Virtual Mobility for Teachers and Students in Higher Education

Comparative research study on virtual mobility

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Preface

This study is the result of the research implemented and supported by the LLP Erasmus project Tea-Camp (502102-LLP-1-2009-1-LT-ERASMUS-EVC) - Teacher Virtual Campus: Research, Practice, Apply. The two year partnership aimed to increase virtual mobility among academic staff by facilitating development, management and implementation of virtual research on virtual mobility experience and peculiarities which were capable after the prepared inter-university study module which addressed at improving participants virtual mobility competences.

The study you are reading provides some of the theoretical background and practical ideas how virtual mobility case can be prepared and organized in order for students and teachers to benefit from learning in virtual multicultural environment.

The study consists of two parts – the theoretical background, necessary for understanding of virtual mobility and its realization components (curriculum, scenario, and tools) and empirical part description of TeaCamp project virtual mobility case. The first part "Virtual mobility phenomenon – educational perspective" consists of 5 chapters that analyze theoretical background of virtual mobility concept (Chapter 1), virtual mobility curricula design (Chapters 2 and 3), learning scenarios for virtual mobility (Chapter 4), and virtual mobility tools (Chapter 5). The chapters were prepared by project partners that were the experts in the indicated areas. Based on the theoretical analysis a study module was created and delivered by international, multi-institutional group of teachers for international, multi-institutional group of students. The module was a virtual mobility case in the study and the implemented research on module preparation and organization, attitude towards virtual mobility and its recognition possibilities were analysed. The research methodology and organization (Part 2. Chapter 1) together with the research results and analysis (Part 2. Chapter 2) are discussed in the second part of the study "Empirical research design and analysis".

We hope this study will serve for the further clarification of virtual mobility phenomenon and its implementation in university everyday life, whereas practical suggestions for virtual mobility organization issues will encourage further innovations in this area.

On behalf of the partnership

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Introduction

The increased attention to technology-based learning in universities is inseparable from the changes that were implemented in the last decades of the previous century and can be caused by several reasons. First, the necessity to maintain competitive abilities that have emerged due to extraordinarily rapid development of information communication technologies (hereinafter ICT) in the entire world. The survival of global world economies was determined by rapid adaptation to the environment of a new quality. Facing this type of challenges universities had to become open, flexible and competitive, i.e. to create knowledge that meets the requirements of the rapidly changing labour market, to prepare specialists able to work in the knowledge society, and to focus on a new type of learners - adults. At the same time universities had to become educational institutions equipped with cutting-edge information technologies, employed by lifelong learning experts, research workers, and lecturers.

On the other hand, European Commission documents on Educational policy that address the enhancement of the Bologna process and the programme "Youth on the Move", launched on 15 September 2010, stress the importance of youth mobility. The Bologna Process has brought issues of mobility and internationalization to the centre of European higher education policy discussion and emphasized a common commitment to overcome obstacles to the effective exercise of free movement with particular attention to access study and training opportunities. Various European programmes facilitate and finance different forms of mobility – including exchange programmes and work placements through Erasmus, and mobility in joint degree programmes in Erasmus Mundus.

Recognition of virtual mobility, accreditation of study outcomes acquired by virtual mobility activities, implementation of organizational and administrative structures are some of the proofs that universities have become open and flexible. This means the acknowledgement of the fact that not only face-to-face academic learning is valued and that universities not only create knowledge, but they also build bridges between various cultures and diverse academic world. The problem is that universities, seeking to respond to the changes of the global economy, make their first steps and lack practice in organizing and implementing virtual mobility studies for those who are unable to leave the country, workplace or university due to various reasons. It is also unclear how to design curriculum for virtual mobility, choose learning scenarios, or select adequate technological tools during virtual mobility sessions.

The object of the research is virtual mobility.

The aim of the research is to prove that virtual mobility is a communicative and collaborative learning activity of students and mutual tuning of educational components among teachers and HE institutions in order to enrich or substitute physical mobility and to promote the Bologna process in the European Higher Education Area.

The objectives of the research:

1. To analyze theoretical background of virtual mobility concept, virtual mobility curricula design, learning scenarios for virtual mobility, and virtual mobility tools.
2. Based on the theoretical analysis of the research object, to prepare an inter-university study subject "Virtual Learning in Higher Education", as a case of virtual mobility, defining study outcomes, designing curriculum for virtual mobility, choosing learning scenarios that can be implemented for virtual mobility, selecting and applying adequate technological tools for virtual mobility.
3. Assess teacher preparation and competences necessary for virtual mobility organization.
4. To analyze students' attitude to virtual mobility case, peculiarities of study organization, competences required for participation.
5. To analyze and discuss the recognition of study results acquired during virtual mobility process in the participating universities.

To achieve objectives of research, the following methods were used: scientific literature and document analysis, online data collection surveys for teachers and students, data analyzes – descriptive interferential.

Concepts used in the research study

- **Virtual Mobility** in the scope of TeaCamp project and this research study is defined as an activity or a form of learning, research and communication and collaboration, based on the following characteristics:
    - cooperation of at least 2 higher education institutions;
    - virtual components through an ICT supported learning environment;
    - collaboration of people from different background and cultures working and studying together, creating a virtual community;
    - having a clear goal and clearly defined learning outcomes;
    - having, as its main purpose, the exchange of knowledge and improvement of intercultural competences;
    - as a result of which the participants may obtain ECTS credits and/or its academic recognition will be assumed by the home university;
    - providing visibility of university in higher education area, capitalization of educational process;
    - leading to the integration of ICT into their mainstreaming academic and business processes.
- **Curriculum** is the interdependence of the main parameters of the educational process (aims, content, organization, teaching methods, aids, assessment), their interaction in the context of constant renewal

(development). This concept defines the entirety of teaching and learning when every element is oriented to the goal and determined by its interaction with other elements and has a particular place and meaning in it.

- **Learning scenario** or scenarios for e-learning - how a specific course should look like, which tools should be used, how participants will act in the course, etc. Scenarios are often used to identify possibilities how a student can achieve a specific learning outcome or how an activity can be structured best in virtual mobility and e-learning.

Part 1. Virtual Mobility Phenomenon – Educational Perspective

Chapter 1. Virtual Mobility Concept

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This part of the study analyzes the concept of virtual mobility in order to define features characteristic to the phenomenon. The concept of virtual mobility may differ as it can be analyzed from different perspectives; various initiatives and projects focus on different aspects of virtual mobility. Thus the **aim** of this chapter is **to analyze virtual mobility concept and to define virtual mobility characteristics from educational point of view in order to prepare an international virtual learning course in higher education for a virtual mobility case**.

Chapter **keywords**: virtual mobility concept, virtual mobility characteristics, virtual mobility activities.

1. Virtual mobility concept from different perspectives

Virtual mobility is rather a new phenomenon and has been influenced by the development of ICT very much. Therefore, the virtual mobility concept analysis is started by a chronological overview of the concept discussed from different perspectives.

"Virtual mobility" concept consists of the word "virtual" that is referred to ICT and the word "mobility" that means movement. Although from the first sight it might not be seen as related with education, but as the purpose of physical mobility can be academic experience, the same relations can be drawn here with virtual mobility.

This study focuses on the educational perspective of the virtual mobility concept, but the concept analysis is discussed from different approaches of the phenomenon. This chapter analyzes virtual mobility as it is defined in various documents, research papers and project activities and reports.

1.1. Virtual mobility concept ideas

The first notions on virtual mobility (VM) are indicated in the last decades of the 20th century and the beginning of the 21st in some research papers (Bunt-Kokhuis, 1996, 2001) and project result reports (Humanities project report, 1995), (Spot+ project team, 2001). S. Van de Bunt-Kokhuis (1996, 2001) creates a rather interesting though specific definition of VM where it is described as "the collaborative communication

between a faculty member and his/her counterpart(s) mediated by a computer. More often, these meetings will be interactive and take place across national borders and across time zones".

M. van Wende (1998) defined virtual mobility in terms of an emerging form of internationalization where students follow courses offered by institutions abroad and interact with students and teachers, libraries and databases in other countries. She explained the use of ICT as expanding the possibilities for cooperation and competition between institutions, and providing students and academic teachers that are not able to travel extensively with opportunities to benefit from internationalization. She also noticed the relationship with the idea of virtual mobility, flexible knowledge delivery and new educational paradigm for e-learning or distance education.

In the HUMANITIES project (1995), the concept of virtual mobility is considered to be "effective networking"; whereas the "Spot plus" project team (2001) widened the understanding of this concept and presented two forms of mobility – physical and virtual - in the training material "Virtual Erasmus student", which was produced as a project outcome. In the training material (Spot+ project team, 2001, p. 10), virtual mobility is defined as a situation within university which implies a "possibility to attend classes, seminars and other events held in a place located anywhere in the world; the possibility to access reference materials and contents at a distance, by using ICT-based solutions; the possibility to communicate with other people located anywhere". It also can be assumed that virtual mobility is a "hybrid model introducing a distance learning module into normal curricula" (Spot+ project team, 2001, p. 12). It is also indicated in the training material that "virtual mobility includes all forms that are communication intensive and run at international level". It can be assumed that virtual mobility is expected to occur informally; however, "Virtual Erasmus student" training material specifies that "In the HUMANITIES project, virtual mobility is more specifically constituted of the following elements:

- Transnational lectures and/or learning materials.
- Cross-border recruitment of students.
- Intensity of communication flows.
- International accreditation of achievements.
- Multilingualism.
- Complementarity between virtual mobility activities, traditional lectures, and physical mobility.
- International recognition and accreditation of study achievements" (Spot+ project team, 2001, p. 12).

The above description of virtual mobility elements suggests that in 1994-2001 Virtual mobility concepts covered formal and informal education activities with the main focus on communication and collaboration using different resources that are not location dependent.

1.2. Virtual mobility from mobility perspective

A different kind of approach to virtual mobility was introduced by J. Silvio (2003), who distinguishes 3 types of space – geographic, social and virtual – and describes virtual mobility as a new phenomenon. He indicates that virtual mobility is a movement "from one place to another in a new space called virtual space <...> enabled by computer-mediated communication" (Silvio, 2003, p. 3). Supporting the French philosopher Pierre Levy's ideas, S. Jose (2003, p. 3) suggests that "virtual is not opposed to the real". Explaining the basis of the virtual reality term and ideas that a language, online course or the whole university campus can be represented by digital numbers, the author uses the words of Michael Dertouzos to define the main principles of the virtualization process and computer mediated communication. Thus using the mentioned concepts and taking Dertouzos' "pillars" into account, S. Jose defines virtual mobility as a representation of physical mobility taking place in a virtual space, implying no movement of persons in a geographic space, where "information and the objects represented by them "move" electronically from the computer center of one university or enterprise to another located in different places in the geographic space". S. Jose draws a conclusion that "virtual mobility is mobility of 'bits' instead of 'atoms'." (Silvio, 2003, p. 4).

Similarly to S. Jose (2003), B. Vilhelmson, E. Thulin (2005, p. 1) define virtual mobility as "physical transportation and face-to-face contacts, replaced, complemented or even generated by virtual ones". It can be assumed that one of the goals of virtual mobility could be travelling in virtual space. There are a lot of virtual towns, countries, galleries or cultural events to be visited by travelling virtually; however, they are not in the scope of the study, which focuses on the analysis of educational perspective of the phenomenon. To sum up, in 2003-2005 virtual mobility from the mobility perspective, based upon the considerations of the above mentioned authors, is identified as the representation of physical mobility existing in virtual space.

1.3. Virtual mobility from educational (and mobility) perspective

Later on (from the chronological point of view) education based approaches became more inseparable from the mobility perspective. Such as Board of European Students of Technology (BEST) Educational Commitee in Bucharest, on 23-29 July, 2006, combined both approaches, defining virtual mobility simply as "the possibility to take an abroad course without travelling" (Board of European Students of Technology (BEST) Educational Commitee, 2006).

B. Schreurs, S. Verjans and W. Van Petegem (2006, p. 4) expand this kind of VM definition by supplementing it with the extended option of duration, international dimension, allowing for different forms of activity organization: "Virtual student exchange allows collaboration with foreign students and teachers that are no longer location dependent. The exchange might range from a single course to a full academic year. Through Virtual Mobility a university can also offer international experience for students and staff through an international discussion group, an

international seminar, an international learning community with regard to a theme of a course or a cluster of courses."

Coimbra Group definition, based on the research carried out during VICTORIOUS project (2007), stresses the intercultural aspect and explains Virtual Mobility as the "use of the internet to enable learners to take courses and participate in local communities at a remote physical university without need to go to it directly. It often implies more than just taking courses but being able to access some of the cultural aspects" (2007, p. 70). A more full-scale interpretation which includes the intercultural aspect of VM in order to "highlight the richness of the experience and the similarities with the Erasmus exchange programme" (Eds. Op de Beeck, Bijnens, & Van Petegem, 2008, p. 18) is provided in the Being Mobile project manual on blended mobility: "Virtual Mobility is a form of learning which consists of virtual components through an ICT supported learning environment that includes cross-border collaboration with people from different backgrounds and cultures working and studying together, having, as its main purpose, the enhancement of intercultural understanding and the exchange of knowledge".

The recent years have been very rich in publications referring to virtual mobility. A very diverse approach of VM, stressing the importance of cooperation agreements is presented in the Lifelong Learning Programme 2007-2013 glossary, where Virtual Mobility is characterized as "A complement; or as a substitute to physical mobility (Erasmus or similar) in addition to a type of independent mobility which builds on the specific potentials of on-line learning and network communication. It may prepare and extend physical mobility, and/or offer new opportunities for students/ academic staff who are unwilling or unable to take advantage of physical mobility. It involves the development of virtual mobility for academic staff. It means that full academic recognition is given to the students for studies and courses based on agreements for the evaluation, validation and recognition of the acquired competences via virtual mobility. In this context, cooperation agreements are the key to ensuring sustainable mobility schemes." (European Commission Glossary on the Lifelong Learning Programme 2007-2013, 2010)

Moreover, the definition provided in the EADTU Annual Conference (in Portugal, in 2007) product "Guide to Virtual Mobility" includes another criterion which has not been mentioned by the previous sources, and it is the issue of possibility to earn ECTS-points which can be transferred to the students' studies in their home university – here VM was defined as "an activity based on a co-operation of – at least two – Higher Education-institutions: two or more institutions agree to offer their students the opportunity to acquire a number of ECTS-points at one of the foreign partner universities or through a joint activity of the partners. The ECTS-points of this international experience will then be counted to the student's degree at his/ her home university" (C. Brey and e-move project partners, 2007).

Virtual mobility may also be defined from another point of view – it is the way of collaboration of people from different backgrounds and cultures, working and studying together where crossing borders in not a necessity any more. This

approach is called interuniversity study. Virtual mobility and interuniversity study fit well in the context of the Bologna process and e-learning Action Plan. The aim of the Bologna process is to create the European Higher Education Area and one of its objectives is to facilitate interuniversity mobility and cooperation among universities (Poulová, P.; Černá, M.; Svobodová, L., 2009, pp. 87-92).

The ideas to relate virtual mobility with the physical one are also presented in the most common and usually quoted definition of virtual mobility provided by 'e-learningeuropa' portal. Here it means: "The use of information and communication technologies (ICT) to obtain the same benefits as one would have with physical mobility but without the need to travel" (Elearningeurope.info, 2009)

M. Vriens, M. Achten, I. Op de Beeck, W. Van Petegem (2010, p. 1) oppose them by explaining that "virtual mobility is something that is in essence different from physical mobility, although it can be used perfectly as a complement to or alternative for physical mobility". The authors "think of virtual mobility as the set of ICT-supported activities that realize cross-border, collaborative experiences in a context of teaching and/or learning".

Summarizing the above mentioned definitions that analyze virtual mobility from the educational perspective, the following characteristics are distinguished – cooperation of universities as well as students and teachers; international study experience with the stress on cultural aspects, and different kinds of activities that lead to virtual mobility. It is important to highlight that although most of the definitions which consider virtual mobility from the educational perspective describe it is a form of learning, but they also stress that it is a form of mobility, which can be a supplement or substitute of physical mobility.

1.4. Virtual mobility from other perspectives

B. Vilhelmson, E. Thulin (2008, pp. 477-487), in their research on human socio-spatial behaviour, express a totally different approach although providing a similar definition of virtual mobility. The authors describe virtual mobility as the ongoing socio-spatial implications of increasing ICT use. They specify virtual mobility as one of the 3 types of human socio-spatial behaviour, together with physical (or corporeal) mobility and media-related communication, and define it as a contact and two-way interpersonal interaction made possible by the computer, the Internet, mobile phones, etc.

Rapid development of ICT and penetration to various different areas has resulted in including the virtual mobility concept into various different activities, for example, arts. Judith Staines (Varbanova, 2010) finds Virtual Mobility as:

- "the various practices of interactive networked performance where performers and audience can be in different physical or virtual places;
- the use of virtual channels in the creative process, enabling co-authoring and co-production of performance work by artists and producers in different geographical locations;

- new networking options in the performing arts (use of virtual tools for international mobility in training delivery, meetings and conferences)" (Varbanova, 2010).

As the study focuses on the virtual mobility goals related to education, the articles related to transportation, city urbanization or medical issues are not in the scope of the analysis. To refer to virtual mobility from the educational point of view, virtual communication, collaboration, research or other virtual learning activities are to be analyzed.

2. Characteristics of virtual mobility

Summarizing the above quoted definitions, some obvious trends characterising virtual mobility can be traced. As the educational approach to the phenomenon is inseparable from the mobility aspect, virtual mobility can be addressed in two possible ways:

On the one hand, it can be treated as "a valuable **alternative for physical mobility** as it enables students to take part in courses at other universities without having to leave their home university and hence without the financial implications" (Op de Beeck, I.; Bijnens, H.; Michielsens, C.; Van Petegem, W., 2007). Mobility and internationalisation, becoming increasingly important in today's society, stand for a significant evolution for those not able to enjoy any physical exchange (due to physical, social or financial background) (Being-mobile project network, 2006).

On the other hand, "virtual mobility can be used **to prepare, support and follow-up physical mobility** to enrich the latter and to make it even more effective and fruitful" (Op de Beeck, I.; Bijnens, H.; Michielsens, C.; Van Petegem, W., 2007). The Green Paper of the Commission of the European Communities (2009) pointed out more of the **characteristics** of virtual mobility:

- an activity conveying at least some of the benefits of physical mobility in its own right;
- the use of the internet and other electronic forms of information and communication is often a catalyst for embarking on a period of physical mobility;
- it enables young people to prepare for a stay abroad and can create conditions for future physical mobility by facilitating friendships, contacts and social networking, etc., although it is not a substitute for physical mobility;
- may be an appropriate and practical form of mobility for young pupils, where travelling abroad may not be an option;
- provides a means to keep in contact with the host country once the mobility period is over;
- provides an international dimension to those learners who, for different reasons, are not able or willing to go abroad. In that context, ICT can be used for "electronic twinning" and for virtual platforms, for teachers,

other "multipliers", interested individuals, interactive communities, open source initiatives, etc.

Focusing on the educational perspective, a different set of **virtual mobility characteristics** can be constructed, analysing the activities described in the concept definitions:

- the communication, discussion and/or interaction of no longer location dependent participants (Bunt-Kokhuis, 1996, 2001), (Spot+ project team, 2001), (Schreurs, B. et al, 2006), (Vilhelmson, B.; Thulin, E., 2008);
- enhancement of intercultural understanding (Van der Wende, M. (Ed.), 1998), (The Scottish Centre for research into On-Line Learning & Assessment, 2007), (Eds. Op de Beeck, I. et al, 2008), (Pigliapoco, E.; Bogliolo, A., 2007);
- attendance of classes, seminars, courses, other events held in a place located anywhere in the world (Spot+ project team, 2001), (Schreurs, B. et al, 2006), (BEST Educational Commitee, 2006), (The Scottish Centre for research into On-Line Learning & Assessment, 2007) as well as participation in local communities (The Scottish Centre for research into On-Line Learning & Assessment, 2007);
- a form of learning or exchange of knowledge (Eds. Op de Beeck, I. et al, 2008);
- full academic recognition of the acquired competences (EC Glossary on the LLP 2007-2013, 2010) or a possibility to earn ECTS-points based on co-operation of – at least two – Higher Education-institutions (Brey, C. et al, (2007));
- a possibility to access reference materials and contents at a distance, by using ICT-based solutions" (Spot+ project team, 2001), (Bacsich, P. et al, 2009).

3. Virtual mobility types and activities

In this part of the chapter, the main types of virtual mobility as well as virtual mobility activities are analyzed aiming at presenting a more comprehensive picture of virtual mobility concept. Defining virtual mobility characteristics, some of its activities have already been mentioned above. However, different authors group the activities differently. Most of the scientists connect virtual mobility with distance learning, e-learning or mobile learning. So from one point of view virtual mobility can be treated like a part of e-learning activities (The Scottish Centre for research into On-Line Learning & Assessment, 2007). Most of the projects referring to education base their classification on H. Bijnens and I.O. de Beeck's (2006) approach, described in their article "The Integration of Virtual Mobility in Europe", where they indicate the following 4 types of virtual mobility:

- courses at a foreign university while staying at home and vice-versa;
- complementing the existing physical Erasmus exchange programmes with virtual elements in the preparation and return phase (student selection, language preparation, assessment from a distance, etc.);

- virtual internships in companies abroad;
- guest lecturers from foreign universities virtually presenting their lessons to students in other universities.

Referring to the above described types of virtual mobility, *Being mobile* project team in their Best practice manual "European Cooperation in Education through Virtual Mobility" (Eds. Bijnens, H.; Boussemaere,M.; Rajagopal, K.; Op de Beeck, I.; Van Petegem, W., 2006) present a broader categorization of virtual mobility activities categorized by various different parameters. They characterize virtual mobility activities by 4 different categorizations of virtual activities:

- by their degree of virtualization,
- by the technologies used for the activities,
- by the teaching and/or learning scenarios that have been used,
- based on the circumstances in which the virtual mobility activity takes place.

The below discussed authors describe virtual mobility classification as follows. J. Silvio (2003) classifies virtualization as (1) totally virtual, (2) partially virtual, (3) dual, and (4) mixed. E. Pigliapolo and A. Bogliolo (2007) describe virtualization via the usage of virtual campuses in order to enhance the accessibility of higher education. In their article "Accessible virtual mobility" the authors indicate four types of virtual mobility enabled by pre-existent virtualization. They indicate virtual mobility achievement by delocalization of either the starting point, or the destination point, or both of them:

1. P-P (stands for physical-physical), where the starting point is a traditional university and the target is a face-to-face educational activity provided by a remote university;
2. P-V (stands for physical-virtual), where the starting point is a traditional university and the target is a remote virtual activity;
3. V-P (stands for virtual-physical), where the starting point is a virtual university and the target is a remote face-to-face activity;
4. V-V (stands for virtual-virtual), where the starting point is a virtual university and the target is a remote virtual activity.

As the study analyzes the virtual mobility from educational point of view, the virtualization typology is discussed here as far as it refers to teaching or learning activities.

For the activities categorization based on the technologies used, J.Silvio (2003, p.10) suggests categorization as follows:

1. Browsing
2. Information search

3. Communication:
    a. Synchronic
    b. Asynchronic

However the eds. H. Bijnens et al (2006, p.28) oppose the categorization based on the technologies used as "the possible tools <...> change and/or increase every day, which would soon outdate such a typology". The tools that can be used in virtual mobility and their applications for a joint course development and delivery are described in Chapter 5 "Virtual Mobility Tools" and the second part of the study, so they are not detailed on the concept analysis chapter.

As BENVIC project partners (Typology of virtual campuses/universities. Benchmarking of Virtual Campuses, http://www.benvic.odl.org/typology.htm, here from eds. H.Bijnens et al, 2006, p.28) stress while determining virtual campus typology, "a distinction between activities can also be made based on the teaching and/or learning scenario that has been used". The usage of learning scenarios for virtual mobility is analyzed and described in Chapter 4 "Learning Scenarios in Virtual Mobility" and the second part of the study.

As there is no common agreement or set categories of virtual mobility activities, VM activities' categorization by the circumstances in which it takes place can be the simplest and most representative. The typology is described in the "European Cooperation in Education through Virtual Mobility" (Eds. Bijnens, H. et al, 2006) in the following way:

1. A virtual course (as part of a programme) or seminar (series).
2. A virtual study programme.
3. Virtual student placements.
4. Virtual support activities to physical exchange.

The first three activities of virtual mobility may be taken as a complement or as a substitute to physical mobility, while the last type activities are set as a complement to physical mobility. However, the above presented categorization misses one more factor or characteristic of virtual mobility that can be noted here – virtual study course(s) or a programme can be designed and/or provided for students by more than one host university that is not usually possible in physical mobility case. This way the students can attend the course(s) from different institutions and study and work collaboratively in a more diverse international group gaining experience in dealing with cultural differences of more than one country. This kind of virtual mobility was organized and implemented in the TeaCamp project and will be explored and analyzed in more detail in the second part of the study. The "Joint course development and/or delivery by two or more institutions" is also stressed in the EuroPACE website (2010), where virtual mobility is stated to be "more than a copy of the Erasmus programme", and a joint course is defined as a separate type of activity.

4. Impact of virtual mobility

Different sources stress diverse aspects of virtual mobility. Therefore, the impact of virtual implementation upon HEI, research and learning/teaching processes can also be described differently, focusing on various aspects. The necessity and importance of VM is accurately stressed by the Educational Committee of BEST on ReVE project (2006) page: "The development of Virtual Mobility will become a necessity soon and even the language barrier, which until now seemed to be a problem, will be overcome by virtual learning tools and methods. At the present moment students seem to be more open and ready for the implementation of e-learning classes, at least because it is something new and challenging."

The virtual mobility impact upon HEIs can also be addressed stressing different challenges that are met, such as **fostering** specific new learning opportunities and intercultural and/or joint curricula design at HE institutions:

- Teachers and students benefit linguistically, culturally and educationally from the experience of other European countries and their (academic) fields of study (Bijnens, H.; Op de Beeck, I., 2006). Joint course development and/or delivery by two or more institutions broaden the areas of expertise offered to the students (EuroPACE , 2010). It enhances the quality of courses and curricula (EADTU network, 2007) and contributes to the quality of the academic education (C. Brey and e-move project partners, 2007).
- Virtual mobility also encourages institutions to adapt and further develop their pedagogical models: change of content delivery and the change of learning tools require changes in pedagogy and didactical models (Bijnens, H.; Op de Beeck, I., 2006). VM facilitates intercultural experiences of students and their staff through the organization of trans-border discussion groups, international seminars or the set-up of an international learning community whereby staff and students acquire interpersonal and intercultural skills and get a chance to broaden their cultural, social and political boundaries (EuroPACE, 2010). By providing supplementary courses virtual mobility enables students to further individualize and specialize their portfolios (C. Brey and e-move project partners, 2007).
- Virtual mobility contributes to the internationalisation of Higher Education (EuroPACE , 2010) and creates a new potential for the organization to offer an international experience for students (EADTU network, 2007).
- At the institutional level, virtual mobility initiatives enhance sound competition between institutions and thus contribute to the competitiveness and attractiveness of the educational offer in general (Bijnens, H.; Op de Beeck, I., 2006). It can increase competition among universities which will have positive effects on the quality of both teaching and research. It will also have similar effects due to the added value of co-operation and cost-sharing.

- VM is also defined as a tool to increase pressure to foster the use of e-learning and the development of virtual universities in Europe (Pursuea, M.; Warsta, M.; Laaksonen, I., 2005).

Facilitating virtual mobility wider and greater goals can be achieved:

- In some part virtual mobility ensures social inclusion as it "reduces the socio-economic barriers" (Bijnens, H.; Op de Beeck, I., 2006).
- The use of virtual mobility facilitates not only the usage of ICT, but also the openness to information technology and the creating of digitally literate AS.
- It contributes to the Bologna process (EADTU network, 2007) and LLL for all students (C. Brey and e-move project partners, 2007).
- In the context of international economic crisis, virtual mobility might be the key factor in facilitating educational mobility of teachers or students.

Conclusions

This part of the study analyzes the virtual mobility concept from different perspectives. Revising the concept development in a chronological order, virtual mobility is first discussed from mobility perspective – where virtual mobility is constituted to have the same outcomes as physical mobility, but travelling is in virtual space. The development of the concept from mobility perspective is now separated to be a complement or alternative for physical mobility. Furthermore, the concept analysis is supplemented by educational perspective approach, where it is defined as a form of learning, communication and exchange of knowledge. Analysing different resources, various virtual mobility characteristics are described, as well as different types of the activities are discussed. Summarizing virtual mobility practices and concepts defined by other authors, **Virtual Mobility in the scope of TeaCamp project** and this study is defined as an activity or a form of learning, research and communication and collaboration, based on the following characteristics:

- cooperation of at least 2 higher education institutions;
- virtual components through an ICT supported learning environment;
- collaboration of people from different background and cultures working and studying together, creating a virtual community;
- having a clear goal and clearly defined learning outcomes;
- having, as its main purpose, the exchange of knowledge and improvement of intercultural competences;
- as a result of which the participants may obtain ECTS credits and/or its academic recognition will be assumed by the home university;
- providing visibility of university in higher education area, capitalization of educational process;
- leading to the integration of ICT into their mainstream academic and business processes.

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Chapter 2. Curriculum Design for Virtual Mobility – Significance of Teacher-Student Interaction

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Preparing for virtual mobility activities, teachers have to design a curriculum of high quality. The aim of this chapter is to discuss the factors that exert impact upon curriculum design, grounding the analysis on theoretical concepts of technology-based curriculum.

Keywords: Electronic learning (e.learning), quality, quality assessment, quality assessment factors, quality criteria, teaching process, virtual mobility, virtual learning, learning process, teaching/learning process, curriculum, curriculum design, distance education, technology-based teaching/learning, technology-based curriculum, virtual learning environment.

1. Theoretical concepts of technology-based curriculum

Technology-based curriculum design and organization of teaching/learning have become an important precondition of teacher competence (Dagienė, Valavičius 2004, Kemp, Morrison et al., 1996). Virtual learning is a necessary basis of virtual mobility, aiming at realization of its socio-cultural (transfer of cultural experience of academic staff and students who participate in mobility exchange, traditions and experience of the country and higher education institutions) and academic exchanges.

Preparing for virtual mobility sessions teachers have to look for new curriculum design decisions; when intercultural community participates in the process of virtual teaching and learning, synchronic and asynchronic exchange of information and intercultural interactions are carried out to pursue learning goals. Virtual teaching/learning is sometimes blended with physical mobility; at times it proceeds independently. In case of virtual mobility teachers can prepare and realize multilateral international and intercultural rather than bilateral exchanges, participating simultaneously in a virtual process together with students and teachers from several universities.

Preparation for international virtual mobility activities requires from teachers to develop both socio-cultural and academic curriculum provided for exchange. In this study the focus is more on designing curriculum for academic exchange, taking into account that designing of socio-cultural curriculum is also a significant part of research. Due to limitations of the project, the experience of TeaCamp project and the cases analyzed in the research did not allow the authors to acquire sufficient experience to base theoretical assumptions and empirical part of the research on. Socio-cultural virtual mobility curriculum should be the object of other scientific research as an inseparable part of virtual mobility.

Designing technology-based curriculum and teaching/learning organization process for international virtual mobility, curriculum design should be based on a certain methodology and theoretical dispositions. It is recommended to base theoretical methodological dispositions for academic virtual mobility on experiential learning theory (Kolb, Byatzis, Mainemelis, 1999, Mezirow, 1990), emphasising a multilateral model of the teaching/learning process, which investigates how people learn and develop as well as apply personal perception of phenomena and information. Supplementing the authors mentioned above, curriculum design should be based on learning strategy investigating theory.

It is inevitable that research methodology is grounded in cognitive (Bandura, 1986, Piaget, 1991, Vygotsky, 1999, and others) as well as constructivist theories, when socio-cognitive conflict created during the cross-cultural exchange allows for positive process participants‘ construction of personal perception and meaning.

Next to the above mentioned methodological dispositions, curriculum design will undoubtedly be based on metacognitive learning theory (teaching/learning process grounded on personal evaluation and individual experience, oriented to the improvement of activity and development of personal perception).

Analysing scientific literature on technology based curriculum concept it is evident that the authors relate several areas of science in a complex; however, they unanimously agree that technology-based curriculum analysis is an object of the science of education (Anderson 1997, Atkins 1993, Kozman 1991). Scientific research findings confirm that during technology-based curriculum designing such issues as curriculum planning, implementation and organization of efficient teaching and learning should be considered.

Technology-based teaching/learning in many cases allows to offer learners modern learning opportunities, such as learning at an individual speed, time and location, ensuring learning accessibility and principles of autonomous individualized learning. Researchers assert that technology-based teaching/learning is affected by macro- and micro curriculum designing paradigms (Mizoguchi, Bourdeau 2000). In a blended context all participants of the process share virtual environment which is created by designing technology-based curriculum and implementing it on the internet (Mizoguchi, Bourdeau 2000). J. Bourdeau and A. Bates (1996) claim that technology-based curriculum design should be directly based on curriculum designing ideas.

The use of ICT and multimedia has become one of the main principles of learner oriented teaching/learning (Stephenson, Cairns 2002). Learning communities themselves create learning resources on the internet for informal learning which is rapidly integrated into formal and informal education. Organization of virtual mobility sessions directly depends on formal and non-formal curriculum designed in advance which leads to sharing information among the participants of the study process before, during and after a mobility visit.

Viewing teaching/learning curriculum in its broadest sense (Laužackas, 2008), it consists of interaction, artefacts created during the interaction and international social and cultural exchanges that emerge in mobility activities rather than only

study material presented for the teaching and learning. Successful experience and positive feedback of the participants will be ensured both by decisions made during teaching/learning curriculum design and organization of the study process.

The concept of technology-based curriculum derives from a traditional concept of curriculum, agreeing that curriculum is "coherence and interaction of the main parameters of the teaching/learning process (aims, ways of organizing teaching/learning, teaching aids, assessment strategy) in the process of continuous improvement". This concept defines the entirety of teaching/learning in which every element of teaching/learning is oriented to the goal, determined by interaction with other elements and has a certain place and meaning in it (Laužackas, 2005). In such a case, as stated by R.Laužackas (2005), such parameters are continuously developed during the process of curriculum designing, taking into account the changes in the learning needs and designing of new programmes.

According to R. Mizoguchi and J. Bourdeau (2000), the object of curriculum designing consists of four variables:

a. *Instructional situation* which depends on internal and external contextual factors (Delfosse, et al., 2003), such as needs of the participants of the teaching/learning process, their experience, and etc.;

b. *Subject matter* – an independent and unchanging component of technology-based curriculum; however, it affects other components and appeals to educational interventions and research in education science, exploring dependence of teaching/learning organization on the subject matter;

c. *Instructional outcomes*;

d. *Instructional strategy variables* (Reigeluth, Buderson, Merrill 1994, cited in Mizoguchi, Bourdeau 2000).

Organization of teaching/learning is designed with the help of teaching/learning scenarios and other means cohering it to the subject matter and teaching/learning situation. Flexibility of organization of the teaching/learning process is ensured by decisions made during curriculum design. Researchers assert that curriculum designing paradigm is independent from the area of subject matter and is considered to be general. This approach is suitable for virtual mobility study curriculum designing.

2. Factors determining the quality of designing curriculum for virtual mobility

Designing the study curriculum for virtual mobility it is essential to take into account several factors that exert impact upon the quality of study curriculum designing and study organization: support, interaction (among students and among teachers), planning and organization, participant motivation and importance as well as development of metacognitive skills.

The choice of technologies for the realization of curriculum is also an important factor in determining success. Requirements for the use of technologies should be formulated by the users, and the chosen technological solutions, first of all, should meet user demands. The decision should be:

- user-friendly,
- undemanding of any additional abilities,
- used in the institution or technologically tuned with decision realized in the institutions,
- fulfilling the didactical activity scenario by its functions,
- providing opportunity to interact in a synchronic/asynchronic way, in group/ individual activity.

2.1. Planning and organization of support

The most efficient way to reduce the negative impact of factors affecting the success of technology-based teaching/learning during its organization is the implementation of a support system. Planning and organization of support is an essential and exceptional technology-based teaching/learning feature that influences social, psychological, cultural and philosophical technology-based teaching/learning climate.

Successful teaching/learning is defined by a number of researchers as active learning. M.Teresevičienė, G.Gedvilienė and D.Oldroyd (2004) define it as: "a teaching model when at the beginning the initiative and responsibility is in the hands of a teacher; however, gradually it is transferred to the learner, involving him into the activity, fostering participation and skilful learning" (Teresevičienė M., Gedvilienė G., Oldroyd D., 2004, 71 p). Planning for active teaching/learning is described by the authors in several aspects:

- *dependence - it is important that learners felt respect from others and their approval as well as belonging to a group; this way they'll feel recognition and will have more self-confidence;*
- *aspiration - it is belief in success and intention to achieve it. It is important for learners to be aware that learning has a purpose which can help to find motives of the activity;*
- *safety - it is important that learners felt safe in the group where they learn; then they will risk more and assume responsibility for their learning;*
- *identity - learners have to know their strong and weak sides, to be aware of their own personality and perceive their roles;*
- *success - learners who trust their powers and abilities have most chances to achieve success" (Teresevičienė M., Gedvilienė G., Oldroyd D., 2004, p. 79- 81).*

Another approach to successful teaching/learning, presented by the same authors, is a problem learning method, which is based on activity and experience. Learning community is solving a concrete problem in mutual cooperation. Each member

of the community is a co-worker, corrector, assessor and counsellor or feedback provider at the same time.

The third approach to successful learning is cooperative learning in groups. Cooperation and communication in teaching/learning organization can in itself create an efficient system of teaching/learning support. While organizing technology-based teaching/learning, this approach to is designed exceptionally efficiently, having chosen proper solutions with regard to the use of technologies, teaching/learning activities for group work and measures necessary to perform these activities. Proper solutions can create self-contained support measures when learners provide support to each other, sharing materials and being together communicating.

It is essential that learning groups set their social and academic aims. Group members have to positively interact with each other and be able to achieve a common aim. In order to ensure group cooperation, five conditions have to be created:

1. mutual trust (learners have to know they are necessary for each other and are directly related in order to perform the common task that was assigned to all),
2. interaction (group members have to support each other, encourage, enhance expressing opinion and feelings),
3. individual responsibility (each member has to feel responsible for task performance),
4. situations for social skill development (group members have to apply communication, management, conflict solving skills),
5. group work management mechanisms (it is important to discuss the achieved result and reached aim after every work).

2.2. Importance of interaction

Technology-based and traditional teaching/learning differ in measures and approaches of creating teaching/learning environment. Different realization of teaching/learning environment is particularly felt by the process participants during interaction. The importance of interaction was emphasized by researchers who analyzed it: V.Thurmond and K.Wambrach (2006) on the basis of Soo and Bonk (1998), Biocca et al. (2006).

As noted by the above mentioned authors, there is lack of a clearly defined and unanimous concept of interaction in the science of education. V.Thurmond and K.Wambrach (2006), basing their ideas of on Chickering and Gamson (1987), assert that the realization of interaction is guided by seven major principles:

- encouraging interaction to identify students' abilities,
- developing reciprocity and need for cooperation;
- attractiveness of active learning;

- providing fast feedback;
- determining the time for assignment performance;
- expectation about communication and respect for diversity;
- proper self-education and learning outcomes.

Interaction is defined through definitions of a social process. Interaction, according to researchers, occurs due to the need to better understand and help to better understand technology-based curriculum (Thurmond, Wambrach, 2006). Swan (2003) claims that at least two participants or objects should be involved in the interaction process in technology-based studies. Also at least two interactive actions should be performed to allow participants, objects or events to affect each other.

Smith and Dillon (1999) assert that interaction can be synchronic and asynchronic. Synchronic interaction occurs when its participants communicate via information technologies at the same time. Asynchronic interaction happens when participants communicate at a different time, for instance, writing e-mail letters, and exchanging messages in discussion forums at a different time (V.Thurmond and K.Wambrach, 2006). Technology-based interaction of teaching/learning participants (synchronic and asynchronic) enables virtual learner communities to exchange opinions, information and create a common product. Teaching/learning in a natural (traditional) environment is totally imitated in a virtual learning environment supplementing human communication and reciprocal interaction by technology based teaching/learning curriculum (teaching/learning resources) and increasing accessibility of information.

Biocca (2006) bases interaction by participation in virtual social presence. According to the scientist, it helps virtual teaching/learning participants to understand and predict as well as control their specific experiences and perceive cognitive reciprocal relations. Interaction in virtual medium is explained by the theory of social presence. As it is sated by F. Biocca et al. (2006), social presence has been acquiring more significance as virtual space is becoming more and more social. Social communication increases not only among consumers, i.e. people within this medium, but also between consumers and computer, technologies. Thus virtual space is the place of social interactions, where the increasing number of quazi-social relations is created with the help of state-of-the-art and more complicated technologies (Biocca, 2006, according to Cassell, Sullivan, Provost, & Churchill, 2000; Chorafas, 1997; Franklin, 1997; Kushmerick, 1998; Petrie, 1996; Byron Reeves & Clifford Nass, 1996).

Social contact in technology-based teaching/learning is carried out via distance. It is either agreed or casual. Biocca (2006), citing Heeter, (1992); Palmer, (1995); Trumpas, Williams, and Christie (1976) claim that social contact is used purposefully, aiming at self-expression in the technology-based environment. According to Gunawardena (1995), social presence is significant in improving the efficiency of technology-based studies. The author also asserts that social presence can be

specifically cultural, as the participants of technology-based learning represent very different cultural and social groups.

Perception of the situation and approach to it has an immense impact upon the understanding of social presence. As stated by Gunawardena, student's perception of interaction, created by societal mass media exerts impact upon the quality of social presence. It is possible to state that each technology-based teaching/learning participant creates his or her social presence through interaction in the learning environment. Each participant's social presence is manifested individually.

Technologies enable oral and written communication in the virtual space as well as imitation of one's behaviour and conveying of information by movements. According to Biocca (2006), a number of assignments were limited for some time only by symbolic and oral transaction. However, interaction often lacks eye-contact, nonverbal reflection of human's thought, and etc. Computer games can be considered to be the most obvious expression of behaviour in the virtual space. Seeing each other and being able to imitate behaviour via computer the players get deeply involved into the game.

Summarizing it is possible to conclude that social presence enables, enhances and motivates communication and interaction in internet space. For the interaction to occur in distance studies, a medium or relation is essential which enables interaction between people or between people and object. Moreover, intellectual involvement of each participant is important and, finally, opportunity to express one's thoughts and behaviour in internet space. All this creates social presence and helps people who logged in to communicate. Thus increase of the magnitude of social presence phenomenon in internet environment contributes to the improvement and facilitation of interaction in technology-based studies.

2.3. Motivation

Student motivation is very much important in technology-based studies. Motivation is defined in psychology as needs or desires that provide energy and direction to behaviour (Myers, 2009). Even the best designed curriculum will be inefficient if learners have no motivation. However, according to the author, motivation problems are easy to solve.

G. Felser (2006) asserts that human behaviour is determined by various interrelated internal and external powers. G. Felser (2006) distinguishes between internal and external motivation. Internal facilitative powers are needs, interests, aspirations, values, value orientations, motives and ideals. Internal motivation is based on self-contained factors, i.e. when a person considers something important and directs his/her actions in order to achieve it.

Motivation is related by causal relationship with learning outcomes (Volungevičienė, 2008); it is a means to seek for progress in learning and is the overall result of the teaching/learning process. Motivation as a means is one of the learning outcome determining factors, therefore, it we want the behaviour to be more frequent,

intensive and longer we have to facilitate it; this requires choosing the stimuli that are positive to the individual. Interaction is indispensable from learning motivation, as during interaction continuous communication is carried out as well investigation of learner needs, values, inclinations and etc. and interest in them.

In the case of virtual mobility interaction between the teacher and the student can be created by means of a forum, video lectures and e-mail as well as other means of communication or interaction designing means. The use of interaction designing means and their impact upon learning require a more detailed exploration which is analyzed and discussed broader in the second part of this study.

2.4. Importance of metacognitive skills and their development

T. Reeves (1997) agrees with M. Pearn and P. Downs (1991) who describe skilled autonomous learners as people who:

- know which model helps them to efficiently reach learning outcomes;
- anticipate information about their learning activity intending to improve efficiency of this activity;
- assume responsibility for their learning process;
- are aware of their learning needs and constantly self-evaluate them;
- try different learning methods;
- research qualitative resources and apply new ideas;
- learn from their mistakes in pursuit of knowledge and gaining better understanding of the subject matter;
- seek to develop an open and trust-based approach to others instead of a defence strategy;
- become experts of informal learning, i.e., are able to learn from everyday situations;
- invest into their learning and development.

According to I. Al Mufti et al. (1996, cited by Leclercq, Poumay, 2003), all people should acquire education to be equipped with abilities to develop their personal, independent, critical way of thinking and assessing to be able to choose the best actions in different life situations; also to acquire interdisciplinary skills necessary for lifelong learning in different vocational practice and different life situations as well as ability of metacognitive reflection which is worth developing for one's own sake.

Metacognition which is analyzed in the science of education is often limited to personal cognition of the learner himself (Jans 2000, cited by Leclercq, Poumay 2003). These scholars propose an etymological definition of metacognition such as knowing about knowing and treat it to be a synonym of reflexivity. According to V. Jans (2000, cited by Leclercq, Poumay 2003), educologists are interested in „double cognition", i.e. how learners think about it and what they think about their thinking ways, justification and learning.

F. Danvers (1992, cited by Leclercq, Poumay, 2003) defines metacognition as an activity during which an individual analyzes his/her learning strategies and learns about the retrospection of his/her thinking process, overviews the performed work, what has been achieved and once more analyzes this in terms of goals aiming at gaining some benefit. However, some authors use narrower terms to define the action which reflects someone's personal learning process.

J. Berbaum states that efficient teaching/learning is possible only of a learner analyzes his/her activity and its efficiency (Berbaum 1996). A number of researchers of education investigated the impact of metacognition upon efficient teaching/learning (Beckers, Puissant 1998, Berbaum 1996, Jucevičienė 2000, Laužackas 1999, Leclercq, Poumay 2003, Noël 1991, Romainville 1992, Teresevičienė 2001, Wolfs 1992 and others); however, J. Beckers and F. Puissant (1998) emphasize a lack of studies that analyze the impact of teaching about metacognition upon the actions of a subject.

M. A. De La Cruz et al. (1997) agree that a self-assessment activity has to become a teaching means which helps learners to perceive how they learn and stresses the need to practically test self-assessment in different situations (imitated or actual), if they wish to learn how to actually assess themselves. D. Boud (1995) asserts that development of these skills is particularly important at university level because it is evident that upon completing their university career students are clearly unprepared to manage it properly.

It is not sufficient to simply propose a self-assessment activity for students. M.A. De La Cruz, E.Gomez et al. (1997, cited by Leclercq, Poumay 2003), discussing this problem, state that self-assessment is one of the most efficient assessment methods which fosters individual changes, but this method is risky, problematic and difficult. L. V. Barber (1990) mentions the following problems identified during research:

1. lack of objectivity;
2. self-justification tendency;
3. shortage of precision which often manifests itself due to poorly designed self-evaluation measures;
4. tendency to rely on the used measures too much;
5. result calculation measures, often due to qualitative nature of self-evaluation measures.

As recommended in the dissertation by V. Jans (2000, cited by Leclercq, Poumay 2003):

- learners should be acquainted with learning aims and teachers with learner expectations in the earliest stage of learning;
- teachers have to explain the concept of self-assessment and its relevant methods as well as criteria, provide concrete examples and explain advantages;

- related activity – the object of self-assessment – should be interesting to the learner; otherwise self-assessment activity will not be performed seriously and will be inexpedient to learners;
- learners have to be acquainted with meaning and criteria of assessment.

Having evaluated these theories of designing metacognitive activities, teachers face a number of issues designing such an activity in the teaching/learning process. Taking into account teaching/learning organization methods teachers, performing a similar activity themselves, will model metacognitive situations when they become the centre of attention of such situations. This way learners, applying imitation method of learning, will have more opportunities to learn and use metacognition in their learning and develop autonomous teaching/learning abilities.

According to M.L. Conner (1996), technological changes should be fostered by the changes in our teaching/learning methods but not vice versa. Still it is necessary to admit the existing shortage of research in education science and a particular demand for this kind of research, when the object of research in education science and its methodology change.

It is often stated that the use of ICT in teaching highlights the shortcomings of teaching much more distinctly than during traditional teaching (Anderson 2004). Successful process of technology-based teaching/learning organization is determined by various criteria: 1) good preliminary preparation; 2) good communication abilities. Teacher position with regard to learners is more vivid here than in traditional teaching (Anderson 2004, Oakley 2003, Salmon 2003), because in virtual learning environment learners have more time to reflect and think over the presented material (Beaudoin 2004).

Conclusions

Designing technology-based curriculum and teaching/learning organization process for international virtual mobility, curriculum design should be based on a certain methodology and theoretical dispositions. It is recommended that theoretical methodological dispositions for academic virtual mobility curriculum were grounded on experiential learning theory.

Planning and organization is an essential and exceptional feature of technology-based teaching/learning and it impacts social, psychological, cultural and philosophical climate of technology-based teaching/learning. Social contact is carried out on-line in technology-based teaching/learning. It is either agreed upon or happens accidentally; however, it enables, enhances and motivates communication and interaction on internet space.

Interaction is indispensible for learning motivation as during interaction on-going research into communication and learner needs, values, inclinations and etc. is performed. In the case of virtual mobility teacher-student interaction can be created with the help of a forum, video lectures and e-mail as well as other

means of information and communication – interaction designing means. The use of interaction designing means and their impact upon learning requires broader research which is analyzed and discussed wider in Chapter 2 of this study.

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Chapter 3. Curriculum Development in Virtual Mobility Educational Contexts

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"The design and construction of the course content, learning activities, and assessment framework constitute the first opportunity for teachers to develop their "teacher presence." The role the teacher plays in creating and maintaining the course contents varies from that of a tutor working with materials and an instructional design created by others, to that of "lone ranger," in which the teacher creates all of the content."

(Anderson, 2004, pp. 276)

Curriculum development in virtual mobility (VM) educational contexts requires from Higher Education teachers to think differently when facing paradigms such as (i) the development of a new teaching presence, (ii) the design of new *curricula*, (iii) the design of learning materials adapted to different learning environments, (iv) the application of different learning strategies and (v) the development of new assessment approaches, models and tools. In this part of the chapter we **aim** to present a brief literature review related to the development of the *curricula* for VM courses focusing on the above mentioned dimensions. We also discuss some principles for VM that are considered in the literature (Op de Beeck, Bijnens & Van Petegem, 2008) as very important for the development of *curricula*.

Keywords: *curricula*, online environment, e-teaching, faculty competences, virtual mobility

1. Setting the scene

European HE area has been undergoing profound changes in the last decade mainly as a consequence of the Lisbon Strategy and the Bologna process (Centre for Educational Research and Innovation; 2009). These two landmarks can be seen as promoters of the development of new standard competences for students and lifelong learners, as well as the change in the curricula and the learning process to a more student-centred orientation. This process intends to foster flexible and autonomous learning as a key factor of instruction. Also, as a consequence of the above landmarks HE courses should developed so that they are recognized by all the European countries.

The key objective of these perspectives is to create a European HE area that fosters the elimination of the remaining obstacles to free mobility of students and teachers, promoting internationalization and exchange of values, knowledge and cultures.

The VM concept comes to respond to the increased need of mobility (students and teachers) and also to respond to specific constraints, as we can find in

physical mobility (Op de Beeck, Bijnens & Van Petegem, 2008). Issues such as family limitations, financial problems, time issues, and/or labour problems are other constraints that can be overcome by the implementation of VM. With VM it is possible, via the use of Information and Communication Technologies (ICT), to create such a learning environment that would allow students to experience foreign cultures and to interact with their colleagues from different countries without the need of living abroad. This VM concept is also increasingly used by European Universities since it is adapted to a new profile of students as lifelong learners and "digital natives" (Palfrey & Gasser, 2008).

As it was revealed by the Erasmus Student Network Survey[1], it is possible to characterize the physical mobility students as less academically-oriented and more interested to know and live in a new country, understand new cultures and learn new languages. On the opposite, students *"who go to university as the route to a good job rather than as a cultural and transforming experience, are unlikely to be motivated to study abroad simply in order to get to know a different culture, meet new friends and learn another language"* (Op de Beeck et al., p. 37, 2008). Lifelong learners, included in the profile referred to by the authors, are then more focused on the learning experience of a course than on experimenting with academic interactions and activities.

In order to promote these new areas of welcoming new students, HE institutions have to design learning environments that promote more flexibility in time, space and in the process of accessing information.

"In re-designing more student-centred curricula, institutions must foresee that students will need more guidance and counselling to find their individual academic pathways in a more flexible learning environment." (Reichert & Tauch, 2005, p.18)

In VM courses HE teachers have also to readapt to new requirements and demands. This change has to be followed by the development of new competences and assuming of new roles, more focused on a facilitator one rather than on a passive transmitter of knowledge.

1.1. New challenges for Higher Education teachers

Teaching in online and distance based environment requires different pedagogical and didactical strategies and approaches when compared with the traditional classroom instruction. Teachers that are used to teach in a traditional classroom environment will find that teaching in online and distance based environment requires different competences and new attitudes towards student learning and the learning process itself. Aly (2000) refers to behaviours which may occur and competences which are needed to be devolved when teachers change their classroom teaching to teaching in an online learning environment. They include:

[1] http://www.esn.org/uploaded_material/ESNSurvey_2007_report.pdf

- *anxiety about the use of technology*: apprehension associated with change can be a serious setback in moving towards effective online learning; teachers are frequently apprehensive of using tools they are not so comfortable with when compared to their students. The use of these new tools promotes a sense of anxiety that leads to insecurity;
- *management acceptance*: if HE teachers find that the new educational approach reduces the importance of their role as teachers and mentors, and their key role in the learning process they might interfere negatively with the use of online learning;
- *instructional design*: working in an online learning environment requires changes in both pedagogical and technological competences urging the development of new curriculum design and the promotion of a lifelong learning attitude.

This change of environment, together with the orientations brought forward by the Lisbon Strategy and the Bologna Process, bring challenges for teachers but also for universities and students. All educational actors have to adapt to the new requirements and new opportunities, and also to new practices, namely to a student centred-teaching and learning methodologies. However, instructors have to be careful when designing the learner-centred teaching in online environments (Anderson, 2004) while it has to meet the needs of the teacher, of the institution and of the larger society that provides support for the student and for the institution. Thus, this curriculum design oriented to online and distance learning has to be always accessible, personalized, usable and reusable (Elaine, 2009). In a nutshell, it should have flexibility. Online learning is flexible, therefore adaptable to new profiles of students and learning contexts.

2. Guidelines for flexible curricula

Online learning provides teachers with an opportunity to promote their instructional designer roles that can lead to the development of new curriculum content and new learning strategies. This instructional designer role is much appreciated by teachers since it promotes, due to the specific characteristics of online environments, a sense of flexibility in the development of the learning process in terms of the teaching and students' role (Keller, 1979; Small, 2000). This flexibility can be found in (i) *time*, since information can be uploaded and retrieved at any time of the day, (ii) the *learning processes*, since each student can manage his/her learning process the way s/he wants, (iii) *space*, because both teacher and students can access learning materials where they want, depending only on having a device with wireless internet connection, (iv) *usability*, since "digital native" learners are more adapted to online dialogs and (v) *learning materials*, since the teachers can use or reuse their own content but also can add content from other sources.

Moreover, online learning also has, according to Aly (2003), other advantages that academics can find useful in their teaching practices and in the designing of learning activities, such as:

- It allows *asynchronous dialogues*, facilitating communication among students and teachers. It deals with problems of time and convenience. Furthermore, asynchronous communication fosters a more reflected and sustained discourse that leads to more quality input from students and more pondered feedback by the teacher. It also facilitates the process of assessing students' participation and their online interactions;
- It facilitates online search promoting *self-evaluation and reflection* of the teaching process. As all the information is automatically recorded or archived, the teacher can evaluate his/her teaching practices and improve them based on flaws and deficiencies;
- It individualizes or allows for *individualization of instruction* and the way each student interacts with learning and with the teacher. The teacher can always give a personalized feedback to the student using a personal and individual communication channel;
- It easily allows the creation of *learning communities* between students in the same class, students in different classes or even among students and other teachers, using these communities to foster discussions;
- *Updating of learning materials* is very frequent as it is very easy and cheap;
- It is *scalable*, in the sense that it is easier to adjust to an increasing number of people without having concerns related to performance, space or facilities.

But the relationship between online teaching and flexibility does not stop here. Anderson (2004) points out the importance of teachers to negotiate activities and even content to satisfy unique learning needs. These activities should include the design of a series of learning activities that would encourage independent study and collaborative work that would deeply explore content knowledge.

3. How to develop online curricula for virtual mobility

Designing a VM course is similar to designing a distance course because the learning environment will be similar. However, some characteristics are different and should be highlighted.

But, first of all, it is important to define some key aspects of virtual mobility.

VM can be described as a type of mobility supported by distance learning environments where two or more institutions cooperate on delivering and certificating courses, projects or activities, allowing academia to collaboratively exchange scientific knowledge, intercultural and administrative aspects (Op de Beeck, Bijnens & Van Petegem, 2008). When relating this concept to a specific HE course or programme it could be described as a course or programme where students from different countries engage in a certified learning experience delivered by at least two universities from different countries mediated by technology; therefore, allowing each student to interact with their international colleagues without being physically present.

3.1. Some pre-requisites for developing Curricula in VM courses

Taking into account the definition of virtual mobility, a *language barrier* is quite frequent when designing *VM Curricula*. Learning materials and content have to be in the language close to every student, as well as the communication between teacher-student and student-student. This means that the language of instruction has to be familiar to every student and this should be a pre-requisite. A teacher or a student that does not write, read and/or speak the language of instruction will have more difficulties in achieving the overall outcomes. Usually, VM courses are conducted in English; however, it all depends on the objective of the course (for example, if the outcomes are to learn a specific language) or if all the countries have the same language as their official one (Russian, Spanish or Portuguese, i.e.).

Secondly, there is a cultural dimension. Cultural issues are ones of the most attractive but at the same time challenging aspects of curriculum design in Virtual Mobility (Burgi, 2009). Because VM promotes the exchange of culture and traditions between participants, it is possible that students feel misfit to the academic or living habits of the institution responsible for the specific programme. Aspects like working hours, time zones, religious rituals, holidays and country traditions can hamper virtual classes, collaborative synchronous work or discussion areas. It is very important for students but also for teachers to be prepared for intercultural and language dimensions, so they should have help from instructors or administrative staff. The cultural barriers, however, cannot be just seen as a setback but especially as a challenge and an opportunity. While students learn scientific knowledge inherent to a specific course, they can also develop new cultural competences and gain awareness of some cultural barriers that are common to their future daily work.

Finally, and taking into account that VM environment is online, it is crucial that all enrolled students have the *equipment, time, skills and willingness to use new technologies supported by computers*. Also they have to understand the dialogues of each tool so when a specific tool is chosen for VM it should "speak" the language of instruction.

3.2. Strategies for designing curricula for virtual mobility

Teachers that design *curricula* for VM courses should explore the nature and cultural aspects of their students as well as potentialities inherent in computers and in the Web to promote active learning that gives control to the student, and that can effectively lead to the development of critical thinking skills (Caplan, 2004; Burgi, 2009).

Now we present some learning strategies that are aligned with the promotion of active learning, referred to in the literature as crucial for developing VM *curricula* with success. Bransford, Brown & Cocking (1999), for example, argue that if the learning process is active instead of being passive, learners are able to understand complex material better and, because of that, they effectively transfer information and concepts learned in a context to solve problems encountered in another one.

Thus, in active learning students are actively engaged in their learning process and, when it is necessary, they are capable of applying what they have learned; therefore, they accommodate that new knowledge (Moore, Fowler & Watson, 2007).

For the purpose of developing learning strategies for *curricula* in VM we suggest three different learning strategies: (i) problem based-learning, (ii) collaborative and cooperative learning and (iii) role-play simulation.

3.2.1. Problem Based-Learning

Problem based-learning (PBL) is a widely used instructional method in which students learn through solving problems, fostering knowledge both on content and on thinking strategies. In PBL, student learning is centred on the resolution of a complex problem that does not have a single correct answer and/or an algorithm to be used. Therefore, students have to engage in self-directed learning, apply previous knowledge and develop new one related to the problem they should solve. They are also supposed to reflect on what they have learned and the effectiveness of the strategies employed (Hmelo-Silver, 2004). The pursuit of solving a problem can be made individually or collaboratively. According to Hmelo-Silver (2004), the PBL approach promotes competences in (i) flexible knowledge, (ii) effective problem-solving skills, (iii) self-directed learning skills and (iv) collaboration skills.

In an online environment (PML is also widely used in face-to-face teaching) the process starts when the instructor presents a problem using, for example, a specific case. Each student individually analyzes and sets his/her own field of hypothesis for that specific problem. Then s/he would search for his/her answer to the problem reflecting on what s/he knows and what s/he does not know about the specific problem. If the work is in group these reflections should, in this phase, be reported to the group, and the individual findings should be diluted in the group findings. Each group can then present the findings of the group, given the possibility for each student to critically reflect on his/her own findings. The teacher moderates this process and can introduce his/her own perception of the problem, starting a new task by introducing a new problem (Naidu, 2003).

In VM it is suggested that problems undertaken by students can be related to cultural aspects, so each student could interact with different cultural backgrounds.

3.2.2. Collaborative and cooperative group work

Collaborative group work can also be used in VM with good results because it can comprise different cultural aspects and realities (Curtis & Lawson, 2001). Group work can be made collaboratively in order to explore significant questions or to create meaningful projects in a team effort. All the group members have the same tasks commonly interacting with each other and presenting group results. But group work can also be *cooperative*, where each group member is responsible for a specific task allowing each member to individually work and then present his/her specific task result to the group. The assessment is made according to the performance of

the group promoting, therefore, the individual and group responsibilities towards the specific tasks. In order to employ cooperative learning strategies students have to feel capable of fulfilling the task and each task should be clearly defined from the beginning. For VM group work (either in cooperative or collaborative approach) this type of strategies is particularly relevant since it fosters the exchange of cross-cultural idiosyncrasies from each group member mainly if the group members come from different countries (Burgi, 2009).

3.2.3. Role-play simulation

Role-play is a learning strategy where students take a role of a character in a game with an educational goal (Oblinger, 2004). This strategy is immersive since the learner is embedded in an original part of a scenario living his/her experience and, at the same time, achieving the proposed learning outcomes. This type of strategy fosters competences related with self-directed learning and the capability of responding to complex problems, but also it motivates students since it is a very intense learning activity. For example, the learner can turn to be a teacher and, therefore, assume her/his roles being able to design learning strategies, assignments and to assess his/her own colleagues that are impersonating the role of students.

Another example of a learning strategy using a role-play is promotion of a daily routine of a company in the learning environment. There is a group that impersonates the management, a group that impersonates the marketing team, and the group that impersonates the consumers.

In VM this strategy can be used to introduce the nationality and cultural exchange dimensions. For instance, if the company were to be multi-national or if the purpose was to export products to a European country.

Conclusions

The development of online *curricula* to be used in VM contexts has different particularities compared with the common online *curricula*. It should foster inter-cultural dimensions and the promotion of skills related to the awareness of different cultures, languages and idiosyncrasies. But, even though there are specific particularities we cannot ignore that VM learning scenarios are very much based on online learning scenarios, and that they belong to the same family of instruction - a family that requires from HE teachers different competences and attitudes towards learning instruction.

In virtual mobility learning environments the teacher embraces a more flexible and personalized learning experience, while the student is invited to a more active and self directed learning where the intercultural dimension is always present.

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Chapter 4. Learning Scenarios in Virtual Mobility

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Scenarios represent one example for future studies and try to cover different plausible futures. Scenarios are used for uncertain situations and futures and are represented by possible stories. Several methods and procedures can be used to develop suitable scenarios. We will describe and show the usage of scenarios in the domain of technical enhanced learning and especially for virtual mobility in this chapter. The main purpose, methods and procedures will be described in more detail in Chapter 4.1., whereas the usage of scenarios in the domain of technical enhanced learning and virtual mobility will be presented in Chapter 4.2.

Keywords: Learning scenario, scenario techniques, virtual mobility learning scenario, E-Learning curriculum, internationalization competences

1. Scenario Techniques

Scenarios are one example for future studies, combining the most important principles of future studies. They try to analyze possible future in uncertain situations to prepare stakeholders for all possible events.

Several typologies of scenarios are available, but all these typologies have one thing in common. They all should answer one of the following questions:

- What will happen?
- What can happen?
- How can a specific target be reached? (Börjeson et al., 2005).

Several methods can be used in order to find out a proper answer to these questions. They can range from simple creative thinking to complex quantitative and qualitative methods.

With regard to the used methods and procedures there are different kinds of scenarios possible. These methods and techniques are often not exclusive and will be combined to create scenarios.

According to Bishop et al., the methods and techniques are as follows:

1. Judgment.
2. Baseline.
3. Elaboration of fixed scenarios.
4. Event sequences.
5. Backcasting.
6. Dimension of uncertainty.
7. Cross-impact analysis.
8. Modelling (Bishop et al., 2007).

Judgmental techniques are easy to describe and, because of that, they are widely used. They are often supported by only some methodology. In judgemental techniques the scenario is based on the opinion of an expert or a group of experts and their expectations for the future. The outcome of this can be one or many scenarios. Usually the experts will at least create the average or, in their opinion, most likely scenario. But often also worst and best-case scenarios are conducted (Bishop et al., 2007).

A *baseline* scenario is a single scenario that is seen as the most plausible scenario of all possibilities [Alcamo et al, 1996]. In addition to the techniques used for judgemental scenarios, baseline scenarios are often produced using quantitative methods, such as cross-impact analysis or the analysis of implications. With the help of these methods dominant trends are identified. The baseline scenario is often used as a foundation for alternative scenarios that are created with different methods (Bishop et al., 2007).

Stemming from these baseline scenarios or other fixed scenarios the technique *elaboration of fixed scenarios* can be used. The target is to analyze and elaborate the scenario logic and think about alternative future under the already given uncertainties.

In *event sequences* the starting point of the scenario creation is the uncertainties and choices that can be made as well as possible events (Bishop et al., 2007). In other classifications the event sequences are also called *What-if scenarios* (Börjeson et al., 2005). Deriving from these uncertainties and choices, probability trees can be created and similar alternatives can be combined. By this all possible states for the future are covered and can be used to create the scenarios. For this technique the probabilities for choices and uncertainties have to be known or estimated.

Backcasting is often applied in long-term situations with many different influence factors. The starting point for the scenario creation is an envisioned future state or outcome. This might be the best and worst case but also any other fantastic state. In backcasting it is then analyzed how the final state can be reached and the scenarios are created (Dreborg, 1996).

Similar to the event sequences the scenario technique *dimension of uncertainty* uses uncertainties as the starting point for the scenario creation. For each uncertainty different future aspects are considered and alternative futures are composed (Bishop et al., 2007).

In a *cross-impact analysis*, a correlation between the occurrences of different events is analyzed. For this purpose simulations and other mathematical procedures are used. The intended outcomes of this analysis are the probabilities for each alternative, event, variable or end state (Bishop et al., 2007).

Modeling is often used in combination with baseline scenarios. Different possibilities are visualized for easier understanding.

According to von Reibnitz, the steps to develop scenarios are always similar even if different methods and procedures are used. First, the task and influence factors

are analyzed and evaluated, different possibilities for the future are lined out and described in an easily understandable way and actions are taken to be prepared for all possible scenarios (von Reibnitz, 1999).

2. Learning scenarios

First of all, we have to differentiate between Scenarios for E-Learning or learning scenarios and scenario-based E-Learning. Under scenario-based E-learning we understand the design of the course as a scenario similar to game-based learning, while Scenarios for E-Learning envision how a specific course should look like, which tools should be used, how participants will act in the course, etc.

In virtual mobility and E-Learning, scenarios are often used to identify possibilities how a student can achieve a specific learning outcome or how an activity can be structured best.

Therefore, the most spread methods for scenario creating in this domain are judgmental techniques. Often the teacher or supervisor acts as an expert and envisions the scenario. But due to the fact that the scenarios in E-Learning and virtual mobility are often strongly target oriented, backcasting is often used in combination with these judgmental techniques.

Regarding the learning outcomes the experts envision how the students will be able to achieve these learning outcomes and which steps are necessary in between to reach the target.

This can be done for courses, exchange programmes but also for complete study modules and programmes. With the help of scenarios a clearer picture of the envisioned result can be drawn.

According to CARROLL, there are five characteristic attributes of learning scenarios. These are the following:

- setting,
- actors,
- goals and objectives,
- actions,
- events [Carroll, 1999].

With these five characteristics a full scenario can be described.

The setting describes the general approach of the course. For example, if the class is purely virtual or held in a classroom, which didactical approaches will be taken, if participants work in groups or individually, etc. Each scenario has a variety of actors. These can be students, teachers, administrators, etc. (Zoakou et al., 2007). Each of the actors has specific goals or objectives and each course has specific predefined intended learning outcomes. The actions shall lead to achieving the goals and objectives for each actor. Events are understood by CARROLL as uncertainties

that can influence the scenario and by that change the scenario setting.

In general, Zoakou et al. state that learning scenarios should always be flexible to increase the reusability and to enable teachers to use their creativity (Zoakou et al, 2007).

3. Virtual mobility learning scenario

This sample Scenario was prepared with regard to the intended outcomes of the virtual mobility activities. These outcomes can be clustered into:

- Formal learning outcomes.
- Informal learning outcomes.
- Recognition.

Under formal learning outcomes we understand the intended learning outcomes stemming from the learning activities during the virtual mobility stay. Informal learning outcomes, on the other hand, are learning outcomes related to activities outside the courses and learning activities such as intercultural learning through communication with colleagues and other students. Recognition means that the extra workload coming from the virtual mobility stay is recognized and benefits are provided accordingly.

Outgoing from these intended outcomes experts discussed the ways how a student could achieve them and which activities and functions are necessary for this. The result is presented in Figure 1.

Next we will focus on the course phase and especially on the intended formal learning outcomes, because informal learning outcomes are often weak or not fully described. In the presented scenario we find the following main functions:

- Learning activities,
- Communicate,
- Conflict identification and solution,
- Collaborate and
- Assessment.

Pawlowski, Holtkamp and Kalb (2010) separate between internationalization and domain specific competences. Internationalization competences are seen as supporting competences to enable individuals to apply their domain knowledge in an international setting. Internationalization competences include intercultural competences in particular, which can also be seen often as an informal learning outcome of mobility, ICT competences, communication competences, collaboration competences and project management competences (Pawlowski et al., 2010).

The domain in this particular case and the domain specific knowledge according to this come from the area of virtual and e-learning. The full curriculum is shown in Figure 2.

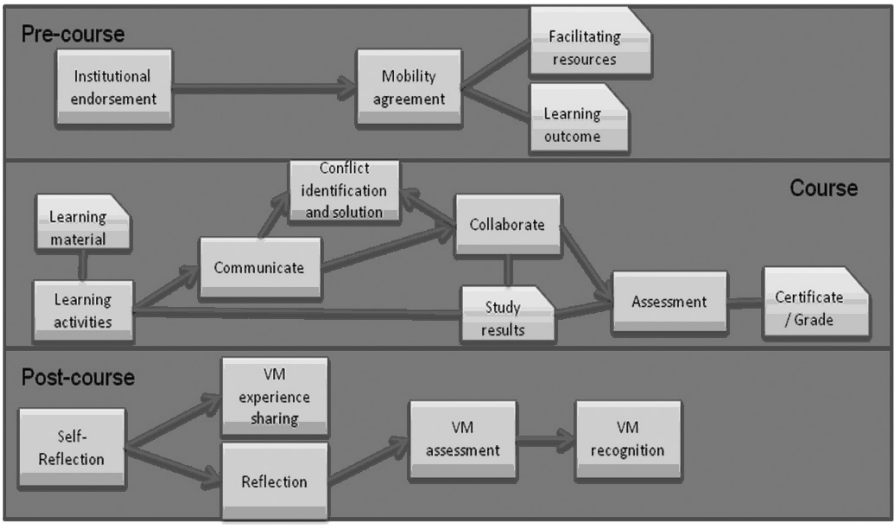

Figure 1: Virtual learning scenario

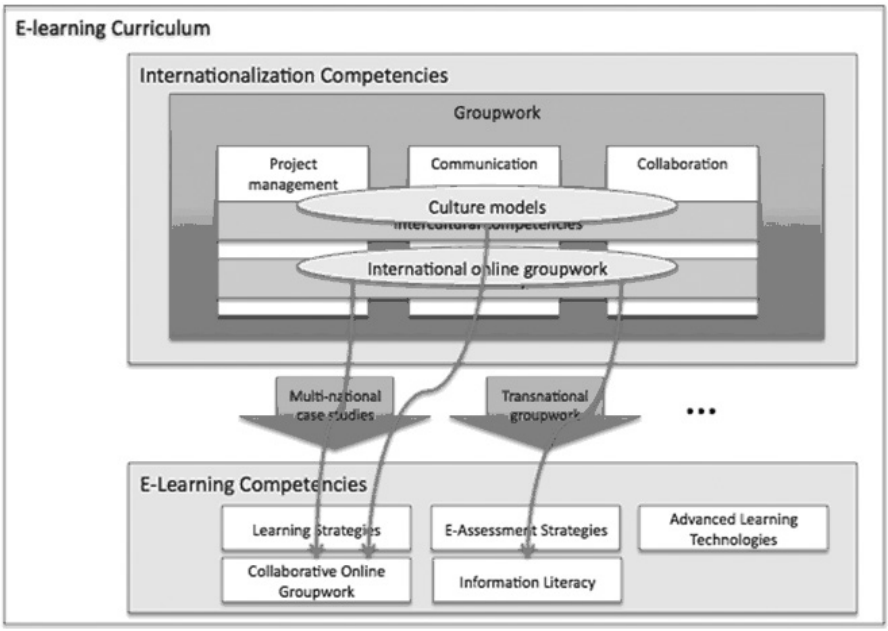

Figure 2: E-Learning Curriculum for Virtual Mobility (Pawlowski et al., 2010)

As domain specific topics the following issues were identified:

- Learning Strategies.
- E-Assessment Strategies.
- Advanced Learning Technologies.
- Collaborative Online Groupwork.
- Information Literacy.
- Culture models (Pawlowski et al., 2010).

Conclusions

We have based this chapter on the theoretical foundations presenting a short view on one generic virtual mobility scenario with a more detailed view on a possible solution for a curriculum used in a similar setting. Further adjustments according to the domain have to be accomplished in the future and additional content, such as language courses, should be included. Also the influence of intercultural differences upon the different topics has to be analyzed in more detail.

The pre-course phases and especially post-course phases have to be further analyzed in the future as the recognition of virtual mobility still presents the biggest challenge. Therefore, this chapter should be seen rather as a starting point for further research and discussion than a final solution.

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Chapter 5. Virtual Mobility Tools

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There is not much information and documentation about the most suitable tools for work in the environment of virtual mobility, so it is important to create a framework of reference which helps us in our professional work in a virtual environment.

Currently, tools that can be used for virtual mobility are increasingly becoming larger in number and more diverse in their application. The success of a virtual course is not so much dependent on the tool as such but more on the use of a tool which is carefully considered beforehand. It is important to note that the choice of tools and their use depend on the aims, the situation, the participants, etc. The tools must be as transparent as possible and the way in which a tool fits an activity is crucial. The aim of this chapter is to analyze and discuss various information and communication tools (ICT) that could be used and applied for learning in a virtual mobility case.

Keywords: virtual environment, collaborative tools, communication, learning, cultural skill

1. ICT for virtual mobility

Virtual mobility tools as interactive communication tools in general are often categorized into two categories (here from eds. Op de Beeck et al (2008)):

- Synchronous tools (facilitating communication between users at the same time), e.g. chat, videoconferencing, webconferencing....)
- Asynchronous tools (facilitating communication between user independent of time), e.g. e-mail, discussion forum, e-portfolio....)

This categorization is not considered to be exhaustive but contains the main tools used in this context. According to eds. Op de Beeck et al (2008), we classify the tools in the following categories:

- Reflective tools: portfolio, weblog.
- Collaborative tools: wiki, blog, discussion forum.
- Communication tools: chat, e-mail, videoconferencing, webconference.
- Social networking tools: social networking based on personal web pages, media sharing, social bookmarking.
- Learning platform.

This classification is not closed, the use of each of the tools depends on the professor's intention to make use of them, and this classification is for guidance.

The characteristics of these categories will be explained in a more comprehensive way in the following paragraphs.

1.1. Reflective tools

1.1.1. E-portfolio

"A portfolio is a collection of electronic evidence assembled and managed by a user, usually on the Web. Such electronic evidence may include inputted text, electronic files, images, multimedia, blog entries, and hyperlinks. E-portfolios are mainly used as a platform to demonstrate the user's abilities, qualities, evidence of achievement, and development. If online, an e-portfolio can be maintained dynamically over time" (Eds. Op de Beeck et al, 2008).

An e-Portfolio is "a collection of authentic and diverse evidence, drawn from a larger archive representing what a person or organization has learned over time on which the person or organization has reflected, and designed for presentation to one or more audiences for a particular rhetorical purpose" as defined by the National Learning Infrastructure Initiative (2003).

In a virtual mobility course we should not see the portfolio as a store of knowledge of the student but as a place where students can talk about their experiences. According to G. Rebbeck, "the e-portfolio is the central and common point for the student learning experience .... It is a reflection of the student as a person undergoing continuous personal development, not just a store of evidence" (here from JISC, 2008).

We could use a portfolio as a resource where students could show a series of files, links, etc. related to the culture of their country. In this way all students and even teacher could have access to them and know their lifestyle better.

1.1.2. Weblog/blog

"Blog is a user-generated website where entries are made in journal style and displayed in a reverse chronological order. Blogs provide commentary or news on a particular subject. Some function as more personal online diaries. Personal blogs could show a learning process or could just be a representation of the activities or thoughts of a person" (Eds. Op de Beeck et al, 2008).

Blogs are tools that provide us a great variety of users. For example, as teachers we can introduce our own space where you can include contents, activities, links, small exercises, etc. Anyway, a more widespread use of it is "blog classrooms," operating as an area of collaboration between teacher-student to discuss, exchange ideas, etc.

In a virtual mobility course we can use the blog as a place where students can tell and explain their experiences about the course and about their life and their country culture. It is a place for students' self-expression, teachers and students are working in a common place, without a formal hierarchy as the one in the classrooms. With this tool the students can express their personal experiences about the course or about any other issue.

Though this exchange of experiences the students, and teachers as well, can acquire a deeper knowledge about the culture of the countries involved in virtual mobility.

1.2. Collaborative tools

1.2.1. Wikis

Wikis is one of many Web 2.0 components that can be used to enhance the learning process. A wiki is a web communication and collaboration tool that can be used to engage students in learning with others within a collaborative environment. Thus, a wiki is a website that can be viewed and modified by anybody with a web browser and access to the Internet. This means that any visitor to the wiki can change its content. While the potential for mischief exists, wikis can be surprisingly robust, open-ended, collaborative group sites. Wikis allows asynchronous communication and group collaboration across the Internet.

In short, Wikis offers us one of the most important opportunities for collaborative and participatory learning, where knowledge is built by all participants (teachers and students).

From the cultural learning point of view the wiki offers a possibility of creating projects between all participants that could help to understand the cultural and education differences that can appear among the participants in these kind of experiences.

1.2.2. Discussion forum

Discussion forum: This is a technique where a group, led by the trainer, informally discusses a topic or problem. One person posts a question or an opinion; others read it and send replies. Then others add comments on the replies. The sequence of replies can go on indefinitely.

The forum is one of the main tools for asynchronous communication between teachers and students in the virtual environment. It is one of the most useful tools for revitalization of the course because it allows us to take part in it to communicate and exchange information; in addition, it is also useful to encourage collaborative learning and to achieve a common working group result.

Teachers can use this resource to help students to participate in distance discussions or debates. Discussion rooms are totally virtual environments. Participation can take place from any location equipped with a computer and modem (computer labs, computers at the workplace, home computers...).

Cultural interchange is an additional target for this tool. The teacher can use discussions to interact with the students and invite them to solve problems in the way the students do it in their own country. The other students can compare the different cultural ways of solving a problem or comment upon a question.

1.3. Communication tools

1.3.1. Chat

Chat is a type of on-line dialogue which allows students to maintain fluent conversations among themselves and with others; this makes the group work easier. In a virtual mobility course students have trouble with meeting each other online or face to face in order to address issues related to the work or activities and to sort them out. The use of this tool can remove this barrier and allows the process of communication between the members of a group, making it more fluent. It is also a great tool for collaborative work.

As teachers we can use chat for personal tutoring.

Again in this case cultural comments can be of an interest. Chat is a free expression tool for the participants and every problem or opinion treated in it could have a cultural baggage.

1.3.2. E-mail

E-mail: E-mail allows users to exchange messages, send and receive files (graphics, text, animation, etc.). Typically, its structure consists of one space for the topic of the message and another for the message itself.

It is a great tool of communication between teachers and students. Teachers can use e-mail to communicate with their students and students can also use e-mail to communicate with each other and send files or comments to the teacher.

1.3.3. Videoconferencing

Videoconferencing: It allows the simultaneous transmission of digital video in real time between various, distinct geographical locations. The Internet, with its different applications and functions, is currently being used as a technological support environment. Therefore, meetings and dynamic interaction between groups placed in different locations can take place.

On the one hand, the use of videoconference allows teachers to organize virtual classes where students can participate if they wish. Also it is a great tool to organize tutorial support sessions.

On the other hand, the students can carry out videoconferences among them to work on projects together or to know each other better. This defines the videoconference as a useful tool to foster intercultural learning.

There are some tools such as Wimba Classrooom, Adobe Connect, Elluminate suitable for a course in a virtual mobility environment.

1.3.4. Webconference

"A meeting of participants from disparate geographic locations held in a virtual environment on the World Wide Web, with communication taking place via text, audio, video, or a combination of those methods" (Technology glossary, 2006)

"The difference between a videoconference and a webconference lies in the size and the technology used. Videoconferencing is most suited for meetings between larger groups and requires a high level of technological investment; whereas webconferencing is mostly used for smaller meetings and can take place using low threshold technology" (Eds. Op de Beeck, I. Et al, 2008).

1.4. Social Networking tools

Social networking websites are important, not only to keep in touch with other people but also for educational purposes in many ways.

There are many educational benefits of the use of social networking sites for both teachers and students. Social networking sites such as Facebook, Multiply, Myspace, etc. are used by every kind of people across the world to connect with others and for educational purpose like online sharing of education-related topics - learning outside school; it allows to know the culture of the people involved in the course. As we cannot enjoy the advantage of physical mobility (visit another the country and learn its culture), social networks can replace this lack.

1.4.1. Social bookmarking

Social bookmarking is a method for Internet users to share, organize, search, and manage bookmarks (links) of web resources. Unlike file sharing, the resources themselves are not shared, merely bookmarks that reference them. (Wikipedia)[6]

A social bookmarking site or social network is a good place to spread personal favourite bookmarks and find ones recommended by other partners. In this way the students can have a deeper knowledge on the hobbies and interests of their colleagues. But there is a limitation; this tool effectively gives us knowledge about the preferences of a person but it does not bring us a closer knowledge to the culture of that country.

But a great initiative would be the one in where the teacher uses social bookmarking as an activity to create links (weekly …) to spread news or events in the country. In this way the students and other colleagues can be informed about the most important events that occur in this country. Another activity could be that each student or each teacher link press news from his/her country and all participants increase their cultural knowledge of the country.

1.4.2. Media sharing

Media sharing occurs through online social networks and digital communities with a comprehensive platform and diversified interfaces to aggregate, upload, compress, host and distribute images, text, applications, videos, audio, games and new media. It is the interactive process of sending via email, instant message, text message, posting or linking to media on a website or blog and other methods of sharing media to a targeted audience.

Media sharing sustains social networks, web based communities and other digitally supported relationships. It is a communication process that requires the participation of both the sender and receiver (Wikipedia) [7].

1.5. Learning platforms

A virtual learning environment or platform is a software system that enables online interaction between the learner and the tutor. It combines methods of online communication with the ability to deliver learning materials (Eds. Op de Beeck, I., et al, 2008).

Basically, there are three main types of tools included in a learning platform:

- **Content**: this includes tools that enable the delivery of electronic learning content in any format, such as pdf, word, ppt, etc.
- **Communications**: tools that support any type of communications online, such as chat, discussion boards and e-mail.
- **Management**: this includes any tool or systems that support the management of the teaching and learning process, such as formative or summative assessment or tracking of progress. [7]

These are some of the learning platforms most used in the virtual learning environments described below.

1.5.1. Moodle

"Moodle (Modular Object-Oriented Dynamic Learning Environment) is basically an Open Source e-learning platform. It is also called a course management system (CMS) or a Learning Management system. Moodle presents an excellent platform for resources and communication tools. It was created by Martin Dougiamas, a computer scientist and educator who deeply believes that a CMS should be created by an educator and not by an engineer" (Camilleri 2009).

The main features of Moodle as described by Camilleri (2009):

- Includes tools for creating resources and activities.
- Includes resources tab that offers the tutor a choice of creating labels which are simply headings for each topic or week.

- Includes the following resources: assignments, chat, choice (one question with a choice of answers – answers are logged in so statistics can be deducted), database, forum, *glossary* (a type of dictionary created by the tutor with the terms used and their meanings). *Lessons* offer the flexibility of a web page, the interactivity of a quiz and branching capabilities. *Quiz* enables the creation of various types of quizzes; a *survey* is a questionnaire which gathers feedback from students, *wiki* is a web page edited collaboratively. *SCORM* is a tool for enabling SCORM packages into the content that is packaged content which can be used on any Virtual Learning Environment.

1.5.2. WebCT Blackboard

"WebCT (Web Course Tools or Tools for Web Courses) is an online commercial system for virtual learning, which is mainly used by educational institutions whose main purpose is the education through internet. The flexibility of the tools to design lessons makes this environment quite attractive not only for beginners but for experimented users in the creation of on-line courses. The instructors can also add a huge variety of interactive tools to their own WebCT courses such as: discussion boards or forums, e-mails systems, live conversations (chats), contents in web pages format and PDFs, among other applications" (9).

Conclusions

To sum up, the current overview of virtual mobility discusses plenty of tools that can be used in the virtual learning environment. These tools are not only useful in covering part of e-learning in a course of virtual learning but also serve to provide the cultural knowledge that is obtained from the real physical mobility.

Thus, we can say that there are tools commonly used in online courses, such as chat, wikis, blogs, forums, portfolio, videoconference, etc, that we could define them as tools for e-learning, but to obtain a true virtual mobility we need tools that allow us to get closer to the country's culture participating in a virtual mobility course. Also, we have realized that there are tools such as social networking, social bookmarking, media sharing, etc, which can help us to achieve this type of social or cultural knowledge.

Finally, it is important to emphasise that all the tools described here can be used for cultural exchange purposes, but the use that each teacher gives to each tool will determine the success or failure of the learning process.

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Part 2. Empirical Research Design and Analysis

TeaCamp (Teacher Virtual Campus: Research, Practice, Apply) project partners prepared and organized virtual mobility course (during preparation and later called module) "Virtual Learning in Higher Education" for students in education. The module was delivered – virtual mobility sessions were organized, research aiming at a study of impact of virtual mobility as a communicative and collaborative learning activity of students and mutual tuning of educational components between teachers and HE institutions in order to enrich or complement physical mobility and to promote Bologna process in EHEA was performed. All this experience, called virtual mobility case, is thoroughly described in this part of the study. Chapter 1 focuses on the description of the case study methodology, design and organization. Chapter 2 analyzes the implemented research results.

Chapter 1. Empirical Research Design. Research Methodology

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Virtual mobility experience in TeaCamp (Teacher Virtual Campus: Research, Practice, Apply) was the basis for the research. This chapter describes the research idea and stages that were implemented. It also focuses on the methodological framework of the study and discuses the organizational issues.

1. Case study methodological framework

Case studies emphasize detailed contextual analysis of a limited number of events or conditions and their relationships. Researchers have used the case study research method for many years across a variety of disciplines. Social scientists, in particular, have made wide use of this qualitative research method to examine contemporary real-life situations and provide the basis for the application of ideas and extension of methods. Researchers (Noor, 2008; Smith, 2010) define the case study research method as an empirical inquiry that investigates a contemporary phenomenon within its real-life context; when the boundaries between phenomenon and context are not clearly evident; and in which multiple sources of evidence are used. Critics of the case study method believe that the study of a small number of cases can offer no grounds for establishing reliability or generality of findings. Others feel that the intense exposure to the study of the case biases the findings. Some dismiss case study research as useful only as an exploratory tool. Yet researchers continue to use the case study research method with success in carefully planned and crafted studies of real-life situations, issues, and problems.

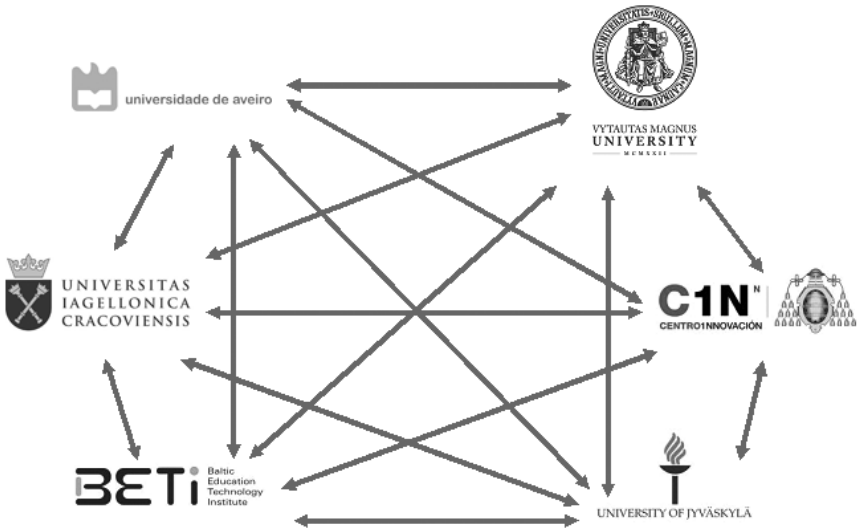

Figure 1. Virtual mobility case

The virtual mobility case (Fig. 1) represented and analysed in this book had been prepared by interuniversity team and had been implemented as a study module "Virtual Learning in Higher Education". The preparation team consisted of 13 teachers, who were delivering the module and there were 29 virtual mobility session participants from the following higher education institutions - University of Aveiro (Portugal), Jyväskylä University (Finland); UNIOVI- University of Oviedo (Spain), Jagiellonian University (Poland), BETI (represented by students from Kaunas University of Technology, Lithuania), and Vytautas Magnus University (Lithuania) - attending the module.

The following research methods were used in the research:

- Scientific literature and document analysis was used in order to support the module "Virtual Learning in Higher Education" as a case study. The module's learning outcomes and learning content were indicated. Tools and assessment methods were defined, as well as their theoretical and empirical exploration analyzed.
- Online data collection surveys were used to define the preparation of lecturers, as well as competencies necessary for virtual mobility organization. The online survey data was analyzed in order to define the participating students' attitude to the case of virtual mobility, peculiarities of module organization, the competencies acquired, and the recognition possibilities of the achieved learning outcomes at the participating universities.
- Data analysis - descriptive interferential.

2. Research organization

The research was implemented during September, 2009 and February, 2011. It was implemented in five stages. The search, selection and analysis of educational policy, juridical documents and scientific literature were performed at all stages in order to justify the virtual mobility case. A common empirical research design is represented in Table 1.

Table 1. Empirical research design

Systemic analysis of documents, legal acts and scientific literature	Study module "Virtual Learning in Higher Education (VLHE)" prepared	Research instrument – questionnaire for teachers and students – prepared	– Pre-session diagnostic research implemented before the virtual mobility sessions. – Study module VLHE delivered. – Diagnostic research performed after the study module	Analysis and systemic analysis of the content of the questionnaire data, and preparation of the research report
September 2009 – September 2010	April – September 2010	August – September 2010	September – December 2010	December 2010 – February 2011
1st stage	2nd stage	3rd stage	4th stage	5th stage
Search, selection and analysis of educational policy, juridical documents and scientific literature				

The 1st stage of the research. Systemic analysis of documents, legal acts and scientific literature was performed from September 2009 till September 2010. The aim of the analysis was to create the background for methodological research framework and prepare the research instrument. To achieve the aim, a comprehensive analysis of educational policy documents of the European Union countries' participating in the project, institutional documents of the participating universities and institutions, as well as legal acts and scientific literature was performed.

The 2nd stage of the research. A study module "Virtual Learning in Higher Education" as a case study of virtual mobility was prepared in April – September, 2010. There were indicated study results, the prepared learning content, technological and assessment tools and methods selected.

All 6 partners in the TeaCamp project developed a joint study module consisting of 12 learning outcomes-based 6 study sub-modules (8 academic hours each, using various learning scenarios and resources), including learning outcome assessment strategy.

The module was of 6 ECTS (video lecturing, individual student work, teacher consultations and evaluation of learning outcomes). The aim of the Virtual Learning in Higher Education (VLHE) module was to enable students to plan and experience virtual mobility sessions by practicing video lecture participation, performing group and individual online activities, using and sharing virtual resources in multicultural virtual learning environment. The partners developed learning outcomes which students had to acquire during this course and elaborated sub-modules during which these learning outcomes were to be reached (see Table 1).

The course curriculum content was developed using Moodle virtual learning environment. Each partner prepared 1 sub-module which had to include compulsory readings, a student guide, activities, recommended recourses, sub-module guidelines, a sub-module discussion forum.

Table 2. Virtual Learning in Higher Education module

Partner institution	Sub -module	Learning outcomes. Students will be able to:
Jyväskylä University	Cultural models (week 1)	1. Understand culture models and their application in education.
Innovation Centre of University of Oviedo (UNIOVI)	Collaborative online learning (week 2-3)	2. Know different technological resources for collaborative group work online. 3. Demonstrate the skills needed to facilitate collaborative group work online.
Jagiellonian University	Information Literacy (week 4-5)	4. Analyze online information. 5. Create online material.
BETI	Advanced Learning Technologies (week 6-7)	6. Define the technologies and standards used in distance education. 7. Apply learning management systems based on these standards.

Vytautas Magnus University	Learning Strategies (week 8-9)	8. Compare learning styles and learning strategies. 9. Identify and apply online resources in order to implement learning strategies virtually.
Aveiro University	E- Assessment strategies (week 10-11)	10. Design assessment strategies for virtual learning. 11. Use tools to support scenarios of virtual learning.
Jyväskylä University	Cultural models (week 12)	12. Apply the knowledge of culture models to solve problems caused by cultural difference in Virtual Mobility.

Partners agreed that each partner will have a session for 1 or 2 weeks on the topic. Sessions were organised in a synchronous (video conferences organized each Friday) and asynchronous way (records of the videoconferences were available for students who could not participate in the videoconference).

The 3rd stage of the research. The research instruments – questionnaires for students and teachers (see Annex 1, 2 and 3) were performed in August and September 2010. There were 2 separate questionnaires for students (to be filled in before and after the module) and one for teachers (to be filled in after the module). The structure of the questionnaires for students and teachers that were filled in after the module is very similar. The structure of the questionnaire for teachers consists of the following parts:

- General questions.
- Preparation for the course.
- VM organization/QA.
- VM competence.
- VM recognition.

The structure of the questionnaire for students is the following:

- Personal data.
- Learning outcomes/competence acquired.
- Organizing virtual mobility/ QA.
- Virtual mobility skills.
- Virtual mobility recognition.

The 4th stage of the research consisted of 2 types of activities – delivery of a study module and the research implementation.

The study module "Virtual Learning in Higher Education" was delivered in September – December, 2010. The organization of the virtual mobility case is described below. The students from Vytautas Magnus University, University of Aveiro, Jyväskylä University, Baltic Institute for Educational Technologies, Jagiellonian University, and Oviedo University were registered in virtual learning environment (further VLE) Moodle. All study material, such as descriptions of the module and sub-modules, content, presentation slides, scientific papers, links to web pages, etc, were uploaded in VLE. Students had to participate at 2-hour videoconference lectures staying at their home university each week. During the lectures the professors from various universities (depending on the module) were delivering their sub-module lecture, describing assignments that the student would have to perform during the following week, discussed various unclear issues and gave feedback on the performed assignments. All the lectures were recorded and accessible for students who could not participate in the videoconference as lecture records in VLE. So the students had a possibility to review the lecture records at home.

All module assignments for students were either individual or to be performed in national or international groups. There were five international groups that consisted of approximately one participant from each institution. The international groups were consistent for the entire module in order to create a possibility to communicate and collaborate for participants of various cultural backgrounds.

The assignments from each sub-module were of equal weight – 16.6% of the final module grade. The participants' assessment was performed after finishing each sub-module.

Diagnostic research before virtual mobility sessions was performed in order for:

- each student to assess his/her present competences according to the learning outcomes of the study module;
- each teacher to get the idea how students indicate their present competences of each sub-module;
- assess the present motivation to participate in virtual mobility sessions.

One more diagnostic research was performed after mobility sessions – student and teacher surveys.

The 5th stage of the research was implemented in December, 2010 – February, 2011. The content analysis of questionnaire data and their statistical analysis were performed, research report was produced.

3. Organization of virtual mobility case

Virtual mobility sessions began with the opening video conference during which foreign students introduced themselves, all teachers introduced themselves, the whole idea of virtual mobility and the structure of the study module "Virtual Learning in Higher Education (VLHE)" were presented, organizational issues discussed, the schedule for the assignments provided.

Introductory lecture "Study Organization in Virtual Learning Environment (VLE) Moodle" was also delivered for students, discussing VLE tools and possibilities that were to be used during this module. Virtual sessions were organized according to the learning outcome sequence, presented in Table 1.

Study organization was presented for all teachers working in the module. The virtual mobility session organization scenario, accessible at (it is also available at TeaCamp Moodle):
http://www.teacamp.eu/moodle/file.php/1/VM_session_organization_scenarios.pdf was introduced at the beginning of the module.

All students participating in virtual mobility sessions were introduced with the "Moodle guide for Students", available publicly at TeaCamp Moodle:
http://www.teacamp.eu/moodle/file.php/1/Student_guide_Moodle.pdf

During the week student learning was organized in the virtual learning environment in an asynchronous way. Then every Friday a video conference with the participants and responsible teachers was organized (synchronously, during the same week(s) using video conferencing and Moodle VLE for storing the information). During the video conference for the sub-module delivery and study organization responsible teachers presented the learning material of the following week, students asked questions on the topics they were provided and discussed the problems that occurred during assignment implementation and the studies of the given literature.

4. Tools for virtual mobility case

"Virtual Mobility in Higher Education" module curriculum content was developed using Moodle virtual learning environment (VLE). The module was divided into 7 parts. The first section of the module was left for general matters. In this area, called "General Information about the Module" the following aspects were indicated:

1. If teachers wanted to post any information concerning this module, they could use **"General Module Information Forum"**
2. **General Forum** was meant for teachers and students. They posted any problems concerning this module in here. The teachers commented upon and answered participants' problems. If they needed help from Moodle administrators – they wrote to them via e-mail (see Figure 2).
3. **Module Descriptions**. In this area the general information about Module was delivered. Here the students could find the following information: the title of the subject, institutions involved in this virtual mobility (project partners), teachers who will participate in this course, division of this module into sub-modules, subject goals were indicated, learning outcomes, language of this course, pre- requisites for this course and module duration (months, hours, credits).

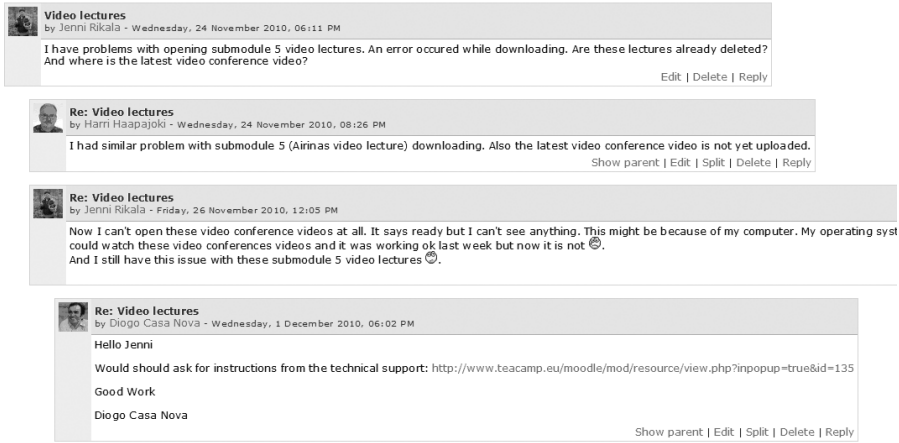

Figure 2. General Forum

4. **Technical help**. Technical help during the delivery of this module was divided into 2 parts. If students had problems with VLE Moodle they could write to one responsible person; if there were some problems with video conferences – they could write to another person.
5. **Pedagogical help**. In this part the contacts of all teachers that delivered this module were written down. Since this module was divided into 7 sub-modules, the dates and teachers of every sub-module were identified.
6. **Video conferences/ meetings**. Every video conference organized was recorded and the link provided in VLE Moodle environment.

Time planning was made in the calendar. Moodle has quite a functional tool for planning events, assignments and meetings (see Figure 3).

Since teachers posted their assignments using an assignment tool, the system added all the assignments to calendar automatically. It was very convenient for the students, because all main dates and assignments were in one place.

So the students could save and track their study results; a portfolio tool was installed in VLE Moodle (see Figure 4).

Figure 3. Calendar tool in Moodle VLE

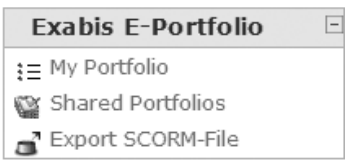

Figure 4. E-portfolio tool

This tool has 3 features: 1) My Portfolio, 2) Shared Portfolios and 3) Export SCORM-File. Below is a deeper presentation of all 3 features.

1) My portfolio provided students with the following possibilities:

- Information - provides external E-Portfolio-Link which can be given to the teacher.
- Categories - here you can create and modify categories. For example, Assignments.
- My Portfolio – gives a possibility to add Links, Files or Notes.

Export/Import – has 3 more possibilities:

- Export SCORM-File.
- Export EPX-File.
- Import (File).
- Import from Moodle-assignments.

2) Shared Portfolios – is a place for other participants' portfolios (see Figure 5).

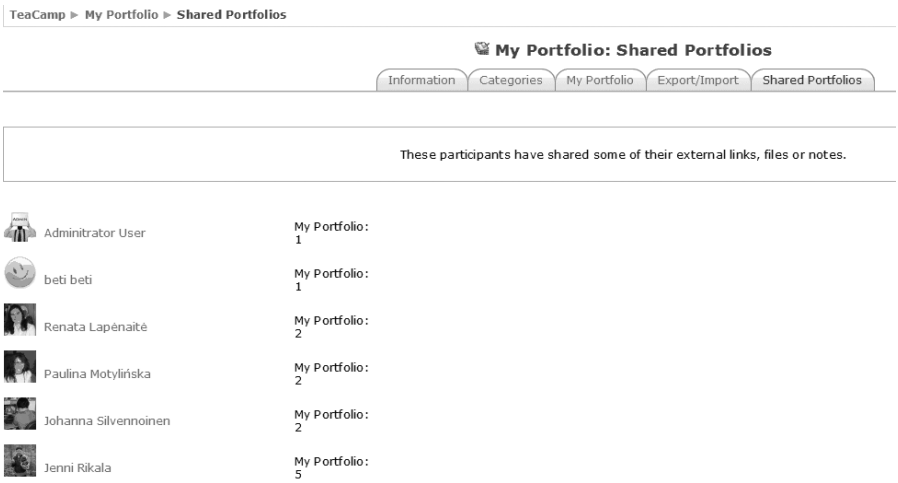

Figure 5. Shared portfolio

There were a lot of technical possibilities for students to collaborate online, store their study results and communicate with other international students.

The curriculum was realized at TeaCamp Moodle virtual learning environment using networking service for education institutions (see Fig. 6):

Figure 6. Moodle networking tool

With this technological solution the idea was to create a Virtual campus across the project partner countries (because once partner institutional Moodle is connected to TeaCamp Moodle via Networking service, all students from partner institutions are able to connect to virtual campus courses).

Therefore, TeaCamp Moodle networking service was established at all partner institutions – all users using Moodle virtual learning environment at partner institutions had a reference to TeaCamp Moodle and were able to access it and move to TeaCamp Moodle server with their institutional Moodle logins. However, login to TeaCamp Curriculum content was restricted to registered users only due to the project scope and teacher agreement to include 30 learners in testing virtual mobility sessions. The restriction was made by locking Moodle course with enrolment key, which was to be provided by TeaCamp teachers.

For those institutions who decided not to use Moodle networking tool – usernames and passwords were created and sent to institution IT administrators.

5. Virtual mobility in VLE Moodle from student perspective

During this virtual course a lot of tools where used. In order to make it easier for students to find all tools they were integrated into the project website (see Fig. 7).

The students had a possibility to use Virtual learning environment, a web

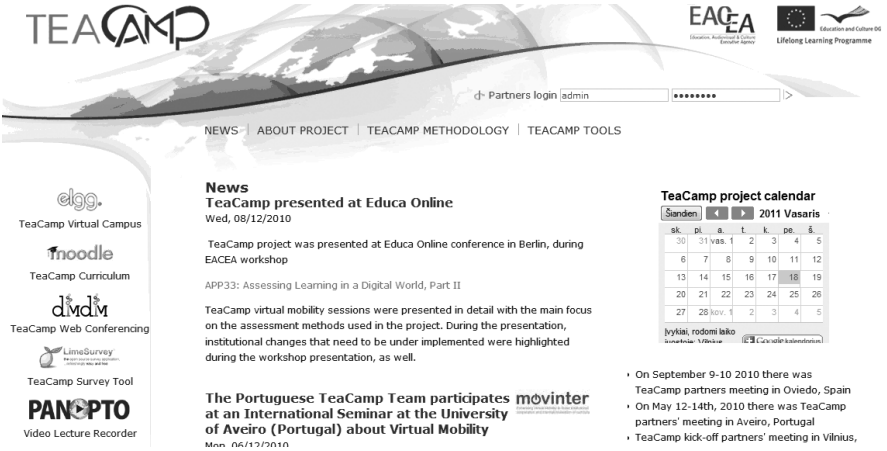

Figure 7. TeaCamp virtual mobility tools

conferencing tool, survey tool and recording tool.

During this module, for better intercultural cooperation the students were divided into 5 groups. These groups consisted of students from different countries and institutions. This helped them to learn from each other, get acquainted with cultural differences and overcome communication barriers. Also the assignments to

students were provided for each group. In this way they had to work in a group and come up with solution. But after each assignment students were graded and their grade appeared in grade report in Moodle VLE (see Fig. 8). In the end the grade was cumulated into the final grade.

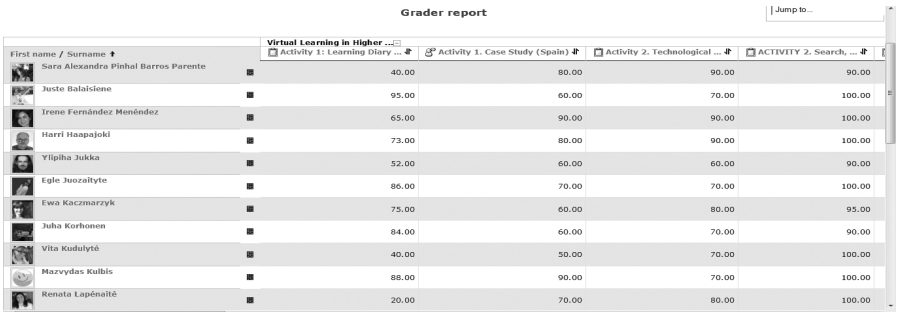

Figure 8. Student grade report

At the end of this module they had to present their group work results during last video conference, which was also (as all the other video conferences) uploaded on the Moodle (see Fig. 9).

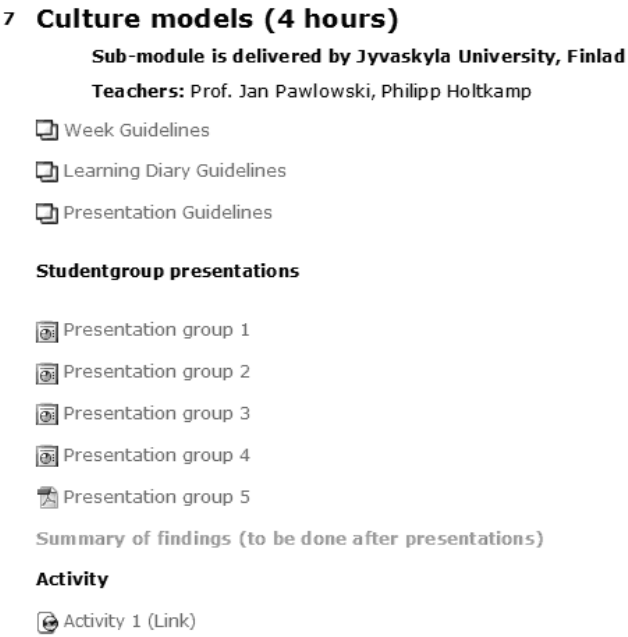

Figure 9. Student presentations at the end of the module

After the module was finished, students received their certificates which were signed by all module teachers.

6. Administration of virtual mobility

Administration and preparation for virtual mobility was realized using TeaCamp virtual campus of teachers, which was created using a social networking tool ELGG (see Fig. 10). This tool was configured according to project main results structure. For every result separate groups were created. Every group had a possibility to add discussions, files, bookmarks, blogs, pages.

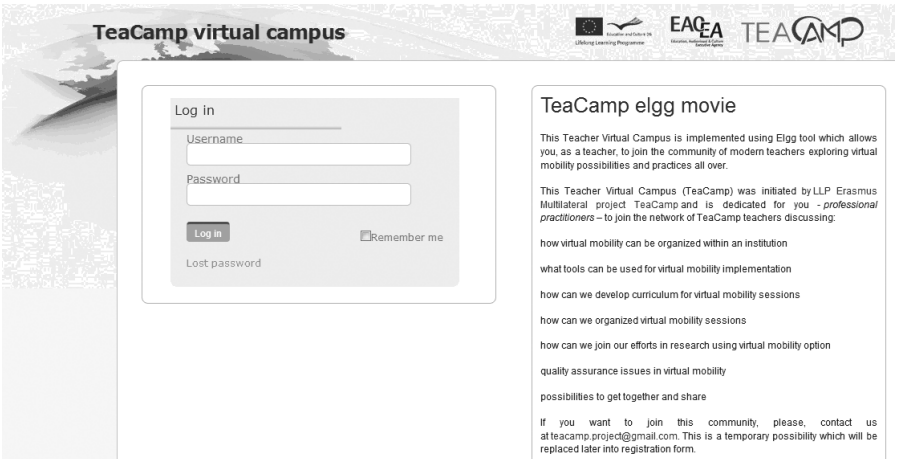

Figure 10. Virtual campus (ELGG) login window

When the group was created, its description and objectives could be indicated. In one group several discussions were created on different topics. Every teacher could create a group in this environment and upload necessary files. So, this was also a good repository for files, on which teachers could comment, suggest corrections, etc. (Figure 11).

This tool was widely used for collaboration on organisation of the virtual mobility. Teachers developed a virtual mobility concept and curriculum content using this tool, discussed on the changes that could be made, shared their online resources using a bookmark possibility, etc.

ELGG proved itself to be a very useful tool for organisation and administration of virtual mobility.

7. Virtual session statistics

Google analytics proved 431 visits and 595 page views of the Curriculum content at http://www.teacamp./moodle (see Fig. 12).

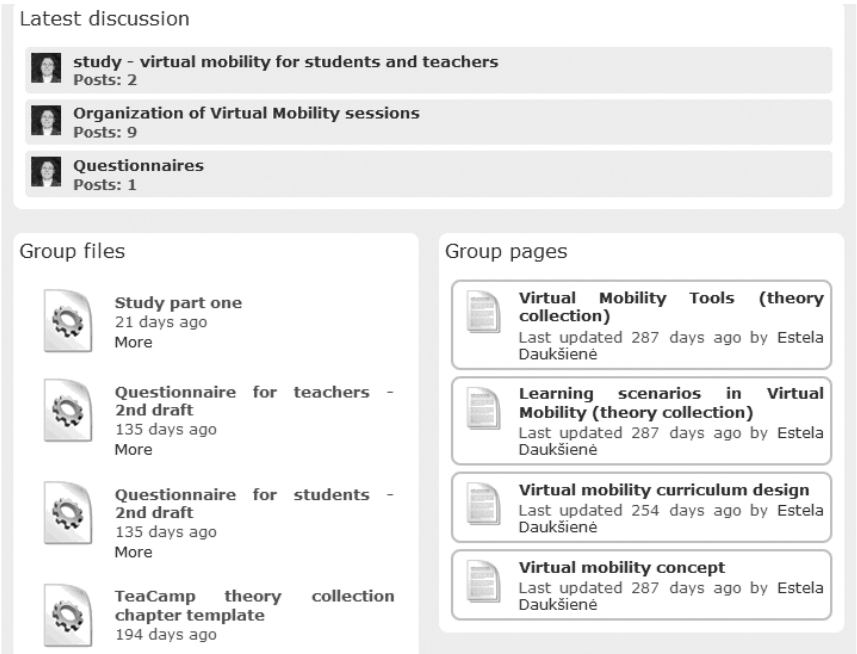

Figure 11. Discussion groups in virtual campus

Google analytics was also added to TeaCamp Moodle to be able to monitor the users connected to this virtual learning environment. As it is seen in Figure 12, 9th September was quite a good day for Moodle, because 42 people visited TeaCamp.

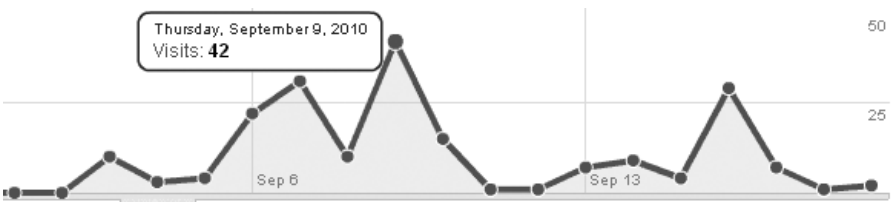

Figure 12. The highest number of user visits per day at TeaCamp Moodle

Analysing the geography of visitors it is obvious that the main percentage of the visitors are from Lithuania (42.14%), Spain (42.14%), Finland (8.18%), Portugal (6.29%). TeaCamp Moodle also was visited by people from Germany, Sweden (see Fig. 13).

Analysing the access to TeaCamp Moodle, it is obvious that 34.85% of all visits were made directly to this virtual learning environment; 33.84% were accessed through other sites and 31.31 % - through search engines. This means that not only

	Detail Level: Country/Territory	Visits	Visits
1.	Lithuania	67	42.14%
2.	Spain	56	35.22%
3.	Finland	13	8.18%
4.	Portugal	10	6.29%
5.	Poland	6	3.77%
6.	Latvia	4	2.52%
7.	Sweden	2	1.26%
8.	Germany	1	0.63%

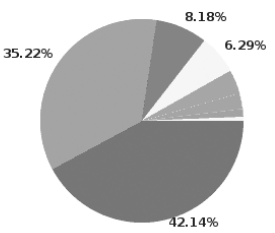

Figure 13. The highest number of visits from different countries

the registered users accessed this site, but also other people interested in Virtual mobility possibilities (see Fig. 14).

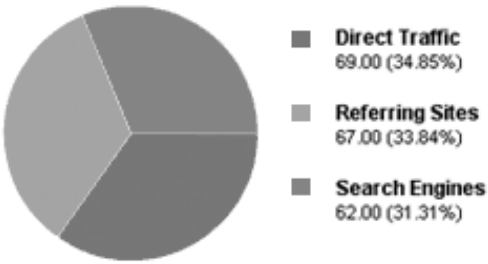

Figure 14. Traffic source overview

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2. Smith N. V. (2010). The Acquisition of Phonology. Cambridge, UK: Cambridge University Press

Chapter 2. Empirical Research Analysis

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Vytautas Magnus University (Lithuania)

This chapter of the study analyses online collected data of diagnostic surveys. There were 3 types of questionnaires presented for the module "Virtual Learning in Higher Education" (VLHE) participants. The first online questionnaire was presented for the module learning participants (further on referred to *as module students or the students*) at the beginning of the module and is referred to as a pre-session diagnostic survey. The goal of the survey was to identify the achievements of students' learning outcomes that were targeted to be improved at the module. The second questionnaire was prepared for the students to be filled in at the end of the module. The third questionnaire was prepared for the teachers to be filled in at the end of the module. All three questionnaires were prepared using online research tools. The data summary and analysis are presented in this chapter for better representation of virtual mobility phenomenon which is the case in the study.

1. Pre-session diagnostic survey

The aim of the survey was to define the knowledge and understanding of VLHE module participants based on the learning outcomes, indicated in the module, and to identify their motivation to participate in the module reasons. The questionnaire was prepared for the students via Moodle Quiz preparation tool. The data were analysed using Ms Excel programme. A paper version of the research questionnaire is available in Annex 1.

There were 29 participants (module students) attending the VLHE module and all of them participated in the survey. First, the students were asked to define their level of learning outcomes which were the target of improvement in the module. The detailed answers are presented in Figure 1, which indicates 29 module students' self-assessment of the module learning outcomes before attending the module.

The data analysis of the pre-session survey shows that before starting attending the module the students felt most comfortable at 'information analysis and evaluation', as it was self-assessed to be minimal just for one student and all the other indicated having satisfactory/adequate or strong/well developed level of outcomes. 'Knowing different technological resources for collaborative online learning' was also self-assessed by students to be at least at minimal level. Students felt themselves to be most professional in 'understanding the skills needed to facilitate and manage collaborative online learning' (11 students indicated it as a well developed outcome) and 'comparing learning styles and learning strategies' (9 students stated that they felt this learning outcome was well developed).

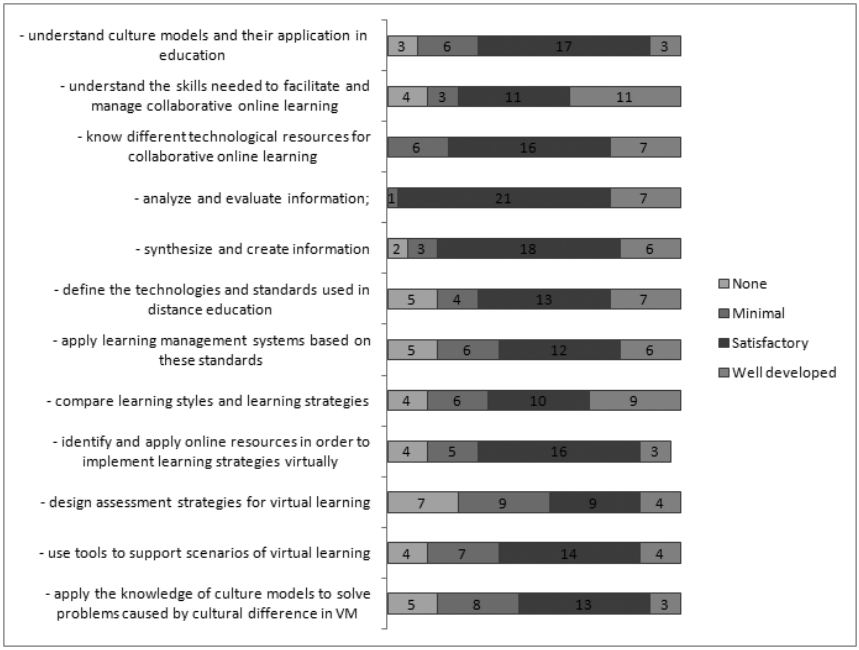

Figure 1. The students' achievements, based on the learning outcomes, before the module (in numbers of students, indicated achievement)

Motivation plays an important part in making up students' mind to participate in the exchange programme, as well as in students learning. In order to find out students' motivation to participate in the virtual module at the TeaCamp project, students were asked to fill in a pre-session questionnaire, asking to indicate 3 reasons for attending the VLHE module. 28 students out of 29 attending the course specified their answers indicating sometimes more than just 3 reasons for joining the course. Their answers were analysed and categorized and are presented in Table 1.

Table 1. TeaCamp project students' motivation to attend "Virtual Learning in Higher Education" module

Motivation factor	Number of students
Interest in the topics (sub-modules) suggested by the module	18
Interest in virtual learning	17
Get more knowledge on virtual learning and its potentials	19
Improve virtual learning competencies/skills	4

Meet, work, learn with new people from different countries / learn more about different cultures	13
Module is related to my studies or interests of research	11
Importance/ benefits for the future career	9
VL is important for teaching/teachers	5
Useful experience for the studies and work	4
Compare different perspectives of learning; to learn from experience or experience virtual learning	8
Improve English	5
Interesting because it's new, attracting, challenging	5
Usage of new learning methods	5
Other	7

The content analysis of the students' answers revealed that most of the students were eager to start attending the course; however, their answers were rather academically-oriented (the most driving factor to participate in the virtual mobility sessions was 'interest in the course topics'). The analysis shows the students' expectations to experience virtual learning, to learn from experience and to apply what has been learnt in their studies or at their future workplace.

One more point to be noted from the analysis of the student answers is that the students expect to experience the same features that physical exchange students seek for while entering the exchange programme: meet new people, get to know more about their culture, work with people from different countries, improve their foreign language competence, compare their learning and attitudes towards the same issues. Most of the students saw that the experience gained could be useful in their future – for the professional career or studies and research. Among other motivation points indicated in the survey were usage of new learning methods and possibilities to compare them, opportunity to work with 5 institutions in 3 months, learning about foreign educational experiences or distance learning in other countries.

To sum up, it could be noted that the survey findings show that the students were most interested in participating in a virtual course because of academic reasons – interest in topics suggested and virtual learning itself; however, the same motivation drivers as those of physical exchange students also had a rather important role.

2. Diagnostic research implemented after VLHE module

The aim of the diagnostic research implemented after the module was **to study the impact of virtual mobility as a communicative and collaborative learning activity of students and mutual tuning of educational components between teachers and HE institutions in order to enrich or complement physical mobility and to promote Bologna process in EHEA**. There were 2 similar questionnaires prepared – one focusing on the experience, representation, ideas and attitudes of the students, the other – on the teachers' impressions on preparing, delivering, organizing virtual mobility studies, their ideas and attitudes towards virtual mobility activities, practice and recognition procedures at their higher education institutions.

2.1. The students' survey

The students' survey was implemented at the end of the 'Virtual Learning in Higher Education' module, asking module learning participants to fill in the questionnaire (Annex 2). The survey was implemented online using a Google Forms tool. Data analysis was implemented in Ms Excel. The survey results and their analysis are presented and discussed here in order to create a better representation of a selected virtual mobility case.

As mentioned in Chapter 1 of this part of the study, the survey consisted of 6 parts. The data analysis is presented in the same structural sequence. There were 29 students that started the module. The survey was implemented at the end of the module, and there were 23 respondents. 6 students failed to finish the module successfully, but as the survey was anonymous, only the country and higher education institution (HEI) the students are from are shown. It can also be stated that the ones who finished the module successfully and the ones who failed the module filled in the questionnaire, as well as some of those who finished it successfully did not respond.

Survey respondents' data. The survey respondents represented 5 countries and 6 HEIs – the same as the module participants. The students' affiliation to the higher education institution and country are presented in Figure 2. The same as module participants, most of the respondents were females – 18 (together with 6 males) and all of them (N=23) were students at their home county: 15 - bachelor, 6 - master, and 2 - doctoral programme students.

Analysing the respondents' age, it is evident that the biggest group of students was comprised of bachelor students, represented by different age groups. 15 out of 23 respondents were between 18 and 24 years of age, 5 respondents were between 25 and 35, and 3 – over 35 years old.

To get a better impression on the students' experience related with physical or virtual mobility, the students were asked to indicate if they had participated in virtual mobility activities (such as a virtual course, virtual placement or other) or physical mobility programme before (see Fig.3). There were only 4 students – 2 from

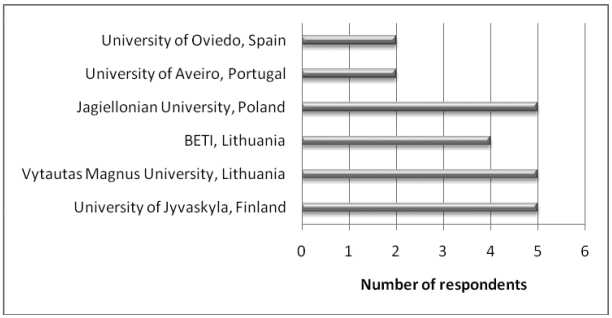

Figure 2. Countries and higher education institutions represented in the survey

Finland and 2 from Lithuania – that had participated in physical exchange program before, but 14 (N=23) respondents declared their experience in participating at virtual mobility activities (such as a virtual learning course, a virtual placement or other) before the VLHE module. As it was not expected for students to have experience in virtual mobility activities, the students were not asked to specify what kind of virtual mobility experience they had. However, one more aspect of virtual mobility concept could be noted here – it depends on how virtual mobility concept is understood.

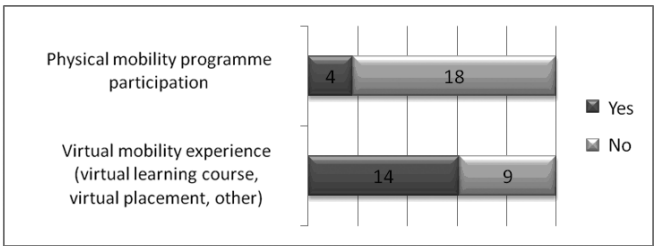

Figure 3. Respondents' experience on physical or virtual mobility (in numbers, N=23)

Learning outcomes achieved. The second section of the questionnaire corresponded to the module learning outcomes and the competencies acquired by the students. Here most of the respondents (n=19) indicated that the module learning outcomes were clearly stated, just 4 of them were not sure about the answer.

Analysing the achievement of learning outcomes self-assessed by module students after the module, it is evident that only one student indicated that he/she had not achieve at least minimal level of one learning outcome. All the other learning outcomes had been achieved by all participants at least at minimal level. The achievements of learning outcomes after the module are detailed at Figure 4.

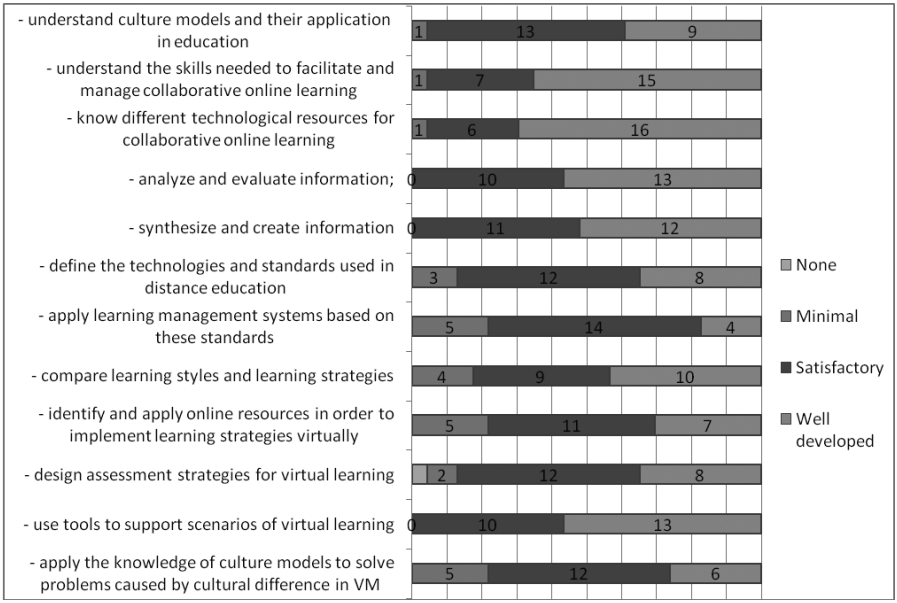

Figure 4. The students' achievements, based on learning outcomes, at the end of the module (in numbers)

While comparing module students' achievements based on the learning outcomes, before the module and at the end of the module, significant improvements may be seen (see Fig.5).

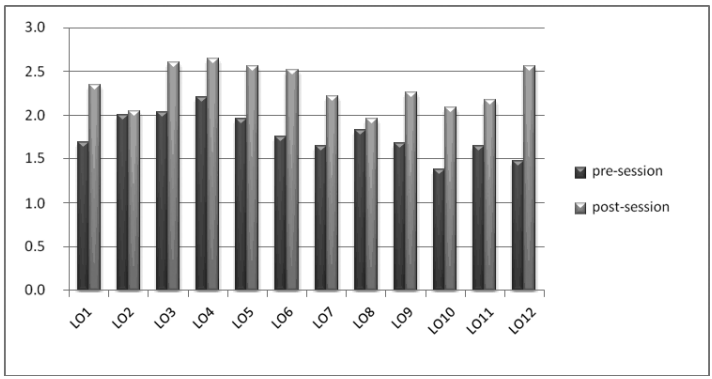

Figure 5. Comparison of learning outcomes' achievements means (range of 0-3) of pre- and post- virtual mobility sessions

Virtual mobility organization. The third section of the survey was oriented to virtual mobility organization and its quality assurance aspects. As it was mentioned in module description part, the students had to perform some (5/12) of the activities working individually, other assignments (7/12) were organized working in groups (national - 1 assignment, or international – 6 assignments). The survey respondents were asked to evaluate the **successfulness of cooperation of their international groups**. Most of the respondents (n=18, N=23) evaluated their international group cooperation as good, some of them (n=3) – as very good (See Fig.6).

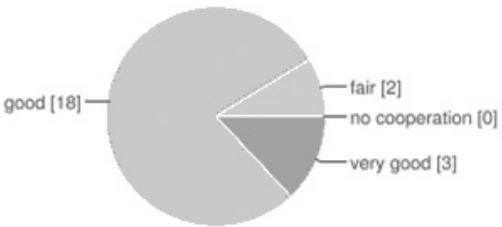

Figure 6. Successfulness of cooperation between members of international group, indicated by the students (in numbers)

As the international group cooperation was assessed to be rather successful by the students, most of the module teachers (n=10, N=13) also indicated the existence of the cooperation of international student groups during the module.

While assessing the success of international group **cooperation influencing factors** 15 (N=23) module students indicated a strong group leader and active group members; however, only 10 respondents indicated that 'group work was organized on the basis of equal contribution', and 8 respondents admitted that s/he 'was working alone and other group members were not active'. More of the respondents agreed (n=14) than disagreed (n=9) that 'it was too little time for a successful cooperation'; however, 'lack of virtual learning skills' (n=20), 'intercultural communication difficulties' (n=18) or 'insufficient English language skills' (n=14) were not approved to be interfering or complicating factors of successful international group cooperation (See Fig.7).

It was indicated by the survey respondents (22 answered 'Yes', 1 - was not sure) that there were enough tools for communication and collaboration while preparing the assignments; however, 2 respondents admitted that it was not enough tools for communication and collaboration for the presentation of assignment results (the other 21 did not lack any).

The analysis of **communication and collaboration methods** and tools shows that email tools and discussion forums were important tools for all respondents. None of the below indicated communication and collaboration methods and tools were found to be not important for all or most of the respondents (see Fig. 8). 'Google Docs' (4 respondents mentioned it in an open type question answer) and 'Discussion

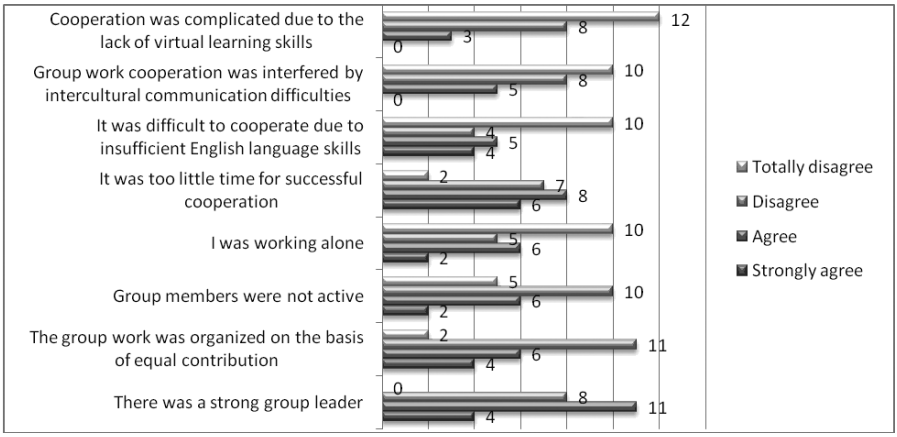

Figure 7. Factors influencing successful international group cooperation (in numbers indicated by the students)

forums link with email' (mentioned by 1 respondent), when a module participant gets an email message as soon as it has been posted in the discussion forum, were also mentioned among other tools that were very important or important in the module.

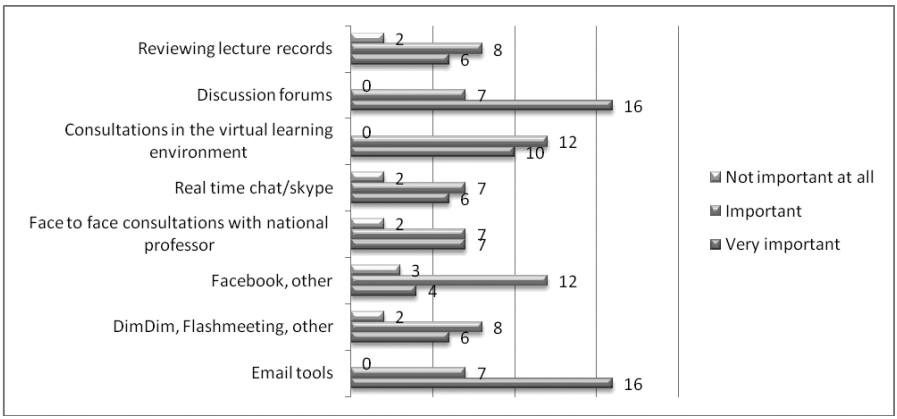

Figure 8. Importance of indicated communication and collaboration methods and tools in the module (in numbers indicated by the students)

Discussing **learning organization methods** used in the module all students indicated that there were *discussions and individual work* organized in the module. Most (n=21-22) of the respondents also noted *group work*, *information presentation*, *search for analysis of new resources*, *critical thinking development activities*, *development of skills* that would enable learners to act independently in the

future, and reflection as learning organization methods used in the module. Such learning organization methods as *interactive learning activities, creative work, guidance and practical application of knowledge* were also recognized by a big number (n=17-19) of the respondents; however, *creative work* was claimed to be absent in the module by 6 respondents. *Experimentation, modelling/imitation and exploration* were rather diversely assessed by respondents (3-8 of the respondents indicated that it was 'difficult to say' if the mentioned methods were used) what shows different respondents' experience in understanding of various learning organization methods and in performing different module assignments – as it was mentioned before, some of the respondents had successfully finished the module performing all the 12 activities, while others failed, performing too little of the obligatory to perform module activities.

In addition to this, one more feature of learning organization was analyzed – it was methods of feedback used in the module (see Fig. 9). Most of the respondents (n=19-20) indicated that *feedback was provided for groups and there were self-assessment possibilities provided for learners; however, individual feedback and clearness for the feedback regarding learning outcomes were* rather diversely assessed by the respondents: 14 respondents stated that feedback was provided individually; however, 3 respondents opposed them and 6 more stated that it was 'difficult to say' if they got individual feedback. This suggests that different assignments were evaluated by different professors who gave feedback for learners in a different way, and this resulted in different students' indications with regard to the usage of different forms of feedback. However, some of the students might have also missed or lacked individual feedback.

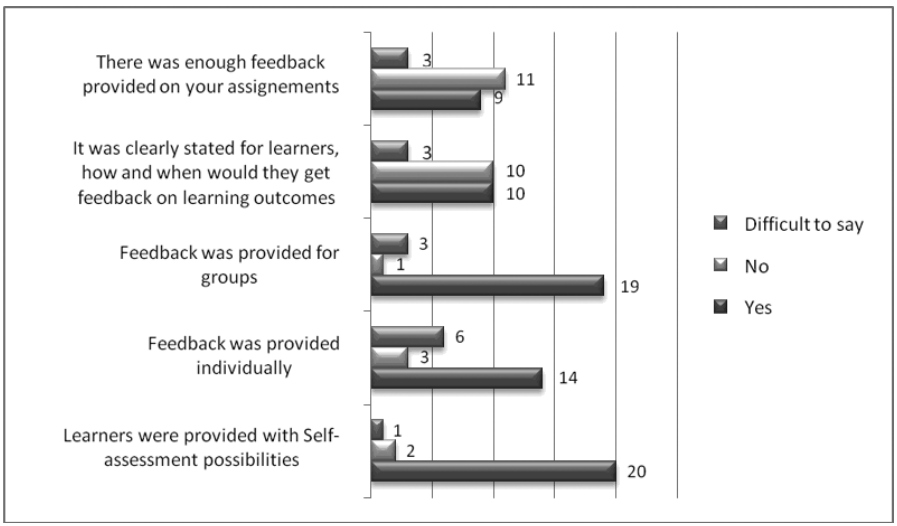

Figure 9. The students' approach to the methods of feedback used in the module (in numbers)

When the respondents were asked if it was clearly stated for them, how and when they get feedback on learning outcomes, 10 respondents indicated 'Yes', while other 10 answered 'No' and 3 more were not sure. This suggests that more clearness for learners should be provided when the course is delivered in virtual learning environment, as there is more than one professor delivering course and face to face communication is absent for most sub-modules. More respondents (n=11) responded negatively to the statement that 'there was enough feedback provided on your assignments'; however, 9 of them answered positively (3 more were not sure). The analysis of the respondents' answers suggests that more attention could have been drawn on the feedback for learners during the module delivery in order to encourage participants' learning and presumably this may have decreased the rate of drop outs.

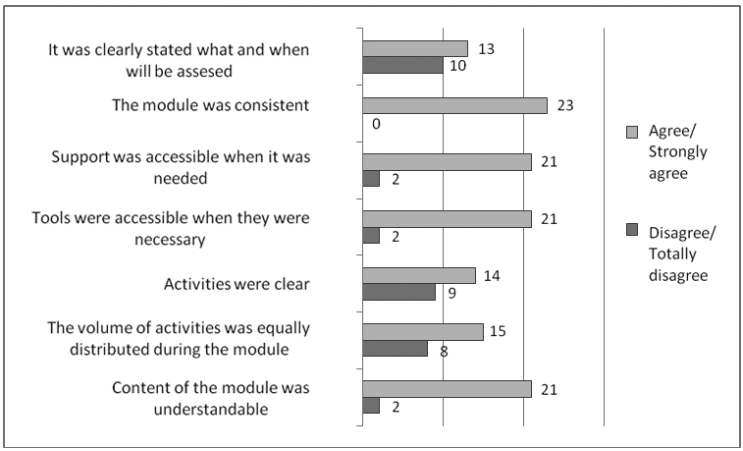

Figure 10. The students' opinion on module consistency and coherency (in student numbers)

Module participants were also asked to evaluate if the module was consistent and coherent (see Fig. 10). All the respondents (n=23) agreed that the module was consistent. Most of the students (n=21) indicated that support and tools were accessible when they were needed, and the content of the module was understandable. However, it was not clear for all students what and when will be assessed (n=10). 9 respondents found activities not to be clear, 8 respondents noted that the volume of activities was not equally distributed during the module.

Summing up the findings of module learning organization, it can be stated that various learning organization methods and events, as well as various methods for feedback were used during the module. Module participants used different communication and collaboration methods and tools and assessed their importance

for learning differently; however, email tools and discussion forums were important for all respondents. Most of the respondents indicated discussions, individual and group work, information presentation, search for analysis of new resources, critical thinking development activities, development of skills that would enable learners to act independently in the future, and reflection as mostly used learning organization methods in the module. There were self-assessment possibilities for learners as well as individual feedback and feedback for groups, but half of the respondents indicated that they lacked feedback on their assignments and clearness about their achievement of learning outcomes. In general, the module was assessed to be consistent, having understandable content, and with the necessary tools and support possibilities provided at a proper time.

Virtual mobility competences. The next section of the questionnaire was intended to indicate virtual mobility competences, skills and outcomes gained by the participants during virtual mobility studies, as well as to define the module participants' social behaviour, feelings and attitudes towards virtual mobility and its activities. Virtual mobility competence was suggested to be formed from intercultural communication, ICT, foreign language (English being the case in the module), and personal and social (such as being structured and self-organized, keeping time and meeting deadlines, respect for others, working in groups, etc.) competences. All the respondents assessed their own competence improvement at least by minimal (n=23) or satisfactory (n=20-22) level. The detailed virtual mobility competence improvements are shown in Fig.11.

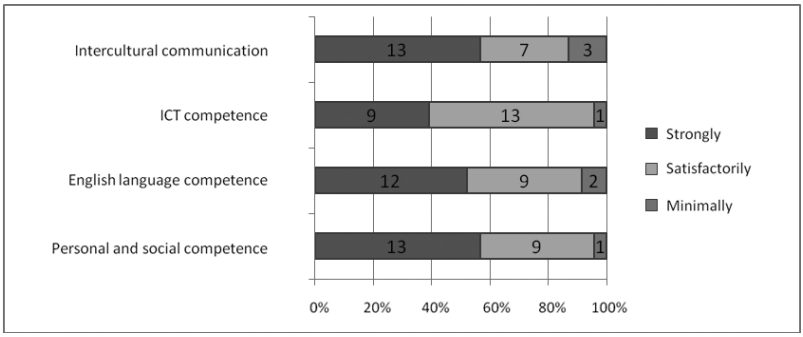

Figure 11. The students' improvements of the stated virtual mobility competences (in student numbers)

The respondents were also asked to add any additional competences or skills that were improved during virtual mobility studies. There were very different outcomes indicated – such as "profession related competence" or "data gathering", "working

late nights and weekends", etc. Some of them stressed more specific skills or competences that might be related to the above mentioned which comprise virtual mobility competence:

- Intercultural communication competence – "international communication", "communication skills with people from other countries, cultures...".
- Personal and social competence – "tolerance", "patience", "I can organize my time schedule of studies better than earlier".
- ICT competence - "information literacy competence", "virtual communication skills", or "skills related to the evaluation of information (information literacy)" or a broader approach was suggested - the combination of ICT and learning (individual and in group) was indicated by the following achievements: "learning to work cooperatively in a virtual environment", "one or two new programs", "use different tools for group work". The "international group work" and "collaborative work competence", as well as "experience in working in international group" or "group working and encouraging members of my group to common work" were also stressed.

Other respondents specified the achievements related to module learning outcomes – such as "more defined understanding of my learning strategies" or "competence related with <...> learning strategies and methods". Others indicated a broader approach with "some difference between cultures and learning styles", "new viewpoints of cultural differences in studying", or in general - "a skill to analyze learning outcomes/recourses was improved".

Most of the students had a positive approach and valued their participation – "We all wanted to reach the same goals, we could feel the spirit and support from national group" or "I am happy that I participated, although it was not always easy. I have many positive feelings about the course. I think it was a valuable experience; I better understand virtual mobility and appreciate this form of learning. I see many possibilities of creating such courses in my field of studies, on a national or international level ...". One of the students noted his/her additional realizations while participating in the module – "I realized that communication "face to face" is very important, because when humans are communicating online, it is difficult sometimes".

The study module ran from the end of September till the middle of December. As it was rather a long time to indicate the specific feelings of participants about virtual mobility sessions, most of the respondents stated that they never felt lonely (n=17) or bored (n=15). Very often respondents indicated that they felt concentrated (n=15), empowered/confident (n=10), or curious/inquisitive (n=11). Most of the students felt unfamiliar (n=16), worried/concerned (n=15), confused/uncertain (n=15) or contradictory (n=15) about virtual mobility sessions.

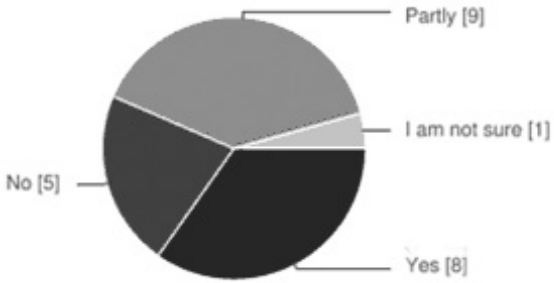

Figure 12. Change of the students' motivation to choose the module (in numbers)

During or after the module the students noted that motivation to choose the module changed during virtual mobility sessions (see Fig. 12). 17 respondents indicated that participation in the module changed their attitude towards virtual mobility, and they see more positive aspects of VM after the module. 6 respondents indicated that the module did not change their attitude towards VM but it was still positive. None of the respondents expressed a negative attitude towards VM or any negative aspects of VM. In the future if there is a possibility only one respondent will not be willing to participate in Virtual Mobility sessions (3 respondents were not sure), the other 19 respondents would like to participate in a virtual mobility course again.

Virtual mobility recognition. The last section of the survey was intended to identify virtual mobility recognition possibilities at participating institutions. At the first stage of the research, implementing systemic analysis of documents, legal acts and scientific literature, project partners organized a pilot survey that was filled in by 7 partner institutions from 6 countries (Lithuania, Latvia, Poland, Finland, Spain, and Portugal). The aim of the survey was to identify the existing virtual mobility practices at TeaCamp partnership institutions and countries. The survey provided only some existing practices that should be discussed and analysed in order to be recognized as existing virtual mobility. The survey respondents (N=7), being institution experts in the virtual learning area, were also asked to indicate if there were any "legal restrictions for VM of teachers and students". As the respondents of the pilot survey indicated no legal restrictions for VM of teachers and students at any of the participating institutions, VLHE module participants, being the respondents of the students' survey, were asked if the module would be recognized at their institution. Again none of the respondents indicated seeing any restrictions as to the recognition of the module, but 6 participants (from Spain, Portugal and Poland) were not sure if the module would be recognized at their HEIs. 17 of the respondents indicated that the VLHE module would be recognized at their HEI.

Figure 13 describes the respondents' opinion about physical and virtual mobility relations. One of the respondents, who had participated in physical mobility before the module, opposed that virtual mobility sessions should be treated/ recognized as supplement to physical Erasmus mobility "because virtual mobility is not equal at

all to physical Erasmus mobility"; however, the other 3 respondents who had some physical mobility experience and the 16 who had not (n=19), agreed that virtual mobility sessions should be treated/ recognized as supplement to physical Erasmus mobility. 2 more respondents (who both had not participated in physical mobility programmes before) indicated that virtual mobility sessions could be partly treated as physical Erasmus. One of them explained: "virtual mobility session should be treated as supplement to physical Erasmus mobility just as part, because nothing can replace study in different country and getting to know other culture during learning".

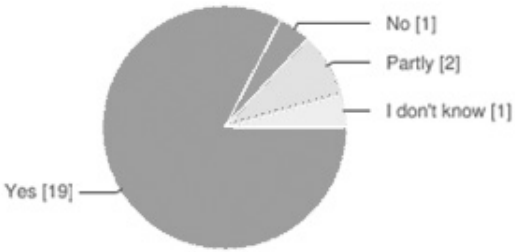

Figure 13. The students' opinion if virtual mobility sessions should be treated/ recognized as supplement to physical Erasmus mobility (in numbers)

Module improvements. The last section of the students' survey was intended to identify the aspects that could be improved in the future, delivering virtual mobility course. Students' remarks were different; however, their explanations revealed an optimistic attitude towards the course and a rather critical approach at its improvements. One of the aspects that the students indicated to be improved was assessment and feedback on the assignments. As the students had to perform an activity each week during the course and the grades were uploaded in VLE only at the very last weeks of the module, so they really missed some certainty on their improvement and formative feedback.

Another aspect to be improved referred to the participation of the group members in the learning process and/or videoconferences. So the students suggested "more different tasks for the group work (as it was just mostly discussions)" or "use more methods to involve all members of the groups". The others proposed to "encourage students to be more active in the videoconferences" and "maybe sometimes let students to moderate some of the video-conference sessions", or make some tools compulsory (especially video tools) or just make „more participative and less informative videoconferences". Students also missed some more participation of teachers in the discussion forums or just „more intervention from teachers".

One more aspect that was indicated by the students to be improved referred to the students' willingness to have some more informal communication with group members that is present in face to face meetings. So students asked for a more space and time for "informal behaving": "try to do this course not so formal,

because we were concentrated in doing the tasks and it was quite difficult to divide time for group members individually“. One student suggested “a mandatory meeting once a week, for example, via Skype or some discussion forum when all the participants would be present. The purpose of the meeting would be for the group participants to discuss about which tools to use, timetable, questions, etc.“ The other even asked for “face-to-face member meetings”. The above comments described the situation that some groups missed meetings of all participants at one “space” and time.

So some students needed “more time to get to know the module”, more time to do the tasks or just help with time management, whereas others needed „more time and guidance for the group to get organized in the beginning of the course”. Some asked for more clear assignments and clear instructions “where to perform the activities and how“. The others noted the IT tools to be improved and the technical problems to be eliminated (for example during video conferences). The summary of the students' suggestions and comments on the module could be finalized by the notion that the students enjoyed the course and found it “very useful to have international e-learning course like this, because the student becomes more open-minded for the other cultures, gets more competences, has chance to use knowledge practically”.

To sum up, the students' survey results analysis confirmed the use of various students' communication and collaboration methods and tools, forms of feedback that had been or not used in the virtual mobility case. It represented students' contradictory feelings during the session and attitudes that changed for most of the students, but ended up to being positive ones. The described VM activities enriched various module students' competences which could be addressed and further improved as virtual mobility competences.

2.2. The teachers' survey

The teachers' survey was implemented at the end of the 'Virtual Learning in Higher Education' module, asking module teachers to fill in the questionnaire (Annex 3). The survey was implemented online using a Google Forms tool. The data analysis was implemented in Ms Excel. The survey results and their analysis are presented and discussed here in order to sketch in the virtual mobility case representation from the teacher perspective.

The structure of the survey was presented in the first chapter “Empirical research design. Research methodology”, and it will be followed discussing and analyzing the results; however, some parts of the students' survey and the teachers' survey are compared while discussing the results. There were 13 respondents (7 female and 6 male) who filled in the questionnaire: 5 teachers from Lithuania (2 from Vytautas Magnus University, 3 – Baltic Education Technology Institute), 3 from Portugal (University of Aveiro), 3 from Spain (University of Oviedo), one from Poland (Jegellonian University) and one from Finland (Jyväskylä University). 4 teachers were up to 30 years old, 6 - from 31 to 40, and 3 – over 40 years old.

Figure 14. The teachers' experience in - Virtual mobility sessions' participation (left) and distance learning course delivery (right) in numbers

Only 3 respondents (N=13) indicated that they had Virtual mobility sessions' participation experience, while 10 of them did not, but only 2 teachers had not delivered a distance learning course before – the other 11 had (see Fig. 14).

Curriculum designing. The teachers of the module started preparing for the course in April 2010 virtually – some virtual meetings were organized online as well as 2 face to face meetings and international group discussions in May and September, 2010. Most of the teachers indicated that there was enough time for the preparation of this kind of module (see Fig.15).

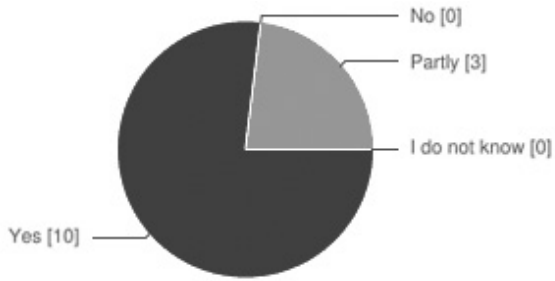

Figure 15. The teacher opinion with regard to sufficiency of time for module preparation

Almost all (n=12) teachers stated in a more detailed question that for the preparation of an international 6 ECTS course individual work as well as international group discussions are necessary. Only one teacher indicated a possible scenario for course preparation - from 10 to 20 hours individual work or over 20 hours of international group discussions separately. The other possible scenarios indicated by the teachers were very different, but all were concentrated on individual and group work discussion variations. A more detailed description is shown in Table 2.

Table 2. The teachers' indicated time for preparation of 6 EECTS international module for virtual mobility (in numbers)

… hours individually	And … hours in international group discussions				Or over 20 in international group discussions
	0 hours	up to 5	from 5 to 10 hours	from 11 to 20	
up to 5					
from 6 to 10		2	1	1	
from 6 to 20			1		
from 10 to 20	1		3	1	1
over 20		1	1		

The teachers were also asked to indicate what kind of support would be needed for the preparation of an international Virtual learning course.

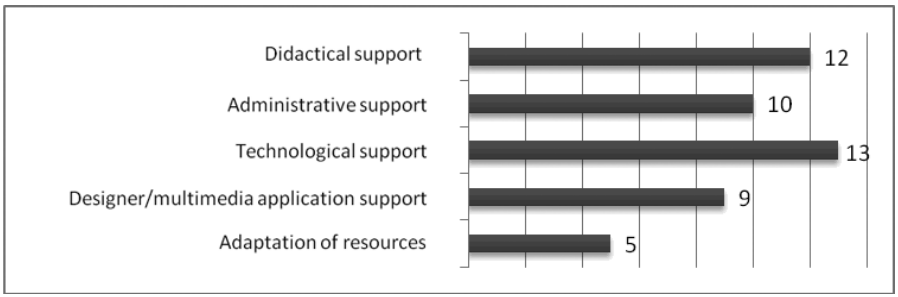

Figure 16. The teacher opinion on the support needed for preparation of international virtual learning course (in numbers of teachers, indicated the choice)

All respondents (N=13) marked the necessity of technical support, almost all (n=12) indicated the necessity of didactical support (such as defining learning outcomes, developing structured content, defining assessment strategy, etc.). The other kind of support necessary is indicated in Fig. 16.

Although it was noted by the respondents that the "concepts of learning outcomes and competences are different in various cultures and universities", and most of the teachers (n=12) stressed that didactical support would be necessary while preparing an international virtual learning course, there were not many difficulties that the teachers had encountered while preparing the course referring to learning outcomes – just 6 teachers indicated that there were difficulties in agreeing on the learning outcomes in a multi-institutional teacher group and finding the ways on measuring the learning outcomes. 5 teachers were not sure about the recognition of learning outcomes at their institutions (see Fig.17).

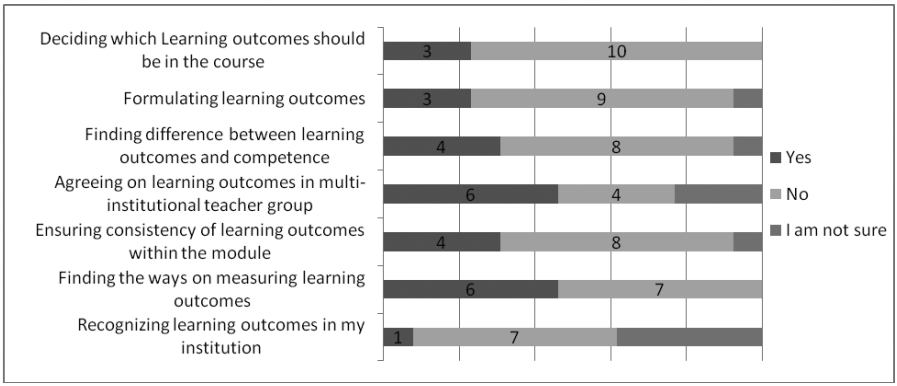

Figure 17. Difficulties (referring to learning outcomes) indicated by the teachers while preparing the course (in numbers, N=13)

Furthermore, one more aspect of the virtual mobility module preparation was analyzed – tools that were necessary and used for the module preparation.

10 out of 13 respondents indicated that TeaCamp virtual campus ELGG was used either at a module preparation stage (n=8) or during virtual mobility sessions (n=2). 7 respondents out of 10 who used TeaCamp virtual campus ELGG stated that ELGG was useful for them as a virtual campus tool.

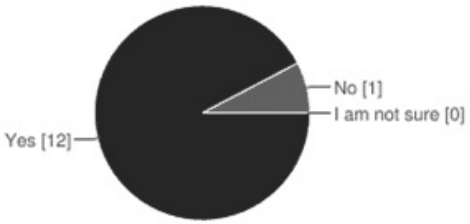

Figure 18. The teachers' opinion with regard to sufficiency of tools for communication and collaboration while preparing the Module (in numbers)

Virtual mobility organization. The next part of the questionnaire focussed on virtual mobility organization. The teachers were asked to indicate what learning organization methods they used in the sub-module.

Similarly to the opinion of the students expressed in the students' survey, all of the teachers stated they used individual, group work, and discussions in their sub-modules. Practical application of knowledge, reflection, as well as creative work, critical thinking development activities and development of skills that would enable students to act independently in the future were also used by most (n=10-12) of the teachers (see Fig. 19). However, only one teacher indicated that s/he used imitation / modelling in his/her sub-module.

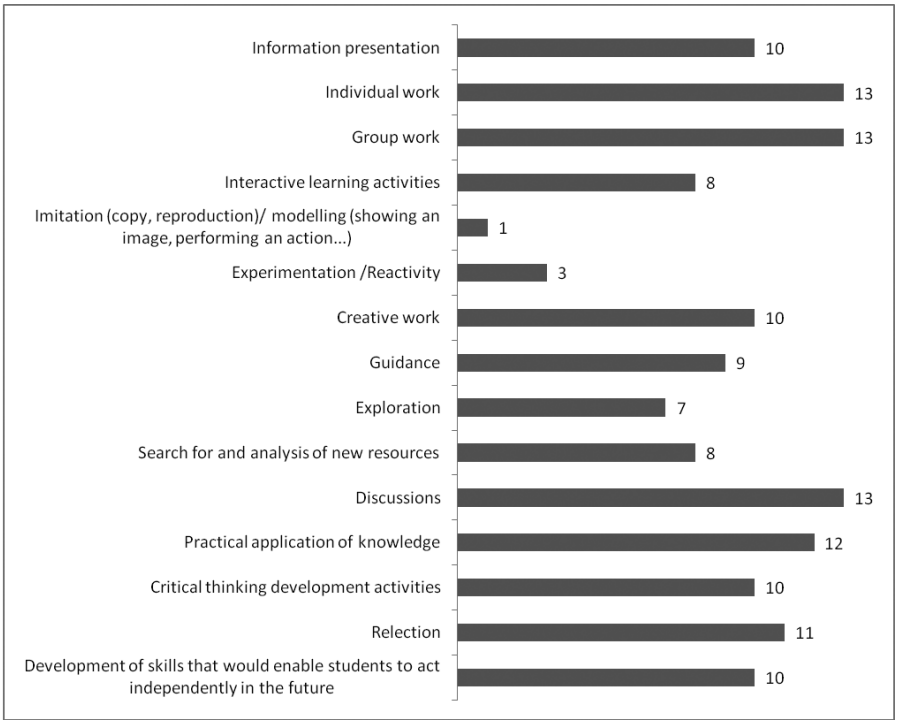

Figure 19. Learning organization methods used in the module (in numbers)

Most of the teachers (n=10) provided feedback for groups individually; however, only 7 of them indicated that self-assessment possibilities were given. About half of the teachers also noted that they had not informed learners about how and when they get would feedback on learning outcomes (see Fig 20).

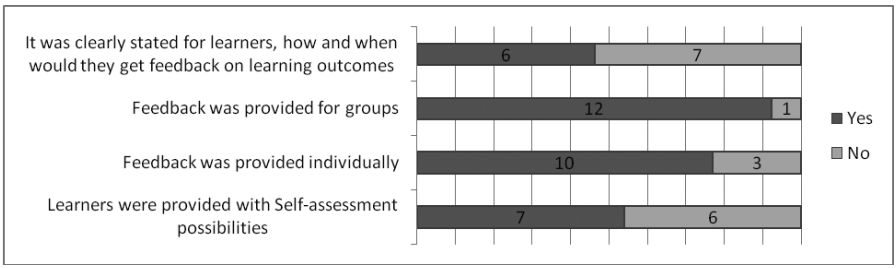

Figure 20. Methods for feedback used by teachers in their sub-modules (in numbers)

Most of the teachers (n=10) indicated that there were enough tools for communication and collaboration organizing the sub-module studies; however, their importance was assessed differently (see Fig. 21). The teachers, assessing communication and collaboration methods and tools that had been used in the module, found most of the indicated methods and tools (very) important and stayed neutral only about Social networks and Skype or real time chat that teachers might have not been aware of their usage (see Fig.21).

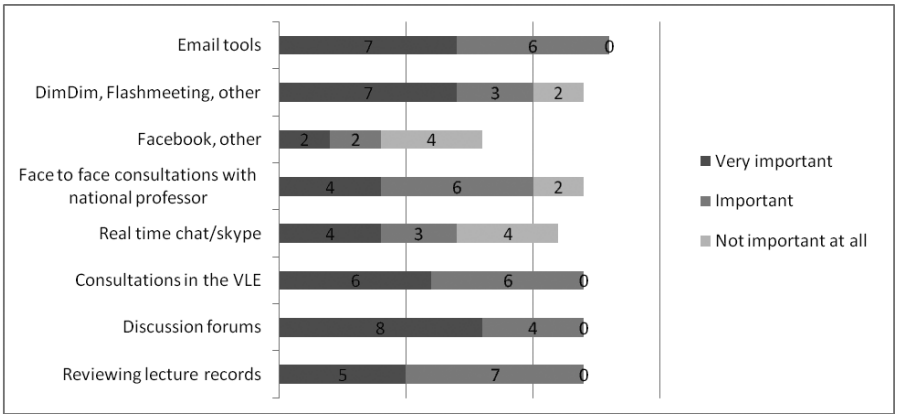

Figure 21. The teachers' opinion about the importance of tools for communication and collaboration (in numbers)

The importance of tools is discussed more in detail at the "Comparative analysis of the students' and teachers' answers" sub-chapter. Analyzing the teachers' indicated aspects for support that would be necessary for Virtual mobility sessions organization, it is obvious that almost all of them (n=12) value tutor support, administrative support among institutions (resources, schedules, other), and technological support as necessary, the largest difficulties faced by the teachers were as follows: academic calendar/timetable overlap (n=9) or recognition at university (n=7). Indentifying other difficulties faced while delivering the course, only one teacher indicated too much workload, 3 identified teamwork problems and 4 of them felt lack of foreign language competence (whereas 2 of them did not improve it during the module at all).

Virtual mobility competences. The teachers were also asked to assess if planning, delivering and organizing this course improved their virtual mobility competences. All of them marked that 'intercultural communication' and 'personal and social competence (being structured and self-organized, keeping time and meeting deadlines, respect for others, working in groups, etc.)' were at least minimally improved. However, one of the teachers admitted having not improved his/her e. competence at all and 2 of them had not improved their English language competence at all. For a more detailed illustration of teachers' virtual mobility competences improvement see Fig. 25.

Among any additional competences that had been improved the teachers indicated "curriculum development and course design", "teaching competence concerning evaluation of e-learning or VM courses, e-assessment or ICT tools usage" and "planning and promoting of learning in virtual environment". Although module teachers had too little time to improve their virtual mobility competences, still the collaborative preparation for the virtual mobility course, course organisation and delivery has presumably resulted in the improvement of some of their competences.

Finally, one more aspect – the social behaviour and participants' feelings during the sessions - was targeted at and analyzed in the teachers' survey. Most of the teachers participated during at least 3 lectures (on average), so their feelings might have been different as they were delivering lectures or just guiding/consulting them. The survey respondents indicated that most of the teachers (n=10-12) sometimes felt surprised but never angry, lonely, bored, frightened or contradictory. A lot of them (n=8-9) sometimes felt challenged, emotionally involved, or unfamiliar and very often - empowered and confident. Only some of them (n=3-4) were always or almost always happy/optimistic, grateful, or curious/inquisitive.

Virtual mobility recognition. Teachers' attitude and its change after participating in virtual mobility are illustrated in Figure 22. It is possible to draw a conclusion that the sessions did not make teachers' attitude to virtual mobility negative; however, they made one of the teachers to see more negative aspects while 9 other noticed more positive aspects.

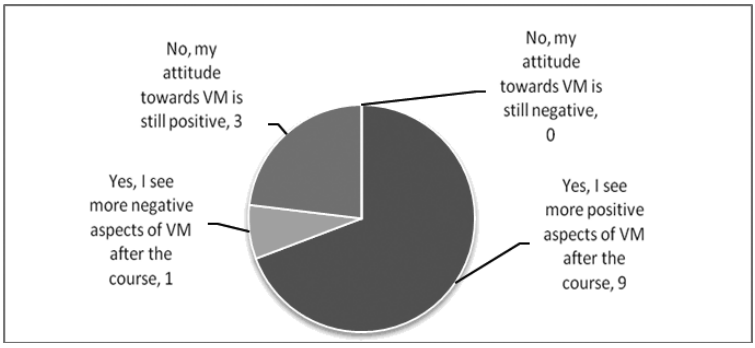

Figure 22. Change in teacher attitude towards VM after participation in the course (in numbers)

11 (N=13) teachers indicated that they would agree (the other 2 were not sure) to participate in Virtual Mobility sessions in the future if there was a possibility.

Analyzing the legal possibilities for recognition of the module at teacher institutions, 6 teachers noted that the course could be recognized while one teacher did not see any legal possibilities for recognizing this module at his/her institution (the other

6 were not aware of the legal possibilities). However, only 5 teachers were certain that the module would be recognized at their institution.

Module improvements. The virtual mobility teacher survey was finalized with the open questions for aspects to be improved and additional comments by teachers. There were very different, however, reasonable ideas indicated. Most of the teachers suggested improvements in virtual mobility sessions – some stressed the necessity of "technical improvements" for "VM synchronous sessions", or just the usage of different "video conferencing tools" that would be "open, free to use, multiple connections and record enabling video", or suggested the "use of another tool for the online lectures (Wimba, Adobe connect, etc.) not videoconferences". However, the necessity to organize "the videoconference as a precious moment to introduce the module" was also stressed.

Other respondents focused more on virtual session organization or content improvement – such as "group work during the virtual sessions", "more exchange of knowledge and experience" as it was "very important in virtual mobility - to participate and share". Another teacher suggested that "if there are VM synchronous sessions they have to have content or if not they should be more for taking individual doubts". The stress on "small practice with all possible tools in order to use them adequately" was also identified.

Similarly to the improvements suggested by students, discussing other aspects to be improved in virtual mobility organization teachers also thought of "better instructions for students" and the improvement of "students participation in the synchronous sessions", though the teachers understood that "it was difficult to find time for videoconferences that would suit all students. Some of them had to miss this important part of communication and just watch the records instead". In order for the mentioned problems to be avoided more planning issues were stressed to have been done or reorganization of "the calendar sessions in order to avoid the holidays of the different countries" was suggested. VM mobility sessions were also suggested to be "arranged as a part of regular study program". This was noted to be an easier way to recognize the module, which was the issue also addressed by teachers as important to be improved. Module institutional recognition was also indicated as leading to a higher commitment of participants.

A scenario to increase students' participation was also suggested: "in order to facilitate collaboration, tutors could be assigned for each international group and attempt made to involve them into more intense intercultural communication from the very beginning of the course. In this way it would be much easier to find time suitable for all students of small group. The same tutor could lead group till the end of the course and would be more aware about the progress of individual students and their involvement into group activities". The suggested scenario identifies intercultural communication or just a cultural aspect as one more aspect necessary to be improved. One teacher noted that maybe if more of the web 2.0 technologies had been used, the cultural aspect would have been improved.

Summing up the teacher survey results, it is evident that various combinations of individual and group discussions are necessary in order to prepare a consistent virtual mobility course. Didactical, administrative and technological support was defined as necessary for the preparation of virtual mobility course. The biggest difficulties that module preparing teachers encountered with were 'agreeing on learning outcomes in multi-institutional teacher group' and 'finding the ways on measuring learning outcomes'. Teachers indicated that various learning organization methods and methods for feedback were used in their sub-modules. Most of the indicated communication and collaboration methods and tools were very important or important in the module. The teachers also provided the main suggestions for module improvement that focused on different organization of virtual sessions, clearer instructions for students, tutor engagement in the process, and other. After the module delivery half of the teachers improved their virtual mobility competences at least up to a satisfactory level. Most of the teachers changed their attitude towards virtual mobility and saw more positive aspects of virtual mobility; however, one teacher also saw more negative virtual mobility aspects.

2.3. Comparative analysis of the student and teacher answers

As discussed earlier the questionnaires of the teachers' survey and the students' survey were very similar, and there were some questions addressed by all module participants. Separate student and teacher answers were already discussed; however, some answers can be compared in order to better understand the virtual mobility phenomenon from the educational perspective. Although the diagnostic survey questionnaires used after the module were very similar for students and teachers, some of the questions are not worth comparing as the answers indicated the existence or absence of some elements; however, the importance of tools and feedback methods, VM competences, opinions on virtual mobility and its recognition were compared.

One of the ways to communicate and organize learning process in virtual mobility is the use of ICT tools. Figure 23 describes teacher and student opinion on important and very important communication and collaboration methods and tools used in the module. All the communication methods and tools were indicated as important or very important by all participants (which results to over 50%), except social networks, such as Facebook or other assessed as important or very important only by 31% of teachers (see Fig. 23).

The most important ways for communication and collaboration were **email tools** (16 students (N=23) and 7 teachers (N=13)) and **discussion forums** (16 students (N=23) and 8 teachers (N=13)) indicated as **very important** in the module or **consultations in virtual learning environment** indicated as important and very important by 22 students (N=23) and 12 (N=13) teachers: their cumulative percentage of very important and important were between 92 and 100% (see Fig. 23). The importance of other methods and tools was differently indicated by students and teachers: videoconferencing tools were assessed to be as very important by 54% of the teachers and only 26% of students; reviewing lecture records was thought to be

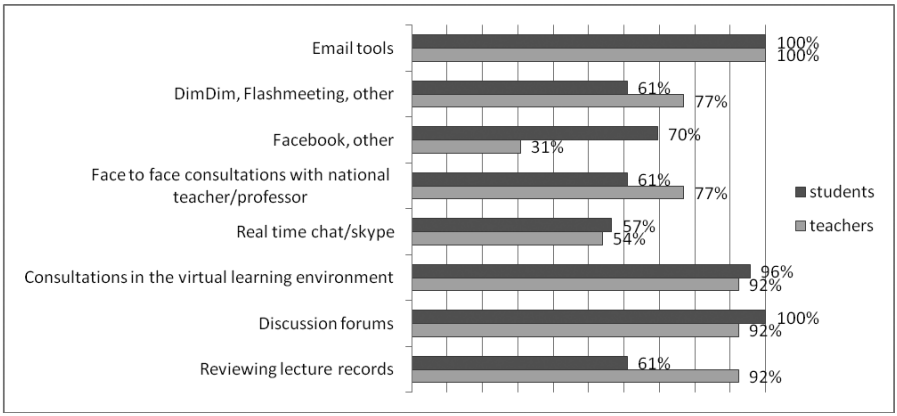

Figure 23. Cumulative percentage of importance (very important and important) of communication and collaboration methods and tools used in the module

important for 54% and very important for the other 38% of the teachers (total 92 %) while only 26% of the students found it very important and the other 35% - as important (total 61%). It was interesting to note that 30% (7 out of 23) of students had no opinion while assessing 4 out of 8 indicated communication and collaboration methods and tools.

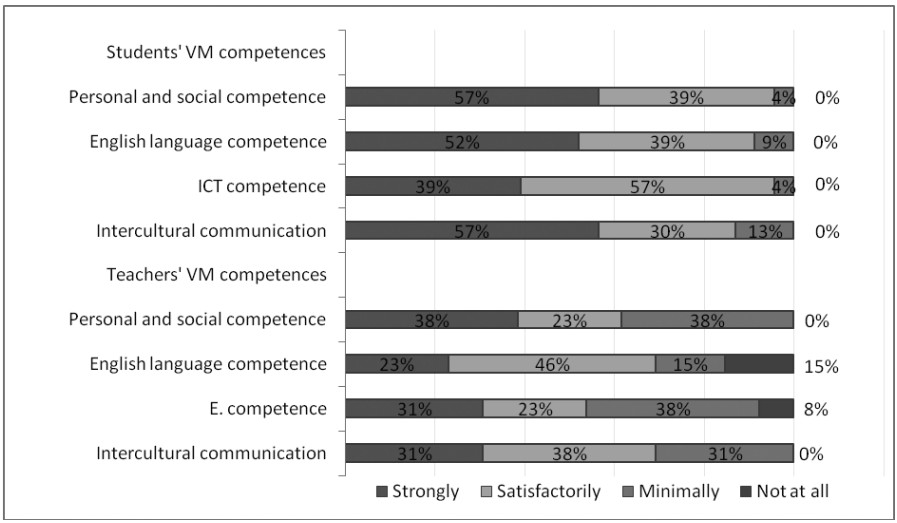

Figure 25. Improvement of teacher and student virtual mobility competence (improved categories in percentages)

Another aspect that could be compared with regard to student and teacher answers is methods for feedback used in the module. Most of the students and teachers indicated that feedback was provided for groups or individually (see Fig. 24). A rather small number - less than a half of students or teachers who noted that it was clearly stated for learners, how and when they would get feedback on learning outcomes, - suggests that learners lacked some clearness on their improvement referring to learning outcomes. This was also reflected in module improvement section by teachers, where "better instructions for students" were suggested. Only about half of the teachers indicated that they provided self-assessment possibilities for students, but the students did not feel the lack of provided possibilities their self-assessment and indicated the provision of self-assessment possibilities in the module.

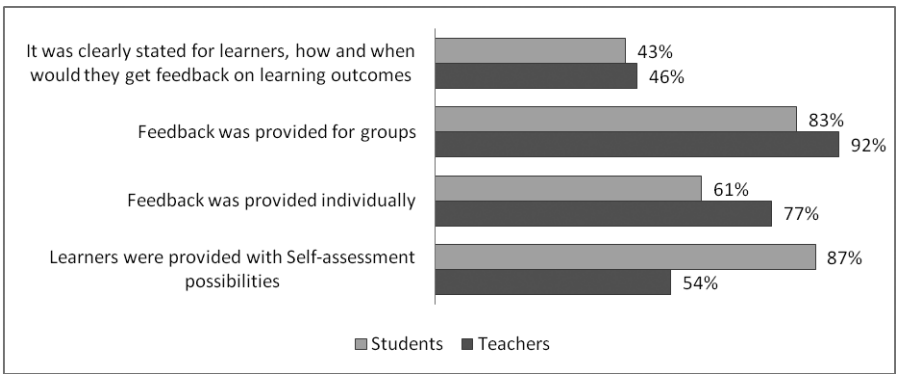

Figure 24. Methods of feedback used in the module

Although the project was aiming at contributing more to the teachers' competences, their improvement is not possible if the students are not engaged. So while comparing the student and teacher competence improvements in virtual mobility competences, the bigger progress was seen in students' competences, as they spent the whole semester for virtual learning whereas the teachers were responsible for learning organization and lecture delivery only for 2 weeks. It could be noted here that there were some comments from the teachers that they would like to try delivering more than 2 weeks of the virtual mobility course. Module student and teacher improvement in virtual mobility competences and their comparison is shown in Figure 25, where some teachers admitted having not improved some of the competences while the students did it at least at a minimal level.

One of the aims of the diagnostic surveys was to identify the participants' attitude towards virtual mobility.

The participation in a virtual mobility course helped most of the students and teachers to better understand the virtual mobility concept and its realization from practice. The experience allowed most of the participants to see more of the positive aspects of virtual mobility (indicated by 72% participants), whereas one

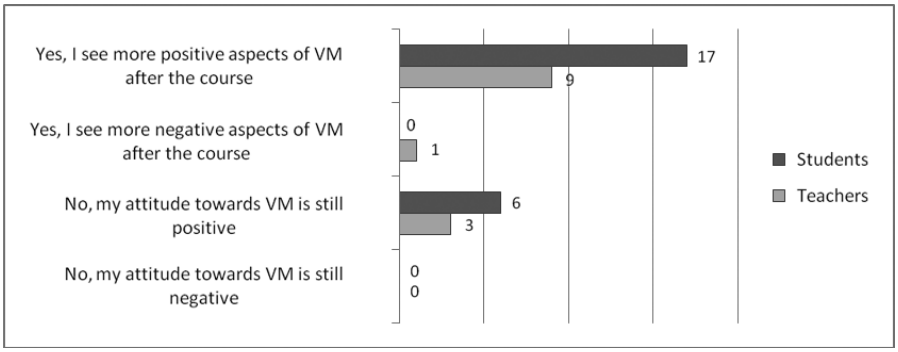

Figure 26. Changes in student and teacher attitude after virtual mobility course (numbers of respondents

fourth (25%) of the participants had not changed their attitude towards VM, but it remained positive. Only one teacher saw more negative aspects of virtual mobility after the virtual mobility course.

Comparing the aspects to be improved in the module according to the students and teachers, intercultural communication or cultural aspects could be included in the module by leaving some time for students' informal behaviours and communication or organizing some "getting to know each other" activities, and just leaving them some time to organize their group work, decide upon the tools and schedules to be used. The scenario suggested by one teacher to have a tutor for international group work would help to clarify and solve a lot of problems that were indicated for improvement by the students – organizational issues, assignment clearness, usage of more tools and different methods for communication, more diverse feedback on student improvement. The students remarked on technical improvement focussed on the elimination of technical problems experienced during videoconferences, while the teachers asked for tools that could help them organized learning process – "open, free to use, multiple connections and record enabling video". So some of the reorganization might be revised and assessed in order to make the course easier for students to finish it successfully, to facilitate their learning and improve different competences and to benefit more from international group work and the teaching by different professors.

To sum up, the comparative analysis of student and teacher answers revealed that all communication and collaboration methods and tools were more or less important while working in virtual environment, as well as feedback for students – more of the teachers indicated that they gave feedback for students in different forms but fewer of the students indicated the received the feedback. As students spent more time learning than teachers delivering, students' virtual mobility competence improvements were higher than those of the teachers. The analysis of the aspects to be improved identified by the students and teachers revealed that the main areas to be improved were video conferences or virtual sessions and their organization and more feedback and clearness for students, especially in the beginning.

Conclusions of the research data analysis

- The diagnostic survey findings showed that the students were most interested in participating in a virtual course because of academic reasons – interest in topics suggested and virtual learning itself; however, the same motivation drivers as those of physical exchange students were also identified to be important. Before starting attending the module the students felt most comfortable at information analysis and evaluation or knowing different technological resources for collaborative online learning. Most professionally students felt in understanding the skills needed to facilitate and manage collaborative online learning and comparing learning styles and learning strategies.
- The students' survey results analysis revealed that although it was too little a time for a successful cooperation, the cooperation of international groups was good as most groups had strong group leaders and active group members. It was indicated that the number of tools for communication and collaboration was sufficient and various students' communication and collaboration methods and tools as well as forms of feedback were important in the virtual mobility case. The most important methods and tools for communication and collaboration were discussion forums, email tools and consultation in virtual learning environment. Among the most often used learning organization methods indicated by the students were discussions and individual work, so the feedback in the module was also provided for groups and individually, though some students lacked individual feedback. The clearness of how and when the students would get feedback was assessed diversely, what suggested that some students needed more guidance and clearness, especially at the beginning of the course. In general, the whole module was consistent; the content was understandable; the tools and support were accessible when needed. Students noted their strong improvement in most of the virtual mobility competences – intercultural communication, English language, personal and social competences, and a bit smaller but satisfactory improvement of ICT competence together with some additional competences. The participation in the course changed most of the students' attitude towards virtual mobility and now they saw more positive VM aspects and would like to participate in a virtual mobility course again. Most of the students think that virtual mobility sessions should be treated/ recognized as supplement to physical Erasmus mobility. As no legal virtual mobility restrictions were found in participating institutions during the implementation of the previous surveys, most of the respondents indicated that VLHE module would be recognized at their home institution.
- The diagnostic teacher survey results revealed that various combinations of individual and group discussions were necessary in order to prepare a consistent virtual mobility course, but didactical, administrative and technological support would also be necessary for the preparation of a virtual mobility course. The biggest difficulties that module preparing

teachers had were agreeing on learning outcomes in multi-institutional teacher group and finding the ways on measuring learning outcomes. Most of the communication and collaboration methods and tools were very important or important in the module. The teachers also provided the main suggestions for module improvement that focused on technical improvements or different organization of virtual sessions, clearer instructions for students, tutor engagement in the process, or similar. After the module delivery, half of the teachers improved their virtual mobility competences at least at a satisfactorily level; most of the teachers changed their attitude towards virtual mobility and saw its positive aspects more.

- The comparative analysis of student and teacher answers from the diagnostic surveys revealed that all communication and collaboration methods and tools were important while working in virtual environment. The importance of feedback for students was noticed as more of the teachers indicated that they gave feedback for students in different forms but fewer of the students indicated the received feedback. As students spent more time learning than teachers delivering, students' virtual mobility competence improvement was higher than that of the teachers. Some of the students' indicated areas for module improvement could be fulfilled using teachers' suggested learning organization scenarios, but there were a lot of common areas to be improved identified by the students and teachers.

Conclusions

1. After theoretical background analysis virtual mobility in the scope of TeaCamp project and this study was defined as an activity or a form of learning, research and communication and collaboration, based on the following characteristics:
   - cooperation of at least 2 higher education institutions;
   - virtual components through an ICT supported learning environment;
   - collaboration of people from different backgrounds and cultures working and studying together, creating a virtual community;
   - having a clear goal and clearly defined learning outcomes;
   - having, as its main purpose, the exchange of knowledge and improvement of intercultural competences;
   - as a result of which the participants may obtain ECTS credits and/or its academic recognition will be assumed by the home university;
   - providing visibility of university in higher education area, capitalization of educational process;
   - leading to the integration of ICT into their mainstreaming in academic and business processes.
2. For the preparation of an inter-university study subject, theoretical background of curriculum designing, online curricula development contexts, various learning scenarios and tools were analyzed. Based on theoretical analysis of technology-based learning and online learning curriculum design an inter-university study module "Virtual Learning in Higher Education" was prepared. The module was of 6 ECTS, aiming at providing students the possibility to experience virtual mobility: to practice video lecture participation, work at international groups and perform group and individual online activities, use and share virtual resources in multicultural virtual learning environment.
3. The teachers' readiness for virtual mobility was assessed in a diagnostic survey, where practice and experience of the teachers were not found, but the delivery and organization of distance learning courses were indicated by most of the teachers. Half of the year preparation of the module, virtual and face to face discussions gave teachers some remarkable practice in preparation and delivery of a virtual mobility course. With didactical, administrative and technological support the teachers successfully prepared and delivered a virtual mobility module and gained experience in the field.
4. The analyses of student and teacher attitude at virtual mobility showed that the experience of virtual mobility course participants changed their attitude and more positive aspects of virtual mobility were identified after the course attendance. The peculiarities of virtual mobility studies

were discussed from the teacher and learner perspectives and a lot of improvement or different organization scenarios might have been drawn; however, virtual mobility experience was valued from a positive perspective, noting unfamiliar experience of learning in international environment and predictive value for learners' future career or profession. Students and teachers identified a strong or satisfactory level of improvement in virtual mobility competences that can be divided to ICT, English language, intercultural communication, personal and social competences, learning outcomes related competence and some additional skills such as time management, learning to work cooperatively in virtual environment, and better understanding of virtual mobility as a form of learning.

5. Results of the analysis, performed in the first stage of the research, indicated no legal restrictions of virtual mobility recognition at partner institutions, however the diagnostic module participants' surveys showed different tendencies. Although 17 students and 5 teachers indicated that a VLHE module would be recognized at their HEIs, the others were not sure or aware of the module recognition possibilities. One of the ways to make the recognition process easier was suggested by a module teacher – to add the module to the regular study programmes. The uncertainty of students and teachers confirmed that the phenomenon is rather new at traditional universities and a lot of procedures have to be implemented still in order for students and teachers to benefit from the possibilities created by virtual mobility.

Annex 1

Pre-session questionnaire for the students

1. Define your level of knowledge according to the set learning outcomes of VLHE module:

Learning outcome/ competence acquired	Strong/ well developed	Satisfactory/ adequate	Minimal	None
– understand culture models and their application in education;				
– apply the knowledge of culture models to solve problems caused by cultural difference in Virtual Mobility				
– understand the skills needed to facilitate and manage collaborative online learning.				
– know different technological resources for collaborative online learning.				
– analyze and evaluate information;				
– synthesize and create information;				
– define the technologies and standards used in distance education;				
– apply learning management systems based on these standards;				
– compare learning styles and learning strategies				
– identify and apply online resources in order to implement learning strategies virtually				
– design assessment strategies for virtual learning				
– use tools to support scenarios of virtual learning				

2. Please indicate 3 reasons for choosing this module

1.....

2.....

3.....

Annex 2

TeaCamp VLHE module questionnaire for students

Aim of research – to study the impact of virtual mobility as a communicative and collaborative learning activity of students and mutual tuning of educational components between teachers and HE institutions in order to enrich or complement physical mobility and to promote Bologna process in EHEA.

1. Personal data.

1.1. What country/university student are you?

- ▫ Finland/University of Jyvaskyla
- ▫ Spain/University of Oviedo
- ▫ Lithuania/BETI
- ▫ Poland/Jagiellonian University
- ▫ Lithuania/VDU
- ▫ Portugal/University of Aveiro

1.2. Which group do you belong to?

- ▫ Bachelor student
- ▫ Master student
- ▫ Doctoral student
- ▫ Researcher
- ▫ other, please indicate .....

1.3. You are:

- ▫ Male
- ▫ Female

1.4. Your age is:

- ▫ 18-24
- ▫ 25-30
- ▫ 30-35
- ▫ over 35

1.5. Have you ever participated in Virtual mobility activities (virtual learning course, virtual placement or other) before?

- ▫ Yes
- ▫ No

1.6. Have you participated in physical mobility programme before?

- ▫ Yes
- ▫ No

2. Learning outcomes

2.1. Were the learning outcomes stated clearly for you

- ▫ Yes
- ▫ No
- ▫ I am not sure

2.2. Define your level of achievements acquired in the sub-modules according to the set learning outcomes of VLHE module.

Learning outcome achieved	Strong/ well developed	Satisfactory/ adequate	Minimal	None
– understand culture models and their application in education;				
– apply the knowledge of culture models to solve problems caused by cultural differences in virtual mobility;				
– understand the skills needed to facilitate and manage collaborative online learning;				
– know different technological resources for collaborative online learning;				
– analyze and evaluate information;				
– synthesize and create information;				
– define the technologies and standards used in distance education;				
– apply learning management systems based on these standards;				
– compare learning styles and learning strategies;				

– identify and apply online resources in order to implement learning strategies virtually;				
– design assessment strategies for virtual learning;				
– use tools to support scenarios of virtual learning.				

3. Organizing Virtual mobility

3.1. How successful was the cooperation between members of international group?

- ▫ very good
- ▫ good
- ▫ fair
- ▫ no cooperation

3.2. Please evaluate the success of cooperation influencing factors (1-strongly agree and 4 – totally disagree):

	1	2	3	4
There was a strong group leader				
The group work was organized on the basis of equal contribution				
Group members were not active				
I was working alone				
It was too little time for successful cooperation				
It was difficult to cooperate due to insufficient English language skills				
Group work cooperation was interfered by intercultural communication difficulties				
Cooperation was complicated due to the lack of virtual learning skills				

3.3. How important have the below stated communication and collaboration methods and tools been in the module?

Communication and collaboration tools and methods	Very important	Important	I have no opinion	Not important at all
Email tools				
Video conference tools (DimDim, Flashmeeting, other)				
Social networking tools (Facebook, other)				
Face to face consultations with national teacher/professor				
Real time chat/skype				
Consultations in the virtual learning environment				
Discussion forums				
Reviewing lecture records				
Other tools or methods (please indicate)_____				

3.4. Were there enough tools for communication and collaboration while preparing the assignments?

- ▫ Yes
- ▫ No
- ▫ I don't know

3.5. Were there enough tools for communication and collaboration for presentation of assignments' results?

- ▫ Yes
- ▫ No
- ▫ I don't know

3.6. What learning organization methods have been used in the module?

Learning organization methods	Yes	No	Difficult to say
Information presentation			
Individual work			
Group work			
Interactive learning activities			
Experimentation			
Creative work			
Modelling/imitation			
Guidance			
Exploration			
Search for and analysis of new resources			
Discussions			
Practical application of knowledge			
Critical thinking development activities			
Development of skills that would enable learners to act independently in the future			
Reflection			
Other (please specify)			

3.7. Were the below stated methods for feedback used in the module?

Feedback options	Yes	No	Difficult to say
Learners were provided with Self-assessment possibilities			
Feedback was provided individually			
Feedback was provided for groups			
It was clearly stated for learners, how and when would they get feedback on learning outcomes			
There was enough feedback provided on your assignements			
Other			

3.8. Was the module consistent and coherent (1-strongly agree and 4 – totally disagree)

	1	2	3	4
Content of the module was understandable				
The volume of activities was equally distributed during the module				
Activities were clear				
Tools were accessible when they were necessary				
Support was accessible when it was needed				
The module was connected and contributed to the aim of the course				
It was clearly stated what and when will be assessed				

4. Virtual mobility competence

4.1. How well have you improved in the virtual mobility competences stated below?

VM competence acquired	Strong/ well developed	Satisfactory/ adequate	Minimally	None
Intercultural communication				
ICT competence				
English lg. competence				
Personal and social competence (Your being structured and self-organized, keeping time and meeting deadlines, respect for others, working in groups, etc.)				

4.2. Can you specify any of the additional competences, skills or other outcomes (other than the indicated learning outcomes) that you gained during your Virtual mobility studies:

.....

4.3. Please indicate how you felt most often about Virtual Mobility sessions:

Challenged	Always/almost always	Very often	Sometimes	Never
Concentrated				
Emotionally involved				
Empowered/ confident				
Unfamiliar				
Happy/optimistic				
Grateful				
Neutral/ Indifferent				
Curious/ Inquisitive				
Surprised				
Frustrated				
Worried/ Concerned				
Angry				
Disappointed/ Dissatisfied				
Confused/ Uncertain				
Anxious/Stressed				
Contradictory				
Lonely				
Frightened				
Bored				

4.4. Have your motivation for choosing the module changed during Virtual Mobility sessions?

- ☐ Yes
- ☐ No
- ☐ Partly
- ☐ I am not sure?

4.5. Has your participation in the course changed your attitude towards VM?

- ▫ Yes, I see more positive aspects of VM after the course
- ▫ Yes, I see more negative aspects of VM after the course
- ▫ No, my attitude towards VM is still negative
- ▫ No, my attitude towards VM is still positive

4.6. Would you agree to participate in Virtual Mobility sessions in the future if there is a possibility

- ▫ Yes
- ▫ No
- ▫ I am not sure

5. Virtual mobility recognition

5.1. Will this module be recognized at your institution?

- ▫ Yes
- ▫ No
- ▫ I don't know

5.2. Do you think that virtual mobility sessions should be treated/ recognized as supplement to physical Erasmus mobility

- ▫ Yes
- ▫ No
- ▫ Partly
- ▫ I don't know

If no or partly, please describe...

6. Other questions

6.1. Please indicate 3 things to be change/improved in the Virtual Mobility module

1 .....

2. .....

3. .....

6.2. Your additional comments to any of the questions or the (sub)module:

.....

Annex 3

TeaCamp questionnaire for VLHE module teachers

Aim of research – to study the impact of virtual mobility as a communicative and collaborative learning activity of students and mutual tuning of educational components between teachers and HE institutions in order to enrich or complement physical mobility and to promote Bologna process in EHEA.

1. Personal data.
   1.1. What country/institution teacher are you?
      - ▫ Finland/University of Jyvaskyla
      - ▫ Spain/University of Oviedo
      - ▫ Lithuania/BETI
      - ▫ Poland/Jagiellonian University
      - ▫ Lithuania/VDU
      - ▫ Portugal/University of Aveiro

   1.2. You are:
      - ▫ Male
      - ▫ Female

   1.3. Your age is:
      - ▫ up to 30
      - ▫ 31-40
      - ▫ 41-50
      - ▫ over 50

   1.4. Have you ever participated in Virtual mobility sessions before?
      - ▫ Yes
      - ▫ No

   1.5. Have you delivered a distance learning course before?
      - ▫ Yes
      - ▫ No

2. Curriculum designing
   2.1. Was there enough time for the preparation of the module?
      - ▫ Yes
      - ▫ No
      - ▫ Partly
      - ▫ I do not know

2.2. Pretend you are preparing a 6 ECTS course (You will be delivering 2 lectures of 1 hour each and organize student work for 2 out of 12 weeks). How much time do you need for preparation of this kind of course/module (like the module Virtual Learning in Higher Education)?

- ▫ up to 5 hours individually
- ▫ from 6 to 10 hours individually
- ▫ from 10 to 20 hours individually
- ▫ over 20 hours individually

- ▫ And
- ▫ Or

- ▫ up to 5 hours in international group discussions
- ▫ from 5 to 10 hours in international group discussions
- ▫ from 11 to 20 hours in international group discussions
- ▫ over 20 hours in international group discussions

2.3. What kind of support is needed for preparation of international Virtual learning course?

- ▫ didactical support (defining learning outcome, developing structured content, defining assessment strategy, etc.)
- ▫ administrative support
- ▫ technological support
- ▫ designer/multimedia application support
- ▫ adaptation of resources
- ▫ other, please indicate ....

2.4. While preparing the course did you have any difficulties referring to learning outcomes in:

	Yes	No
Deciding which learning outcomes should be in the course		
Formulating learning outcomes		
Finding difference between learning outcomes and competence		
Agreeing on learning outcomes in multi-institutional teacher group		
Ensuring consistency of learning outcomes within the module		

Finding the ways on measuring learning outcomes		
Recognizing learning outcomes in my institution		
Other, please specify...		

2.5. Were there enough tools for communication and collaboration while preparing the module?

- ▫ Yes
- ▫ No
- ▫ I am not sure

2.6. Have you use d TeaCamp virtual campus ELGG?

- ▫ yes, during preparation of the course
- ▫ yes, during VM sessions
- ▫ no, I have not used VC ELGG at all

2.7. Is ELGG useful for you as a teacher as virtual campus tool?

- ▫ Yes
- ▫ No
- ▫ I am not sure

3. Organizing Virtual mobility

3.1. What learning organization methods have you used in the sub-module?

Learning organization methods	Yes	No	I am not sure
Information presentation			
Individual work			
Group work			
Interactive learning activities			
Imitation (copy, reproduction)/ modelling (showing an image, performing an action...)			
Experimentation /Reactivity			
Creative work			
Guidance			
Exploration			
Search for and analysis of new resources			
Discussions			
Practical application of knowledge			

Critical thinking development activities			
Development of skills that would enable learners to act independently in the future			
Reflection			
Other (please specify)			

3.2. Was there any cooperation of students in international groups?

- ▫ Yes
- ▫ No
- ▫ I am not aware of

3.3. Were there enough tools for communication and collaboration organizing the sub-module studies?

- ▫ Yes
- ▫ No
- ▫ I do not know

3.4. How important have the below stated communication and collaboration methods and tools been in the sub-module?

Communication and collaboration tools and methods	Very important	Important	I have no opinion	Not important at all
Email tools				
Video conference tools (DimDim, Flashmeeting, other)				
Social networking tools (Facebook, other)				
Face to face consultations				
Real time chat/skype				
Consultations in the virtual learning environment				
Discussion forums				
Reviewing lecture records				
Other tools or methods (please indicate)_____				

3.5. Were the below stated methods for feedback used in the sub-module?

Feedback options	Yes	No
Learners were provided with Self-assessment possibilities		
Feedback was provided individually		
Feedback was provided for groups		
It was clearly stated for learners, how and when would they get feedback on learning outcomes		

3.6. What kind of support is needed for organization of Virtual mobility sessions?

- ▫ tutor support
- ▫ administrative support among institutions (resources, schedules, other)
- ▫ technological support
- ▫ other

3.7. What difficulties have you faced while delivering the course?

- ▫ academic calendar/timetable
- ▫ recognition at university
- ▫ too much workload
- ▫ language competence
- ▫ teamwork problems
- ▫ other, please specify:.....

4. Virtual mobility competence

4.1. Has planning, delivering and organizing this course improved your virtual mobility competences stated below?

VM competence improved	Not at all	Minimally	Satisfactorily/ adequately	Strongly/ well developed
Intercultural communication				
E. competence				
English lg. competence				

Personal and social competence (Your being structured and self-organized, keeping time and meeting deadlines, respect for others, working in groups, etc.)				

4.2. Can you specify any of the additional competences, skills or other outcomes (other than the indicated learning outcomes) that you gained during your Virtual mobility studies:

.....

4.3. Please indicate how you felt most often about Virtual Mobility sessions:

Challenged	Always/almost always	Very often	Sometimes	Never
Concentrated				
Emotionally involved				
Empowered/ confident				
Unfamiliar				
Happy/optimistic				
Grateful				
Neutral/ Indifferent				
Curious/ Inquisitive				
Surprised				
Frustrated				
Worried/ Concerned				
Angry				
Disappointed/ Dissatisfied				
Confused/ Uncertain				

Anxious/Stressed				
Contradictory				
Lonely				
Frightened				
Bored				

4.4. Has your participation in the course changed your attitude towards VM?

- ▫ Yes, I see more positive aspects of VM after the course
- ▫ Yes, I see more negative aspects of VM after the course
- ▫ No, my attitude towards VM is still negative
- ▫ No, my attitude towards VM is still positive

4.5. Would you agree to participate in Virtual Mobility sessions in the future if there is a possibility

- ▫ Yes
- ▫ No
- ▫ I am not sure

5. Virtual mobility recognition

5.1. Are there any legal possibilities at your institution that you are aware of for recognition of this course?

- ▫ Yes
- ▫ No
- ▫ I don't know

5.2. Will this module be recognized at your institution?

- ▫ Yes
- ▫ No
- ▫ I don't know

5.3. Do you think that virtual mobility sessions should be treated/ recognized as supplement to physical Erasmus mobility

- ▫ Yes
- ▫ No
- ▫ Partly
- ▫ I am not sure?

If no or partly, please describe.....

6. Other questions

6.1. Please indicate 3 things to be change/improved in the Virtual Mobility module

1 .....

2. .....

3. .....

6.2. Your additional comments to any of the questions or the (sub)module:

.....

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Comparative research study on virtual mobility

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