

3 Virtual Mobilities in Open Education

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3.1 Abstract

The paper presents the design of a Virtual Mobility Learning Hub for Higher Education in Europe, that is part of the Open Virtual Mobility project (OpenVM), which is an Erasmus+ strategic partnership (2017-2020) addressing the need of creating accessible opportunities for achievement of Virtual Mobility (VM) skills to enhance the uptake of Virtual Mobility in higher education in Europe, by supporting institutions, educators and students in acquiring, assessing and recognising VM skills, i. e. key competencies needed to successfully design, implement and participate in VM actions. To achieve this, openVM applies the principles of Open Education (OE) to promote achievement, assessment and recognition of VM skills. Both VM and OE aim to enhance participation in international knowledge flows, use of digital media, improve teaching and learning by setting international benchmarks, attract and keep talents for the economy and research systems, innovate and build capacity.

One of the key outcomes of the OpenVM project is the Virtual Mobility Learning Hub for achievement, assessment and recognition of VM skills as a central reference point for higher education in Europe. The aim of the paper is to investigate how open credentials can be used in virtual mobilities in higher education context. The design of the Virtual Mobility Learning Hub and its components is including OERs, MOOCs, Assessment and Open Badges. The user-centric design is following the principles of OE as laid out in the OpenEdu Framework by the Joint Research Centre of the European Commission.

Keywords: Virtual Mobilities, Open Mobility, digital competences, OpenVM project

3.2 Introduction

Mobility of students and staff has been one of the central objectives and main policy areas of the European Higher Education Area (EHEA). For example, the Communiqué of European Ministers for Higher Education in Europe from 2009 states that: "In 2020, at least 20% of those graduating in the European Higher Education Area should have had a study or training period abroad" [1]. Mobility has been considered an important part of higher education as it supports personal development and employability, fosters respect for diversity, encourages linguistic pluralism underpinning the multilingual tradition of Europe and increases cooperation and competition between higher education institutions [1]. The Erasmus program, superseded by Erasmus+, has been one of the most well-known programs promoting mobility of students and staff.

However, as the mobility statistics show, despite numerous initiatives and programs, the uptake of mobility of students and staff has been very diverse across Europe [2]. Despite acknowledging the social and cultural benefits of mobility for higher education, awareness and exploitation of mobility instruments are still not as extensive as anticipated [3]. The obstacles to the uptake of mobility include socio-cultural background and status, disabilities and chronic diseases, family and parental obligations, financing issues of the mobility period, low language proficiency, availability of information about mobility and recognition of study periods and degrees [4]. However, the main obstacles to mobility can be dramatically reduced by adding the virtual component. Therefore, the concept of virtual mobility has been considered as a non-

discriminatory alternative of mobility bearing a great potential for the internationalisation, innovation and inclusion in higher education. The main obstacles to mobility can be dramatically reduced by adding the virtual component.

3.3 Current challenges for global education

On 25th of September 2015, member countries of the UN adopted a set of goals to end poverty, protect the planet and ensure prosperity for all as part of a new sustainable development agenda. Each goal has specific targets to be achieved over the next 15 years [5].

For the goals to be reached, everyone needs to do their part: governments, the private sector, civil society and people like us. Figure 1 presents those goals. It is easy to see not only that Quality Education is one of the major goals, but also that good education is part of the solutions for many other goals.



Figure 1. United Nations goals for sustainable development

Obtaining a quality education is the foundation to creating sustainable development. In addition to improving quality of life, access to inclusive education can help equip locals with the tools required to develop innovative solutions to the world's greatest problems.

Over 265 million children are currently out of school and 22% of them are of primary school age. Additionally, even the children who are attending schools are lacking basic skills in reading and math. In the past decade, major progress has been made towards increasing access to education at all levels and increasing enrollment rates in schools particularly for women and girls. Basic literacy skills have improved tremendously, yet bolder efforts are needed to make even greater strides for achieving universal education goals. For example, the world has achieved equality in primary education between girls and boys, but few countries have achieved that target at all levels of education.

The reasons for lack of quality education are due to lack of adequately trained teachers, poor conditions of schools and equity issues related to opportunities provided to rural children. For quality education to be provided to the children of impoverished families, investment is needed

in educational scholarships, teacher training workshops, school building and improvement of water and electricity access to schools.

Between the main targets established for this goal:

- By 2030, ensure equal access for all women and men to affordable and quality technical, vocational and tertiary education, including university
- By 2030, substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship
- By 2030, eliminate gender disparities in education and ensure equal access to all levels of education and vocational training for the vulnerable, including persons with disabilities, indigenous peoples and children in vulnerable situations
- By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development
- By 2020, substantially expand globally the number of scholarships available to developing countries, in particular least developed countries, small island developing States and African countries, for enrolment in higher education, including vocational training and information and communications technology, technical, engineering and scientific programmes, in developed countries and other developing countries
- By 2030, substantially increase the supply of qualified teachers, including through international cooperation for teacher training in developing countries, especially least developed countries and small island developing states

Practically, all those targets might be easier reached if implementing Virtual Mobilities.

Between 18-20 September 2017 in Ljubljana, Slovenia, took place the 2nd World Open Educational Resources (OER) Congress with the main goal towards OER for Inclusive and Equitable Quality Education: From Commitment to Action. On this occasion, where delegates from 111 countries participated, the so called Ljubljana OER Action Plan and Ministerial Statement [6] has been adopted.

The 2017 Ljubljana OER Action Plan presents 41 recommended actions to mainstream open-licensed resources to help all Member States to build Knowledge Societies and achieve the 2030 Sustainable Development Goal 4 on "quality and lifelong education."

The 2017 Ljubljana OER Action Plan provides recommendations to stakeholders in five strategic areas, namely: building the capacity of users to find, re-use, create and share OER; language and cultural issues; ensuring inclusive and equitable access to quality OER; developing sustainability models; and developing supportive policy environments.

The accompanying Ministerial Statement called for a "dynamic coalition to expand and consolidate commitments to actions, strategies and legislation" in OER, with a "call on all educational stakeholders to implement the recommendations of the Ljubljana OER Action Plan 2017." The statement is endorsed by 20 Ministers and their designated representatives of Bangladesh, Barbados, Bulgaria, Czech Republic, Costa Rica, Croatia, Kiribati, Lao People's Democratic Republic, Lithuania, Malta, Mauritius, Mauritania, Mozambique, Palestine, Romania, Serbia, Slovakia, Slovenia, South Africa and the United Arab Emirates.

On the other hand, recruiters are having their own expectations from the educational system. In 2015, Bloomberg issued a report called Job Skills Companies Want But Can't Get. This report states that business schools are supposed to produce graduates who have the abilities companies need most, but corporate recruiters say some highly sought-after skills are in short supply among newly minted MBAs. As part of their ranking of 122 top business programs, Bloomberg surveyed 1,320 job recruiters at more than 600 companies to find out which skills employers want but can't find - and which schools are best at meeting the needs of the market. Figure 2 presents a general skills gap chart established when taking into consideration all industries. However, in [7] one can find specific skills asked for in different industries.

The skills gap

That's the overall picture. But the qualities employers want change from industry to industry. Use the drop-down menu to explore the skills gap in different parts of the job market.

Pick an industry: **All**

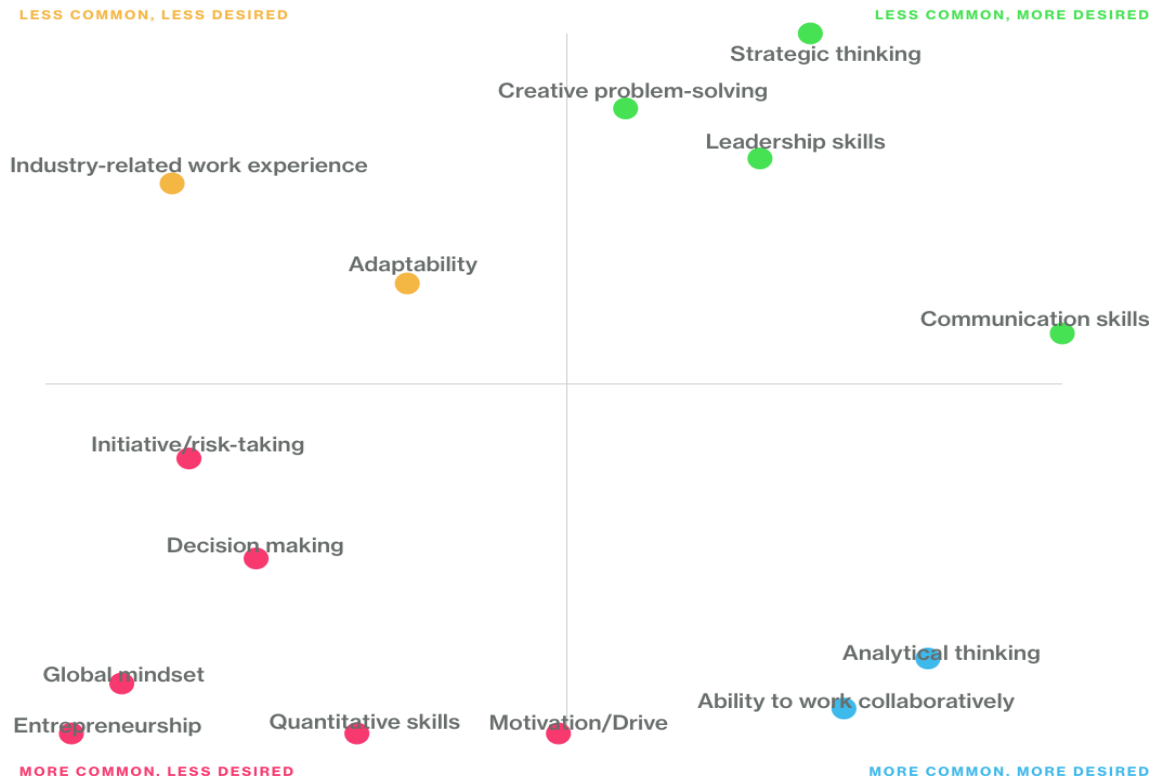


Figure 2. Bloomberg's findings about skills gap

In 2015 as well, the World Economic Forum set up some goals on future competencies for the year 2020. They might be found in Figure 3.

in 2020

1. Complex Problem Solving
2. Critical Thinking
3. Creativity
4. People Management
5. Coordinating with Others
6. Emotional Intelligence
7. Judgment and Decision Making
8. Service Orientation
9. Negotiation
10. Cognitive Flexibility



in 2015

1. Complex Problem Solving
2. Coordinating with Others
3. People Management
4. Critical Thinking
5. Negotiation
6. Quality Control
7. Service Orientation
8. Judgment and Decision Making
9. Active Listening
10. Creativity



Figure 3. World Economic Forum – Future competencies

All those documents are proving that global education is facing a new challenge worldwide. The 21st century workplace requires well-educated, imaginative, collaborative, confident

people who take personal responsibility and will go the extra mile - 'creative creators', as Tom Friedman [8] calls them.

3.4 21st Century Students and their Skills

The concept used to modernize education and teaching, to make them appropriate to the 21st century challenges and expectations is Open Education. Open Education is an umbrella term under which many different understandings. In Europe, particularly in higher education, Open Education has been discussed as an important element of the European policy agenda. The key perspectives on open, higher education in Europe include [9]:

- (a) reducing or removing access barriers such as financial, geographical, time and entry requirements barriers,
- (b) modernising higher education in Europe by means of digital technologies,
- (c) bridging non-formal and formal education, by making it easier to recognise learning achievements.

Today students will learn independent and digital all their life. But, are they ready to identify, access, learn, analyse, apply and practice new knowledge across different media, information, communication, tools as to enhance their skills and develop their careers?

Some replies on those questions and on how to develop Open life-long learning students for the 21st century society might be given by a combination of tools (Figure 4).

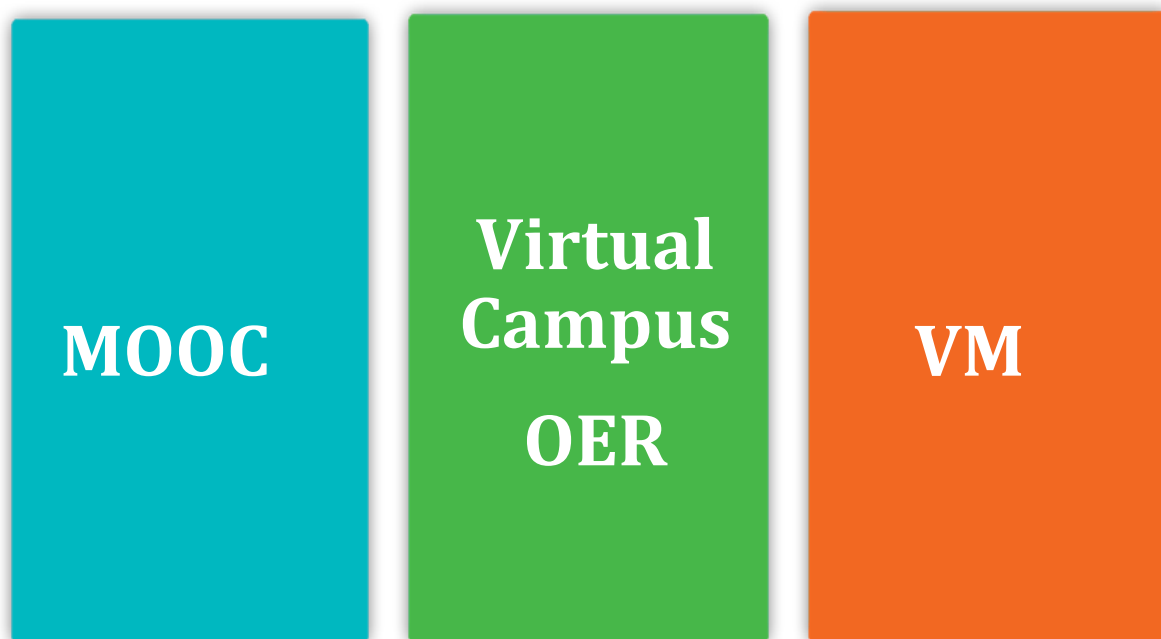


Figure 4. Tools for the 21st Century Education

A Massive Open Online Course (MOOC) is an online course aimed at unlimited participation and open access via the web [10]. In addition to traditional course materials such as filmed lectures, readings, and problem sets, MOOCs provide interactive courses with user forums to support community interactions among students, professors, and teaching assistants, as well as immediate feedback to quick quizzes and assignments. MOOCs are a recent and widely researched development in distance education which were first introduced in 2006 and emerged as a popular mode of learning in 2012.

Open Educational Resources (OER) are freely accessible, openly licensed text, media, and other digital assets that are useful for teaching, learning, and assessing as well as for research purposes. There is no universal usage of open file formats in OER. The term OER describes publicly accessible materials and resources for any user to use, remix, improve and redistribute

under some licenses [11]. The development and promotion of open educational resources is often motivated by a desire to provide an alternate or enhanced educational paradigm. Usually, into the higher education system, the OER are implemented through virtual education campuses platforms, such as the Virtual Campus developed by the Politehnica University of Timisoara, Romania [12] [13].

Virtual Mobility (VM) refers to students and teachers in higher education using another institution outside their own country to study or teach for a limited time, without physically leaving their home. It complements physical mobility in which students travel to study abroad, such as within the Erasmus Programme. The two forms of mobility together constitute academic mobility. Student and teacher mobility are perceived as important quality issues in higher education [14]. Virtual mobility has been defined as an activity that offers access to courses and study schemes in a foreign country and allows for communication activities with teachers and fellow students abroad via the new information and communication technologies. Striving for a European educational space, the European ministers of Education consider virtual mobility as a necessary addition to the traditional ways of studying abroad, that required travelling. In Europe, databases like Educontact provide students with an overview of available courses. The public policy background is to be found, e.g. in the Leuven-declaration on Mobility, by 46 European Higher education ministers [15].

Both virtual mobility and open education aim to enhance participation in international knowledge flows, use of digital media, improve teaching and learning, attract and keep talents through internationalisation, but also innovate and build capacity.

3.5 Open Virtual Mobility Project

The Open Virtual Mobility (openVM) project (see Figure 5) is a recently granted Erasmus+ strategic partnership which aims at promoting and scaling-up Virtual Mobility in higher education in Europe through achievement, assessment and recognition of virtual mobility skills of educators and students in line with Open Education principles.

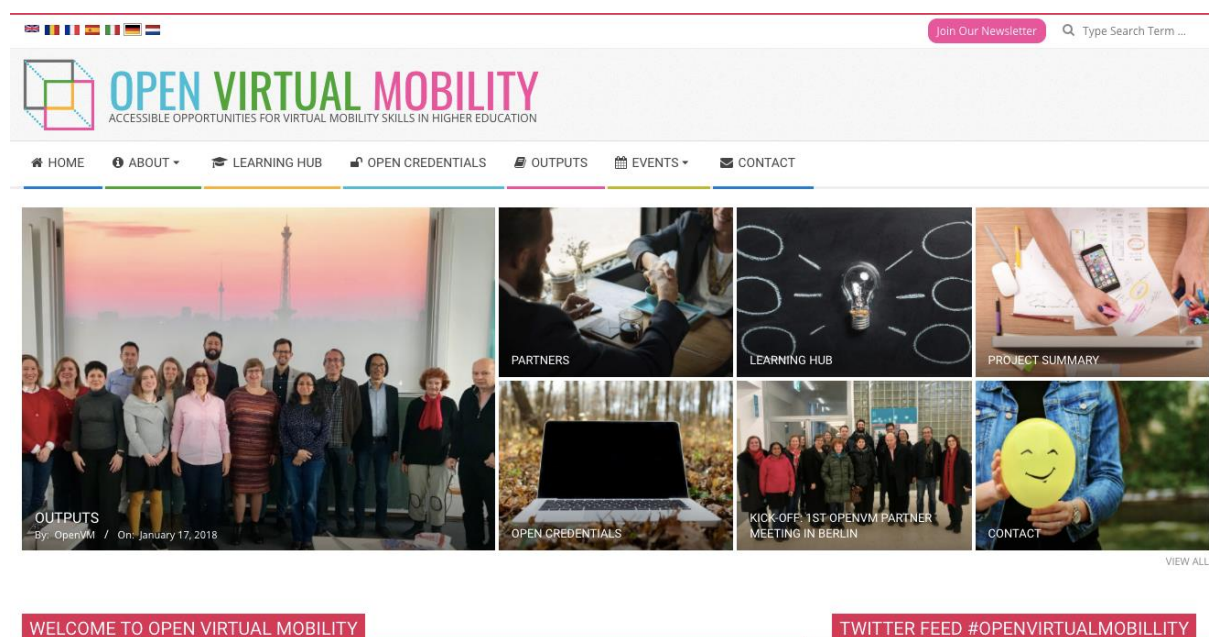


Figure 5. The openVM project

“Virtual mobility stands for the set of ICT supported activities, organized at institutional level, that realise or facilitate international, collaborative experiences in a context of teaching and/or learning” (Erasmus+ programme guide).

“Open Education is seen as a way of carrying out education, often using digital technologies. Its aim is to widen access and participation to everyone by removing barriers and making learning accessible, abundant, and customisable for all. It offers multiple ways of teaching and learning, building and sharing knowledge. It also provides a variety of access routes to formal and non-formal education, and connects the two.” (JRC, Opening-up education, 2016)

The partnership is composed of nine European partner organisations from higher education, aiming at enhancing the uptake of virtual mobility in higher education by improving VM skills and in consequence VM readiness of teachers and students: Beuth University of Applied Sciences Berlin Germany, University of Roma TRE Italy, Open University – Welten Institute, the Netherlands, Politehnica University of Timisoara, Romania, L’Université Numérique Économie Gestion – AUNEGE, France, University of the Balearic Islands, Spain, CINECA, Italy, KU Leuven, Belgium, European Association for Distance Teaching Universities – EADTU.

The project Open Virtual Mobility addresses the challenges and aims to create the European Virtual Mobility Learning Hub for achievement, assessment and recognition of VM skills. The VM Learning Hub is envisaged to become a central reference point for educators and students wishing to learn about the different possibilities and forms of virtual mobility, collaborate on designing VM activities, assess and recognise VM skills, i. e. skills acquire from and/or relevant for the implementation and/or participation in VM actions. The project aims to develop a set of tools, methods and guidelines to enhance achievement, assessment and recognition of skills, provide support on pedagogy and technology for the design and implementation of virtual mobility, and enhance collaborations of participating organisations, educators and students. The VM Learning Hub aims to provide engaging and effective learning experience and to provide evidence about how achievement, assessment and credentialing of VM skills contributes to the uptake virtual mobility.

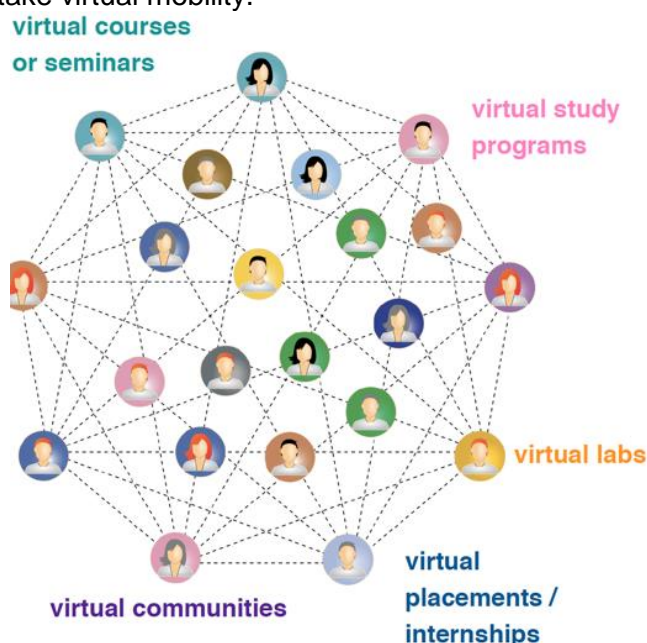


Figure 6. Tools to achieve Virtual Mobility

The premise of the openVM project is that virtual mobility can develop its potential, provided higher education leaders, educators, students and other relevant stakeholders, such as International Offices, know about and know how to use the opportunities of virtual mobility. This means higher education staff, educators and students need the necessary skills, confidence and readiness to initiate and implement VM activities in their own organisations. The openVM project intends to enhance the readiness for virtual mobility against the backdrop with Open Education (OE) and addresses the need of creating accessible opportunities for achievement of skills, needed to design, implement and participate in VM activities in line with the principles of Open Education.

OpenVM builds a European Virtual Mobility Learning Hub for achievement, assessment and recognition of virtual mobility skills using a set of innovative digital learning tools such as Open Credentials (Open Badges, Blockcerts), semantic Competency Directory, evidence-based E-Assessment, algorithm-based matching tool for collaborative learning groups, and pedagogical methods such as Open Learning by Design and Crowd Creation of OERs and MOOCs.

OpenVM will introduce innovative elements:

- OpenVM OER will provide an accessible collection of learning resources about Virtual Mobility and Open Education including practical hands-on guidelines for higher education teachers and students;
- OpenVM MOOC in the VM Learning Hub will provide accessible learning opportunities about Virtual Mobility and Open Education for higher education teachers, students, international officers and companies offering or planning to offer virtual placements;
- OpenVM Credentials will provide accessible opportunities for teachers and students for recognising, validating and communicating virtual mobility skill sets inside and outside higher education;
- OpenVM Competency Directory will provide an accessible tool for cross-referencing virtual mobility skills to existing competency frameworks in an automated way;
- OpenVM Assessment will provide accessible opportunities for teachers and students to assess selected virtual mobility skill sets adding evidence to make the assessment process and outcome transparent and traceable.

For more information, please visit the Open Virtual Mobility Learning Hub at: <https://hub.openvirtualmobility.eu/>.

The Open Virtual Mobility Learning Hub (OVM LH) is based on several applications and technologies: Learning Management System – Moodle 3.5, Interactive Content H5P, e-portfolio Mahara, Bestr Open Badges, matching tool for building learning groups and a semantic competency directory.

The Open Virtual Mobility Learning Hub structure comprises:

- (1) VM Skills - a description of virtual mobility skills including alignment to existing competency frameworks in a competency directory (O3); this includes VM e-assessment - different forms of digital self-/assessment including digital evidence (such as testimonials, digital assets, e-portfolios, crowd evidencing) applied as elements of open credentials and supporting open, evidence-based assessment (O4);
- (2) VM Open Credentials - digital recognition of VM skills based on current forms of open digital credentials such as Open Badges and Blockcerts (O5);
- (3) VM Learning - User Generated Content, Open Educational Resources and other forms of Open Content to support learning about VM and developing VM Skills (O6); this includes also the VM Activities - Open Learning Activities including learning in and through MOOCs, peer-to-peer activities, virtual/blended collaborations (O6);
- (4) VM Market / Connections - finding cooperation partners for VM activities supported by such tools as the Matching Tool including matching for collaboration of groups (O3);

The VM LH Functionalities are visualised in the diagram shown in Figure 7.

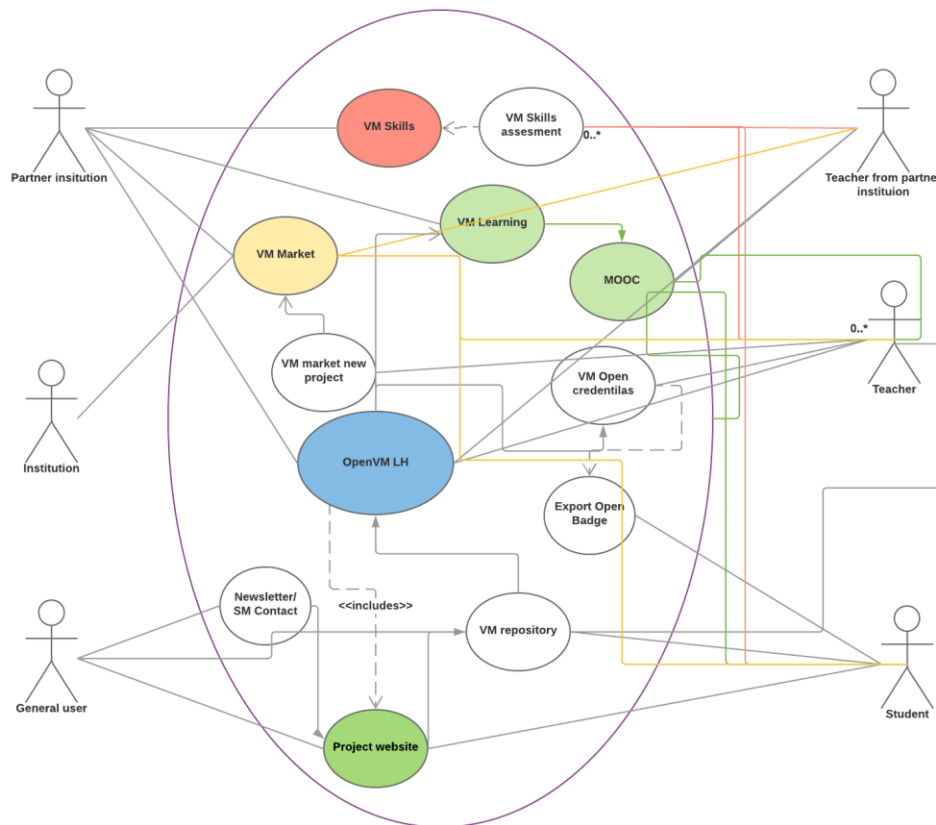


Figure 7. Functionalities of the OpenVM Learning Hub

More information on the OpenVM project can be found by visiting the project's website at: <https://www.openvirtualmobility.eu>

3.6 Conclusions

The context and requirements of education have changed dramatically in the 21st century, both in terms of competences and skill required as well as in the way those skills might be delivered. The education ecosystem became open and had to take into consideration both the expectations of the companies recruiting qualified personnel and from the perspective of the learner that tends to use a sort of puzzle to gain the necessary skills and competences, independently of the time and location constraints imposed by classical education institutions. Self-based learning, recognition of informal learning have become part of the actual educational systems characteristics. Virtual knowledge acquire is part of that process.

This paper presents the concept, approaches, considerations and first study results relevant for designing a collaborative learning hub for promoting VM Skills of educators and students in the European Higher Education Area. While the development of the VM Learning Hub to enhance the Virtual Mobility readiness through achievement, assessment and recognition of VM skills is still at an early stage, the participants to the OpenVM project aimed to demonstrate the complexity of designing such a collaborative learning hub with the view of helping in planning and decision-making in similar projects. The considerations presented here may be interesting for other projects and contexts which aim to apply technologies for collaborative forms of skill attainment, skill assessment and skill recognition.

3.7 References

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