

Open Virtual Mobility

O6 - A1 OERs production and quality assurance

- Final draft -

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This paper is to discuss the choice and the creation of the OERs in the VM MOOCs. This document is produced as part of Outcome 6 “OER, MOOC and Pilots ” and aims at design VM OER and the VM MOOC with a series of different themes and activities for both for higher education students and teachers, by means of innovative design methods such as the “MOOC Design Canvas”, the “Crowd Creation” and “Open Learning through Design”.

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Executive summary

In the present paper, a case-study focusing on quality assurance in a Virtual Mobility (VM) international project is presented. VM stands for ICT supported activities, organized at higher institutional level, that makes possible or facilitate international, collaborative experiences in a context of teaching and/or learning. Different approaches were combined to ensure the quality of a specific MOOC and the OERs created to promote VM. Three main macro-indicators were identified for OERs evaluation: 1 Quality 2. Appropriateness and 3. Technical aspects. Each project partner was invited to search, select and peer-assess OERs related to the skills necessary to be engaged in VM. First results of the peer-review activity and future directions to ensure OpenVM OERs and MOOC quality are presented.

What are the objectives of this paper?

The objectives of this paper is to deliver a framework and guidelines for Open Resources design and creation to be used as a basis on which building the definition of a shared VM MOOC with a series of different themes and activities for HE teachers and students.

Who is this paper for?

- Technicians interested in using OERs in Open Virtual Mobility.
- Pedagogues and didacticians interested in choose and select OERs for their own Open Virtual Mobility experience.
- Researchers interested in discussion and presentation of currently existing challenges in the field of OERs in Open Education and Open Virtual Mobility.

What topics are addressed in this paper?

OERs, Open Education, Virtual Mobility, OER Repositories, OER quality.

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1. Aims and Scope

This draft aims to deliver a framework and guidelines for Open Resources design and creation to be used as a basis for building the definition of a shared VM MOOC with a series of different themes and activities for HE teachers and students. This paper also presents the first results of the peer-review activity and future directions to ensure OpenVM OERs and MOOC quality.

2. Background and rationale (State of the Art)

Open Education is understood as a mode of carrying out education using digital technologies to provide alternative and less restrictive access routes to formal and non-formal education (Brown, 2008). This perspective is broad enough to enable a comprehensive view, thus encompassing, for instance, Open Educational Resources (OERs), Massive Open Online Courses (MOOCs), and recognition of open learning (Stracke, & Tan, 2018). According to OECD definition (2007), Open Educational Resources (OER) are “digital learning resources offered online freely (without any cost) and openly (without licensing barriers) to teachers, educators, students, and independent learners in order to be used, shared, combined, adapted, and expanded in teaching, learning and research”. OERs are course components, but they can also be entire courses, museum collections, an open-access journal or a reference work. Over time, the term has come to cover also content management software and content development tools. Finally, OERs include implementation resources such as standards and licensing tools for publishing digital resources, which allow users to adapt resources under their cultural, curricular and pedagogical requirements. Having said that, the term ‘OER’ is not synonymous with online learning, eLearning or mobile learning. Many OERs are also printable. What makes an Educational Resource “Open” is its “free availability on the public internet, permitting any user to read, download, copy, distribute, print, search, or add links to the full texts of these articles, crawl them for indexing, pass them as data to software, or use them for any other lawful purpose, without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself...” (Chan et al., 2002). OERs are free and they can be adapted and remixed, thus they can enhance collaboration and networking, fostering sharing culture and respect for various cultures and believes (Tappeiner, DiSanto, & Lyons, 2019). According to Tuomi (2006), *openness* includes social and technical features: the social domain concerns the freedom to use, contribute and share the resources. The copyright, the price of access or accessibility can be constrained by the social domain. Regarding the copyright challenge, the Creative Commons licence is, at present, the best-known and most often used open licence and it offers several sharing options. Openness also means accessibility; however, it can depend on

individual capabilities; for example, course contents may be freely available in a language the user does not understand, or the user may have a disability that precludes him from using the content.

A systematic approach to OERs quality assessment is particularly important to make decisions about which existing resources to include in a learning path. The rapidly growing number of learning materials and repositories causes the issue of finding the most relevant and best quality resources. In addition, overlapping and competing standards, the size of the search pool and the quality of metadata are issues that different initiatives in the field of Open Education have tried to solve (Dietze et al., 2013; Lifer, 2018). Thus, there is an urgency for effective search, discovery, and quality assessment tools. Quality can be defined as “[...] appropriately meeting the stakeholders’ objectives and needs which is the result of a transparent, participatory negotiation process within an organization.” (Pawlowski, 2007). In the context of OERs, quality can, for example, mean that a teacher finds a suitable resource for his/her teaching. There are several alternative ways of approaching quality management in Open Education. Quality assurance can be a centralized or decentralized process, and the process may be open or closed (OECD, 2007; Jansen, Rosewell, & Kear, 2017). A common tool for the evaluation of the OERs is social ranking, which can be described as a form of crowd-sourced peer-review (Camilleri, Ehlers, & Pawlowski, 2014). The present paper will describe and critically discuss OERs and MOOC quality approach adopted in the Erasmus + project “OpenVM: Opening Education for Developing, Assessing and Recognising Virtual Mobility Skills in Higher Education”

3. Methodology

Different approaches were combined to ensure the quality of the OpenVM MOOC and OpenVM OERs. At a more general level, quality assurance of the OpenVM MOOC is addressed through an iterative cycle of design, creation, implementation, and assessment, following the Design Based Research model – DBR (Barab & Squire, 2004). Salinas (2012) remarks that the DBR model has had an important uptake in Technology Enhanced Learning research as it is aimed at creating knowledge about the design, implementation, and evaluation of the educational experience. It aspires to explore problems in real contexts requiring a solution in a particular context (de Benito & Salinas, 2016). Moreover, the DBR model has been argued to be very suitable for the study of innovation, hence the contrast between the theoretical background and the observation action in successive iterations is the strategy for knowledge creation (Brown, 1992; de Benito & Salinas, 2016; Shavelson, Phillips, Towne & Feuer, 2003). In the QA for the OpenVM Erasmus+ project, diverse tasks and instruments have been included following the DBR model. For each component (e-assessment, OERs, and MOOCs) the following phases (Piedra, Chicaiza, López, & Caro, 2015) are included:

1. Assessment by partner (internal);
2. Assessment by external experts;
3. Assessment by pilot users;

- 4. User testing assessment;
- 5. Learning analytics.

Within this paper, we will present the results of the first phase, the assessment carried out by partners regarding OERs, and the future perspectives for the other phases. During the process of assessing OpenVM OERs’s quality, elements of the traditional peer-review were combined with social rating (Camilleri, Ehlers, & Pawlowski, 2014). In the OpenVM project, project partners can assume the roles of reviewers and producers depending on the project phase, and this makes the quality review process more similar to a social rating practice. To assess OERs selected and produced by peers as in the traditional peer-review, partners were also provided with a rubric (Table 1)

Table 1 OER rubrics adapted from ACHIEVE, 2011

Quality	Appropriateness	Technical aspects
Creator knowledgeable (Who is the creator and what kind of expertise and experience do they have?)	Clearness of structure and content	Licensing status (What is its copyright and licensing status and how does that impact what you can do with it?)
Creator authenticity (Are you reasonably certain that it is actually the work of the person claiming to be the author?)	8 badges topics (Intercultural skills, Collaborative learning, Autonomy-driven learning, Networked learning, Media and digital learning, Active Self-regulated learning, Open mindedness, VM knowledge)	Human accessibility (Is it accessible to people with disabilities?)
Creator bias (What is the intended purpose? (Think educate/inform, sell something, entertain, change minds/behavior, even propaganda/hate speech)	Difficulty level (from Beginner: resource written with simple language, providing a general definition of the skill OR video that provides a general definition of the skill. Intermediate: resources written with a plain language that connect the skills to possible applications OR video that explain how that skills can be applied in certain situations. Advanced: resource written with complex or academic language that refers to real-undefined issues OR video that describe complexity and interconnection between the skill and other skills, ethical questions and so on.	Remix or Edit (If you want to remix it, is the source file available, and in a format that you can edit?)
Organization affiliation (What is the "hosting" organization and what kind of reputation do they have?)		Technical accessibility (Is it accessible to people using different devices (multi-channel)?)
Organization quality control (Does the hosting organization conduct any sort of quality control?)		Technical Quality (in terms of graphis, sound, text layout)
Peer reviewed (Has it been through peer review?)		Numbers of items in the e-assessment
Material(s) currency (How recent or up-to-date is its content?)		
Type of assessment (T/F; multiple choices; filling in the blanks; matching; open ended)		

Overall evaluation: (0 = not usable; 1 = limited; 2 = good; 3= superior).

Three macro-indicators have been identified for the OERs evaluation (Poce, Agrusti & Re 2015) to assess OERs to be included in the Open VM MOOC:

- 1 Quality;
2. Appropriateness;
3. Technical aspects.

Each macro-indicator was operationalized through sub-indicators (Table 1). By combining the answers on different sub-indicators, it is possible to provide a general overall evaluation of the OER (0 = not usable; 1 = limited; 2 = good; 3= superior). For example, a resource can be considered weak if it is not recent, not peer-reviewed and/or not accessible to people with disabilities. On the other hand, a resource is considered superior if it covers one of the MOOC's topics, if it is updated, and if its contents are organized clearly and are accessible for different kinds of targets. The table was mainly inspired by a separate rubric for the evaluation of OERs created by ACHIEVE.org, a non-profit education organization created in 1996 by a bipartisan group of governors and business leaders, fully recognized by international companies and institutions.

University Roma Tre is responsible for the Intellectual Output 6 of the OpenVM project, which includes organizing the process of OERs' design, assessment, and selection. Once the OERs assessment rubric presented in Table 1 was created, project partners were required to provide OERs in different formats (mainly texts and videos) and partners' languages, according to the quality guidelines of the OERs assessment rubric. OERs contents had to be connected to the eight necessary skills to be engaged effectively in virtual mobility. OERs in English were eligible to be adopted as contents for the Open Virtual Mobility MOOC. OERs in partners' language (German, French, Italian, Spanish, Romanian and Dutch) were instead eligible to be included in the Open Virtual Mobility OERs repository.

3.1 OERs for learning Open Virtual Mobility MOOC

Each skill was assigned according to every partners' specific background and expertise. In order to support OERs identification, Roma Tre team proposed different types of OERs repositories presented on the web: not only repositories created by formal educational institutions, such as universities, but also other informal and no formal institution's databases (e.g. TedX video repository) that were suggested to be used for this purpose.

The process was organized as follows:

1. Each partner had to identify at least 9 OERs in English (3 for the foundation level, 3 for the intermediate level, 3 for the advanced level) related to one of the eight skills of the OpenVM MOOC. Each partner was responsible for the identification of OERs within a certain area in order to cover all MOOCs' contents. Partners had to

-
- download the OERs from a spreadsheet created on Google Sheets which allowed them to comment, insert feedback, and propose alternative contents.
 2. OERs selected were peer-assessed by another partner of the project. Peer-assessors could add comments, feedback, and propose alternative OERs. Doing so, partners had the opportunity to discuss the suitability or the unsuitability of the OERs selected to be included in the OpenVM MOOC.
 3. In the last phase, during a face to face workshop organized in February 2019 in Heerlen, partners worked in small groups of two or three people. Each group was invited to organize the OERs selected and asses them into a template for a miniMOOC design provided by the Roma Tre team.

The process was designed to guarantee the participation of each partner in the selection and assessment of the OERs and, eventually, in the OpenVM MOOC design.

3.2 OERs for the Open Virtual Mobility OERs Repository

Besides carrying out OERs selected as learning materials for the Open Virtual Mobility MOOC, partners also participated in the creation, selection, and assessment of OERs to be included in the Open Virtual Mobility OERs Repository. These OERs are mainly written using the partners' language and in most of the cases, they were made and assessed by university students of partners' universities. Partners were required to constantly update a shared Google spreadsheet by inserting basic information, links and a synthetic evaluation of each OER. The selected OERs will be included in the Open Virtual Mobility Repository on the Learning Hub.

4. Results

Results related to the six skills area for the OERs to be included in the OpenVM MOOC are presented in Table 2. This process was useful to exclude resources with poor overall quality. Only resources that obtained a "good" or "superior" overall assessment were included into the miniMOOCs. In the case of positive assessment, partners also had the opportunity to include scoring descriptions and brief comments as shown in the following extract (E1):

E1 *"This resource represents a good way of starting a discussion about similar processes and implications in the educational situation!"* (Peer assessor of the Intercultural skills OERs)

Table 2 A description of the OERs selected and assessed

Skills to promote in the VM MOOC	Level	Number of OERs for each level	Date of the creation of the resources (in average)	Quality overall peer assessment
Autonomy driven learning	Foundation	4	2007 (from 2001 to 2018)	80% good; 20% superior.
	Intermediate	4		
	Advanced	3		
	Mainly for teachers	6		
Self-regulated learning	Foundation	3	2014 (from 2010 to 2017)	80% good; 20% superior.
	Intermediate	3		
	Advanced	3		
Collaborative learning	Foundation	3	2013 (from 2010 to 2017)	20% not usable; 20% limited; 20% good; 20% superior;
	Intermediate	3		
	Advanced	3		
Networked learning	Foundation	3	2013 (from 2008 to 2017)	40% limited; 40% good; 20 % superior;
	Intermediate	3		
	Advanced	3		
Open-mindedness	Foundation	2	2011 (from 2004 to 2018)	20% limited; 30% good; 50% superior
	Intermediate	3		
	Advanced	5		
Intercultural skills	Foundation	5	2014 (from 2008 to 2018)	20% limited; 30% good; 50% superior
	Intermediate	5		
	Advanced	5		

On the other hand, when resources received a negative evaluation, Google spreadsheet allowed partners to engage in further discussion and find a mutual final decision (Figure 3).

Figure 3 Screenshot – Google Spreadsheet used to discuss OERs assessment

Domain: AUTONOMY		OpenVM OERs Evaluation Rubric			If possible, please use
Autonomy-driven learning	Being able to learn in an autonomy-driven way implies that the student self directs, and regulates own learning process, independently chooses in what mode or context to study, what tools to (learn to) use and how to organize the learning process.	Demonstrating self-directedness in decision-making on own learning	Demonstrating independent learning		
Content link	Name of the resource	Creator Knowledgeable (who is the creator and what kind of expertise and experience do they have?)	Creator authenticity	Creator bias (What is the intended purpose? Think educate self)	Org aff kin rep the
BASIC LEVEL	https://www.ucas.com/file/62646/download?token=6B3kQ_5Q http://studentsuccess.ie/toolbox/tool1/#/ https://ennymackness.wordpress.com/2011/01/24/ckk11-characteristics-of-an-autonomous-learner/ https://oeru.org/oeru-partners/the-open-university/httpwww.open-eduopenleameducationsucceed-learning-content-section-overview/	Different elements can be obtained from Github: https://github.com/studentsuccess/toolbox/StudentSuccessToolbox -Deborah Arnold Dear Deborah, following this link I have found a quiz. I don't know if it is a good idea to insert additional quizzes. Could you find other kind of resources regarding time-management? -Francesca Amenduni Ok will keep looking. Though I thought the self-reflection aspect was an interesting approach as it's important for autonomy. -Deborah Arnold			
INTERMEDIATE LEVEL	http://www.open.edu/openlearncreate/course/view.php?id=1490%253f http://www.adprima.com/dears.htm http://www.howtostudy.org/resources.php https://www.youtube.com/watch?v=W0I958z9Jl0&t=0s&list=PLdDAQ_A16uY1yGEaFVcOEU3E96XKCJSPq&index=26	Levels of Self directed Learning			
ADVANCED LEVEL	https://www.youtube.com/watch?v=uRHRWXXU6bY https://www.youtube.com/watch?v=5ad6grrl-ak https://www.youtube.com/watch?v=i_SMIokWfzU	UQx LEARNx Self regulation and self-regulated learning How to Study Effectively: 8 Advanced Tips - College Info Geek Heutagogy: Preparing Learning for Learn after Higher Education_Lisa Blaschke UOC	Prof Annemaree Carol, University of Queensland Lisa-Marie Blaschke		
UNSORTED (mainly for teachers)	https://www.slideshare.net/markskj1/successful-learner-autonomy-and-learner-independence-in-selfdirected-learning				

Partners had approximately three months to complete this work, from November 2018 to April 2019. After partners reached a final agreement related to the course contents, learning objectives and assessment methods, OERs, e-assessment, and instructions were uploaded on the learning hub. All the selected OERs were organized into the MOOCs learning paths and they are currently available in the OpenVM learning HUB <https://hub.openvirtualmobility.eu>

Moreover, partners also created, selected and assessed OERs to be included in the Open Virtual Mobility OERs Repository.

AUNEGE-UNIT	36 OERs (60% French 39% English 1% Other)
UNIROMATRE	161 OERs (50% Ita; 50% English)
LEUVEN	23 OERs (30% Dutch; 70% English)
OUNL	6 OERs (30% Dutch; 70% English)
BEUTH UNIVERSITY	199 OERs (100% in German)
UIB	9 OERs (10% Spanish, 90% English)

Ultimately, we managed to create, assess and/or select a total of 434 OERs for the OERs repository and 72 OERs for the MOOC, with a total of 506 OERs.

5. Conclusion

In the context of Open Education and Virtual Mobility, it is important to give quality assessment its due consideration. The present work describes the Quality Assurance framework for OERs within a specific MOOC created in the Erasmus + Open Virtual Mobility Project. The University of Roma Tre research group first developed a rubric for the OERs quality assessment and then invited each project partner to search and assess OERs related to the eight skills identified by (Firssova & Rajagopal, 2018) that must be engaged in Virtual Mobility. Partners had to download the OERs from a spreadsheet created on Google Sheets. The OERs selected were peer-assessed by other partners in a joint project meeting. In doing so, all the partners contributed to building the OpenVM MOOC (Camilleri, Ehlers, & Pawlowski, 2014), combining elements of the traditional peer-review with social rating activities.

That being said, further work is needed to ensure OERs and MOOCs quality. As quality is not a generic concept, user's behaviour and comments can indicate the quality of MOOCs and OERs in relation to the learner context. We will carry out a pilot phase from 2019 to 2020 and we will collect different kinds of data regarding user interaction with the miniMOOCs, part of the MOOC under investigation, and the OERs used per each miniMOOC. As a strategic management decision, the OpenVM project will have to consider the role of learning analytics to gather and assess data from the MOOC and all single elements. In addition, different forms of data collection will be combined: user comments, recommendation and ratings. The insights will be used to improve OERs and the OpenVM MOOC quality and design, following an iterative process, as indicated by the Design Based Research approach.

Initial results regarding users' OERs assessment were collected (Poce et al., 2019). In future phases, OVM MOOC users will be asked to provide their evaluation of the selected OERs.

Next steps are:

- Assessing the quality of the OERs through feedback received by pilot users during the pilot phase 2019-2020;
- Assessing the quality of the OERs through learning analytics (time spent on each OERs, number of interactions);
- Uploading the OERs selected in the Open Virtual Mobility OERs Repository.

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