuring quality education for all⁶. UNESCO and Korean Republic Funds-in-Trust (KFIT) are supportive of this vision and are seeking to address some of the implementation challenges. They have called for the development of a 'national framework for MOOCs and OER in Higher Education' of which staff ODeL capacity building at the Ministry of Education (MINEDUC), the Rwanda Education Board (REB), the University of Rwanda (UR) and the Rwanda Polytechnic (RP) as an essential component of the framework.

UNESCO, in conjunction with the Commonwealth of Learning, has already published on this subject. Two documents are particularly relevant for the Rwandan context; *Making Sense of MOOCs: A Guide for Policy Makers in Developing Countries*⁷ and *OER Guidelines for Higher Educational Institutions*⁸.

This document outlines a framework to provide both ODeL capacity building methodology for staff at MINEDUC, REB, UR and RP as well as a set of activities to develop open education courses and materials. The training and development framework is based on recommendations identified in both the Rwandan policy environment and the UNESCO publications and constitutes a component UNESCO KFIT support. This methodology identified required skill sets that are required and a series of activities to address skill gaps.

⁴ See MINEDUC Rwanda. (2016). ICT in Education Policy. P6

⁵ See MINEDUC Rwanda. (2016). ICT in Education Policy. P11-12

⁶ See <http://www.rw.undp.org/content/rwanda/en/home/sustainable-development-goals/goal-4-quality-education.html>

⁷ Access online at <http://unesdoc.unesco.org/images/0024/002451/245122E.pdf>

⁸ Access online at UNESCO - <http://unesdoc.unesco.org/images/0021/002136/213605e.pdf>

National Framework on MOOCs and OER

The framework assumes that for the Rwanda Ministry of Education (MINEDUC), the Rwanda Education Board (REB), the University of Rwanda (UR) and the Rwanda Polytechnic (RP) to embrace the use of ODeL, OER and MOOCs there needs to be a phase of capacity building to provide staff with skills, know-how and knowledge on how best to *design* open, blended learning education courses and programmes. A second phase would be to provide opportunities for staff at these institutions *develop* and *deploy* such courses and/or material. It will also be necessary to run advocacy campaigns to spread awareness of the potential benefits of studying using open resources and online platforms. Advocacy campaigns need to be aimed not only at officials in the key institutions but also the general public, prospective students and within industry.

A] Institutional Capacity - Required Skill Sets and Competencies

To implement ODeL effectively, various skill sets need to be in place at the MINEDUC, REB, UR and RP. Ideally, other educational service providers should also be aware of the potential benefits of ODeL and acquire appropriate skills. The skill sets, however, are not the same for each institution, nor are they the same for individuals within an institution. Each has a different combination of skill requirements. Based on the UNESCO documents the following skill sets have been identified below.

One of the first activities to address ODeL capacity building will be to audit the skills gap at each of the four institutions. At this juncture, until engagement with these institutions can identify who specifically within their organisations need which skills, a simple tick (✓) has been used in the grids below to identify that a skill set is required within that institution.

Common ICT Skills

ODeL, MOOCs and OER exploit technology and it is essential that practitioners are comfortable and familiar with ICT if they are to function in this space. The following skill set descriptions are broad but demonstrate how essential basic ICT skills are for all stakeholders. If these skills are not in place, then it is essential that staff have an opportunity to develop these skills.

Skill Set 1: Common ICT Skills - Applies to all personnel			
Skill set and/or Competencies	<i>Entry level</i>	<i>Intermediate</i>	<i>Advanced</i>
	Laptop/smart device orientation, introduction to productivity suite applications, e-mail and Internet search. Basic introduction to benefits and challenges associated with integrating ICT into education	Ability to use common educational digital tools and create open resources including text documents, create and edit images, develop simulations and video resources etc.) and use social networking tools for educational purposes (Face Book and WhatsApp groups etc.)	Introduction to MOOC platforms, Learning Management Systems (LMS) and other online learning environments. Creating online teaching and learning environments that support pervasive learning
University of Rwanda	✓	✓	✓
Rwanda Education Board	✓	✓	✓
Ministry of Education	✓		
Rwanda Polytechnic	✓	✓	✓

Technology & Open Education

An essential component of ODeL, MOOCs and OER is the ability to harness the potential of available technology and derive benefit from resources and collaboration made available by open education. This skill set ranges from a basic awareness of what is possible, the ability to implement components of open education and ultimately design business models so that cost efficiencies can be leveraged.

Skill Set 2: Open Education / ICT in Education Global Trends / UNESCO Sustainable Goals – Applies to Management, Curriculum Specialists, Course Developers and Educators			
Skill set and/or Competencies	<i>Awareness of trends</i>	<i>Implementation</i>	<i>Policy & Business Models</i>
		Awareness of Open Education, Open Educational Resources, Creative Commons Licensing, MOOCs, UNESCO Sustainability Goals and national ICT in Education policy and priorities	Ability to review and adapt open courseware and open educational resources in alignment with national and institutional ICT in Education priorities
Alignment with skills identified in <i>Guidelines for OER in HE</i> , p17-20	1a, b, c, & 2a	4a, b, c, d, e, f, h, i, j, k, l, m, n, o, p, q, r and s	3 & 4g
Alignment with knowledge identified in <i>Making Sense of MOOCs</i>	p15-20, p31-36		p21-30, p65, p69-80
University of Rwanda	✓	✓	✓
Rwanda Education Board	✓	✓	✓
Ministry of Education	✓		✓
Rwanda Polytechnic	✓	✓	✓

Effective Pedagogy and Instructional Design (ID)

The development of ODeL and MOOC courses and associated course materials require designers and developers to be able to craft learning environments that embrace sound pedagogical principles, particularly to work in blended or online environments. In addition, designers and developers need to build technology mediated learning environments that embrace sound instructional design principles. This will ensure learners can successfully function in such environments.

Skill Set 3: Effective Pedagogy and Instructional Design for Technology-assisted Learning – Applies to Curriculum Specialists, Course Developers, Educators and Technical Support			
Skill set and/or Competencies	<i>Awareness of education theories and paradigms</i>	<i>Design courses using appropriate pedagogy and ID</i>	<i>Technical skills to support development of courseware</i>
		Awareness of blended learning vs. online learning vs. traditional approaches to learning. Instructional design basic principles to support both face-to-face and online learning.	Design blended and online courses using open educational resources that support learner-centred approaches.

Alignment with skills identified in <i>Guidelines for OER in HE</i> , p17-20	4f	4f & 6	4h, 5a, b, c, d
Alignment with knowledge identified in <i>Making Sense of MOOCs</i>		p48-49	p51-55
University of Rwanda	✓	✓	✓
Rwanda Education Board	✓	✓	✓
Ministry of Education	✓		
Rwanda Polytechnic	✓	✓	✓

Effective Assessment Strategies

Another necessary skill set to support ODeL and MOOCs is the ability to use technology to support authentic assessment.

Skill Set 4: Assessment Strategies – Applies to Curriculum Specialists, Course Developers and Educators			
Skill set and/or Competencies	<i>Entry level</i>	<i>Intermediate</i>	<i>Advanced</i>
		Awareness of appropriate assessment strategies to support diagnostic, formative and summative assessments. Design authentic assessments	Ability to design authentic technology-assisted assessment opportunities using open resources for diagnostic, formative and summative assessment.
Alignment with skills identified in <i>Guidelines for OER in HE</i> , p17-20	4j	4j	4j
Alignment with knowledge identified in <i>Making Sense of MOOCs</i>	NA	NA	NA
University of Rwanda	✓	✓	✓
Rwanda Education Board	✓	✓*	✓*
Ministry of Education	✓		
Rwanda Polytechnic	✓	✓	✓

* To support recognition of in-service teacher training

Quality Assurance | Monitoring & Evaluation

With any courseware development process, it is essential to assure the materials for quality. In addition, as many Rwandan users will be new to MOOCs, OER and technology it is important that the course are monitored and regularly evaluated in terms of effectiveness. Such skill sets also need to be in place within ODeL institutions.

Skill Set 5: Courseware Quality Assurance and Monitoring and Evaluation Strategies – Applies to Management and Researchers		
	<i>Quality Assurance</i>	<i>Monitoring & Evaluation</i>

	Design a process to evaluate the quality of ODeL and MOOC courseware b and provide critical feedback to inform revisions	Design a Monitoring and Evaluation strategy to ascertain the effective deployment of ODeL and MOOCs and ascertain the courseware effectiveness.
Alignment with skills identified in <i>Guidelines for OER in HE</i> , p17-20	7	7
Alignment with knowledge identified in <i>Making Sense of MOOCs</i>	pp 37-44	p56-57
University of Rwanda	✓	✓
Rwanda Education Board	✓	✓
Ministry of Education	✓	✓
Rwanda Polytechnic	✓	✓

Facilitation & Support

In technology mediated courses, particularly ODeL and MOOCs, student learning support needs to be designed into the course activities. The ability to support learning can be either automated by technology and/or supported by trained online facilitators or e-tutors.

Skill Set 6: Support & Facilitation Strategies – Applies to Educators	
	<i>Design Develop and Provide Student Support</i>
	The ability to support learning in a blended learning environment using technology where possible but also online human facilitators
Alignment with skills identified in <i>Guidelines for OER in HE</i> , p17-20	NA
Alignment with knowledge identified in <i>Making Sense of MOOCs</i>	NA
University of Rwanda	✓
Rwanda Education Board	✓
Ministry of Education	
Rwanda Polytechnic	✓

Collaboration & Sharing

Once ODeL institutions are running courses it will be necessary to promote them, as well as share the resources with others within the open community. Skills required at this juncture will be to communicate, research and share. Technical support will be required to coordinate technologies designed to expedite communication, distribute resources and collect research data.

Skill Set 7: Collaboration Sharing & Distribution of Open Resources – Applies to Management, Researchers, Educators and Technical Support			
	<i>Communication</i>	<i>Research</i>	<i>Technical</i>
	Design a collaboration / communication mechanism using technology to develop and share OER	Conduct research into the effectiveness of OER and MOOC usage within a Rwandan context	Develop a database, repository to store and distribute open content. Support communication and collect data

Alignment with skills identified in <i>Guidelines for OER in HE</i> , p17-20	9	9	8
Alignment with knowledge identified in <i>Making Sense of MOOCs</i>	p63-67		
University of Rwanda	✓	✓	✓
Rwanda Education Board	✓		✓
Ministry of Education	✓	✓*	
Rwanda Polytechnic	✓	✓	✓

* Specifically the Research Commission

B] Advocacy Campaign

training key staff members to ensure the above capacity is in place within each institution will be critical but it is also necessary to inform the wider community of the potential benefits of using ODeL, MOOCs and using OER. It will be necessary to also conduct an information campaign. In the past the public has considered online education inferior to face-to-face study. The potential benefits and challenges of studying via LMS, MOOCs needs to be made open. Also, the different mindset required to excel in this environment also needs to be made public.

To this end a campaign should include brochures, social media messages, web site information pages and even include traditional media outlets such as video/TV segments, radio broadcasts and newspaper articles to ensure it reaches the broader public.

Staff within the key institutions should also be targeted so that they are aware of the crucial role MOOCs and ODeL courses play in the contemporary world and that they aware of ways technology and open learning will impact the entire organisation.

C] ODeL, MOOC and OER Courseware Development Phase

To provide a context for staff development and the provision of ODeL capacity at UR, REB and MINEDUC, as described above, a training methodology is described in the table below. Specific details and timelines will emerge after detailed consultation with institutional stakeholders. This document provides suggested training approach that will result in open products that can be used when offering ODeL and MOOC courses.

To achieve this result training needs to be competency based and not purely theoretical in nature. All capacity building initiatives must produce real skills and participants need opportunities to use these skills in support of designing, developing and deploying ODeL and MOOC courses. Therefore, whether the trained skill or knowledge is about curriculum design, courseware development, assessment, quality assurance, facilitation skills or monitoring and evaluation, participants need an opportunity to engage skills and knowledge in a real-world setting. Consequently, the training methodology for all seven skill sets should be coordinated so that the recipients use them to roll out actual study/training interventions.

Proposed Activities

The following is a list of activities recommended to support the acquisition of ODeL, OER and MOOC skills and knowledge at UR, RP, REB and MINEDUC. Because of different mandates and allocated training budgets it is anticipated that the three institutions will train predominately alone but on

occasion come together when an external service provider has been secured to offer specialised training.

Proposed Activities	
1	<p>Governance - Establish Coordinating Entity & Facilitator</p> <p>A small coordinating entity, made up of representatives from each of the four main institutions and possibly other interested parties, is tasked with coordinating the capacity building and development of ODeL and MOOC courseware.</p> <p>It might be possible to use existing committees such as the Technical Working Group with its shared chair between MINEDUC and UNESCO. This group already has representation from the four main institutions.</p> <p>One individual identified from within the coordinating entity needs to be resourced and empowered to interact on behalf of all four institutions to ensure the training and development of courseware takes place.</p> <p>She/He needs to ensure that arising out of the new skills training a series of MOOCs and OER based courses are ready for deployment. This facilitator/coordinator could be drawn from current experts at UR or REB. Alternatively, if funding is available, the coordinator could be appointed externally but needs to resident in Rwanda and have access to UR, REB and MINEDUC.</p> <p>Ideally this person would monitor progress and results. The ICT in Education policy already has some high-level targets. Currently there is, however, no mechanism to collect data/evidence of what is happening in terms of the development of ODeL, MOOCs and OER development. The coordinator could coordinate the collection, storage and analysis of this information in order to report on progress towards the policy targets.</p>
2	<p>Conduct Personnel Skills Audit</p> <p>Audit UR, RP, REB and MINEDUC to determine staff skills gaps in support of developing ODeL, MOOCs and OER. Audit should include who within each institution needs which set of skills. (See Appendix A for sample Audit template). Currently the Work Force Development Authority (WDA) could be commissioned to conduct the audit for RP and the Higher Education Council (HEC) for the UR. MINEDUC and REB should be tasked with auditing themselves.</p>
3	<p>Identify Available Courses and Materials for Training</p> <p>Identify where skills training could be acquired for identified personnel across all seven skill sets. Some of the training would be delivered by local and international 3rd party service providers while other courses could be developed specifically for the Rwandan ODeL context and designed to be re-used as new personnel join and require development. These courses could be developed from OER and distributed using UR's or REB's Learning Management System. An index of what training courses or materials are available should be compiled. From the index it can then be determined what needs to be developed locally or in-house.</p>
4	<p>Negotiate Goals, Targets and Milestones</p> <p>To provide purpose and direction to the training a set of goals, targets and milestones should be negotiated with UR, RP, REB and MINEDUC and published. Institutions should commit to developing several MOOCs and OER based courses to provide personnel with purpose to attend training. In some instances, there are already institutional strategic plans that make these</p>

	<p>targets explicit. Consequently, the ODeL, MOOC and OER goals, targets and milestones should align with these plans.</p> <p>These goals, targets and milestones should then be linked to the job profiles/performance contracts of new and existing institutional personnel to ensure accountability and motivation to complete the design, development and deployment of ODeL and MOOC courses and the development of OER.</p>
5	<p>Publish a Roadmap for MOOCs and OER</p> <p>Production of an officially sanctioned road map in which goals, targets and timelines are officially sanctioned by highest authority and made public to ensure expectation.</p>
6	<p>Identify Technical Platform(s)</p> <p>Prior to training it is important that all three institutions have agreed on which technical platform(s) they will coordinate efforts. For example, visit this link for a comparison of MOOC platforms. Agreement is required to standardise training across the institutions.</p> <p>Currently both UR and REB use a Moodle learning management system to distribute courseware but it might be worth investigating if a dedicated MOOC platform might be a better option for dedicated MOOCs.</p>
7	<p>Conduct Capacity Building Training</p> <p>Individual staff are trained in the appropriate skill sets identified in the personnel skills audit. Where appropriate staff training incorporates developing products that can be used in forthcoming ODeL initiatives e.g. MOOCs and OER based courses.</p>
8	<p>Development of a Curriculum for ODeL and MOOCs courses</p> <p>Arising out of the ongoing capacity building training courses described above, those staff who have been identified to develop ODeL and MOOC courseware need to develop a curriculum map of the first set of ODeL and MOOC courses to be developed. In some instances, the courseware developers and subject experts might want to adapt an existing course rather than build from scratch as this is an easier option. The curriculum map would include the identification of outcomes, content, teaching methodology, the blend of technology vs face-to-face instruction, notional hours and available OER/OCW that could be adapted.</p> <p>It is possible to have each institution develop its own dedicated curriculum for courseware or to collaborate on the development of a curriculum that is pertinent to all four institutions.</p>
9	<p>Building ODeL and MOOC Courseware</p> <p>The teams drawn from UR, RP, REB and MINEDUC who have benefited from the training would then build the courses described in the curriculum map in the platform identified because of activity 6 above. Currently REB and UR use a Moodle LMS so it possible that the courses will be built in this platform.</p>
10	<p>Commission Development of Additional Training Materials</p> <p>Any specific training materials or resources required for the units of study that cannot be found as existing OER/OCW, nor are within the capacity of UR, RP or REB developers to create, need to be commissioned locally or if necessary, by international service providers. These items could include video production, graphic design, multimedia elements, simulations etc.</p>
11	<p>Finalise development and quality assure ODeL courses and MOOCs</p>

	<p>The first cut or each ODeL course or MOOC need to be quality assured (QA). A QA team, recently trained, would ascertain if the course activities elicit evidence that the course outcomes were achieved. They will investigate student support options, the assessment strategy, technical performance of the platform etc.</p> <p>Both UR and RP already have QA units in place. It will be imperative, however, that personnel are comfortable in quality assuring courses and materials designed to support a blended or fully online learning environment. While the educational principles from traditional teaching and learning remain the same the execution is different for courses that have online components.</p>
12	<p>Deploy and Monitor ODeL Courses and skills of Personnel Involved</p> <p>In this activity the ODeL courses and MOOCs will be run as pilots or fully fledged ODeL courses or MOOCs over several weeks or months. The team trained to monitor and collect data on the effectiveness of courses will evaluate the success of the courses and their materials. They will also need to decide if the courses are sustainable over the medium to long term.</p>
13	<p>Research effectiveness</p> <p>The Monitoring & Evaluation team will publish recommendations to inform revision of both the courseware but also the professional development programme as well as make a comment on the targets published in the policy documents.</p>

D] Specific Institutional Support

Rwanda Education Board

Certain representatives from REB stated that ODeL and MOOCs, while potentially useful for teacher education, have a minor role in Basic Education if at all and are not considered a priority when training teachers. However, in contrast OER have great potential both in teacher training but also in the development of teaching resources for educators. OER have already played a significant role in the development of the *ICT Essentials for Teachers* blended learning course and in the development of the REB/UNESCO *e-Assessment Question Bank* project. REB would value more capacity development of their staff in the skills associated with OER. REB believe that training could cut across the REB divisions such as ICT, Teacher development, curriculum and examinations as well as the REB management. Ideally, allied government agencies should also be beneficiaries of OER advocacy sessions and training, such as the Rwanda Information System Agency (RISA) and the Government Systems Coordinator.

University of Rwanda

In many ways there are already structures in place at UR to support the development of many of the skills described above. For example, 30 e-learning champions, 26 instructional designers and 6 e-learning officers have been trained to support academics create courses. They encourage the incorporation of sound instructional design principles into the creation of courses and can support academics with developing content and activities for online study via the university's learning management system. There are also quality assurance and Monitoring & evaluation units that review and evaluate courses, although, it was pointed out that these personnel will need capacity to review online courses with the same rigor. Training areas that need to be added to UR included the development of multimedia and graphic design as well as the ability to provide effective online facilitation to learners.

Representatives from the university felt it important to have separate training for each of the three key institutions. Each has a different Vision and Mission, not to mention different ICT literacy rates

among staff. Also, Funding has already been allocated to each to support their professional development needs as per the ODeL policy 2016.

Glossary

Simple definitions of technical terms used in this publication.

- **authoring environment** – software for creating websites.
- **collaboration** – two or more people working together towards a common goal. While similar to cooperation (see below) it requires closer alignment of the participants and clear roles and responsibilities of group members.
- **competency** – the skills, knowledge and understanding needed to do something successfully to a professional standard.
- **cooperation** – two or more people working together to achieve a specific goal of mutual benefit (as opposed to working in competition).
- **curriculum** – a list of the topics to be learnt in a course of study; a set of courses the content of which is designed to provide a sequential approach to learning. (The terms ‘curriculum’ and ‘syllabus’ are used slightly differently in different countries, but essentially they both mean a list of what is to be learnt.)
- **diagnostic tool** – a method for determining if a student needs remedial or extension activities.
- **didactic teaching/didactic instruction** – teaching by telling students about the subject; teaching by talking, explaining, demonstrating, lecturing, posing questions to students, answering students’ questions and conducting discussions with students. This is in contrast to teaching by helping students to learn through experimenting and reflecting, by getting students to do things rather than primarily listening to the teacher.
- **digital** (as in digital content, digital devices, digital resources, digital technology) – essentially, another word for computers and computer technology. (Computers store and process information by converting it all to single-figure numbers: digits.)
- **digital literacy** – the ability to use digital technology, communication tools or networks to locate, evaluate, use and create information. It also refers to the ability to understand and use information in multiple formats from a wide range of sources when it is presented via computers, or to a person’s ability to perform tasks effectively in a digital environment.
- **digital tools** – another name for ICT.
- **educational technology** - is "the study and ethical practice of facilitating learning and improving performance by creating, using, and managing appropriate technological processes and resources". Educational technology is the use of both physical hardware and educational theoretics.
- **eLearning** - is learning utilising electronic technologies to access educational curriculum outside of a traditional classroom.
- **e-portfolio** – also referred to as a digital/online portfolio, an e-portfolio is a collection of electronic evidence created and assembled by a student, and can include text, electronic files, images, multimedia and blog posts.
- **formative assessment** (also termed ‘assessment for learning’) –assessment that helps students to learn (that shapes, or forms their learning) by showing what the students have not understood, what they might need to repeat and whether they are ready to move to the next stage (see also summative assessment).
- **ICT** – information and communications technology which means computers, mobile phones, digital cameras, satellite navigation systems, electronic instruments and data recorders, radio, television, computer networks, satellite systems or almost anything that handles and communicates information electronically. ICT includes both the hardware (the equipment) and the software (the computer programmes in the equipment).
- **ICT CFT** – the UNESCO ICT Competency Framework for Teachers.
- **Internet** – the Internet and the World Wide Web (or web, or websites) are often used interchangeably; but strictly speaking the Internet is the network that connects computers

around the world, and the websites are the documents, images and other material on the network.

- **knowledge society** – a society that nurtures its diversity, and that takes advantage of its many knowledge forms, from indigenous, local wisdom to high-level techno-scientific knowledge. This concept emphasizes that knowledge is not only produced in a scientific laboratory but is also represented in the accumulated experience of humankind in all nations.
- **knowledge society skills** – the skills needed to handle and create information and knowledge, which means skills such as problem-solving, critical thinking, analysis, collaboration, communication, understanding others' points of view, and being able to use ICT, which is a key tool for handling information.
- **learning management system (LMS)** – a software application or web-based technology used to plan, implement and assess a learning process, allowing a teacher to create and deliver content, monitor student participation, and assess student performance.
- **mobile device** – a hand-held computing device, such as a mobile phone or tablet.
- **massive open online course (MOOC)** – a free, web-based distance learning programme aimed at enrolling many people from around the world.
- **media and information literacy** – a pedagogical approach recognizing the changes and developments in ICT, which highlight the need for individuals to competently access, analyse, evaluate, create and use information and communication; the need for individuals to be both authors and consumers of information and media content; the need for individuals to critically analyse information and media content using active inquiry; and the need for them to use information and media for claiming human rights and advancing sustainable development.
- **online** – connected to the Internet, for example, accessing websites and e-mail.
- **open educational resources (OER)** – teaching and educational resources that are openly licensed and available free of charge.
- **open licence** – specifies what can and cannot be done with a work (text, image, software or multimedia). Open licences usually grant permission to access, reuse and redistribute a work with few restrictions, and requiring attribution.
- **package** – computer programme (see also programme).
- **pedagogy** – this usually means teaching methods, styles and techniques, the way in which the teacher teaches. It can also mean simply teaching, or the study of teaching.
- **pervasive learning** – a social process that enables students to construct relevant and meaningful learning experiences by connecting the students to communities of devices, people and situations.
- **professional learning** – the additional skills and knowledge that teachers acquire in their work, beyond what they learnt in order to become qualified teachers. Teachers can gain this additional knowledge and these skill in various ways, through courses, programmes, conferences, seminars, events and workshops, from colleagues, through experience and experimentation, personal research and reflection, and through membership of professional networks and associations; sometimes referred to as 'professional development' or 'CPD' (continuing professional development).
- **programme** – another word for software, application, package, for example, Microsoft Word, or Photoshop; the set of instructions loaded into a computer that enable it to provide specific functions such as word processing, spreadsheets, presentations, databases and image editing.
- **resource** (as in digital, ICT, web, online resource) – digital information, and digital hardware and software.
- **software** (software package, etc.) – computer programme (see also programme).
- **social network** – a website or application used for connecting people and allowing them to communicate by sharing information, images and messages.
- **student-centred**, (as in student-centred teaching, or student-centred activities) – teaching styles or learning activities in which students are active rather than passive, in the sense that

they undertake projects or investigate or experiment for themselves rather than listening passively to the teacher.

- **summative assessment** – assessment that sums up what the student has achieved, the point they have reached in their learning, to see if they qualify for a certificate or award or a place at university or a particular job. Summative assessment usually takes place at the end of a course of study, and produces information used by third parties such as employers or admissions officers. It is in contrast to formative assessment (see above), which takes place during a course of study, which produces information for the student and teacher and is intended to help the student learn. The difference between the two types of assessment lies in the purpose of the assessment, rather than the form of the test or exam. Thus, for example, a spelling test may be formative or summative depending on the way the results are used.
- **syllabus** – another word for curriculum (see also curriculum).
- **teacher education** – the course of study, usually provided by a university or other higher education institution, which qualifies a person to be a school teacher; sometimes referred to as ‘preservice teacher training’ or ‘initial teacher training’.
- **technology** – often used as another word for ICT, although strictly speaking ‘technology’ can mean almost any type of tool or applied knowledge. For example, pencil and paper, slates, blackboards and whiteboards are all types of writing technology.

Appendix A: Staff Skills Audit Template

		Skill Set 1: Basic ICT Tools and Skills			Skill Set 2: Open Education / ICT in Education Global Trends / UNESCO Sustainable Goals			Skill Set 3: Effective pedagogy and Instructional Design for technology-assisted learning			Skill Set 4: Assessment Strategies for 21st Century		
		Entry Level	Intermediate	Advanced	Awareness	Implementation	Policy & Business Models	Awareness	Courseware Development	Technical	Entry level	Intermediate	Technical
Knowledge and Skills requirements ->		Laptop/Smart device orientation, Introduction to productivity suite, e-mail and Internet search	Subject specific digital tools (simulations, video, interactive tools etc.) and social networking tools	Introduction to MOOC platforms, Learning Management Systems (LMS) and other online learning environments	Awareness of Open Education, OER, Creative Commons Licensing, MOOCs, UNESCO Sustainability Goals and national policy and priorities	Ability to review teaching materials and adapt courses and materials using open resources	Ability to review and suggest revisions to the national and institutional policy environment to encourage adoption of open strategies	Awareness of blended learning vs online learning vs traditional approaches to learning. Instructional design basic principles especially for online learner interactions	Design Learner-centred approaches to learning into courses that use technology and open resources.	Design, build and deploy online courseware, including MOOCs, that encourage both independent and collaborative learning	Awareness of appropriate strategies and technologies to support both formative and summative assessments	Ability to design technology-assisted assessments opportunities using open resources	Build technology assisted assessments using open resources and technology
<i>Alignment with skills identified in 'Guidelines for OER in HE' p17-20</i>					1a, b, c, & 2a	4a, b, c, d, e, f, h, i, j, k, l, m, n, o, p, q, r and s	3 & 4g	4f	4f & 6	4h, 5a, b, c, d	4j	4j	4j
<i>Alignment with knowledge identified in 'Making Sense of MOOCs'</i>					p15-20, p31-36		p21-30, p65, p69-80		p48-49	p51-55			
University of Rwanda													
Senior Management	VC		1				1						
	Deputies						5						
	Deans	1					15						
Faculty of Education	HODs												
	Senior Lecturers		1										
	Junior Lecturers												
	Technical Staff												
Teaching / Innovation Unit	HODs												
	Advisors												
Ministry of Education													
Senior Management	Minister of Education						1						
	Minister of State: Prim and Sec Educ						1						
	Minister of State: TVET						1						
	Permanent Secretary												
	Dir. Gen. Planning												
	Dir. Gen. Sci, Tech & Research												
	Staff												
Special Units	Directors												
	Staff												
Tech Support Personnel	Head												
	Staff												
Rwanda Education Board													
Senior Management	Director General												
	Director Curricula and Materials												
	Director Teacher Education												
	Director Quality and Standards												
	Director ODeL												
	Director Examinations												
	Director HE Student Loans												
Support Staff	Staff												
ICT Unit	Staff												
Total							24						