Assessing a MOOC users experience in a virtual mobility project: preliminary results for quality enhancement

La valutazione dell'esperienza degli utenti di un MOOC in un progetto di mobilità virtuale: risultati preliminari per la promozione della qualità

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ABSTRACT Virtual Mobility (VM) stands for institutional ICT-supported activities that trigger or facilitate international collaborative experiences in the context of teaching and learning. Some research experiences report the need to enhance Virtual Mobility based on open education principles. Open education is understood as a mode of undertaking education using digital technologies, included OERs and MOOCs. The goal of the present paper is twofold: first, we describe the quality framework for OERs and MOOCs adopted in the Erasmus+ project Open Virtual Mobility for OER and MOOC; secondly, we present an application of the quality approach in a case study in which experience data from 11 MOOC learners were collected and analyzed to improve its quality.

KEYWORDS Virtual Mobility; Pilot Phase; Quality; MOOC; OERs.

SOMMARIO La mobilità virtuale (VM) è definita come l'insieme di attività supportate da ITC, organizzate a livello istituzionale, che realizzano o facilitano esperienze collaborative internazionali, in un contesto di insegnamento e apprendimento. Alcune esperienze di ricerca segnalano la necessità di sostenere la mobilità virtuale seguendo i principi dell'Educazione Aperta. L'Educazione Aperta è un approccio educativo che valorizza l'uso di tecnologie digitali, quali OER e MOOC. L'obiettivo del presente lavoro è duplice: in primo luogo, descrivere l'approccio teorico alla qualità adottato all'interno del progetto Erasmus+ Open Virtual Mobility per OER e MOOC; in secondo luogo, presentare un'applicazione dell'approccio alla qualità attraverso uno studio di caso nel quale sono stati raccolti e analizzati i dati sull'esperienza di 11 utenti di un MOOC al fine di implementarne la qualità.

1. INTRODUCTION

Virtual Mobility (VM) refers to institutional ICT-supported activities that trigger or facilitate international collaborative experiences in the context of teaching and/or learning. The European Commission defines VM as: *"a set of activities supported by Information and Communication Technologies, including e-learning, that realise or facilitate international, collaborative experiences in a context of teaching, training or learning"* (European Commission, 2019, p. 327). VM can be used to complement physical mobility, such as in Erasmus+ mobility programs, or even replace physical mobility. VM has great potential for contributing to the internationalisation and opening up of higher education by creating international, collaborative experiences for educators and students, as well as equal possibilities of participation in exchange programs for those who are unable to travel for social, financial or other reasons (Villar-Onrubia & Rajpal, 2016). Having said that, VM has also some limitations. Since virtual mobility is "organized at institutional level", it is based on formal cooperation agreements between universities and requires virtual mobility programs to be fully embedded in core processes of the cooperating institutions (Op de Beeck & Van Petegem, 2013). As a consequence, many initiatives with strong potential to promote pivotal 21st century skills are not sufficiently being exploited because they are not based on formal agreements among universities. Such activities include non-formal collaborations between individual teachers and student groups in specific courses (e.g., virtual learning communities), creation and use of Open Educational Resources (OERs), as well as production and participation in non-formal online courses including Massive Open Online Courses (MOOCs). Accordingly, recent research experience has reported the need to adopt a non-formal approach to virtual mobility based on the principles of Open Education (Tovar & Lesko, 2014; Wilson et al., 2011): freedom to re-use, open access, free cost, ease of use, digital networking, social community-based approaches, ethical arguments for openness and openness as an efficient model (Weller, 2017). Open education is understood as a mode of undertaking education using digital technologies and providing alternative, less restrictive access routes to formal and non-formal education. This broad perspective enables a comprehensive view, thus encompassing, for instance, OERs, MOOCs, and recognition of open learning.

Open education principles applied to higher education in Europe include: (a) reducing or removing access barriers such as financial, geographical, time and entry requirements; (b) modernisation by means of digital technologies; and (c) bridging non-formal and formal education by making it easier to recognise learning achievements (Inamorato dos Santos, Punie, & Castaño-Muñoz, 2016). Both VM and open education aim to enhance participation in international knowledge flows, use of digital media, improvement in teaching and learning, attraction and retention of talent through internationalisation, innovation and capacity building (Buchem et al., 2018).

In the context of open education, it is necessary to reflect and develop quality-specific assessment tools because traditional quality measures do not always match the specific features of an online or blended environment (Parker, 2008). There is widespread scepticism about the quality levels of MOOCs and the learning methodologies used, and evidence supports this sceptical view (Lowenthal & Hodges, 2015; Margaryan, Bianco, & Littlejohn, 2015). Thus, the Quality Assurance Framework (QAF) is one of the pivotal aspects for the success of Open Virtual Mobility (Atenas, Havemann, & Priego, 2014). However, apart from a few initiatives and labels developed by e-learning networks, it seems higher education institutions have not devoted much attention to quality assurance of e-learning (Gaebel, Kupriyanova, Morais, & Colucci, 2014). A systematic approach to OER quality assessment is particularly important to make decisions about

which existing resources to include in a learning path. Rapid growth in learning materials and repositories poses the issue of how to find 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; St. Lifer, 2018). Thus, there is 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 learning contexts, quality can, for example, be related to high ratings from students whose teachers have used suitable resources and methods for their teaching. In a wide-ranging literature review promoted by the European Commission, Camilleri, Ehlers and Pawlowski (2014) discuss different levels and aspects of quality which are relevant to managing quality in open educational contexts, based on analysis of 21 international open education initiatives. As shown in Figure 1, relevant levels of quality start from the macro-level (quality of organizations) through to the micro-level (transferability and adaptability).
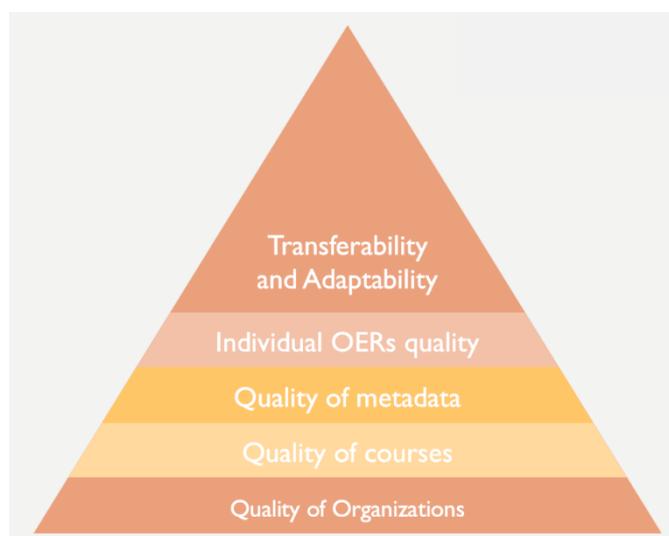

Figure 1. Levels of quality in open education (adapted from Camilleri, Ehlers, & Pawlowski, 2014).

Although all five levels are interrelated and interdependent, in the present paper we focus on two: quality of courses (in our case MOOCs); and individual OERs, used, adapted and/or developed to support Virtual Mobility at European level. Whilst the other three levels are more closely related to technical and management aspects, MOOCs and OERs are at the core of users' learning enhancement and knowledge organization in open educational paths. Thus, in the first part of the paper we describe the quality framework for OERs and MOOC adopted in the Erasmus+ project *OpenVM: Opening Education for Developing, Assessing and Recognising Virtual Mobility Skills in Higher Education*. Then, in the second part, we present a case study in which we designed a preliminary experimentation to collect data to be used for improving the quality of a miniMOOC, according to the project quality framework.

Before describing the quality approach adopted in the above-mentioned project in terms of courses and educational resources, we first need to define what we mean exactly by courses (MOOCs) and OERs in the context of this research project. OERs are *digitised materials* offered freely and openly for educators, students and self-learners to use and reuse for teaching, learning and research (OECD, 2007). OERs not only comprise individual course components, but also a whole course, a museum collection, an open access

journal or a reference work. Over time, the term has also come to cover content management software, content development tools, and implementation resources such as standards and licensing tools for publishing digital resources. Although often associated with OERs, MOOCs differ from them in that they do not necessarily use open licences. MOOCs bring together people interested in learning and an expert or experts who seek to facilitate that learning. MOOCs have been classified in terms of a set of twelve dimensions (Conole, 2013): the degree of openness; the scale of participation (massification); the amount of use of multimedia; the amount of communication; the extent to which collaboration is included; the type of learner pathway (from learner centred to teacher centred and highly structured); the level of quality assurance; the extent to which reflection is encouraged; the level of assessment; how informal or formal it is; autonomy; and diversity. According to the Open Education Consortium[1], the word "Open" in MOOC does not necessarily mean open licence– because it mainly refers on open enrolment. Whilst a significant proportion of OERs are usually produced in order to be a specific part of a larger educational experience within a specific educational framework (Liyanagunawardena, Adams, & Williams, 2013), MOOCs are self-consistent online courses. Having said that, in an open education perspective MOOCs can be based on OERs, such as teaching, learning and research materials released under an open licence. In the present research, we refer to MOOCs as self-consistent online courses aimed at large scale participation (Daniel, 2012) and to OERs as the study material included in the MOOC learning path that learners can read, listen, download and re-use.

2. THE QUALITY ASSURANCE FRAMEWORK FOR MOOCS AND OERS IN THE OPENVM ERASMUS+ PROJECT

The first goal of the present paper is presenting the quality assurance framework for MOOCs and OERs developed in the Erasmus+ project *OpenVM: Opening Education for Developing, Assessing and Recognising Virtual Mobility Skills in Higher Education*[2]. The project is based on the idea that VM could be enhanced by adopting the principles of open education in the Open Virtual Mobility MOOC, a massive open online course aimed at developing Virtual Mobility Skills in higher education students (Buchem et al., 2018; Buchem, Tur, & Urbina, 2018). In accordance with recognised principles for the quality assessment of e-learning environments, those environments should be learner-centred, local, tailored, open, collaborative, respectful, qualitative, flexible, feature learning-as-constant and time-as-variable, emphasise teacher skills, trigger aggregated experience, be international/global, dynamic, have a distributed delivery model, target outcomes, and focus on services (Pond, 2002). Many approaches to quality assessment of MOOCs and OERs have been developed so far in the field of higher education (Gaebel et al., 2014; OECD, 2010). The quality approach process can be designed centrally (e.g. internal quality procedures) or in a decentralized manner (e.g. user comments and user ratings), and the process may be open or closed (OECD, 2007).

MOOC quality can be monitored by collecting data from different stakeholders: users, partners, and external experts in the field of e-learning (Atenas, Havemann, & Priego, 2014). Data collected should be used for quality MOOC implementation, according to the Design Research (DR) model – (Easterday, Rees Lewis, & Gerber, 2018; Reeves, 2006), which is an approach that allows the enhancement of educational practices based on data collected during learning experiences (Brown, 1992; Collins, 1992). DR was developed to reduce the gap between research and theory on the one hand and educational practices on the other. DR is

supposed to support the achievement of two goals: advancing theory while at the same time contributing to fundamental innovation in and improvement of educational practices in higher education. According to Easterday and colleagues (2018), the six phases of the DR should be Focus, Understand, Define, Conceive, Build and Test. DR can be connected with ADDIE (Analysis, Design, Development, Implementation, Evaluation), a model commonly adopted to improve the process of instructional design (McKenney & Visscher-Voerman, 2013). Therefore, we combine application of the ADDIE model as micro-iterations of one course iteration and DR as a broader methodological framework to improve both theory and practice. McKenney and Reeves (2013) propose a synthesis of the existing approaches to Design-Based Research, suggesting the following scheme (Figure 2):
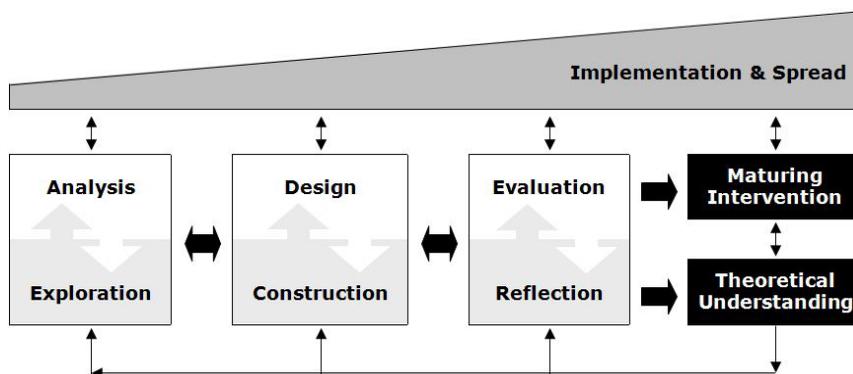

Figure 2. Generic model for design-based research in education (McKenney & Reeves, 2013).

In order to assure specific aspects of *OER quality*, different tools can be used such as ratings, recommender systems, peer reviews and social-ranking, the last of which can be described as a form of crowd-sourced peer-review (Camilleri, Ehlers, & Pawlowski, 2014). According to Atenas, Havemann and Priego (2014), quality assurance frameworks should take into consideration the points of view of teachers, e-learning specialists and users, by considering the issues of user interface and user experience. Starting from these premises, we decided to combine different approaches to quality assurance in the OpenVM Erasmus+ project for OERs and MOOCs. *OER quality* has been guaranteed by following an *internal quality procedure*. Firstly, a rubric (Table 1) was developed based on three main indicators: Quality, Appropriateness and Technical aspects.

QUALITY	APPROPRIATENESS	TECHNICAL ASPECTS
Creator knowledgeable (Who is the creator and what kind of expertise and experience do they have?) **Creator authenticity** (Are you reasonably certain that it is actually the work of the person claiming to be the author?) **Creator bias** (What is the intended purpose? (Educating/informing, commercial, entertainment, manipulating) **Organization affiliation** (What kind of reputation do they have?) **Organization quality control** (Does the organization conduct any sort of quality control?) **Peer reviewed** (Is the resource peer reviewed?) **Material(s) currency** (How recent or up-to-date is its content?) **Type of assessment** if any (T/F; multiple choice; matching; open ended)	**Clearness of structure and content coherence with the project topics**: (Do the resources regard the eight skills required in Virtual Mobility?) **Difficulty level** (*Beginner*: resource written with sample language, providing a general definition of the skill OR video that provides a general definition of the skill. *Intermediate:* resource written in plain language that connects the skills to possible applications OR video that explains how those skills can be applied in certain situations. *Advanced:* resource written in complex or academic language that refers to real-undefined issues OR video that describes complexity and interconnection between the skill and other skills, ethical questions and so on.	**Licensing status** (What is its copyright and licensing status and how does that impact what you can do with it?) **Human accessibility** (Is it accessible to all, including people with disabilities?) **Remix or Edit** (If you want to remix it, is the source file available, and in a format that you can edit?) **Technical accessibility** (Is it accessible to people using different devices (multi-channel)?) **Technical Quality** (in terms of graphics, sound, text layout)

Table 1. Rubric for OER quality assessment.

As shown above, each main indicator comprises different sub-indicators. Our evaluation rubric was mainly inspired by a separate rubric for the evaluation of OERs created by ACHIEVE.org (Poce, Agrusti, & Re, 2015). After creating the OER assessment rubric, project partners were required to provide OERs in different formats and languages. The OERs had to concern the eight skills required in virtual mobility (Firssova & Rajagopal, 2018). The process of OER selection and peer assessment is crucial because the best OERs constitute the contents of the OpenVM MOOC. The researcher group organized the work as follows:

- *Preselection of contributors*: each partner had to find at least nine OERs related to one of the skills eight skills required in virtual mobility (Firssova & Rajagopal, 2018). Each topic was assigned to the partners according to their field of expertise. Then partners had to download the

OERs listed on a spreadsheet created with Google Sheets;
- *Accessibility of peer contributions*: the selected OERs were peer assessed by a partner from a different institution involved in the project. Peer assessors could add comments and feedback, and propose alternative open educational contents. This way, partners had the opportunity to compare their opinions about the OERs that were to be included in the OpenVM MOOC.

To sum up, MOOC and OER quality were guaranteed by adopting different kinds of approaches (Table 2).

MOOC QUALITY	Design Based Approach (Easterday, Rees Lewis, & Gerber, 2018; Reeves, 2006;)); ADDIE (McKenney & Visscher-Voerman, 2013).
OERS QUALITY	Crowd-sourced peer review (Camilleri, Ehlers, & Pawlowski, 2014);

Table 2. Approaches combined to guarantee MOOC and OER quality.

3. AN APPLICATION OF THE QUALITY FRAMEWORK: THE CASE STUDY OF THE MEDIA AND DIGITAL LITERACY *MINI*MOOC

The second goal of the present paper is to present an application of the quality approach described in the previous section. A case study was carried out in which opinions of 11 *mini*MOOC learners were collected and analysed in view of improving the quality of the learning experience. More specifically, the main research questions that guided the preliminary experimentation were:

1) What kind of evaluation can be drawn from participants' general appreciation of the *miniMOOC under investigation?*
2) *What are participants' recommendations for improvement of the miniMOOC?*

4. THE STUDY SETTING

The *Media and Digital Literacy mini*MOOC[3] is one of the eight *mini*MOOCs comprising the OpenVM MOOC. Each of the eight MOOCs is aimed at developing one of the skills necessary for successful engagement in virtual mobility (Firssova & Rajagopal, 2018). These are: intercultural skills; collaborative learning; autonomy-driven learning; networked learning; media and digital learning; active self-regulated learning; open-mindedness; virtual mobility knowledge.

The *Media and Digital Literacy mini*MOOC was the first to be launched and tested because it was considered functional to navigation of the OpenVM MOOC. It was organized following a structure designed to be adopted in all the miniMOOCs of the OpenVM MOOC. Before describing the specific features of the *Media and Digital Literacy mini*MOOC, an overview of the MOOC structure is given. As stated earlier, the OpenVM MOOC comprises different miniMOOCs and each miniMOOC has three levels: foundation, intermediate, and advanced. Each level was considered a subMOOC with the following characteristics: it provides an entrance test to assess participants' initial level; it contains one or two videos (from a minimum of 5 mins. to a maximum of 9 mins. length) and one or two presentations and/or textual documents; it contains at least one formative assessment quiz containing closed items (MCQ, FIB, T/F, Matching) with feedback included; once the participant has completed it, an Open Badge is issued.

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[3] https://hub.openvirtualmobility.eu/course/view.php?id=15

The pedagogical approaches that guide the OpenVM MOOC design are collaborative and social learning (Andriessen, Baker, & Suthers, 2013), reflective practices (Schön, 2017) and self-regulated learning (Zimmerman, 1990).

Before starting the course, participants are required to take a pre-assessment. According to the score obtained, participants may be directed to the foundation, intermediate or advanced level. For each level, they need to read texts, e-books or PDFs, watch videos and participate in forum discussions monitored by e-tutors. Once all the tasks have been completed, they take final tests, write a post in their e-portfolios, and make and receive peer assessments, thereby obtaining a badge (Figure 3).
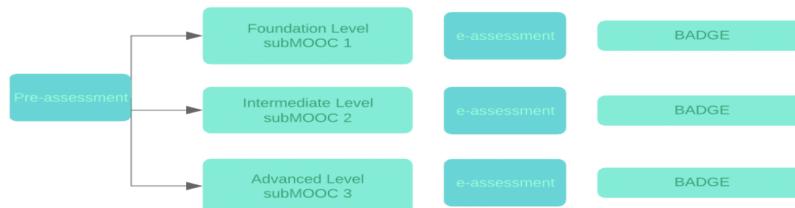
Figure 3. The general miniMOOC structure.

Each *mini*MOOC presents a brief narrative based on differentiated persona stories matching the user profile: teacher or student. Joining the module triggers one of the persona narratives (a problem-based scenario) and pre-assessment (Figure 4).
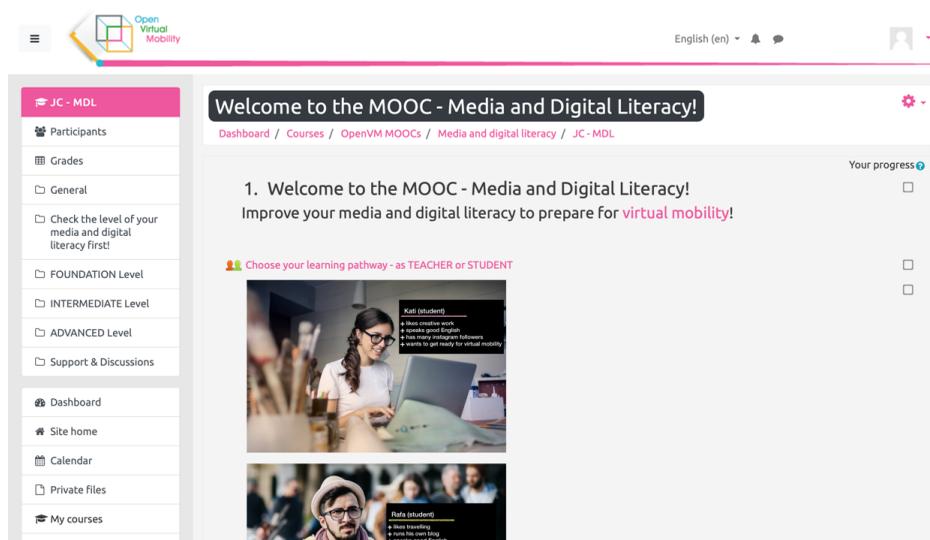
Figure 4. Media and Digital Literacy home page.

The *Media and Digital Literacy mini*MOOC is aimed at developing Media and Digital Literacy skills. *Media and Digital Literacy* was defined as the ability set for using learning resources effectively and for assessing the quality of resources; moreover, it should allow for learner control (Firssova & Rajagopal, 2018). In accordance with the definition, the selected topics of the course are open education, open resources and licences, web dimensions that could affect learning processes, and media languages (multimediality, hyper-

textuality). The contents of the *mini*MOOC were selected by one of the project partners and peer-assessed by another partner. In the following table, an overview of the kinds of content selected for each level is presented. (Table 3).

LEVEL	KIND OF OER AND CONTENTS
Foundation	1 e-book + 1 PDF + 1 video + 1 discussion forum + summative assessment
Intermediate	2 videos + 1 PDF + 1 discussion forum + peer assessment
Advanced	1 video + 2 scientific papers + 1 discussion forum + peer assessment

Table 3. Kinds of contents in the Media and Digital Literacy miniMOOC.

When partners reached agreement regarding the OERs to include in the *mini*MOOC, they also defined the specific learning objectives and outcomes (Table 4). At the end, partners were invited to organize the selected OERs following a *mini*MOOC template, which contains the general features of the overall OpenVM MOOC structure. Before launching the *Media and Digital Literacy mini*MOOC, designers from partner organisations were involved in weekly meetings for two months. When the *mini*MOOC structure was defined, a pilot run involving 30 university students from the leading partner organisation, Beuth University, was launched. This pilot phase lasted approximately two weeks: ten days to complete all the tasks and four days to carry out peer assessment.

LEARNING OBJECTIVES	LEARNING OUTCOME ASSESSMENT
FOUNDATION LEVEL: 1. Define and describe the basic principles of fact-checking while working with web-based sources; 2. Define and describe the basics of copyright and Creative Commons; 3. Define and describe the Council of Europe's Common European Framework approach to recognizing the role of culture in language learning.	Knowledge is demonstrated by passing online tests.
INTERMEDIATE LEVEL 1. Develop knowledge and awareness about filter bubble and how to avoid its traps; 2. Develop knowledge and awareness about skills and competences students and teachers need in the XXI century; 3. Develop knowledge and awareness about the power of advertising on YouTube and its effect on users' brains; 4. Raise awareness of the term "network" as applied to the digital age and to learning. Understand the relevance of this theory to your own online learning experience and MOOCs.	Knowledge is demonstrated by passing tests and demonstrating awareness by writing a blog, an e-portfolio entry and self-reflection post.
ADVANCED LEVEL 1. Knowledge and deep insight into supertraces and digital footprints; 2. Knowledge and deep insight about narratives as they have evolved from print to digital media; 3. Understand what OERs are, how to collect and use them, and have deep insight into the merits and challenges of using OERs.	Knowledge is demonstrated by passing tests and demonstrating deep insight through a blog, an e-portfolio and self-reflection post.

Table 4. Learning objectives and learning outcomes in the Media and Digital Literacy miniMOOC.

5. DATA COLLECTION AND ANALYSIS

At the end of the MOOC, students were invited to fill in an online questionnaire[4] covering three areas:

1) participants' general evaluation;
2) participants' specific evaluation (structure, learning materials, e-assessment); and
3) participants' recommendations for improvement.

All in all, the questionnaire included 14 open questions. Eleven participants from the University of Beuth participated in the survey by answering the questionnaire. No specific details were collected from participants because the researchers' intent was to understand the process carried out notwithstanding background variables.

We performed two levels of analysis: a quantitative sentiment analysis and a qualitative content analysis. A total of 194 sentences and 259 segments were analysed through sentiment analysis using the Meaning-Cloud[5] software package. The software allowed us to calculate the percentage of positive and negative emotions expressed in the answers, and the nouns most commonly associated with positive and negative words. Then the 141 answers were read and analysed qualitatively in order to understand better what students appreciated most and what they didn't appreciate.

6. RESULTS

Figure 5 below shows that in most of the comments, participants express positive sentiments related to the *Media and Digital Literacy mini*MOOC. Positive comments (Figure 6) are related to the nouns "learning, topics, content, design, visual, videos, community" and the adjectives "simple, clearer".
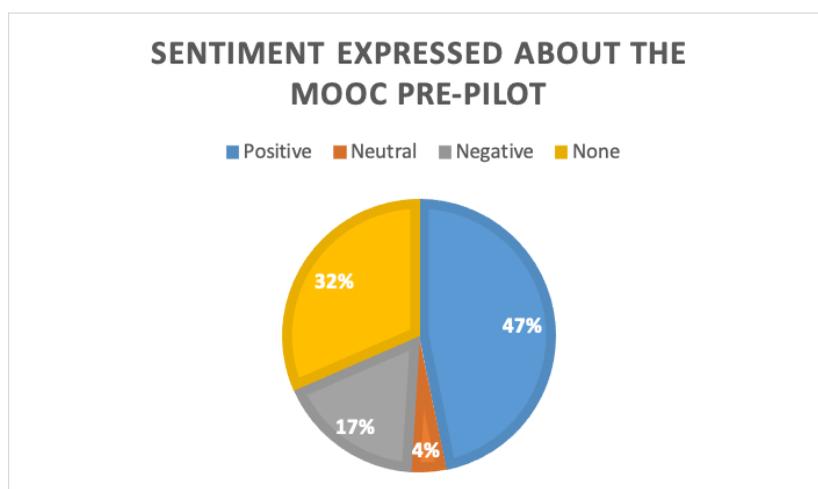
Figure 5. Sentiment expressed in open answers regarding the Media and Digital Literacy miniMOOC pre-pilot.

On the other hand, negative comments are related to the nouns "the structure, e-test, e-portfolios, problems, task" and the adjectives "confusing, much, unattractive".

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[4] The questionnaire was drafted and administered by Beuth University, the project's coordinating organisation, https://goo.gl/forms/tAcITPIpKn57vSJr2

[5] https://www.meaningcloud.com
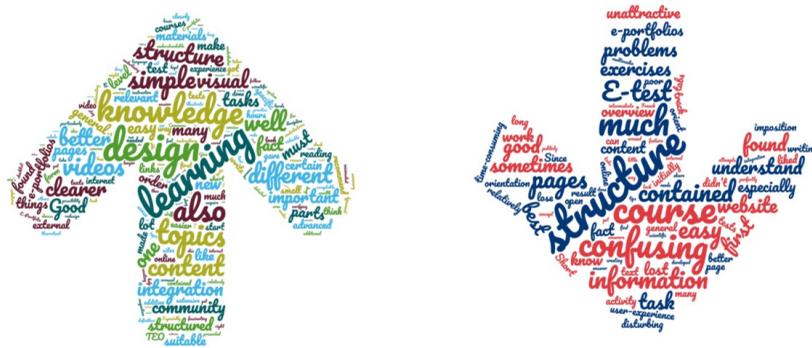
Figure 6. On the left, words related to positive sentiments and on the right, words related to negative sentiments.

Deep analysis of students' answers revealed that they enjoyed the selected contents, especially in the form of videos (see Extract 1 below). The foundation level course (related to Creative Commons) was the most highly endorsed.

E1 "*The course was a useful introduction to Media Literacy. It contained useful information about important topics on the internet like verifying the source on the internet. That might be helpful for students. The videos on TEDx are fascinating. The instructions were easy to follow. All in all, I liked the course because it is a new way of learning and tackles a new topic*".

Although participants appreciated the opportunity to demonstrate their skills through e-assessment and e-portfolios, they also suggest improving the e-portfolio functionality, as reported in Extract 2 below. Participants call for clearer instructions regarding how to fill in the e-portfolios. Thus, for instance, a template could be provided.

E2 "*The e-Assessment was very useful for reflecting on the stuff I have learned. The small tasks were good. At first, creating my e-Portfolio was difficult for me, because I didn't have an example of how to start or write something. Also I didn't want to post my tweets publicly, e.g. my skills. The students might think my skills are low. The e-test is on a good level*".

Participants have opposing views about publicly sharing their reflections in the discussion forums or e-portfolios (Table 5). Whilst someone appreciated the opportunity to share their ideas with the communities (E3), others did not (E2; E4).

Positive attitudes towards publicly sharing reflections	Negative attitudes towards publicly sharing reflections
E3 "*I found it very good that one could write a community contribution to a certain question or problem definition within the courses. It also gave me the opportunity to exchange knowledge and give feedback.*"	E2 "*I also didn't want to post my tweets publicly, e.g. my skills. The students might think my skills are low.*" E4 "*I didn't like the fact that we had to answer questions or share tips publicly.*"

Table 5. Participants' positive and negative attitudes towards publicly sharing reflections.

Some participants found the texts in the advanced level too long and complex and the instructions related to the exercises not always clear. They did not like being re-directed to external links, both for their e-portfolio and for contents because they lost track. Participants took about four hours to complete the module,

as expected in the design phase. Specifically, on average they spent 60 minutes at the foundation level, 90 minutes at the intermediate level and 90 minutes at the advanced level.

7. DISCUSSION AND FINAL REMARKS

Virtual Mobility is an important trend in higher education institutions. According to some experts (Tovar, & Lesko, 2014; Wilson et al., 2011), Virtual Mobility needs to be based on open access principles. This is the vision shared by the OpenVirtual Mobility Erasmus+ Project. In the present paper, we described the quality approach adopted in the project. OpenVirtual Mobility focuses on two important aspects related to open education: OERs and MOOCs. OERs to be included in the open VM MOOC were found, assessed and integrated into the MOOC structure following an internal peer-review process. The MOOC quality has been guaranteed by combining insights from users, external experts and MOOC instructional designers. In this study we presented an empirical application of our quality framework. An initial *mini*MOOC named *Media and Digital Literacy* was designed, and data about users' experience were collected after course completion. Although the general assessment of the course was positive, there is still room for improvement. The 11 participants who answered to the questionnaire enjoyed the selected contents, especially in form of videos. They appreciated the opportunity to test their skills through e-assessment, but call for templates to be provided for compiling e-portfolios. In general, it is important to make the MOOC structure clear and explicit, in order to support participants' self-regulated learning. The results gained from the participants' suggestions were adopted so as to improve the quality of the OpenVM MOOC. According to the framework adopted in OpenVM Erasmus+ project, Virtual Mobility implementation needs to follow an iterative process of ideation, design, assessment and re-design to be effective. We used the results to formulate future enhancements for our MOOCs.

- a diagram showing the route that the individual learner has taken through the MOOC, highlighting where they are located at any moment. This could be helpful in terms of Self-Regulated Learning strategies. Since some participants stated that they lost track, especially at the advanced level, diagrams could support students' orientation in the MOOC;
- an initial diagram or information about the number of OERs in each subMOOC to help students manage their time and plan their learning strategies. Because some participants found the texts in the advanced level too long and complex, we think that providing them with specific information regarding the time required to complete an activity could help them in managing their time and effort;
- creating tutorials regarding the e-portfolio and peer-assessment activity, how to get badges and a general description of the MOOC structure.

The results presented here need to be integrated with the perspective of other relevant stakeholders, such as internal and external e-learning experts. However, the users' experience is at the core of any quality assurance process. Future research will investigate whether the users report improved experiences with the OpenVM MOOC after the *mini*MOOC re-design process has been carried out.

8. ACKNOWLEDGMENTS

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