HLiTL

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ANALYSIS OF DIFFERENT TYPES OF VIRTUAL AND BLENDED MOBILITY AND THEIR TECHNICAL CONDITIONS
&
CORE SCIENTIFIC AREAS FOR VM/BM

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Analysis of different types of virtual and blended mobility and their technical conditions

&

Core scientific areas for VM/BM

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1.   Introduction

This report presents an overview of the different mobility activities in use in the universities that are part of the HLITL project consortium (see 5.). The mobility modalities under study are traditional (physical), blended and digital (virtual exchange). The report also lists the equipment and technical conditions that the partner institutions have for the future implementation of virtual exchange programmes (computers, software, videoconferences facilities, suitable workplaces, trained staff, etc.) (see 6.). Finally, some of the scientific areas where virtual exchange programmes may be most promising will be discussed (see 7.).

These results will allow us to establish a common basis for future work. In addition, they will enable us to identify the strongest scientific areas for developing future experiments in virtual exchange programmes.

The results presented in a comparative way are merely illustrative and the differences between the academic partner institutions should be considered (see 4.).

2.   Main goals

- **Study of the mobility current practices and technical conditions of academic partners.** For this purpose two different surveys have been conducted among academic partners in order to gain a better knowledge of the mobility practices and technical conditions and establish common ground on which future work will be built. Comparative charts have been designed in order to better understand the different mobility practices that are currently in use in each academic partner (IO2-A).

- **Identification of core scientific areas for VM/BM.** For this purpose a written interview was conducted among lecturers of the partner institutions in order to share views and information. The goal was to identify some areas where VM/BM could be more promising, on the basis of, e.g., scientific expertise, shared research/teaching interests, social impact of subjects, etc.

3.   Methodology

The research method applied combined two approaches: quantitative and qualitative. The quantitative research (surveys) was applied in two different surveys. The first survey consisted of 16 questions (see Appendix IO2-1) and intended to determine the mobility practices of the academic partners regarding all modalities (physical, virtual or blended). The second survey consisted of 23 questions (see Appendix IO2-2), structured in 6 main groups, and intended to list all the material and resources already available in the universities of the consortium. In this way it was possible to evaluate the necessary technical requirements of these institutions to develop virtual exchange programs. This was achieved with the help of the technical and audio-visual staff of the educational technologies units or IT departments of the institutions.

The qualitative approach (written interview) permitted to obtain value indicators about the areas whereby virtual exchange could be more exploited. These written interviews were applied to 10 teachers, two per partner institution (see Appendix IO2-3). The indicators and opinions obtained in qualitative research are relevant for the implementation of future virtual mobility programmes an pilot activities regarding virtual exchange (IO2-C).

The answers obtained were submitted to a descriptive analysis and expressed into graphical representation presented in points 5, 6 and 7.

4. Brief description of partner institutions

The project is implemented by a consortium of five universities and two European stakeholder institutions. The University of Versailles Saint Quentin-en-Yvelines (UVSQ) is the coordinator of the project and is cooperating with Eötvös Loránd University (ELTE), University of Lodz (UoL), University of Marburg (UM), University of Porto (UPorto), the European University Foundation (EUF) and the Erasmus Student Network (ESN).

- UVSQ

Founded in the early 1990s, the Université de Versailles Saint-Quentin-en-Yvelines (UVSQ), is a multidisciplinary university located in the south-west of the Ile-de-France region, a conurbation where a lot of companies (Renault, Mercedes, Dassault,) and research institutions (CNRS, INRA, CEA,) are developed. It is now the largest center for higher education, research and technology in the area. UVSQ spans across five campuses in the Yvelines department, employs 1577 persons (research-teacher and administrative staff) and has a student body of 20,000 enrolled in over 200 programs in all subjects. A school of

engineering, two university institutes of technology, a teacher training college and more recently an institute of political studies complement the range of study options, offering bachelor to doctorate level instruction.

USVQ is the leading university in France in terms of student success at bachelor level and ranks third for the number of apprentices in the Île-de-France, reflecting a strategy that prioritizes educational innovation and professionally focused international programs. Finally, ranked among the top 20 French universities in four internationally renowned rankings, including Shanghai, the UVSQ has an international voice by mobilizing its forces around large-scale operations, promoting student mobility and welcoming more than 2600 foreign students each year. Today, UVSQ combines its international influence with that of the Paris-Saclay University, of which it is an associate-member before being totally incorporated into Paris-Saclay by 2024.

- ELTE

As the oldest and most prestigious university of Hungary, Eötvös Loránd University (ELTE) aims to preserve its rich traditions while taking a leading role in educating the best future professionals in humanities, natural and social sciences. ELTE is a leading scientific center of the Central-Eastern European area with its diverse research activities and has a stable position at international university rankings with the highest rates from the country. In order to maintain this position, remain competitive in the HE market and further improve the quality of our academic and research activities, the participation in strategic partnerships are important cornerstones of the ELTE Institutional Development Plan (2014-2020).

The real strength of the University is the unity of its several independent knowledge centers such as departments or institutes, where free flow of scientific research and innovative education ensures the best results; therefore one of the main duty of the central leadership of the university is to nurture the different endeavors of these knowledge centers with fair and merit based selection procedures when applying for institutional level funds.

ELTE offers the widest educational portfolio in Hungary. It has 8 faculties (covering the field of law, humanities, education, psychology, teacher training, special needs education, informatics, natural sciences, mechanical engineering and economics); 78 BA/BSc and 103 MA/MsC programmes covering 13 162 courses. 84 degree programmes are offered in English language for international students. Students may choose from 70 different languages to study at ELTE. The number of academic staff of ELTE is between 2000-2250, the administrative staff and the leadership is around 1000. 75% of the academic staff has scientific qualifications, 80 of them are members of the Hungarian Academy of Sciences (HAS).

As the largest scientific establishment of the region ELTE has 24 research groups working in cooperation with the HAS, 5 Horizon 2020 research groups, 17 doctoral schools, 128 doctoral programmes and more than 460 granted scientific projects of 30 million EUR (2012-2017). ELTE is clearly the most popular university in Hungary. Every 5th Hungarian applicant chooses ELTE as their dream HEIs, most of the applicants with the best results start their studies at ELTE (2008-2016). Currently 30000 students study at the university. More than 10% of them are international students; more than 20% are PhD students.

Mobility programmes are an important pillar of the University profile. Every year ELTE exchanges approx. 800 students (outgoing and incoming) with different mobility programmes and is planning to increase these numbers in every academic year. According to its Erasmus+ policy statement ELTE not only works on increasing the number of the mobilities but is also striving to increase quality, especially in terms of recognition of the mobility.

The university has 897 cooperation agreements with 475 partners in Europe and more than 200 with non-European institutions worldwide. The university coordinates 2 joint degree programmes, 4 summer universities and a member of 10 prestigious university networks including UNICA and EUF. The number of paid employees is approx. 2100 academic and 1000 non-academic.

- UoL

The University of Lodz, established in 1945, is one of the leading institutions of higher education in Poland. For decades it has been also one of the biggest and most popular Polish universities and is repeatedly ranked among the top higher education institutions in the country. The 12 faculties of the University provide 95 programmes and 158 specializations in Polish and 21 programmes in English.

In addition, the University offers several doctoral programmes and more than 50 postgraduate study programmes. Currently, around 30000 students of all levels attend the University of Lodz, including 2400 from abroad. In this truly international atmosphere everyone can experience the cultural diversity of both the city and the institution. The interest in studying at the University of Lodz is determined not only by high quality of instruction but also by the modern programmes of study adapted to the changing demands of the labour market.

The University treats international cooperation as a way to foster its development and continue the city's tradition. Thisinstitution regularly hosts guest speakers, renowned politicians, businessmen and cultural representatives from Poland and abroad and also actively participates in many international educational and research programmes. Within

direct cooperation agreements, the school cooperates with 250 partner institutions from all over the world. Within the Erasmus+ Programme the University has signed so far 700 agreements with 400 partner institutions.

As a result of a cooperation with a number of foreign universities such as Université Jean Moulin Lyon 3, Université François – Rabelais (Tours), Westfälische Wilhelms – Universität Münster, University of Maryland, University of Regensburg and Centria University of Applied Sciences (Kokkola, Finland) students of the University of Lodz can graduate with dual diplomas. Each year, about 400 students go to foreign countries for student exchange (most of them with a scholarship grant). On the other hand, the UL receives over 1000 foreign exchange students per year.

- UM

Philipps-Universität Marburg (UM) is a research-oriented university with approx. 27.000 students in 16 faculties and Centres; more than 10% of the students are international, from which about 30% are from within Europe, while another 30% are from Asia and 22% from the Near and Middle East.

UM employs approx. 2.800 academic staff as well as approx. 1.800 non-academic staff. In the International Office, circa 24 staff members work in 5 departments, including Services for International Students, European Programmes, and Short Term Programmes. In addition, departmental coordinators at the faculties support the implementation of international mobility programmes, and the International Office cooperaties with the central Student Services, the Service Centre for Students with Disabilities, the Student Accomodation Services, etc.

UM has bilateral agreements on university and faculty level with universities in Asia, North- and South America, Australia and the Arab Region and participates in ERASMUS since its launch in 1987. UM has participated in a number of TEMPUS Projects, primarily with the Western Balkans, and has been coordinating institution in an ERASMUS MUNDUS Master Degree with Great Britain and Norway. In the Erasmus+ KA107, UM has participated from the first Call in 2015; at present, UM has successfully implemented cooperation in ICM with Higher Education Institutions in 15 countries, with the regions Neighbourhood South and Western Balkans as primary strategic targets of cooperation.

UM offers 16 international degrees in six of the faculties, and several Research Centres, most notably in the context of international mobility the Centre for Conflict Studies and the Centre for Near and Middle Eastern Studies. UM is a member of the Compostela Group of Universities, the European University Association (EUA) and the European University Foundation (EUF). UM has a strong focus in the MENA-Region.

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- UPorto

Founded in 1911, UPorto is one of the largest higher education and research institutions in Portugal with 31.309 students (19% international, including mobility), 2.436 academics & researchers and 1.576 administrative staff. It is one of the best-positioned PT HEI in national and international rankings: Times Higher Education 2018 (401-500); QS 2018/19 (328); Leiden 2018 (145); NTU 2018 (218). It has 14 Faculties, 1 Business School and 60 Research Units located in 3 campuses within Porto.

U.PORTO is the most south-after PT HEI among the PT applicants to the HE System (1.72 applicants per available vacancy). UPORTO is the leading producer of science in Portugal, responsible for 24,8% of the scientific production in PT. Ensuring high-quality in training, education and research is of paramount importance to UPORTO, together with its strong commitment towards society. It has been consolidating its social responsibility through the promotion of volunteering projects, the intensification of the interaction with several local/regional associations in the organization of cultural, social and artistic activities.

As a truly international University, with 5.918 international students from around 100 nationalities, internationalization is one of UPORTO's strategic pillars and objectives, allowing the development of existing alliances, as well as the establishment of innovative cooperation actions with institutions from all over the world (~2200 active agreements). UPorto definitely opened its doors to the world, in recent years, having coordinated and being involved in several projects, namely Erasmus+ (International Credit Mobility, Joint Master Degrees, Capacity Building, Strategic Partnerships) and Erasmus Mundus projects, which together represented a direct management by U.Porto of roughly €58M and have greatly contributed to reinforce its internationalization process and generated new cooperation opportunities with HEIs from more than 100 Countries.

- EUF

The European University Foundation - Campus Europae, more commonly called European University Foundation (EUF) is a network of 35 member universities established in 21 countries. It stands for diversity and social fairness in Higher Education (HE) and aims to accelerate the modernisation of the European Higher Education Area. The network deploys intensive cooperation and policy experimentation under five key pillars: (1) Digital Higher Education both for governance and provision of education, (2) entrepreneurship and employability skills of graduates, (3) policy innovation at national and European level, (4) active citizenship of students and (5) quality mobility for all.

The network's key activities are designed to build capacity and expertise among administrative and academic staff members, to raise awareness of EU policy goals and actions and to enable policy dialogues between practitioners, policy-makers and stakeholders. The activities are underpinned by the organisation of high-quality student mobility, since this is considered to be an excellent driver to implement reforms within HE.

To maximise the impact of outcomes the EUF is affiliated with LLL Platform, Groningen Declaration, and cooperates with ESU and ESN. The network is supported by the European Commission grant for Civil Society Cooperation in the field of Education and Training.

- ESN

The Erasmus Student Network (ESN) is the biggest European student organization acting in the field of student mobility and internalization of higher education. ESN is a non-profit organization of more than 530 local sections in 40 countries in more than 1000 Higher Education Institutions, gathering 15 000 volunteers. ESN provides support services to over 350 000 international students and works for their needs by facilitating their mobility period, ensuring social cohesion, reintegration and by enhancing intercultural awareness and active citizenship.

ESN ensures student participation in education and training policy by providing to its members training, seminars and non-formal education opportunities. ESN contributes to the creation of a more mobile and flexible education environment by supporting student exchanges from different levels and providing the "internalisation at home". ESN contributes to the further development of European mobility, active citizenship and volunteering.

ESN further works in the interest of international students by improving the conditions of student learning mobility (integration, advocacy on vertical levels, provision of information, evaluation of mobility programmes, promotion, motivation and preparation) and by enhancing internationalisation, intercultural understanding and active participation in Europe. The main activities of the organization at the international level are research projects in different mobility and higher education related issues.

ESN has a professional secretariat of 7 employees, 2 interns and 5 full-time volunteers working in Brussels and other 300 active volunteers working part time in supporting bodies of the organization such as committees, working groups or project teams. The international Headquarters has a professional team of experienced employees with extensive knowledge of European Projects and general management.

5. Study of the mobility current practices of academic partners

The results presented in this part of the report combine the views of the representatives following academic partners: the University of Versailles Saint Quentin-en-Yvelines (UVSQ) the Eötvös Loránd University (ELTE), University of Lodz (UoL), University of Marburg (UM), and the University of Porto (UPorto).

5.1. Mobility opportunities by study level

Regarding the mobility opportunities by study level in physical (traditional) modality, we can state that all the partner universities currently offer mobility for Undergraduate, Graduate, Master and Doctorate levels. Concerning the Specialisation level, two of the partners (UVSQ, UoL), do not offer mobility for this level of study. For Research level only one responder (UVSQ) does not offer mobility for this level.

Chart 1: *Levels of study with physical mobility*

Mobility levels of study
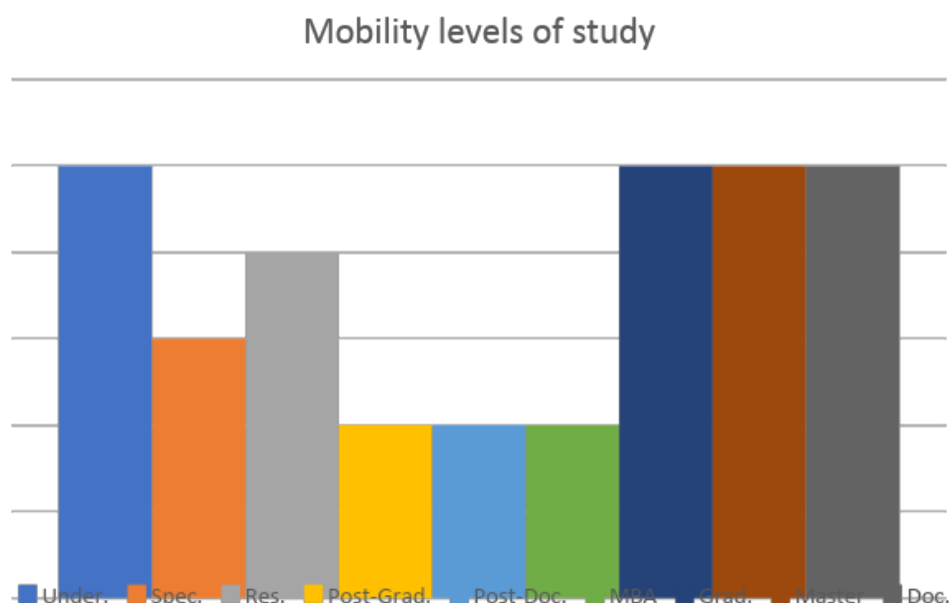
Source: Original of this study

We can conclude that the four main levels of study that have mobility opportunities in all the five academic partners are: Undergraduate, Graduate, Master and Doctorate.
The mobility offers in blended modality are presented only by Uporto for the levels of study Undergraduate, Specialisation, Graduate, Master and Doctorate.
There are no offers of virtual (digital) mobility in any level of study within the partner's universities.

5.2. Sources of funding to support mobility

The sources of funding available to support the physical mobility pointed out by institution were: Erasmus+, Government/Country grants and Regional/Country grants (UVQS, ELTE, UoL, UM, UPorto) available for all partners, Grants of HEI of origin (ELTE), Grants of host HEI (ELTE), Research grants (ELTE, UoL, UM), Santander (UPorto) and Scholarships for academic achievement (ELTE, UM).

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Chart 2: *Sources of funding to support physical mobility*
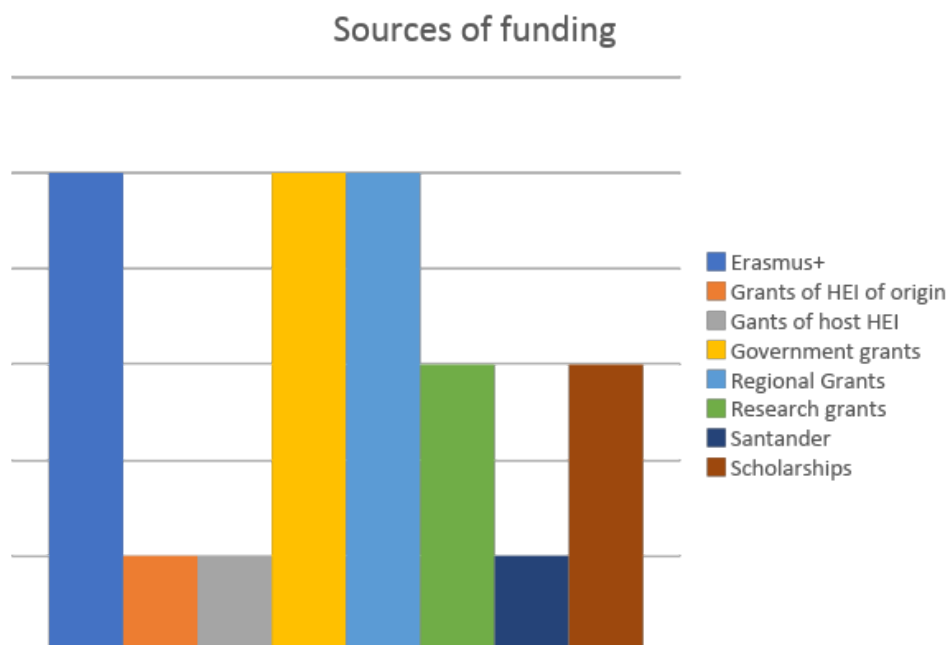
Sources of funding

Source: Original of this study

The main sources of funding to support physical mobility are Erasmus+ and Government and Regional Country grants.

The sources of funding for blended mobility mentioned are: Erasmus+, Government and Regional Country grants, Santander grants (UPorto), Government and Regional Country grants, Research grants (UoL).

There are no offers of virtual mobility in any level of study within the partner universities (see 5.1.).

5.3. Mobility predominant direction and purpose

The predominant direction of the physical mobility is: IN for ELTE with about 875 persons, against 749 going OUT, and UPorto with about 2835 persons coming IN, against 1421 going OUT. For UVSQ the predominant direction is OUT with 200 persons going out in mobility, against 120 persons coming IN direction. The numbers presented by UM are equal for OUT and IN with about 10 persons. UoL has 370 OUT and 130 IN and it mentions as main countries of origin of students (IN) Turkey and Belarus and as main countries of destination of students (OUT) Portugal and Germany.

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Chart 3: Predominant direction of physical mobility
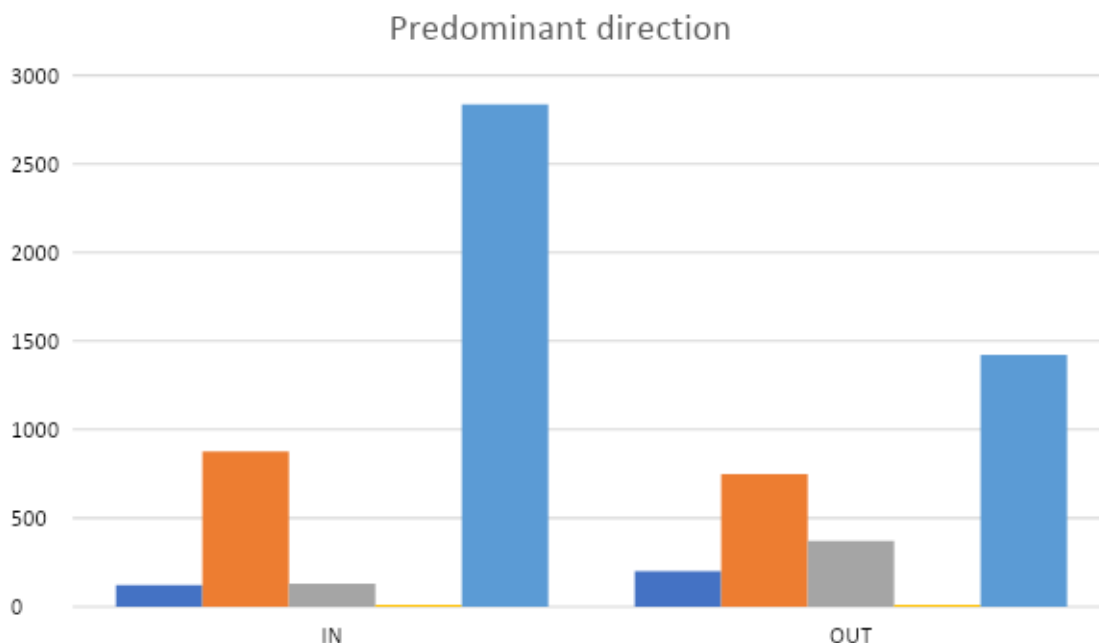
Source: Original of this study

Regarding the purpose of these mobility, partners stated that the aim of most of the mobility was for studying. The figures presented by the partners were: UVSQ 180 persons for study and 20 for training; ELTE 1387 people for study and 237 for training; UM 10 people for study; UoL 300 people for study and 70 for training; UPorto 3064 people for study and 620 for training.

Chart 4: Predominant purpose of mobility

Purpose of mobility
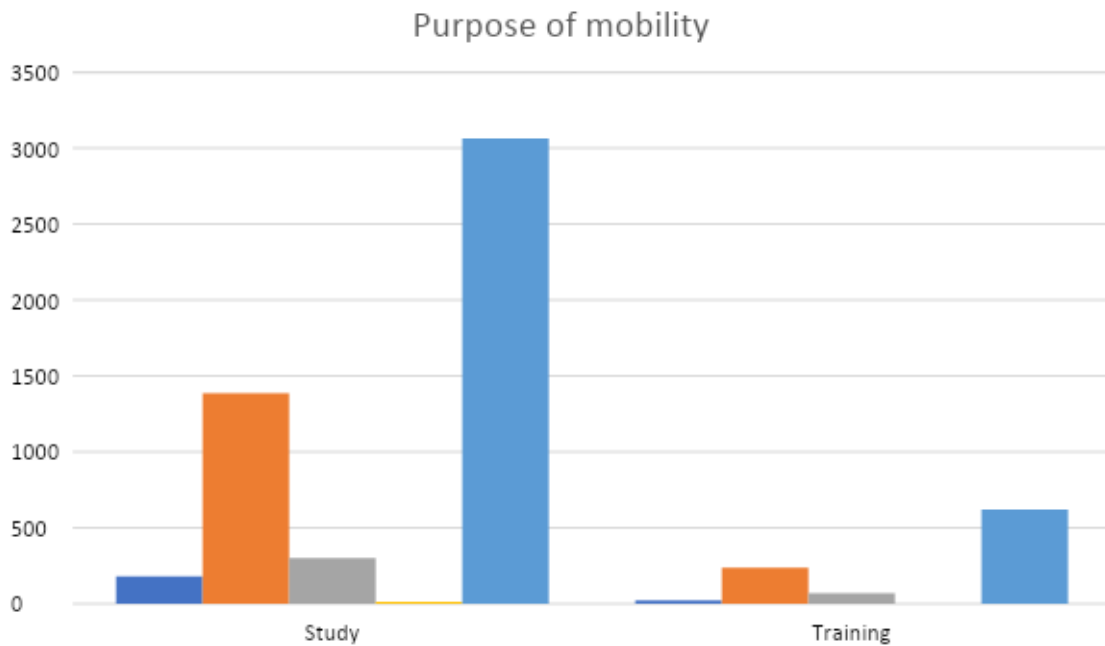
Source: Original of this study

5.4. Importance and numbers of mobility

All partners attributed the highest score (1: most important) to the importance of mobility being integrated in the degree. Regarding the importance of being complementary or extra-curricular, almost all partners gave the maximum score (1: most important), with the exception of UPorto which gives the score 2.

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Chart 5: Importance of physical mobility for partners

Importance of mobility

1 being the most important and 4 the least important
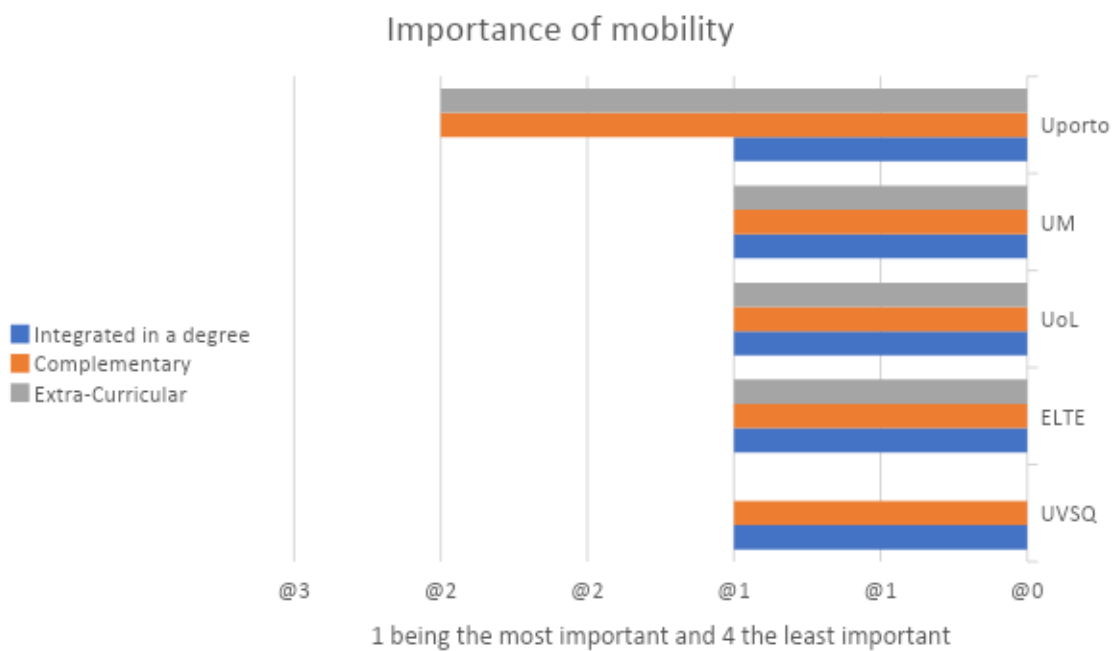
Source: Original of this study

The figures of physical mobility for the academic year presented by each partner university were: UVSQ 256 people in mobility; ELTE 1624; UoL 500 and UPorto 4256. UM did not give figures.

Chart 6: *Figures of physical mobility in 2018-2019*

2018-2019
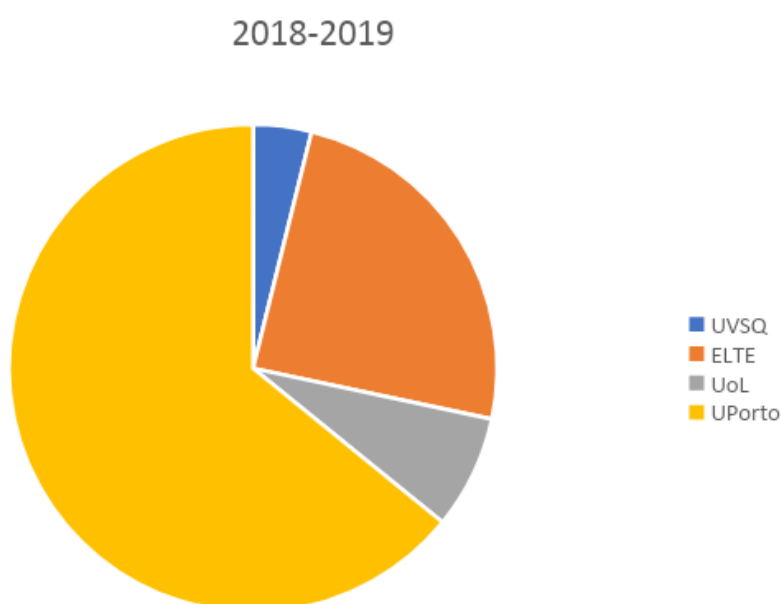
Source: Original of this study

5.5. Teaching methodologies and evaluation

As for the different teaching methodologies used in physical mobility mentioned by responders, 4 partners (UVQS, UoL, UM, UPorto) described them s: F2F (face-to-face) lecture; F2F group discussion/work (group work, group discussion, plenary discussion, seminar discussion); problem-based learning (practical exercises, training work); project-based learning (research project discussion, individual work, homework). As for innovative methodologies, the use of polling tools like Kahoot or Socrative (UPorto) was mentioned. ELTE replied that there was no systematic data collection about the use of

pedagogical methods used on mobility related courses: methodological planning is not centrally coordinated.

Concerning the pedagogical methodologies used in blended mobility by universities partners, some items were highlighted: problem-based learning (practical exercises, training work); project-based learning (research project discussion, individual work, homework) (UPorto, UoL); digital research collaboration (data, texts, colloquia by videoconference) (UM); gamification, flipped-classroom, polling tools, flashcards (for training in medical school), MOOC, interactive lecture (physical and virtual), F2F lecture or virtual class (UPorto).

As there is no offer of virtual mobility within the partner universities (see 5.1.) we do not consider some answers given regarding the digital mode.

PEDAGOGICAL METHODOLOGIES USED IN MOBILITY	
Physical	**Blended**
• F2F lecture	• F2F lecture or virtual class
• F2F group discussion/work	• Problem-based learning
• Problem-based learning	• Project-based learning
• Project-based learning	• Polling tools
• Polling tools	• Digital research collaboration
	• Flipped-classroom
	• Gamification
	• MOOC
	• Flashcards (for training in medical school)

Table1: Pedagogical methodologies used in mobility by academic partner

Source: Original of this study

With respect to evaluation, no specific evaluation related to mobility has been identified by responders. UPorto refers to formal evaluation (exams, continuous evaluation (works, participation)) and informal not mandatory (work, volunteering, certificates of attendance in sessions/events/conferences). Recognition of the mobility/activity is realized by a diploma or certificate (UPorto, ELTE).

We can conclude that the answers given to these two questions do not allow us to accurately assess the methodologies and evaluation used by the partners. These issues depend on the teacher's pedagogical methodologies and evaluation methods. However these answers allowed us to identify some of the methodologies and evaluation in use within academic partners.

5.6. Mobility recognition and support services

Physical mobility is recognized by all partner institutions. The courses taken abroad are usually all taken into account through student ECTs points (UM). The semester is valid on the basis of the marks obtained at the host university (UVSQ, UoL). In the case of ELTE it differs at each faculty. If a student wants to get a validated mobility course as mandatory credit, at least 75% equivalence between the 2 courses is required.

The support services/offices responsible for this physical mobility are IROs, Departments (UVSQ, ELTE, UoL, UM, UPorto) and Schools/Faculties (ELTE, UoL, UM, UPorto).

5.7. Mobility regulation and reliance

Almost all the institutions have internal regulations or documents to frame physical mobility (the exception is the UM that answered not being sure). Other items were also cited such as Rector's ordinance (UoL), information leaflet and mementos (USQV), Erasmus+ policy statement (ELTE), application guidelines and jury selection, other internal documents (e.g. student mobility regulation OUT, transcription of records (grade's conversation of the host university into numeral range:10-20), and transcription of records for the incoming students) (UPorto).

For blended mobility the answers were: Rector's ordinance and Dean's order (UoL), and Erasmus+ policy statement (ELTE).

The reliance/confidence regarding mobility reveals that there is a lot of confidence in physical mobility (all members) and some confidence (USVQ, ELTE, UoL, UM) orlow confidence (UPorto) regarding blended mobility.

As there is no offer of virtual mobility at the partner universities (see 5.1.) we did not consider some answers given for the digital mode.

5.8. Advantages and disadvantages of different types of mobility

The advantages of physical mobility pointed out by respondents are significant. Respondents highlight a number of advantages such as: financial aspects (UVSQ), strengthening of language skills (UVSQ, UM, UPorto), cultural awareness, emotional intelligence and independence (ELTE, UPorto), personal and professional development in a foreign environment (UVSQ, UM), enhancement of employability and CV improvement (UVSQ,

UPorto), creating opportunities for future cooperation and networking (UVSQ), different higher education environment and rich interpersonal learning opportunities (UM), interpersonal exchange of ideas and strong incentive to engage with classes and fellow students (UM, UPorto) and finally the traditional (UoL) and flexibility factors (UVSQ).

The advantages pointed out by respondents to blended modality were: strengthens digital competences and cooperative (collaborative) (ELTE), combines traditional and digital activities and advantages of both types of mobility (ELTE, UPorto), new methods of studying and teaching in a blended form (ELTE), jobs opportunities or internship abroad (UM), free time for travel (UM), heightened accessibility in cases where longer stays abroad are difficult to manage or dates of terms do not align (UM), financial aspects (UVSQ, UPorto), and finally the novelty (UoL) and flexibility factors (UVSQ, UM).

Although there is no virtual modality in the partner institutions (see 5.1.), some advantages have been pointed out in relation to a future virtual exchange scenario. Some of these advantages are: financial aspect (UVSQ, UPorto, UM), lower ecological footprint (UPorto), accessibility for low income and disabled students (UM) or with family responsibilities (UoL), accessible for more students (UPorto), CV improvement (UPorto) and flexibility (UVSQ).

Table 2: *Advantages of mobility mentioned by partners*

ADVANTAGES OF MOBILITY		
Physical	**Blended**	**Virtual**
• Cooperation & networking	• Accessibility	• Accessibility
• Cultural awareness	• Digital skills	• CV improvement
• CV improvement	• Collaborative skills/work	• Ecological footprint
• Emotional intelligence	• Employability abroad	• Financial
• Employability	• Financial aspects	• Flexibility
• Exchange of ideas	• Flexibility	• Universality
• Flexibility	• Learning methods	
• Independence		
• Language skills		
• Learning opportunities		
• Learning opportunities		
• Personal development		
• Professional development		

Source: Original of this study

As disadvantages of physical mobility partners highlighted the following: financial aspect, the cost of mobility for a student, expenses of living abroad, insurance (UVSQ, ELTE, UM, UPorto), family or work related issues that may undermine the mobility, e.g. age (people are generally more mobile in a younger age) (ELTE) or private obligations like looking after family members when going abroad (UoL), less accessible to all participants (disable students) (UM, UPorto), risk of having an extra semester, delayed graduation (ELTE), also if someone does

not like travel (too much stress), difficulty convincing the person about the advantages (UoL), limited to a certain time and space (UM), strong incentive to engage with classes, fellow students, etc. (UM), and finally a higher ecological footprint (UPorto).

Concerning blended mobility the disadvantages pointed out were: the difficulty to find the right balance between digital and traditional tools, extra work for completing the blended part (ELTE) and the management of both types of teaching (physical and digital) can be complicated and more time consuming (UM), it does not offer an intensive immersion into the foreign culture and language (ELTE), and last the stability of the internet (UM).

Although virtual modality is not offered by partner institutions (see 5.1.), some disadvantages have been pointed out in relation to a future virtual exchange scenario. These disadvantages are: lack of cultural, human and social contact and real-life experience (UVSQ, ELTE, UPorto), digital overload, dependence on digital tools and technology, and good and stable internet connection (UM, ELTE, UPorto), lack of opportunity for networking and new relationships (ELTE). One respondent (UoL) said he saw no disadvantages.

Table 3: Disadvantages of mobility mentioned by partners

DISADVANTAGES OF MOBILITY MENTIONED BY PARTNERS		
Physical	**Blended**	**Virtual**
● Delayed graduation	● Extra work	● Digital tools dependency
● Extra semester	● Find the right balance	● Digital overload
● Family issues	● Lack of cultural immersion	● Technological difficulties
● Financial aspects	● Lack of learning opportunities	● Lack of cultural contact
● Higher ecological footprint	● Internet connection	● Lack of experience
● Limited time and space		● Lack of network opportunities
		● Lack of new relationships
		● Lack of social contact
		● Internet connection

Source: Original of this study

5.9. Key scientific areas of different types of mobility

The physical mobility that exists in the various partner universities covers various scientific areas. Two of the responders (UM, UPorto) replied that all the scientific areas (UPorto) and

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all departments (UM) authorize physical mobility. The others key scientific areas/subjects mentioned were: Law (UVSQ, ELTE), Education (ELTE, UoL), Informatics (ELTE), Humanities (UVSQ, ELTE), Sociology (UoL), Psychology (ELTE) and European and International Studies (UVSQ).

Chart 7: Main scientific areas of physical mobility in partner universities
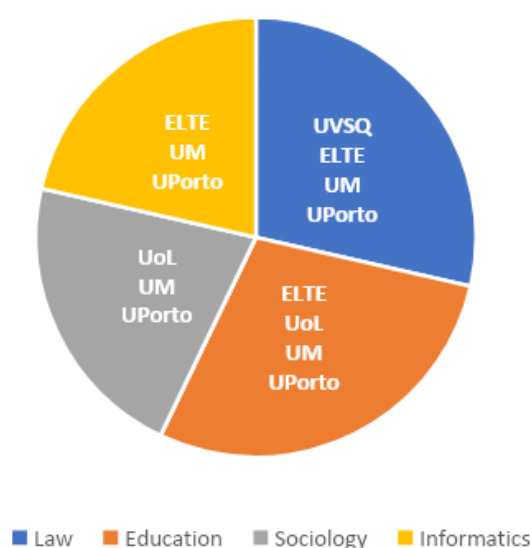
Source: Original of this study

We can state that the subjects in common in a major number of universities are: Law (UVSQ, ELTE, UM, UPorto), Education (ELTE, UoL, UM, UPorto), Sociology (UoL, UM, UPorto) and Informatics (ELTE, UM, UPorto).

Regarding blended mobility ELTE reported that the one faculty that reported blended mobility was the Institute of Business Economics but this was cancelled due to COVID-19. UPorto reported that practically all scientific areas allow blended mobility.

As there is no offer of virtual mobility at the partner's universities (see 5.1.) we do not consider some answers given for the digital mode.

As we can see, none of the entific areas presented are common to all partners.

6.Technical conditions for blended-learning for HEIs

The results presented in this part of the report combine the answers given by the following heads of departments of the partner institutions: UVSQ-Pedagogical Support/Vice-President; ELTE-Educational Directorate/Head of Education Development and Talent Support Department; UoL-Faculty of Educational Sciences/Staff in charge for online courses; UM-Faculty/Teacher; UPorto-Educational Technologies Department/Head of Educational Technologies.

The second survey consisted of 23 questions (see Appendix IO2-2), structured in 6 main groups, and intended to list all the material and resources already available in the member universities. The goal was to evaluate the technical conditions of these institutions in order to develop virtual exchange programs.

6.1. Learning management systems

All partner institutions use a Learning Management System (LMS). Four institutions (UVSQ, ELTE, UoL and UPorto) use the Moodle system whereas UM utilizes the Ilias system. All LMS are integrated with others systems. At UVSQ Moodle is integrated with the information system of the university. At ELTE Moodle (Canvas and Coospace) is integrated with Neptun, the student information system. At UoL Moodle is integrated with Big Blue Button. At UM, Ilias is integrated with the students and teachers administration database. At UPorto, Moodle is integrated with the information system Sigarra, the lecture capture software Panopto and the plagiarism software Turnitin.

Table 4: *LMS and others systems*

| | TECHNICAL CONDITIONS | INSTITUTIONS | | | | |
		UVSQ	ELTE	UOL	UM	UPORTO
L	Moodle	✔	✔	✔		✔
M	Canvas		✔			
S	Ilias				✔	
A	Big Blue Button				✔	
N	Coospace		✔			
D	Panopto					✔
O	Turnitin					✔
T	Neptun		✔			
H	Sigarra					✔
E						
R						
S	Information/Administrative Systems	✔		✔	✔	

Source: Original of this study

With regard to registration in the LMS system, ELTE and UPorto replied that not all students were registered. Only UoL stated that the use of the LMS was mandatory for teachers.

All partner institutions have their LMS hosted in-housed servers, and have a technical team to support the LMS and a specific educational technologies team to support teaching and learning methodologies using MLS while also providing training for teachers on how to use the LMS.

Regarding distance learning courses, all institutions have distance learning courses delivered mostly by institutional LMS (UVSQ, UoL, UM, UPorto), MOOC platforms (ELTE, UPorto) and other LMS (ELTE).

Chart 8: Platforms used by partner institutions in distance learning courses
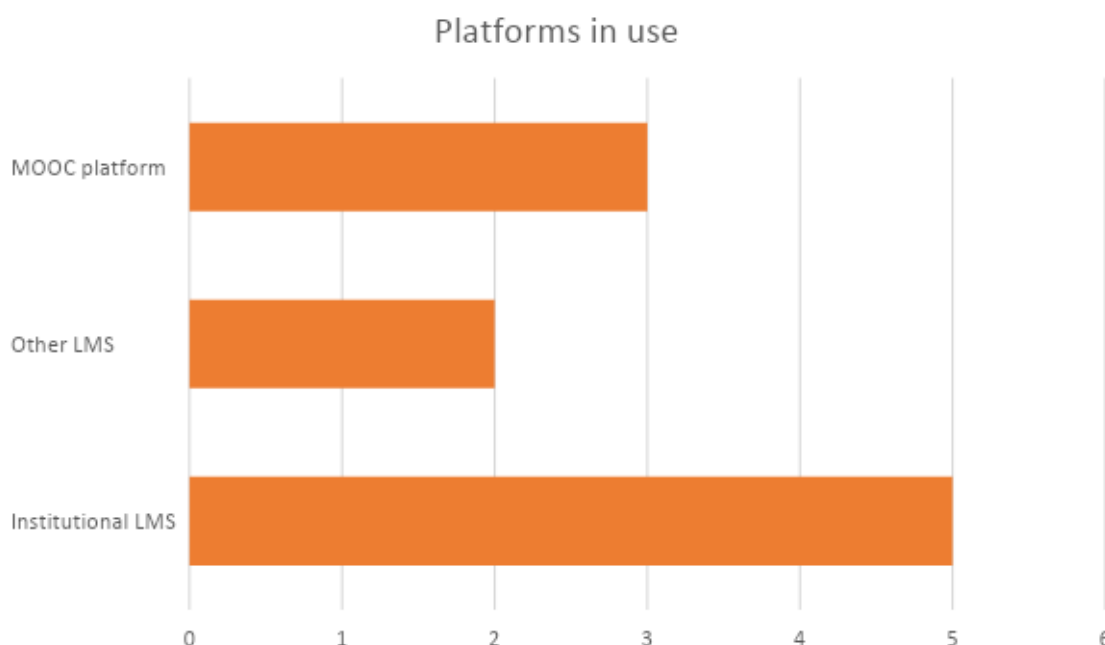
Other T&L tools used by partner universities to support the online courses are plugins integrated directly into LMS like Collaborate and LTI (external link like Zoom and Panopto) (UVQS), MS Teams and Webex (ELTE) and MS Teams, Google, Webex and Panopto with university accounts (UPorto). UoL and UM did not mention other tools than the institutional LMS.

6.2. E-assessment

All the partner institutions reported that they do computer and online based exams carried out mainly through the Moodle platform. In addition to Moodle test activity and assessment activity, other platforms were mentioned such as Zoom, Collaborate, Compillatio (UVSQ), MS Teams ELTE, UoL). UM states that "for a couple of years now students have to write some exams online, especially in the field of linguistics. In the current semester (and also in the last semester), some of the colleagues are also planning oral exams via a virtual platform". UPorto also delivers computer-based exams using Moodle. These exams can be taken in computer-rooms in the faculty premises or the students can bring their own devices. In this BYOD scenario apart from Moodle they also use Safe Exam Browser. There are additional security measures during the exam period. Some teachers use other computer-based exams tools like Mooshak for programming exams. Although this allows distance exams, this is not an ideal situation but rather an emergency solution to the Covid19 challenge. UPorto doesn't have a remote proctoring software. Teachers conduct Moodle exams with some proctoring through videoconference tools like Zoom or Teams.

6.3. Videoconference tools & facilities

All partner universities use videoconference tools. The tools in use are Zoom (UVSQ, UPorto), Collaborate (UVSQ), Webex (ELTE, UM), Big Blue Button (UM). These tools are both cloud based (UVSQ, ELTE, UPorto) and in-house based server (UoL, UM). The different tools are acquired by the institutions (UVSQ, ELTE, UoL, UM) with the exception of UPorto that it is provided by national authority. Operating licenses are at campus level (UVSQ, UM) and user level (ELTE). UoL has no information about the licenses. Training on how to use these tools are provided by UVSQ, UM and UPorto.

Regarding the existence of rooms or facilities especially prepared for videoconference, only ELTE replied do not have them. Webcams and microphones are available for loan to be used in videoconferencing (ELTE, UoL, UM, UPorto).

Chart 9: Facilities available for videoconferencing

Videoconferencing facilities

Facility	Value
Microphone	5
Webcam	5
Computer screens	4
Desktop computer	3
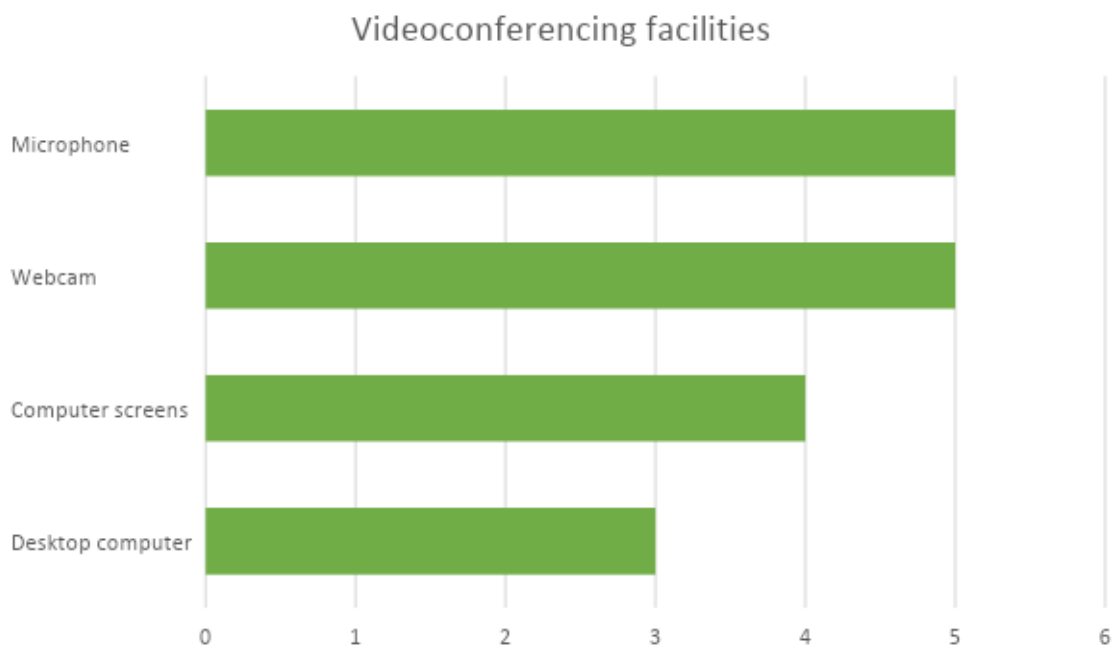
Source: Original of this study

6.4. Audiovisual studios

With respect to studios for video and audio production, only one institution (UoL) replied it did not have such facilities. UVSQ has one studio/room, ELTE also has one studio/room with capacity for 5-10 people at same time, for capturing 1 or 2, UM has two rooms for video and audio production in the university library with capacity for 5 people, UPorto has 3 equipped studios for video production and 6 studios for audio production with capacity for 5 or 6 people. These spaces can be used by students in UPorto and were updated recently: ELTE (2019), UM (2019), UPorto (2018).

Academic members of all partner institutions can borrow audiovisual equipment. UM and UPorto have a dedicated team to support video production and UVSQ, ELTE provide all kinds of support for video production. The paid software used for video production is Panopto (UVSQ, UPorto) and Adobe Premier (ELTE, UPorto). The free software used is OBS Studio (UVSQ) and Teleprompter (UPorto).

6.5. Lecture Capture software

Lecture capture software in use is Panopto (UVSQ, ELTE, UPorto), Zoom (UVSQ) and MS Team (UoL). At ELTE, all teachers can use Panopto, 13 at the same time in the classroom, and 2000+ the application. At UPorto, Panopto has 39 385 users and 6583 video producers. In this university students are able to record and upload video recordings using Panopto if teachers agree. Recording is enabled by teachers and allows students to record video content to a given course unit. UM did not report any lecture capture software.

These software are both cloud based (UVSQ, ELTE, UPorto) and in-house based server (UoL). Panopto has been acquired by a few institutions (UVSQ, ELTE, UPorto) that have a campus license. Regarding regulation on lecture capture, the items that were cited were guidelines (UVSQ), connection with a course in Canvas or Moodle, and registration in Neptun (ELTE), ordinance of the rector and dean (UoL). UVSQ and UPorto provide training on how to use these tools.

Regarding the existence of classrooms equipped for   lecture capture, UVSQ reported 6 integrated equipment and 34 mobile equipment, ELTE 13, UoL one classroom at every department and UPorto 10 classrooms.

6.6. Streaming software

Streaming software in use is Panopto (UVSQ, ELTE, UPorto), POD (UVSQ), MS Team and Webex (ELTE). This software is cloud based (UVSQ, ELTE, UoL, UPorto). Panopto is acquired by institutions (UVSQ, ELTE, UPorto) through a campus license. UM and UPorto provide training on how to use these tools.

Regarding the existence of classrooms equipped for streaming, UVSQ reported around 40, ELTE 13, UoL 1 and UPorto 15 classrooms.

7. Identification of core scientific areas for VM/BM

The focus is here on the teachers' opinions as collected in the written interviews based on personal and institutional experience. The aim of these interviews was to identify the most suitable scientific areas for the implementation of virtual or blended mobility programmes. The topics addressed were focused on scientific expertise, shared research/teaching interests, social impact of subjects and technical skills. Ten faculty members participated, two representatives from each institution, presented below by ID *P1, P2*… (see Appendix IO2-3).

Q1. In your opinion which scientific areas are most suitable for the implementation of virtual mobility programmes?

P1 I would say it is suitable for any field. However, I assume there are less difficulties to expect in social sciences than in medicine or technology as in these fields you often have practical courses and activities that are part of the study. Also, in social sciences the language barrier is usually not a big problem as English is the dominant language anyways.

P2 All disciplines can use virtual mobility. However, each discipline will have to implement it in ways specific to the discipline. The humanities will have to find ways to facilitate online discussions.

P3 In my opinion every scientific areas are suitable for the implementation of virtual mobility programmes to the same extent. Scientific areas are diverse, but in each there are issues that are suitable for virtual exchange programs. Moreover, I think more depends on the organization of the program, not on the areas.

P4 In my opinion following areas would be the best: international learning, global education, intercultural education. This areas would meet expectation of international students that come to us. We have here such organizatory solution that students are choosing subjects that not necessary must be the subjects of their study field. Do for example a student that is studying fine art can choose course in social work, a subject that not necessary reflects to his or her study field. So that is why I think more general courses that relate to international global world of human relations would be the best option.

P5 In theory all scientific fields are suitable: two major difficulties are professionalizing studies, though (like medicine and law), as well as study-programs that blend teaching with work experience in a company on a weekly basis. Having said that, there are of course study areas which are usually not very mobile, such as theology, agricultural studies, medicine and law (though law is particularly

mobile at my university – quite exceptional in Europe!). Virtual exchange is definitely of an advantage to any study programme – that's the point of the European University Alliance after all.

From a more practical point-of-view, though, there are of course obstacles: reluctance to get involved in anything new or to change habits as far as teachers, administration and even students are concerned; the difficulty – or rather, extra effort – to identify suitable partners at teacher level, the rather considerable problems concerning the compatibility of schedules and university calendars, public holidays etc. Language issues can also be a concern. In France, it is not obvious to propose a course in English for the moment. Universities are trying to provide incentives to prepare courses in English but this is far from common practice.

Concerning advantages, there are many: greater internationalization leads to greater openness of mind, larger views of a topic, the benefit of shared best practices, many networking opportunities, improved comprehension and oral language skills in an international context, greater attractivity of study programmes and higher potential employability etc.

P6 Difficulties organizing virtual mobility appear clearly when we need field action, engineering actions, medicine because then you need to be in close relation with instruments, colleagues, patients etc. In fact, I think that virtual mobility should be possible for all fields but with theoretical, modeling, analyses and so on approaches. This is clear for me that we are attracting students by proposing exiting mobility (field work, building a resource etc.) but with always a part of work that can be done with virtual mobility. Then the virtual mobility is possible to be attractive for all area, no restriction by area but by application. No difficulty to implement such programs then, but some imagination to propose in each area virtual exchange program. In our field, data analysis do not need to record the data in the field, then virtual exchange is possible even if less attractive (disadvantage).

P7 I think virtual mobility applies to multiple areas, but I will limit my comment to the Health or Life Sciences.

Classic theoretical classes are the easiest to implement virtually (The teacher only needs to operate Zoom or similar web-conference app) – although they can be much enriched with audience-interaction tools/applications. Practical classes and Laboratory classes are more demanding, but many are feasible with creativity and knowledge of technology. Nowadays, modern equipment is primarily operated via a computer interface, so it is increasingly feasible to incorporate virtual mobility.

The main difficulties in implementing these areas are the capacitation of teachers and students for electronic technologies.

It can be argued (and I agree) that the human interaction in presence is a much richer experience, and the hands-on environment of a real Lab cannot be fully replicated in any virtual mobility program. Nevertheless, virtual mobility allows for some degree of interaction with a different culture and a different way of thinking. So, even though it falls short of real mobility, it has its own worth and advantages (much less expensive and allowing greater numbers and diversity than real mobility).

P8 In my opinion all are suitable. The quality of the suitability depends on the quality of those preparing, implementing, executing and supervising the virtual mobility. My institutional experience arises from projects (VIRQUAL | Network for integrating Virtual Mobility and European Qualification Framework in HE and CE Institutions (up.pt)), VMCOLAB (VMCOLAB | VDU), ACE (Peru-UNMSM-ACE_Partner-Agreements.pdf), etc.) and from teaching in Vienna University of Technology a full course, supervising research (master, doctoral and post-doctoral levels) and in the competences I have to use existing digital tools.

P9 We train human resource consultants in our own field, and that is what we focus on now, but if we consider andragogy before (adult education) then virtual exchange does not really appear there. There are a lot of practical activities in our field, which have been temporarily transferred to the digital space, 1-1 consultancy can be done, but these initiatives have not yet been rooted.

I have been involved in an international project for a long time, where I work with people from different continents. In this form, this communication works, we meet every week and we discuss the things that we had to do. Specific problems have been solved.

P10 We have an H2020 project designed to develop knowledge. The point was to travel and meet the partners (Italian and Finnish), but because of the virus, we had to reorganise it. The partners were very creative about the situation, and they videotaped everything. This is how the field work was solved, which became a virtual tour. Therefore we all realised that we didn't have to be physically there to learn from each other. So, in our field it's very well applicable, it just takes creativity to do it. In my opinion, this can be used in all areas only a matter of creativity. It's important to go there physically, live in and experience that culture, etc. But since we don't even meet our own colleagues because of the circumstances, it can also be done in a virtual exchange. We can even imagine that one or two foreigners join our research team and collaborative work begins, where unpublished materials can be shared.

Yes, for a week's short course, there were short lectures, workshops, where we worked together, and there were times when we watched these videos. We used it to see how it works in the field, how the measurements work, and then we dealt with it. It was an integral part of the course to boost the material with asynchronous videos.
These interfaces are very good, such as Padlet and Miro, these collaborative interfaces that help synchronous and asynchronous cooperation at the same time. Therefore anyone can be connected to anywhere in the world.

7.2. Impact on the sharing of research and teaching interests

Q2. In your opinion which areas have the greatest impact on the sharing of research and teaching interests?

P1 I think every area has a great impact on sharing new ideas and findings. I cannot think of one where it is not fruitful and instructive.

P2 *Online panel discussions allow for the integration of scholars from all over the world, which leads to a multiplicity of perspectives and a more effective exchange of ideas. Students come into contact with scholars from other disciplines and cultural / national contexts.*

P3 *In my opinion areas that have the greatest impact on the sharing of research and teaching interests are social research. I cannot comment on other areas because I have no experience. I am a social researcher and whenever I meet other scientists interested in what I am interested in, the distance between us is not a hindrance. We cooperate using ICT, and this cooperation is in no way inferior to traditional mobility.*

P4 *For me interesting would be area of skills development how to work with international students. Subject can be inclusive education, inclusion of students with learning difficulties.*

P5 *There are subject areas where shared research and teaching is more or less mandatory: any programme with an international profile like programmes taught in English outside an Anglophone country, studies in International Law, International Relations, Political Science, European Studies, Cultural Studies, Comparative Literature etc.*

But any study area is likely to benefit from enhanced internationalization. To be more precise, at masters level, it is obvious that an international dimension would allow many programmes to reflect more accurately the state-of-the art, in the sciences, notably. To give one example, in environment science in France, it is understood that you won't get an academic position after your PhD in France as a French student, if you have not been a postdoc abroad for a year. This means, such studies are geared towards internationalization as far as career development is concerned. It would therefore make sense to propose an international experience to the largest number of students as soon as possible. Medicine and law tend to be very much focused in the national context and would definitely benefit from broader views though many structural issues stand in the way of internationalizing programmes. This is also the case for teacher training.

As far as my experience is concerned, I have organized a research workshop for masters and PhD students for 10 years now almost every year in our interdisciplinary Arctic Studies master programme (Science and Humanities) entirely taught in English in cooperation with the German Polar Institute AWI. Some of them have taken place in France, others in Germany, and two in Finland and the Faroe Islands. Each workshop has proven to be a highly valuable experience for students and staff. The COVID19 crisis has led to systematic online teaching. Within this context, it has become more and more evident how relatively simple it is to set up an online guest lecture by drawing on one's own network – presentations which the students have followed with great interest. I have myself accepted two such invitations from new Russian partners which are an excellent way of making progress in our cooperation although mobilities and business trips are not possible for the time being.

I am convinced that online experiences of this kind are likely to trigger mobilities. Unfortunately, we cannot put this into practice at the moment, but the trend has been launched to provide internationalization experience online and to generally work on the dynamics of mobility flows in universities.

P6 Hot topics always have the greatest impact, and areas without hot topics (at public level) are difficult to use for research and teaching interest. Examples of hot topics from my point of view in astronomy: exoplanets and planetology; in geosciences pollution problems, climate changes; in many domains: COVID19; social analysis and so on.

P7 Virtual mobility took place at FFUP when ERASMUS students went back home during the COVID pandemic - but continued to attend remote classes. My own experience with a limited number of such students in the Neuroscience classes was very positive. The level of participation and engagement of the remote ERASMUS students was identical to the remote Portuguese students. It was an incentive for Portuguese students to communicate in English, and an enriching experience for all of them.

P8 Collaboration with other institutions is fundamental to improve. Participation in international associations and networks is fundamental. My experience tells me that I have always learned with international and national cooperation.

P9 If you take a bachelor program, it also has a foundation part, and there is a part where the disciplinary / professional knowledge is targeted. In areas where we can develop students in a differentiated way, different methods and solutions can have a thought-provoking effect, so virtual exchange programs can also be used. They give us the opportunity to approach things in a number of ways, to achieve a goal in several ways, so students can learn from them.

P10 A short visit with a physical presence sets out exactly these goals for you to learn a little from the other, so you can do it virtually as well. We need to re-evaluate why we travel everywhere every month, when it can be solved without it.

7.3. Scientific areas with more social impact

Q3. Do you think that there are subjects with more social impact than others? Which ones?

P1 I think cultural studies, political sciences, literary studies, and social sciences in general have a more social impact than others. And also they will be easier to pick up and relate to for the students as these fields bear a great potential for discussion, for sharing one's own political perspective and competences.

P2 Teaching global issues, such as, for example, the pandemic, economic developments, ethics, revolutionary movements, religion, and, generally, contemporary topics, from an interdisciplinary and intercultural perspective could have a major impact.

P3 I think so. There are subjects that are less and more fashionable. For example, for several years in the European Union the issue of European citizenship dominates over the issues of local/national patriotism. Other dominant themes are ecology, the climate crisis, LGBT and political correctness. Meanwhile, more than 23,000 people die in car accidents every year in Europe.

P4 European citizenship would be good, I think, also how to develop European values. Good will be those topics that show that despite the language we speak we are all the same, we all have families and we all cry when we loss someone we love. So subjects and topics that show what we have in common with others.

P5 I am not sure about the wording of this question. In theory, any subject will have a social impact as soon as students and teachers get together at international level. In view of creating more cohesion inside Europe, it would also be necessary to open curricula to the European dimension as far as possible, especially in human and social science. But excellence in the sciences also requires contact with excellent partners, in Europe and elsewhere of course.

Virtual mobility in professional training programmes might require a larger effort in terms of organization but as the Paris-Saclay piloted European University Alliance EUGLOH has shown, it is relatively easy to organize guest lectures and to introduce new or fresh perspectives this way.

P6 My answer to Q2 is an answer and can be extended here.

- *Trends in many fields*
- *Data analysis of observations from space*
- *Old data re-analysis (climate, Sun activity, Network data been studied in the past but can be explored again with updated technics.*

Simulations: models are now online in most areas, it is time to use it with a large view. These are needed in climate, medicine, etc. Then results are often converted into social impact, a good argument to enlarge studies.

P7 To avoid personal biases, I'll name 3 widely accepted pressing issues for humanity:

- *Climate change, pollution, and loss of biodiversity*
- *Technological disruption and artificial intelligence*
- *Global health management – how to prevent and deal with pandemics*

P8 Social impacts depend on the quality of the exploitation that teachers, researchers and staff perform within their areas of expertise. Society can only progress with research and progress in all areas.

P9 Every kind of collaboration has a social impact, regardless of its subject. If you cannot meet with your peers, that can block your thinking. Social impact is something that affects someone when they're part of a group, they sense it as they're in the community. Only a part of this can be transmitted virtually.

P10 In the field of natural sciences, for example, if someone wants to get into CERN as a physicist, it's a big deal. Then it's virtually easier, we don't need permission, so we can take very high-tech things to anyone. Labs and experiments in this area are very feasible, because often there is no capacity.

7.4. Technological skills and abilities

Q4. In your opinion which areas require more technological skills and abilities to be taught in a virtual environment?

P1 I assume any practical courses and seminars need more specific technological skills. But this also depends on the teacher and the teaching methods they prefer to use. Also a literary seminar can be very complex in terms of methods used to foster interaction between students.

P2 Life-Science (including Biology, Chemistry and Medicine) experiments can hardly be taught in a virtual environment. Interpersonal and communicational skills are very hard to teach and to acquire online.

P3 I think practical sciences such as architecture, agriculture, metallurgy.

P4 I am working at faculty of education so I can talk only for myself and I think useful would be a training that focus onto how to prepare materials for students using flash or similar programme. So it will be attractive from visual point of view.

P5 Apart from the lack of experience in proposing and managing an online course among some teachers, online teaching has proven particularly complicated in the sciences as far as lab exercises are concerned.

P6 All scientific areas need technological skill and abilities easy to be taught in a virtual environment. In fact, many areas use laboratory resources for computing, simulating, data transfer and so on. Then for these examples and many others, virtual environments have been far from the lab, most of the time virtual environments cannot be created far from the lab. Then virtual portals can open doors for hackers, and will not be accepted by laboratories or Universities.

P7 All areas that normally involve hands-on physical interactions with subjects, materials or equipment, require more creativity, abilities and technological skills to adapt to a virtual environment.

I think most teachers find it much harder to adapt Laboratorial or practical classes to virtual environments, than theoretical classes.

P8 All teachers need technological knowledge, skills and attitudes to do proper use of virtual environments. See projects like MODERN (Modern | Mobile & Digital E-Learning Toolkit), DISK (DISK - Digital Immigrants Survival Kit | Centro de Investigação e Intervenção Educativas (up.pt)) and TOP (EDEN Qualification Framework for Online Teachers | EDEN (eden-online.org). The problem is having teachers, staff and researchers that do not have proper competences. That is why problems arise in virtual environments. People involved need proper training.

P9 This virtual environment provides us with a tool, it fulfils its function, so it doesn't matter where anyone includes it in any teaching and learning process, it can work.

It just made me wonder whether this process can be fully replicated, which you would do if you were physically in that laboratory environment.

On the other hand, at a training, where we develop social skills, we need to see the face of another person, we need to see how he reacts, what his body movements are like – virtually we're at a small disadvantage.

After all, the question arises, what is the point where it becomes a virtual mobility or a virtual exchange program, and something really happens beyond being connected by means in a virtual space, but there is no cooperation whatsoever. The latter, on the other hand, would naturally happen if we were physically side by side from several nations, more cultures.

P10 *The same technologies are available. These platforms and different pages are the same for everyone. Once again, if we are talking about the content, these programmes can be applied in all areas, platforms are the same.*

If you go into virtual reality (e.g. you make the classroom/room and it's like you're there) it requires more preparation and technology. I had a lecture where students went out into nature, so you need more knowledge and data so you can copy it to VR. If interpreted this way, this method requires more.

If you think about a chemist or a person working with a microscope, do you think you can actually do this virtually? Can you look into the telescope? I'm not sure, I'm not saying you can't, but I think technology evolves rapidly these days. We'll get to this level sooner or later.

Also, there are courses at my department where my colleagues deal with virtual things and use a hybrid method: there are 10 students sitting in the classroom, which is virtually connected to another 100.

Yes, you are right, nevertheless, you can be placed in a shared environment virtually without collaboration, just like it can be the case physically. My colleague sits beside me, and I don't even speak to him. So being physically at one place does not necessarily solve the problem of collaboration and it is true for the other way around – just because we are connected virtually, it can still support collaboration.

Optional by the end of the interview: **Is there anything you would like to add to the discussion?**

P1 *I find it very difficult to make general suggestions on virtual mobility options for any other academic field that is not my own. I do not know which methods and technologies my colleagues in other faculties are using and feel like I can only make helpful suggestions in these fields.*

P2 *Technology, in general, has improved significantly. We are expected to reach out to all students, but what can we do if their internet is weak or their governments block access to, mostly, Western*

technology while students do not get visas due to the current pandemic (also because embassies are closed).

__P5__ Our University is a member of the excellence initiative "Université Paris-Saclay". Saclay has just launched a call for projects concerning innovative pedagogy, including internationalization projects. Such incentives might play a crucial role in encouraging teachers and administration to invest the extra time needed to make such virtual experiences happen. That these are definitely of benefit to all seems obvious.

__P8__ Universities need to participate in international associations like EDEN (https://www.eden-online.org/) or ICDE (ICDE) to properly operate in virtual environments. International participation in EU funded projects also improve proper participation in teaching and learning in virtual environments. If that is not pursued there is a high chance of in-breeding.

8. Final remarks

Partner mobility practices

- Out of the three forms of mobility analysed (physical, blended and virtual) only the traditional (physical) is implemented by all the academic institutions under study. Mobility opportunities offered by partners are quite similar for each level of study and cover undergraduate, graduate, master and doctoral levels. The main sources of funding to support physical mobility are Erasmus+, Government and Regional Country grants.

- The figures of physical mobility for the academic year 2018/2019 show us the importance of mobility in each institution (UVSQ 256 persons undertaking mobility; ELTE 1624; UoL 500 and UPorto 4256). For ELTE and UPorto the predominant direction of physical mobility is IN (people coming to study in these universities). However, for UVSQ, the predominant direction is OUT (people going to study out). Regarding the purpose of these mobilities, partners stated for most persons the main purpose of undertaking a mobility was studying.

__Chart 10:__ Comparative mobility practices of academic partner institutions

Comparative current practices of mobility
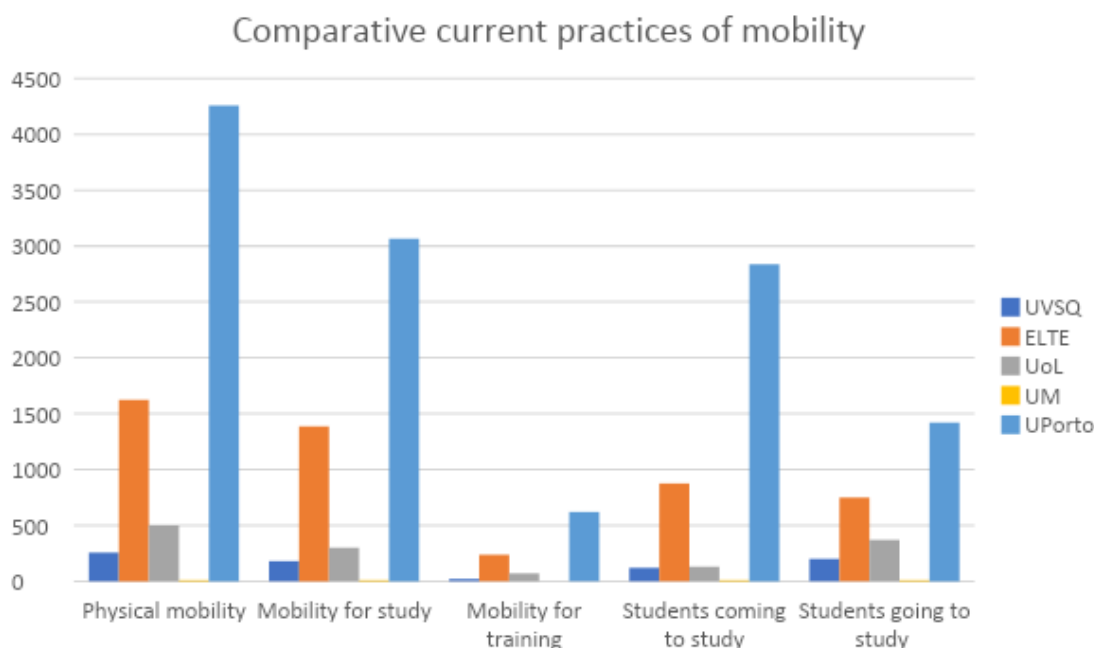
Source: Original of this study

- Despite the differences between faculties and educational programmes in terms of integration of mobility experiences, partners assume that the most important is the integration of mobility in the degree course and the least important is the extra-curricular one.

- Concerning pedagogical and evaluation methodologies, it is not possible to assess accurately the methodologies and evaluation used by the academic partners. These issues depend on the teacher's pedagogical methodologies and evaluation methods. However the answers given allowed us to identify some of the methodologies and evaluation practices in use by academic partners.

- The recognition and support of mobility is done by several services and internal regulations that frame physical mobility. There is more reliance or confidence in physical mobility than in blended or virtual mobility. However, several advantages and disadvantages were recognised for the three mobility modalities.

Partner technical conditions

- We can see that all partners are technically equipped to implement virtual mobility programmes. All partner institutions have their LMS hosted in-housed servers, and have a technical team to support the LMS and specific educational technologies team

to support teaching and learning methodologies using MLS and also provide training for teachers on how to use the LMS. With regard to registration in the LMS system, ELTE and UPorto replied that not all students are registered. Only UoL stated that the use of the LMS is mandatory for teachers. Regarding distance learning courses, all institutions have distance learning courses delivered mostly by institutional LMS (UVSQ, UoL, UM, UPorto), MOOC platforms (ELTE, UPorto) and other LMS (ELTE).

- Computer and online based exams carried out mainly through the Moodle platform. In addition to Moodle test activity and assessment activity, other platforms were mentioned such as Zoom, Collaborate, Compillatio (UVSQ), MS Teams ELTE, UoL).

- All partner universities use videoconference tools. Regarding the existence of rooms or facilities especially prepared for videoconference, only ELTE replied they do not have them. With respect to studios for video and audio production, only one institution (UoL) replied it did not have such facilities. Academic members of all partner institutions can borrow audiovisual equipment. Lecture capture software in use is Panopto (UVSQ, ELTE, UPorto), Zoom (UVSQ) and MS Team (UoL).

- Streaming software in use is Panopto (UVSQ, ELTE, UPorto), POD (UVSQ), MS Team and Webex (ELTE). These software are cloud based (UVSQ, ELTE, UoL, UPorto). Panopto is acquired by institutions (UVSQ, ELTE, UPorto) and have a campus license. UM and UPorto provide training on how to use these tools.

Core scientific areas for VM/BM

- The opinions expressed by the respondents are unanimous in considering that practically all scientific areas are suitable for the implementation of virtual mobility programmes. However, it is assumed that the social sciences present fewer obstacles than the health and life sciences and technology because the latter areas involve substantial practical courses and field activities. A good organisation of the programmes, creativity and the supervision are key elements for the success of virtual mobility programmes.

- All disciplines in the different scientific areas have their impact on the sharing of new ideas and results. However there are always areas that have more impact than others. Programmes with an international profile have a greater impact. But any area of study is likely to benefit from greater internationalisation, which leads to a multiplicity of perspectives and a more effective exchange of ideas.

- All areas that normally involve hands-on physical interactions with subjects, materials or equipment, require more creativity, technological skills are less likely to be adapted to a virtual environment.

- Teachers need technological knowledge and skills to make appropriate use of virtual environments: this is why training is crucial.

9. Appendices

Questions	Answers						
1-Name of the Higher Education Institution:	UVSQ-Université de Versailles Saint Quentin-en-Yvelenes – FR (1 responder) ELTE-Eotvos Lorand Tudomaryguyunten – HU (2 responders) UoL-University Lodzki – PL (2 responders) PUM-Philipps Universitaet Malburg – GR (4 responders) UP-Universidade do Porto – PT (1 responder)	UVSQ	ELTE	UoL	PUM	UP	
2-Which are the levels of study that have mobility opportunities currently on offer?	**Traditional Mobility**	Undergraduate	Yes	Yes	Yes	Yes a)	Yes
		Specialisation	No	Yes	No	Y/N b)	Yes
		Researcher	No	Yes	Yes	Yes c)	Yes
		Post-graduation	No	Yes	Yes	Ye s d)	No
		Post-doctorate	No	Yes	Yes	Yes e)	No
		MBA	No	Yes	Yes	No	No
		Graduate	Yes	Yes	Yes	Y/N f)	Yes
		Master	Yes	Yes	Yes	Yes g)	Yes
		Doctorate	Yes	Yes	Yes	Yes h)	Yes
	a) 1 yes and 1 no; b) 2 yes and 2 no; c) 3 yes and 1 no; d) 3 yes and 1 no; e) 3 yes and 1 no; f)2 yes and 2 no; g)3 yes and 1 no; h) 3 yes and 1 no. Y/N=the same number of yes and no or other options NOTE: Due to the lack of consistency of the answers given by UoL and the PUM it would be good to clarify what the answer is.						
	Blended Mobility	Undergraduate	No	No	No	No	Yes
		Specialisation	No	No	No	No	Yes
		Researcher	No	No	No	No	No
		Post-graduation	No	No	No	No	No
		Post-doctorate	No	No	No	No	No
		MBA	No	No	No	No	No
		Graduate	No	No	No	No	Yes
		Master	No	No	No	No	Yes
		Doctorate	No	No	No	No **a)**	Yes
	a) 3 no and 1 yes						
	Digital Mobility	Undergraduate	No	No	No	No	No
		Specialisation	No	No	No	No	No
		Researcher	No	No	No	No	No

		Post-graduation	No	No	No	No	No
		Post-doctorate	No	No	No	No	No
		MBA	No	No	No	No	No
		Graduate	No	No	No	No	No
		Master	No	No	No	No	No
		Doctorate	No	No	No	No	No
3-Which sources of funding do you have available to support the mobility flows?	Traditional Mobility	Erasmus+	Yes	Yes	Yes	Yes a)	Yes
		Grants of HEI of origin	No	Yes	Yes	No b)	No
		Grants of host HEI	No	Yes	Yes	No	No
		Government/Country grants	Yes	Yes	Yes	Yes c)	Yes
		Regional/Country grants	Yes	Yes	Yes	Y/N	Yes
		Research grants	No	Yes	Yes	Yes d)	No
		Santander	No	Y/N	No	No	Yes
		Scholarships for academic achievement	No	Yes	Yes	Yes e)	No
		Other. Which?					
		a) 3 yes and 1 no; b) 3 no and1 yes; c) 3 yes and 1 no; d) 3 yes and 1 no; e) 3 yes and 1 no. NOTE: Due to the lack of consistency of the answers given by UoL and the PUM it would be good to clarify what the answer is.					
	Blended Mobility	Erasmus+	No	No	No	No	Yes
		Grants of HEI of origin	No	No	No	No	No
		Grants of host HEI	No	No	No	No	No
		Government/Country grants	No	No	Yes	No	Yes
		Regional/Country grants	No	No	No	No	Yes
		Research grants	No	No	Yes	No	No
		Santander	No	No	No	No	No
		Scholarships for academic achievement	No	No	No	No	No
		Other. Which?					
	Digital Mobility	Erasmus+	No	No	No	No	No
		Grants of HEI of origin	No	No	No	No	No
		Grants of host HEI	No	No	No	No	No
		Government/Country grants	No	No	No	No	No
		Regional/Country grants	No	No	No	No	No
		Research grants	No	No	No	No	No
		Santander	No	No	No	No	No

		Scholarships for academic achievement	No	No	No	No	No
		Other. Which?					
4-What is the predominant direction of the mobility? (If possible, include numbers)	Traditional Mobility	In	Yes (120)	Yes (875)	Yes	Y/N (10)	Yes (2835)
		Out	Yes (200)	Yes (749)	Yes	Y/N (10)	Yes (1421)
	Blended Mobility	In	No	No	No	No	No
		Out	No	No	No	No a)	No
		a) 3 no and 1 yes;					
	Digital Mobility	In	No	No	No	No	No
		Out	No	No	No	No	No
5. What is the predominant purpose of the mobility? (If possible, include numbers)	Traditional Mobility	Study	Yes (180)	Yes (1387)	Yes (300)	Y/N (10)	Yes (3064)
		Training	Yes (20)	Yes (237)	Yes (70)	No	Yes (620)
		Other. Which?					
	Blended Mobility	Study	No	No	Y/N	No	No
		Training	No	No	No	No	No
		Other. Which?					
	Digital Mobility	Study	No	No	No	No	No
		Training	No	No	No	No	No
		Other. Which?					
6.The mobilities are: (Choose by order of importance, 1 being the most important and 4 the least important)	Traditional Mobility	Integrated in the degree	Yes (1)	Y/N (1)	Yes (1)	Yes a) (1)	Yes (1)
		Complementary	Yes (1)	Y/N (1)	Yes (1)	Yes b) (1)	Yes (2)
		Extra-curricular	No	Y/N (1)	Yes (1)	Yes c) (1)	Yes (2)
		Other. Which?					
		a) 3 yes and 1 no; b) 3 yes and 1 no; c) 3 yes and 1 no. NOTE: Due to the lack of consistency of the answers given by UoL and the PUM it would be good to clarify what the answer is.					
	Blended Mobility	Integrated in the degree	No	No	No	No	No
		Complementary	No	No	No	No	No
		Extra-curricular	No	No	No	No	No
		Other. Which?					

	Digital Mobility	Integrated in the degree	No	No	No	No	No
		Complementary	No	No	No	No	No
		Extra-curricular	No	No	No	No	No
		Other. Which?					
7.Mention and briefly describe the different teaching methodologies (traditional/innovative):	Traditional Mobility	UoL: Practical exercises, training; Individual work, group work, collective work, training course, home study; The dominant model of mobility is the traditional mobility. PUM: Lectures, Seminars and Tutorials (traditional)¸ lectures, seminar discussions usually all in person learning portfolios, group/tandem discussions, plenary discussions)- lab courses- small applied courses (e.g. language skills)- colloquia (discussion of student research projects UVSQ Courses are divided into formal lectures, directed studies, and practical work. ELTE: There is no systematic data collection at out university on the pedagogical methods used on mobility related courses. Methodological planning is not centrally coordinated, so innovative solutions also appear mainly sporadically at each faculty, depending on the individual innovation needs of the instructors of the given course. For example, at the Faculty of Psychology and Education, the application of the project method, fieldwork and cooperative learning strategies is basically given to non-mobile students, so incoming students can study within the framework of similar methods and strategies. UP: ● F2F lecture ● F2F group discussion/work ● project-based learning ● problem-based learning ● group methodologies ● use of polling (kahoot/Socrative)	Yes	Yes	Yes	Yes	Yes

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					Yes	Yes	Yes	Yes
	Blended Mobility	UoL: practical exercises, training, individual work, group work, collective work, training course, trip, home study; If partner university offers courses within blended mobility than we take part in it. This blended mobility opportunities are rather rare the case. PUM: - digital research colloquia via videocall- digital research collaboration (data, texts) ELTE: Only one faculty (Institute of Business Economics) reported that they planned a blended mobility for the spring semester of 2020/2021, but it was cancelled due to the COVID-19. They planned to do a 1-week hackaton with a Dutch university. UP: ● project-based learning ● problem-based learning ● group methodologies ● gamification ● flipped-classroom ● collaborative online international learning ● interactive lecture (presential and virtual) ● F2F lecture or virtual class ● use of polling (kahoot/Socrative) ● flashcards (for training in medical school) ● MOOC		Yes	Yes	Yes	Yes
	Digital Mobility	UoL: practical exercises, training, , individual work, group work, collective work, training course, home study¸ Never met digital opportunities so far. ELTE: None of the faculties reported digital mobility activities, therefore this question cannot be answered. UP: ● project-based learning ● problem-based learning ● group methodologies		Yes	Yes		Yes

		- gamification - collaborative online international learning - interactive lecture (presential and virtual) - F2F lecture or virtual class - use of polling (kahoot/Socrative) - flashcards (for training in medical school) - MOOC - increased self-learning (more autonomy)					
8.Mention and briefly describe the evaluation linked with mobility (formal/informal):	Traditional Mobility	UoL: the most popular; PUM: interactive and interpersonal, better results in the more abstract competencies such as discussion competence, teamwork etc. UVSQ: the evaluation is carried out as part of the continuous monitoring process and as part of the end-of-semester examination ELTE: At the end of the mobility, the students are awarded with a Transcript of Records/Traineeship Certificate, and upon graduation they receive a Diploma Supplement, where the completion of studies abroad is indicated in a clear and uniform way. Source: ELTE; Erasmus policy statement. UP: - formal: - evaluation: exams, continuous evaluation (works, participation, …) - recognition of the mobility/activity: ects transfer and/or diploma supplement - informal: - no "mandatory" evaluation: work, volunteering, certificates of attendance in sessions/events/conferences, … - recognition of the mobility/activity: diploma supplement; other recognition	Yes	Yes	Yes	Yes	Yes

		documents (qualitative evaluation for recent graduates)					
	Blended Mobility	ELTE: Since the only blended mobility was not realized, the form of evaluation cannot be reported.		Yes			
	Digital Mobility	ELTE: None of the faculties reported digital mobility activities, therefore the evaluation cannot be reported.		Yes			
9. Is the mobility recognized upon the return to the home institution? In case you answer "Yes", please indicate the types of recognition.	Traditional Mobility	Yes UoL: passing exams and semesters PUM: The courses taken abroad are usually all counted towards a student's required ECTS points. Usually all classes are recognized; always; "learning agreement", credits are transferred. UVSQ: the semester is validated on the basis of the marks obtained at the host university. ELTE: It differs at each faculty. In general, the mobility courses are recognized as elective. It goes smoothly. If a student wants to get recognized a mobility course as mandatory credit, it's harder and requires at least 75% equivalence between the 2 courses.	Yes	Yes	Yes	Yes	Yes
		No					
	Blended Mobility	Yes					
		No		No	No		

	Digital Mobility	Yes					
		No		No	No		
10. Which are the support services/offices responsible for these mobilities?	Traditional Mobility	IROs	Yes	Y/N	Yes	Yes a)	Yes
		Departments	Yes	Y/N	Yes	Yes b)	Yes
		Schools/Faculties	No	Y/N	Yes	Y/N	No
		a) 3 yes and 1 no; b) 3 yes and 1 no NOTE: Due to the lack of consistency of the answers given by UoL and the PUM it would be good to clarify what the answer is.					
	Blended Mobility	IROs	No	No	No	No	No
		Departments	No	No	No	No	No
		Schools/Faculties	No	No	No	No	No
	Digital Mobility	IROs	No	No	No	No	No
		Departments	No	No	No	No	No
		Schools/Faculties	No	No	No	No	No
11. Please provide the mobility figures at your institution in the following academic years:	Traditional Mobility	2018-2019	256	1624	500		

		2019-2020	290		500		4256
	Blended Mobility	2018-2019					
		2019-2020					
	Digital Mobility	2018-2019					
		2019-2020					
12. In your institution, do you have regulations/internal documents intended to frame the mobilities? In case you answer "Yes", please state which.	Traditional Mobility	Yes UoL: rector's ordinance PUM: not sure UVSQ: information leaflet, memento ELTE: Erasmus+ Policy Statement UP: • application guidelines and jury selection (in each call) • other internal documents (e.g. student Mobility Regulation OUT (U. Porto) transcription of records (grades' conversion of the host university into numerical range: 10-20) • Transcript of records for the incoming students	Yes	Yes	Yes	Yes	Yes

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		No			No		
	Blended Mobility	Yes UoL: rector's ordinance, dean's order ELTE: Erasmus+ Policy Statement			Yes		
		Yes		Yes	No		
	Digital Mobility	Yes					
		No		No	No		
13. What is the perception, in your academic community, of the reliance/confidence regarding mobility?	Traditional Mobility	A lot of confidence	Lot	Lot	Lot	Lot	Lot
		Some confidence					
		Low confidence					
		No confidence					
	Blended Mobility	A lot of confidence					
		Some confidence	Some	Some	Some	Some	

		Low confidence					Low
		No confidence					
	Digital Mobility	A lot of confidence					
		Some confidence			Some	Some	
		Low confidence				Low	Low
		No confidence		No			
14. In your perception, what are the advantages of the different types of mobility?	Traditional Mobility	UoL: is traditional, people are used to. PUM: Students get immersed completely into different higher education environment and get to know a foreign culture as well; interpersonal exchange of ideas; - immersion in language and culture, rich interpersonal learning opportunity, positive challenge for personal growth- strong incentive to engage with classes, fellow students etc. UVSQ: discovery of another culture, another way of teaching, expansion of the social network. ELTE: This mobility type strengthens language skills, cultural awareness, emotional intelligence, independence. It allows space for personal and professional development in a foreign environment. Students get to know themselves and another country in a different perspective. It may enhance their employability after the mobility. It creates opportunity for future cooperation and networking. UP: ● full experience	Yes	Yes	Yes	Yes	Yes

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		• human contact (cultural and social skills) • CV improvement • increasing autonomy/becoming more independent						
	Blended Mobility	UoL: is new, and interesting. PUM: Students get to know a different culture and can create a more flexible schedule. This could allow looking for a job or internship abroad or create free time for travel; interpersonal and digital (less traveling involved); - heightened accessibility in cases where longer stays abroad are difficult to manage or dates of terms do not align. UVSQ: flexibility ELTE: This type is ideal for students who want to combine traditional and digital activities during their mobility. It allows them to discover new methods of studying and teaching in a blended form. It strengthens digital competences and cooperative skills besides the competences that traditional mobility develops. UP: • partially combines the advantages of both types of mobility	Yes	Yes	Yes	Yes	Yes
	Digital Mobility	UoL: for the future; If students do not travel/going abroad to take up online courses, they can take care of family members. PUM Students get to know different teaching methodologies without traveling far needing additional funds; - accessibility (low income/some disabled students). UVSQ: flexibility, financial aspect. ELTE: This type is ideal for students who belong to any kind of sensitive groups, therefore cannot commit themselves to participate in any physical mobility activity and only have access to digital tools. They can participate in international activities	Yes	Yes	Yes	Yes	Yes

		without traveling, and they can get to experience different forms of online activities. It makes mobility accessible for a wide audience, it develops digital competences and language skills. UP: ● resource saving/ economical ● lower ecological footprint ● universal (accessible to more participants) ● CV improvement					
15. In your perception, what are the disadvantages of the different types of mobility?	Traditional Mobility	UoL. The biggest obstacle are private obligations, like looking after family members when going abroad. Also if someone does not like travel (too much stress), it is difficult to convince the person about the advantages. PUM: Students need to spend a lot of money on travel expenses, room and board and insurance etc. limited to a certain time and space¸ - high investment (time and money)- inaccessible to some disabled students. UVSQ: financial aspect, cost of mobility for a student. ELTE: Expenses of living abroad, long commitment for a whole semester or academic year, family or work related issues that may undermine the mobility, age (people are generally more mobile in a younger age), risk of having an extra semester, delayed graduation. UP: ● restricted grants (number and value) ● less accessible to all participants ● more expensive ● higher ecological footprint	Yes	Yes	Yes	Yes	Yes
	Blended Mobility	UoL: I do not see disadvantages		Yes	Yes	Yes	Yes

		PUM: Internet must be stable here as well. Managing both types of teaching (physical and digital) can be a complicated¸ more time-consuming in preparation. ELTE: Finding the right balance between digital and traditional tools, extra work for completing the blended part, due to its shortness, it does not offer an intensive immersion into the foreign culture and language. UP: ● mix of both, traditional and digital mobility					
	Digital Mobility	UoL: I do not see disadvantages. PUM: Doesn't get to travel to foreign country and doesn't get to know foreign university culture. A lot depends on a good and stable internet connection and time zones add additional complications¸ no personal exchange, quite abstract, no relationships¸ - lack of immersion and learning opportunities- can become an excuse for cutting traditional mobility programs- much harder to feel and stay engaged. UVSQ: lack of direct contact. ELTE: Missing out of cultural immersion in another country, missing real-life experience, lack of opportunity for networking and new relationships, digital overload, dependence on digital tools and technology. UP: ● lack of cultural, human and social contact and experience ● technological difficulties	Yes	Yes	Yes	Yes	Yes
16. In your institution, what are the key scientific areas of the different types of mobility?	Traditional Mobility	UoL: education, sociology¸ Students can choose courses from different faculties, not only according what is their study main subject. PUM: all departments¸	Yes	Yes	Yes	Yes	Yes

				Yes	Yes		Yes
		UVSQ: law, english literature and civilization european and international studies. ELTE: All faculties have mobilities in most of the academic fields. ELTE has the following academic fields: Education and Psychology, Humanities, Informatics, Law, Primary and Pre-school, education. UP: • all the areas					
	Blended Mobility	UoL: No blended mobility offered so far. ELTE: The one faculty that reported the cancelled blenden mobility was the Institute of Business Economics. UP: • practically all		Yes	Yes		Yes
	Digital Mobility	UoL¨ No digital mobility offered so far. PUM: rarely done. ELTE: None of the faculties reported digital mobility activities, therefore this question is not applicable. UP: • technology • social sciences		Yes	Yes		Yes

Appendix II

Appendix IO2-2

IO2 - Analysis of different types of virtual and blended mobility and their technical conditions
Technical conditions for blended-learning of the HEI: Questionnaire results

Questions	Answers						
1. Name of the Higher Education Institution:	UVSQ-Université de Versailles Saint Quentin-en-Yvelenes ELTE-Eotvos Lorand Tudomaryguyunten UoL-University Lodzki PUM-Philipps Universitaet Malburg UP-Universidade do Porto		UVSQ	ELTE	UoL	PUM	UP
	Department/Role	Pedagogical support/Vice-President	X				
		Education Directorate/Head of Education Development and Talent Support Department		X			
		Faculty of Educational Sciences/Staff in charge for online courses			X		
		Faculty/Teacher				X	
		Educational Technologies Department/Head of Educational Technologies					X
Learning management systems (LMS)							
2. Does your institution have a Learning Management System (LMS)? 3. Which Learning Management System (LMS) does your Institution have?	Yes/No	Moodle	X	X	X		X
		Canvas		X			
		Blackboard					
		Ilias				X	
		Coospace		X			
4. Is your LMS integrated with other services of your institution? 5. Please describe how your LMS is integrated with other services of your institution	Yes/No	It is integrated with the information system of our university	Yes				
		Moodle, Canvas, Coospace		Yes			
		Big Blue Button is integrated in Ilias			Yes		
		Students and Teachers Administration Data Base				Yes	
		Is integrated with the information system; lecture capture software (panopto) and plagiarism tool (Turnitin)					Yes

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Question	Yes/No					
6. Do all the students are registered in the LMS?	Yes/No	Yes	No	Yes	Yes	No
7. Is it mandatory, for all teachers, to use the LMS?	Yes/No	No	No	Yes	No	No
8. Is it stored using in-house servers?	Yes/No	Yes	Yes	Yes	Yes	Yes
9. Do you have a specific technical team to support the LMS?	Yes/No	Yes	Yes	Yes	Yes	Yes
10. Do you have a specific educational technologies team to support teaching and learning methodologies using the LMS?	Yes/No	Yes	Yes	Yes	Yes	Yes

Question	Yes/No	Description	A	B	C	D	E
11.Do you provide training for teachers on how to use the LMS?	Yes/No		Yes				
				Yes			
					Yes		
						Yes	
							Yes
12.Does your institution have distance learning courses? 13.Please specify where distance learning courses are delivered?	Yes/No	Institutional LMS	Yes		Yes	Yes	Yes
		Other LMS			Yes		
		MOOC Platform		Yes			Yes
13.Does faculty use different tools for T&L, other than the institutional LMS, for their online courses support? 14.Please describe how does faculty use different tools for T&L, other than the institutional LMS, for their online courses support	Yes/No	Plugin (integrated directly into LMS (ex : collaborate)) and LTI (external link (ex : zoom, panopto))	Yes				
		MS Teams, Webex		Yes			
					Yes/No		
						No	
		Teams, Google, Webex and Panopto with their university accounts.					Yes

E-Assessement

Question	Yes/No	Description	A	B	C	D	E
15.Does your institution do computer-based exams? 16.Please describe the scenario.	Yes/No	Test activity (Moodle), Assessment activity Zoom, Collaborate Plagiarism (Compilatio)	Yes				
		Tests or oral exams in Teams		Yes			
		Using MS Teams			Yes		
		For a couple of years now students have to write some exams online, especially in the field of linguistics. In the current semester (and also in the last semester), some of the colleagues are also planning oral exams via a virtual plattform.				Yes	

		U.Porto delivers computer-based exams using Moodle. These exams can be taken in computer-rooms in the faculty premises or the students can bring their own devices. In this BYOD scenario apart from Moodle they also use Safe Exam Browser. There are additional security measures during the exam period. Some teachers use other computer-based exams tools like Mooshak for programming exams.					Yes
17.Does your institution do online exams? 18. Please describe the scenario.	Yes/No	1) Convocation - guidelines 2) mock exam (2 weeks earlier) 3) Guidelines for exam 4) Exam One teacher oversees the exam session	Yes				
		Tests or oral exams in Teams		Yes			
		MS Teams, Moodle The online exam is part of moodle			Yes		
		See answers before				Yes	
							Yes
19. Does your institution have specially prepared computer rooms to accommodate computer-based assessment?	Yes/No		No				
				No			
					No		
						No	
							Yes
20.Is your institution a test center? 21.Please specify the certification attained	Yes/No		No				
				No			
					No		
						No	
							No
22.Does your institution do remote or distance exams?	Yes/No	Zoom, collaborate Moodle : test activity, assessment activity	Yes				
				No			

23.Please describe the tool or tools used.		MS Teams, Moodle			Yes		
		As described before, we sometimes use video conference plattforms for oral exams, for instance.				Yes	
		Although it does distance exams, this is not an ideal situation but rather an emergency solution to the covid19 challenge. U.Porto doesn't have a remote proctoring software so what teachers conduct are Moodle exams with some proctoring thru videoconference tools like zoom or teams.					Yes
Videoconference tools and facilities							
24.Does your institution use any videoconference tool?	Yes/No	Zoom Collaborate	Yes				
		Webex		Yes			
25.Please specify the videoconference tool(s) of your institution		There is a specially equipped room for videoconferencing.			Yes		
		Cisco Webex and Big Blue Button				Yes	
		Zoom					Yes
26.Is it cloud based or in-house server based?	Yes/No	Cloud based	X	X			X
		In house based server			X	X	
27.Is it provided by your local/central authority or was it acquired by your institution?	Yes/No	Provided by nacional authority					X
		Acquired by your institution	X	X	X	X	
28.If acquired by your institution, what kind of license is it?	Yes/No	Campus license	X			X	
		User based		X			
		Other					
		Do not know		X			
29.Do you provide training on how to use this/these tool(s)?	Yes/No		Yes				
				No			
					No		
						Yes/No	
							Yes
30.Do you have any specially prepared rooms or facilities for videoconference?	Yes/No	Desktop Computer		No	Yes	Yes	Yes
		Computer screens	Yes	No	Yes	Yes	Yes

31.Please select all the appropriate options (feel free to add non mentioned in other)		Webcam	Yes	No	Yes	Yes	Yes
		Microphone	Yes	No	Yes	Yes	Yes
		Outros		No			
32.Can faculty book webcams and microphones to use in videoconference?	Yes/No		No				
				Yes			
					Yes		
						Yes	
							Yes
Audiovisual studios							
33.Is your institution equipped with special studios for video production?

34.Please specify how many: | Yes/No | 1 | Yes | | | | |
		1		Yes			
		0			No		
		We have two rooms for video production in the university library				Yes	
		3					Yes
34.Is your institution equipped with special studios for audio production?	Yes/No	1	Yes				
		1		Yes			
		0			No		
		We have two rooms for audio production in the main library				Yes	
		6					Yes
35.Regarding studios for video production, how many people can these rooms accommodate inside at a given time? (please provide estimate for each available studio)
36.Can students use these spaces?	Yes/No	Not relevant	No				
		5-10 in the same time, for capturing 1 or 2		No			
		5			No		
		1				Yes	
		5-6					Yes
37.Please specify the year these rooms where last updated.	Yes/No	I don't know					
				2019			
					2017		
						2019	
							2018

38.Can faculty book audiovisual equipment?	Yes/No			Yes				
					Yes			
						Yes		
							Yes	
								Yes
								Yes
39.Does your institution have a dedicated team to support video production?	Yes/No			No				
					No			
						Yes		
							Yes	
								Yes
40.Do you provide any support on video production?	Yes/No			Yes				
					Yes			
						No		
							No	
								Yes
41.What software do you use for video production?	Yes/No	Panopto	OBS Studio	Yes				
		Adobe Premiere Pro			Yes			
						No		
		Adobe Première	Teleprompter					Yes
42.Regarding paid software only, please specify the number of licenses/per software.	Yes/No	Campus licence		X				
		7						X
Lecture Capture software								
43.Does your institution have a lecture capture software?	Yes/No	Panopto, zoom/I dont know		Yes				
		Panopto/all teachers can use, 13 at the same time in the classroom, and 2000+ the application			Yes			
		MS Teams/All				Yes/No		

Question							
						No	
		Panopto/39 385 users; 6 583 video producers					Yes
44.Is it cloud based or in-house server based?	Yes/No	Cloud Based	X	X			X
		In house server based			X		
45.If acquired by your institution, what kind of license is it? Can faculty use this software free of charge?	Yes/No	Campus license	Yes	Yes	No		Yes
		User based					
		Other					
46.Can students use this software to record video? 47.Please describe the scenario.	Yes/No		No				
				No			
		They have a special access key.			Yes		
		Whenever teachers so desire, students might be able to record and upload video recordings using panopto. Recording is enabled by teachers and allows students to record video content to a given course unit.					Yes
48.Does your institution have any regulation on lecture capture? 49.Please specify.	Yes/No	Guidelines	Yes				
		It must be connected to a course in Canvas or Moodle, and registered in Neptun.		Yes			
		ordinance of the rector and dean			Yes		
						No	
							No
50.Do you provide training on how to use this tool?	Yes/No		Yes				
				No			
					No		
							Yes
Streaming software							
51.Does your institution have specially prepared classrooms for streaming? 52.Please specify how many:	Yes/No	6 (integrated equipments) and 34 (mobile equipments)	Yes				
		13		Yes			
		at every department			Yes		

		10					Yes
53.Does your institution have streaming software or hardware? 54.Please specify:	Yes/No	POD (in-house server based) - free Panopto (Cloud based) - campus license	Yes				
		MS Stream, Webex, Panopto		Yes			
		I have no knowledge about it.			No		
						No	
		Panopto.					Yes
55.Is it cloud based or in-house server based?	Yes/No	Cloud based	X	X	X		X
		In house server based					
56.If acquired by your institution, what kind of license is it?	Yes/No	Campus license	X	X	X		X
		User based		X			
		Other					
57.Can faculty use this software/hardware free of charge?	Yes/No		Yes	Yes	No		Yes
59.Do you provide training on how to use this tool?	Yes/No		Yes	No	No		Yes
60.Does your institution have specially prepared classrooms for streaming? Please specify how many:	Yes/No	Around 40	Yes	Yes /13	Yes/1		Yes/15

Written interviews to university teachers

In this document are enclosed:

1. Interview questions

2. Discussion questions form and transcript form

3. Selection criteria for teachers

4. Timetable

Discussion topics for interviews:

Warm-up topic: Q0. **Identification of core scientific areas for VM/BM (Virtual Exchange)**

(Explanation to participants: the main goal is involve all participants in a focus group deep to exchange of ideas and information, it is desirable to identify some areas where VM/BM can be more promising, on the basis of, e.g., scientific expertise, shared research/teaching interests, social impact of subjects, etc.).

Q1. **In your opinion which scientific areas are most suitable for the implementation of virtual mobility programmes?**

(Prompts: scientific fields most suitable for virtual exchange programs: social sciences, technology, medicine, sciences, etc.); Is it applicable to all scientific areas? Why or why not? Main difficulties in implementing these programs in such areas; Advantages and disadvantages; Personal and/or institutional experience).

Q2. **In your opinion which areas have the greatest impact on the sharing of research and teaching interests?**

(Prompts: shared research and teaching interests by scientific area; which areas are most interest for shared research and teaching).

Q3. **Do you think that there are subjects with more social impact than others? Which ones?**

(Prompts: subjects with a major impact, if any, or not).

Q4. **In your opinion which areas requires more technological skills and abilities to be taught in a virtual environment?**

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(Prompts: Scientific areas that require specific technological skills and abilities to be taught in a virtual environment; give personal and/or institutional experience).

Discussion Questions' Form

Name of teachers participating:	ID	Institution:	Scientific area/discipline:
Laura Hartman	P1	UM	Humanities (American studies)
Carmen Birkle	P2	UM	Humanities (American studies)
Madalena Matusiak-Rojek	P3	UoL	Education/Philosophy
Anonymous	P4	Uol	Education sciences
Jan Borm	P5	USQV	Humanities (English studies)
Sarkissian	P6	USQV	Atmospheric studies
Jorge Ascensão Oliveira	P7	UP	Health/Life sciences (physiology, Neuroscience, Pharmacology)
Alfredo Soeiro	P8	UP	Engineering
Zsuzsa Kovács	P9	ELTE	Adult Education, Human Resource Counselling
Ádám Tóth	P10	ELTE	Hydrogeology, Geophysics

Transcript Form

Date of interviews	12-02-21 to 16-02-21
Number of participants	10
Questions	4

Q1. **In your opinion which scientific areas are most suitable for the implementation of virtual mobility programmes?**

(Prompts: scientific fields most suitable for virtual exchange programs: social sciences, technology, medicine, sciences, etc.); Is it applicable to all scientific areas? Why, why not? Main difficulties in implementing these programs in such areas; Advantages/Disadvantages; Personal and/or institutional experience).

Teacher's opinions about this topic

P1 *I would say it is suitable for any field. However, I assume there are less difficulties to expect in social sciences than in medicine or technology as in these fields you often have practical courses and activities that are part of the study. Also, in social sciences the language barrier is usually not a big problem as English is the dominant language anyways.*

P2 *All disciplines can use virtual mobility. However, each discipline will have to implement it in ways specific to the discipline. The humanities will have to find ways to facilitate online discussions.*

P3 *In my opinion every scientific areas are suitable for the implementation of virtual mobility programmes to the same extent. Scientific areas are diverse, but in each there are issues that are suitable for virtual exchange programs. Moreover, I think more depends on the organization of the program, not on the areas.*

P4 *In my opinion following areas would be the best: international learning, global education, intercultural education. This areas would meet expectation of international students that come to us. We have here such organizatory solution that students are choosing subjects that not necessary must be the subjects of their study field. Do for example a student that is studying fine art can choose course in social work, a subject that not necessary reflects to his or her study field. So that is why I think more general courses that relate to international global world of human relations would be the best option.*

P5 *In theory all scientific fields are suitable: two major difficulties are professionalizing studies, though (like medicine and law), as well as study-programs that blend teaching with work experience in a company on a weekly basis. Having said that, there are of course study areas which are usually not very mobile, such as theology, agricultural studies, medicine and law (though law is particularly mobile at my university – quite exceptional in Europe!). Virtual exchange is definitely of an advantage to any study programme – that's the point of the European University Alliance after all.*

From a more practical point-of-view, though, there are of course obstacles: reluctance to get involved in anything new or to change habits as far as teachers, administration and even students are concerned; the difficulty – or rather, extra effort – to identify suitable partners at teacher level, the rather considerable problems concerning the compatibility of schedules and university calendars, public holidays etc. Langue issues can also be a concern. In France, it is not obvious to propose a course in English for the moment. Universities are trying to provide incentives to prepare courses in English but this is far from common practice.

Concening advantages, there are many: greater internationalization leads to greater openness of mind, larger views of a topic, the benefit of shared best practices, many networking opportunities,

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improved comprehension and oral language skills in an international context, greater attractivity of study programmes and higher potential employability etc.

P6 Difficulties organizing virtual mobility appear clearly when we need field action, engineering actions, medicine because then you need to be in close relation with instruments, colleagues, patients etc. In fact, I think that virtual mobility should be possible for all fields but with theoretical, modeling, analyses and so on approaches. This is clear for me that we are attracting students by proposing exiting mobility (field work, building a resource etc.) but with always a part of work that can be done with virtual mobility. Then the virtual mobility is possible to be attractive for all area, no restriction by area but by application. No difficulty to implement such programs then, but some imagination to propose in each area virtual exchange program. In our field, data analysis do not need to record the data in the field, then virtual exchange is possible even if less attractive (disadvantage).

P7 I think virtual mobility applies to multiple areas, but I will limit my comment to the Health or Life Sciences.

Classic theoretical classes are the easiest to implement virtually (The teacher only needs to operate Zoom or similar web-conference app) – although they can be much enriched with audience-interaction tools/applications. Practical classes and Laboratory classes are more demanding, but many are feasible with creativity and knowledge of technology. Nowadays, modern equipment is primarily operated via a computer interface, so it is increasingly feasible to incorporate virtual mobility.

The main difficulties in implementing these areas are the capacitation of teachers and students for electronic technologies.

It can be argued (and I agree) that the human interaction in presence is a much richer experience, and the hands-on environment of a real Lab cannot be fully replicated in any virtual mobility program. Nevertheless, virtual mobility allows for some degree of interaction with a different culture and a different way of thinking. So, even tough it falls short of real mobility, it has its own worth and advantages (much less expensive and allowing greater numbers and diversity than real mobility).

P8 In my opinion all are suitable. The quality of the suitability depends on the quality of those preparing, implementing, executing and supervising the virtual mobility. My institutional experience arises from projects (Virqual (VIRQUAL | Network for integrating Virtual Mobility and European Qualification Framework in HE and CE Institutions (up.pt)), VMCOLAB (VMCOLAB | VDU), ACE (Peru-UNMSM-ACE_Partner-Agreements.pdf), etc.) and from teaching in Vienna University of Technology a full course, supervising research (master, doctoral and post-doctoral levels) and in the competences I have to use existing digital tools.

P9 We train human resource consultants in our own field, and that is what we focus on now, but if we consider andragogy before (adult education) then virtual exchange does not really appear there. There are a lot of practical activities in our field, which have been temporarily transferred to the digital space, 1-1 consultancy can be done, but these initiatives have not yet been rooted.

(Supporting question: In practice, how much these kinds of virtual exchanges can give you and the students the opportunity to collaborate in a synchronous manner, and how asynchronous is the work? Is it like that that everyone watches a video that is previously sent? Is there after all room for real cooperation in this context?)

I have been involved in an international project for a long time, where I work with people from different continents. In this form, this communication works, we meet every week and we discuss the things that we had to do. Specific problems have been solved.

P10 *We have an H2020 project designed to develop knowledge. The point was to travel and meet the partners (Italian and Finnish), but because of the virus, we had to reorganise it. The partners were very creative about the situation, and they videotaped everything. This is how the field work was solved, which became a virtual tour. Therefore we all realised that we didn't have to be physically there to learn from each other. So, in our field it's very well applicable, it just takes creativity to do it. In my opinion, this can be used in all areas only a matter of creativity. It's important to go there physically, live in and experience that culture, etc. But since we don't even meet our own colleagues because of the circumstances, it can also be done in a virtual exchange. We can even imagine that one or two foreigners join our research team and collaborative work begins, where unpublished materials can be shared.*

(Supporting question: In practice, how much these kinds of virtual exchanges can give you and the students the opportunity to collaborate in a synchronous manner, and how asynchronous is the work? Is it like that that everyone watches a video that is previously sent? Is there after all room for real cooperation in this context?)

Yes, for a week's short course, there were short lectures, workshops, where we worked together, and there were times when we watched these videos. We used it to see how it works in the field, how the measurements work, and then we dealt with it. It was an integral part of the course to boost the material with asynchronous videos.

These interfaces are very good, such as Padlet and Miro, these collaborative interfaces that help synchronous and asynchronous cooperation at the same time. Therefore anyone can be connected to anywhere in the world.

Q2. **In your opinion which areas have the greatest impact on the sharing of research and teaching interests?**

(Prompts: shared research and teaching interests by scientific area; which areas are most interest for shared research and teaching).

Teacher's opinions about this topic

P1 *I think every area has a great impact on sharing new ideas and findings. I cannot think of one where it is not fruitful and instructive.*

P2 Online panel discussions allow for the integration of scholars from all over the world, which leads to a multiplicity of perspectives and a more effective exchange of ideas. Students come into contact with scholars from other disciplines and cultural / national contexts.

P3 In my opinion areas that have the greatest impact on the sharing of research and teaching interests are social research. I cannot comment on other areas because I have no experience. I am a social researcher and whenever I meet other scientists interested in what I am interested in, the distance between us is not a hindrance. We cooperate using ICT, and this cooperation is in no way inferior to traditional mobility.

P4 For me interesting would be area of skills development how to work with international students. Subject can be inclusive education, inclusion of students with learning difficulties.

P5 There are subject areas where shared research and teaching is more or less mandatory: any programme with an international profile like programmes taught in English outside an Anglophone country, studies in International Law, International Relations, Political Science, European Studies, Cultural Studies, Comparative Literature etc.

But any study area is likely to benefit from enhanced internationalization. To be more precise, at masters level, it is obvious that an international dimension would allow many programmes to reflect more accurately the state-of-the art, in the sciences, notably. To give one example, in envrionment science in France, it is understood that you won't get an academic position after your PhD in France as a French student, if you have not been a postdoc abroad for a year. This means, such studies are geared towards internationalization as far as career development is concerned. It would therefore make sense to propose an international experience to the largest number of students as soon as possible. Medecine and law tend to be very much focused in the national context and would definitely benefit from broader views though many structural issues stand in the way of internationalizing programmes. This is also the case for teacher training.

As far as my experience is concerned, I have organized a research workshop for masters and PhD students for 10 years now almost every year in our interdisciplinary Arctic Studies master programme (Science and Humanities) entirely taught in English in cooperation with the German Polar Institute AWI. Some of them have taken place in France, other in Germany, and two in Finland and the Faroe Islands. Each workshop has proven to be a highly valuable experience for students and staff. The COVID19 crisis has led to systematic online teaching. Within this context, it has become more and more evident how relatively simple it is to set up an online guest lecture by drawing on one's own network – presentations which the students have followed with great interest. I have accepted myself two such invitations from new Russian partners which are an excellent way of making progress in our cooperation although mobilities and business trips are not possible for the time being.

I am convinced that online experiences of this kind are likely to trigger mobilities. Unfortunately, we cannot put this into practice at the moment, but the trend has been launched to provide internationalization experience online and to generally work on the dynamics of mobility flows in universities.

P6 Hot topics are always the greatest impact, and area without hot topics (at public level) is difficult to use for research and teaching interest. Exemple of hot topics from my point of view : in astronomy : exoplanets and exploration planetology; in geosciences pollution problems, climate changes; in many domains : covid; social analysis and so on.

P7 Virtual mobility took place at FFUP when ERASMUS students went back home during the COVID pandemic - but continued to attend remote classes. My own experience with a limited number of such students in the Neuroscience classes was very positive. The level of participation and engagement of the remote ERASMUS students was identical to the remote Portuguese students. It was an incentive for Portuguese students to communicate in English, and an enriching experience for all of them.

P8 Collaboration with other institutions is fundamental to improve. Participation in international associations and networks is fundamental. My experience tells me that I have always learned with international and national cooperation.

P9 If you take a bachelor program, it also has a foundation part, and there is a part where the disciplinary / professional knowledge is targeted. In areas where we can develop students in a differentiated way, different methods and solutions can have a thought-provoking effect, so virtual exchange programs can also be used. They give us the opportunity to approach things in a number of ways, to achieve a goal in several ways, so students can learn from them.

P10 A short visit with a physical presence sets out exactly these goals for you to learn a little from the other, so you can do it virtually as well. We need to re-evaluate why we travel everywhere every month, when it can be solved without it.

Q3. **Do you think that there are subjects with more social impact than others? Which ones?**

(Prompts: subjects with a major impact, if any, or not).

Teacher's opinions about this topic

P1 I think cultural studies, political sciences, literary studies, and social sciences in general have a more social impact than others. And also they will be more easy to pick up and relate to for the students as these fields bear a great potential for discussion, for sharing one's own political perspective and competences.

P2 Teaching global issues, such as, for example, the pandemic, economic developments, ethics, revolutionary movements, religion, and, generally, contemporary topics, from an interdisciplinary and intercultural perspective could have a major impact.

P3 I think so. There are subjects that are less and more fashionable. For example, for several years in the European Union the issue of European citizenship dominates over the issues of local/national patriotism. Other dominant themes are ecology, the climate crisis, LGBT and political correctness. Meanwhile, more than 23,000 people die in car accidents every year in Europe.

P4 European citizenship would be good, I think, also how to develop European values. Good will be those topis that show that despite the language we speak we are all the same, we all have families and we all cry when we loss someone we love. So subjects and topics that show what we have in common with others.

P5 I am not sure about the wording of this question. In theory, any subjet will have a social impact as soon as students and teachers get together at international level. In view of creating more cohesion inside Europe, it would also be necessary to open curricula to the European dimension as far as possible, especially in human and social science. But excellence in the sciences also requires contact with excellent partners, in Europe and elsewhere of course.

Virtual mobility in professional training programmes might require a larger effort in terms of organization but as the Paris-Saclay piloted European University Alliance EUGLOH has shown, it is relatively easy to organize guest lectures and to introduce new or fresh pespectives this way.

P6 My answer to Q2 is an answer and can be extended here.

Trends in many fields

Data analysis of observations from space

Old data re-analysis (climate, Sun activity, Network data been studied in the past but can be explored again with updated technics.

Simulations : models are now online in most area, it is time to use it with large view. These are needed in climate, medicine, etc. Then result are often converted into social impact, a good argument to enlarge studies.

P7 To avoid personal biases, I'll name 3 widely accepted pressing issues for humanity:

- Climate change, pollution, and loss of biodiversity

- Technological disruption and artificial intelligence

- Global health management – how to prevent and deal with pandemics

P8 Social impacts depend on the quality of the exploitation that teachers, researchers and staff perform within their areas of expertise. Society can only progress with research and progress in all areas.

P9 Every kind of collaboration has a social impact, regardless of its subject. If you cannot meet with your peers, that can block your thinking. Social impact is something that affects someone when they're part of a group, they sense it as they're in the community. Only a part of this can be transmitted virtually.

P10 *In the field of natural sciences, for example, if someone wants to get into CERN as a physicist, it's a big deal. Then it's virtually easier, we don't need permission, so we can take very high-tech things to anyone. Labs and experiments in this area are very feasible, because often there is no capacity.*

Q4. **In your opinion which areas requires more technological skills and abilities to be taught in a virtual environment?**
(Prompts: Scientific areas that require specific technological skills and abilities to be taught in a virtual environment; give personal and/or institutional experience).

Teacher's opinions about this topic

P1 *I assume any practical courses and seminars need more specific technological skills. But this also depends on the teacher and the teaching methods they prefer to use. Also a literary seminar can be very complex in terms of methods used to foster interaction between students.*

P2 *Life-Science (including Biology, Chemistry, Medicine) experiments can hardly be taught in a virtual environment. Interpersonal and communicational skills are very hard to teach and to acquire online.*

P3 *I think practical sciences such as architecture, agriculture, metallurgy.*

P4 *I am working at faculty of education so I can talk only for myself and I think useful would be a training that focus onto how to prepare materials for students using flash or similar programme. So it will be attractive from visual point of view.*

P5 *Apart from the lack of experience in proposing and managing an online course among some teachers, online teaching has proven particularly complicated in the sciences as far as lab exercises are concerned.*

P6 *All scientific area need technological skill and abilities easy to be taught in virtual environment. In fact, many area use laboratory resources for computing, simulating, data transfer and so on. Then for these exemples and many others, virtual environment been far from the lab, most of the time virtual environments cannot be created far from the lab. Then virtual portail can open doors for hacker, and will not be accepted by laboratories or Universities.*

P7 *All areas that normally involve hands-on physical interactions with subjects, materials or equipment, require more creativity, abilities and technological skills to adapt to a virtual environment.*

I think most teachers find it much harder to adapt Laboratorial or practical classes to virtual environments, than theoretical classes.

P8 *All teachers need technological knowledge, skills and attitudes to do proper use of virtual environments. See projects like MODERN (Modern | Mobile & Digital E-Learning Toolkit), DISK (DISK - Digital Immigrants Survival Kit | Centro de Investigação e Intervenção Educativas (up.pt)) and TOP (EDEN Qualification Framework for Online Teachers | EDEN (eden-online.org). The problem is having teachers, staff and researchers that do not have proper competences. That is why problems arise in virtual environments. People involved need proper training.*

P9 This virtual environment provides us with a tool, it fulfils its function, so it doesn't matter where anyone includes it in any teaching and learning process, it can work.

It just made me wonder whether this process can be fully replicated, which you would do if you were physically in that laboratory environment.

On the other hand, at a training, where we develop social skills, we need to see the face of another person, we need to see how he reacts, what his body movements are like – virtually we're at a small disadvantage.

After all, the question arises, what is the point where it becomes a virtual mobility or a virtual exchange program, and something really happens beyond being connected by means in a virtual space, but there is no cooperation whatsoever. The latter, on the other hand, would naturally happen if we were physically side by side from several nations, more cultures.

P10 The same technologies are available. These platforms and different pages are the same for everyone. Once again, if we are talking about the content, these programmes can be applied in all areas, platforms are the same.

If you go into virtual reality (e.g. you make the classroom/room and it's like you're there) it requires more preparation and technology. I had a lecture where students went out into nature, so you need more knowledge and data so you can copy it to VR. If interpreted this way, this method requires more.

If you think about a chemist or a person working with a microscope, do you think you can actually do this virtually? Can you look into the telescope? I'm not sure, I'm not saying you can't, but I think technology evolves rapidly these days. We'll get to this level sooner or later.

Also, there are courses at my department where my colleagues deal with virtual things and use a hybrid method: there are 10 students sitting in the classroom, which is virtually connected to another 100.

Yes, you are right, nevertheless, you can be placed in a shared environment virtually without collaboration, just like it can be the case physically. My colleague sits beside me, and I don't even speak to him. So being physically at one place does not necessarily solve the problem of collaboration and it is true for the other way around – just because we are connected virtually, it can still support collaboration.

Optional by the end of interview: **Is there anything you would like to add to the discussion?**

Teacher's opinions about this topic

P1 I find it very difficult to make general suggestions on virtual mobility options for any other academic field that is not my own. I do not know which methods and technologies my colleagues in other faculties are using and feel like I can only make helpful suggestions in these fields.

P2 Technology, in general, has improved significantly. We are expected to reach out to all students, but what can we do if their internet is weak or their governments block access to, mostly, Western

technology while students do not get visas due to the current pandemic (also because embassies are closed).

P5 *Our university is a member of the excellence initiative "Université Paris-Saclay". Saclay has just launched a call for projects concerning innovative pedagogy, including internationalization projects. Such incentives might play a crucial role in encouraging teachers and administration to invest the extra time needed to make such virtual experiences happen. That these are definitely of benefit to all seems obvious.*

P8 *Universities need to participate in international associations like EDEN (https://www.eden-online.org/) or ICDE (ICDE) to properly operate in virtual environments. International participation in EU funded projects also improve proper participation in teaching and learning in virtual environments. If that is not pursued there is a high chance of in-breeding.*

Criteria for selecting teachers:

Teachers from different scientific areas

Each partner needs to indicate two teachers to take part in interviews.

Teachers with experience in e-learning and blended learning