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Empower teachers for remote online assessments in higher education

Needs for online assessment in virtual mobility

Report on IO4

Dr. Kamakshi Rajagopal, Ilse Op de Beeck, Elke Van der Stappen, Karen Van Eylen

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Authors

Dr. Kamakshi Rajagopal, Ilse Op de Beeck, Elke Van der Stappen, Karen Van Eylen

Contributors

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The Remote.EDU Consortium

Friedrich-Alexander-Universität Erlangen-Nürnberg	FAU	DE
Katholieke Universiteit Leuven	KU Leuven	BE
Middle East Technical University	METU	TR
Universidad De Lleida	UdL	ES

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Introduction

In recent years, virtual mobility has become a key strategic theme in the European Higher Education Area, with the establishment of virtual mobility tracks within the Erasmus Student Exchange and the promotion of university networks that aim to facilitate virtual exchanges. These strategic advances build on decades of projects on this concept as a means of broadening internationalisation in education, taking advantage of the technical possibilities offered by digitalisation. In the context of the Remote.EDU project, virtual mobility was defined as “the set of ICT supported activities, organised at institutional level, that realise or facilitate international, collaborative experiences in a context of teaching and/or learning” (European Commission, 2021).

Online assessment has particular significance in the context of European collaboration in education. In this IO4 output, we looked at the needs for online assessment within the context of virtual mobility. The innovation in this output is twofold: (i) the reflection on assessment in virtual mobility through the focus of both learner skills and experiential learning and (ii) the creation of a design-supporting instrument that combines the needs of assessment and of virtual mobility.

Research approach and methodology IO4

The primary aim of IO4 was the evidence-based design of an **instrument that can support instructor(s), instructor teams and educational support staff in the decision-making and the design of appropriate (online) assessment in a virtual mobility or international context**. Such as instrument can be of interest to the growing number of institutions and instructors interested in the concepts of virtual mobility across Europe and world-wide.

The original idea (as described in the project proposal) suggested as a first step to look into the literature that could feed into the design of the instrument. We started with exploring literature to bring more insight into online assessment of learner skills and competence areas relevant to virtual mobility and also looked at assessment of experiential learning with as scope virtual mobility. However, the initial literature review did not bring up many clear and relevant results, as they were either too limited or too broad. It did not give sufficient insight into the specific challenges for instructors, which was necessary in order to design a valuable support instrument.

Therefore the decision was made to adapt the process and opt for an Educational Design Research framing and methodology. Educational Design Research strives “towards the dual goals of developing theoretical understanding and also designing and implementing interventions in practice” (McKenney & Reeves, 2018). The approach provided the setting and gave the methodological tools to bring together and combine information from multiple sources to build our insight within a practical and complex educational topic.

In the following sections, we describe the actions in the different phases in the process: the analysis and exploration phase, the design and construction phase and the evaluation and reflection phase. These actions helped to better understand the issues of practice related to online assessment in a virtual mobility context

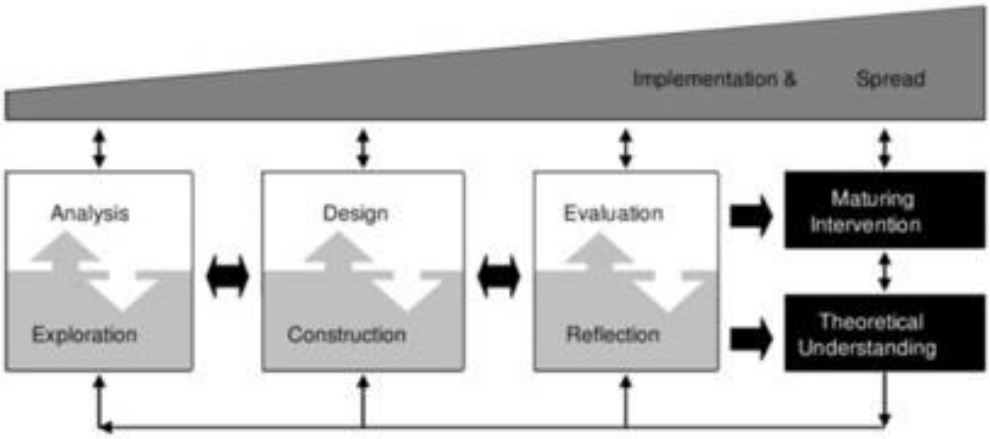

Figure 1: Educational Design Research model (McKenny & Reeves, 2018)

Analysis and exploration phase

Preliminary review of literature and materials

A preliminary literature review on formative and summative assessment of both VM learner skills and experiential learning was conducted.

Collection of input from KU Leuven's current practices and needs

Within KU Leuven we engaged in a dialogic approach within the Services of Educational Policy to understand perceptions, needs, preconditions, practices and exploring existing support materials and instruments related to online assessment.

Furthermore, we looked at challenges related to assessment appearing in the KU Leuven internal strategy on virtual mobility (Clement et al., 2023). This allowed us to understand the wider practice of assessment at KU Leuven and online assessment in particular, with insights on what instructors are looking for in support materials on assessment.

Collection of input from Remote.EDU partners

We also engaged with the project partners in further dialogue:

- **Webinar/workshop, 22 March 2022*:*** To better understand which format/shape the support instrument needed to take, to be successfully taken up by the project partners, and in a later stage also by other institutions, an online workshop was organised. The aim was to get a better understanding of both the context related to virtual mobility and the different assessment cultures, practices and contexts in the partner institutions. It is clear that a support instrument needed to fit in with the different institutional assessment cultures and practices of institutions. Understanding the kind of support instructors need or questions they have about assessment in their work in international settings, was crucial to determine the best format and content of the IO4 design instrument. During this webinar we have gained a better view on the context related to virtual mobility and online assessment at

partner universities, the needs on virtual mobility and the challenges related to online assessment in an international context.

- **Brainstorm session, Germany, 1 June 2022:** Building on the OpenVM Learner Competence Framework (Rajagopal et al, 2020), we aimed to define the needs for assessment for each of the learner skills related to virtual mobility. During the partner meeting, a brainstorm was organised with the partners on online assessment formats for VM learner skills and this led to a list of how specific competences within virtual mobility can be captured by different (online) assessment types.

These conversations with our partners allowed us to broaden our view on assessment practices in general as well as specifically around 21st century skills, and to look for frameworks that can be adapted to VM learner skills. This allowed us to delve deeper into the question of the opportunities and challenges for online assessment.

Input from IO1 and IO2

In the surveys conducted in the framework of IO1 and IO2, specific questions were added asking the different stakeholders (instructors, administrators and students) at Remote.EDU partner institutions about the challenges and opportunities for online assessment in international contexts. Outcomes of these surveys gave further insight into aspects that need to be considered in different scenarios of online assessment in a virtual mobility/international context and gave us a better understanding of instructors' general concerns regarding online assessment (see Kondacki et al., 2022; Marín et al., 2022).

Design and construction phase

Design of instrument

Based on the input collected in the previous phase, in the design and construction phase, we took a practice-oriented approach and started with the design and creation of the support instrument.

Literature review

With better insight on the issues faced by instructors and educators in their practice on online assessment and its potential use in virtual mobility, we also elaborated in this phase on the initial literature search and did a more targeted literature search on those elements that came up as important and that needed a more theoretical foundation. We looked at relevant frameworks in competences achievement for learners and for instructors, formulating best practice in assessment design, and refining the focus of assessment in virtual mobility. In this way, the instrument was improved and built further on already existing instruments, frameworks and theoretical models.

Evaluation and reflection phase

A first evaluation and reflection on the set-up of the instrument took place during a workshop with project partners during the project meeting in Spain (27 October 2022). Partners also provided feedback on the first version of the tool (written feedback - January 2023) and the second version (during project meeting in Ankara, 14 March 2023).

The main feedback on the tool concerned the legal and ethical aspect. Although these seem to be similar in nature, they are perceived substantially differently. Both are very important aspects and as such should be given due consideration in the design. Therefore, it was decided to include them as two separate aspects in the instrument.

Another aspect of concern was the way institutions are organised. This could make it difficult to articulate for which aspect, which partner in the institution is relevant to start conversation with. For institutions that already have an active policy on the internationalisation of their education services it will be easier to know who to contact for support and advice. Since in the instrument the context of institutional partners is important as well to make design choices, it was felt that this should be emphasised more.

Translation of the PAP-framework (Kondacki et al., 2022), outcome of IO1, in the instrument is sufficient and recognisable.

Based on the feedback received the instrument was adjusted, refined and validated but overall, the instrument itself was proven to be clear in its intentions, comprehensive and instructive, particularly for institutions and practitioners interested in virtual mobility.

In the following chapters, we report more in detail on the underlying process and actions taken in the development of the support instrument:

- the outcomes of the literature review on the assessment of virtual mobility learner skills, building on the OpenVM Learner Competence Framework (Rajagopal et al, 2020)
- the outcomes of the literature review on the assessment of experiential learning, a form of learning that has emerged to be of specific importance within the context of virtual mobility
- the steps taken in the design of the support instrument

Assessment of VM learner skills: needs analysis

Introduction: virtual mobility, definition and formats

Virtual mobility is not a new concept and has been researched for over 15 years. It refers to learning activities where students engage online with other institutions abroad, while physically remaining at their home institution. Already around the turn of the millennium, pioneers in the field saw the potential of this form of international learning. In the context of the pandemic, virtual mobility has (re)gained extensive interest in higher education institutions.

There are many terms in circulation that more or less refer to the same concept as virtual mobility. Think of e.g. virtual exchange, online intercultural exchange, blended mobility or (collaborative) online international learning.

To create a shared terminology, within the Remote.EDU project, virtual mobility was defined as "the set of ICT supported activities, organised at institutional level, that realise or facilitate international, collaborative experiences in a context of teaching and/or learning" (European Commission, 2021).

At KU Leuven, the diversity of concepts to describe the different virtual or online mobility formats that were closest to the university's teaching needs were narrowed down to four types of virtual mobility activities: online exchange courses, joint international formats, blended mobility, and virtual or blended work placement/internships (Clement et al., 2023). These formats can also be combined.

Online exchange courses

Students of a (home) university can take online exchange courses at another (host) university and vice-versa. These courses are offered on the learning platform of the host institution, include a formal assessment and can be recognised as part of the study programme of the student. After successful completion of the course, the students receive a transcript of records. The administrative procedures are the same as for physical exchange students.

Blended mobility

Blended mobility is a combination of both physical and virtual mobility. In this case, the period of physical mobility is usually short(er). The role of the virtual mobility activities is to prepare, follow-up and/or reinforce the physical mobility experience.
A particular example of a blended mobility format is the *Blended Intensive Programme* (BIP). BIP's are short, intensive programmes that use innovative ways of learning and teaching, including the use of online cooperation. These new and more flexible mobility formats combine physical mobility with a virtual part. Blended Intensive Programmes aim at reaching all types of students from all backgrounds, study fields and cycles. These kind of mobility projects are a novelty in the Erasmus+ KA131 programme 2021-2027 (European Commission, 2021). External funding is available for faculty organizing a BIP and for participating students and staff meeting specific criteria.

Joint International Formats

Joint International Formats are learning activities or courses developed in collaboration with teaching staff/didactic teams at a partner institution, with the following characteristics:

- they stimulate interaction and collaboration between students with a different national and/or cultural background,
- they are designed to facilitate international and/or intercultural experiences,
- they focus on mutual teaching and/or learning and reciprocity,
- they are technology enabled and sustained over a period time.

These types of activities are also referred to as virtual exchange, collaborative online international learning (COIL), virtual mobility in a strict sense,…

Virtual or blended international work placement/internship

Work placements or internships involve three different stakeholders: the student, the higher education institution and the receiving company or organisation. During a work placement these three stakeholders ideally interact with each other on a regular basis.

To make a work placement at an international company or organisation feasible for more students, ICT can be implemented to facilitate online interaction and collaboration making physical presence less or not necessary. This can happen on the three different lines of interaction between student, higher education institution and company/organisation.

When the interaction between student and company is mainly ICT-supported, we talk about a virtual work placement or internship. When part of the interaction between the two stakeholders takes place face-to-face, we talk about a blended work placement or internship.

Opportunities created by virtual mobility

Online or virtual mobility creates many opportunities for students, staff and higher education institutions. It has the potential to open access to an international learning environment and give flexibility to students who would otherwise be unwilling or unable to be physically mobile for whatever reason. Virtual mobility lowers the cost of a mobility experience, making it more affordable and enabling a greater number of students from partners in low- and middle-income countries to study in an international context (Varghese, 2008). Virtual mobility widens options for students in terms of topics or subjects offered by partner universities and gives access to experts, (niche) courses, learning materials that are not offered at the home university (López-Duarte et al., 2022). It thereby offers the opportunity to become acquainted with other higher education institutions and this could help motivate them to undertake physical mobility (as a degree seeker or otherwise) at a later stage of their academic or professional career.

Experiencing virtual mobility is valuable not only for personal development but also by creating the opportunity to develop skills and competences needed in working life (Van Maele et al., 2016). Through cross-border collaboration with academic staff and/or peer students from other countries, different backgrounds and cultures, students can improve their language skills, their teamwork skills and can train their intercultural competences and skills (O'Dowd & Lewis, 2016). Using different collaboration and communication tools, they can also improve their ICT skills. Students

are enabled to learn in a transformative way and become critical, autonomous global citizens and lifelong learners (Nada & Legutko, 2022).

From the instructor's and institution's point of view, virtual mobility creates opportunities for educational innovation and internationalisation (Jager et al., 2019). It increases opportunities for designing flexible individual study programmes, diversifying programmes and expanding the current academic offer, or adapting courses to become suitable for online learning (Wächter, 2002). It can be a way of giving MOOCs a structural place in curricula. Designing virtual mobility activities can also strengthen cooperation between higher education institutions, working collaboratively on joint course offers, sharing expertise and practices (Jager et al., 2019). Virtual mobility can be a way to stay competitive and attractive and give extra-institutional visibility to excellent knowledge and expertise developed at a given university (Burd et al., 2015). It can attract additional students for niche subjects, and can also help to attract a larger, more diverse group of students and to reach out to disadvantaged groups. Finally, virtual mobility is a sustainable way of realising *Mobility for all*, while respecting the ecological footprint (Jager et al., 2019).

The opportunities of virtual mobility found in literature were in line with outcomes of the survey that was done in IO2 (Marín et al., 2022). While some of the opportunities that were mentioned varied slightly depending on the perspective of the three stakeholder groups that participated in the survey (instructors, administrators and students), there was considerable consensus. Opportunities that were brought up relate to four main topics: the mobility itself (elimination of trips, time factor, economic factor), training aspects (ICT learning, flexibility, usefulness, format comfort, study recognition, future, accessibility/equal opportunities), the promotion of interculturality (international relationships, globalisation) and the institutional impact (international programmes/courses openness, recruitment of new students) (Marín et al., 2022).

Virtual mobility competence framework

As defined above, virtual mobility is about cross-border online formal education, based on the exchange between two or more institutions for higher education. It implies that as an instructor you work with a group of students that is (at least partially) international. This international layer that is added to online or blended education is an extra challenge to be considered when designing a course. At the same time, it offers opportunities to create an international and intercultural experience for the students, as well as for the instructor. After all, virtual mobility activities offer unique international learning environments, in which learners can acquire and build several different transversal skills (next to the general learning objectives that are set for the learners in a course).

Rajagopal et al. (2020) identified seven learner skills relevant to virtual mobility (VM). These are competence areas that can be (but need not always be) addressed through virtual mobility activities. Depending on the design of the virtual mobility activity, students will have more or less opportunities to develop these VM learner skills.

These skills include:

(1) *Intercultural skills and attitudes:* Developing intercultural skills and attitudes implies that the student acquires cultural knowledge and a better understanding of cultural perspectives, including understanding of the own cultural identity, that the student enhances and

demonstrates cultural understanding and can apply intercultural awareness in culturally challenging circumstances.

(2) *Interactive and collaborative learning in an authentic international environment:* Interactive and collaborative learning in an authentic international environment implies that the student develops teamwork skills, collaborates with peers across disciplines and contexts, acquiring new international learning experiences and interacting with authentic international tools, systems and resources in a foreign language.

(3) *Autonomy-driven learning:* Being able to learn in an autonomy-driven way implies that the student self directs, and regulates the own learning process, independently chooses in what mode or context to study, what tools to (learn to) use and how to organise the learning process.

(4) *Networked learning:* Being able to learn in a networked way (=engage in networked learning) implies that the student is able to use digital networks in/for learning and communication in international contexts or environments and is able to tackle complex, ambiguous and ill-defined issues and situations in (emerging or existing) social networks.

(5) *Media and digital literacy:* Media and digital literacy implies that the student is able to use resources effectively to learn, can assess the quality of resources and demonstrates "learner control".

(6) *Active self-regulated learning:* Being an active self-regulated learner implies that the student is able to self-regulate the own learning process, can reflect on learning experiences and one's own progress and can demonstrate that they have the agency of one's own learning.

(7) *Open-mindedness:* Open-mindedness implies that the student is tolerant and has an open attitude towards others, demonstrates a willingness to improve knowledge of foreign languages and demonstrates self-confidence in interaction with peers and instructors.

Annex 1 describes the competence framework (Rajagopal & Firssova, 2020) with the skills and subskills more in detail.

These VM learner skills are aligned with many frameworks on the 21st century skills, that address those key competences all individuals need for personal development, for participating in a digital society, social inclusion, employability, and active citizenship (see e.g. the Council Recommendation on Key Competences for Lifelong Learning, 2018). However, the VM learner skills are more focussed on the development opportunities afforded by VM-based learning environments. As such they can be considered a new competence framework for international collaborative learning.

Assessment of VM learner skills: literature review

One key challenge for instructors is the assessment of students' development and progress in VM learner skills. As these skills involve complex skills, assessment needs to consider the complexity of the learning goals and support appropriate development in achieving these goals. This task is not straightforward for many instructors.

Additionally, the practical organisation of virtual mobility, where students are in different physical locations than their instructors, offer possibilities for online assessment of these skills. This also poses a challenge for instructors, as they are often unaware of the conditions for online assessment, such as the use of digital tools, administrative, logistical, legal and technological

aspects. The integration of a good assessment strategy builds primarily on the didactic choices and which learning goals or competences are to be achieved.

Building on already existing competence frameworks, we conducted a literature review and defined the needs for assessment for those learner skills that are related to virtual mobility.

The **research questions** guiding this literature study were:

(1) What are the assessment needs for instructors in VM and specific learner skills?
(2) What are the opportunities for online assessment in assessing VM learner skills?
(3) Which currently employed frameworks can be used to assess VM learner skills?

In the following section, we report on the results of the literature review. We distinguish the educators' perspective and the learners' perspective

Educators' perspective

Educators have an important role in implementing online assessment for VM learner skills. They need a broader and more sophisticated set of competences to face changing demands. Digital competences are needed to engage in both national and international educational contexts and can therefore not be neglected. The European Framework for the Digital Competence of Educators: DigCompEdu is a scientifically sound background framework which helps to guide policy and can be directly adapted to implement regional and national tools and training programmes. It describes what it means for educators to be digitally competent. The focus of the framework is not on technical skills, but it rather aims to detail how digital technologies can be used to enhance and innovate education and training (Punie & Redecker, 2017). It sets out 22 competences for educators as six areas within three different scopes and distinguishes educator's professional competences, educator's pedagogic competences and the learner's competences.

In designing and implementing (assessment in) virtual mobility, educators can work on the digital competences listed in Table 1, following DigCompEdu.

DigCompEdu areas	DigCompEdu competences	VM formats
Educator's professional competences	Professional collaboration	Blended mobility, Joint International Formats, Virtual/blended internships
	Organisational communication	Blended mobility, Joint International Formats, Virtual/blended internships
Educator's pedagogic competences	Digital resources: creating and modifying, managing, protecting, sharing	all
	Assessment: strategies, analysing evidence, feedback and planning	all
	Teaching and learning: guidance, collaborative	all

	learning, self-regulated learning	
	Empowering learners: actively engaging learners	all
Learners' competences	Information and media literacy	all
	Communication	Blended mobility, Joint International Formats, Virtual/blended internships
	Content creation	all
	Responsible use	all
	Problem-solving	Blended mobility, Joint International Formats, Virtual/blended internships

Table 1: DigCompEdu areas and competences and VM formats

Learners' perspective

The literature search also revealed a learner perspective to assessment in international contexts. From a learner's perspective, learning in international contexts gives the opportunity to break through traditional classical formats and develop various learner skills.

The ideas presented in this section result from a brainstorm organised with the project partners (May 2022). Using a backward design method, the seven learner skills from the OpenVM Learner Competence Framework (Rajagopal et al, 2020) described earlier in this paper, were the starting point to look for assessment strategies or methods that could grasp the learning outcomes at best. In this we started our research from the articulated learner skill from the framework and tried to explore which kind of assessment methods and/or strategies could verify student's learning. The goal of the session was to identify solid online assessment methods.

The brainstorm led to the following list (Table 2) of how specific competences within virtual mobility can be captured by assessment:

OpenVM learner skills	OpenVM subskills	Assessment formats
Intercultural skills and attitudes	General	portfolio, creation of artefacts (video), checklist of observation, self/peer-assessment, projects
	Gaining cultural knowledge	self-reflection, case study, simulation
	Understanding cultural perspectives	self-reflection, assessment on knowledge
	Enhancing own cultural identity	self-reflection

	Enhancing cultural understanding	formative assessment alongside course
	Demonstrating cultural understanding	case examples/authentic assessment, e-portfolio
	Applying intercultural awareness in culturally challenging circumstances	pair work, portfolio, authentic assessment
Interactive and collaborative learning in an authentic international environment	Having enhanced teamwork skills	team assessment, group work, peer assessment, simulation, case study
	Collaborating with peers from different disciplines	peer work, group work, peer assessment, simulation, case study
	Collaborating with peers within the context of an international learning experience	observation
	Interacting with authentic international resources in a foreign language	journal writing, instrument measuring quality
Autonomy-driven learning	Demonstrating self-directedness in decision-making on own learning	oral exam, multiple choice examen (MCE), reflection paper, case study, use of learning paths, choice of assessment by student
	Demonstrating independent learning	case study, journal, self-paced assessment, self-assessment
Networked learning	Engaging in digital networking	sociometry, project work, groupwork, discussion groups, social groups/discussion boards, participation in social media channels through networks, conferences
	Dealing with complexity in networked learning	case analysis, portfolio, simulations, reflective writing and sharing
Media and digital literacy	Demonstrating learner control	case study
	Being proficient in using online learning technologies	journal keeping, demonstration
	Being proficient in assessing quality in courses and resources found online	rubric, knowledge test
Active self-regulated learning	Being able to self-regulate learning processes	self-assessment, reflection writing
	Being able to self-reflect on learning experiences	learning diary, experience sharing
	Demonstrating ownership over learning (attitude)	pre-post assessment of attitude, journal

Open-mindedness	Being open-minded and tolerant	discussion forum, case study
	Demonstrating self-evidence in interaction with peers and teaching staff	team-assessment, peer-assessment, discussion
	Show willingness to improve proficiency in foreign languages	self-response, journals, reflective writing

Table 2: VM learner skills and assessment formats

A first issue that emerged from the brainstorm was that partners indicated that there were some clarifications needed concerning the VM learner skills and the assessment formats related to them. Concerning intercultural skills and attitude, partners remarked that the definition is not specifically focused on digitally supported interaction. Also, they remarked that assessment formats could include more innovative use of sensor technology to capture language use, body language, non-verbal communication or even emoticon use. Further elaboration of summative and formative aspects of assessment of intercultural skills was also considered useful. Concerning networked learning, partners remarked the need for a clearer definition including social networking as well as digital networking. Concerning open-mindedness they raised the question of it being a skill or attitude (e.g. foreign languages).

Furthermore, partners indicated that media and digital literacy would not need further exploration as a separate learner skill, as these are implicit and inherent to all virtual mobility activities, and applicable to any chosen online assessment method. However, it was deemed important to keep this in the further analysis as virtual mobility activities do require specific media and digital skills in an international context, that might go further than the generic skills. In the course design specific attention can be given to this skill, e.g. giving students a free choice in the tools and technology they use for communication and collaboration, creates scope for developing these skills as it allows them to think about learning technologies and their (dis)advantages.

This analysis of online assessment formats per VM learner skill showed that VM learner skills primarily call for non-traditional assessment formats (e.g. self/peer/group assessment, authentic assessment, portfolio,…). These are assessment methods that are more focused on competence development.

Assessment of VM learner skills: reflections and recommendations

The literature review and analysis of assessment in learner skills in the analysis and exploration phase has brought up some reflections and recommendations, which are formulated her as answers to our research questions.

(1) What are the assessment needs for educators in VM and specific learner skills?

Educators require different types of support on assessment in virtual mobility. A first type concerns support in the appropriate use of assessment formats, within the context of the learner goals aimed for. Educators might need support in devising the best assessment strategies for their didactic context and the appropriate use of the digital tools available. They might also need to be guided in

their pedagogic competences in analysing evidence and providing feedback, specifically in non-traditional assessment formats.

A second type of support concerns support for better understanding the context of virtual mobility. The literature study showed that virtual mobility is a learning environment where complexity is present in the skills learnt by the students, but also in the practical context in which the virtual mobility takes place, such as e.g. the international context, diverse learner groups and educator teams, or possibly the content of the virtual mobility. Practical support and methods to take design decisions in this complex environment, specifically regarding assessment, will be highly useful for many educators. Accreditation and grading may be an issue were cultural differences play a significant role. A recommendation therefore might be to decide not to score. Think about: Which assessment stays formative? What is evaluated summatively? Are learner goals in virtual mobility always clearly stated? It may also be useful to make a distinction between formal and informal learning and explore the different priorities and goals within an international educator team.

A third type of support concerns better understanding of the learner skills themselves targeted by virtual mobility. The analysis of the specific VM learner skills in terms of assessment shows that virtual mobility creates the opportunities to develop several complex learner skills in an authentic environment. This calls for a move away from traditional assessment methods and strategies towards non-traditional assessment forms such as peer assessment, portfolio and a focus on reflection, collaboration, and authenticity. These three aspects are considered the “pillars” of experiential learning. In the next chapter we further explore the mARC instructional design model by Radovic et al. (2021) for experiential learning. These new forms of assessment are still unknown to many instructors, who struggle with how to incorporate them into learning and assessment design.

(2) What are the opportunities for online assessment in assessing VM learner skills?

The analysis of the specific VM learner skills in terms of assessment shows that online assessment has many applications in the context of virtual mobility. In fact, virtual mobility creates an environment where online assessment can be an authentic and crucial part of the learning context, limiting students’ and educators’ reluctance to use this form of assessment.

As virtual mobility creates scope to foster communication and cooperation, critical reflection, social development and culture, ethics and sustainability in realistic environments, it opens the door to explore non-traditional forms of assessment which support self-awareness, self-directedness and self-efficacy in the learner. However, it is also clear that educators will need appropriate support for this to make the step from design to planning and implementation.

(3) Which currently employed frameworks can be used to assess VM learner skills?

Although there are some elaborated frameworks to assess specific VM learner skills (e.g. DigCompEdu for digital skills or the CEFR for intercultural skills (Council of Europe, 2023)), the existing frameworks do not cover all aspects relevant to VM. However, a virtual mobility learning environment offers a good context to set and achieve personal development goals as a result of informal self-directed learning and socialisation in virtual mobility - which could evoke unintended but powerful learning outcomes.

These answers gave us some further focus in the development of support instrument for educators.

Firstly, it is useful to scope the focus on formal learning, with explicit and intended learning goals to be assessed. Informal learning can be brought into scope, if the intended learning goals can be made explicit within virtual mobility courses or programmes. Secondly, facilitating educators in understanding the complexity of the virtual mobility context they are working in, will also be useful. Thirdly, interculturality and digital competence are influential factors within an educator's own professional development; This should not be neglected, but it is not element we have taken into the further steps.

Assessment of virtual mobility as a form of experiential learning: needs analysis

Experiential learning: literature review

A long-standing criticism of formal higher education is the primacy of theoretical knowledge over practical knowledge. Many students indicate that they struggle with applying their gained theoretically focused academic studies into the practical knowledge required in industry. Recently, many authors have positioned experiential learning as a way to overcome this bias towards theory in higher education.

In the previous chapter, we investigated virtual mobility and the learner skills it can encourage. In this chapter we explore the nature of virtual mobility further, looking into its possibilities as an environment for experiential learning, to understand the potential strengths of this learning environment. We also look at the modes for assessment appropriate in an experiential learning environment. The goal was not to be exhaustive, but to understand the opportunities and challenges of using experiential learning design and the specificities of assessment in this form of learning.

This brought us to the following **research questions**:

(1) To what extent can virtual mobility be an experiential learning environment?
(2) What are the considerations regarding assessment in virtual mobility as an experiential learning environment?

In the following sections, we report on the results of the literature review. We first go into detail what experiential learning is and why it is relevant for student mobility in general, and virtual mobility in particular. We then look at how experiential learning can be designed. Finally, we elaborate on how experiential learning can be assessed.

What is experiential learning?

Experiential learning can be defined as the process that develops knowledge, skills and attitudes based on consciously thinking about an experience. It thus involves direct and active personal experience combined with reflection and feedback (Xhomaqi et al., 2022).

Experiential learning can be characterised either by focusing on the process of learning from experience or by focusing on the context of the experiential learning. This learning is designed to engage students in direct experiences tied to real-world problems and situations, while the instructor facilitates rather than directs student progress (Dernova, 2015).

In experiential learning, students engage in some way with the “real world” and/or the future working environment and its complexity. Experiential learning opportunities exist in a variety of course- and non-course-based forms (Kent State University, 2022). These include project-based learning, service learning, field trips, laboratory experiments, study abroad, internships etc. All these forms share common characteristics (Chapman et al., 1995), including

(1) A mixture of content and process: there should be a balance between the activities and the underlying content/theory;
(2) Engagement in purposeful, meaningful endeavours that encourage a “big picture” perspective: the activities must be personally and emotionally relevant to the student, and allow them to make connections between the learning they are doing and the real world;
(3) Opportunities for reflection: students should critically reflect on their own learning, connecting their experience to theory and gaining insight into themselves and their interactions with the world.

Experiential learning is thus important because it allows students to engage in authentic learning activities that stimulate holistic competencies such as critical thinking, problem-solving and communication. This offers opportunities for them to learn and develop these skills.

Holistic competencies have been deemed important for many aspects of learning and work, including employability and lifelong learning (Chan & Luo, 2021). Recent years have therefore seen an increasing inclusion of experiential learning practices in higher education, in a bid to give students the possibility to smoothly transition from a student in formal education to the informal and non-formal context of a lifelong learner (Fenwick, 2008).

An influential model of experiential learning is David Kolb’s learning cycle (Figure 2). Kolb (1984) argues that in experiential learning, students learn to connect theory and practice, translating academic knowledge into actions in practice. Moreover, new knowledge emerging from experience can be abstracted (decontextualised) into generalisations and applied in new situations (recontextualised).

Figure 2. Kolb’s learning cycle

In his learning cycle, Kolb describes that students move through different activities to create this knowledge: starting from concrete experiences, they reflect on their experiences and engage in deep thinking. By thinking, they connect their concrete experiences to the abstract theories they have gained in traditional contexts. In this stage, abstraction can also be made from concrete experiences, to generate new knowledge. Deep thinking relates to the formulation of actions which students can portray in ongoing experiences. Learning only occurs when you move through the cycle and not by itself, indicating the need for appropriate guidance from instructors and educators.

The Kolb cycle has been influential in guiding instructors and educators in understanding experiential learning experiences. However, the Kolb cycle is also criticised and it is said to be too descriptive and not actionable.

Experiential learning environments are spaces where transformative learning experiences can occur. Originating from adult learning, Mezirow's theory on transformative learning indicates that for an individual learner, transformative learning is the "process of effecting change in a frame of reference" (Mezirow, 1997), that "encompasses cognitive, conative, and emotional components and is composed of two dimensions: habits of mind and a point of view". Through experiential learning, learners might be triggered to acquire new frames of reference, letting go of held meanings and develop new understandings. Therefore, the learning goals of experiential learning almost always includes the goal to become "autonomous, responsible thinkers." (Mezirow, 1997). Mezirow proposes social interaction as a method to trigger these reflections needed to re-assess existing habits of mind.

Experiential learning and virtual mobility

Experiential learning is a useful conceptualisation to understand the experiences in mobility. Mobility-based learning activities – where students travel to other locations with the specific purpose of learning – are often very strong experiential learning moments for students (Mastora et al., 2020). This has multiple reasons:

- In mobility, students interact with authentic learning environments, such as a host university or a host country.
- Through the mobility, students are often primed to take an observational stance towards their host environment. This makes them more aware of differences with their home environment, as well as their own reactions or activities.
- In mobility, students can interact directly with peers and others in this environment, creating opportunities for relationships on a personal level.
- Very often, a student who chooses to engage in mobility, enters this experience with an attitude of openness towards learning.

Mobility by itself is not necessarily a learning environment. Mobility on its own needs to be guided by teaching professionals to make it a learning environment, especially by including moments for reflection (Richert, 1991).

Virtual mobility, where ICT-based activities can be used to support international collaborative experiences comparable to physical mobility, offers many opportunities as here too, learning environments can be authentic, collaborative and facilitate direct interaction. Moreover, reflective processes can be made tangible using digital platforms and processes. Table 3 gives an overview of the characteristics of the experiential learning environment in relation to the different virtual mobility formats.

VM formats	Characteristics of the learning environment
Online exchange courses	Authentic interaction with host university, with a focus on self-directed and autonomous learning.
Joint International Formats	Authentic context, where students are in direct interaction with instructors and peers at host university or others.
Blended mobility	Virtual mobility is used as preparation of or follow-up of physical mobility, where some form of authentic interaction will take place.
Virtual/blended internships	Learning needs to take place through experience and reflection, in an authentic context and as a social process (Vriens & Van Petegem, 2011).

Table 3. Characteristics of experiential learning environment matched with VM formats

Designing experiential learning

The design of experiential learning environments is proven to be difficult. Radovic et al. (2021) point to three reasons for this (p. 804):

- Limited knowledge of educators in the design-based processes of developing experiential learning instruction.
- Limited skills of educators in deepening their educational design, instruction, assessment, and learning context to facilitate a more experiential learning process.
- Instructional gaps in the learning design that reduce educative opportunities and learning benefits, sometimes creating confusion for the student and an inability to follow the experiential learning cycle.

To support instructors and educators, Radovic et al. (2021) have proposed the mARC model, an instructional design model for experiential learning (Figure 3). The mARC model centres around three “pillars” of experiential learning: authenticity, reflection and collaboration. They state that:

(1) learning is a cyclic process related to the nature of the ‘real’ world beyond the classroom (Authenticity);
(2) learners are supported to reflect on knowledge and experience (Reflection);
(3) learning is situated and mediated in a social context (Collaboration).

In this way, the mARC model (Figure 3) brings together the theoretical framing of Kolb’s experiential learning and Mezirow’s transformative learning, as well the situatedness of experiential learning in real-world contexts, to give a framework for instructional design. For each pillar, it elaborates on design elements that educators can use to shape their learning experiences (Radovic et al., 2021).

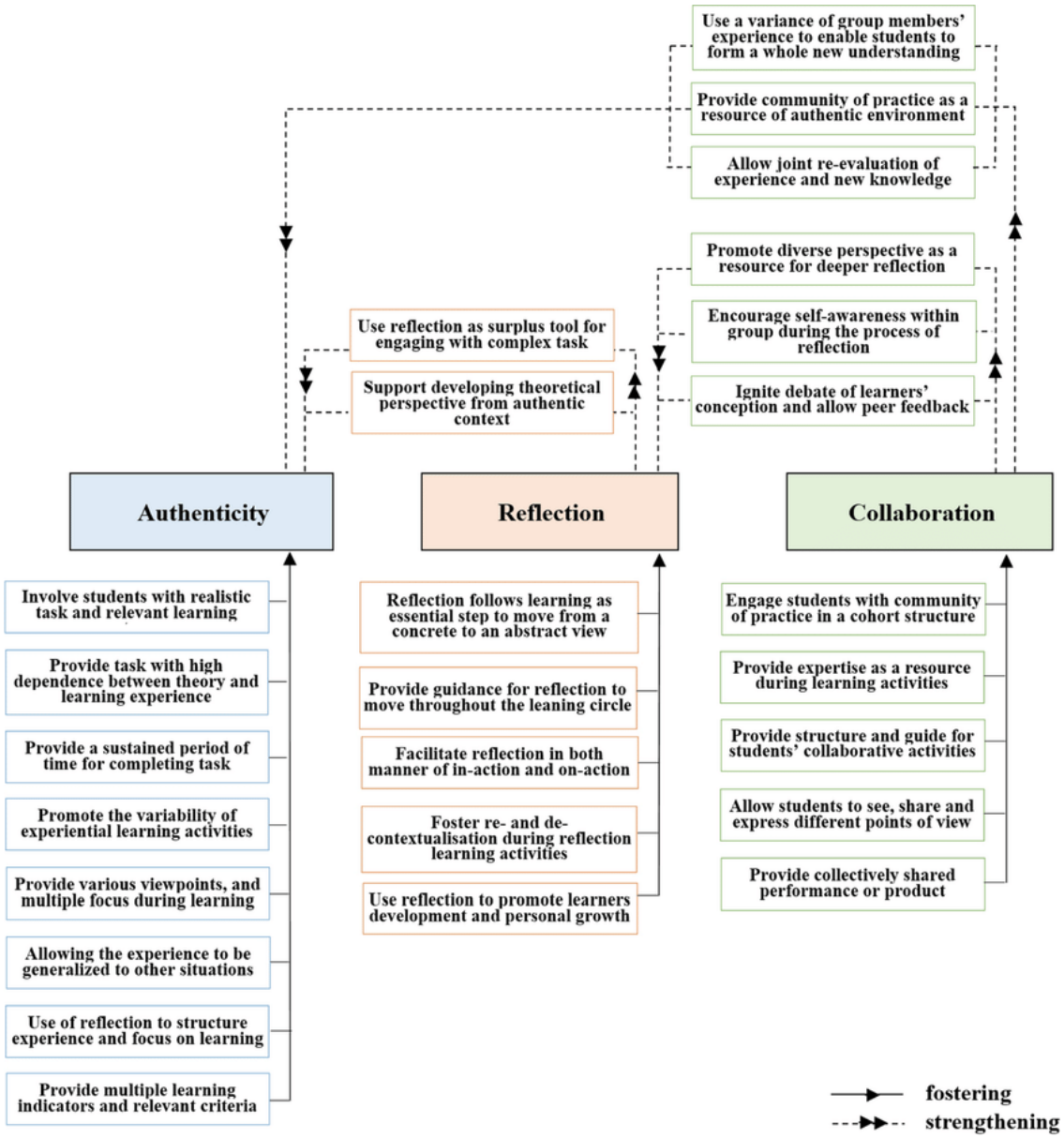

Figure 3. mARC model (Radovic et al., 2021)

Apart from these critical design elements, the authors also propose 9 design principles for experiential learning environments:

(1) Enable students to appreciate and engage with the real-world context.
(2) Provide students with various viewpoints on the learning process through different learning strategies and methods,
(3) Engage students within a community of practice in a cohort structure.
(4) Engage students in discussing and debating a topic, exchanging ideas, and expressing different points of view.
(5) Support students by using prolonged, structured and guided critical reflection as an essential step in engaging students with the meaning of the experience.
(6) Support students in developing a theoretical perspective from an authentic context
(7) Consider students using diverse learners' perspectives as resources for critical reflection and support for the growth of shared understanding within a cohort
(8) Gradually design a complex structure of the learning environment and redesign it in each subsequent stage of the design process

(9) Include ‘fostering elements’ of the pillar and ‘strengthening elements’ in relation to the whole model and all its components.

Throughout experiential learning environments, the emphasis remains on the development of holistic competencies, also known as transversal skills or 21st century skills. These competencies are at the core of employability and incorporate personal skills and positive values and attitudes (Chan & Lee, 2021). Rugarcia et al. (2000) mention that student-centred teaching methods are beneficial to develop these skills.

Moreover, these holistic competencies overlap with the VM learner skills. As elaborated upon in earlier in this document, Rajagopal et al. (2020) identified seven learner skills that students can develop in the context of virtual mobility.

In Table 4 the scope of these VM learner (sub)skills is narrowed down to one of the three pillars within experiential learning. (Note that there is no exclusive focus to the mentioned pillar, but it is merely intended to help in orienting towards a primary focus on either authentic, reflective or collaborative learning.)

OpenVM Learner skills	OpenVM subskills	Experiential learning pillar
Intercultural skills and attitudes	Gaining cultural knowledge	Collaboration
	Understanding cultural perspectives	Reflection
	Enhancing own cultural identity	Authenticity
	Enhancing cultural understanding	Reflection
	Demonstrating cultural understanding	Reflection
	Applying intercultural awareness in culturally challenging circumstances	Collaboration
Interactive and collaborative learning in an authentic international environment	Having enhanced teamwork skills	Collaboration
	Collaborating with peers from different disciplines	Collaboration
	Collaborating with peers within the context of an international learning experience	Authenticity
	Interacting with authentic international resources in a foreign language	Authenticity
Autonomy-driven learning	Demonstrating self-directedness in decision-making on own learning	Reflection

	Demonstrating independent learning	Authenticity
Networked learning	Engaging in digital networking	Collaboration
	Dealing with complexity in networked learning	Reflection
Media and digital literacy	Demonstrating learner control	Authenticity
	Being proficient in using online learning technologies	Reflection
	Being proficient in assessing quality in courses and resources found online	Reflection
Active self-regulated learning	Being able to self-regulate learning processes	Reflection
	Being able to self-reflect on learning experiences	Reflection
	Demonstrating ownership over learning (attitude)	Authenticity
Open-mindedness	Being open-minded and tolerant	Reflection
	Demonstrating self-evidence in interaction with peers and teaching staff	Collaboration
	Show willingness to improve proficiency in foreign languages	Authenticity

Table 4. VM learner skills narrowed down to experiential learning pillars

Based on the analysis of the design of several virtual mobility practices and cases, Rajagopal and Firssova (2020) offer some practical guidelines that can be used by instructors, educators and teaching support staff to design and create virtual mobility activities and more specifically for the different VM learner skills. These guidelines also very much put an emphasis on creating activities that are authentic and stimulate reflection and collaboration.

(1) *Intercultural skills and attitudes*

- *Allow learners to work in cross-cultural teams*: Allowing learners to interact directly in the form of international, cross-cultural teams, with shared responsibilities, gives learners the opportunity to develop their intercultural skills.
- *Take the local contexts into account within the course activities (to increase authentic context):* Choosing activities that allow learners to think about their cultural context and system, contrast it with their peers' settings and formulate own learning, allow the learner to delve deeper into their intercultural learning
- *Take time for explicit (individual or team) reflection on cultural setting, intercultural experiences, challenges experienced:* Building in guided reflection moments on the intercultural experiences during the activity can support learners in further developing their intercultural learning. Especially aspects such as cultural understanding, awareness and attitude development can be enhanced by active guided reflection.

(2) *Interactive and collaborative learning in an authentic international environment*

- *Allow learners to work in cross-cultural teams*: International teams give learners the context in which to engage in teamwork, with the added complexity of international collaboration. A shared goal requires them to work together, understand each other and negotiate to reach the desired outcome.
- *Include examples from local contexts:* Incorporating examples from the different locations in the virtual mobility partnership can increase the authenticity of the learning context. Additionally, this creates a context in which the learners can learn from each other in authentic international situations.

(3) *Autonomy-driven learning*

- *Use independent project work to elicit self-directedness:* The choice of independent project work can also create a context in which learners can develop their autonomous learning skills.
- *Give students free choice:* Let students free to choose their own way of self-organising and/or let them choose their own project to work on around a predetermined theme
- *Coach for independent learning- lifelong learning skills:* virtual mobility activities can be used to develop autonomy-driven learning skills as a lifelong learning skill by tackling content of general interest that transcend the limits of a course or programme. The focus is placed on the topic that can continue into further learner-driven goal setting.

(4) *Networked learning*

- *Offer an explicit (and authentic) context of networked companies, learners, professionals, etc.:* By integrating the available and accessible social network of peers, professionals, relevant companies and organisations, etc. in the course activities, learners can be made aware of the context in which their learning is situated.

(5) *Media and digital literacy*

- *Use independent project work to elicit learner control*: Giving learners the responsibility over the topic and direction of their project work, letting them set their own learning objectives and organising content, creates an opportunity to develop learner control and to bring a level of self-regulation competency to the online collaboration aspect.
- *Give free choice in the use of technology:* Offer a common platform or use innovative tools and technologies for communication and collaboration. However, let learners decide about how they structure their online interactions, and which technologies they use for this creates scope for developing media and digital literacy skills. This approach in particular allows students to think about learning technologies and their affordances.

(6) *Active self-regulated learning*

- *Use independent project work to elicit learner self-regulation*: Independent project work, often in groups or teams, creates opportunities for learners to develop their active self-regulation skills. The context of a team also gives them the scope to self-reflect on their learning strategies.
- *Offer guided support, coaching, opportunities to self-reflect on learning experiences:* Although feedback on the self-regulation process is partially acquired through the progress of the project, explicit guided support and coaching by the instructors can help students to develop their self-regulation skills.

(7) *Open-mindedness*

- *Allow learners to work in cross-cultural teams:* International teams give learners the context in which to engage in teamwork, with the added complexity of international collaboration. A shared goal requires them to work together, understand each other and negotiate to reach the desired outcome. This creates a situation where learners will need to develop an open-minded attitude.
- *Include examples from local contexts:* Incorporating examples from the different locations in the virtual mobility partnership can increase the authenticity of the learning context. Additionally, this creates a context in which the learners can learn from each other in authentic international situations.
- *Take time for explicit (individual or team) reflection on open-mindedness:* Building in guided reflection moments on the learning experiences during the activity can support learners in cultivating an open-minded attitude.
- *Choose a topic that can be looked at from different perspectives:* Make good use of the diversity in the student groups and give assignments in which you challenge the students challenge to look at/write about a topic from at least two different perspectives. Or invite guest speakers that can address the chosen topic from different perspectives.

Assessing Experiential Learning

With the increasing inclusion of experiential learning in higher education, there is also a growing need for a clear vision on learning goals as well as instructor support for designing appropriate environments. A crucial aspect in this is also the assessment of experiential learning.

To be effective and following constructive alignment (Biggs, 2003), assessment needs to be in alignment with the learning objectives and the learning activities. For experiential learning, this creates several challenges. Chan and Luo (2021) point out that experiential activities can be used to facilitate students' development of holistic competencies, but that this can only work if measures for constructive alignment are in place. This is the complexity of experiential learning environments. Below, we look at three aspects regarding assessment in experiential learning.

What to assess?

When holistic competencies are targeted, it is not always made explicit which competencies are taught and taken up as learning outcomes. Although learning goals may be mentioned, the holistic competencies often remain “hidden” in the curriculum (Badcock et al, 2020). This is an issue because if the competencies are not made explicit, it is impossible to communicate about them to the students, nor is it possible to create assessment for them. In other words, this creates questions about the validity, reliability, and feasibility of assessing these competencies (Chan & Lee, 2021). A lack of clarity in assessment of experiential learning can also hinder interest with the students (Chan & Luo, 2021).

Another challenge of assessment of experiential learning is that its outcomes can be varied and unpredictable. How one student chooses to solve a problem will be different from another student, and what one student takes away from an experience may differ for their peers.

Also, in experiential learning, the process is as important as the final product. Therefore, assessment needs to measure success in both the process and the product, and each area may require separate learning outcomes and criteria (Teaching and Learning Services McGill University, 2014).

How to assess?

Holistic competencies can be assessed directly or indirectly. Often, summative assessment is not preferred for these competencies. Formative assessment where improvement in achievement can be captured is favoured.

Positive experiences with assessment of holistic competencies often involve detailed feedback leading to actionable insights (Chan & Luo, 2021). Also, reflective forms of assessment are used. Whatever assessment method is used for the assessment of experiential learning, it will be important that students understand how they are assessed and on what they are assessed, as this gives them context to understand their progress (Smith et al. 2013; Carless and Boud 2018).

An important precondition is that students are assessment literate in terms of holistic competencies (Chan & Luo, 2021). This literacy is crucial for the effectiveness of holistic competency assessment.

The following strategies to assess experiential learning that are listed by the Teaching and Learning Services McGill University (2014) incorporate those elements of reflection or self-assessment:

- Allowing students to define how their work will be judged: they choose what criteria will be used to assess their work or help create a grading rubric.
- Creating a reflective journal or a portfolio
- Reflection on critical events that took place during the experience
- Essay, report, or presentation (could be arts-based, multimedia or oral) on what has been learnt (preferably with references to excerpts from reflective writing)
- Self-awareness tools and exercises (e.g., questionnaires about learning patterns)
- Short answers to questions of a 'why' or 'explain' nature (e.g., "What did you learn during this assignment? What did you not learn that you would like to?")
- One-on-one oral assessments with the instructor
- A project that develops ideas further (individually or in small groups)
- Self-evaluation and/or group evaluation of a task performed

To provide feedback on journals and other methods of assessing students' experiential learning, instructors can develop checklists or rubrics.

Example: assessment of service-learning

One form of experiential learning is service-learning. Service-learning (also known as community service learning, community based learning, etc.) is an educational approach in which the central concepts are **'**serving**', '**reflecting**'** and **'**learning**'**. Students serve society by engaging themselves to a specific community. Meanwhile, they reflect in a structured and critical way on their experiences. In this way, they learn on an academic, civic, and personal level. Service-learning supports the development of students as 'whole persons' who have not only acquired academic skills, but also social and personal competences.

Since service-learning is course-based and credit bearing, this entails that students need to be assessed to obtain credits for the course. There is no clear-cut answer to the questions of *what* to evaluate (student service, learning or reflection skills?) and *how* to assess it? However, KU Leuven uses following baselines, that are in line with above-mentioned strategies (KU Leuven Educational Policy, 2022):

- Assessing learning outcomes in service-learning implies multiple tools and forms of assessment, with attention to both quantitative assessment (of concrete learning results) and

qualitative assessment (of broader development goals). The proportion of both aspects in the overall assessment should be communicated clearly to the students in the course description.

- Student learning and broader development can be assessed through a wide range of tools, e.g.
    - a (digital) portfolio, which can lead to a final product to be assessed, or as a formative means to focus on the learning process
    - assessment rubrics, which offer the advantage of consistency in assessment and offer a frame to assess both the depth and breadth of reflections and other assignments. Students can make use of these rubrics to improve their writing and reflection skills
    - pre- and post-testing, which allows to compare and thus assess the learning. Pre-tests can also offer a starting point for students to gauge their own learning, and it provides valuable information to the instructor regarding the level of the student before embarking upon the service-learning project.
- An important element of assessment is the coherence of process and product. Attention to the learning process on an academic, personal and civic level is crucial to service-learning, as is the need for a final ('wrap up') product like an exam, paper or presentation. Therefore, the learning *process or path that leads to the end product* needs to be taken into account when assessing students.
- Mid-term assessment of students enables instructors, students and community partners to focus on the learning process and to stimulate further learning and engagement.
- The final assessment is based on a combination of many elements: concrete learning results and broader development goals, process and (final) product, and assessment by different actors (assessment or feedback can take many forms, and should not always be offered by an instructor but also by peers, the students themselves or external actors). The exact combination of all these elements depends on the content and shape of the course.

Examples

In the following table we present some examples of assessment of experiential learning from different virtual mobility learning formats as well as from service learning (Table 5).

Types	Example course	Holistic competencies targeted	Online assessment methods

Virtual mobility – Online exchange course	The KU Leuven Online Winter University programme **Global Challenges for Our Sustainable Future. A Social Sciences and Humanities Approach** offers credit-bearing courses (6 ECTS) and targets advanced Bachelor's and Master's students with an interest in sustainability.
	
	Students work in multinational and multidisciplinary student teams to identify, elaborate on and formulate a possible strategy to deal with global challenges for a sustainable future. Experts from KU Leuven faculties of Arts, Economics and Business, Social Sciences and Theology and Religious Studies introduce and illustrate the broad theme of sustainability from the Humanities point of view, using several cases. Each student will delve into a self-chosen global challenge and formulate a possible evidence-based approach to a sustainable future.
		The objectives (evaluation criteria) of the Winter University are captured in a single point rubric. Standards in this rubric are based on the VM learner skills and include:
		
		• Standards for international learning
		  ○ International subject learning
		  ○ Interactive and collaborative learning in an authentic international environment
		• Standards for transversal skills
		  ○ Intercultural skills and attitude
		  ○ Open-mindedness
		• Standards for future-oriented skills
		  ○ Networked learning
		  ○ Media and digital literacy
		  ○ Learning for environmental sustainability
		• Standards for personal development
		  ○ Autonomy-driven learning
		  ○ Active self-regulated learning
			The final assignments consists of several components which are all compulsory:
			
			• Preparatory assignments
			• Full participation in all learning activities
			• Group assignment
			
			The rubric will be used for the final presentation and assessment, but can also be used for self-assessment.
			
			The rubric can be found in Annex 2 (Clement, 2022).

Virtual mobility - Joint International Format	**Professional and Cross-cultural Skills in Engineering** is a 6 ECTS course that offers "a journey from personal professional skills introspection and development towards intercultural and team competencies development" (Van Petegem et al., 2016). The course is a collaboration between instructor teams in KU Leuven (Belgium) and Penn State university (US). Instructors are collectively responsible for developing the learning resources and for teaching/coaching the students and play an active role in guiding the students' personal growth and intercultural competence development. Direct, authentic interaction between student groups and with instructors at the partner university is stimulated. Activities include a collaborative and experiential learning project in which students tackle a concrete engineering problem in the global world: the students in mixed teams across the ocean, encounter virtual, cross-cultural challenges and resolve them while applying several course concepts. Students are free to choose their own technology to achieve the interaction and	The learning objectives include domain specific and generic skills, such as: • demonstrate proficiency in engineering team-building, leadership and service in the context of cross-cultural engineering teams; • construct creative solutions to engineering problems incorporating cultural differences among team members and external stakeholders. • critically analyse personal and team-member competencies and biases. • formulate and apply strategies to improve engineering team dynamics. • provide effective feedback, recognition, motivation and corrective guidance for international/intercultural team members.	There is no exam. Students are evaluated on the basis of their work on the project and assessment includes different assignments students have to submit during the course, i.e. journal entries, quizzes, individual assignments, individual news presentations, individual discussion leads, individual participation in class discussions, and team project work. Self-assessment and peer assessment are also used in the process.

	collaboration. In this interdisciplinary project students combine their engineering knowledge and entrepreneurial spirit with their professional and intercultural skills in order to find innovative and feasible business opportunities.	• evaluate strategies for the diffusion of ideas within international and cross-cultural markets. • examine moral, ethical, and legal dilemmas in cross-cultural engineering environments.	
Virtual mobility - Blended Intensive Programme	**Instructor Education in a European Perspective** is a 3 ECTS course and is organised as a Blended Intensive Programme (BIP). The BIP is offered to students of KU Leuven, and 6 other instructor training programmes from 5 countries (Finland, the Netherlands, South-Africa, Germany and Norway). The theme of the 2022-2023 edition is 'The Role of the Instructor for the 21th Century' (KU Leuven Academic Centre for Instructor Education, 2022). The BIP consists of two virtual preparatory meetings, a one-week study visit in Leuven and a virtual post-processing/reunion and reflection moment. During the first online contact moment, students get to know each other and get an introduction to the course (objectives, programme, study material, evaluation, etc.). Students study both the own as the Belgian education system and instructor training. During the second online contact moment, the students are introduced to the education system and instructor training courses in Flanders, Germany, Finland, the Netherlands, Norway and South Africa and to current educational aspects. During the study visit, students will hear from educational experts (on topics such as multilingualism, differentiation, well-being,..), join creative workshops, visit comprehensive schools, visit European institutions and work on a challenging group assignment. At the end of the study visit, students present their preliminary results to each other. After the contact week, the students continue to work on their assignment in groups. During the online moment after the contact week, students present the final results of the assignment to each other and submit a report on their further processing.	Learning outcomes are that the student: • has knowledge and scientific insight into general pedagogical-educational frameworks • can take a substantiated position on, and actively participate in and contribute to, national and international public debate on current social topics and developments. • can take initiative and responsibility to independently and actively seek out innovations from the broad field of research and education, to develop them on the basis of scientific research and to implement them at a group and organizational level. • has a scientific, investigative approach to their own discipline, teaching methodology and within the general pedagogical-educational domain, with a focus on creativity and sustainability. They are able to reflect on their own educational vision. • develops a curious attitude in the context of continuous professional development in their discipline, didactics and the general pedagogical-educational domain regarding their educational development, showing willingness and enthusiasm to innovate. • is interested in current affairs and education in general.	During the study visit the students start working on a group assignment, which they can continue after the study visit as well. The students submit a group report at the latest 7 days after the moment of return. They also present their final results of their assignment during an online session.
Virtual mobility -	In the framework of the **Bachelor in Business Management and Office Management**, a pilot on **supporting international**	Learning goals for students were to develop three of the ten generic competences that are	The SIS tool (a self-assessment system on competences during

Virtual/blended internships	**internships** was set up at Katholieke Hogeschool Leuven (currently UCLL) (Vriens & Van Petegem, 2011). Eleven Belgian students from the bachelor undertook an internship abroad. Students were expected to perform in a realistic work environment related to their field of study. As a preparatory measure, an information session was organised for the students and the academic mentors at the start of the work placements. They were briefed on the use of the virtual tools to ensure academic support during their stay abroad. E-mail was used to communicate with the individual students on a more personal basis. Web/video conferencing was used frequently to discuss the students' experiences with the academic mentors and with their peers who stayed in Belgium. The use of web conferencing also resulted in an 'internationalisation at home' experience for their peers who undertook their internships at local companies. Hearing about and discussing the experiences of the students abroad also enlarged the local students' awareness of international differences between business cultures.	part of work placement competences put forward by the Business and Office Management study programme. These include a.o. dealing with working in a business environment, or evaluating the self-set goals and actions to reach those goals, based on the results of their performance.	performance at the work place) was used to help students select, follow-up and evaluate their performance during their work placement. An e-portfolio tool allowed students to post and store all documents that related to their final report. These documents could be accessed and commented on by the academic mentors. The role of the company mentors in the work placements consisted of advising the students on their activities and evaluating their performance based on generic and professional competences.
Service learning	**Intercultural Community Engagement** is a 6 ECTS course and is a service-based experience in a local community. It is offered as part of the Study Abroad Programme in European Culture and Society (PECS) of the Faculty of Arts at KU Leuven (KU Leuven Educational Policy, 2022). During one semester, international students that participate in this programme will take on a concrete civic engagement within a local community and in a real work situation (schools, community centres, cultural organisations, etc.). In addition to the civic engagement, the emphasis is on the experience of and reflection on the intercultural encounters that this work situation entails. By actively participating in the organisation, students acquire a critical understanding of cultural and social diversity, strengthen their self-confidence in multicultural contexts and sharpen their social and organisational skills.	At the end of this course, the students have acquired • a critical understanding and experience of cultural and social diversity • increased self-confidence in multicultural contexts • an increased awareness of his/her own cultural background and openness towards other cultures • social skills such as intercultural communication, collaboration and negotiation • organisational skills, including independent planning, problem-solving, flexibility, time management, teamwork, and decision making.	Evaluation is based on: • intermittent reports in which the student describes the progress of the collaboration and reflects on the experience of intercultural exchange, social and cultural difference, and social engagement. • a mid-term interview in which the student discusses the reports with the academic coordinator. • a final report in which the student discusses the experiences and gained insights, and critically reflects on their expectations, learning curve, and development of their intercultural skills. • feedback by the social partner

Table 5. Examples of assessment in experiential learning

Assessment of virtual mobility as a form of experiential learning: reflections and recommendations

The literature analysis allowed us to answer the initial research questions.

(1) *To what extent can virtual mobility be an experiential learning environment?*

Virtual mobility activities – as all mobility activities – offer valid and powerful experiential learning environments. They offer spaces where collaboration and interaction can take place in authentic environments, and that can trigger reflective practice. A virtual mobility environment affords a context where students can decontextualise and recontextualise knowledge – where they can enter the experiential learning cycle.

However, it is not a given that all students will gain the same learning experiences from a virtual mobility learning environment. It is therefore important that they are guided by educators.

(2) *What are the considerations regarding assessment in virtual mobility as an experiential learning environment?*

The literature study shows that an important shortcoming in many experiential learning activities is the lack of constructive alignment in assessment. A first consideration is that it is important to identify the learning objectives of a virtual mobility activity, in order to be able to design appropriate assessment.

Another outcome of the literature study points to the need for assessment literacy in the students. When students are not aware of how assessment supports their journey towards achieving the learning objectives, they are less inclined to engage with the activities or participate in assessment. A second consideration therefore is that it is important to articulate the learning objectives to the students and contextualise the assessment activities, to heighten their engagement.

A final outcome of the literature study is the importance of guidance by the educator. Educators need to integrate reflection into virtual mobility activities, to support their students' effective learning experience. However, it is clear that educators are not yet sufficiently familiar with experiential learning environments as well as non-traditional assessment.

Design support for instructors on assessment for virtual mobility

The literature reviews covered in the previous chapters already gave a good scoping for the development of the support instrument. In this chapter, we report on the input that we collected from the partners' current practices and needs and from the results of IO1 and IO2 (see Kondacki et al., 2022; Marín et al., 2022). These were all fundamental to better understand the preconditions for online assessment design in an international/virtual mobility context and thus were also essential in the further development of the instrument.

Online assessment - learning from the KU Leuven framework during the pandemic

During the COVID-pandemic a lot of the assessments had to be organised remote and online, especially in international oriented educational programmes where students abroad could not return to their universities during the exam period. Therefore, the COVID-pandemic has given a lot of insight on the different aspects that are important when organising online assessment in an international context and. To support instructors in the transition to using online assessment, KU Leuven developed a usage framework to make these aspects visible and manageable (Figure 4).

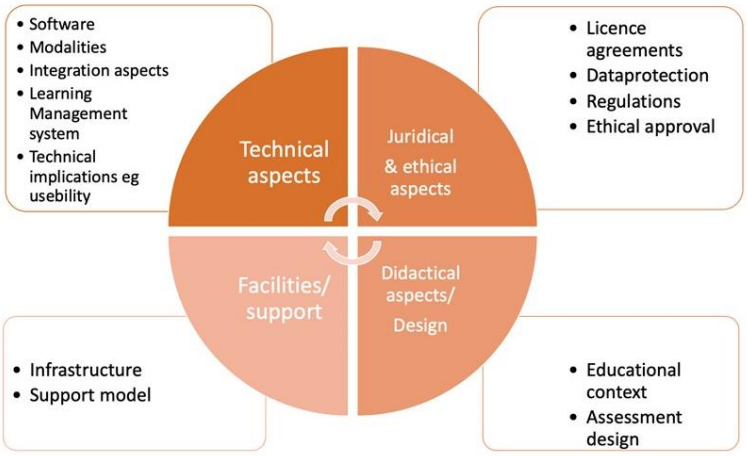

Figure 4: KU Leuven framework on online assessment

The following four aspects are covered: didactic design aspects, legal and ethical aspects, facilities and support and technical aspects.

Taking into account all these aspects, the focus should in the first place be on the design and didactics. The learning goals the instructor wants to achieve have to be aligned with the assessment method and agreements within the educational programme. At the same times, also the characteristics of the student group (group size, place of course within the curriculum), their prior knowledge and digital competences have to be taken into account.

Since a lot of the assessment methods use a traditional approach, questions about the academic integrity and tools to prevent fraud were explored in order to control for the quality for summative assessment in delivering certificates. This resulted in a need of instructors for using proctoring

tools to transform their on site assessment method into an equivalent online alternative. At the same time, the question about the privacy and intrusion that comes along with the use of such tools were legitimate as well. It is also known that stress occurs in using these tools both on the aspect of being technically equipped as on the intrusiveness of control in the personal environment of the student. The ethical and juridical aspects on the use of tools can therefore not be neglected.

This is in line with the outcomes of IO1 which found that the necessities of technological infrastructure and resources as well as the presence of formal and informal support mechanisms should be taken into account. International students need to be able to access the technological devices and resources needed for online assessment and should be aware of the resources and support mechanisms provided by the institutions (Garcia-Peñalvo et al, 2020; van Halem & van Klaveren, 2021).

Also, the use of new tools needs to be explored carefully. The exploration and later on implementation has a cost at different levels: financially when an existing tool is bought and personal for the support during implementation.

Online assessment in an international context: outcome project surveys and PAP-framework

Within the project the surveys for stakeholders done in IO1 and IO2 contained information on organising online assessment in a national/local context. The challenges and concerns are recognisable to those in the international remote context. Some results from the IO1 survey (Kondakci et al., 2022) suggest that online assessment in an international context, in essence, is not much different from a national context. Whether students are examined from a home context or another country makes no difference. However, it is important to state that these comments are merely related to the exam procedures and the content of the exam.

At the same time, other stakeholders that responded in the IO1 survey indicated that several aspects are to be taken into account when it comes to assessment in a virtual mobility/international context and some special sensitivity towards international students will be necessary. Since assessment in virtual mobility comes in the hands of more than one institution and for example legal aspects in different cultural contexts should be taken into account, and the design of online assessment can be more constraint.

Furthermore, there are always discrepancies between national and international students in terms of access to technology. As a result, accessibility to necessary infrastructures and technological tools is a critical element when assessing online in an international context. In that sense, international students may demand a different level of sensitivity from the institutions. Equity, well-being of the students, compatibility of the systems, cultural pluralism, are also raised as issues in assessment in international context.

From the survey that was done in IO2 (Marín et al., 2022) also a number of challenges were identified. Although some of the challenges that are mentioned vary slightly depending on the perspective of the three stakeholder groups that participated in the survey (instructors, administrators and students), there is considerable consensus. Challenges refer to:

- assessment culture (cultural differences, change of model, time zones, globalisation, presence vs. online, inequal opportunities, language)
- academic integrity (plagiarism/fraud, ensuring identity)
- assessment quality (revision & counselling, future, recognition/accreditation, reliability, impact on learning)
- infrastructure and resources (technological challenges, connectivity, security, access to resources)
- instructors (language training, preparation, pedagogical challenges, workload, predisposition/beliefs)

The PAP-framework (Kondakci et al., 2022), developed in IO1, can help to explore important aspects of the context and advises that influential factors on online assessment design should be explored from macro-level, meso-level and micro-level.

Factors that affect the practices of online assessment are interconnected and should be considered as a whole rather than as fragmented entities. In Table 6 the factors linked to online assessment are shown.

Macro-level factors	• Situational factors (e.g., Covid-19) • Legal codes and regulations • National assessment culture
Meso-level factors	• Institutional policies • Type of university (research vs. teaching oriented) • Institutional culture • Nature of the discipline • Class size
Micro-level factors	• Teacher-related factors ❖ Teacher competencies (i.e., digital, cultural, pedagogical, & assessment) ❖ Workload ❖ Teaching experience • Student-related factors ❖ Digital competencies ❖ Infrastructural needs and resources

Table 6: Dominant factors related to online assessment (Kondakci et al., 2022)

To expand and refine these three levels we looked further into the following factors important for implementing assessment in virtual mobility: technical aspects, juridical-ethical aspects, educational context, finance and support. The starting point is the macro-level and aspects that add to this level, before exploring the meso- and micro-level. This ‘waterfall-mechanism’ helps to focus in the decision making and to leave only the ‘acceptable’ options open.

At the **macro-level** the ***juridical context*** is important and can restrain the possibilities due to legal codes and regulations. Especially when organising and conducting assessment in an international context.

Relevant input from the IO1 report reveals that not only the institutional policies and assessment culture but also national policies were effective in shaping assessment practices. The results of the stakeholder surveys also confirmed this argument. Several participants from each partner country indicated that they have limited autonomy in selecting the online assessment method they like because of the policies and regulations framed by their institutions and sometimes by the states.

On the **meso-level** ***institutional policies, procedures and culture*** can encourage or discourage the use of assessment methods. Looking at the mission and vision on assessment culture and starting the conversation on this when working internationally is important in valuing assessment design and outcomes. With regard to internationalisation certain assessment methods can be utilised that discourage students to commit fraud or do not have academic integrity.

The educational context is equally important. What is the educational goal? Which competences need to be achieved? As previously indicated, assessing learner skills in a virtual mobility context requires moving away from only traditional assessment methods. Conversation across institutional bounders are essential in creating a shared vision and mission policies with regard to the learning objectives within the virtual mobility course.

At **micro-level** aspects related to instructor and students experiences are important as well. Digital competences as to both the educator's professional competences and the learner competences should be taken into account (Punie & Redecker, 2017), also thinking about the need for support on technical infrastructure and support in using online tools for instructors and students.

Online assessment - refinement of KU Leuven framework

The PAP-framework broadens the questions on the above-mentioned KU Leuven framework. As the virtual mobility context also adds a layer of complexity, in an international context, additional challenges will have to be considered and tackled within all four aspects (Figure 5). In the next section, we elaborate on each of these aspects.

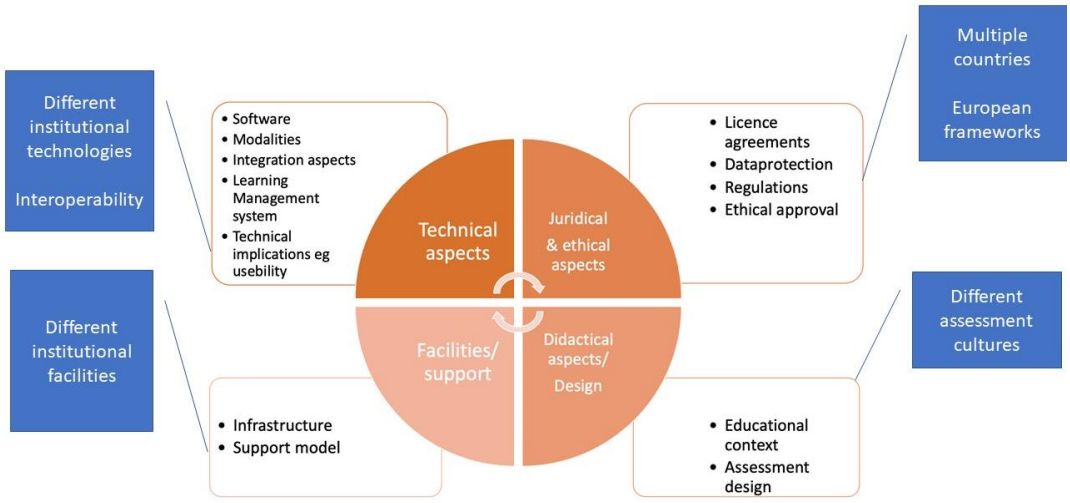

Figure 5: KU Leuven framework on online assessment – extension to virtual mobility context

Juridical/ethical aspects

The juridical context is important and can restrain the possibilities due to legal codes and regulations. Especially when organising and conducting assessment between institutions as in the case of virtual mobility. It is for example essential to take into account the legal considerations when creating international joint courses (Parikka et al., 2022).

Designing assessment in the case of virtual mobility will require a thorough exploration of legal aspects and how the institutions deals with data protection and privacy issues. In this, various national regulations should be explored to find out to what level a certificate should comply. In this, different national decrees should be explored to find out at what level a certificate should comply. Even within the same country different departments may have different regulations. Also the national assessment culture is important for the overall acceptance of assessment methods in order to award certificates. Alternatively, cultural differences may limit the types of assessments allowed.

- What are the institutional legal codes regulating assessment?
- Are there national or regional policies in place regarding assessment methods?
- Are there any particular regulations for online assessment and what are they?
- What are the policies at the partner institutions? Are there conflicts with the own institution? How can common ground be found to work together?

Other challenges that come up in this context have to do with authentication, handling identification and verifying that the student completing the assessment or exam is the one who is doing it. How big are the risks and how can the assessment be adjusted to minimise these risks (e.g., authentic assessment, individualised assignments, ...). It is difficult to make exams “fraud-proof”. Additionally, measures should be taken to ensure data protection and exam security in order to improve the validity of online assessments. Proctoring software could offer a solution.

- What are the ethical questions on trust or control of students?
- Are there ethical concerns about the students’ privacy?
- What are the institutional requirements for preventing and/or controlling fraud?

Finally, it is especially important for students, that a virtual mobility course as well as the grades obtained are recognised by the home institution.

- Which policies do partner institutions have on the recognition of credits for courses followed in another institution? What are current procedures, if any? Where possible, consider following similar procedures for virtual mobility as for physical mobility.

Technical aspects

Also technical conditions need to be right. A fail-safe, technical infrastructure is necessary and choosing reliable tools and technologies is critical. Preferably also tools need to be chosen that are easy to use and are accessible. Look into technologies that are already available at the higher education institutions so that students are already used to them, is to be considered (García-Peñalvo et al, 2020). Questions that should be asked are:

- What are the possibilities within the institution's existing online learning platform and Learning Management System (LMS) for online conduction/submission/ processing of online assessment? What infrastructure, facilities are available at the partner institution(s)?
- What software solutions (beyond the LMS) for online assessment the partner institutions want to work with?
- When using external software, how can this be integrated in the existing Learning Management System to make it easier for students to use the technology?
- What is the cost for using certain tools or technologies and is funding available for it?

Both instructors and students are at different locations with (access to) different institutional facilities. They will be faced with a variety of institutional tools and technologies for assessment. Equity is a particular concern in online assessment and possessing and access to the technical tools, technical infrastructure, and facilities is essential for a fair online assessment. Therefore, it should be checked that the tools available to international students are accessible and compatible.

- Which devices are available to students to conduct online assessment? What hard/software must students provide in order to participate in a virtual mobility course and take an online exam? Does the student have the right facilities that meet exam standards and take into account different home/country circumstances?
- Can students access the institutions' assessment facilities remotely and can they seamlessly connect to tools, teaching platforms, assessment facilities?

Accessibility to virtual campuses and their infrastructure and resources is critical for online assessment in an international context.

- What are the technical requirements for using certain tools?
- What about network connectivity? Does everyone have a stable internet connection? Losing connection while watching a course video online can be inconvenient, but it can have major consequences when the student is taking an exam.

Didactical aspects/design

When designing an online course and assessment within an international or virtual mobility context, there are several didactical aspects in the design that should be paid attention to. Overall the assessment culture between institutions can differ for several reasons.

- *Assessment concept:* Remote exams in an international context, require new didactic assessment concepts. From the outset, one should think about the online teaching format and the students it targets and align the assessment method with the rest of the course. Think about scalability as well: is the chosen assessment method scalable?
- *Learning goals:* Assessment must allow an objective evaluation of both theoretical knowledge as well as competences, skills, and attitudes (perhaps this may require some face-to-face sessions). Instructors have to make clear what the general learning objectives are, and what skills or competences will have to be achieved. A virtual mobility learning environment offers a valid and powerful international learning environment where instructors can let their students work on different learner skills. This might require moving away from only traditional assessment methods.

- *Time zones differences*. In an international context, students may be in different time zones. This can be a challenge, especially for synchronous exams and can influence the choice between synchronous or asynchronous learning or assessment activities.
- *Academic calendars*: Students at other institutions may have different academic calendars, which also means a possible conflict between exam schedules. One possible solution is to evolve towards time and place independent assessment.

In the design of the course and assessment, the diverse (cultural) backgrounds of the students should be considered as well:

- *Language*: It should be taken into account that students might take an exam/do an assessment in a language that is not their native language. Language and different cultural backgrounds can also affect how students interact with instructors.
- *Cultural background*: Students from diverse cultures or backgrounds may have different attitudes towards certain assessment methods. Different countries might have different assessment cultures and traditions that influence how evaluation is seen or how grading systems work.
  At the level of attitudes, for instructors it is important to consider their own perspective on delivering education through virtual mobility and to be aware of different attitudes and preferences that are coloured by cultural factors. The (institutional) culture may encourage or discourage the use of certain assessment methods. When working in an international context, it is crucial to value assessment design and outcomes by taking a close look at the different visions on assessment culture and starting a conversation about it.
- *Well-being of students:* Effective online assessment is related to the psychosocial well-being of students. Where learning takes place online, measures should be taken to integrate the international students into the class dynamics (e.g., by allowing them to engage in other activities after class). Do students feel connected enough? Are they sufficiently involved? Is there a sense of togetherness with other students and do they collaborate? It should be ensured they experience sufficient and adequate support, receive transparent communication, and feel enough connection. A friendly, easy to use approach for the assessment should be used.
- *Equity*: As with non-international students, online assessments can raise concerns about their reliability and fairness. Equal treatment of international and local students should be guaranteed (multilingualism, access to tools, facilities, technology…). Regarding the didactical and technical implementation: exams should be designed in a way that students have little or no benefit from taking exams remotely. The exam should be fairly complex and be placed in higher taxonomies. It must be ensured that no group of students has an advantage or disadvantage due to the exam format itself.

Facilities/support

It is important to take the necessary precautions against the unique challenges that international students face in online assessment. Providing training and guidance to international students in online assessment tools and processes is a means for addressing these challenges. In addition to ensuring that international students have access to technological devices needed for online assessment, instructors should inform students about the resources and (formal and informal) support mechanisms that their institutions provide.

- Are clear technical requirements for conducting online exams provided? E.g., does off campus remote access require that additional programmes be installed prior to the exam? Are students, especially those from other institutions and countries, informed of these requirements?
- Is support for examinees provided throughout the examination? The possibility of testing the online assessment facilities in advance can be considered or providing some kind of orientation via an introductory tutorial video or informative step-by-step instructions. Students have to be informed what they have to do in case a technical malfunction occurs.
- Can access to the technical infrastructure (exam platform) be provided in advance for testing/practice? Where possible, students could be offered to take a short mock exam.
- How many staff are needed for supporting students in using technology and organizing administration?
- Are there special concerns for some students that need to be considered (political, health-related…)

Concerning digital competences, it is important that both instructor and students have the confidence to work with tools. Being aware that the facilities provided for the needed support and training is important to set clear expectations and become aware of the needs for support.

- How familiar are students with certain tools and technologies?
- Do the instructors have the necessary skills to implement and conduct online assessments?
- Is training for students and/or instructors necessary?

As an instructor, it is important to be able to rely on support structures available within the institution and international partnership.

- What is the workload for designing a virtual mobility course and online assessment in this context and for which aspects can be counted on others?
- If needed, is educational support staff/a didactic team available at the institution? Is there support for the technical aspects, and the administrative processes?
- What support is available within the partnership?
- Is additional funding for implementing tools and/or employment support staff needed? Is institutional or external funding available?

Instrument for designing online assessment in virtual mobility

Based on all the input collected, a support instrument was created which addresses online assessment within the educational context of virtual mobility.

Figure 6: Screenshot instrument for designing online assessment in virtual mobility

The starting point for the instrument is that the user has chosen to design a course for virtual mobility and is familiar with virtual mobility formats. The guidance in assessment design in this instrument focusses only on online assessment for learner skills within the OpenVM Learner Competence Framework (Rajagopal et al, 2020). Of course, many general learning goals/objectives can be reached in a VM context. For these we refer to the more generic instrument in IO3 (Dobler, 2023) focusing on traditional online assessment methods. Also it is not the aim of the instrument to be exhaustive, but rather to be advising and inspirational in facilitating choices in design. In the tool we have included the most relevant question

What is it?

The instrument is a reflective step-by-step guide that is aimed at orienting in choosing an appropriate assessment method in the online assessment design for learner skills in virtual mobility. Each step has a specific focus and includes guiding questions for or choices to be made by the user. Evidence-informed driven, a theoretical model lies at the basis in each step.

Step 1 – Understand your educational context and its preconditions

Goal: In this step the focus is on getting grip of important environmental aspects that can play a role in the assessment design for virtual mobility. It lets the user question themselves and gives information on aspects to pay attention to in designing assessment in an international context.

Model: PAP-framework (Kondacki et al., 2022), bringing together aspects from macro-, meso- and micro-level that influence the assessment design.

Support material: Table with guiding questions

Step 2 - Gain insight in achieving VM learner skills

Goal: In this step the seven learner skills of the VM Competence Framework are explained in order to make clear how virtual mobility can be of added value for achieving learner objectives. The participant is directed to choosing the learner skills they want to focus on in their educational virtual mobility context.

Model: VM Learner Competence Framework (Rajagopal et al., 2020)

Support material: VM learner skills explained

Step 3 – Make transfer from learner skill to experiential learning pillar

Goal: In this step the chosen learner skills are matched to one of three three pillars of experiential learning as the approach of experiential learning is of great benefit in designing active learning environments.

Model: mARC model (Radovic et al., 2021)

Support material: created matrix for mapping skills on pillars

Step 4 – Explore online assessment methods

Goal: The appropriate assessment method is chosen taking into account the learning goals for the specific learning skills and virtual mobility format

Model: mARC model (Radovic et al., 2021) and VM L earner Competence Framework (Rajagopal et al., 2020)

Support: created matrix with examples of assessment for each pillar

Step 5 – What is next?!

Refinement on assessment design with focus on broadening the whole course design and choosing applicable tools.

Whom is it for?

The instrument can be used by administrators with a broad focus on educational design (e.g. educational designer/developer, international relations officer, educational technologist, …) in supporting instructors/instructor teams, as well as instructors/instructor teams themselves in the development of their course/educational programme within virtual mobility.

We hope the instrument will be of interest to the growing number of institutions and teachers interested in the concepts of virtual mobility and online assessment across Europe and world-wide.

The instrument can be consulted and downloaded at the Remote.EDU project website.

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Annex 1 OpenVM Learner competence framework

Based on a Group Concept Mapping study, the OpenVM Competence Framework was constructed building on the answers of 49 experts in virtual mobility and Open Education. The framework, a detailed account of the methodology applied and study results as well as OpenVM competence descriptions as handouts, with translated versions in NL, FR, DE, RO, IT, ES, is available at. https://www.openvirtualmobility.eu/topics/outputs/o1-framework-and-guidelines.

Intercultural Skills and Attitude	Developing intercultural skills and attitude implies that the student acquires cultural knowledge and a better understanding of cultural perspectives, including understanding of own cultural identity, that the student enhances and demonstrates cultural understanding and can apply intercultural awareness in culturally challenging circumstances.	*Gaining cultural knowledge*	Gaining knowledge about the culture they "visit"
			Getting to know other cultural-based perspectives of education
		Understanding cultural perspectives	Improving understanding of intercultural issues at general and disciplinary level
			Getting a feeling of how learning (or teaching) is like in a different country
		Enhancing own cultural identity	Gaining knowledge about own culture
			Become self-aware of their own cultural identity
		Enhancing cultural understanding	Gaining international, intercultural experiences
			Experiencing different cultural settings (in all its facets) through online courses
			Exposure to different working and cultural backgrounds
		Demonstrating cultural understanding	Direct interaction with peers from other cultural settings during VM activities
			Exchange knowledge with peer from different cultural settings
			Being able to deal with intercultural issues
		Applying intercultural awareness in culturally challenging circumstances	Learning to reserve judgment on the people you work with, to avoid cultural misunderstandings
			Becoming self-aware of the cultural prejudices
			Can deal with intercultural issues
			Feeling confident in interacting with people from other cultures

Interactive and collaborative learning in an authentic international environment	Interactive and collaborative learning in an authentic international environment implies that the student develops team work skills, collaborates with peers across disciplines and contexts, acquiring new international learning experiences and interacting with authentic international tools, systems and resources in a foreign language	*Having enhanced team work skills*	Enhancing team work skills
		Collaborating with peers from different disciplines	Exchanging knowledge with peers from different disciplines
			Interacting and collaborating with peers from different disciplines
		Collaborating with peers within the context of an international learning experience	Experiencing different learning methodologies
			Having a learning experience different from learning offline and in own country
			Collaborating in the open digital contexts
		Interacting with authentic international resources in a foreign language	Interacting with libraries and databases, in other countries in a foreign language
			Access to and use of authentic resources in a foreign language

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 organise the learning process.	*Demonstrating self-directedness in decision-making on own learning*	Developing learning self-regulation strategies
			Developing persistence and creativity in organizing one's own study
		Demonstrating independent learning	Being able to study in a flexible way, independent of time and place
			Enhancing lifelong learning skills
			Adapting and further developing knowledge of Open Education ICT tools
			Learning in an open digital context

Networked Learning	Being able to learn in networked way (= engage in networked learning) implies that the student is able to use digital networks in/for learning and communication in international contexts or environments and is able to tackle complex, ambiguous and ill-defined issues and situations in (emerging or existing) social networks.	*Engaging in digital networking*	Being able to use networks (being "networking savvy") for learning
			Learning to work and cooperate in an international setting with the use of ICT and social platforms
			Enhancing international and digital competence
		Dealing with complexity in networked learning	Crossing boundaries in learning
			Learning how to deal with complex situations
			Learning how to deal with ambiguity

Media and Digital Literacy	Media and Digital Literacy implies that the student is able to use resources effectively to learn, can assess the quality of resources and demonstrates "learner control".	*Demonstrating learner control*	Bringing a high level of self-regulation competency to the online collaboration aspect
			Setting one's own learning objectives
			Organizing content and schedules
		Being proficient in using online learning technologies	Awareness of the differences between on- and offline
			Proficiency in searching for new courses & resources
			Proficiency in using digital platforms
			Proficiency of independent use of tools for online communication
		Being proficient in assessing quality in courses and resources found online	Proficiency in assessing course and OER quality

Active Self-Regulated Learning	Being an active self-regulated learner implies that the student is able to self-regulate own learning process, can reflect on learning experience and one's own progress and can demonstrate that they have the agency of one's own learning.	*Being able to self-regulate learning processes*	Being self-responsible
			Being self-disciplined
			Being able to plan and organise one's own learning
			Being pro-active
		Being able to self-reflect on learning experiences	Being able to reflect on one's own learning process
			Being communicative
		Demonstrating ownership over own learning (attitude)	Being motivated to learn
			Being constructive towards the course goal
			Has both digital and cultural competences

Open-Mindedness	Open-Mindedness implies that the student is tolerant to others, has an open attitude towards others, demonstrates willingness to improve knowledge (of foreign languages) and demonstrates self-confidence in interaction with peers and instructors	*Being open-minded and tolerant*	Being open-minded
			Being tolerant
		Demonstrating self-confidence in interaction with peers and teaching staff	Being not afraid of interacting with peers or instructors at other institutions
		Show willingness to improve proficiency in foreign languages	Being proficient in foreign languages
			Willing to further improve proficiency in foreign languages

Gaining Knowledge of virtual mobility and Open Education	Gaining Knowledge of virtual mobility and Open Education implies that the student displays a higher level of understanding of the work forms, contexts and collaboration modes that the student engages with during a virtual mobility activity, an Open Education activity or an OpenVM activity.	*Understanding virtual mobility*	Demonstrate understanding of virtual mobility models
			Improving understanding of opportunities created by virtual mobility context
		Understanding Open Education	Demonstrate understanding of Open Education models
			Improving understanding of opportunities created by Open Education context

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(Clement, 2022)

Concerns Areas that need improvement	Criteria Standards for this Assessment	Strengths Evidence of exceeding Standards
	Standards for International Learning	
	1. International subject learning: The student is able to situate the subject **'Sustainability'** within the international context, recognises the fact that this is culturally determined and thus may lead to different approaches and practices and knows relevant international organisations in the field. The student is able to demonstrate the **Key Competencies for Sustainability** (System thinking -, Anticipatory -, Normative -, Strategic -, Collaboration - , Critical thinking -, Self-awareness -, integrated problem solving competency) as formulated by Unesco p.10.	
	2. Interactive and collaborative learning in an authentic international environment: The student develops team work skills, collaborates with peers across disciplines and contexts, acquiring new international learning experiences and interacting with authentic international tools, systems and resources in a foreign language.	
	Standards for Transversal skills	
	3. Intercultural skills and attitude: The student acquires cultural knowledge and a better understanding of cultural perspectives, including understanding of own cultural identity, that the student enhances and demonstrates cultural understanding and can apply intercultural awareness in culturally challenging circumstances.	
	4. Open-mindedness: The student is tolerant to others, has an open attitude towards others, demonstrates willingness to improve knowledge (of foreign languages) and demonstrates self-confidence in interaction with peers and instructors.	
Concerns	Criteria Standards for this Assessment	Strengths

Areas that need improvement		Evidence of exceeding Standards
	Standards for Future-oriented skills	
	5. Networked learning (= engage in networked learning): The student is able to use digital networks in/for learning and communication in international contexts or environments and is able to tackle complex, ambiguous and ill-defined issues and situations in (emerging or existing) social networks.	
	6. Media and Digital Literacy: The student is able to use resources effectively to learn, can assess the quality of resources and demonstrates "learner control".	
	7. Learning for Environmental Sustainability: The student embodies sustainable values, embraces the complexity in sustainability, Envisions sustainable futures and acts for sustainability.	
	Standards for Personal Development	
	8. Autonomy-driven learning: 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 organise the learning process.	
	9. Active self-regulated learning: The student is able to self-regulate own learning process, can reflect on learning experience and one's own progress and can demonstrate that they have the agency of their own learning.	

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