VYTAUTAS MAGNUS UNIVERSITY

Estela DAUKŠIENĖ

VIRTUAL MOBILITY IN HIGHER EDUCATION

Doctoral Dissertation

Social Sciences, Education Science (07 S)

Kaunas, 2013

UDK 378
Da-423

This dissertation was prepared at Vytautas Magnus University, in the period of 2007-2013

Scientific supervisor:
Prof. habil. Dr. Margarita Teresevičienė (Vytautas Magnus University, Social Sciences, Education Science – 07S)

Scientific consultant:
Assoc. Prof. Dr. Airina Volungevičienė (Vytautas Magnus University, Social Sciences, Education Science – 07S)

ISBN 978-9955-12-968-4

VYTAUTO DIDŽIOJO UNIVERSITETAS

Estela DAUKŠIENĖ

VIRTUALUS MOBILUMAS AUKŠTAJAME MOKSLE

Daktaro disertacija
Socialiniai mokslai, edukologija (07 S)

Kaunas, 2013

Disertacija rengta 2007 – 2013 metais Vytauto Didžiojo universitete

Mokslinis vadovas:
prof. habil. dr. Margarita Teresevičienė (Vytauto Didžiojo universitetas, socialiniai mokslai, edukologija – 07S)

Konsultantas:
doc. dr. Airina Volungevičienė (Vytauto Didžiojo universitetas, socialiniai mokslai, edukologija – 07S)

CONTENTS

INTRODUCTION

Recent challenges of the globalizing world have led to the immense changes in universities and their role in the society. University is no more the only prestigious and unique place providing access to knowledge; therefore, in order to stand out and be attractive to their potential customers – students – and contribute to the society, it should keep abreast with the rapidly changing demands of the world of work and modern life, provide highly-advanced high-quality education and research of the highest international level of excellence and enable its students to acquire cutting-edge competences essential for the efficient work and life in the 21st century.

The changes in the globalized world have triggered the change in the teaching paradigm from knowledge transfer to knowledge sharing, which has called for the change in the teaching approach applied. The teaching and learning paradigm change from teacher-centred approach to learner-centred approach has fostered the appearance of more participative learning methods. Universities have to be flexible and correspond to the changing needs of learners by application of various innovative and contemporary teaching and learning methods. "If we have to prepare students to operate in an unpredictable and pluralistic world then old ideas about how they are to learn within the academy need to be re-evaluated. Students need not only new knowledge and skills, but also different kinds of knowledge and skills; one that go way beyond anything we have traditionally taught in our courses" (Boud, 2004, p. 39).

Every university has to find different ways to respond to the impact of the "information society", to the changes brought by the knowledge economy. "As the demand and the supply of education is globalizing, the coming generation of students differs significantly from preceding ones, the need for life-long learning is replacing classical learning and new technologies call for new learning models, universities are confronted with challenges from the environment and are forced to change their strategy, their policy and their educational models" (Thijssen, 2006, p. 8).

Furthermore, the access to the enormous volumes of freely accessible information which can be used in the teaching and learning as well as in teacher qualification development processes has enhanced the change in the teacher's role and competences. International cooperation and collaboration of higher education (further HE) institutions has inevitably resulted in the demand for the development of intercultural competence of teachers, students and researchers. Designing of joint study programmes, participation in international projects, creation of collaboration networks to work out solutions to common problems are only a few examples of collaboration of HE institutions which is most often carried out using information communication technologies (further ICT). Van de Perre (2007) stresses that "networked e-learning, virtual mobility, and virtual classes are now on the agenda of university top

management.<...> The question for them is only to make choice between different options of networking" (Van der Perre, 2007, pp. 24-25).

Likewise information communication technologies which are the tools for learning and teaching process organisation in the 21st century, virtual mobility (further VM) is also a tool or way for the internationalization of HE, international and intercultural student and teacher collaboration, and a way for the 21st century competence development.

Mobility of individual is common in every European country and is no longer a marginal activity as it was several decades ago. However, academic mobility of students is not so much advanced as it would be preferred. The goal set by the EU for 20% of the European Higher Education Area graduates to have experience of a study or training period abroad by 2020 (Commission of the European Communities, 2009, p. 20) may not be reached easily, although more and "more traditional universities open their borders, collaborate supra/intra-institutionally and often (inter)nationally, and/or involve non-traditional students in their traditional learning environment. In this way every campus becomes a Virtual Campus, and all mobility has now some form of Virtual Mobility included" (Van Petegem, 2009, p. 1).

To sum up, research facilitating trends are the following: teaching practice in HE is influenced by globalization; the change in the teaching paradigm from knowledge-transfer to knowledge-sharing; the changing technologies and their spread in life and learning. Therefore new teaching, learning and assessment methods are to be adopted in higher education institutions.

Research problem. The understanding and interpretations of VM concept have been evolving since its emergence more than a decade ago and, therefore, have led to some uncertainty regarding the use of the concept in higher education. The need for VM and its benefits that are expressed in political documents have been treated differently by various HE institutions, which are not fully aware of the methodology of preparation for virtual mobility and its implementation regarding the steps that should be taken or scenarios that could be chosen in VM organisation. Due to the novelty of the phenomenon of VM, institutions are unsure of what competences teachers have to possess in order to implement VM efficiently as well as possibilities or opportunities to acquire these competences during VM. Other issues are concerned with the design and implementation of a curriculum for VM, with tools or technologies suitable for VM organisation and, finally, recognition of competences acquired during VM.

Research findings show (Op de Beeck, Bijnens, & Van Petegem, 2008) that students who enter the Erasmus mobility programme aim more at intercultural awareness and willingness to know more about another culture. May virtual mobility meet these requirements? Is VM a

way for fostering accessibility of non-mobile students, teachers and researchers? May be there are more aims to be addressed for VM implementation?

Research questions

- How is virtual mobility in higher education defined? How is it different from distance teaching and learning, virtual learning, TEL, virtual campus and other similar processes? Why is it necessary to implement VM in HE?
- How can teachers and institutions prepare for VM? What are VM process phases and what decisions need to be taken to start the VM process? How to design a curriculum for virtual mobility? May every subject be taught this way? What competences may be improved or developed in VM activities? Are there any prerequisites for students and teachers to participate in VM?
- How to implement VM in HE? What learning and teaching methods, and what technological solutions should be used? What else is necessary for successful VM implementation in higher education?

The research **object** of this dissertation is virtual mobility. To limit the scope of the research with the focus of the phenomenon from the educational perspective, the **research area** of higher education was chosen.

The aim of the research is to conceptualize the virtual mobility phenomenon in higher education, analyzing its main components and revealing their relationships.

The objectives of the research:

1. To define virtual mobility concept in higher education, revealing its dynamic change.
2. To justify the importance of virtual mobility for higher education institutions.
3. To analyze the main components of virtual mobility in higher education and reveal their inter-relationships.
4. To distinguish possible VM dimensions, permeating VM process implementation.
5. To identify and discuss the needs, obstacles for and success factors of VM implementation.

Research novelty. The above described reality which faces more questions than answers points to the lack of systemic approach and understanding of virtual mobility concept and competences, acquired during VM activities in higher education. This research contributes to the conceptualization of VM concept in HE, which has been changing for almost 20 years and still is, and provides some structuring of the phenomenon in the process phases, discerns key components and their interconnectedness by VM implementation permeating dimensions.

The changing role of universities in the 21st century society and need for different approaches to learning, as well as different kind of competences and skills for 21st century citizen, has called for universities' collaboration in multicultural competence development of students and academic staff. These challenges have to be met by providing corresponding curricula for students and virtual mobility has proved to be a way to contribute to the development of these competences in HE. The curriculum design for VM and/or its implementation also addresses teacher virtual mobility, which has been even less researched.

The limited existence of VM practices and constant topic discussions in the EU political and priority documents for a couple of decades shows the interest of different stakeholders in the concept and the need for its implementation. The emerging number of scientific publications in the last 3 years have lead to the idea that the concept is being analysed, practiced, and researched, and has attracted the attention of more and more teachers, students, and other staff groups of education institutions, but despite that, more comprehensive educational research of the phenomenon is needed.

Theoretical significance of the research findings

The present research findings have revealed the complexity of the concept under discussion. The research allowed providing the conceptualization of VM phenomenon in HE institutions which is necessary in order to accord different understandings of VM implemented by various HE institution teachers and administrative staff. The categorization of the distinguished, discussed and verified VM components has suggested the links between them, leading to the VM dimensions, permeating the VM implementation. The research proposes a more systematic approach to the phenomenon from the educational perspective.

Practical significance of the research findings

The specified VM process and the relations between key VM components provide the ideas for HE institution to apply and follow, while implementing VM. The review of curriculum design process and tools for VM provides the practitioners with the ideas how VM could be implemented best. The research findings address the competences developed by teachers and students during VM activities. It proved the prerequisites for teachers and students engaging in VM experience, the application of new teaching and learning methods, importance of learner centred approach at education and other findings that support the quality assurance of teaching and learning and modernization of HE. The research not only suggests some practical implementation steps of VM activities and factors leading them to success, but also identifies the main issues and barriers that institutions need to overcome while implementing this kind of cooperation.

The research was based on the following **philosophical reasoning**:

The reasoning of **Connectivism theory**, which states that "we derive our competence from forming connections" (Siemens, 2005). Virtual mobility setting also supports the ideas that "learning and knowledge rest in diversity of opinions" (Siemens, 2008) and that "different approaches and personal skills are needed to learn effectively in today's society" (Siemens, 2008, January 27). This kind of knowledge development is aimed at all VM activities. Connectivism is also the integration of principles explored by chaos, network, and complexity (Siemens, 2005). The creation of connections between students of different backgrounds and teachers or representatives of companies is one of the learning activities in different VM settings. Kop and Hill stress that (2008) connectivism plays "an important role in the development and emergence of new pedagogies, where control is shifting from the tutor to an increasingly more autonomous learner" and, namely, the latter is a major prerequisite for the learning in VM setting. Guder (2010) indicates that concepts such as critical thinking, credibility, relevance, validity, information seeking, and access to information are the principles of connectivism, and they all are important while learning in VM. If one of the most important additional values in VM is sharing and approaching the same phenomenon from different perspectives, this is also a place for connective activities to be organized. It can also be seen that the connections created in the VM setting, in international collaboration engage the students for further learning, what also support connectivism ideas. This kind of reasoning was referred in all parts of research revealing the complexity of VM phenomenon and defining the links between the main VM components in HE.

From the learner's point of view and in VM setting, the theory of **constructivism** is also very important. Constructivist approach stresses that the main principle of learning is the importance of person's previous knowledge that the new knowledge is built upon. In the change of educational paradigm, learning becomes a constructive activity of an individual, which depends on each individual's understanding of the concept of learning, where each individual has to find his/her own way of thinking and build his/her own reality (Gardner, 1999; Teresevičienė & Gedvilienė, 2003; Kieslinger & Fiedler, 2006, Hansen, et al., 2008). In a virtual mobility setting this previous knowledge of each individual learner creates the added value for all learners, and contributes to the fact that learners have to be matured and responsible in VM setting. The cultural approach of each individual is valued and contributes to the development of virtual mobility competences or, namely, intercultural competence and social or personal competences. The curriculum design process for multicultural setting that exists in VM may be based on connectivist and constructivist approaches as well.

Barajas Frutos (2003) notes that "there exist different educational cultures; in each the role of ICT, and virtual learning in particular, is different" (p. 25). The importance of the constructivist approach for the learning organisation process in virtual environments, considering learning as students' construction of meaning is crucial. Supporting Morrone, et al. (2006) it may be stressed that "as ICT has become an integral part of our daily life, we have moved from an Instructivist model of mobility support to a constructivist and connectivist model, which affords greater autonomy and independence to the learner" (Morrone, et al., 2006, p. 10), so the ICT based mobility research and its analysis have been performed integrating the theoretical perspectives of both theories, constructivism and connectivism.

Research methods used:

Theoretical: scientific literature review and meta-analysis of documents, created by VM expert groups.

Empirical: case study (1) and semi-structured interview (2).

Data analysis methods:

- descriptive, educational case report development, including situation analysis by desk research and online survey data, and content analysis of 3 online surveys using descriptive generalisations and statistical data processed with statistical programme (SSPS 19.0), using non-parametric tests of chi^2 and Mann Whitney;
- and the content analysis of semi-structured interviews of teachers and VM experts.

Limitations of the research:

- Virtual mobility phenomenon was analysed from an educational point of view; however limiting the education area to the teaching and learning processes in the European higher education area. The management and administration procedures of VM process were not aimed to be analysed and specified in the research; and were referred only to the teaching and learning organization in HE institutions.
- The VM phenomenon may be addressed from different perspectives in HE – teacher virtual mobility, student virtual mobility, researcher virtual mobility, and other academic and non-academic staff virtual mobility, or VM from HE institution's point of view. As the research focused on teaching and learning processes in virtual mobility, the teacher and student VM was in the focus of attention while discussing different VM activities in formal education. Researcher virtual mobility, and other academic and non-academic staff virtual mobility were not in focus in the research.

- Due to the rare practices of VM activities in Lithuanian and European HE institutions, VM case study research was limited to one case type (VM course) and onetime event (VM module preparation and delivery in 2009-2010).

The findings of the dissertation research were presented and approved in articles published in **refereed scientific publications** registered in international scientific databases:

1. Daukšienė, E., & Mačianskienė, N. (2008). Impact of the use of ICT upon university students' approach to learning a foreign language. *IMSCI 2008: Proceedings of the 2nd International Multi-Conference on Society, Cybernetics and Informatics*, *June 29th – July 2nd, Orlando, Florida, USA. Volume 1*, *6th International Conference on Education and Information Systems, Technologies and Applications.* (pp. 144-149). Florida: International Institute of Informatics and Systemics. ISBN 9781934272473.

2. Daukšienė, E., Mačianskienė, N., & Volungevičienė, A. (2012). Preparedness of European educational institutions for virtual mobility implementation. *Profesinis rengimas: tyrimai ir realijos - Vocational Education: Research and Reality. Volume 2012/23.* (pp.170-186). ISSN 1392-6241

3. Daukšienė, E., Teresevičienė, M., & Volungevičienė, A. Virtual mobility from educational perspective. (accepted to be published In Marek, T.; Karwowski, W.; Frankowicz, M.; Kantola, J. & Zgaga, P. (eds.) Human Factors of a Global Society: A System of Systems Perspective. Tylor & Francis: London, New York).

Separate aspects and problems of dissertation research presented **in other publications:**

1. Daukšienė, E., Teresevičienė, M., & Volungevičienė, A. (2009). Teacher virtual mobility for research and practice. *Innovation and creativity in e-learning: international conference proceedings* (pp. 1-6). Kaunas: Kaunas University of Technology. ISBN 9789955257363.

2. Daukšienė, E., & Mačianskienė, N. (2010). Virtual mobility as a support in the development of core competencies of outgoing students. *Daugiakalbystė ir kūrybiškumas: teorija ir praktika: 4-oji tarptautinė konferencija (Multilingualism and Creativity: Theory and Practice of Language Education: 4th international conference of LKPA)* (p. 83). Kaunas. ISBN 978-9955-880-65-3.

3. Daukšienė, E., Teresevičienė, M., & Volungevičienė, A. (2010). Virtual mobility creates oportunities. *Informacinių technologijų taikymas švietimo sistemoje 2010. E-studijų patirtis, aktualijos ir perspektyvos: straipsnių rinkinys. ("Application of ICT in Education 2010: Experience, Issues and Perspectives of e-Studies: conference proceedings")* (pp. 30-35). Kaunas: Kauno kolegija. ISSN 1822-7244

4. Daukšienė, E., & Teresevičienė, M. (2011). Virtual mobility for lifelong learning. In N. Lobanov, & V. Skvortsov (Ed.), *Lifelong learning: Continuous Education for Sustainable Development. Proceedings of international cooperation. Volume 9*, pp. 45-49. Saint-Petersburg: Leningrad State University named after A.S.Pushkin. ISBN 9785829010768

5. Daukšienė, E., Teresevičienė, M., Volungevičienė, A., & Krakowska, M. (2011). Virtual mobility concept. In M. Teresevičienė, A. Volungevičienė, & E. Daukšienė (Eds.), *Virtual Mobility for Teachers and Students in Higher Education* (pp. 9-21). Kaunas: Vytauto Didžiojo universitetas. ISBN 9789955126751.

6. Daukšienė, E. Volungevčienė, A., & Teresevičienė, M. (2011). Curriculum design for virtual mobility – significance of teacher-student interaction. In M. Teresevičienė, A. Volungevičienė, & E. Daukšienė (Eds.), *Virtual Mobility for Teachers and Students in Higher Education.* (pp. 22-34). Kaunas, Vytauto Didžiojo universitetas. ISBN 9789955126751.

7. Daukšienė, E., Teresevičienė, M., Sabaliauskas, T., & Volungevičienė, A. (2011). Empirical research design. Research methodology. In M. Teresevičienė, A. Volungevičienė, & E. Daukšienė (Eds.), *Virtual Mobility for Teachers and Students in Higher Education* (pp. 58-71). Kaunas: Vytauto Didžiojo universitetas. ISBN 9789955126751.

8. Daukšienė, E., Teresevičienė, M., Volungevičienė, A. (2011). Empirical research analysis. In M. Teresevičienė, A. Volungevičienė, & E. Daukšienė (Eds.), *Virtual Mobility for Teachers and Students in Higher Education* (pp. 72-99). Kaunas: Vytauto Didžiojo universitetas. ISBN 9789955126751.

GLOSSARY

- **Competence** is acquired by merging the already possessed skills of a person with the experience and specific activity environment (Laužackas, Stasiūnaitienė, & Teresevičienė, 2005).
- **Curriculum** is the interdependence of the main parameters of the educational process (aims, content, organisation, 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. (Laužackas, The Explanatory Dictionary of VET Terms (In Lithuanian), 2005)
- **E-learning scenario** can be described as "envision how a specific course should look like, which tools should be used, how participants will act in the course, etc." (Holtkamp and Pawlowski, 2011, p.45).
- **Intercultural competence** is "the ability to interact effectively with people from cultures that we recognise as being different from our own" (Byram, 2000, p. 297). More precisely it is "the effective and appropriate behaviour and communication in intercultural situations" (Deardorff, 2010, p. 1), where the effectiveness associates with personal determination and appropriateness with other individual's determination.
- **Forms of virtual mobility**: fully virtual mobility or part of blended mobility.
- '**Scenario**' can denote both - descriptions of possible future states and descriptions of developments (Börjeson, Höjer, Dreborg, Ekvall, & Finnveden, 2005)
- **Virtual** – "being on or simulated on a computer or computer network, occurring or existing primarily online, of, relating to, or existing within a virtual reality" (*Merriam-Webster.com*)
- **Virtual mobility** (VM) in higher education is a way of learning, teaching, research, communication, or collaboration, based on the following characteristics:
  - ✓ Development of intercultural competence;
  - ✓ Cooperation of higher education institutions;
  - ✓ Application of appropriate technological solutions for teaching and learning, communication and collaboration;
  - ✓ Aimed at achieving academic goals and recognition of the achieved learning outcomes (working definition of the thesis)
- **VM activities** may be the following – a seminar, course, programme, placement, and other socio-cultural activities (Eds. Bijnens, Boussemaere, Rajagopal, Op de Beeck, & Van Petegem, 2006).

- **VM process** consists of the 4 phases (adapted from Boninsegna & Dondi, 1998; Volungevičienė & Daukšienė, 2013):
    - Decision making phase
    - Curriculum design phase
    - Implementation phase
    - Recognition phase
- **Virtual campus** is a set of on-line educational resources, organised around a spatial metaphor (Dillenbourg, Mendelshon, and Jermann, 1999).
- **VM types** – student virtual mobility and teacher virtual mobility (Volungevičienė & Daukšienė, 2013). Both types are important from HE institution perspective and can be implemented together.
- **VM model** is a form of collaboration between institutions for VM implementation. There are two main categories of VM models – based on bilateral agreements and based on multilateral agreements.
- **VM scenario** aims at planning and description of VM experience implementation. It is formed during decision making phase and includes specifications of VM models, types, activities and forms chosen.

Abbreviations used in the dissertation thesis:

DL – Distance learning;
DE – Distance education;
EC – European Commission;
EHEA – European Higher Education Area;
IaH – Internationalisation at Home
ICT – Information communication technologies;
HE – Higher Education
PM – Physical Mobility
TEL – Technology Enhanced Learning
VC – Virtual Campus
VM – Virtual Mobility
VME – Virtual Mobility Element
VME1 – Virtual Mobility Element: International student groups
VME2 – Virtual Mobility Element: Interactivity and communication between students of different countries through ICT
VME3 – Virtual Mobility Element: International teaching groups
VME4 – Virtual Mobility Element: Multicultural exchange
VME5 – Virtual Mobility Element: Use of appropriate technological solutions
VME6 – Virtual Mobility Element: Joint choice of the subject to be studied through VM
VME7 – Virtual Mobility Element: Joint curricula design
VME8 – Virtual Mobility Element: Joint production of learning resources
VME9 – Virtual Mobility Element: Joint titles
VME10 – Virtual Mobility Element: Mutual confidence relationships
R1-13 – respondent No. from a quantitative research
RS1-29 – respondent (student) No. from a quantitative research
I1-12 – interviewees 1-12
VSA model – Virtual stay abroad model

1. CONCEPT AND DIMENSIONS OF VIRTUAL MOBILITY IN HIGHER EDUCATION

The term "virtual mobility" consists of the word "virtual" that is referred to ICT and the word "mobility" that means inter/multi-cultural exchange. Although sometimes the term mobility refers to the separation of people, however virtual mobility implies the opposite – connectedness, as it uses the technologies for connecting people for certain purposes and not separating them. As the process of mobility is implemented in HE institutions, it has to be based on the mutual trust between HE institutions. Furthermore, it should be stressed that VM is a way of teaching and learning in HE context in the multicultural setting.

Virtual mobility is rather a recent phenomenon and has been influenced by the development of ICT very much. However the research focus is not on the technological solutions, but virtual teaching and learning in the international multicultural setting. Therefore, the research starts from the theoretical background analysis of the definition in order to identify its characteristic features and to define the term of virtual mobility from an educational perspective.

1.1. DIFFERENT APPROACHES AND INTERPRETATIONS OF VIRTUAL MOBILITY IN HIGHER EDUCATION CONTEXT

The research of VM concept aims at revising and discussing the evolution of VM definition, identifying the concept characterising dimensions. This part is the result of the systemic content analysis of VM representation in scientific papers, outcomes of the European projects on virtual mobility, and political documents of the European Commission and various networks.

1.1.1. Virtual mobility concept in scientific research

In scientific literature, the virtual mobility concept was first defined by Bunt-Kokhuis (1996, 2001). The author created a rather interesting though specific definition of VM where it was 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" (Bunt-Kokhuis, 1996, 2001, p. 1).

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. Author 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.

A different kind of approach to virtual mobility was introduced by 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, Silvio (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, Silvio (2003) defines virtual mobility as a representation of physical mobility (further PM) 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 centre of one university or enterprise to another located in different places in the geographic space". J. Silvio draws a conclusion that "virtual mobility is mobility of 'bits' instead of 'atoms'." (Silvio, 2003, p. 4).

Similarly to Silvio (2003), Vilhelmson and 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.

Vilhelmson and Thulin (2008), 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 on-going 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 its 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).

However, the above mentioned authors analyse virtual mobility from the perspectives of pure mobility, human socio behaviour or other different perspectives such as transportation, city urbanization or medical issues. These perspectives are not within the main scope of this research, which focuses on the analysis of educational perspective of the phenomenon, regarding 'educational' as some kind of formal or non-formal teaching and learning in the area of HE. So to refer to virtual mobility from the educational point of view, such phenomena as virtual communication, collaboration, research or other virtual learning activities in HE are to be analysed.

The Board of European Students of Technology (BEST) Educational Committee (2006), defined virtual mobility simply as "the possibility to take an abroad course without travelling" (p.6). They also stressed the advantage of VM and skills, developed during this virtual experience – "such as having much more easily cultural exchanges interactions between students, a very large flexibility coming with it and low costs of this mobility system. Virtual mobility can bring a development of different skills and also a huge individual progression." (BEST Educational Committee, 2006, p. 6).

Schreurs, Verjans and Van Petegem (2006) expanded VM definition by supplementing it with the extended option of duration(from a single course to a full academic year), international dimension (international experience is acquired through participation in international discussion groups, seminars, learning communities with regard to a theme of a course or a cluster of courses), allowing for different forms of activity organisation when collaboration is no longer location dependent.

In 2006, EACEA Call for proposals indicated virtual campus similarly to the virtual mobility term, referred in this research. It was stated that "to qualify as a virtual campus, the initiative would have to include a number of partners which could comprise higher education institutions, as well as other teaching and learning related organisations (e.g. training companies, learning and teaching associations etc) who through a partnership agreement cooperate in the

development and implementation of joint curricula based on e-learning or blended learning delivery" (Stansfield, et al., 2009).

BEST Educational Committee in 2007 Symposium again focussed on student mobility and compared it with physical or real mobility, indicating rich cultural and social experiences of mobile students as well as opportunities to learn and practice foreign languages to be the main advantages of real mobility in comparison with virtual mobility. On the other hand, "flexibility of the schedule of e-learning study programmes, which allows students to manage their time more efficiently" was indicated as the main advantage of virtual mobility against real mobility (BEST Educational Committee, 2007, p. 3). They also stressed the need for integration of virtual mobility practices and combination of both – VM and physical mobility.

Poulova, Černa and Svobodova (2013), describing virtual mobility as the way of collaboration of people from different backgrounds and cultures, working and studying together, where crossing borders is not a necessity anymore; relate this approach to 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 a European Higher Education Area and one of its objectives is to facilitate interuniversity mobility and cooperation among universities (Poulova, Černa, & Svobodova, University Network – Efficiency of Virtual Mobility, 2009b).

The ideas that relate virtual mobility with the physical one are also presented in the most common and usually quoted definition of virtual mobility provided by 'elearningeuropa.info' portal, where it is described as: "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" (Elearningeuropa.info, 2009). Vriens, Op de Beeck, Van Petegem, and Achten (2010) opposed this 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" (p.2). 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" (p.2). They also separate fully online VM and VM activities that support physical mobility, as well as teaching/learning approach and practical activities to support learning process, and stress the intercultural experience – "these activities can take place in a fully ICT supported learning environment or as a complement to physical mobility (before, during and after). They can be aimed at the (practical) organisation of the learning process or they can consist of actual teaching and/or learning activities. Virtual Mobility activities can cross borders between regions, countries, cultures and languages, but also between disciplines.

Virtual mobility activities enable collaborative learning (i.e. learning from and with each other) and are always aimed at inter-cultural experiences“ (Vriens, Van Petegem, Op de Beeck, & Achten, 2010, p. 1).

Montes, Gea, Dondi, and Salandin (2011) stress that VM is still an underestimated tool and promote its usage in HE due to its pedagogical advantages. Virtual mobility can enrich the more traditional learning activities by the use of interactive and collaborative learning activities. VM “integrates students in a collaborative learning environment while keeping the benefits of a structured presence in a university campus“ (Montes, Gea, Dondi, & Salandin, 2011, p. 2).

To conclude, the VM phenomenon is rather new to be comprehensively researched and discussed in the scientific literature. The scarce exploration has been noted by different researchers and attracted their interest, leading to the publication of more and more papers on the phenomenon related issues in the recent years. As the scientific papers on VM have still been rare and more usually based on the collaboration in various cooperation projects, especially promoted by the European Commission in the last 20 years, the European project outcomes on VM are also thoroughly discussed in the following section, to reveal more features of VM in education and especially in HE.

1.1.2. Chronological change in virtual mobility definition in concept related project reports

Virtual mobility is rather a new phenomenon and it has been immensely influenced by the development of ICT. Virtual mobility experimentation and practices have also been promoted by the European Commission initiative through various projects. Therefore, the analysis of virtual mobility concept presented in the material of European projects was performed and it covers the results from 32 projects on the topic. Its further, coherent meta-analysis and its results are described in the following parts. This part only reviews the changes of VM conceptual ideas that came from VM expert reports, generated in European projects' consortiums, and were influenced a lot by various initiatives of the EC. The concept has been on the agenda all these years and its different areas have been focused on in different European projects (such as, virtual campus, virtual courses, virtual placements, networking and collaboration, physical mobility fostering by virtual means, virtual student mobility, virtual teacher mobility, etc.), different projects tried to define virtual mobility from their focus perspective. The concept and its definition changes are discussed here in a chronological overview, revealing more characteristics of the phenomenon from the educational point of view.

In the HUMANITIES project (1995), the concept of virtual mobility is considered to be rather broad and it “includes all forms [of learning, E.D.] that are communication intensive and run at international level” or, to be specific, it is 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. (Boninsegna & Dondi, 1998, p. 3)

Although it was one of the first VM focused projects and initiatives, the definition is rather broad and related to different HE institution activities.

The "Spot plus" project team (2001) in the training material "Virtual Erasmus student", which was produced as a project outcome, framed and structured the definition of this concept and presented two forms of mobility – physical and virtual. The training material (Spot+ project team, 2001, p. 1) explains the concept of virtual mobility for students as a number of situations within university which imply "the 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 introduces virtual mobility as a "hybrid model introducing a distance learning module into normal curricula" (Spot+ project team, 2001, p. 12), with the main model components of co-ordinated content focused on comparative approaches, distance teaching, and assessment of results obtained and of processes conducted to achieve these results.

The collaboration of different European higher education institutions was the focus of such EU funded projects as cEVU, Massive, Sputnic, evicab, Reve and many others. The results of the service areas were identified in these projects "as particularly critical and needed in the EU higher education institutions: (1) Evolution of university libraries; (2) Management of IPR issues; (3) Support to teaching staff; (4) Support to students; (5) University strategies towards the integration of ICT in the teaching/learning practice; (6) Virtualisation of contents" (Massive project results, here from (Mázár & Op de Beeck, 2006)); proved that eLearning in 2003-2006 was "mostly used as part of a blend for on campus teaching but only to a lesser extent to support international networking and mobility among universities from different countries. Despite this, Virtual Mobility bears, according to the investigations of the cEVU consortium, the interest of many universities for various types of activities" (Bijnens & Op de Beeck, 2006, p. 38).

In 2005-2006 students' discussions on virtual Erasmus, initiated by e-learning events, aimed "to complement the traditional Erasmus program and to embed it in the mainstream of higher education" (Atanasiu, Dimitrova, & Vansteen, 2005, p. 3). The ideas expressed in different projects (Reve, 2005-2006; Sputnic, 2007) were similar in dividing the topics for

virtual mobility (the so called virtual Erasmus) issues or bottlenecks – they covered educational or pedagogical aspects, organisational issues and technical/technology initiated problems.

A number of projects stressed the intercultural aspect of virtual mobility, for instance, Coimbra Group VM definition explained 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" (Haywood, et al., 2007, p. 70).

A more full-scale interpretation which included intercultural aspect and the reference to education was provided in the *Best-practice Manual on Blended Mobility* (2008) where the authors consider virtual mobility to be: "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" (Op de Beeck, et al., 2008 p. 18).

Moreover, the definition provided in the EADTU Annual Conference 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 an 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" (Brey, et al., 2007).

Daukšienė, Teresevičienė, and Volungevičienė (2010) discussing the findings of VM practices in 6 EU countries identified a "diversified definition of Virtual Mobility" (p.32) concept as one of the problems with the identification of the existing virtual mobility practices. Thus as the processes of the European youth and academic mobility policy and higher education modernization facilitated virtual mobility, it became emphasised, used and discussed in various research papers; however, common agreement of the virtual mobility concept had not been crystallized out, so these years have been very rich in publications referring to virtual mobility, and almost every of them stated what virtual mobility is and put different stress on its features, different research studies and papers pointed out similar but different characteristics of virtual mobility.

Tereseviciene, Volungeviciene, and Dauksiene (2011) indicated virtual mobility in higher education defined in TeaCamp project 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" (p.7).

TeaCamp exploitation workshop organised with different European higher education institutions in 2010 resulted in a definition of virtual mobility for studies, describing it as offering students, as a part of their curriculum, access to courses and study schemes from another university in a foreign country in order to learn, communicate and participate in collaborative work in an international environment with teachers and fellow students abroad via the new information technologies (Juan Fuente, Menéndez Ferreira, & Fueyo, 2011, p. 6)

MoveIT project consortium, updated the VM definition accepted by the Being Mobile project in 2006, replacing 'a form of learning' by what they called a broader term – 'activities': "Virtual mobility stands for the set of ICT supported activities that realise or facilitate international, collaborative experiences in a context of teaching and/or learning" (De Gruyter, Achten, Op de Beeck, & Van Petegem, 2010, p. 18).

About at the same time, autumn 2010, Dondi and Salandin, stressed the need to reformulate the existing virtual mobility concept, while assessing the possibilities created by virtual mobility. They also mentioned that virtual mobility concept is often misconceived and understood as distance learning/education and e-learning; however, "e-Learning and Distance Education do not necessarily imply internationalization of learning/knowledge, intercultural dialogue and cross-border academic cooperation <...> which are, in turn, the major VM drivers" (Dondi & Salandin, 2010, p. 7). Discussing the benefits and possibilities created by virtual

mobility, they also identified **10 major virtual mobility descriptive elements** (here from Montes, Gea, Dondi, & Salandin, 2011, p. 22):

1. International student groups (*further VME1*).
2. Interactivity and communication between students of different countries through ICT. (*further VME2*).
3. International teaching groups (*further VME3*).
4. Multicultural exchange (*further VME4*).
5. Use of appropriate technological solutions (*further VME5*).
6. Joint choice of the subject to be studied through VM (*further VME6*).
7. Joint curricula design (*further VME7*).
8. Joint production of learning resources (*further VME8*).
9. Joint titles (*further VME9*).
10. Mutual confidence relationships (*further VME10*).

The indicated VM elements are rather broad and need revision; notwithstanding that they may exist in different backgrounds via various models and include from some to all of the mentioned 10 elements. However, despite the chosen learning format and irrespective of the involved VM components, for virtual mobility to be successful, according to Montes et al. (2011) three key-elements are essential in designing an internationalisation strategy: "interculturality, all partners' participation, and strong communication aptitude" (p.5). The indicated elements are truly important, as inter-/multi-cultural exchange is the main aim of VM; however, mutual confidence relationship or just mutual trust is also very important when VM is implemented in HE area, whereas ICT or appropriate technological solutions are necessary for the virtual exchange to occur.

To sum up, the following characteristics of virtual mobility can be distinguished on the basis of the above mentioned publications – cooperation of universities as well as students and teachers; use of technologies to reach the indicated aims; international study experience with the stress on cultural aspects; recognition possibilities; and different kinds of activities that may lead to physical mobility or exist separately as virtual exchange or virtual mobility.

1.1.3 Virtual mobility significance in higher education

The process of globalization has brought some positive trends into higher education. Plavcan (2012) identifies them as follows: provision of joint study programmes, mobility of students and teachers, provision of education regardless of national borders, and international graduates' placements. Bulajeva (2013) adds that student mobility is the form of HE internationalization, which has emerged as a response to globalization. Although the

internationalization has been identified by HEIs as one of the main change drivers within the last years, the student period of study abroad depends a lot on institutional internationalization strategy (Sursock & Smidt, 2010).

Virtual mobility started to be included in the agenda of more and more political documents during documents during the last decade of the 20th century. The Bologna declaration (1999), which was followed by the Bologna process, aimed at introducing a system of comparable academic degrees and promoting mobility, by building the European Higher Education Area (EHEA). E-Learning Action Plan (Commision of the European Communities, 2001) stressed the importance of collaboration when defining eLearning as "the use of new multimedia technologies and the Internet to improve the quality of learning, by facilitating access to resources and services as well as remote exchanges and collaboration" (p. 2). It also introduced virtual mobility as a virtual model to be addressed in research in order for "virtual mobility to complement and support physical mobility" (p. 9) and indicated the "need to improve recognition of qualifications, knowledge and skills" (p. 12) in order to encourage mobility and lifelong learning. In Communication of Madrid on virtual higher education and the Bologna Process, November 2003, the issue of virtual mobility was described more in depth (Thijssen, 2006).

Two forms of mobility – physical and virtual – were detailed in EADTU position paper on Virtual mobility (2004): virtual and physical mobility were defined as two different forms of mobility, neither of them being inferior to the other; however , it was admitted that "the design of VM is flexible and can be adapted to various circumstances" (EADTU Task Force on Virtual mobility, here from Thijssen, 2006, p. 11).

Being one of the core elements of the Bologna process and LLP, the mobility of students, teachers and other academic staff has become an issue and a necessity of life. Quoting U. Teichler, "both student mobility and professional mobility of highly qualified labour within Europe might have increased from being a rare exception to one among many options" (Teichler, 2007, p. 2). Poulova, Černa, and Svobodova (2009a) stressed that "a period spent abroad not only enriches students' lives in the academic field but also in the acquisition of intercultural skills and self-reliance" (p. 143). The Erasmus mobility programme, launched in 1987 and run by the EC, has brought mobility to a wide range of countries, teachers, and students from different backgrounds. Thus, in 2008, the representatives of High Level Expert Forum on Mobility proposed "the EU to make <...> mobility for learning the rule, rather than an exception that it is today"(The High Level Expert Forum on Mobility, 2008, p. 5).

The higher aims of students and academic staff mobility and the needs for different kind of education and skills for the future cooperation, the requirements for the change of learning content and teaching methods as well as different forms of learning are raised from both – the society: for receiving a more diverse skills, and the EC: for reaching the goals of the Bologna process, Lisbon strategy and LLP. This leads to the modernization of higher education institutions, their programmes, looking for ways to increase the quality of HE, and to provide the students with a more effective and diverse learning opportunities (Daukšienė, Teresevičienė, & Volungevičienė, 2009).

The European Commission in the agenda of Europe's HE modernization (2011) stressed the need for the student to study abroad and defined virtual mobility as one of the ways to exploit the transformational benefits of ICT to enrich teaching, improve learning experience and support personalized learning. The new proposed definition of virtual mobility was presented by the European Commission in the proposal for regulation, establishing Erasmus for all, where "virtual mobility" stands for "a set of information and communications technology supported activities, organised at institutional level, that realize or facilitate international, collaborative experiences in a context of teaching and/or learning" (European Commission, 2011, p. 15).

Different resources stress diverse aspects of virtual mobility. Therefore, the impact of virtual implementation upon HE institutions, research and learning/teaching processes can also be described differently, focusing on various aspects. The Manual for a Collaborative European Virtual University, also concluded that "Virtual Mobility provides the opportunity to have direct access to top specialists in various disciplines. Through such access, the working environment of academic communities is enriched and Europe's position in a competitive global market is enhanced" (Bijnens & Op de Beeck, 2006, p. 39).

The impact of virtual mobility upon HEIs can also be addressed stressing different challenges that are met, such as **fostering** the creation of 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 & Op de Beeck, 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 (Brey, et al., 2007).
- Virtual mobility can also bring added value if the subjects learned are of an international nature (Pursula, Warsta & Laaksonen, 2005).

- Virtual mobility also encourages institutions to adapt and further develop their pedagogical models: change of content delivery and change in learning tools require changes in pedagogy and didactical models (Bijnens & Op de Beeck, 2006). VM facilitates intercultural experiences of students and their staff through the organisation 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 (Brey, et al., 2007).
- Virtual mobility contributes to the internationalisation of Higher Education (EuroPACE , 2010) and creates a new potential for the organisation 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 & Op de Beeck, 2006). It also increases competition between universities which leads to positive effects on the quality of both teaching and research. It will also have similar effects due to the added co-operation and cost-sharing (Pursula, Warsta & Laaksonen, 2005).
- 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 (Pursula, Warsta & Laaksonen, 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 &Op de Beeck, 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 academic staff.
- It contributes to the Bologna process (EADTU network, 2007) and LLL for all students (Brey, et al., 2007).
- In the context of international economic crisis, virtual mobility might be the key factor in facilitating educational mobility of teachers or students.

As the research focuses on VM from student, teacher, and institution point of view, the main VM benefits may be addressed in the same way. The impact of VM experience from different perspectives is summarized in Figure 1.1. In order to foster the development of future VM practices Abramuszkinová Pavlíková (2011) advocate for the need to share them as best practices to motivate other institutions to join.

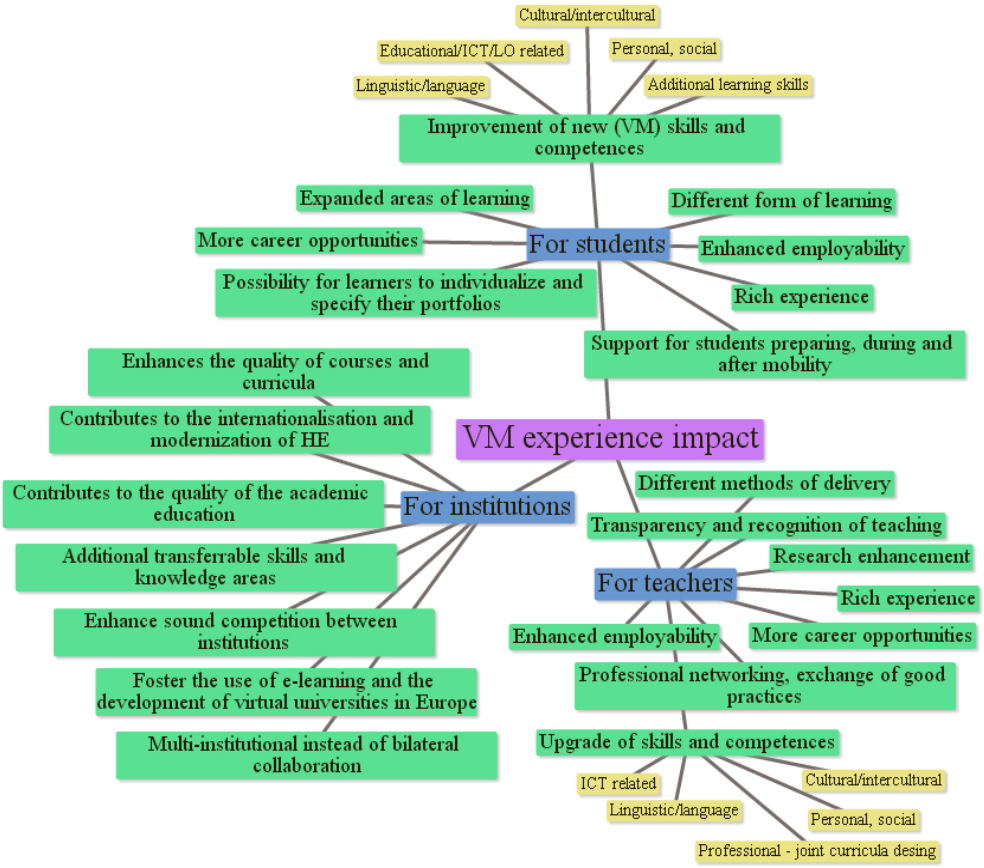


Figure 1.1. Impact of VM experience upon students, teachers and institutions

In 2006, Van Zanten named the **six main barriers** of VM development. They were as follows:

(1) Legislation, preventing recognition of qualifications, gained by distance learning, and public perception, regarding these qualifications as inferior.

(2) Still not universal adoption of ECTS.

(3) Still not universally accepted and adopted Diploma Supplement.

(4) No subsidy available for distance students in the Erasmus scheme, what leads to higher fees for foreign students.

(5) Language skills in reading, writing and speaking needed as a prerequisite. Also, cultural differences have to be taken into account.

(6) Students do not yet spontaneously consider VM as equally attractive as physical mobility (Van Zanten, 2006, p. 92).

Juan Fuente and Menendez Ferreira (2011) identify the following barriers of VM mobility implementation that are summarized in Table 1.1.1.

Table 1.1.1. Barriers and problems for teacher VM (TVM) and student virtual mobility (SVM) by Juan Fuente and Menendez Ferreira (2011)

TVM	SVM	Institutional
• Teacher training	• Language	•Costs and benefits
• Workload	• Cultural exchange in forums	•Adaptation of the administrative resources
• Mobility assessment	• Knowledge of the tools (Moodle, Netvibes, Delicious, etc.)	
• Academic recognition		•Adaptation of the academic resources
• Legal framework	• Videoconferencing for doubts solving	
• Coordination		•Legal framework
• Quality	• Master classes	•Quality Evaluation Agencies
• Cultural identity	• Credit recognition	
• Blended Mobility	• Virtual mobility recognition	

Some of the identified barriers still exist in the HE practices; however, the existence of others may be seen as a barrier or as a prerequisite for VM implementation, and certain attitude in the participant mind has to be applied in order to change the barrier into the challenge that can be overcome and enriched experience gained.

To conclude, the first notions on virtual mobility were indicated in the last decades of the 20th century and at the beginning of the 21st in some research papers (Bunt-Kokhuis, 1996, 2001, Silvio 2003), political documents (Commision of the European Communities, 2001, EADTU Task Force on VM, 2004), and project result reports (Humanities project report, 1995, Boninsegna & Dondi, 1998, Spot+ project team, 2001). As the concept is new and changing, converging, influencing and differentiating on the understanding of different eLearning initiatives from different approaches, its deeper analysis has been implemented and presented in the subsequent chapters, revealing its differences from similar concepts, major characteristics, features, components, and their interrelations in order to conceptualize the VM in higher education.

1.1.4 Difference of virtual mobility from other technology and learning related concepts

Virtual mobility, as defined above, refers to different technology and learning related concepts, but its main difference is the intercultural aspect – it refers to mobility and communication, collaboration or other forms of interaction between people from different countries and different cultures.

Most commonly VM is opposed to physical or **traditional, real mobility**, which covers the travelling from one country to another, or even broader, the so called physical displacement. However, in VM, "what is mobilised, and therefore transferred, is knowledge" (Montes, et al., 2011) and shared experiences. Another misapprehension, related to VM, is the meaning of the word mobility in the term, which "leads one to think to separation rather than to connectivity, access and community" (Montes, et al., 2011).

Another concept that VM is closely related to and often confused with is **distance learning**. Distance learning is part of the most VM activities and shares some of the same benefits; however, most of the authors stress limited contact with teacher and learner's possibilities to learn at his/her own pace and time as the main feature of distance learning. A different aspect of virtual mobility may be reference to the collaboration with other learners that is necessary for the development of intercultural competence. The learners' interaction with the teacher depends a lot on the VM model chosen for the virtual campus activities or part of the course activities; this might be true, however, if the course is delivered jointly by several teachers, there might be synchronous communication activities organised aiming at sharing different cultural approaches. Salandin, Dondi, and Boonen (2010, p. 16) distinguish virtual mobility from eLearning by "internationalisation and interculturality", considering interculturality be the cornerstone of VM.

Together with the ideas of VM and the necessary tools for it to realize, the concept of **virtual campus** appeared. Dillenbourg, Mendelshon, and Jermann (1999) defined virtual campus as: "a set of on-line educational resources, organised around a spatial metaphor, i.e. resources are located in different area of the cyberspace. These resources are two-folded: (1) On-line sources of information including texts, video and audio documents, bibliographies, computational models, databases, real-time measurements, ... often accessible via World Wide Web; (2) Media for interacting with other members of the virtual campus (tutors, students, administrators, ...) including written, voice and video communication tools, synchronous or not: electronic mail, chat boxes, discussion forum, audio links, video channels ..." (Dillenbourg, Mendelshon, & Jermann, 1999, p. 1).

In 2007-2009, Bacsich, Bastiaens, Bristow, Op de Beeck, Reynolds, and Schreurs (2009) performed a thorough analysis on the virtual campus concept; some definitions, stressing the concept change and different scale and usage were provided. They stated that the concept of virtual campus "has changed since it first came into use, because now more and more universities see the possibilities inherent in offering courses off campus <...> Additionally, the term virtual campus is often used to describe international cooperation among universities from several countries" (p. 19). This can be illustrated by Evene project partners' report, where virtual

campus is described with regard to the organisational aspect as a network of universities created for collaboration: "with the purpose of sharing study modules, teachers, and students for the provision of distance education through the exploitation of elearning and the Internet - i.e. the virtual mobility of students" (Evene project partners, 2008, p. 84).

Although virtual campus and virtual mobility refer to institutional cooperation, the main difference is that the focus of virtual mobility is on international and intercultural aspects, competence improvement of participants, or collaboration with the aim of the same goals as physical mobility; while the focus of virtual campus is on institutional and technological cooperation; however, the results of both may be seen as the same.

The other two phenomena - **internationalization at home** and virtual mobility - contribute to HE internationalization and seek for the development of intercultural competence of students and/or academic staff. Virtual mobility focuses on the activities that replace physical travelling, but also aims at the support to physical mobility, and the development of intercultural and other types of competencies of students, teachers and academic staff; while the phenomenon of internationalization at home is much broader and may be implemented by various activities. According to Joris (2006), internationalisation at home *(further IaH)* is "everything that can be done for the people who do not take part in a mobility project, so they do get to acquire a number of internationally oriented competencies to cope with in a globalised world" (Joris, 2006, p. 60). Although these are two similar processes, but the main difference is that internationalization at home can be implemented within the institution itself. As internationalization is one of the aims that HE institutions raise, virtual mobility may be a way to contribute to it; however, there are also other ways for the internationalization at home to be realised.

Joris (2006) stresses that IaH should be mainstreamed in HEIs in such a way that the participants doing it do not even realize that they are doing it, so HEIs "should ensure that there is internationalisation for all, i.e. beyond mere mobility" (Joris, 2006).

Boninsegna and Dondi (1998), comparing virtual mobility with **traditional distance education** and **open distance learning, conventional teaching and physical mobility**, stress the following elements as the benefits of virtual mobility compared to other forms of teaching and learning: university visibility, contribution to university capitalization, increased exploitation of educational technologies and use of ICT by various typologies of actors, university attractiveness to potential students, exchange of and access to expertise, learning effectiveness, higher flexibility in time, wider access in terms of social distribution, re-usability of jointly created learning materials/recorded lessons, reduced feeling of isolation, generation of

innovation attitude, and various organisational, pedagogic and economic factors which contribute to good practice in university dissemination and mainstream.

A. Boninsegna and C. Dondi, (1998) also stress such VM features as flexibility and better access by emphasising that virtual mobility allows for higher flexibility in time if compared to physical mobility schemes: "Access in terms of social distribution is wider in virtual mobility schemes than in conventional teaching and physical mobility, where economic and organisational constraints often reduce access" (Boninsegna & Dondi, 1998, p. 35). They also identify such VM benefits for the institution as visibility and innovation: „Virtual mobility may also increase the adaptability of actors' roles, it gives visibility and generates innovation attitude much more than other kinds of teaching and learning" (p.37).

Table 1.1.2. VM concept differences and similarities with other TEL related concepts and traditional (physical) mobility

Feature	VM	DL/DE	VC	IaH	Traditional mobility (PM)
Main aim	Learning and teaching in multicultural environment	Learning on selected place in own pace, time, and preferred way	Access to digital resources	Acquire internationally oriented competencies	Different aims; possibility to experience cultural differences
International student groups	For cooperation and intercultural competence development	Not required	Not required	For development of internationally oriented competencies	Student learning in different cultural environment
Interactivity and communication between students of different countries through ICT	Must be present at SVM	Different countries are not required	Different countries are not required	ICT are not required	ICT are not required
International teaching groups	Must be present at TVM	Not required	Not required	Not required	International from the point of view of travelling person
Multicultural exchange	Intercultural or multicultural depend on VM model (No. of participating countries)	Not required	Not required	Not required	Cultural exchange
Use of appropriate technological solutions	Must be present	Must be present	Must be present	Not required	Not required
Joint choice of	An option at	Not required	Not required	Not required	Not required

Feature	VM	DL/DE	VC	IaH	Traditional mobility (PM)
the subject to be studied	SVM				
Joint curricula design	An option at TVM	Not required	Not required	Not required	Not required
Joint production of learning resources	An option at SVM or TVM	Not required	Not required	Not required	Not required
Recognition	Still an option at SVM or TVM	Must be present	Not required	Not required	Must be present
Mutual confidence relationships between different HEI	Must be present at SVM or TVM	Not required	Must be present	Not required	Must be present

The comparison of VM features with other concepts are summarised in Table 1.1.2., where the white areas indicate similarities and the light-grey areas note small differences and dark-grey one indicate that the VM feature is no required in other forms of learning.

To conclude, VM aims at learning and teaching in intercultural or multicultural environment using appropriate technological solutions and enabling the cooperation and interactivity of learners and teachers from different countries.

1.2. CATEGORIZATION OF VIRTUAL MOBILITY COMPONENTS

Summarizing the above quoted definitions, some obvious categories of the components characterising virtual mobility can be discerned as virtual mobility can be addressed from several approaches in higher education. This section focuses on the following categories of VM: its types, activities, forms, and elements and their inter-relations in order to conceptualize the VM phenomenon.

1.2.1. Virtual mobility types, forms, and elements

The VM phenomenon can be approached from a different main participant perspective or, in other words, different **types** of virtual mobility may be distinguished depending on the target group at exchange; thus, there is teacher virtual mobility (further TVM) and/or student virtual mobility (further SVM). If we aim at SVM, different features or elements may be more important, as well as some VM elements may not be very relevant or just optional in other cases (such as international teacher groups and joint curricula design may be absent during SVM (Volungevičienė & Daukšienė, 2013); while during TVM the limitation of the following components may/may not exist – international student groups, joint choice of the subject and

joint titles). Thus, this research focuses on 2 **types of VM:** student virtual mobility (further SVM) and/or teacher virtual mobility (further TVM); noting that from the HE institution's perspective both (SVM and TVM) are important and can be targeted together.

Referring to these different perspectives, called VM types, the revision of VM elements, identified by Dondi and Salandin (2010), was carried out (see Table 1.2.1.).

Table 1.2.1. VM elements' reference with VM types

	VM type		
VM element No.	**Student virtual mobility**	**Teacher virtual mobility**	**VM from Institution perspective**
VME 1	International student groups	International student groups	International student groups
VME 2	Interactivity and communication between students of different countries through ICT	Interactivity and communication (between students of different countries) through ICT	Interactivity and communication between students of different countries through ICT
VME 3	(International) teaching (groups)	International teaching groups	International teaching groups
VME 4	Multicultural exchange	Multicultural exchange	Multicultural exchange
VME 5	Use of appropriate technological solutions	Use of appropriate technological solutions	Use of appropriate technological solutions
VME 6	(Joint) choice of the subject to be studied through VM	(Joint choice of the subject to be studied through VM)	Joint choice of the subject to be studied through VM
VME 7	(Joint) curricula to be studied and ***competences to be acquired***	**Joint curricula design**	(Joint) curricula (design)
VME 8	(Joint production of) learning resources	(Joint) production of learning resources.	(Joint) production of learning resources.
VME 9	(Joint titles)	Joint titles	Joint titles
VME 10	*Recognition*	Mutual confidence relationships	**Mutual confidence relationships**

The light-grey colour and brackets were used in Table 1.2.1. to indicate that some or certain part of the VM element may not be present at certain perspective; the importance of component at certain perspective is in bold, the words in italics indicate the added/changed elements after the revision. The elements are revised in this research to define their relations and different importance in the VM process.

With regard to the forms of virtual mobility, **2 forms** may be distinguished: fully virtual and part of blended mobility. A number of publications (see explanations below) stress the existence of different **form of virtual mobility**:

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, Bijnens, Michielsens, & Van Petegem, 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). When VM activities are referred to as an alternative for physical mobility, it is meant that learning or collaboration activities are provided and carried out **fully online**.

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, Bijnens, Michielsens, & Van Petegem, 2007). The learning or its organisation in this approach is **blended** – some activities are online while others include face-to-face experiences.

It is stressed that both forms of mobility (i.e. PM and VM) are important, as well as both VM functions- to act as alternative of PM or support PM: "recognizing the value of VM - the use of ICTs for twinning and exchange between young people in learning environments - both as a means to prepare, enrich and follow up on physical mobility moves and as an activity conveying at least some of the benefits of physical mobility in its own right" (Commission of the European Communities, 2009, p. 5). Discussing VM forms, the Green Paper of the Commission of the European Communities (2009), focusing on PM and seeking to promote organized learning mobility, pointed out some of the characteristics of virtual mobility which can be described as follows:

Table 1.2.2. Characteristics and functions of VM forms

VM characteristics in the Green Paper of EC (2009) and Blended mobility manual (2008)	**Functions of VM as part of blended mobility**
➢ it does enable young people to prepare 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	➢ VM function is to prepare for physical mobility
➢ virtual mobility must be used to enrich and support physical mobility by offering the possibility to stay in contact with the home institution while abroad (Op de Beeck, Bijnens, & Van Petegem, 2008, p. 21).	➢ VM function is to support students during physical mobility
➢ VM "provides a means to keep in contact with the host country once the mobility period is over" (p.18).	➢ VM function is a follow up of physical mobility
VM characteristics in the Green Paper of EC (2009)	**Fully virtual mobility functions**
➢ "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" (p.18)	➢ VM acts as a motivator of physical mobility
➢ VM may be an appropriate and practical form of mobility for young pupils, where travelling abroad may not be an option	➢ VM function is to substitute PM of learners
➢ VM provides an international dimension to those learners	➢ VM function is to serve as a

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." (p.18)	means of internationalisation

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

1. *the communication, discussion and/or interaction* of no longer location dependent participants (Bunt-Kokhuis, 1996, 2001), (Spot+ project team, 2001), (Schreurs, et al., 2006), (Vilhelmson & Thulin, 2008);
2. *enhancement of intercultural understanding* (Van der Wende (Ed.), 1998), (The Scottish Centre for research into On-Line Learning & Assessment, 2007), (Op de Beeck, et al., 2008), (Pigliapoco & Bogliolo, 2007);
3. *a form of learning or exchange of knowledge* (Op de Beeck, et al, 2008), which covers:
    - non-formal learning, such as *participation in local communities* (The Scottish Centre for research into On-Line Learning & Assessment, 2007);
    - formal or informal learning, such as *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)
    - collaborative learning with *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);
4. *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, et al., 2007).

The first 2 characteristics of VM from educational perspective are very similar to the 2 VM elements, identified by Dondi and Salandin (2010), i.e. Interactivity and communication between students of different countries and Multicultural exchange. The fourth characteristic may be treated as part of the institutions relationships referring to recognition of experience. The third educational VM characteristic is broad and involves different components when different learning activities are implemented. It may also be approached from different participant perspective.

To sum up, there are 2 different forms of virtual mobility - **fully virtual or part of blended mobility:** fully virtual mobility may be an alternative to PM, or a motivator for PM;

and may be combined with or lead to PM; while VM as a part of blended mobility (when VM is combined with PM) aims to prepare, support or follow up the PM or just enrich the virtual or physical exchange experience.

1.2.2. Categorization of virtual mobility activities

Different authors group VM activities differently and name them as different categories, types, or maintain the same term 'activities'. This section aims at structuring and discussing different VM activities in order to conceptualize VM phenomenon and identify more educational characteristics of VM.

The first categorization of different VM activities in HE may be found at EADTU Task Force on VM (2004). Noting the core potentials of VM, Van Zanten (2006, p. 91) summarizes and explains 4 paradigmatic categories of VM activities:

1. VM in the framework of *an international learning experience* through *communication* and hence an *intercultural exchange*.
2. VM by students through *choosing one or more courses from a guest institution*.
3. VM in the framework of *jointly developed and offered courses or joint study programmes*, eventually leading to joint certificates or degrees.
4. VM in the framework of *continuing professional training* and development for people in employment.

The first category is presented from the institution's point of view, as it stresses the experience creation by universities; however, the result is informal learning and intercultural exchange in the HE which are aimed at SVM and TVM. The second category represents students' point of view (or SMV), while the third looks from teachers' perspective (or TVM). The last one may be from either the employers or teachers' perspective in the HEI or students' perspective after graduation. However, if to refer all categories to HE which involve formal education, the first 3 categories may refer to courses or programmes of a different length (or even part of a course), that are the same kind of activity only organised in another way and/or for the different purpose. The last category (4) may be understood very differently – it may refer to the course organisation for teachers or teacher virtual mobility, it may also be understood as informal learning for company employees (or other type of institutions, but not HEI); however it may also refer to virtual/international student placements.

Most of the projects referring to education base virtual mobility classification on Bijnens and Op de Beeck's (2006) approach, where they indicate the following 4 types of virtual mobility (the authors called this categorization as types; however this research refers to them as VM activities, as the term 'types' is used to indicated 2 VM types – SVM and TVM):

Table 1.2.3. Reference between VM activity and type in Bijnens and Op de Beeck (2006) categorization

VM activity by Bijnens and Op de Beeck (2006)	Reference to VM type
1. courses at a foreign university while staying at home and vice-versa	SVM
2. 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.)	SVM / (TVM)
3. virtual internships in companies abroad	SVM
4. guest lecturers from foreign universities virtually presenting their lessons to students in other universities	TVM

The latter categorization presents the first 3 categories from student's perspective and the second and the last one from teacher's perspective, wrapping everything up as educational VM activities in institutions. The second category is explained from student's point of view by the authors; however it may be easily interpreted as teacher Erasmus (TVM) as well. Montes et al. (2011) add to Bijnens and Op de Beeck (2006) identified "4 types" of virtual learning activities that "virtual course may be used as a preparatory activity to physical exchange, enabling a better preparation and follow-up of students participating in physical exchange programs" (p.3), which shows across-reference of several activities, or just different VM types of the same activity indicated as separate activities.

Referring to some of the above described categorizations of virtual mobility, Bijnens, Boussemaere, Rajagopal, Op de Beeck, and Van Petegem (2006) present a broader categorization of virtual mobility **activities** grouped by various different parameters. They characterize virtual mobility activities by 4 different categorizations of virtual activities (further specifying only some of them):

- by the 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 in terms of amount of on-line work, such as Silvio's (2003) classification of virtualization: (1) totally virtual, (2) partially virtual, (3) dual, and (4) mixed. Pigliapoco and 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 activities

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 research focuses on virtual mobility from an educational point of view, the typology of virtualization is discussed here as far as it refers to teaching or learning activities.

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

(1) Browsing
(2) Information search
(3) Communication:
    a. Synchronic
    b. Asynchronic

However, Bijnens et al. (2006, p. 28) provide a critical comment with regard to 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 the "Virtual Mobility Tools", so they are not detailed here.

Discussing the VM typology based on the technologies used, virtual campus typology may also be revised and discussed here (the references of VM and virtual campus (further VC) are explained more in Sub-chapter 1.1.4), focusing on how VM activities may be categorised based on different virtual campus used. Bacsich, et al. (2009) present a rather broad and diverse categorization of virtual campuses, classifying them to 5 categories – (A) UNESCO, (B) Political Scope of Initiative, (C) Current Status of Initiative, (D) Internal Scale of Initiative, and (E) Academic Level of Initiative.

One more categorisation by distinction between activities, based on the teaching and/or learning scenario that has been used, was stressed by BENVIC project partners (here from Eds. Bijnens, et al, 2006, p.28) while determining a virtual campus typology. The identified virtual teaching and learning scenarios are based on Coomey and Stephenson (here from BENVIC

project partners, (2000)) diagram of control of learning focus axis crosses task specification and places possible teaching and learning scenarios in 4 positions:

- teacher controlled, specified learning activities,
- teacher controlled, open-ended or strategic learning,
- learner managed specified learning activities,
- learner managed open-ended or strategic learning.

As there is no common agreement as to the categories of virtual mobility activities, VM activity categorization by the circumstances in which it takes place can be referred as most representative, and stands as the basis for further discussion of VM activities in HE. Bijnens, Boussemaere, Rajagopal, Op de Beeck, and Van Petegem, (2006) present VM activity categorization by the circumstances in which it takes place as follows (the 4 categories below are referred as VM activities in this research):

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 ones are set as a complement to physical mobility. It can be noted that using different VM forms, different aims for VM course or seminar may be raised and implemented. This leads to the idea that virtual course or seminar may be set up to foster or support PM, this way the last VM activity is suggested to be called other virtual activities that support physical mobility.

Juan Fuente, Menéndez Ferreira, and Fueyo (2011) categorize virtual mobility according to its academic purpose:

- Virtual mobility for studies.
- Virtual mobility for placements.
- Virtual mobility for shorter academic activities (Juan Fuente, Menéndez Ferreira, & Fueyo, 2011, p. 6).

However, this categorization is rather scarce, as studies and shorter academic activities overlap, and it is not defined what is meant by studies and what kind of academic activities may be included in the shorter description. It also does not specify if shorter academic activities include physical mobility support activities that are intended for more social and intercultural purposes, such as virtual buddy system or various portals or social networks for experience

sharing while staying abroad or preparing for a visit, or extending it, and physical mobility issues that may not be called academic activities. If the categorization may be applied from teacher VM perspective, the shorter academic activities could include research and participation at various professional development events, or other activities.

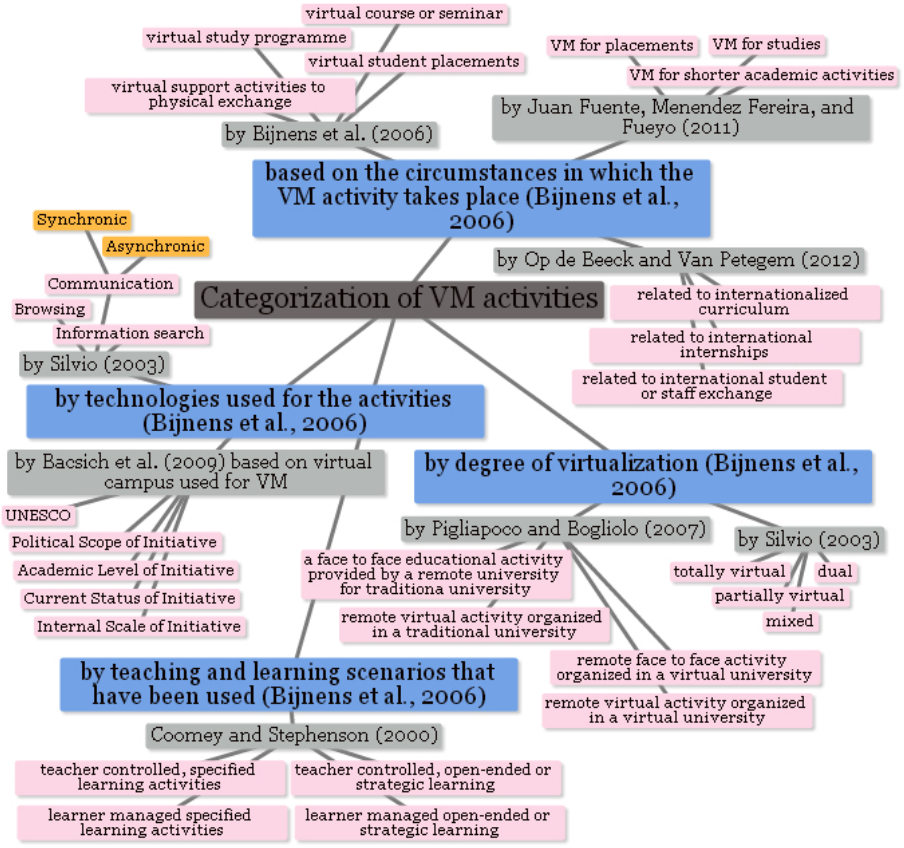


Figure 1.2. Categorization of virtual mobility activities by different authors

Op de Beeck and Van Petegem (2012) introduce one more categorization of VM related to: international student or staff exchange, international internships, and internationalized curriculum.

Summarizing the above mentioned and identified VM forms, types, and activities, the complexity of VM phenomenon may be showed as follows:

Table 1.2.4. VM activities and forms

	VM forms		VM types	
	Fully virtual mobility (VM)	**Part of blended mobility** (VM and PM)	SVM	TVM
VM activities	1. Seminar(s)	1. VM seminar and PM	Possible	Possible
	2. Course(s)	2. VM course and PM	Possible	Possible
	3. Study programme	3. Combined of VM and PM	Possible	Possible
	4. International student placement(s)	4. Virtual international student placement(s) and PM/ International student placement(s)(PM) and virtual support activities (VM)	Possible	Optional at some cases
	5. Other virtual activities to support mobile students/teachers	5. Other virtual support activities to PM	Possible	Possible

A virtual mobility course, organised for students, covers formal education; however, today's university openness leads to virtual courses for the general public as well. The idea for a university to organize a virtual seminar also comes from the tendency of university openness to society. However, virtual seminars are useful for both – the students and the society (Vanbuel, et al., 2008). The organisation of a seminar is much simpler from an administrative point of view than a formal interuniversity virtual course aimed at virtual mobility. A VM seminar and VM course are, in a way, similar activities; however they were separated to indicate that a course covers formal education and a seminar represents non-formal education. It should be noted that a virtual mobility course may have a different number of ECTS credits and vary in complexity of its implementation. A virtual mobility course or programme may fit into one category, however they may differ in the length or number of ECTS, and different virtual mobility organisation scenarios may be chosen for virtual mobility competence improvement during the course and during the whole programme. The main difference in VM scenarios chosen for a course and programme refer to the intensity of intercultural communication, which is aimed at just one course or during the whole study programme. It may also be noted here that more experience and mainstream of virtual mobility activities are still necessary to enable university level cooperation in virtual mobility programmes, although they already exist.

1.2.3. Quality assurance of virtual mobility process

Although virtual mobility types, forms and activities might be different, the process steps may be similar. Some research (Dondi & Salandin, 2010; Volungevičienė & Daukšienė, 2013) focus on the qualitative virtual mobility process. For the more coherent VM phenomenon explanation its process phases and element significance in different stages are discussed in this chapter.

According to a number of VM researchers (Morrone, et al., 2006; Haywood, et al., 2007; Op de Beeck, Bijnens, & Van Petegem, 2008; Vriens & Van Petegem, 2012), mobility process can be divided into 3 stages – before, during and after mobility. More explicitly it can be divided into the stages of preparation, implementation or process realization, and post mobility activities, and practice recognition. Some of the researchers (Morrone, et al., 2006; Haywood, et al., 2007) relate these stages to physical mobility, still others (Op de Beeck, Bijnens, & Van Petegem, 2008; Vriens & Van Petegem, 2012) also apply them in VM, what is relevent when VM is part of blended mobility. Joris (2006), discussing a virtual mobility process from the perspective of internationalization at home, defines a 5 stage-scheme to be used "to measure the extent and the quality of Internationalisation activities, with a special focus on the "at Home" aspect" (p. 66).

Boninsegna and Dondi (1998) describe virtual mobility as an innovation process considered and implemented through 5 phases: decision making, design, implementation, dissemination and evaluation. Revising the suggested steps and focusing on formal virtual mobility of students and teachers, Volungevičienė and Daukšienė (2013) suggest slightly different process steps: decision making, curriculum design, implementation, evaluation and feedback, and accreditation and recognition. However, students feedback and course evaluation are the components of curriculum design, so the process can be simplified. The following **VM process phases** are suggested in this research:

1. Decision making;
2. Curriculum design;
3. Implementation;
4. Accreditation and recognition.

Op de Beeck, Bijnens, and Van Petegem (2008) aimed to raise the quality of student exchanges by offering virtual support to physical mobility. Student virtual mobility mainstream oriented project EPICS (2010) left quality assurance issues to module providing institutions. The module selection quality criteria are set by institutions, expecting their students to participate in the module. Salandin, Dondi, and Boonen (2010), discussing virtual mobility components and

various models, also defines 20 virtual mobility quality criteria & indicators for HEIs to weigh the function of their chosen virtual mobility model. These quality criteria are divided into general (8) and specific (12) and are as follows:

Table 1.2.5. Quality criteria, identified by Salandin, Dondi, and Boonen (2010)

General virtual mobility quality criteria	Specific virtual mobility quality criteria
1. Effectiveness	9. Staff competence
2. Inclusiveness	10. Learners' competence
3. Innovation	11. Learning resources
4. Coherence	12. ICT Infrastructure
5. Efficiency	13. Institutional competence
6. Responsiveness to feedback	14. Cultural setting
7. Sustainability	15. Learning environment
8. Integration	16. Compliance to norms and regulations
	17. Equilibrium reciprocity
	18. Mutual confidence relationship
	19. Intercultural interaction among student groups
	20. Project evaluation (learners satisfaction)

Based on the 20 quality criteria, revision of virtual mobility elements (based on Movinter project, 2010), and contributing to the phases identified in Humanities project (Peraya, 1995), Volungevičienė and Daukšienė (2013) described virtual mobility quality criteria in an extensive and explanatory way in Quality Assurance Handbook for Virtual Mobility (Volungevičienė & Daukšienė, 2013). Referring to virtual mobility process implementation phases suggested and virtual mobility features explained in the handbook, virtual mobility process of a **virtual mobility activity** may be as follows:

1. Decision making phase:
    - Step 1. Decision on the VM organisation made.
    - Step 2. Assessment of the preparedness done.
    - Step 3. Agreements between participating institutions signed (course/programme level).
    - Step 4. Virtual mobility type selected and scenario developed.
    - Step 5. Administrative documents prepared (course/programme level).
    - Step 6. Technical virtual campus operationality fulfilled.
2. Curriculum design phase:

Step 1. International teacher groups formed.

Step 2. Learning objectives for virtual mobility exchange formulated.

Step 3. Decisions on the selected virtual learning environment or platform made.

Step 4. Teachers' responsibilities for (each) learning-teaching part design shared.

Step 5. Learning content virtualized, joint learning resources prepared.

Step 6. Decisions on technologies for communication and interactivity during exchange

Step 7. Support system planned

3. Implementation phase:

Step 1. Administrative tasks planned and implemented

3.1.1. schedule planning – dates and timing agreements;

3.1.2. pedagogical, administrative and technical support systems at all participating institutions identified and presented;

3.1.3. VM activity marketing organised.

Step 2. VM experience organisation:

3.2.1. participants registration;

3.2.2. schedule adjustments;

3.2.3. learning organization and feedback

3.2.4. learner assessment;

3.2.5. VM activity evaluation.

4. Recognition phase:

Step 1. ECTS credits for students and teachers identified at leading host institution.

Step 2. ECTS credits for students recognized at home institution.

Step 3. ECTS credits / delivery hours or virtual exchange records for teachers recognized at home institution.

While suggesting the possibilities for process evaluation for VM seminars, Vanbuel, et al. (2008) present and describe different evaluation possibilities – "formative evaluation, summative evaluation, process evaluation, product evaluation, and usability evaluation" (p.23). The difference between assessment and evaluation may be defined as Boninsegna and Dondi (1998) describe it: "There is a clear distinction in this context between assessment (finding out to what extent an individual has achieved specified standards) and evaluation which is examining current performance of a scheme or process to diagnose if any modifications are needed or desirable" (Boninsegna & Dondi, 1998, pp. 57-58).

Although various authors suggest using different stages for a certain category of VM activities, the above indicated phases and steps are best represented by VM courses and programmes. VM seminar or short course stages, as referred above, may not require some of the steps as the experience may be shorter or less academically limited. The above indicated stages may also be followed in planning and implementing international virtual internship; although, Vriens and Van Petegem (2012) suggest using a more simplified structure of before, during and after phases. However, as a decision making phase is related to institutional decisions which would (not) lead to activity recognition, it is suggested for a virtual mobility placement also to have all 4 stages. Curriculum design and implementation phases may have different steps, as different competences may be aimed at improving.

The authors (Vriens & Van Petegem, 2012) mention such activities during the "before the work placement stage": planning all aspects of placements – matching of learning outcomes and enterprise needs, integrating intercultural skills development, determining assessment criteria, identifying and merging students' and enterprise expectations, agreeing on different actors' roles and responsibilities, technology selected and administrative issues. There also might be student training involved, if necessary. During the placement, the student is involved in the foreseen competence development, with the help of coaching from company and academic mentor. To stimulate the learning process, it is suggested to implement feedback from academic mentor and/or peers on student reflections. Student assessment and evaluation of the placement are implemented in the "after the placement" phase.

It would be impossible to structure the other activities that support physical mobility by virtual means as they may be very different. However, following the phases of before, during and after mobility, different virtual activities may be implemented in different phases, such as preparation for mobility courses, various activities on cultural or language preparation, or virtual buddy system may be employed before the mobility; virtual courses at home institution while staying abroad, or virtual reflections or other tasks maybe foreseen while the student is in another country (or during mobility phase); and virtual examinations or finalization of projects, or other post mobility activities may be planned for the "after mobility" phase.

The revision of VM elements and their reference to the VM process phases was implemented by Volungevičienė and Daukšienė (2013) in Quality Assurance Handbook for Virtual Mobility. The importance of VM elements and their different relevance is summarised in Interim findings part. To relate the VM process with the VM models and scenarions, it can be noted that VM scenarions may be used for decision making, leading to the description on the following decision made – VM model, VM type, VM form, and VM activity. In order to discuss the importance of different VM elements and make links between them and the process phases,

the key VM components – VM scenarios, VM curriculum, VM competences and VM tools – have to be dicussed next.

1.2.4. Virtual mobility models and scenarios

The collaboration of universities was not a new phenomenon at the time VM concept and ideas appeared. In the 1990s, the university cooperation via the use of technologies for networking within research collaboration was already running. The successful Erasmus mobility programme, which was launched in 1987, "initiated academic collaboration in education at exploratory level" (Van den Branden, Van Heddegem, & Van der Perre, 2007, p. 113) of such university networks as Coimbra Group, EADTU, EuroPACE2000, etc.; however, their collaboration was restricted to mainly satellite based, unidirectional teleclassing. With the influence of technology development and videoconferencing via ISDN in the arena, as well as the EC promotion programmes, a set of models for Virtual University for Europe was developed in the VirtUE project (Van den Branden, Van Heddegem, & Van der Perre, 2007). The project consortium introduced 3 models of various activities to be undertaken within the distributed virtual university. The suggested models are as follows:

1. A virtual class and campus model aims at universities' on-campus students with the activities of joint virtual seminars and courses for Ph.D. students, virtual Erasmus exchange as a compliment to physical Erasmus, and research collaboration activities. The main module activities are lectures delivered by experts to remote classrooms.

2. A flexible open and distance learning model offers education to individual learners or their groups with the support from the study centre or company training centre. It concentrates on asynchronous course delivery and asynchronous support to learners. All courses, developed in the networking universities, constitute a pool which is accessible and used by cooperating universities to satisfy their needs.

3. On demand, a learning model provides custom-made training, not focussing on diploma oriented education. It corresponds to the needs of the addressing learner, who may be a professional or an industry person, and needs updating, upgrading or re-skilling. The model aims at competence acquisition and uses the pool of training and learning resources with the help of experts that are present at networking knowledge centres.

VirtUE project identified the 3 models for cooperation, but the development of technologies, the universities' challenges and issues raised by the Bologna process and the development of EHEA left little time for university cooperation and, as indicates Van den Branden, Van Heddegem, and Van der Perre, (2007, p. 118), "full-scale implementation [of the 3 models] never took place for various reasons". The rapid technology evolution and access via

www, as well as e-learning paradigm did not contribute to the value of the created VirtUE models as the knowledge society and 2.0 learning were raising other kinds of needs. Various projects and collaborating university consortiums investigated and summarized the collaboration models, some of them supporting the models by possible collaboration scenarios.

In 2004, the cEVU project consortium revised the previously defined collaboration models and scenarios, and came up with 4 models that can be developed between institutions in Europe, and that could be envisaged from one model to another. However, they also stressed that collaboration of institutions in virtual activities "depends on the willingness of university partners to limit or extend their collaboration, and on the underlying level of autonomy that each partner wants to maintain or wants to hand in to a central agency" (Van den Branden, et al., 2004, p. 11). This suggests that **mutual trust** between institutions to collaborate is one of the main VM elements. The proposed 4 cEVU models of collaborating universities (See Annex 1. for visualization of the models) are as follows:

1. A collective venture (central agency) with centralized action or **virtual university** (European university) that plays a dominant role and is a collective venture of participating universities that collaborate in a network. The central agency dominates and takes the initiative for course development, registration of students (through the participating universities), offering of courses, awarding of credits and certificates, and monitoring the activities of student support; while each participating institution retains its own identity and may have its own offer next to the one that is provided through the network collaboration.

2. A collective venture (central agency) with decentralized action or **partnership** (European partnership), where collaborating universities retain responsibility for courses, students' registration and certification, however, have more contacts with the central agency that with each other. As the agency presents the products, suggested by universities, the products are more modules than courses or programmes; however, based on partnership institution's intention, joint study programmes may be designed.

3. An interaction model or **consortium** (European consortium), where the central agency is a repository of materials and knowhow, and the universities are responsible for their collaborative initiatives. The sustainability of the model depends on the willingness of academics, students and management staff to collaborate.

4. A broker model or a **portal site**, where the central agency is an intermediate institution between producers and consumers of courses. The main benefit of the model is the access to web-based courses from partnering institutions by students.

Bijnens, Boussemaere, Rajagopal, Op de Beeck and Van Petegem (2006) direct their VM categorization on VM activities, focusing on the category of activity taking place; however,

they present the models only for VM courses/seminars which fit into one category, according to them. The stated models are based on different types of institutions' collaboration and may be of collaborative arrangements or non-collaborative arrangements. The authors stress that institution collaboration type influences VM activities; and refer courses of collaborative arrangements to a joint course design and delivery, as well as joint student support, involving the aspect that institutions are in different countries; while non-collaborative agreements are similar to the ones described in cEVU Model 1, where one HEI or a newly created HEI is responsible for course organisation, and other institutions collaborate only with this leading institution. (See Annex 2. for graphical representation of collaborative and non-collaborative agreement models).

In 2009, *e-move* project team presented 3 models of VM activities – a virtual stay abroad, a virtual seminar and a virtual campus (Brey, et al., 2007). The virtual stay abroad model refers to the VM type activity of a course or module; the virtual seminar model is similar VirtUE virtual class and campus model, but refers to the VM activity type as a virtual seminar; and the e-move virtual campus model description refers to the part of the course. Brey et al. (2007) also refer to the 4th possible model – also a course, only with the aim to prepare the first time VM students for VM; however they do not specify it as it was not still implemented. To sum up, the *e-move* project VM models are explicitly defined and described more as VM scenarios rather than just models, as they provide concrete examples of certain activities, credit recognition, student enrolment and other features and steps guiding the implementation.

Salandin, Dondi, and Boonen (2010, p. 17) composed 5 VM sub-models which are based on the combination of 10 VM elements and refer to their intensity or existence. The 5 sub-models are not hierarchical and can be explained as in Table 1.2.6.

Table 1.2.6. Reference of various VM sub-models, elements and activities, adapted from Salandin, Dondi, and Boonen (2010)

Sub-model	Status of VM elements				Possible VM activities
	necessary	high intensity	low intensity	Optional	
1. Enhanced distance education (international distance education with attention to intercultural elements).	VME1 VME3 VME5	VME2	VME4	VME6 VME8 VME9 VME10	virtual seminar, virtual course or other socio-cultural activities
2. Resource-based international eLearning (joint usage of resources or repositories)	VME1 VME3 VME5	VME8	VME2 VME4	VME6 VME10	virtual seminar, virtual course or other socio-cultural activities
3. Informal learning (no recognition, problem based learning issues, international learning communities)	VME1 VME3 VME5 VME10	VME2 VME4 VME6	-	VME7 VME8	virtual seminar, virtual course, support activities for virtual placements or other socio-cultural

Sub-model	Status of VM elements				Possible VM activities
	necessary	high intensity	low intensity	Optional	
					activities
4. In-depth academic cooperation (joint curricula design with no joint titles).	VME1 VME3 VME5 VME10	VME2 VME4 VME6 VME7 VME8	-	-	virtual seminar, virtual course or programme, virtual placements, or other socio-cultural activities
5. Full development of VM components (Joint (intercultural) curricula design and implementation with full title).	VME1 VME3 VME5 VME9 VME10	VME2 VME4 VME6 VME7 VME8	-	-	joint seminars, jointly designed and delivered courses and programmes

The review of these elements suggests that international student groups, international teaching groups and appropriate technological solutions are necessary in most of the models or have to be planned while building a VM scenario. Mutual confidence relationships or mutual trust is necessary when the exchange is implemented in the institutional setting. The intensity of the interaction and communication between the participants and multicultural exchange depend on the activities implemented. Various administrative solutions that fall under VME6 and VME9 play a significant role only when the extensive institutional cooperation is in the focus.

The above discussed VM models refer to general cooperation and collaboration of universities, and as the time and practice shows they can vary depending on different factors and different situations. However, when referring a different model of institutional collaboration to VM, the main difference that influences is the number of institutions involved as this leads to the intensity of cultural exchange or composition of multi-cultural setting, which may be very different; however, the increase in nowadays mobility of people and inter-cultural features of the society from one country may be very different. Still, when it comes to the administrative issues, there is a big difference if only 2 institutions collaborate or 3 and more; especially, when institutional agreements are to be signed. As it was discussed, there may be different forms of agreements for institutional cooperation and collaboration. Although a model is a rather broad term and can be used in different contexts, here it is suggested to define the broadest categorization of institutional agreements for VM. So, the research identifies **2 main institutional models of VM – bilateral or multilateral,** which need to be chosen at the decision making phase and stand as a background for further process phases.

How these models and types are related to scenarios can be explained by a VM scenario definition. The concept 'scenario' can denote both - descriptions of possible future states and descriptions of developments (Börjeson, Höjer, Dreborg, Ekvall, & Finnveden, 2005).

"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" (Holtkamp & Pawlowski, 2011, p. 43). The first notion should be made on the difference between virtual mobility scenario and a learning scenario in virtual mobility.

Holtkamp and Pawlowski (2011) described an e-learning scenario as "envision how a specific course should look like, which tools should be used, how participants will act in the course, etc." (p. 45). So the learning scenario in virtual mobility describes how learning could be organised during a certain virtual mobility activity. But a virtual mobility scenario in fact is different, as it covers the whole virtual mobility process and details how a certain virtual mobility activity may take place.

Different scenarios may be created during VM decision making phase while choosing a VM type, form, or activities. It also can be used for planning virtual mobility activities, and the questions that should be detailed in a scenario depend on the aim of writing it. Borjeson et al (2005) define 3 types of scenarios – predictive, which focus on *what will happen;* explorative, which focus on *what can happen;* and normative, which refer to *how a specific target can be reached.* From an administrative point of view, predictive or explorative scenarios may be developed, while from an educational point of view it is most useful to write a normative VM scenario with the aim of answering the question of *how to reach a certain goal within VM?* So, there may be different VM scenarios chosen and prepared for, such as e-learning scenarios, curriculum development, learning evaluation, VM administration, or other.

Modelling is often used in combination with baseline scenarios, which are the most plausible scenarios of all possible. Different possibilities are visualized for better understanding (Holtkamp & Pawlowski, 2011). So a VM scenario may be mixed with a VM model, which refers to the already existing examples *in order to explain the phenomenon and facilitate understanding by eliminating unnecessary components* (BusinessDictionary.com). "Within education, the term 'model' is used to mean various things. Sometimes it refers to the (theoretical) representation of a reality by identifying its main components and their interdependent relations; sometimes it is used for organisational schemes at a macro, meso or even micro level of education; sometimes it stands for description of dedicated methods and/or procedures that should be used to obtain desired effects in education; and sometimes it is just a synonym of term 'example'" (Van den Branden, Van Heddegem, & Van der Perre, 2007, p. 109).

Thus both concepts (*scenario* and *model*) are used in the research, depending on the reference and aim - to simplify (model) or specify (scenario), and interpreting 'scenarios' as detailed plans of the VM experience or activity that may include a VM model, type, form or

activity decision, and its specifications; and referring to 'models', when VM model needs to be chosen (bilateral or multilateral) or certain process or phenomenon may be explained graphically, showing links between the main elements or process phases. VM activities models and scenarios are also analysed during this research and they are summarized in the sub-chapters of this research.

The VM scenario is the main outcome of the VM process decision phase, so it is useful to revise VM elements important for this phase and define their links and reference to the VM scenario. Salandin, Dondi, and Boonen (2010) identified 10 elements not discussing which is more important. Such elements as International student and teacher groups (VME1 & VME3) are the ones that identify the VM process participants. The importance of the main process target group decision was already stressed in the discussion of VM types (see sub-chapter 1.2.1.). The decision to focus on the student virtual mobility or teacher virtual mobility or both should be made in the decision phase (chosing VM type) and represented in VM scenario. The roles and responsibilities of the participants depend a lot on the model and activity chosen, and other VM components – curriculum, competences and tools.

The element of interactivity and communication (VME 2) is described by the links in VM models and VM curriculum desing process which is based on competence development and implemented using different tools. Such elements as joint subject choice and recognition (VME 6 & VME 9) are described by the administrative documents and refer to the VM administrative activities (that are not in the focus in this research) from an institutional perspective. As the decisions in VM scenario building have to corespond to the institutions' agreements which indicate the Mutual confidence relationship (VME10) of signing institutions, the element importance signifies the posibility to recognize the learning activity, realized in VM.

Multicultural exchange (VME4) is the focus of all VM process, and the appropriate technological solutions (VME 5) may be reffered to VM tools and will be more discussed in VM tools exploration part. Joint curricula design (VME7) and joint development of learning resources (VME8) are implemented in the second process phase and will be discussed in the next chapter.

The models for institutional cooperation and their importance while building VM scenario were discussed in this chapter. The following subchapter summarizes the exploration of VM activities models, which can be used for VM activity scenario descriptions.

1.2.4.1. Virtual seminar models and scenarios

Virtual seminars were implemented by different cooperation of institutions. Humanities (1995) and Spot+ (2001) projects focused on expert seminars and covered 3 expert lectures

which were delivered either in audio conferences or were recorded and watched before the audio conferences, leaving the connection time for discussions. Some discussion on the web, mainly using the email, were organized after the first audio conference. Based on this organization experience D'Ancona (Peraya, 1995) provided some guidance for virtual seminar organization scenarios:

- encourage students participation and interactivity among them;
- work in smaller discussion groups (6-8 students);
- encourage students' activities;
- allow more time for the discussion and the preparation of the debate;
- interact with a smaller number of co-acting groups (a maximum of five per subject matter seems ideal);
- go deeper in the task at hand (tutor-student work);
- accompany the modules with a critical reflection on the social impacts of new technologies;
- integrate cultural discrepancies as a dynamic factor. (Peraya, 1995)

The e-Move and Venus projects created and specified models and scenarios for virtual seminars. Virtual seminars were also organised in a number of other projects, such as Sputnik, but other projects do not make explicit seminar model or scenario descriptions, so certain models and scenarios may not be defined. 2 virtual seminar models (of e-move and Venus projects) and their scenarios are compared and discussed below.

Table 1.2.7. Suggestions for VM seminar organisation in steps:

	Venus VM seminar	e-move VM seminar
1.	**Finding Networks and Partners**, preparing explicit plan for action, setting agreements (including IPR); note for common interests, different time zones, and appropriate technologies available	**Design stage**: - format, - language assessment; - academic and intercultural value
2.	**Curriculum and Content design**: set attractive topics that fit to students' curriculum, decisions to participate are taken by departments, start working beforehand, speakers need to be engaging	**Setting-up:** - target group and entrance requirement, - enrolment and registration, - fees, access to library resources
3.	**Managing IPR** during planning and implementation stages; IPR Risk assessment; IPR agreements and contracts	**Teaching and tutoring the seminar**: - requirements for teachers and - guidelines for collective actions for tutors
4.	**Management, Administration and Organisation** (including Multicultural and Multilingual Aspects)	**Offering the administrative support** to students (support at participating university)
5.	**Promotion and Supporting** Participation. - reaching the audience - keeping the audience interested	**Establishing the partnership**: Level 1: Students and an institutional coordinator can participate

	Venus VM seminar	e-move VM seminar
	- use of existing online communities for dissemination of certain topics	Level 2: A tutor also participates Level 3: A case study is provided as well and the expert participates
6.	**Technical Management** – choices in respect to networks and services and how to set up and manage VM sessions from technological point of view	**Informing and attracting students** (connect with students' organisations, use the web-publish in diff. sites, email, design a web page; speak out and print it on paper)
7.	**Cost Issues** – to review relevant basics for cost accounting and decide on the cost model	
8.	**Evaluating Virtual Seminars** – there are different ways to evaluate, decisions should be based on target groups	

The e-Move virtual seminar model description is constituted of 6 parts: 1. Designing, 2. Setting up, 3. Teaching, 4. Providing administrative support, 5. Establishing the partnership, 6. Informing and attracting students. Each of the parts contains the general information, steps and decisions necessary to be made, and a practical example of the seminar. The experience presented is based on long-term organisation of the European Virtual Seminar on Sustainable Development.

A Venus project virtual seminar model may also be called an expert seminar. It is presented in 4 phases – 1. Defining the goals, 2. Planning, 3. Delivery, and 4. Follow-up. Each of the phases is explicitly defined and described with the necessary steps and guidance with an example of the Venus seminar approach. Although the structure of both seminars may look similar, however, the description differs in terms that the e-move model scenario is based on the steps in each stage, which not necessarily have to be implemented in sequence, while the explicit explanation of the Venus seminar scenario is only of the first phase and the next 3 phases that need to be followed in the suggested sequence are generalized with the value creating activities and enabling activities.

To sum up and compare both models, some virtual seminar aspects are similar in both models, just with the specifications and focus on different aspects. Although *e-move* scenario may seem to be more explicit, it provides more guidance on decisions and steps for the future implementer from an organisational point of view, while *Venus* seminar builds up all the phases on more theoretical models and stresses the pedagogical approach, curriculum and learning content more, and both models refer to the previously implemented seminar examples.

Summing up virtual seminar analysis, it can be concluded that the main phases of it are setting the goals or decision making (with the emphasis on finding the partners for networking, setting the themes and target group students), preparation and design from pedagogical, technical and administrative perspectives (i.e. curriculum and content design, including cultural

and linguistic aspects, agreements on IPR, choices for technologies, structure for virtual sessions, preparation of administrative requirements, seminar marketing), delivery and support (technical, pedagogical, administrative), and follow-up (either different activities or tasks for students to reflect on the new knowledge)

1.2.4.2 VM course or programme scenarios

There were many different EU projects that worked on VM courses analysis (REVE, Massive, e-Move, EVENE, Movinter, TeaCamp, VM-COLAB, Ubicamp, etc.) or implementation (Euroclass, Evicab, moreVM, EPICS, TeaCamp, VM-COLAB, Ubicamp, etc.), so together with their research, shared models and full scenarios for courses can be summarized, revising course implementation scenarios.

One of the most common VM course models is called a virtual stay abroad *(further VSA)* or remote access. It may be described as a course provided for different universities' students or a course taken by a student at a foreign university, followed by the credit transfer towards the degree at home university. The model was analysed and explained by REVE, e-Move, Active Asia, etc. projects' teams, and also implemented in some projects (such as Evicab, EPICS). The main characteristics of this model are: fully online course or module delivery with virtual and/ or face-to-face assessment, credit transfer from host to home university. The combination of this kind of courses with physical mobility is also possible. A VSA model can also be approached from teacher perspective and explained that a course or part of it may be provided by a teacher abroad, creating possibilities for TVM, which can also easily be combined with traditional teacher mobility.

Another model, which is rather different from the VSA, is a jointly delivered course or module. It may involve (or not) joint curricula design by teachers and have a different range of commonly developed and shared activities – teachers designing a course may share the course in parts, just agreeing on common learning outcomes of the course and sharing responsibility for certain activities and topics (such as a multi-institutional course, more explicitly described in Part 3 of this research and in Juan Fuente et al. (2011), Teresevičienė, Sabaliauskas et al. (2011), Daukšienė and Teresevičienė (2011)) or they can jointly agree upon the common learning outcomes and prepare and deliver the course together, focusing more on different cultural backgrounds and comparing different cultural approaches in one topic during the course delivery (VMU *Global problems* course, within Lithuanian and American universities). Teachers may collaborate in the course design, and there may be collaboration between the local student groups and international student groups that may be created for the whole course or just part of it. One more model of a VM course and/or teacher collaboration may be found at the

course adaptation stage, prepared in one university and adapted for another country university. This joint curricula design and/or delivery may range from a whole study programme (from several, to many courses), to one course/module or just part of it. This model focuses more on TVM, involving different forms of collaboration of teachers, however when the joint delivery comes in, SVT also has to be present.

Brey, et al. (2007) investigation presents one more model of a part of a VM course, which is called virtual campus. The main feature of this activity is collaborative work of students on the assignments in multinational groups, using the same collaboration platform or tools to reach the group goals. Evene project team (Evene project partners, 2008) presented a virtual campus model for exchange of e-courses between different universities. The learning and teaching in this kind of course is based on the VSA model, but as all courses are accessible via joint, main platform called virtual campus, the model is also called as virtual campus.

One more model of VM courses refers to the courses that aim at the preparation for virtual mobility (Brey et al., 2007, p. 6) or physical mobility. These courses may not have certain credits provided, but be of an introductory type – such as collaboration activities before the VM course for students in certain environment, or culture and city information based content for self-study and discussions in the host university environment before physical mobility.

To sum up, different VM models may be chosen to better fulfil the exchange goal or widen the possibilities for non-mobile students, or to support the mobile ones. These different combinations used may lead to construction or recognition of VM programmes. VM courses are the main VM activity where student and teacher VM may be present. A role of tutor is described and mentioned in some of the VM course scenarios, mainly joint course design and/or joint delivery. To conclude, 3 main models were found analysing VM courses scenarios:

- Virtual stay abroad or remote course access model (a course(s) in another HE institution) – focus on student VM (TVM possible for shorter VM courses)
- Virtual campus model – focus on student and/or teacher VM
    - For joint access to resources
    - Joint development of resources
    - Joint activities
- Joint curricula design and delivery model- focus on student and/or teacher VM
    - Joint design (TVM)
    - Course adaptation (TVM)
    - Joint delivery (SVM & TVM)
    - Joint design and delivery (SVM & TVM):

- Divided into parts (Teacamp)
- Aimed at different approaches sharing (Global social programmes)

To conclude, there is a wide range of VM course models that can be used implementing VM programmes or enhancing cooperation between higher education institutions. However, first, the decisions regarding a VM type – SVM or TVM; an institutional VM model – bilateral or multilateral; a VM form – fully virtual or blended, and a VM activity itself have to be made, before preparing the VM activity scenario using such models as - VSA, VC, or Joint curricula design and/or joint delivery model.

1.2.4.3 VM placement models and scenarios

VM placements or virtual internships were addressed by several EU projects, such as Intern, Being-Mobile, EU-VIP, Pro-VIP. As there are 2 forms of VM – fully virtual or part of a blended mobility, so there may be fully virtual internships which include no physical mobility of students, and blended internships – when physical mobility and virtual activities are combined either for the preparation of virtual or physical internship.

There are several models of **fully virtual placement**. It may be that the only difference of location and/or time is overcome by ICT - "in case of virtual student placement, the internship occurs nearly entirely in an ICT supported learning environment that allows learners and company employees to engage into interaction independent of location (cross-border) and time (synchronous or asynchronous)" (De Gruyter & Van Petegem, 2007, p. 161). But it can also be a model of virtual company that student can have a placement in, or just virtual activities (such as conference organization virtually, or support for international institution in organizing event in student's country).

There also may be models of physical mobility **combined with virtual placements**, such as student visit to a company before virtual internship. However it may also be student internship in another country (really travelling) **with different virtual support activities**, such as virtual preparation, virtual preparation and/or virtual support or virtual tasks during the internship, and/or virtual activities after the internship. As De Gruyter and Van Petegem (2007) stress, "ideal internship is a blend of virtual and physical components: a physical student placement could profit from virtual support mechanisms; a virtual student placement from a face-to-face encounter" (De Gruyter & Van Petegem, 2007, p. 166).

The virtual support activities may range "from the perspective of the student, preparatory VM actions can offer support at social, cultural and linguistic level, as well as introduction to placement related tasks" (De Gruyter & Van Petegem, 2007, p. 162). The preparation activities for physical placements of students may also vary – they might be orientation models, language,

culture, digital learning or internship preparation courses; there might be virtual selection tests, or some kind of university-industry networking, or virtual introduction activities of company, project or tasks, etc. The virtual activities after the international placement may be different, as well: assessment or evaluation, alumni network engagements, or just extension of contacts, or other.

The key actors in different VM placements are students, company staff (representative) and university staff (representative)/teacher. EU-VIP project summarized 19 pilot studies of internships. Most of the pilots cover virtual preparation or support activities for regular students' placement, combining international placements with local ones to provide feedback, sharing, reflection and support. There are also several virtual placements organised; however, most of them involve either academic staff mobility for a set-up, either student mobility to get introduced to the company and colleagues. Below are some interesting key ideas for scenarios of virtual internships summarized:

- a market research study for a company in students' home country or cooperation of students from 2 countries for a project in one or both of the countries, or market analysis for potential country entrance, combined with students' visit to a company in another country;

- virtual conference organisation (registration, abstract tracking, and preparation of conference book) or desk research for foreign business school on the internationalization of SMEs;

- testing the software development programme combined with students' visit to a company in another country, for the aim to get to know the company product better; or development of website or any special software (such as Moodle set-up and design) for another country institution with the supervision of company/institution mentor or academic staff;

- online placement support environment for the supervision of virtual placements or virtual mentoring and communication of trainees during the placements.

To sum up, although virtual internship is possible and a reality nowadays, practices indicate that face-to-face activities or combinations of physical and virtual mobility are necessary for introducing the company, its members to the student and vice versa, for the teambuilding and more personal contact to stimulate the virtual placement experience. So where fully virtual internships take place more academic guidance and reflections are introduced for student, as well as groups of students sometimes are involved in the same virtual placement, for a student not to be left alone and not to get lost in virtual space. To conclude on the scenarios and models of VM placements, fully online VM placements may be organized or the blend of physical and virtual components may be used – physical placement with virtual support

activities or virtual placement with physical mobility for stimulation of personal senses and lead to better results.

1.2.4.4 Scenarios of virtual activities to support physical mobility

A number of projects (such as VM-Base, Victorious, Esmos, Sumit, Mobi-Blog, Let's go!, EuropeNow, ESN Galaxy, etc.) concentrated their research on the digital support or help for the preparation of or a follow up of the physical exchange, as well as networking, sharing and other activities during the exchange. Most of these projects performed research on the needs and ICT related experience of mobility students in different universities, and provided some of the guidelines or recommendations for student assistance using ICT for mobility supporting purposes.

The main actors in this type of VM activities are exchange students; however, participation of the administrative staff, responsible for the exchange, teachers or tutors is also necessary in some cases as the activities may be content oriented, or need some university personnel information to be provided. In the TVM type these activities may be focussed to support teacher physical mobility by virtual means or virtual mobility by physical exchange.

Some of the key ideas, summarized in the cases described by the European projects, for VM support activities scenarios may be:

- virtual selection of students for physical exchange or virtual testing/learning tools for students to be enrolled (such as a topic testing tool, guiding students either to not learnt theory parts or facilitating to the next topic – used for self-testing of students to be sure they have some basic skills);
- introductory or preparatory courses for different purposes (orientation, culture, language, e-skills, or other), or virtual orientation platforms, or a virtual buddy system;
- the study module to unite the student who is planning to go abroad with the one who has experienced the exchange;
- support on content of courses, selection of courses, regulations in other universities, their learning culture;
- virtual blogs or platforms for mobility guidance, real time sharing, experience reflections or other activities to foster mobility;
- access to digital repositories or resources;
- virtual examination facilities at the end or after the exchange, and other.

Virtual support activities may be complemented with different physical mobility activities and may be of different types, so some of the support ideas are also presented within virtual mobility courses, or part of the courses, or programmes, as well as placements with

virtual support. After meta-analysis of VM expert group reports and analysis of virtual mobility activities as support for physical mobility (i.e. Op de Beeck, Bijnens, & Van Petegem, 2008; Haywood, et al., 2007; Valiuškeviciute, et al., 2006), there were 3 or 4 phases of physical student mobility identified, so it is possible to state that virtual mobility activities may also vary according to the identified phases. The mentioned report, following different students' needs (student needs were explicitly addressed by Op de Beeck, Bijnens, & Van Petegem, 2008, p. 37) at different phases, suggest, describe, sometimes implement and analyse the different support scenarios, such as

- (for the preparatory phase) utilizing peer mentors as tutors via virtual buddy system, providing different preparatory/guidance/academic orientation/transition courses prepared or created by students during the exchange, based on prior academic introduction and students experience, multimedia presentations and video interviews with students on the exchange, subject specific multi-language courses created by students and teachers, electronic language tests for outgoing students;
- (during the exchange phase) writing online diaries or blogs, developing and updating the existent courses with the information provided during the stay abroad or
- (after the mobility phase) interviews or other forms of feedback, virtual examination labs, oral exams at a distance via FlashMeeting, etc.

Most of the virtual support scenarios stress the links created between the students who are preparing for the mobility with those who are on the exchange or back from the exchange, in order for the preparing ones to learn of what to expect, while for the experienced ones to reflect on what they have experienced and learnt.

To conclude, different VM activities were implemented in the European projects and many of their explicit scenarios are available in project reports or publications. A Virtual mobility scenario may be used to describe VM process or express and plan decisions on the choice of different type, form, model and/or activity. VM scenarios may also be different in separate VM activities and depend on the aim or competences to be acquired and improved. A VM scenario is a possible result of the Decision making phase which contributes to the VM process implementation. It is important to stress here that the decisions made during first process phase (i.e. on type, model, form, activity) are the background for other process phases, which depend a lot on these agreements. It also means that other dimensions – VM competence, curriculum and tools – are dependent on the decisions made and presented in the VM scenario.

1.2.5. Virtual mobility curriculum design

Analysing the dimensions of effective learning, Durkin (2002) identified the following criteria of effective e-learning: clearly structured teaching; constant support for learner motivation; stimulation of learning individualization; effective communication and creation of communicative relations (Durkin, 2002, here from Daukilas, 2010). Van den Branden et al. (2004) confirmed the findings of other publications of that time and concluded that "not the technology but the pedagogy is the problem for e-learning: a coherent elearning pedagogy is not yet existing" (p. 35). 6 years passed, and Active Asia project team stated the same - that a "coherent e-learning pedagogy on how to organise virtual mobility initiatives does not yet exist" (Active Asia project partners, 2010, p. 48). Shiram and Warner (2010) research show that the web 2.0 technologies are used for learning in universities, especially for uploading and access to data, however the process of traditional learning is limited to practice based activities, which are largely on the periphery of the education. Therefore, it was purposeful to analyse different aspects that contribute to the efficiency of VM curriculum design and, having summed them up, to provide some guidelines here.

Learning in VM setting is different from traditional learning and distance learning context; thus, designing VM curriculum requires from higher education teachers to take into account different parameters. According to Casa Nova et al. (2011), teachers have "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" (Casa Nova, Costa, Leal, & Oliveira, 2011, p. 35).

Discussing the quality assessment of technology enhanced learning (further TEL) Volungevičienė and Teresevičienė (2011, p. 52) distinguish the following components of TEL curriculum, which should be taken into account while designing a curriculum: teaching/learning subject (or subject-matter); teaching/learning (or instructional) situation and teaching/learning organisation. These components together with the components mentioned by other authors, such as learning outcomes and competences, interactivity and communication of students and teachers from different countries, development of learning resources, agreements on assessment strategies and student support systems will be discussed in this chapter; however, it should be noted that "a very important issue is the compatibility among teaching and learning components themselves" (Volungevičienė & Teresevičienė, 2008, p. 40).

Concept

Before analysing the curriculum design, the concept of curriculum should be defined. The curriculum in this research is understood as the interdependence of the main parameters of the educational process (aims, content, organisation, teaching methods, aids, and assessment), and 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 (Laužackas, 2005). It may be elaborated as "designing the objectives, educational concept, methods and forms, and evaluation of the results and their practical use" (Prusakova, 2013). While some authors of the analysed research address curriculum as a programme and its implementation, this dissertation treats it as described above and the curriculum concept here is not defined as a study programme (which is referred to here as a programme).

Methodological dispositions

A number of researchers (Marozas, Jegelavičius, Kybartaite, and Nousiainen, 2007; Volungevičienė, Teresevičienė, and Daukšienė, 2011) note that the design of TEL curriculum and learning organisation for virtual mobility should be based on a certain methodology and theoretical dispositions. Volungevičienė et al. (2011, p. 31) recommend that "theoretical methodological dispositions for academic virtual mobility curriculum were grounded on experiential learning theory". As interaction between the students and their prior learning experience may play a rather significant role, while designing curriculum for virtual seminars Vanbuel et al., (2008) suggest the following aspects of adult learners having in mind that:

- *any new knowledge builds on the previous knowledge;*
- *understanding, argumentation and application are closely related to each other;*
- *learners try to comprehend and evaluate theoretical information through practice;*
- *learning is based on the learner's own activity;*
- *social interaction has a central role in learning;*
- *flexibility in training arrangements supports the adult learners' level of autonomy* (Vanbuel, et al., 2008, p. 16).

Walsh (1999, here from Valiuškevičiūtė et al., 2006), addressing internationalization of curricula, emphasises another theoretical background – the connectivist approach, stating that "the success of international online learning relies on educators being able to create virtual learning communities that facilitate meaningful interaction in culturally diverse discourses" (Valiuškevičiūtė, et al., 2006). Furthermore, Arinto (2013) encourages university teachers to design good learning tasks that would enable learners to be active in collaborative communities and, with the guidance of a teacher, to find themselves the sense of the wealth of the resource.

This type of learning and teacher role in it are also based on the connectivistic approach to learning.

Valiuškevičiūtė et al. (2006) and Marozas et al. (2007) admit that there should be a shift toward constructive learning, in which the opportunity is given to learners to construct their own meaning from the information presented during the online sessions. Hansen et al. (2008), discussing the pedagogical framework of online courses, also highlight the importance and application of constructivist theories. Consequently, the authors suggest the use of problem-based learning and case-based learning that foster constructivist learning, with their focus on complex situations and a variety of realistic information the students have to deal with, in combination with the teacher taking on the role of a facilitator and the students taking on active roles in the process of self-directed learning (Hansen, et al., 2008). Addressing the constructivist approach, Marozas, Jegelavičius, Kybartaite, and Nousiainen (2007) recommend that "Learning material must account for different learning styles (visual, verbal, kinesthetic). Thus it must be prepared using multimedia tools and include visual information (slides, video, animation) and audio information. The learners should have a possibility to choose what mode of information they would like to use". While discussing the different theories for online learning design Ally (2008) encourages the use of a variety of learning activities for a learner to have a possibility to "accommodate the different learning styles" (p. 40).

Learning outcomes

One of the first steps in the curriculum design process is the agreement of VM curriculum designing teachers on VM activity learning outcomes (further LOs) which may contribute to the development of certain competences. There are different teacher cooperation methods which depend a lot on teacher personalities, existing situations and agreed scenarios. There may be joint focus on the same issues from different cultural perspectives involved. However, there also may be agreements of the division of LOs to be achieved during VM activity, what may lead to the different implementations of separate VM activity parts. The different teacher cooperation ideas may also depend on the selected VM mode – 2 or more institutions are involved in the cooperation. Vriens and Van Petegem (2012) note that fully virtual work placement is not feasible in all study fields, such as in medicine or nursing studies, it is not possible to develop the required learning goals of the internship through virtual mobility activities; however, integration of different kinds of VM activities, such as seminars or courses, is possible for this field. A more explicit discussion of the competences that form the core stone of VM curriculum design is provided in subchapter 1.2.6, while some guidance on other curriculum design process steps is discussed here.

Interactivity and communication

Another VM element addressed to in teacher joint agreements while designing VM curriculum is interactivity and communication between students and teachers of different countries. Govaars in the Humanities project report (1995), reflecting on the organisation of virtual seminars, notes the importance of presenter interaction and participants meta-cognitive skills, which might be used for multilingual participant groups and their discussions to have the most of the experience:

"Maybe it is better to have a bit more time to breath and think things over, have some discussion in your own group, recapitulate and come out again on the air. I think if we react too quickly on the lectures, we do not get a maximum effect out of it. In future we must pay more attention to the reception of the lectures. Receiving in foreign language costs more energy than receiving in your own language. Speakers should not talk all the time. Not even if it is your mother tongue. A bit more amusement, jokes for example or some little dance has a positive effect on information processing. Then the audience has time to think about what was just said and interaction will have more quality." (here from Peraya, 1995, p. 31)

Reflection is also discussed by Deardorff who stresses the importance of reflection in the development of cultivating competences (Fusch, 2012). So this is one of the effective methods to be included in the learning and teaching process for different competence development, and especially those which are acquired during VM activities.

It should also be noted that teachers are the main participants in this VM process phase and SVM may or may not follow. In 2004, Van den Branden et al. (2004) preparing recommendations for teachers in collaborating HE institutions, urged them to:

- be open to investigate the potential of networked e-learning,

- put prejudices aside and experience the benefits through participation in pilots,

- look into the possibilities of joint development and even team teaching, especially when teaching subjects with a transnational dimension;

- commit themselves fully into collaboration, giving the collaboration a priority that is equal to their other teaching tasks (p. 34).

Valiuškevičiūtė et al. (2006) also stress the different teacher role in VM setting where the teacher no longer conveys or delivers information as his/her "principal function becomes one of creating collaborative, challenging and supportive learning environments within which the learner assumes an active role, encouraged to take control, make decisions and act in a self-directed manner" (Valiuškevičiūtė, et al., 2006, p. 13).

Teaching/learning organisation

As "theory could be studied whenever the students want to work on it, ... students believe that the course structure should contain, beside theoretical issues, many practical issues: exercises, demonstrations and examples. A special emphasis should be placed on examples from real life and real problems/solutions. The use of multimedia features is expected, as well. Animations, video clips and other multimedia tools have an important role in aiding the elearning process" (Atanasiu, Dimitrova, & Vansteen, 2005, pp. 5-6). Marozas, Jegelavičius, Kybartaitė, and Nousiainen (2007) suggest that "community-centred learning activities should be encouraged. The novel scenario in problem based learning, where group work with changing roles ("problem owners" and "problem solvers") could be implemented and evaluated" (p. 18).

Vanbuel et al. (2008) propose organising virtual seminars, combining 2 teaching and learning models (introduced by Anna Sfard) – the Participation Model and the Acquisition Model. The authors recommend organising seminars in such a format which fosters preparation as well as follow up activities which are comprised of "both internationally and regionally networked elements (p. 17). The main features of the models are described in Table 1.2.6 of Annex 3. As VM programme design may include different elements combined, Fridolin, Meigas, Parve, and Vedru (2007) suggest the important components of the systematic procedure for creating a virtual programme (such as Core curriculum; e-learning portal; Steering committee; Quality assurance; Participating institutions; Connections at the university level; Financing and sustainability) and base their programme design on the virtual campus and virtual stay abroad models, sharing their experience that as "a starting point for establishing a core curriculum was agreement that each project partner will provide at least one course to the virtual curriculum from their expertise. Next step is to include courses from other universities providing a sustainable ... virtual curriculum building on the existing expertise" (Fridolin, Meigas, Parve, & Vedru, 2007, p. 6).

For the suggested courses to be coherent and clearer for students there should be agreements on the structure of the provided information. So the courses provided by different universities should fulfil certain defined minimum requirements and provide some common information on the following: Core content; Learning outcome; Credits; Prerequisites; Target groups; Teaching material (books, presentations, exercises); Laboratory works; Work load; Teaching and learning methods used; Examination; Special requirements or skills; Feedback system for follow-up; other additional information for students, teachers, instructors, etc. (Fridolin, Meigas, Parve, & Vedru, 2007, p. 7).

Learning resources

Joint development of learning resources is the VM element which depends first on teacher decisions in this phase. It may cover teacher collaboration for the development of learning resources but also decisions to involve students in the learning process, which may be finalized by joint development of resources. The learner and teacher resources developed during one VM experience can stand as learning resources for future collaboration groups and future VM implementation.

Although a possibility to collaborate in VM curriculum design and delivery depends on the VM scenario and model selected, Bijnens et al. (2006) stress the importance of collaboration among institutions in creating course material: "Collaboration in course design and subsequent student support services have above all the potential for enriching the course material which otherwise is difficult for a single institute to achieve" (Bijnens, Boussemaere, Rajagopal, Op de Beeck, & Van Petegem, 2006). The developed learning resources licensing scheme or IPR issues have also to be agreed upon in the joint resource development case. According to Marozas et al., "several licensing schemes of e-learning materials exist. Creative Commons Attribution license seems to be most popular". The authors also suggest that "online learning materials should be designed in small coherent segments, so that they can be redesigned for different learners and different contexts" (Marozas, Jegelavičius, Kybartaitė, & Nousiainen, 2007, p. 17).

Schnoetzinger (Peraya, 1995) stresses the importance of subject matter for the virtual seminars "if seminars will take place, there should be a general subject, which can be elaborated by different professors from different countries with different aspects but to the same topic." Boninsegna and Dondi (1998), discussing ideas for VM course, recommend "to focus on contents that are either culture-neutral (scientific subjects), in which though the cultural exchange will be modest, or on contents which are specifically addressing cultural issues (like in HUMANITIES) which are the most suited and challenging for this kind of approach and experience" (Boninsegna & Dondi, 1998, p. 19). Brey et al. (2007) also stress the importance of topics of learning content to stimulate learner cooperation: "the topic of a case study has to allow for international co-operation, i.e., it has to be known and observable in the home countries of all participants" (Brey et al., 2007, p. 28)

Motivation

The motivation of participants to get engaged in the placement of VM setting is also to be considered while designing the curriculum. When the academic institution and the student prefer to focus on the specific learning outcomes, company and its staff may be more interested in reaching their goals that are usually based on cost-effectiveness and not voluntary basis. So

the challenge is to match those goals for the motivation of all parts to be existent and driving, as the result produced by a student may be really of low value, if his/her motivation is low.

Op de Beeck, Bijnens, and Van Petegem (2008) analysed some of the student motivation factors to participate in mobility programmes. They cite the findings of the Erasmus Student Network Survey (2007), which found that non-Erasmus students were generally more academically-oriented than Erasmus students who value such factors of mobility as meeting new people, practicing a foreign language and living in a foreign country more. The authors state that "it is important to understand that motivation plays an important part, when analysing the needs and expectations of international exchange students. Moreover, it is important to understand that 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, Bijnens, & Van Petegem, 2008, p. 37).

Van Zanten (2006) suggests how to motivate students to participate in VM "expressing clearly to students the added value of the international (part of) the course; facilitating (preparation for) examinations, e.g., examination related to foreign language course being taken in a student's own language; offering training courses to acquire language competencies" (p. 93). The author stresses that in the long run, the students who have experienced VM will become "VM-ambassadors". Atanasiu et al. (2005) noticed that communication between the student and the teacher during an online course enhances and helps to maintain motivation for the course (Atanasiu, Dimitrova, & Vansteen, 2005, p. 6).

Intercultural issues

However, if to specify VM curriculum in HE, it may be addressed as technology enhanced learning and teaching in the intercultural setting, where the main added value is a different intercultural, international approach. The use of ICT in traditional learning context rarely takes into account cultural variations in pedagogy. However, this may not be the case when teaching and learning is organised in VM setting. The notion of cultural variations in learning styles is well-documented. In discussing teaching and learning paradigms and pedagogical culture, some researchers have adopted Hall's high-context culture/low-context culture paradigm (Yamazaki, 2005, here from Valiuškevičiūtė et al., 2006), while others adopt 'tribal' distinctions such as Teutonic, Gallic, Saxonic, and Nipponic, (Galtung, 1982, *ibid*) or Anglo Saxon, Teutonic, Gallic and Japanese (Cortazzi and Jin, 1997, *ibid*). In general, "research has mainly centred on the different approaches to teaching and learning between western and other cultures, remaining relatively sparse in relation to trans-European education. However,

some studies [and VM experiences] support the hypothesis that in the European context the presence of international students may accentuate the diversity of learning styles which are likely to be found in the multicultural classroom" (*ibid*, p. 11). Other aspects of intercultural issues will be analysed in the subsequent subchapter 1.2.6.

Assessment strategy

Assessment strategy is one of the VM elements that also need to be agreed upon at curriculum design phase. Vanbuel et al. (2008) propose the evaluation methods that can be used to evaluate virtual mobility seminars. They provide explanations of formative, summative, process, product, and usability evaluation methods and conclude that "In the education field, process and product evaluation are quite commonly used, however for activities like those carried out in VENUS practically all these types of evaluation can be used and combined to provide a very comprehensive and useful evaluation approach" (Vanbuel, et al., 2008, p. 23).

Student support

One more of the most important elements of curriculum design process is student support system that corresponds with the student motivation to participate. Volungevičienė et al. (2011) stress the importance of the support system in VM setting whose function is to reduce the negative influence of different factors related to technology-based teaching/learning during its organization. According to the authors, the realisation of the support system has to be clearly planned if we wish to exercise its impact upon the "social, psychological, cultural and philosophical technology-based teaching/learning climate".

Analysing virtual support activities for physical mobility Valiuškevičiūtė et al. (2006) categorize support for students into six categories, necessary during mobility process: organisational (to understand new learning organisation, enter it, and organize their learning), administrative (to fulfil formal requirements within institution/ programme / course), methodical/didactic (to enter new learning culture, master new learning methods, means and materials), conceptual (dealing with learning problems related to specific subject area, comprehension of the learning tasks, dealing with new ideas, etc.), psychological (making learners feel better, deal with stress etc.), and technical (to start using new ICT tools or VLE and solving technical problems). This means that different kinds of support may be necessary for students in various VM activities.

The most important support function is referred to reaching the learning goals. Online technologies have great potential in the support of international mobility students; not only on the administrative level, but also – and most interestingly – on the pedagogical level. If we view international study exchanges and work placements as specific learning situations, then we need to identify pedagogical practices which will support mobility students in these learning

situations (Valiuškevičiutė et al., 2006). Valiuškevičiūtė et al. (2006) stress the importance of learner centred teaching methods and that "the conception of learning is closely related to the conception of teaching ... The concept of learning support gains meaning only in the learning environment orientation. Learning support but not direct teaching becomes the main function of educators" (Valiuškevičiūtė, et al., 2006, p. 7).

The introduction of virtual support via academic mentoring, peer or group feedback activities contributes to the overall learning experience and virtual placement implementation (Vriens & Van Petegem, 2012), via initiated reflection, and guidance from institution or other students' similar experiences. However, it may also be noted that not all companies may be willing to accept a fully virtual intern due to a number of reasons – absence of human factor, lack of control of student's tasks, IT security issues, organisational challenges, extra workload of company staff, or merely because of the fact that not all tasks may be implemented virtually (*ibid.).* Among other kinds of support for the student while implementing virtual placement is the administrative or organisational support, and IT or technical support, which may be addressed by different university staff members.

In order to achieve the most, some **recommendations for teachers on curriculum design** may be summed up on the basis of various analysed documents:

- In preparing materials, *collaborative learning* should be promoted by selecting tasks that need collaboration (Van den Branden, et al., 2004).
- For course activities, *content elements* should be made as much as possible *language independent* (e.g., by using animations and simulations, visual information) (Van den Branden, et al., 2004).
- Students prefer *feedback* on their progress in VM setting more than in the traditional classroom.
- The *different start of the academic semesters* has to be taken into account and students should be provided with the information on the start of courses in time (Evene project partners, 2008).
- *Technical assistance* should be there and student should not be waiting long to get into virtual learning environment.
- If there are more courses (than one) provided for students, some *universal platform* may be created for a more user-friendly access to students (Evene project partners, 2008).
- Teachers must be active in motivating students and stimulate students to *active communication* (Evene project partners, 2008).

To sum up, teachers of cooperating institutions are the main participants of the curriculum design phase. Although the curricula may be designed jointly by teachers or

separately, joint solutions on the following elements have to be finalized during this phase: VM activity learning outcomes and competences, interactivity and communication, learning content and resources, assessment strategy, and student support system.

1.2.6. Competences improved during virtual mobility

In this part of the research, an attempt is made to describe certain competences that are expected to be acquired in virtual mobility activities and specify what and how different VM activities contribute to the development of intercultural, ICT, foreign language, personal and social competences. First, it should be noted that each VM activity should be based on learning outcomes which have to be acquired and that are the core of the activity implementation. The VM activity learning outcomes lead to the development of certain competences of the learning area or subject matter. However, the added value of each VM activity is additional competences that are also developed in the international, intercultural or multicultural setting. These competences are the main focus of this chapter.

According to Laužackas, Stasiūnaitienė and Teresevičienė (2005), competence is acquired by merging the already possessed skills of a person with the experience and specific activity environment. Thus, competence embraces knowledge, skills and abilities of an individual, his/her experience, attitudes, beliefs and value dispositions.

The challenges posed by globalization, growing internationalisation, the rapid pace of change, and the continuous roll-out of new technological means reflect in our everyday life and require from us to keep specific job-related skills up-to-date, and also possess the generic competences that will enable us to adapt to the change (European Commission, 2007, p. 3). The development of key competences for lifelong learning is aimed at improvement in all sectors of education, creating different learning situations to ensure the diversity of improvements. Virtual mobility initiatives enter all educational sectors; furthermore, the need for mature learners in order to maximize the VM benefits leads to its introduction in the sector of HE first.

The following key competences and transversal skills may be improved during VM activities: communication in foreign language, cultural awareness and expression, digital competence, learning to learn, and social competences. However, this research also focuses on the competences or skills that participants need to poses before VM activity. As no scientific research was found on the issue, the competences participants have to poses before VM are analysed and discussed in the research results part.

1.2.6.1. Student VM competences, addressed in VM activities

One of the main competences addressed in the mobility schemes are intercultural competences, which may be the main focus or merely the added value of the experience. Deardorff (2010) refers to the definition of **intercultural competence** agreed to among the scholars researching intercultural issues as "the effective and appropriate behaviour and communication in intercultural situations" (2010, p. 1), where the effectiveness associates with personal determination and appropriateness with other individual's determination. The author also considers the competences as a process and stresses the importance of the intercultural competence lifelong development, as it is impossible to fully acquire this competence by an individual. Achten et al. (2010) describe an interculturally competent person as an individual capable of effective interaction with people from other countries, they stress that "a person who is interculturally competent captures and understands, in interaction with people from foreign countries and free from prejudices, their specific concepts in perception, thinking, feeling and acting; he shows a keen interest and motivation to continue learning" (Achten, et al., 2010, p. 23).

Deardorff (2006, 2009) also defines a Pyramid Model and a Process Model of Intercultural Competence, constituted of the same main elements, where the intercultural competence is acquired moving from the personal level (attitudes) to the interpersonal level (outcomes). So it is first addressed as attitudes (respect, openness, curiosity and discovery); then developed acquiring knowledge and comprehension (cultural self -awareness; deep understanding and knowledge of culture; culture-specific information; sociolinguistic awareness), and skills (to listen, observe, and interpret; to analyze, evaluate, and relate); which lead to the desired internal outcomes (that consist of flexibility, adaptability, an ethno-relative perspective and empathy); and, finally, to the desired external outcomes (determined as behaving and communicating effectively and appropriately (based on one's intercultural knowledge, skills, and attitudes) to achieve one's goals to some degree).

Organising various events and involving learners to participate in them can be good opportunities to reveal the students' attitude to VM. While identifying teaching methods for the future, Atanasiu, Dimitrova, and Vansteen (2005) summarize students' approach and stress that "students think it is important to be aware of the **cultural differences** between the people coming from different ethnical backgrounds or cultures. Issues such as name calling (first name or official title) should be made clear at the beginning of the course" (Atanasiu, Dimitrova, & Vansteen, 2005, p. 7). Maslo and Fernate (2010) also stress that " the educator him-/herself is representing the present social and cultural content, while consciously and/or unconsciously

including his/her own cultural experience in the organization of the educational process together with the cultural potential already integrated in the curriculum" (p. 63).

Deardorf, the expert in intercultural competence development, notes that "intercultural competence doesn't just naturally occur in most people; rather, intercultural competence must be intentionally addressed through education" (Deardorff, 2009, p. 13). The author identifies two means by which intercultural competences may be improved in postsecondary education: "through the curriculum, and through co-curricular activities" (Deardorf, 2011, p. 69). This suggests the conclusion that although the multicultural exchange is the main target of VM activity, it can be the aim of VM curriculum and addressed by VM activity learning outcomes, or it can be an added value of the experience. Anyway virtual stay in a foreign institution contributes to the development of intercultural or multi-cultural competences of VM participants.

Authors analysing intercultural competence do not agree upon the importance of foreign language knowledge and skills and influence towards the development of intercultural competence (see Byram, 1997, and Fantini, 2000, here from Mažeikienė & Loher, 2008). Deardorff (2010, p. 2) stresses that "language is a necessary but not sufficient skill for intercultural competence". So language competence or **foreign language** knowledge and skills will be discussed as separate knowledge and skills from intercultural competence in this research.

Petkūnas (2007) stresses the importance of digital competence in education, stating that "ICT skills and abilities is of the same importance as teaching to read, write and calculate" (p. 5). De Kraker and Corvers claim that "in higher education, virtual mobility networks can provide effective learning environments for the development of the competences needed to participate effectively in such a process" (De Kraker & Cörvers, 2009, p. 1). Maslo and Fernate (2010) note that "educators have to improve learner's competencies to evaluate critically the theoretical and practical knowledge of understanding the social learning culture and the competent action in multicultural environments in order to clarify contents involved in the socio-cultural approach to educational treatment of diversity, and to enquire critically tendencies of their development" (p. 65).

During the virtual work placement students aim to (further) develop discipline-specific and more general skills, such as communication skills, intercultural skills, team work, etc. Besides the indicated skills, the integration of virtual mobility experience in the placements enables students also to acquire such skills as "the technology and virtual communication skills

and the skills needed for distributed working of the students" (Vriens & Van Petegem, 2012, p. 9).

Different VM placement pilot studies, discussed in Vriens and Van Petegem (2012), addressed and identified various skills and competences as learning goals, which may be as follows:

- Development of meta-cognitive skills and socio-cultural competences, such as integration in a new work environment and foreign country;
- Acquisition of interpersonal competences, such as the integration within a new organisation, becoming part of a team, being flexible, being able to mediate, and being willing to learn step by step.

To sum up, the competence of foreign language, intercultural competence, digital competence and other social and personal competences may be improved during virtual exchange; however, the verification of their development calls for a more coherent analysis to be addressed to in the dissertation research.

1.2.6.2. Teacher virtual mobility competences

Daukilas (2010) stresses that innovations of the education process are first determined more by subjective factors (i.e. teacher personality) and only then by objective factors (i.e. organisational culture). He explains that the activity of a competent and innovative teacher in the higher education institution is reflected by the educational paradigm s/he chooses, in the structure of which such essential changes can be observed: democratic teaching style; ability to use information technologies which guarantee interactive students' learning; use of a broad range of teaching/learning methods in the teaching process; assurance of a good physical, social and emotional environment.

There are different kinds of competences that may be improved in VM setting. One of them is **intercultural competence**, described above. Analysing teacher intercultural competences Mažeikienė and Loher (2008) refer to the model of intercultural competence presented by Byram et al. (1997, 2004, here from Mažeikienė & Loher, 2008), and define intercultural competence as knowledge about one's own and another culture, skills to interpret and relate, skills to discover and interact, attitudes and cultural awareness. In order to acquire intercultural competence a person has to be interested in cross-cultural encounters, visit other countries, communicate with people from different cultural backgrounds. Deardorff (2009) claims that "intercultural competence development is a lifelong process – one doesn't become magically interculturally competent after completing one course or going on an education abroad experience in another country" (p. 13).

Discussing the competences acquired by teachers in international settings Mažeikienė et al. (2008, here from Hansen, et al., 2008) stress the importance of reflection and self-reflection competence which are „constituent parts of professionals' competencies" (*ibid*, p. 12).

Among other competences that may be improved in intercultural and international setting are **personal-social** competences and **foreign language** competences. Virtual activities and training before the VM experience also contribute to the teacher **e-competence development**. Teacher e-competence or ICT competence development has been in the focus of research for a number of years by the number of researchers (Jung, 2005; Sabaliauskas, Bukantaitė, & Pukelis, 2006; Petkūnas, 2007; Jucevičienė, 2007; Jakšienė, 2012 and other), so it is not aimed at analysis in this research and discussed as far as it refers to the VM process implementation.

When students are engaged in various virtual mobility initiatives in higher education, for example, participate in courses provided in virtual learning environment, virtual campuses, they also participate in international competence development process. "International, multi-disciplinary learning environments <…> foster the development of 'transboundary competence', i.e., the competence of academic professionals to think, communicate, learn and collaborate across the boundaries between different perspectives" (De Kraker & Cörvers, 2009, p. 1).

To sum up, VM participant competences aimed at VM implementation depend a lot on the activity aim, their role and "virtual immersion"; however such competences as foreign language, e-competence, intercultural competence and other personal and social competences may be improved at various VM activities; however, their in-depth research is necessary to define its constitute elements and relations with VM activity prerequisites.

1.2.7. Virtual mobility tools

As the barriers of space and distance have been "conquered by the power of online chatting and video conferencing" (Manikoth, Verkhohlyad, Malaeb, & Lazányi, 2011, p. 7), technology facilitates the mobility of knowledge and cultural exchange without travelling. The role of technology in nowadays life changes together with the rapid technological development; moreover, "technology not only changes the way we act on knowledge, but also how we interact with others" (De Smet, 2009)

The technologies or tools for virtual mobility organisation are important in all virtual mobility activities; however, certain choices depend a great deal on the aims of VM activity and on accessibility of the institution and VM process participants to certain tools. The decision on the proper tools to be used for the activity is to be taken in the first process stage – decision making and "the selection of the distribution technology is also almost always a longer term

decision as it is not easy to build up a loyal audience when they are forced to change receive technology often" (Vanbuel, et al., 2008, p. 29). However, as the teachers and student have to make choices for collaboration and communication in virtual mobility setting, this also requires certain skills to assess tools potential and to fully benefit from their created possibilities (Van Petegem, 2007).

The use of different tools for different VM activities is discussed in this part of the research, in order to stress the importance of the appropriately selected tools for the indicated goals; however, it also should be noted that the development of technologies and ICT tools is rather rapid and it is not assumed that the same tools will be used in the future to address the same competences and learning goals. It may also be stressed that the use of certain technologies strongly depends on the cultural issues - "the approaches to learning with ICT depend on cultural factors mostly, and not as much on technology. If the cultural expectations are different (as they for sure are in international virtual campuses) it will be more than certain that there will be conflicts to solve" (Barajas Frutos, 2003, p. 25)**.**

Vriens and Van Petegem (2012) claim that ICT in the framework of VM focus particularly, but not exclusively, on communication or collaboration. "Popular tools are video and web conferencing, chat, discussion forums, weblogs, wiki's, e-portfolios, sharing tools and social networking tools. Many of these are integrated in a virtual learning environment supported by the university" (Vriens & Van Petegem, 2012).

A number of authors (Op de Beeck, Bijnens, & Van Petegem, 2008; Juan Fuente, Fueyo, & Menéndez, 2011; Vriens & Van Petegem, 2012) argue that the main tools or technologies for virtual mobility are classified as synchronous and asynchronous, or referring to the exact tools used – reflective, collaborative, communication, social networking and learning platform. Defining them from the perspective of the VM process, each phase of the VM process calls for certain different tools; however, the coherence has to be maintained. The main/mandatory tools used for VM courses and programmes are common learning platform (for content preparation, delivery and assessment) with video or web conferencing tools (used for synchronous content delivery and interactivity between teachers and students).

Video conferencing history and proper tools for virtual seminars and joint course delivery to use are coherently described by Vanbuel et al. (2008, pp. 27-38). Comparing Vanbuel et al. (2008) and Juan Fuente et al. (2011), it can be noted that there are two directions of video-conferencing tool development and usage – the ones which aim at high quality video and audio transmission and the ones which are "primarily designed for ease of use rather than for high video and audio quality" (Vanbuel, et al., 2008, p. 32). Which ones to choose depends

on the goal priorities and accessibility to the high video and audio quality tools, which are rather expensive for individual use.

The main tools mentioned for blended or fully virtual internships are as follows:

- Preparation and follow-up tools: SIS (specially programmed self-assessment competence tool for improving it during internships);
- Information or instruction tools: instructional (online) videos, or company's web-pages, online information via learning platforms;
- Communication tools: video and web-conferencing, e-mail, telephone, social networking platforms;
- Collaboration tools: learning platforms, Microsoft Sharepoint, flowdock (team-messenger);
- Reflection tools: blog or group blog, e-portfolio.

Analysing the results of projects on virtual mobility activities as support for physical mobility, a number of different technologies can be identified – from certain goal created technologies such as virtual buddy system, or Electronic tests for outgoing students, to commonly used different VLE, blogs, video conferencing or web-conferencing tools, and virtual examination labs or other virtual tools for assessment, or different tools for feedback and process evaluation.

To sum up, the lessons learnt from virtual internships presented in the European projects are the following: different tools may be used; the use of tools should foster collaboration and/or learning, but not complicate it, that is why the skills of the participants should be taken into account; students need some guidance during the internships, so the clear arrangement on the tasks, responsibilities and the tools for a certain purpose should be used. There may be different technologies suggested, but if there are no certain indications or guidance when and for what purpose certain technology should be used, students may get lost. The pilot studies also stressed that email or a possibility to communicate via telephone calls are not sufficient tools for a successful internship; therefore, video or web conferencing tools should be used organising virtual meetings on a regular basis.

As the technologies are not the educational object of the research, the focus is on their importance during VM process. Referring to the revision of the 10 VM elements by Dondi and Salandin (2010), the indicated element that refers to VM tools was Appropriate technological solutions. Although this research does not aim at coherent analysis of technologies, their importance for VM process significance is obvious. Possible to use technologies are assessed in the decision making phase when deciding on VM type, form and activity. Technologies are also used during VM curriculum design and implementation phases as virtual activities, and this

already indicates technology existence and use. Thus technologies in virtual mobility process are among the key elements and are separated and indicated as a VM dimension here.

1.2.8. Interim findings

Virtual mobility concept has been on the agenda in the past twenty years although understood differently in various academic activities. With the importance and need for HE institution modernisation and focus on student-centred-learning approach, as well as rapid technological developments, it became a way for international and intercultural collaboration of institutions, teachers and students, when the development of key competences and transversal skills is at focus. To conclude the theoretical research findings, virtual mobility concept complexity was identified and will be verified in the empirical research.

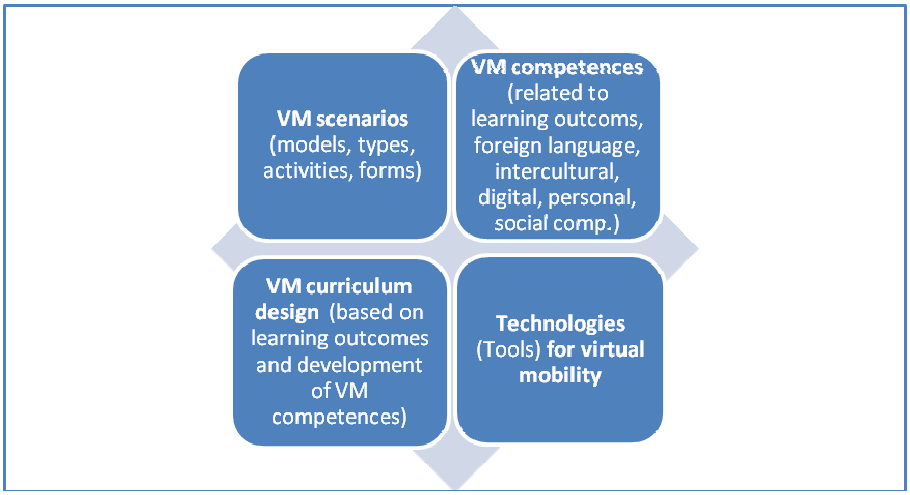


Figure 1.3. The main components of virtual mobility in HE

The theoretical analysis, particularly the revision of VM concept by Dondi and Salandin in 2010 provided the background of VM elements that were revised in this research. The discussed research findings and analysed various project results provided the basis for identification of the links between the elements, thus, allowing for the major components of VM to be defined.

Virtual mobility in HE requires different administrative and institutional solutions for the experience to occur and the need to answer the following questions: Who is the target group of the participants? How many institutions are involved? Is it fully virtual or combined with physical mobility? What kind of activities are organized? All these questions are answered in VM **scenario** development, which comes as a background for experience implementation in HE institution. The theoretical analysis proved the existence of different **competences** developed in VM setting – the ones related to the learning outcomes and the additional ones, such as

intercultural, language, digital and other personal, social. Based on the development of these competences VM **curriculum** is designed. The term "virtual" suggests the use of **technologies** or appropriate technological solutions necessary for the virtual implementation of experience. So Figure 1.3. illustrates the main components of VM in HE, which are explored and verified in the empirical research.

Finalizing the theoretical research, the 4 phase VM process was suggested for the implementation of different VM activities.

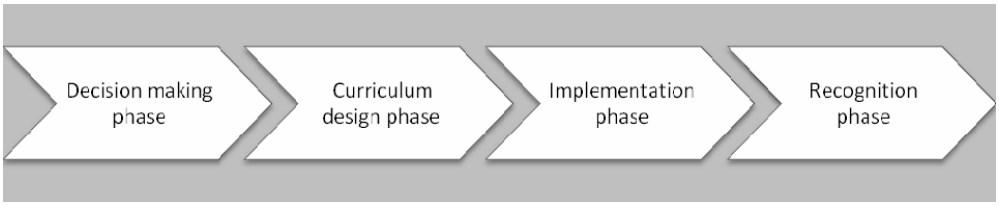


Figure 1.4. Virtual mobility process phases

2. RESEARCH METHODOLOGY AND DESIGN

Theoretical findings of the dissertation indicated the complexity of virtual mobility phenomenon. As the ideas of virtual mobility are related to the cooperation between institutions for the implementation of certain academic activities via various technological solutions, recent significance of VM phenomenon and interest of more and more universities to implement it may be related to the rapid development of technologies which have increased the accessibility for learning. However, the significance of VM phenomenon for learning still needs to be addressed by different research.

Research problem. On the one side, the teaching practice is influenced by globalization affecting it in different forms: change in the teaching paradigm from knowledge-transfer to knowledge-sharing, change in the teacher's role from being an authority to being flexible and providing guidance; and the changing technologies which spread in everyone's life and learning. Therefore, new teaching, learning and assessment methods are to be adopted in HE; however, are the teachers already prepared for them? Have they acquired necessary competences for VM implementation? What kind of competences may students improve during this experience and how to prepare curriculum to get the most of this virtual exchange?

On the other side, VM phenomenon is rather new in HEIs, what leads to different concept interpretations and uncertainty of its benefits and needs. Internationalization, being high on the agenda of various political documents, fosters collaborations of HEIs. However, physical mobility of students and researchers is sometimes not enough or possible at all times. Thus, the need for VM arises; however, limited availability of practices asks for in-depth research and guidance for VM implementation.

Therefore, the aim of the empirical research was to verify and explore VM characterising dimensions by carrying out a case study research of a VM course, and to enrich by the obtained findings about the phenomenon and its dimensions by VM experts' (teachers, researchers or other practitioners of at least 2 different VM practices) insights and ideas obtained during the interviews. To sum up, the empirical research consists of 2 types of qualitative research implemented: a case study research on VM and an interview of VM experts. The case study involved the following research methods: a scientific literature review and systematic analysis, situation analysis, document analysis, online surveys, and teacher interviews. The scientific literature review and systematic analysis was performed in all case stages, as well as analysing and structuring VM expert interviews.

Research questions. In order to operationalize the research, the research questions, based on VM concept analysis and identified VM components, were raised. Table 2 describes

cross-reference of research questions, supporting VM concept and components, and research methods that helped to answer the research questions.

Table 2. Research questions and research methods used for answer exploration

Q. No.	Research question	Research method
	VM Concept	
1.	How is VM defined in HEIs? Are there any differences from e-learning, distance learning, and virtual campus? What are the key VM components that VM case implementation may be based on?	Scientific literature review and systematic analysis performed in 2009-2013. Case study situation analysis (desk research in 6 HEIs) carried out in 2009.
2.	Are the key VM components related and how?	Case study, observation and project document analysis; diagnostic surveys of teachers and students in 2010.
3.	Why VM is important in HE?	Scientific literature review and systemic analysis; and meta-analysis in 2009-2013.
4.	What are the needs for and benefits of VM in HE institutions?	Case study, situation analysis (EU institutions survey) in 2011; VM expert interview in 2012-2013.
	Preparation for VM in HE	
	VM Scenarios	
5.	Is it possible to implement VM in HEIs? Is it somehow regulated at national and institutional levels?	Case study, situation analysis (desk research in 6 HEIs) in 2009.
6.	What are the necessary steps or process phases how to implement VM in HEI?	Scientific literature review and analysis in 2009 - 2013.
7.	What is a VM scenario? When and why is it necessary to choose a VM scenario? What are the examples of VM scenarios and models?	Scientific literature review and analysis in 2009 -2013.
8.	How VM scenario is different from a learning scenario?	Scientific literature review and analysis in 2009 -2013; Case study, observation in 2010.
	VM Curriculum	
9.	How can teachers prepare for VM? What are VM course preparation peculiarities and issues?	Case study, diagnostic surveys of teachers in 2010.
10.	How to design curriculum for VM?	Scientific literature review and analysis in 2009-2013. Case study, observation, 2010. VM expert interview in 2012-2013.
11.	Is it useful to deliver every subject/ curriculum in VM? What subjects can/ should be taught in VM?	Situation analysis (desk research in 6 HEIs) in 2009. VM expert interview in 2012-2013.
12.	What are the requirements for the curriculum to be implemented in VM activities in order to fulfil/maximize the VM benefits?	Scientific literature review and analysis in 2009-2013. VM expert interview in 2012-2013.
13.	What kind of support is necessary for teachers in curriculum preparation?	Case analysis, diagnostic surveys of teachers in 2010. Case study, observation, 2010.
14.	What motivates students to participate in	Diagnostic pre-session survey in 2010.

Q. No.	Research question	Research method
	VM?	VM expert interview in 2012-2013.
15.	What motivates teachers to participate in VM?	VM expert interview in 2012-2013.
	VM Competences	
16.	What competencies do teachers have to possess in order to implement VM?	VM expert interview in 2012-2013.
17.	What are the prerequisite competences for students to participate in VM?	Case study, observation, 2010.
	VM Tools	
18.	What tools/technologies are necessary for VM course preparation?	Case analysis, diagnostic feedback surveys of teachers in 2010.
	Implementation and recognition of VM in HE	
	VM Scenarios and competences	
19.	Is it necessary and how to recognize competences of students, acquired during VM?	Case study, diagnostic feedback surveys of students and teachers in 2010.
20.	Is it necessary and how to recognize competences of teachers, acquired during VM?	VM expert interview in 2012-2013.
	VM Curriculum	
21.	What learning and teaching, feedback and assessment methods are used/should be used in VM?	Case study, observation, 2010. Case study, diagnostic surveys of teachers and students in 2010.
22.	What kind of support is necessary for VM students?	Case study, observation,2010.
23.	What kind of support is necessary for VM teachers?	Case study, observation, diagnostic surveys of teachers and students in 2010.
	VM Competences	
24.	What competences may teachers and students acquire during VM?	Case analysis, diagnostic feedback surveys of teachers and students in 2010. VM expert interview in 2012-2013.
25.	What may competences be referred to as VM competences?	Scientific literature review and analysis in 2009-2013. Case study, diagnostic feedback surveys of students and teachers in 2010.
26.	Does the experience of VM change the attitude towards it?	Case analysis, diagnostic surveys of students and teachers in 2010.
	VM Curriculum and competences	
27.	What are the lessons learnt from the VM module?	Case study, teacher interview in 2013.
	VM Tools	
28.	What tools or technologies fit VM implementation best?	Scientific literature review and analysis in 2009-2013. Case study, observation in 2010.
29.	What tools/technologies are necessary for VM implementation?	Case study, diagnostic feedback surveys of teachers and students in 2010. VM expert interview in 2012-2013.

2.1. CASE STUDY METHODOLOGY

Case studies emphasize a 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. Educational scientists, in particular, have made wide use of this qualitative research method to examine learning and contemporary real-life situations in order to provide the basis for the application of ideas in similar situations.

Researchers (Yin, 1994, here from Bassey, 1999; 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 the phenomenon and context are not clearly evident; and in which multiple sources of evidence are used. Stake (1995, here from Bassey, 1999) describes a case study "as the study of the particularity and complexity of a single case, coming to understand its activity within important circumstances" (Bassey, 1999, p. 27).

Gerring (2006) emphasises that a case study might have different features and some of them might be as follows:

- *its method is qualitative, small-N,*
- *the research is holistic and thick - a comprehensive examination of a phenomenon,*
- *case and context are difficult to distinguish, it presupposes a relatively bounded phenomenon,*
- *it employs triangulation ("multiple sources of evidence"),*
- *the research investigates the properties of a single phenomenon, instance, or example* (p. 18) .

The VM case study described in this dissertation research follows all the above mentioned characteristics, as most of the research methods used are qualitative, but involving some quantitative surveys for the triangulation of the findings; however, the focus is on one case or "detailed examination of one setting" (Wellington, 2006, p. 90) which is preparation, implementation and experience of a virtual mobility course as one type of VM activities in the educational setting. The evidence on the case was collected in the "real-life context", participating and observing, and trying not to intervene in the case.

In this research, a case study is treated as a separate research method, which focuses on the verification of VM features in a certain scenario, and which suggests the ideas for further phenomenon exploration, while it is changing, influenced by technology change, globalization and other megatrends in HEA.

There are different kinds, types and styles of writing a case study. Some of the researchers (Yin, 1994, here from Bassey, 1999; Miles and Huberman, 1984, here from Schofield, 2000) stress the application of a case study as a research method to support further scientific research; still, others – Stake, (1995, here from Bassey, 1999); Mitchell (1983), Woods (1986), later both here from Wellington (2006)) stress that a case study is a separate research method and needs no follow-ups. These two different paradigms also apply to the types of a case study, as well as to their reports.

This case study research tends to be **educational, instrumental and descriptive**. Stenhouse (1985, here from Bassey, 1999, p. 28) describes the purpose of an educational case study as understanding of educational actions through case study methods. Yin (1993, here from Bassey, 1999, p.29) categorizes case studies as exploratory, explanatory and descriptive, where "descriptive case study presents a complete description of a phenomenon within its context". Stake (1994, here from J. Wellington (2006) and Bassey (1999)) makes a distinction between 3 types of case studies – intrinsic, instrumental and collective. The instrumental case study is "used to provide insight into a particular issue" (Wellington, 2006, p. 92) or refers to "particular situations in order to try to understand an outside concern" (Bassey, 1999, p. 29), and not just the unique case itself, as it is in an intrinsic case study. In the instrumental case study "the actual case is secondary – its aim is to develop our understanding and knowledge of something else" (Wellington, 2006, p. 92), where the 'something else' stands for VM phenomenon in HE.

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.

The present VM case study is used for better understanding of the phenomenon of virtual mobility in the educational setting, and the generalisations made after the case study are referred only to this particular case; however, they also reflect VM phenomenon features. Referring to Stake's conclusions on generalisation in the case, Hammersley and Gomm (2000) stress that "what is required of case study researchers is not that they provide generalisations but rather that they describe the case they have studied properly: in a way that captures its unique features" (pp. 7-8). From an educational point of view, the advantage of learning while reading or using a case study is also to be mentioned as one of the Stake's (1978, 2000, here from Gomm, Hammersley, & Foster, 2000, p. 98) ideas. So the possibility to participate, observe and reflect on this case provided the background for this research.

2.1.1. Virtual mobility case study research methods

The VM case study research was implemented during and after the LLP Erasmus program project TeaCamp (Teacher Virtual Campus: Research, Practice, Apply, No. 502102-LLP-1-2009-1-LT-ERASMUS-EVC), involving 6 partnering countries, and aiming to increase virtual mobility among academic staff. Most of the participants were not new in the field of technology enhanced learning, physical mobility and its implementation, however, had no or vague experience of implementing VM. The virtual mobility case presented here is based on the 4 phases of VM process and summarizes the below explained research methods, which provided generalizations of the case, tested the theoretical research findings and identified the needs and barriers of HE institutions in VM implementation.

Bassey (1999, p. 69) notes that "case study research has no specific methods of data collection or of analysis which are unique to it as a methods of enquiry". Thus different research methods were used during this case study.

- Scientific literature review and systemic analysis was performed during all case study stages to support VM concept, verify and explore VM dimensions, and justify the research findings.
- **Desk research** was used for the situation analysis and assessment of preparedness of VM in HE in 2009. It covered 6 EU countries with the aim to assess VM implementation possibilities within VM engaged institutions by identifying VM regulations on national and institutional levels, online teaching and learning methods, and possible subjects for VM course.
- **Observation** research method was used for identifying the principles of curriculum design for VM and its reference with other VM elements. As the background of the case was VM project.
- 2 diagnostic **online surveys of students** targeted at student motivation to participate in VM, competences improved during virtual exchange and organisation peculiarities of the experienced VM module. Meanwhile the 3rd online diagnostic **survey of teachers** aimed at VM curricula preparation and delivery peculiarities and need for support, competences improved during the experience and technologies used for curricula preparation and delivery. The data of the survey were analysed making case related generalisations and statistical data analysis.
- To search for VM best practices and identify the needs and barriers for VM implementation in HE, **an online survey** of European HEIs' representatives (in and outside the project consortium) was implemented, as the update of the situation analysis in 2011.

- To summarize the lessons learn from the VM module curriculum design adn implementation, as well as experience usefulness, 5 **teacher semi-structured interviews** were also organised in 2013. Interview data content analysis was performed.

2.1.2. Case study research instruments and respondents

As mentioned in Sub-chapter 2.1.1., different research methods are used for the case study research. The research method in reference with the research questions was already presented (see Table 2.); the research instruments and other data collecting procedures and peculiarities are presented here.

Desk research of the documents was used for the situation analysis of VM in 6 HEIs, evolved in VM project and willing to implement a VM pilot, in 2009. The desk research aimed (see Annex 4) at the following main questions:

- Is VM somehow regulated in the 6 EU countries on national and institutional level?
- Is it possible to implement 100 % student mobility?
- What online/distance learning methods do teachers use in these countries?
- What could be the subjects for VM implementation among the engaged institutions?

The respondents, who provided the answers and supporting references to the above questions, were the representatives of partner institutions. The situation analysis results are presented in the case results section.

Observation as participant. To illustrate the module preparation process while developing a case report, observation reporting documents were analysed; there was the researcher as participant who observed the mentioned processes, described them in the observation reporting documents and provided the observation report for case analysis and report preparation. Observation results are presented in the Part 3.1.

4 **online surveys** for different respondents and different purposes were used. First, a pre-session diagnostic survey was implemented which aimed at identification of students' achievements, referring to the module learning outcomes (see Annex 5), targeted to be improved at the module. The respondents were 29 module students. It also focused on motivation factors of the students to be indicated before the module. The survey was implemented online, using a Moodle test tool. Data analysis was carried out in Ms Excel and SSPS 19. The survey results and their analysis are presented and discussed in the case study in order to create a better representation of the selected virtual mobility case, identify students' competences against the set learning outcomes and determine student motivation for participation.

Second, a post-session diagnostic survey of students was performed in order to identify students' achievements, VM competences, attitudes and recognition possibilities, organisation

peculiarities and issues faced. The questionnaire consisted of 6 parts (see Annex 6) . It collected feedback from 23 respondents – module students, after the module delivery and grading. 6 students failed to finish the module successfully, but as the survey was anonymous, only the country and higher education institution (HEI) of the students indicating, it can 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. The survey was implemented online using a Google Forms tool. Data analysis was performed in Ms Excel and SSPS 19. The survey results and their analysis are presented and discussed in case study in order to create a virtual mobility case representation from students' point of view. The structure of the questionnaire for students is the following:

- Personal data.
- Learning outcomes/competence acquired.
- Organising virtual mobility/ Quality Assurance.
- Virtual mobility skills.
- Virtual mobility recognition.

Third, a post-session diagnostic survey of teachers was performed to support the VM organisation peculiarities and compare teacher and students' VM competences, attitudes and indicated recognition possibilities. The respondents were 13 module teachers. 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 7). It was administered online using a Google Forms tool. The data analysis was performed in Ms Excel and SSPS, using non-parametric Chi-Square tests and Mann-Whitney test for defining relations and differences among different students and teacher responses. The data of the survey were analysed making case related generalisations and statistical data analysis. The survey results and their analysis are presented in the descriptive case report, discussing the features of VM dimensions and trying to sketch VM experience from teachers' perspective. Some parts of the students' survey and the teachers' survey were very similar or the same, which allowed comparing student and teacher perspectives on some issues; however, the generalisations that were drawn refer only to this case. This can be found in the case results, presented below (see Part 3.1).

Forth, to search for the best practices and identify the needs and barriers for VM implementation in HE, an online survey of the European HEIs' representatives (in and outside the project consortium) was administered, as the update of the situation analysis in 2011. The survey was implemented online on the project website, and the online survey link was distributed to all partnership institutions and experts working in the virtual mobility area in

Europe (see Annex 8 for the questionnaire). 53 respondents from various EU institutions (not only HEIs) - 36 higher education institutions, 4 enterprises, 4 adult education institutions, 3 VET institutions and 6 other (among which 3 indicated as associations) participated in the survey. It was performed using the online Lime Survey tool. Data analysis was performed using Ms Excel and SSPS-19 programs, applying descriptive statistics methods and calculating non-parametric Chi-Square criterion to determine the relation between the variables.

Lessons learnt from case study implementation were addressed by 5 module teachers after 2-3 years after vm experience. The selected teachers were the ones who followed this experience in VM area after the first implementation.

2.1.3. Case study research design

The VM case study research was implemented during September 2009 and July 2013. It was implemented in 7 below stated stages. The aim of the research was to verify VM dimensions, defined in the scientific literature – scenarios, curriculum, competences and tools of VM. Search, selection and analysis of the educational policy, juridical documents, reports of VM projects and scientific literature were performed at all stages in order to justify the virtual mobility case.

The 7 case study implementation stages, identified by M. Bassey (1999, p. 66), were the basis for this VM case study research. M. Bassey (1999) states them as follows:

Stage 1: Identifying the research as an issue, problem or hypotheses.
Stage 2: Asking research questions and drawing up ethical guidelines.
Stage 3: Collecting and storing data.
Stage 4: Generating and testing analytical statements.
Stage 5: Interpreting and explaining the analytical statements.
Stage 6: Deciding on the outcome and writing the case report.
Stage 7: Finishing and publishing.

To sum up the research methods, activities, results, and stages, the following Table 2.1.1. was constructed, which represents the research design of the VM case study. It also refers to the several papers presented and available publicly.

Table 2.1.1. VM case study research design

Case research stage	Activity description in VM case	Result	Public result available
Stage 1 (Sept. 2009 – Sept. 2010)	Scientific literature on VM and document analysis (desk research) in 6 EU countries for the situation analysis of VM regulation	Situation analysis report prepared – issues of VM concept defined, theoretical VM practice possibilities tested	Paper presented: http://ojs.kauko.lt/index.php/ittss/article/download/158/151

Case research stage	Activity description in VM case	Result	Public result available
Stage 2 (Aug. – Sept. 2010)	Research questions raised	Questionnaires for online surveys prepared	Annex 1-3 of TeaCamp case study, available at http://www.teacamp.eu/content/about-project-0
Stage 3 (Sept. – Dec. 2010)	Collecting and storing data from online surveys Collecting module preparation and delivery reporting data as documents for the analysis	Record for the document analysis of curriculum preparation and delivery prepared Data from module participants collected	Records of video sessions available at closed TeaCamp Moodle area
Stage 4 (Jan.-June, 2011	Survey data analysis followed by research question revision; document analysis, supporting participant survey data and followed by research question revision	Participant survey data analysis implemented; document analysis, supporting participant survey data implemented; TeaCamp case study published	Available at TeaCamp case study (p. 72-100), available at http://www.teacamp.eu/content/about-project-0
Stage 5 (June 2011 – June 2013)	More research methods employed (to verify how and why?): semi-structured teacher interview and institution survey implemented	Institutions' survey data analysis prepared; Content analysis of teacher interview prepared	Paper in the scientific journal "Vocational Education. Research and Reality" (on institutions' survey findings)
Stage 6 (June 2011)	Deciding on the outcome and writing the case report	Case study report prepared	
Stage 7 (Aug. - Sept. 2013)	Finishing	Case report revision and split into methodology and results parts in the dissertation thesis	

As the result of this case study research, a descriptive VM case report was prepared. The case implementation part of the report is discussed in subsequent subchapter 2.1.4., while the results of the research implemented in the case study are analysed in Part 3 chapter 3.1. "Virtual Mobility Case Study".

2.1.4. Case study research implementation

Virtual mobility experience in the case study of this research was realised in 2009-2011. The VM case study research was finalized with additional research necessary in 2013. The VM experience process was the basis for VM experience, where research was implemented. Table 2.1.2. shows what kind of research was implemented during the VM experience and how they refer to the case results discussed in Part 3 chapter 3.1.

Table 2.1.2. Reference between VM process phases and research implemented

VM process phases	Research methods applied during case study	Research result
1. Decision making	1. Assessment on preparedness by desk research	Desk research results, VM scenario and tools
2. Curriculum design	2. Observation	VM curriculum design and tools
3. Implementation	3. Participant feedback surveys (pre-	VM curriculum,

VM process phases	Research methods applied during case study	Research result
	and post course)	competences and tools
4. Evaluation	3. Participant feedback surveys (2, post-course) 4. Institutional survey 5. Teacher interviews	VM scenario, curriculum, competences and tools Institutional needs for VM Lessons learnt
5. Recognition	2. Focused in 2 participant feedback surveys (post-course)	Recognition and participant attitude

As it is usual in case analysis, the case study or case report is the result of this case analysis. For the dissertation thesis the case report was divided into two parts – presenting the methodological and some of the descriptive data in this Part 2 and the results of the case, in Part 3. Both these parts are represented by the VM case report, which is "the product of researcher's immersion in, analysis of and reflection on the case record" (Wellington, 2006, p. 96).

2.1.4.1. Decision making phase

The idea for the case to be a VM case study was suggested by the TeaCamp project, which involved 5 European countries and 6 institutions[1]*. With the aim to foster academic staff virtual mobility, teachers of HEIs were selected to be the target group. However, teacher virtual mobility is not possible, if the students are not involved. As virtual mobility is a new phenomenon in HE, and the research into VM is only at its outset, some researchers were also involved in the case development process.

Assessment on the preparedness for the exchange was started in 2009, which was the time for virtual mobility to be on the headlines of the EC initiatives by promoting a number of projects on the topic. But as only several HE institutions were working in the field, there were limited resources for the research as little best practice was shared in the field of education. Although virtual mobility initiatives were indicated as one of the cost effective ways to increase the access to educational mobility by Maastricht message in 2009, the existing practices at the beginning of 2010 were based on the project activities and were at the outsets. So to sum up, a lot of people were talking about virtual mobility, a number of HEI representatives were willing to implement it; however, only several of them had some experience to share with others.

Similar to the indicated situation, assessing the preparedness for VM in the countries participating in the initiative, most of the teachers, researchers or project managers were experienced in the field of distance education, online learning or e-learning; however, only several of them had experience which might be called virtual mobility. Thus, since the first

[1] To be precise, there were 6 countries and 7 institutions involved in the project, however, one of them being not a learning/teaching institution, but responsible for quality assurance, had a limited role. So where it was useful and possible to perform research into the experience of more countries, 6 countries were present, but during VM exchange and surveys for participants, there were 5 countries and 6 institutions involved.

project meeting the discussion on what should be called VM and what should be not was started, and several definitions were created during the project to stress different aspects of the initiative and experience. The virtual mobility case was prepared and developed involving research in the process, so the case study also presents the results of the situation analysis (pre- and post- the VM module preparation and delivery) and participant feedback on its implementation.

During the decision making for VM exchange phase situation analysis in HEIs assessing their preparedness was implemented via desk research in participating institutions and their countries. It aimed to find out if VM is somehow regulated and defined on national or institutional levels of the 6 countries. The results of the research are discussed in the first part of VM case results.

2.1.4.2. Curriculum design phase

Following the indicated scenario, the curriculum design process was started. Analysing the courses suggested by project partners for VM exchange and referring to the expertise of the involved teaching staff in the participating universities, the project coordinators selected the topics for VM course preparation and delivery, taking into account the feasibility and appropriateness of the topics to be compared from different cultural perspectives in the module "Virtual learning in higher education" (further VM module). The aim of the VM 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 a multicultural virtual learning environment. Within the module, teachers could have virtual mobility by teaching a sub-module for international groups of students.

After the revision of the learning outcomes for the module, it was suggested including more intercultural activities to stimulate students, working in intercultural groups. For this reason, it was decided to split one of the modules into the first week and last week modules (see Table 3.1.2.). This way some culture models and scientific literature supporting them was introduced for students at the beginning of the module. An assignment provided students with the periodical reflection and discussion on the cultural and intercultural issues encountered during the module to be recorded and common findings on cultural matters presented during the last virtual session.

When the main learning outcomes were agreed upon and VM curriculum finalised, a course description for potential students was prepared. The course description was available on VM module virtual learning environment platform login page, and was used in the participant institutions for marketing purposes. It indicated VM module goals and outcomes, sub-modules and their duration, required learning hours, ECTS, teaching and learning methods, module language and prerequisites for students. As it was indicated that it might be too much

complicated to organise the selection of students based on certain course prerequisites, the latter were made rather common and were left for students to decide if they fulfil them.

The module **prerequisites for students** to enrol in the module, as indicated in the module description leaflet, were as follows:

- participants have a sufficient knowledge of the English language that would allow them to follow English speaking classes, discuss and work collaboratively with students from other countries and write correctly in English;
- participants have some experience working with VLE Moodle;
- participants have some knowledge on instant messaging, social networking and social media;
- participants should be willing to work collaboratively

When the curriculum was finalized, the collaborating teachers shared curriculum revision templates and each sub-module revision was implemented, i.e. one teacher from the participating HEI had to revise sub-module, created by other HEIs teachers and to provide feedback. The feedback had to be provided on the course structure and clearness of explanations, not on the learning content itself, this way implementing quality assurance of virtual module curriculum.

Tools for VM module curriculum design

VM curriculum design was implemented by the teachers in VLE Moodle. The module was divided into sub-modules, where each institutions' teachers were responsible for their curriculum. There was also a general part of the module for organizational issues, technological and pedagogical help contacts, recordings, and etc.

The communication and collaboration between the teachers was realised using project virtual campus for teachers, which was created using a social networking tool ELGG. This tool was configured according to the main activities in VM preparation and delivery and had separate groups created which aimed at different results. This was also a good repository for files on which teachers could comment, suggest corrections, etc.

Group assignment tools in VLE Moodle were used for student group tasks. After each assignment the students were graded and their grade appeared in the grade report in Moodle VLE. In the end the grade was cumulated into the final grade in the student's grade book.

2.1.4.3. Implementation phase

Module participants

As it was the first time VM experience for most of the participating teachers, it was agreed beforehand that the student number will not exceed 30 students in the module. So, with

the 6 higher education institutions participating, it was agreed to provide this opportunity for 5 students per HEI participating. It was agreed to have as much as possible diverse groups in terms of cultural background, so 5 groups of 6 students from each HEI were created. The groups were consistent for the module. Table 2.1.3. presents country diversity by the number of students in the group. The total number of students enrolled in the course was 29.

Table 2.1.3. Number of students in group per country

	Lithuania / HEIs 4&5	Portugal/ HEI 3	Poland/ HEI 6	Finland/ HEI 1	Spain/ HEI 2
Group 1	2	1	1	2	0
Group 2	2	1	1	1	1
Group 3	2	1	1	1	1
Group 4	2	1	1	1	1
Group 5	2	1	1	1	0

The module was prepared and delivered by an interuniversity team of 13 teachers from 6 institutions and 5 countries. It was an institution's decision how many teachers were involved in the VM experience, and it varied from 1 to 3 teachers per institution. The number of teachers from different countries is presented in Table 2.1.4.

Table 2.1.4. Number of teachers, preparing and delivering VM module per country

Lithuania, HEI 4	Lithuania, HEI 5	Portugal, HEI 3	Poland, HEI 6	Finland, HEI 1	Spain, HEI 2
2	2	1	3	2	3

Tools for Module implementation

There were a lot of technical possibilities for students to collaborate online, store their study results and communicate with other international students. The learning organisation was realised at TeaCamp Moodle virtual learning environment using networking service for education institutions. This technological solution played a role of Virtual campus across the participating institutions.

TeaCamp Moodle networking service was established at all participating institutions – all users using Moodle virtual learning environment at the participating institution had a reference to virtual campus Moodle and were able to access it and learn there. However, login to TeaCamp Curriculum content was restricted to the 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 the Moodle course with an enrolment key, which was to be provided by VM module teachers. For those institutions who decided not to use a Moodle networking tool – usernames and passwords were created and sent to the institution's IT administrators.

Module delivery

The VM module was delivered in autumn semester (24 September –17 December) of 2010. There were 29 learning participants (or module students) and 13 teachers in the module (see Fig. 2.1.).

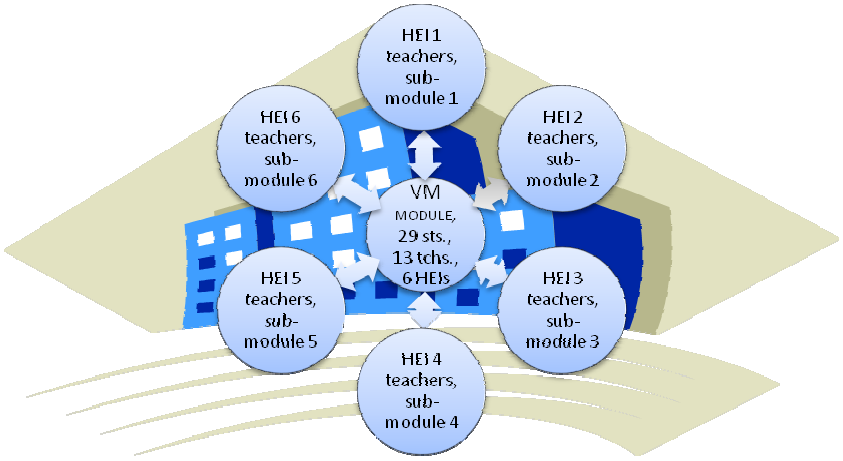


Figure 2.1. The virtual mobility module participants

The module delivery was organised in synchronous and asynchronous ways. There were 13 virtual synchronous meetings (videoconference sessions) organised at the HE institutions each Friday from September to December 2010. So the students staying at their home university participated in the virtual lectures, delivered by professors from various universities (depending on the sub-module), where sub-module assignments for the next week to be performed were described, various unclear issues discussed and clarified, feedback on the performed assignments provided. All the lectures were recorded and accessible to 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. During the week student learning was organised in VLE Moodle, where all study materials and assignments were uploaded, discussion forums and consultations were provided. Virtual sessions were organised according to the learning outcome sequence presented.

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 VM study module were presented, organisational issues discussed, and the schedule for the assignments provided.

The introductory lecture “Study Organisation in Virtual Learning Environment (VLE) Moodle” was also delivered for students, discussing VLE tools and possibilities that were to be used during this module. Study organisation was presented for all students by coordinating

teachers. The virtual mobility session organisation scenario was indicated (it was also available at TeaCamp Moodle during the course). Students were introduced with the "Moodle Guide for Students", available publicly before logging in VLE; the contacts of technical assistance staff were indicated.

During the week student learning was organised in VLE in an asynchronous way. Every Friday a video conference with the participants and responsible teachers was organised. Due to prior arrangements sometimes students' participation in videoconferences was accompanied only by the technical staff (at hand) or assisting teachers, who were present just to make students feel more secure and confident in those national points which were not hosting ones that week. During the video conference, teachers, responsible for sub-module delivery and study organisation, 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 given literature studies. It was also agreed beforehand that it is not necessary to deliver lectures during these videoconferences. So the records for the necessary full-scale presentations of certain topic were prepared before the module.

The first session was introductory of the whole module; then the shorter sessions of sub-modules followed. The experience was finalized by the international groups' presentations on cultural matters.

2.1.4.4. Evaluation phase

The evaluation phase of the module preparation and delivery focused on the research implementation and analysis of the research results. VM scenario, curriculum, competences and tools, and recognition possibilities were addressed at participant feedback surveys after the module. The results of the survey findings are discussed in Part 3.

Participant feedback surveys were run before and after the module and were used for coherent explanations on the case. There were all students (n=29) participating in the survey before the module and 23 out of 29 students providing feedback after the module. So where it is possible, all participants' feedback and generalisations on it were made, however, sometimes representations referred to the opinion of 23 out of 29 module students. To more coherently present the 23 students participating in the feedback survey – all of them were students at their home university, however, of different program level: there were 15 - bachelor, 6 - master and 2 - doctoral programme students. The student structure was similar to the one in the VM module. Analysing the students' age, it is evident that the biggest group of students was comprised of bachelor students, represented by different age groups from 18 to 35; 6 master students whose age also differentiated between 18 and over 35; and 2 doctoral students, who were over 35 years

old. To sum up, there were 15 out of 23 learning participants between 18 and 24 years age, 5 learning participants between 25 and 35, and 3 – over 35 years old.

To get a better impression on the module students' previous experience related with physical or virtual mobility, during the feedback survey the students were also 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.2.2.). There were only 4 students from 2 countries that had participated in a physical exchange program before, but 14 of 23 students declared having some experience in participating in virtual mobility activities (such as a virtual learning course, a virtual placement or other) before the VM module. As it was not expected for students to have experience in virtual mobility activities, they were not asked to specify what kind of virtual mobility experience they had. However, one more aspect of the virtual mobility concept could be noted here – it depends on how virtual mobility concept was understood by the participants.

As participation in a virtual course and international virtual course slightly differs, and (as indicated by the previously implemented desk research) there were no initiatives in the participant countries of virtual mobility courses or international virtual placements organised, the students' virtual mobility experience is bewildering and puzzling, and it may be stated that students indicated virtual learning experience (which is rather possible in the participating institutions), but more research on the topic is needed to make any assumptions.

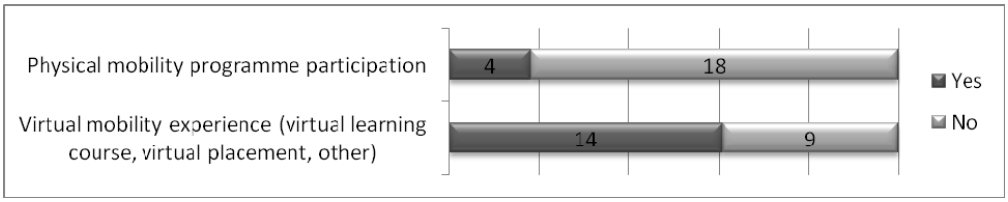


Figure 2.2. Module students' experience on physical or virtual mobility (in numbers, N=23)

All of the teachers had filled in the feedback survey, so the generalisations made in the case represent all module teacher opinion; however, the generalisations made in this case may not be applicable to different VM cases, although they may represent general features of the VM phenomenon that is aimed at; therefore, the transferability of case study results to other contexts should be proved by further research.

To better present who were the 13 module **teachers**: most of them were rather young - 4 teachers were up to 30 years old, 6 - from 31 to 40, and only 3 teachers – over 40 years old. Most of the teachers (n=11) had distance learning course delivery experience (there were only 2 of them, who had not); however, only 3 teachers of 13 indicated that they had virtual mobility sessions' participation experience, while 10 of them did not.

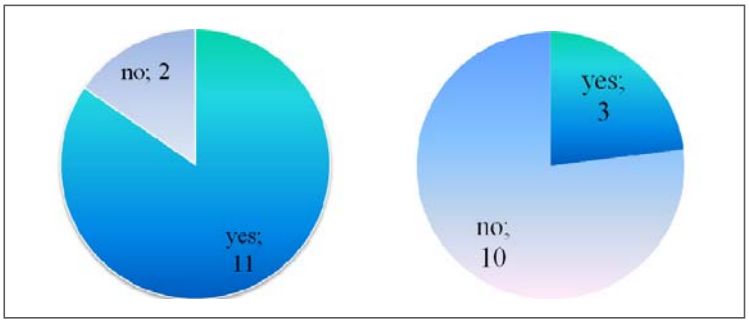


Figure 2.3. Module teachers' experience in participating in Virtual mobility sessions (right) and distance learning course delivery (left) in numbers

This leads to the assumption that there was some guidance from the experienced ones, but not much was necessary, as most of them had had distance teaching experience. Presumably the 2 teachers who had not distance teaching experience were the ones who did not have virtual mobility experience, but they worked in team with other colleagues from the same HEIs, so they had assistance when it was necessary.

One more of the research methods was used for case evaluation - module **teacher interviews**. The main aim of the teacher interviews was to find out the lessons learnt from the VM module preparation and delivery. In order to focus on case peculiarities rather than emotions (that were quite intense just after the module), the interview was implemented after 2 years of the case, and included only those module teachers, who followed VM experience and enrolled in other VM projects (either on VM curriculum design, or other VM activities). So there were 5 teachers interviewed on the lessons learnt during the VM module.

After the module implementation, institutional needs and obstacles were addressed in the 4th diagnostic survey, which focused on the situation analysis update after the module delivery and addressed more European institutions' representatives. The survey was implemented in May-December 2011. The survey results are presented in research results Part 3 Subchapter 3.1.4.2. "Situation analysis follow up".

2.1.4.5. Recognition phase

One of the challenging issues met in VM case organisation was VM experience recognition by ECTS or competences acquired. Although recognition of VM experience was an issue that was not aimed to be solved in this case, based on the teacher consortium decision, the possibilities to recognise this VM module were left for the home institutions. After the module delivery students and module teachers were provided with the project certificates confirming their participation in the VM module. So the non-formal recognition of the module was organised; however, there are doubts as to the providing credits for students and entering the course into the diploma supplement, as this is the decision made by every institution. Therefore,

the VM experience recognition is an open issue and in order to generalise the results of this case to other practices it is necessary to come to common agreement with regard to the definition of recognition as it may express different aspects in different institutions, such as a separate certificate confirming the VM experience, ECTS credits for the course or be part of the course, or entry in the diploma supplement, etc.

2.2. INTERVIEW METHODOLOGY AND DESIGN

The interview as a research method was chosen for the exploration and enrichment of VM dimensions, referring to the research questions that need explanations and background for certain VM features. As J. Wellington (2006) indicates, „interviewing allows the researcher to investigate and prompt things that we cannot observe. We can probe an interviewee‘s thoughts, values, prejudices, perceptions, views, feelings and perspectives” (Wellington, 2006, p. 71).

2.2.1. Virtual mobility expert interview

The aim of the interview was to strengthen the links between virtual mobility components and verify the dimensions permeating VM implementation in virtual mobility practices and higher education institutions, as well as to define VM limiting and fostering factors. A semi-structured interview was organised with 5 categories of questions prepared for the interviewees. The questions of the semi-structured interview were divided into categories according to VM dimensions, including the VM concept itself. The sequence of the questions was flexible, and the questions were adapted for each informant, based on the VM experience and role of the VM experience described in the interview. The questions that were addressed during the VM expert interviews are presented in Annex 9 while the reference between the categories of interview questions and answers of informants is shown in Table 2.2.1.

The responses of the informants were recorded after the interviewee’s permission. Some other ethical backgrounds (such as the mentioning of names, institutions, etc.) were discussed before and/or after each interview. First, the interview data was transcribed, then, divided into pre-selected 5 categories - according to the VM concept and VM components, leading to VM dimensions. The content analysis of the categorised data was performed and a separate category of key success factors elicited. The interview findings are presented in Chapter 3.2, referring them to VM concept, VM dimensions and key success factors for VM implementation.

Table 2.2.1. Cross reference of interview question categories and informants' responses

Code of interviewee	VM concept	VM competences	VM curriculum	VM scenario	VM tools	Key success factors for VM
I 1		X	X	X	X	X
I 2	X	X		X	X	X
I 3	X	X	X	X		X
I 4	X	X	X	X		X
I 5	X		X	X	X	X
I 6	X	X	X	X		X
I 7	X	X	X	X		X
I 8	X	X		X	X	X
I 9	X	X	X	X	X	X
I 10	X		X	X	X	
I 11	X	X	X			X
I 12	X	X		X	X	X

The experts for the interviews were chosen based on their experience in VM and accessibility. All 12 interviews were performed in a face-to-face mode, arranging the time for the interviews in advance. The period for the research was May 2012 and the last one was performed in June 2013.

2.2.2. Informants of VM expert interview

Aiming at the enrichment and exploration of VM concept and dimensions via the interview, the key informants were selected to be VM experts, i.e. persons, who had previous VM experience as VM participants. To enrich the data, the requirements for VM experts were as follows: a person who has participated in one or several types of VM activities for 2 or more times, being either a researcher and having a significant number of publications or teacher in VM activities. The description of VM experts, their experience in the field and affiliation to HEIs are described below in Table 2.2.2.

Table 2.2.2. Reference data of VM experts-interviewees

Code	Gender	University affiliation (Y/N, virtual / traditional)	Experience in virtual mobility field (date: since …)	VM activities implemented: Number / role / VM type
I1	Female	Yes , traditional	"VM course 6 times - for 6 years each spring semester"	1 type case for 6 times/teacher/ VM course
I2	Male	Yes, traditional	Since 1997 - for 15 years	More than 5 projects/ organiser, researcher, IT spec. / VM course, VM seminar, VM support to physical mobility, VM internship
I3	Male	Yes, Virtual	Since 2007 – for 7 years	3 projects/ researcher, policy maker /courses, programmes
I4	Female	Yes, traditional and No	"For 14 years"	More than 5 projects/organiser, researcher/ Virtual (V) support for physical mobility, V seminars, V internships
I5	Male	No	Since 1995 = for 17 years	More than 5 projects/ concept initiator, facilitator/ V seminars, part of the courses

Code	Gender	University affiliation (Y/N, virtual / traditional)	Experience in virtual mobility field (date: since …)	VM activities implemented: Number / role / VM type
I6	Female	Yes, Traditional	Since 2009 – for 5 years	4 projects /teacher and other 3 roles/U based/ VM courses
I7	Female	Yes, traditional	Since 2009 – for 5 years	3 projects/teacher and other 2 roles/VM courses
I8	Male	Yes, Traditional	Since 2003 – for 10 years	3 projects/teacher and IT spec./ VM seminars, VM courses
I9	Female	Yes, Traditional	Since 2006 – for 8 years	3 projects/student, teacher, researcher /courses, VM support
I10	Male	Yes, Traditional	Since 2009 – for 5 years	2 projects/it specialist and policy maker/VM course, part of the courses
I11	Female	Yes, Traditional	Since 2009 – for 5 years	2 projects/teacher, organiser/ VM courses
I12	Male	Yes, Traditional	Since 2009 – for 5 years	3 projects/teacher, organiser, IT spec./VM courses

VM experts, as illustrated in Table 2.2.2., represent different VM type experience and vary from participation in one case to many cases and from having 5 years to 17 years of experience in VM field. Their roles also differ, and all experts still participate in various VM activities in different roles. One third of VM experts (n=4) are from Lithuania, while the other 8 represent different European countries – Belgium, Italy, Portugal, Spain and Poland; moreover, their VM experience covers not only Europe, but Latin America as well. Most of the interviewees' VM experience is based within universities – distance or traditional ones – as this is the area of research for this phenomenon; however, most of them can also affiliate themselves with different European networks. It was rather difficult to find VM experts in Lithuania and their experience was rather recent, so European experts were also involved in the research to broaden the concept analysis and its representation from various perspectives.

3. VIRTUAL MOBILITY RESEARCH RESULTS

This part presents the results of 2 researches on VM – the results of a case study and a semi-structured interview of VM experts.

3.1 VIRTUAL MOBILITY CASE STUDY

This part of VM case study is developed from the case study report and focuses on the research results, gathered from different research implemented during the case implementation. It covers the results of the desk research, observation, participant feedback (collected by 3 questionnaires), situation analysis and VM teacher interviews. The aim of the case study research was to explore and analyse VM components in VM process.

3.1.1. Decision making phase

The case study research results are presented in the VM process sequence in order to specify VM components in real VM practice. The decision making phase of VM practise was started with the research on institutional preparedness to implement virtual mobility and followed by VM scenario decisions.

3.1.1.1. Institutional preparedness for virtual mobility

One of goals of the desk research was to define the virtual mobility regulating documents, strategies or policies in partner countries and institutions in order to prepare the recommendations on institutional regulations for teacher and student virtual mobility. For this purpose, desk research of the existing practices was based on legal framework of virtual mobility and concept related activities at national and institutional levels.

Analysing the results of legal framework on e-learning, distance learning and virtual mobility in 6 project countries in 2009-2010, some legal documents on e-learning were indicated only in 2 countries participating, and 5 participating countries referred to legal documents on distance learning, but there was no legal framework for regulating or indicating virtual mobility in either of these countries. There were some governmental regulations on e-learning in one country, and some governmental regulations on distance learning in 3 countries. There were also some national strategies and policy papers on e-learning in 2 countries, where some virtual learning initiatives were started to be promoted in higher education institutions; however, there were no indicated research activities concerning virtual mobility issues in higher education institutions at national level in any of the 6 countries found at the beginning of 2010.

The same desk research also targeted at the institutional initiatives in the virtual mobility area. There were no existing institutional regulations for teacher, academic staff and student VM found in any of the 6 countries as well. Some desk research participant comments suggested that virtual mobility activities could have existed, however, they had not been indicated as virtual

mobility and had not been recognized by the institutions in VM term yet. The virtual mobility concept was not mentioned in any of the university development strategies, which shows that VM initiative position had not become a strategic point at the investigated higher education institutions at least by the middle of 2010.

The desk research also had another goal – to find out what technologies and teaching and learning methods were used in the institutions, also providing subjects that may be based on for VM exchange. Most of the institutions indicated different virtual learning environments used for academic activities, mentioning also the videoconferencing and recorded video lecture use. In terms of learning and teaching methods, blended learning activities were stressed as all institutions were traditional universities, and the variety of methods was mentioned, which were difficult to summarize. However, the later findings suggested that common decisions on VM scenario should be initiated.

To conclude, the findings of the institutional preparedness implemented by desk research show that "the problem with the indication of the existing institutional regulations could be the result of the diversified definition of Virtual Mobility, as mentioned by one of the partners. Outgoing from the definition problem mentioned by them was the idea that the meaning of Virtual Mobility was unclear and not defined in the institution. Virtual Mobility was for sure not mentioned under the same name, but there might be conditions for virtual mobility created, as most of the institutions indicated that there were no legal restrictions for VM among teachers and students" (Daukšienė, Teresevičienė, & Volungevičienė, 2010, p. 32). Therefore, it was inferred that all of the institutions assumed that 100% virtual mobility was possible in all institutions participating in the research, which opened the door for the preparation for VM experience.

3.1.1.2. Virtual mobility scenario chosen

Due to the limited project timeline and some of the pre-planned project results (such as open VM curricula and virtual campus to be created), project coordinator initiated the suggestions on VM scenario of a joint VM course design and delivery. The course was planned to be delivered in one semester by teachers from six HEIs and attended by students from the same HEIs. Students had to be formed in national and international groups for more intensive intercultural collaboration. To fit into one semester and equally provide the possibility to teach for all HEIs teachers, the course timeline was set to 12 weeks, providing the full responsibility of the course for an institution for 2 weeks.

The complex type of the virtual mobility was chosen - student and teacher virtual mobility, so the following participants and their responsibilities were planned in this VM experience:

- **Teachers** from 6 HEIs in 5 countries, who were responsible for the curriculum design of the module and delivery of their institution sub-module. The teachers also were responsible for the assistance of the module students during their sub-module delivery period. As there were only 2 weeks for the institution to be responsible for the VM experience, it was up to the institutions to decide, how many teachers were to be involved. There were also some assisting tutors, however, to avoid misinterpretations for students (as there were 13 teachers totally), all teachers and tutors were called 'teachers' during the module delivery.
- **Students** from 6 HEIs in 5 countries were the learners in this module. The target group for learners in the VM module was chosen to be bachelor students of Education field. However, not all institutions could engage bachelor students from Education field, as some PhD students were more willing to participate in one of the countries, and ICT master students were most interested in another country HEI. So the decision on the students' background was left for HEIs and the only limit for the participants not to exceed 30 students for the module was chosen. As there were some PhD students, who were much older than the bachelor students involved, it was chosen to call learners as participants and not students.
- **Researchers** from several institutions were also involved, some of them also being teachers or tutors. However, to focus the research on the VM case representing VM phenomenon from an educational point of view, different aspects of the phenomenon that were researched by other researchers are not discussed here.
- **Technical staff** was present in all institutions, and also the coordinating point was established at one partner institution for the assistance on common videoconferencing tools and common module learning platform.

The module was of 6 ECTS. It consisted of 6 study sub-modules, 8 academic hours each. The teachers could choose various learning scenarios and resources, including a learning outcome assessment strategy. Each sub-module had to include compulsory readings, a student guide, activities, recommended recourses, sub-module guidelines, and sub-module discussion forum.

As it can be presumed from Fig.3.1., the model of multilateral agreement was chosen for the VM case implementation. Due to the multilateral VM model, the form of VM activity was chosen to be fully virtual, however teacher virtual mobility was of the blended form, as teachers had possibilities to meet during the curriculum design phase. The activity of VM case was a course, however, called a module by the participants.

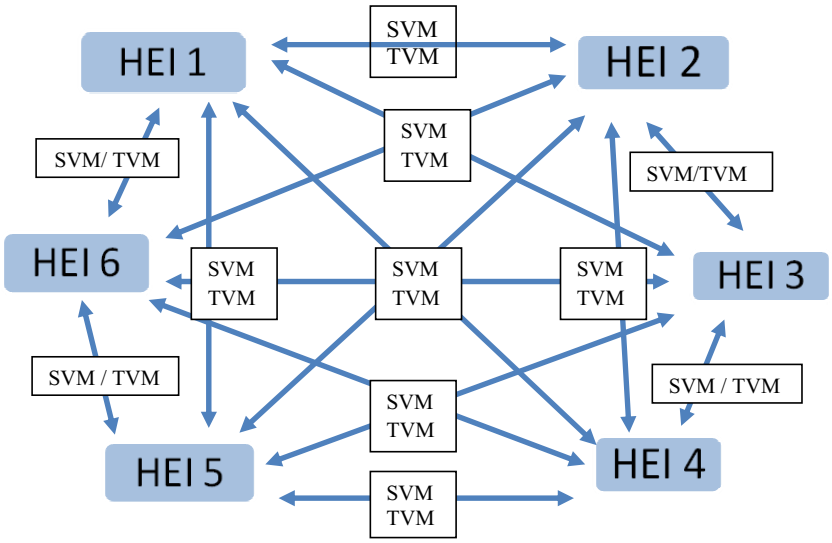


Figure 3.1. Virtual mobility joint course development and delivery model

To stimulate intercultural communication and cooperation of students in the multicultural setting, multi-institutional student groups were formed. During the module students had to perform some (5 out of 12) of the activities and assignments working individually, still, more of the assignments (7 out of 12) were organised working in groups (1 assignment in national groups, and 6 assignments in international groups).

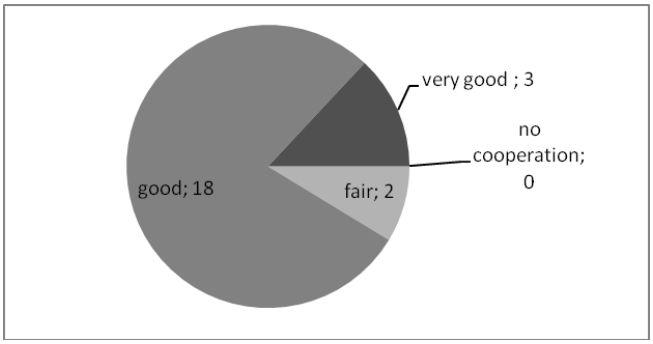


Figure 3.2. Successfulness of cooperation between members of international group, indicated by the students (in numbers)

So after the module, the students were asked to evaluate the **successfulness of cooperation of their international groups**. Most of them (18 out of 23) evaluated their international group cooperation as good, some of them (n=3) – as very good (See Fig. 3.2.). As the international group cooperation was assessed to be rather successful by the students, most of the module teachers (n=10 out of 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 module students (out of 23) indicated a strong group leader and active group members; however, only 10 participants indicated that 'group work was organised on the basis of equal contribution', and 8 participants admitted that s/he 'was working alone and other group members were not active'.

More of the students 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. 3.3.). Thus, it can be concluded that from the students' point of view the **cooperation** between the members of international group was rather **successful**. Statistical analysis of student answers only showed relation between student opinion on too little time for cooperation and the (un)success of cooperation (χ^2=12,778; df=6; p=0,047), other success influencing factors were independent to the successfulness of international group cooperation.

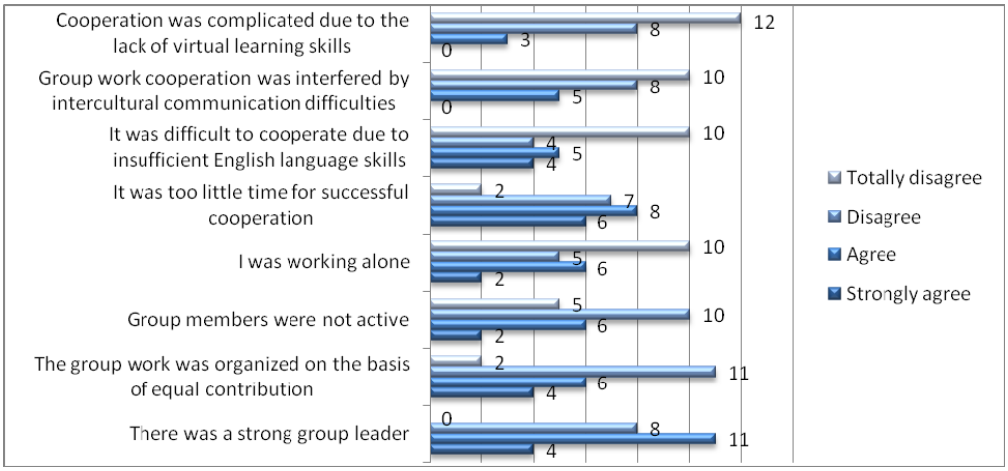


Figure 3.3. Factors influencing successful international group cooperation (in numbers indicated by the students)

As some of the group members were not active during the module, the stimulation of students (RS3) and teacher involvement in discussions was indicated in the feedback suggestions after the module. More active participation of the student group members in the learning process and/or videoconferences was suggested as module improvements necessary by students. *"Use more methods to involve all members of the groups" (RS21); "encourage students to be more active in the videoconferences"* (RS1) and *"maybe sometimes let students moderate some of the video-conference sessions*" (RS1), make some tools compulsory (especially video tools, RS2) or just make *„more participative and less informative videoconferences" (RS5)* were among the suggestions for improvements by students. However,

to sum up the cooperation factors, one of the students' comments fits here a lot: "*my point of view the activities have been such that there has not been need for actual group work. Ok we had some group discussions and we worked together but I understand collaboration and group works differently*" (S1) So it is difficult to generalise if the lack of time, or cultural differences or just activities, not requiring strong team cooperation, or all together, were the main factors for fair cooperation in some student groups.

Students' motivation to participate in VM module

Motivation plays an important part in making up student's mind to participate in the exchange programme, as well as in student's learning. In order to find out students' motivation to participate in the VM module, the 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 3 reasons for joining the course. Their answers were analysed and categorised and are presented in Table 3.1.1.

Table 3.1.1. Students' motivation to attend virtual mobility module

Motivation factor	**Number of students**
Interest in the topics (sub-modules) suggested by the module	18
Interest in virtual learning Get more knowledge on virtual learning and its potentials Improve virtual learning competencies/skills	17 (of which) - 9 - 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 VL is important for teaching/teachers Useful experience for the studies and work	9 5 4
Compare different perspectives of learning; learn from experience or experience virtual learning	8
Improve English	5
Interesting because it's new, attracting, challenging Usage of new learning methods	5 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 were as follows: 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: to meet new people, get to know more about their culture, work with

people from different countries, improve my foreign language competence, compare my and 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 the usage of new learning methods and possibilities to compare them, opportunity to work with 5 other institutions in 3 months, learning about foreign educational experiences or distance learning in other countries. Comparing the students' responses with regard to the drivers that motivated them to participate in the VM module expressed during the first video conference and pre-course online survey, it can be stated that they mentioned the same reasons in both the research stages: no new indicators were presented during the virtual session.

To sum up, it could be noted that the students were most interested in participating in an international 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 played a rather important role.

3.1.2. Virtual mobility curriculum design phase

12 learning outcomes were developed (see Table 3.1.2. for indications) for students to be achieved during this course and 6 sub-modules elaborated during which these learning outcomes were to be reached and virtual mobility competences were to be improved. Although some of the learning outcomes may be criticised by education professors as being not measurable and needing to be more precise, however, the decision on the learning outcome definition was left for the delivering teachers to choose the formulation. Following the developed learning outcomes, the common module competences were also agreed upon, however, to avoid more discussions, they were not finalised and approved by all module teachers.

Table 3.1.2. Learning outcomes of virtual mobility module

HE institution	Sub –module	Module learning outcomes. Students will be able to:
HEI 1	Cultural models (Week 1)	1. Understand culture models and their application in education.
HEI 2	Collaborative online learning (Weeks 2-3)	2. Know different technological resources for collaborative group work online. 3. Demonstrate the skills needed to facilitate collaborative group work online.
HEI 3	Information Literacy (Weeks 4-5)	4. Analyse online information. 5. Create online material.
HEI 4	Advanced Learning Technologies (Weeks 6-7)	6. Define the technologies and standards used in distance education. 7. Apply learning management systems based on these standards.
HEI 5	Learning Strategies (Weeks 8-9)	8. Compare learning styles and learning strategies. 9. Identify and apply online resources in order to implement learning strategies virtually.

HE institution	Sub –module	Module learning outcomes. Students will be able to:
HEI 6	E- Assessment strategies (Weeks 10-11)	10. Design assessment strategies for virtual learning. 11. Use tools to support scenarios of virtual learning.
HEI 1	Cultural models (Week 12)	12. Apply the knowledge of culture models to solve problems caused by cultural difference in Virtual Mobility.

In order not to overload students, during the rich face-to-face meeting discussions it was agreed that each sub-module has to have no more than 2 activities to be performed during the 2 weeks. In order to guide the learners and limit the multiple resources to be studied, compulsory readings and optional resources had to be marked. The common terms for 'compulsory' and 'optional' were also agreed upon to make the course more consistent. This way each sub-module had to have not only separate learning outcomes and resources, but also separate students' guides, with the explanations on how to organise activities and perform assignments, when the due date for each assignment was, if they were individual or group assignments, and what the results were and where to upload them. Although a common study guide with the all assignments and instructions may have been prepared, but due to the intense preparation it was not realised. However, the separate sub-module guides, their structure and delivery allowed the institutions to more coherently present their institution learning and teaching culture, creating a possibility for more intense student immersion at the hosting institution for the dedicated 2 weeks.

All module assignments for students were either individual or to be performed in national or international groups, this way leading to various learning and assessment methods used. 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.

Teacher feedback on VM curriculum design

The module preparation was organised online in virtual meetings in April – September 2010, as well as in international group discussions at several face-to-face meetings 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.3.4.).

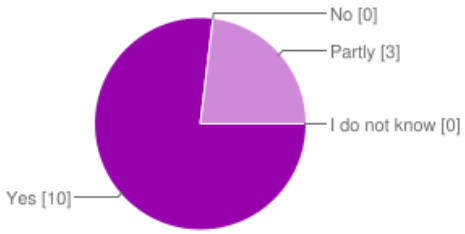


Figure 3.4. Teachers' opinion with regard to sufficiency of time for module preparation

Almost all (n=12) teachers stated in the teacher feedback survey that for the preparation of an international 6 ECTS course individual work as well as international group discussions were 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. The other possible scenarios indicated by the teachers were very different, but all were concentrated on individual and group work discussion variations (see Table 3.1.3.).

Table 3.1.3. Time necessary for preparation of 6 ECTS international module for virtual mobility (as indicated by VM module teachers, in numbers)

… hours individually	**… 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		

Designing joint curricula and joint institutions courses, some kind of support is necessary. The teachers were asked to indicate what kind of support is needed for the preparation of an international virtual learning course.

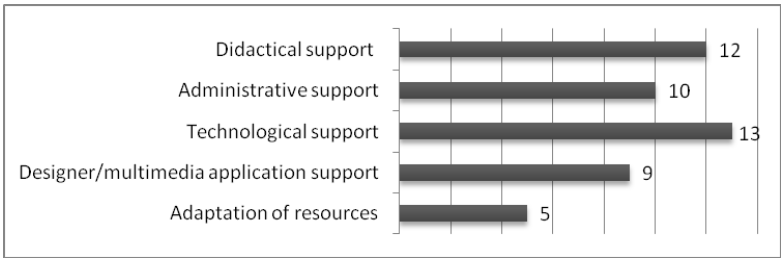


Figure 3.5. Teachers' opinion on the support needed for preparation of international virtual learning course (in numbers of teachers, indicated the choice)

All teachers (n=13) marked the necessity of technical support, and 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 also necessary is indicated in Fig. 3.5. There was no statistical relationship found between the teacher age and the support necessary (χ^2=11,826; df=18; p=0,856), as well as teacher experience while delivering a distance learning course and the support necessary. (χ^2=5,318; df=6; p=0,504). Also the time necessary for the preparation and difficulties while preparing the course were independent.

It was noted by the VM module teaches that the "*concepts of learning outcomes and competences are different in various cultures and universities*" (R2), and most of the teachers

(n=12) stressed that didactical support would be necessary while preparing an international virtual learning course.

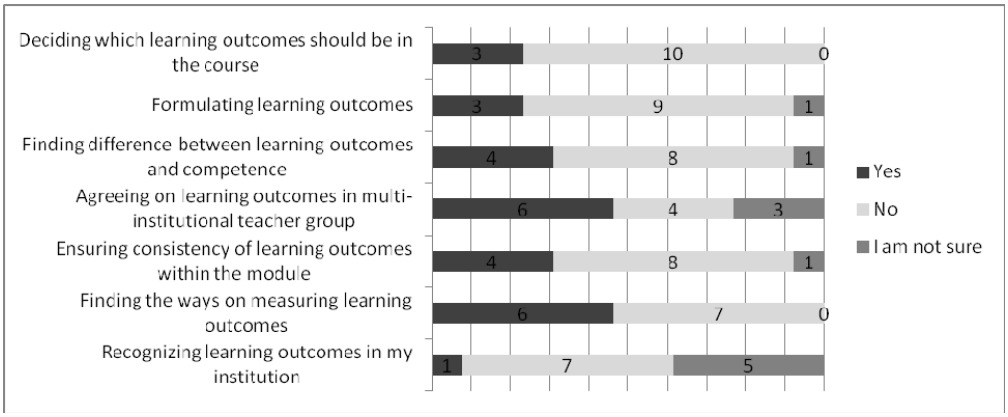


Figure 3.6. Difficulties (referring to learning outcomes) indicated by module teachers while preparing the course (in numbers, n=13)

Although there were not many difficulties that the teachers had encountered while preparing the course, referring to the decisions on learning outcomes – 6 teachers indicated that there were difficulties in agreeing on the learning outcomes in a multi-institutional teacher group and finding the ways of measuring the learning outcomes. 5 teachers were not sure about the recognition of learning outcomes at their institutions (see Fig.3.6 for more issues).

The statistical analysis of teacher responses revealed no statistical relation between the country or institution that teachers come from and difficulties, referring to learning outcomes, as well as age and difficulties. Teacher experience in delivering distance learning course was statistically related to the difficulties while formulating learning outcomes (χ^2=6,172; df=2; p=0,046), while other types of difficulties (referring to learning outcomes) were independent to the teacher experience of distance learning course delivery.

Teacher virtual campus ELGG tool proved itself to be a very useful tool for organisation and administration of virtual mobility. 10 out of 13 teachers indicated that virtual campus ELGG was used either at a module preparation stage (n=8) or during virtual mobility sessions (n=2). 7 teachers out of 10 who used virtual campus ELGG stated that ELGG was useful for them as a virtual campus tool.

Student feedback on the VM module curriculum design

Preparation of the VM module was assessed by students in the post-course feedback survey, where they were asked to assess how well the module was prepared by indicating such information as module consistency and coherency. The findings are represented in Fig. 3.7. The statistical analysis of student responses revealed that there was statistical relation between the students who claimed that the module content was understandable and the learning outcomes

were clearly stated (χ^2=10,484; df=2; p=0,005), however students responses on the clarity of learning outcomes and module activities were statistically independent (χ^2=0,780; df=3; p=0,854).

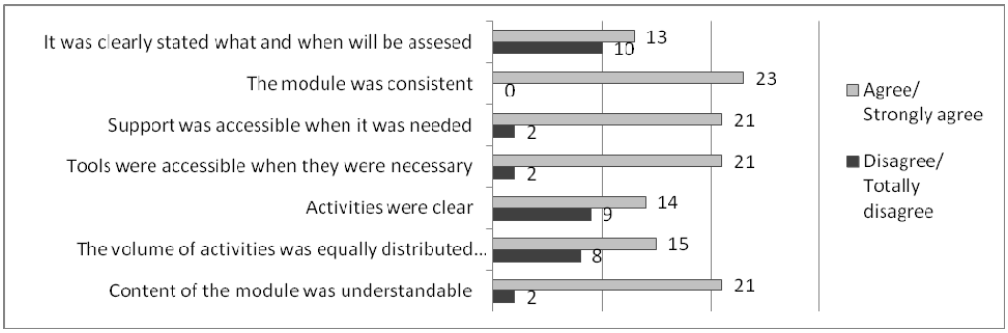


Figure 3.7. The students' opinion on module consistency and coherency (in student numbers, n=23)

All the VM module students (n=23) agreed that the module was consistent. Most of them (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 the students for what and when they will be assessed (n=10). 9 respondents found activities not to be clear, and 8 of the 23 students noted that the volume of the activities was not equally distributed during the module. So although the module was consistent and coherent, more polishing and clarity was requested.

When teachers provided feedback on module preparation, one of the aspects to be improved was virtual sessions' calendar (R8) and "*pre-course planning*" (R7). Although the timeline of the module was discussed rather intensively, and its start and ending were adjusted according to the academic calendars of different HEIs, before the agreement on the virtual session dates was made, however, such events as national holidays might have been unforeseen, because teacher suggestions on the necessary improvements followed -"*Reorganize the calendar sessions in order to avoid the holidays of the different countries (R8)".* Of course, it can be opposed by that "i*t was difficult to find time for videoconferences that would suit for all students. Some of them had to miss this important part of communication and just watch the records instead (R11)".* However, this merely leads to the necessity to emphasise the importance of preparation, calendar planning and collaboration between responsible people in different institutions, much in advance of the module.

3.1.3. Implementation phase

The learning organization methods, student feedback and experience evaluation is discussed in this part of the case study from student and teacher perspective.

3.1.3.1. Learning and teaching methods used in VM module (Student perspective).

VM module description indicated different teaching and learning methods to be used in the module: information transfer, imitation and modelling, discussions, creation and exploration,

group work, student personal reflections (learning diary, video cast classes), and other methods. It also stated that *"Teaching and learning methods are carefully selected and presented under each learning sub-module within responsibility of the teachers"* (TeaCamp project consortium, 2010).

After the module the students were asked to reflect and provide feedback on the communication and collaboration methods and tools, learning organisation methods, and the methods of feedback used. The discussion of student answers presents what and how successfully different learning and teaching methods were used in the module.

Discussing the **learning and teaching methods** used in the module all students indicated that there were *discussions* and *individual work* organised in the module. Most (n=21 and 22 respectively) of them 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 and teaching methods used in the module. Such learning and teaching methods as *interactive learning activities, creative work, guidance* and *practical application of knowledge* were also recognised by the majority (from 17 to 19) of module students; however, *creative work* was claimed to be absent in the module by 6 students. *Experimentation, modelling/imitation* and *exploration* were rather diversely assessed by module learners (3-8 of the module students indicated that it was 'difficult to say' if the mentioned methods were used) what shows different students' experience in understanding of various learning and teaching methods and in performing different module assignments – as some of the students had successfully finished the module performing all the 12 activities, while others failed, performing too few of the obligatory to perform module activities. To sum up the diversity of different methods used, one of the students' comments may be used: "*the tasks have varied. Some of the tasks have been nice and easy. Some of the tasks have been very tricky and challenging. I think that the pedagogical philosophy behind the activities have varied quite lot"* (RS1).

In addition to this, one more feature of learning and teaching was analysed – it was **methods of feedback used in the module** (see Fig. 3.8). Most of the students indicated that *feedback was provided for groups* (n=19) and there were *self-assessment possibilities provided for learners (n=20)*; however, *individual feedback* and *clearness for the feedback regarding learning outcomes* were rather diversely assessed by the students, although 14 students stated that the feedback was provided individually. This suggests that different assignments were evaluated by different professors who gave feedback to 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 more individual feedback.

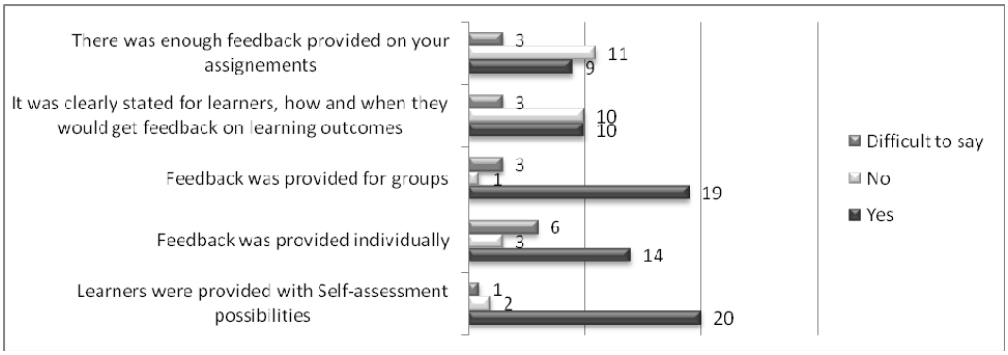


Figure 3.8. The students' approach to the methods of feedback used in the module (in numbers)

10 students indicated that it was clearly stated for them, how and when they get feedback on learning outcomes, but it was not clear for other 10 and 3 more were not sure. This suggests that more clarity for learners should be provided when the course is delivered in virtual learning environment, as there is more than one professor delivering the course and face-to-face communication is absent for most sub-modules. Even more students (n=11) responded negatively to the statement that 'there was enough feedback provided on your assignments'; although it was clear for 9 of them 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 the participants' learning and this may presumably have decreased the rate of drop outs.

Summing up the feedback of module learners, it can be stated that various learning and teaching methods as well as various methods for feedback were used during the VM module. The 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 students. Most of the module students 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 and teaching methods in the module.

There were self-assessment possibilities for learners as well as individual feedback and feedback for groups, but half of the students indicated that they lacked feedback on their assignments and clarity about their achievement of learning outcomes. Assessment and feedback on the assignments were also among the aspects that the number of students (RS1, RS2, RS3, RS9, RS18, RS20, RS21, RS22, RS23) indicated as necessary to be improved in the module. 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 week of the module, they really missed some certainty on their improvement and formative feedback.

Another aspect to be improved in the module referred to the variety of active learning and teaching methods used. So the students suggested *"more different tasks for the group work (as it was just mostly discussions) (R4)","discussion organisation, by applying some rules to them" (R3)* or "*more teamwork tasks" (R15).* The students also missed some more participation of teachers in the discussion forums (R19) or just „*more intervention from teachers"* (R7). However, in general (from the students' perspective), the module was assessed to be consistent, having understandable content, and with the necessary tools and support possibilities provided at a proper time.

To sum up the students' comments, some generalisations may be drawn. Some students needed "*more time to get to know the module*" *(RS20)*, more time to do the tasks (RS13) or just help with time management (RS7), whereas others needed „*more time and guidance for the group to get organised in the beginning of the course*" (RS16), what means that students had to start learning and collaborating in international groups not having enough time to get to know each other.

Some students asked for clearer assignments (RS14) and clearer instructions "*where to perform the activities and how"* (RS16). The others noted the IT tools need to be improved (RS9, RS13, RS14) and the technical problems to be eliminated (for example, during the video conferences) (RS18, RS19). However, the summary of the students' suggestions and comments on the module could be finalised by the statement 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*" (RS4).

3.1.3.2. Virtual mobility organisation from teacher perspective

Although the students mentioned the need for more diverse variety of learning and teaching methods used, the summary of teachers' feedback on the teaching and learning methods used in the sub-module provides a rather long scale (See Fig. 3.9.).

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. 3.9.). However, only one teacher indicated that s/he used *imitation / modelling* in his/her sub-module.

The statistical analysis of students and teachers' opinion about learning organization methods used in the module revealed statistically significant differences between student and teacher opinions on presence of information presentation (χ^2=20,656; df=2; p=0,000), group work (χ^2=8,315; df=2; p=0,016), interactive learning activities (χ^2=10,577; df=4; p=0,032), creative work (χ^2=4,070; df=1; p=0,044), modelling/imitation (χ^2=18,662; df=3; p=0,000), exploration (χ^2=10,716; df=4; p=0,030), while other methods assessed were not significantly different.

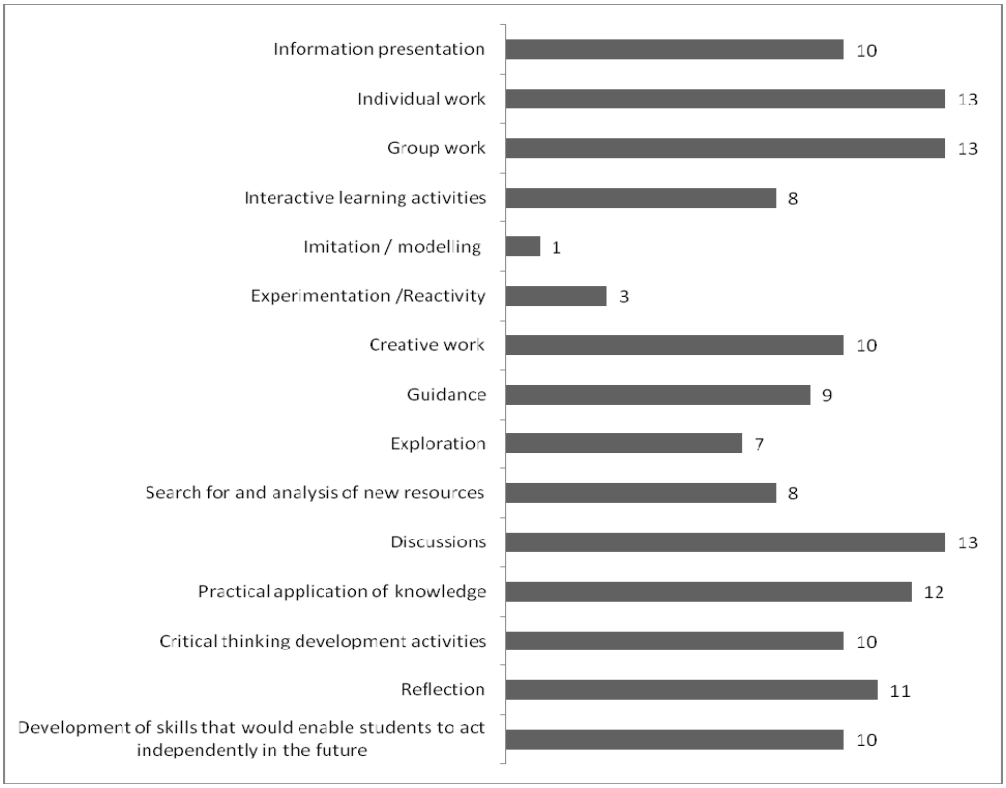


Figure 3.9. Learning organisation methods used in the module (in numbers)

Teacher feedback on the module delivery collected focused on teaching and learning methods used; however, it also addressed the kinds of problems or issues teachers faced during module delivery. Fig. 3.10. illustrates some issues that emerged during module delivery, as indicated by module teachers. As seen, the most challenging were: academic calendar/timetable overlap (n=9) or recognition at university (n=7). Among other difficulties faced, 4 of the teachers felt lack of foreign language competence (which was stated as not improved at all during the sub-module delivery, by 2 of the teachers; for more competences improved, see Subchapter 3.1.3.3. "Competences developed during virtual mobility module"

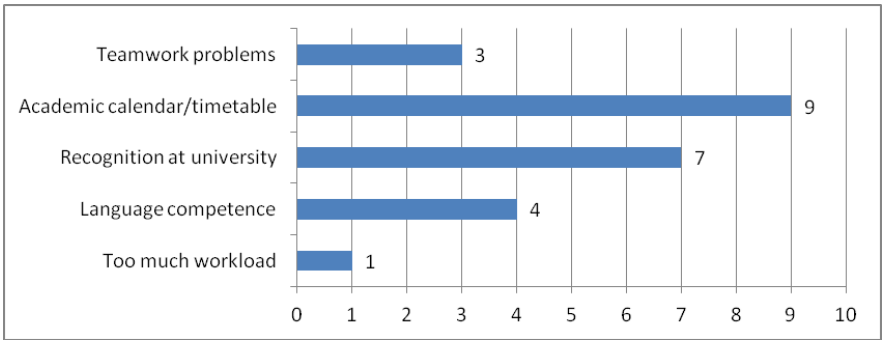


Figure 3.10. Difficulties, faced by teachers, while delivering the module (in teacher numbers)

A scenario from the teachers' feedback after the module may be presented here, as the need to increase students' participation during module delivery was identified by students (RS3, RS11, RS15, RS18) and teachers: "*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 (R11)*".

Analysing the teachers' indicated aspects in terms of **support** that would be necessary for **virtual mobility sessions organisation**, 3 options were suggested - tutor support, administrative support among institutions (resources, schedules, other), and technological support for teachers. All of them equally (n=12) were valued as necessary during VM session organisation.

Most of the teachers suggested improvements in virtual mobility sessions by elimination of technical constrains and use of different technologies (see more about this in Subchapter 3.1.3.4. "Tools for virtual mobility module" However, others focused more on virtual session organisation or content improvement – such as "*Improve the students participation in the synchronous sessions* (R8)", organise "*group work during the virtual sessions (R4)", for "more exchange of knowledge and experience* (R4)". They proposed to "*improve video conference sessions (R5)"* to be more dynamic and rich in content (R4) as "*if there are VM synchronous sessions they have to have content or if not they should be more for taking individual doubts* (R6)".

Most of teachers as well as students indicated that feedback was provided for groups or individually (see Fig. 3.11.). The statistical analysis comparing students' and teachers' opinions on the feedback provided for groups (χ^2=1,954; df=2; p=0,377) and individually (χ^2=4,214; df=2; p=0,122) showed no statistically significant differences. It is interesting to note that group

feedback was more popular than an individual one, and that teachers felt providing more feedback than students receiving it.

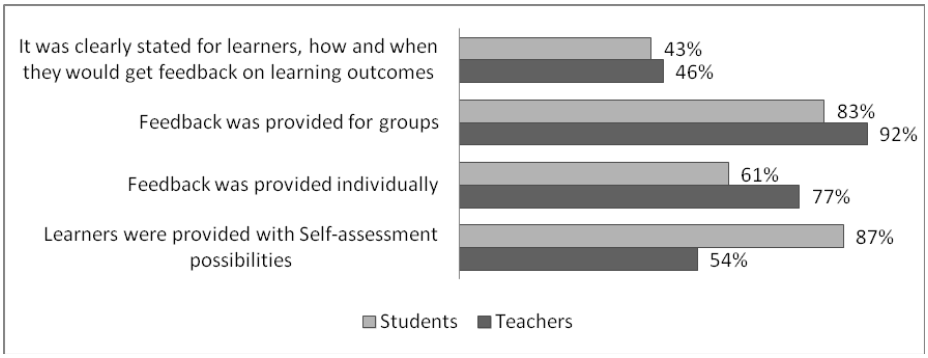


Figure 3.11. Methods of feedback used in the module

A rather small percentage – less than a half of teachers (and even less of students) – noted that it was clearly stated for learners, how and when they would get feedback on learning outcomes. This suggests that learners lacked some clarity on their improvement referring to learning outcomes. This was also confirmed by teacher feedback on module improvements necessary, where *"better instructions for students (R5)"* 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 for their self-assessment and indicated the provision of self-assessment possibilities in the module. The conclusion may be drawn that some teachers used self-assessment possibilities in their modules and that these possibilities were stronger in some module sections.

3.1.3.3. Competences developed during virtual mobility module

Although competences were indicated as the element of curriculum design phase, however, the achieved learning outcomes and developed competences actually were improved during VM implementation phase. For this reason and to better show their complexity, they are explained here.

Some different topics that refer to the competences are discussed in this case study section. First, competences and learning outcomes of students that were aimed at and improved in this VM module are addressed. Then, competences that are called VM competences of students are in the focus. Finally, VM competences of teachers that were improved while preparing and delivering this module are discussed.

Students' competences, addressed in the VM module

Two types of competences were aimed at improving for the VM module. They were called course content related competences and VM competences. In order to define how

students felt at improving these competences, the data from a pre-session diagnostic survey and student feedback survey were used.

The pre-session diagnostic survey was administered at the very beginning of the module with the aim to define VM module participants' knowledge and understanding based on the module learning outcomes. The questionnaire was prepared for the students via the Moodle Quiz preparation tool. There were 29 module students who participated in the survey. 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 3.12., which indicate 29 module students' self-assessment of the module learning outcomes before attending the module.

The data analysis of the pre-session diagnostic survey shows that before starting attending the module students felt most comfortable with *information analysis and evaluation* (n=29, only one student indicated minimal level achievements).

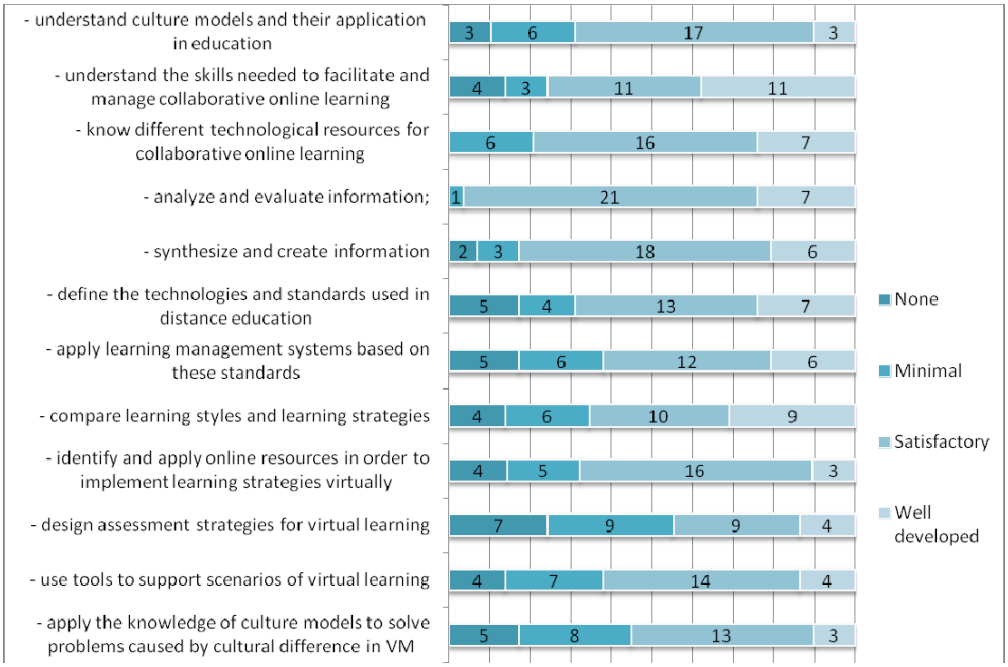


Figure 3.12. The students' achievements, based on the learning outcomes, before the module (in numbers of students, indicated achievement)

The learning outcome of *knowing different technological resources for collaborative online learning* was also self-assessed by the students to be at least at a minimal level. The students felt themselves to be most professional in *understanding the skills needed to facilitate and manage collaborative online learning* (11 students (out of the total number of 29) and *comparing learning styles and learning strategies* (9 students (N=29) stated that they had achieved this learning outcome).

The data of the pre-session diagnostic survey was useful for teachers to find out how students felt in their sub-module topics. It was also used in order to compare with the students' opinion on how they improved in module learning outcomes during the module delivery. Thus the same VM module learning outcomes were assessed by the students before the module and after it.

After the module (see Fig. 3.13.), analysing the achievement of the learning outcomes self-assessed by the module students (n=23), it was evident that only one student indicated that he/she had not achieved at least a minimal level of one learning outcome. All the other learning outcomes had been achieved by all the participants at least at a minimal level. Comparing the learning outcome achievement of students before (n=29) and after (n =23) the module, improvements in all indicated course learning outcomes were found.

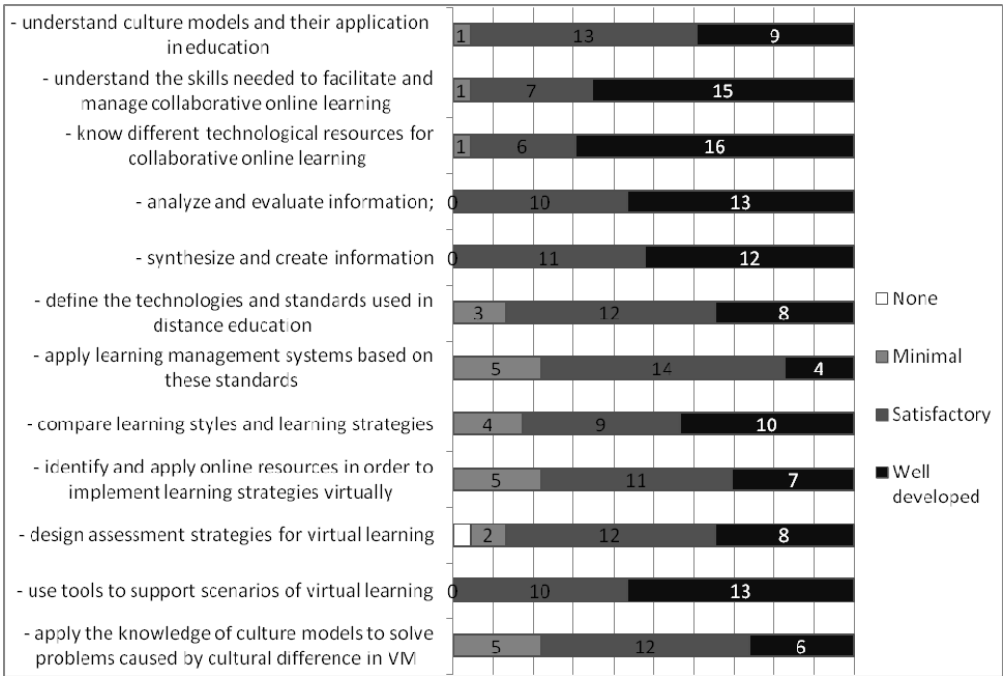


Figure 3.13. The students' achievements, based on learning outcomes, at the end of the module (in numbers)

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.3.14.). Statistical analysis of student achievements before and after the module also proved the significant differences of the following learning outcomes: understand culture models and their application in education – LO1 (Mann-Whitney U=186,000; z=-3,051; p=0,002); understand the skills needed to facilitate and manage collaborative online learning – LO2 (Mann-Whitney U=221,500; z=-2,261; p=0,024); know different technological resources for collaborative online learning – LO3

(Mann-Whitney U=168,500; z=-3,309; p=0,001); analyze and evaluate information – LO4 (Mann-Whitney U=220,500; z=-2,434; p=0,015); synthesize and create information – LO5 (Mann-Whitney U=207,000; z=-2,619; p=0,009); design assessment strategies for virtual learning – LO10 (Mann-Whitney U=180,000; z=-2,969; p=0,003); use tools to support scenarios of virtual learning – LO11 (Mann-Whitney U=136,000; z=-3,916; p=0,000); apply the knowledge of culture models to solve problems caused by cultural differences in VM – LO12 (Mann-Whitney U=223,000; z=-2,186; p=0,029).

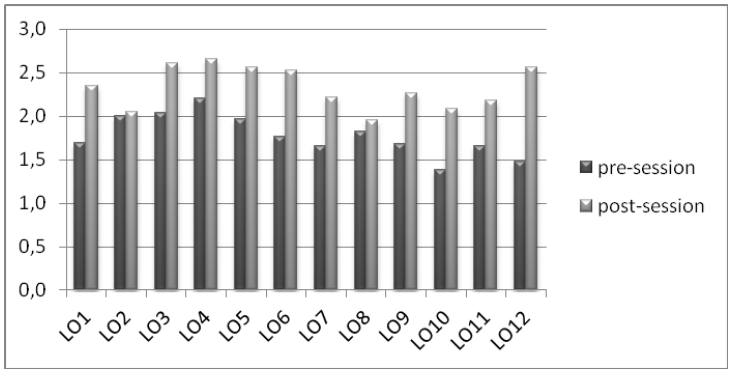


Figure 3.14. Comparison of learning outcome achievement means (range of 0-3) of pre- and post- virtual mobility sessions

Virtual mobility competences, improved by the VM module students were agreed upon in the research team to be composed of intercultural communication, ICT, foreign language (English being the case in the module), and personal and social (such as being structured and self-organised, keeping time and meeting deadlines, working in groups, etc.) competences.

The students were addressed to assess their VM competences in the feedback survey after the module delivery. All the respondents of the survey (N=23) admitted that their competence improved at least minimally, as there were no students who would have indicated not improving such competences and almost all (n=20-22) assessed their competence improvement at least at satisfactory level. Virtual mobility competence improvements in detail are shown in Fig. 3.15.

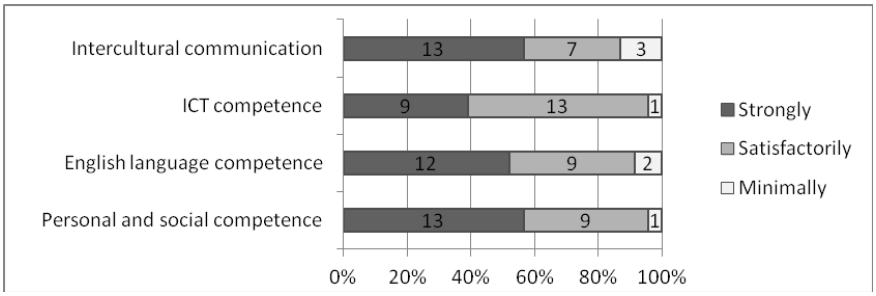


Figure 3.15. Students' improvement of the stated virtual mobility competences (in student numbers)

The students 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 "*competence which are related to my profession (RS2)*" or "*data gathering (RS12)*", "*working late nights and weekends (RS11)*", etc. Some of them stressed more specific skills or competences that might be related to virtual mobility competence; however it was very difficult to divide if they relate more to intercultural competences or personal and social competences, as sometimes they may have referred to both:

- Intercultural (communication) competence – "*international communication"* (RS1), "*communication skills with people from other countries, cultures"* (RS5); "*tolerance"* (RS9), "*international group work" (RS14)*, "*new viewpoints of cultural differences in studying collaborative countries"* (RS16)
- Personal and social competence – "*tolerance"(RS9)*, "*patience"(RS12, RS18)*, "*I can organize my time schedule of studies better than earlier"(RS10)*, "*collaborative work competence"(RS23)*, "*international group work" (RS14)*.
- ICT competence or the combination of ICT and learning (individual and in group) – "*one or two new programs (RS8)"*, "*virtual communication skills (RS12)*", "learning to work cooperatively in a virtual environment" (RS6), "use different tools for group work" (RS7).

Other students specified the achievements related to module learning outcomes – such as "*more defined understanding of my learning strategies*" (RS2) or "*competence related with <...> learning strategies and methods*" (RS16); "*information literacy competence*" (RS3) or "*skills related to the evaluation of information (information literacy)*" (RS17). Others indicated some specific skills or understanding – "*a skill to analyze learning outcomes/recourses was improved*" (RS4), or "*I realised that communication "face-to-face" is very important, because when human are communicating online, it is difficult sometimes*" (RS13).

One of the aspects 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 the students asked for more space and time for "informal behaving" (RS20): "*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"* (RS2) or "*I want to suggest that relationships between participants become more informal. As I felt more comfortable in group work with people who have personal contact with me in Facebook or Skype. So I think it's very important stimulate informal environment and personal contact"* (R2). The other 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*." (RS16). The other even asked for "face-to-face member meetings" (R11). The above

comments described the situations that lead to the fact of the missed meetings of all participants at one “space” and time, although the analysis of forum discussions showed rather friendly relationships developed.

To sum up, before starting attending the module the students felt most comfortable with information analysis and evaluation or with knowing different technological resources for collaborative online learning. The students felt most professional in understanding the skills needed to facilitate and manage collaborative online learning and comparing learning styles and learning strategies. After the module, the students noted their improvement in all learning outcome related competences as well as a strong improvement in most of the virtual mobility competences – intercultural communication, English language, personal and social competences, and a bit smaller but adequate improvement of ICT competence together with some additional skills or competences. In the module improvements suggested by students, most of the references addressed intercultural, personal and social competence improvements.

Teacher VM competences

In order to explore and specify virtual mobility competences, teachers were also addressed in the feedback survey with the VM competence evaluation. The assumption on the same VM competence compiling elements was made and suggested for teachers. They were asked to assess if planning, delivering and organising this course improved their virtual mobility competences of intercultural communication, ICT (or e. Competence), English, personal and social competences.

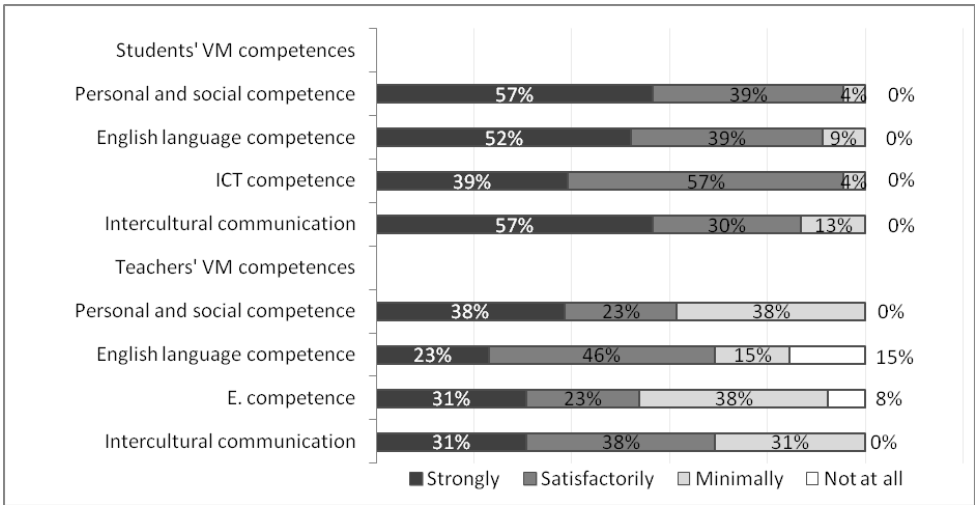


Figure 3.16. Improvement of teacher and student virtual mobility competences (improved categories in percentages of participants admitting improvement)

All of them marked that 'intercultural communication' and 'personal and social competence (being structured and self-organised, keeping time and meeting deadlines, 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. 3.16.

To compare student and teacher virtual mobility competence improvements, higher progress was seen in students' competences. Module student and teacher improvement in virtual mobility competences and their comparison is detailed in Figure 3.16., where some teachers admitted having not improved some of the competences while the students did it at least at a minimal level.

Among any additional competences that had been improved, teachers indicated "*curriculum development and course design*" (R6, R9), "*teaching competence concerning evaluation of e-learning or VM courses, e-assessment or ICT tools usage*" (R3) and "*planning and promoting of learning in virtual environment*" (R10). 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. But as there were too little indications in VM competence improvements or additional competence improvements, the research question on teacher competences improvement needs more in-depth investigation. The assumption for the lack of improvement in teacher VM competences might be attributed to a short time of partner institution responsibility for sub-module delivery which took only 2 weeks. That is rather a short time, especially having in mind that more than one teacher were responsible for 5 out of 6 sub-modules. However, it may also lead to the fact that VM competences of students and teachers vary and are not of the same type.

3.1.3.4. Tools for virtual mobility module

VM tools or technologies were defined as one of the VM characterising dimensions and explored in the case for their specification and relations with other VM dimensions. Some of the tools used for VM preparation and delivery were the same, however, some were different. Their relations, needs and reasons for choice are explained in this case study section, focusing on their functionality needed and responded rather than on their technical descriptions. The tools mentioned in this section are not described for any promotion purposes, but their indicated names are used in order to avoid technical descriptions of the tool.

There were some different purposes for the use of different technologies in the case – first, curriculum design, second, module delivery, and third, communication and cooperation between the participants. One of the tools that was used in all these parts was virtual learning platform Moodle, which in its turn also embeds different tools for different purposes. The platform was used by all module participants (students and teachers) and was created specifically for this VM module, applying the newest VLE Moodle version available. It was run and assisted by project coordinating institution, which was the host institution from technological and organisational point of view. However, it did not take the lead in the pedagogical or didactical issues during the module delivery, as well as technical assistance for the participants, which were to be handled within home institutions.

In general, the following tools were used for the module preparation and delivery: for asynchronous communication and collaboration among teachers – email, Moodle, Google docs, Doodle and ELGG were used; for synchronous cooperation among teachers – videoconference facilities and Flashmeetings were used. For synchronous communication and collaboration among teachers and students – videoconference facilities were used, while for asynchronous communication between teachers and students – email and Moodle were used. The mentioned tools do not include the ones used in some modules where specific tools or programmes were presented and initiated to be used during the assignment implementation. There were also some tools presented, such as DimDim for videoconferencing, Panopto for recording video lectures, or virtual surveys' tool Limesurvey for research suggested, however, their use was left at the discretion of students and teachers based on their needs and interest to use.

Participant feedback on the tools

The analysis of **communication and collaboration methods and tools** shows that email tools and discussion forums were important tools for all module students. The statistical analysis also yielded the statistical relation between age and importance of emails tools (χ^2=8,515; df=3; p=0,036); it was noted that 18-24 and over 35 years student treated email as more important than the other age students. 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. 3.17.). ‘Google Docs’ (4 respondents mentioned it in an open type question answer) and ‘Discussion forums link with email’ (mentioned by 1 student), 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.

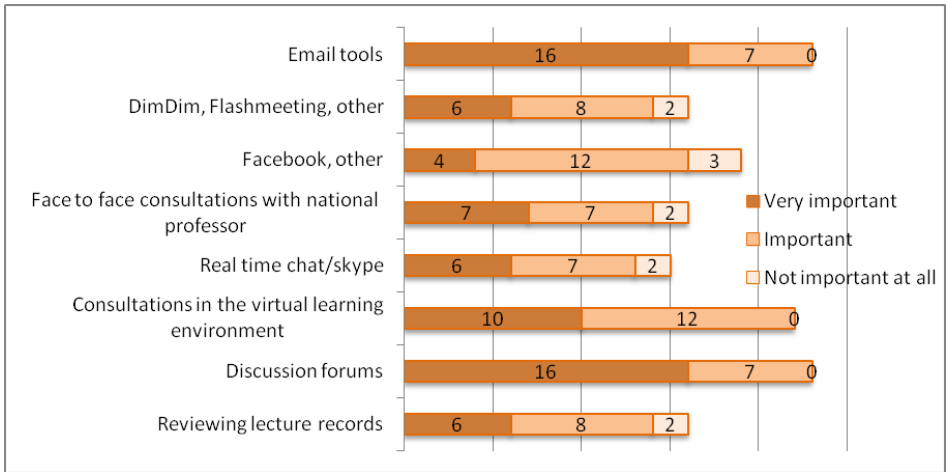


Figure 3.17. Importance of indicated communication and collaboration methods and tools in the module (in numbers of students)

The statistical analysis of student responses showed no statistical relations between student country and usage of different tools, except for the review of lecture records (χ^2=31,591; df=15; p=0,007). Student age and importance of different tools (expect email) and communication and collaboration methods also were statistically independent. There was no statistical relation between student study programme level (bachelor/master/doctor) and the importance of such tools as email (χ^2=0,486; df=2; p=0,784), social networks (χ^2=4,025; df=6; p=0,673), real time chat or skype (χ^2=4,016; df=8; p=0,856), discussion forums (χ^2=0,958; df=2; p=0,619), and such communication and collaboration methods as face-to-face consultations with national professor (χ^2=8,160; df=6; p=0,227) and consultations in virtual learning environment (χ^2=3,642; df=4; p=0,457); however the statistically related were student study programme level and the use of videoconferencing tools (χ^2=13,640; df=6; p=0,034) and review of lecture records (χ^2=12,778; df=6; p=0,047).

While assessing different tools for communication and collaboration, most of the **teachers** (n=10) also indicated that there were enough tools for communication and collaboration organising the sub-module studies; however, their importance was assessed in the feedback survey differently (see Fig. 3.19.). Students (n=22) also indicated that there were enough tools for communication and collaboration while preparing the assignments; however, 2 of them admitted insufficiency of tools for communication and collaboration for the presentation of assignment results, but the other 21 students did not lack any of the tools.

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. 3.18.).

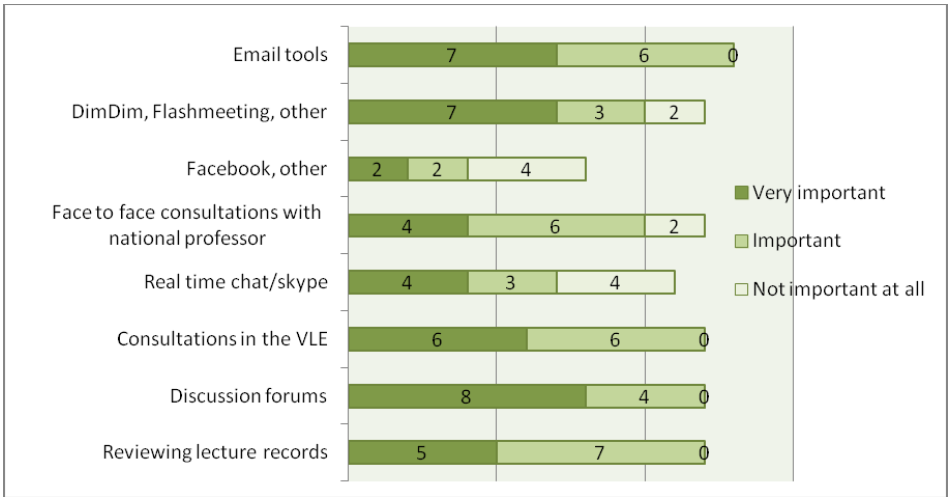


Figure 3.18. Teachers' opinion about the importance of tools for communication and collaboration (in numbers)

Teacher and student opinion comparisons on the important and very important communication and collaboration methods and tools used in the module are described in Figure 3.19. All the communication methods and tools were indicated as important or very important by all the participants (which results to over 50%), except for social networks, such as Facebook or other, which were assessed as important or very important only by 31% of teachers (see Fig. 3.19.).

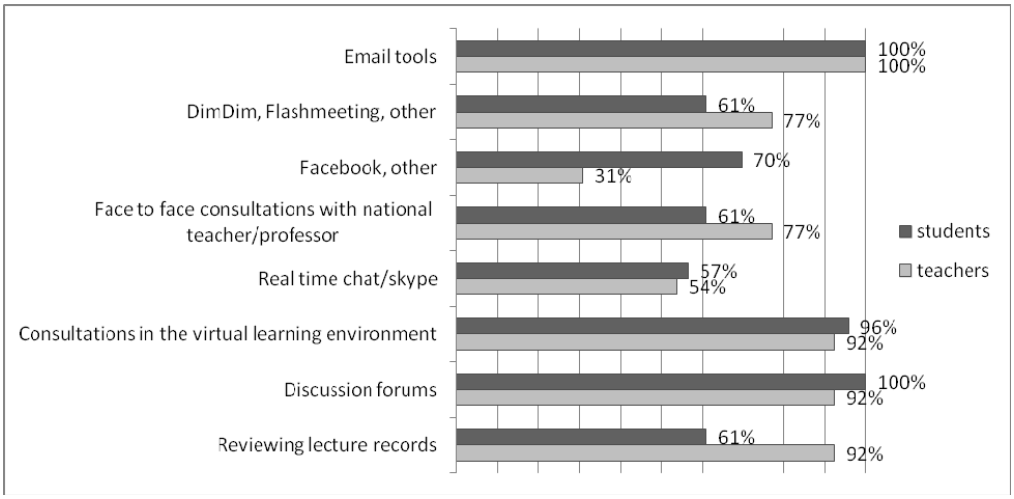


Figure 3.19. Cumulative percentage of importance (very important and important) of communication and collaboration methods and tools used in the module

There were no statistically significant differences found while comparing student and teacher opinions if there were enough tools for communication and collaboration in the module (χ^2=6,201; df=3; p=0,102). There also were no significant difference between student and

teacher opinions on the importance of communication and collaboration methods and tools used in the module.

As it is evident from the table above, the most important ways for communication and collaboration were **email tools** (16 students out of 23 and 7 teachers out of 13) and **discussion forums** (16 students out of 23 and 8 teachers out of 13) indicated as **very important** in the module or **consultations in virtual learning environment** indicated as important and very important by 22 students and 12 teachers: their cumulative percentage of very important and important was between 92 and 100% (see Fig. 3.19.). 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 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 the students had no opinion while assessing 4 out of 8 indicated communication and collaboration methods and tools, what suggest that there were more tools than it was used by the students (as among the not assessed ones were videoconferencing tools and real time chat) or that some of the methods were not popular among some students – such as reviewing lecture records or face-to-face consultations with a national professor.

Although there were enough tools for communication and collaboration, and their importance was recognized, different IT solutions were among the most popular to be implemented. Some of them focused on the use of different tools – such as "*video conferencing tools - open, free to use, multiple connections and record enabling"* (R3) or "*use another tool for the online lectures (Wimba, Adobe connect, etc.), not videoconferences"* (R10). Others referred to the improved participation at VM sessions or elimination of technical problems (R6, R9) and better IT (RS13). However, the necessity to organise "the videoconference as a precious moment to introduce the module"(R8) was also stressed, as well as teacher need on "small practice with all possible tools in order to use them adequately" (R2).

Conclusions of data analysis of student and teacher feedback on VM module implementation

The students' feedback surveys of VM module revealed that the students were most interested in participating in VM course because of academic reasons – interest in topics suggested and virtual learning itself; however, the same motivation drivers as those of physical exchange students (such as to learn about other cultures, improve language, etc.) 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. Students felt they were most professional in understanding the skills needed to facilitate and manage collaborative online learning and comparing learning styles and learning strategies.

The students' feedback survey result analysis proved 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 consultations in virtual learning environment. Among the most often used learning organisation methods, as 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 clarity of how and when the students would get feedback was assessed diversely, what suggested that some students needed more guidance and clarity, 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. As no legal virtual mobility restrictions were found in the participating institutions during the implementation of the situation analysis, most of the respondents indicated that the VM module would be recognised at their home institution.

The feedback of teachers' 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 was also necessary for the preparation of a virtual mobility course. The biggest difficulties that module preparing teachers had were agreeing on the learning outcomes in a multi-institutional teacher group and finding the ways on measuring the 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 organisation of virtual sessions, clearer instructions for students, tutor engagement in the process, or similar.

The comparative analysis of student and teacher answers from the feedback surveys suggested 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. Teacher VM competence elements needed revision and more in-depth analysis. As some of the teachers in the same HEI were not sure of the opposite possibilities for VM module recognition, the VM experience recognition issue needs to be analysed further.

3.1.4. Recognition phase and other institutional issues

Module recognition was one of the aspects indicated as necessary for improvement by some of the teachers (R2, R5, R6). One of the teachers suggested that "*VM sessions should be arranged as a part of regular study program*" (R2). This was noted to be an easier way to recognize the module. Module institutional recognition was also indicated as leading to a higher commitment of participants (R5).

Although it was indicated in the situation analysis performed before the case preparation and delivery that no legal restrictions for VM of teachers and students existed at any of the participating institutions, but the evidence provided by VM module participants - students and teachers – showed that this experience was not recognized in some home institutions. In more detail, 6 participants (from 3 different countries) were not sure if the module would be recognised at their HEIs. 17 students indicated that the VLHE module would be recognised at their HEI.

Teachers, participating in the VM module, were not so optimistic – only 6 teachers from 5 HEIs admitted being aware (the other 7 were not) of the legal possibilities for the course recognition. However, even less – 5 teachers from 4 HEIs were certain that the module would be recognised at their institution. This uncertainty and different answers of some teachers from the same institution may also be caused by different interpretations of the recognition concept in HEIs.

3.1.4.1. Participants' attitude towards VM

As the VM phenomenon is new, and usually uncertainty accompanies an unknown phenomenon, VM module participants' attitude towards VM was analysed. Students and teachers were addressed with the questions if their attitude towards this phenomenon changed during the experience and what it was.

17 students indicated that participation in the module changed their attitude towards virtual mobility, and they saw more positive aspects of VM after the module. None of the students expressed a negative attitude towards VM or any negative aspects of VM (See Fig.

3.20.). Most of the teachers' attitude also changed towards a positive one after participating in virtual mobility (see Figure 3.20.).

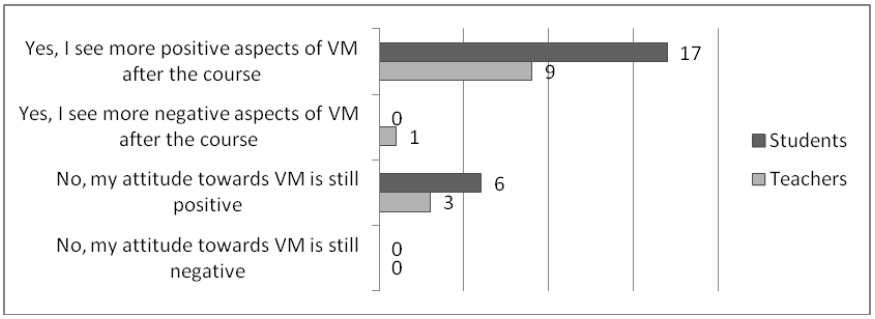


Figure 3.20. Changes in student and teacher attitude after virtual mobility course (numbers of respondents)

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

The diagnostic surveys of the students and teachers also asked for respondents' opinion regarding physical and virtual mobility relations – if virtual mobility sessions should be treated/ recognised as a supplement to physical Erasmus mobility (see Fig. 3.21.).

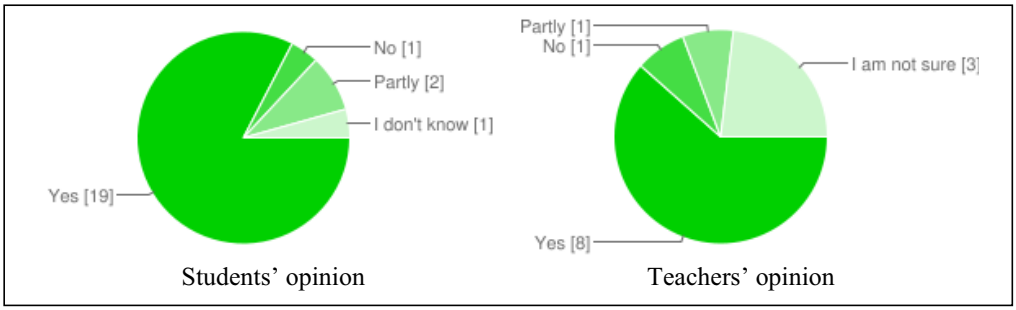


Figure 3.21. VM module participants' opinions if virtual mobility sessions should be treated/ recognised as supplement to physical Erasmus mobility (in numbers)

75% of the respondents on average (83% of the students and 62% of the teachers) agreed that virtual mobility sessions should be treated/ recognised as a supplement to physical Erasmus mobility. One of the students who had participated in physical mobility before the module opposed that virtual mobility sessions should be treated/ recognised as a supplement to physical Erasmus mobility "because virtual mobility is not equal at all to physical Erasmus mobility"; however, the other 3 students who had some physical mobility experience and 16 who had not (n=19) as well as 8 teachers (who had not indicated their physical mobility experience) agreed

that virtual mobility sessions should be treated/ recognised as a supplement to physical Erasmus mobility. 2 more students (who both had not participated in physical mobility programmes before) and one teacher indicated that virtual mobility sessions could be partly treated as physical Erasmus. One of them explained: "virtual mobility session should be treated as a supplement to physical Erasmus mobility just partly, because nothing can replace study in a different country and getting to know other culture during learning". VM module participants were also asked if, given a possibility to participate in a VM module in the future, they would be willing to do this. Only one of the students would not be willing to participate in Virtual Mobility sessions, and all the other 19 students out of 23 and 11 out of 13 teachers indicated their interest in participating again, given a possibility.

To sum up, the attitudes towards VM and experience of it were valued rather positively in the students' final comments, e.g.: "*We all wanted to reach the same goals, we could feel the spirit and support from national group*" (RS1) 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...*" (RS19). Teacher comments also revealed their enthusiasm towards the experience: "*Enjoyed very much this experience and would like to repeat with a different curriculum and with more time to experience students' involvement. I would like to have more than two weeks*" (R6), or "*I am delight to participate in VM sessions and VM project that is a great challenge for HE in my country and should be implemented as soon as possible into my University. It was very interested to observe the behaviour of international group of students to see how they work and collaborate in VM sessions and in in-formal communication*" (R9). Thus it is evident that both teachers and students evaluated their experience gained in the course positively and considered it to be an enriching event in their career.

3.1.4.2. Situation analysis follow up

VM module implementation and analysis identified recognition and lack of good practices as some of the barriers for VM to be implemented successfully. So the situation analysis within other European institutions was carried out in order to identify more obstacles for VM implementation and the needs and benefits of VM practices in education institutions. It also aimed at best practices which would suggest how to overcome the recognition and other obstacles.

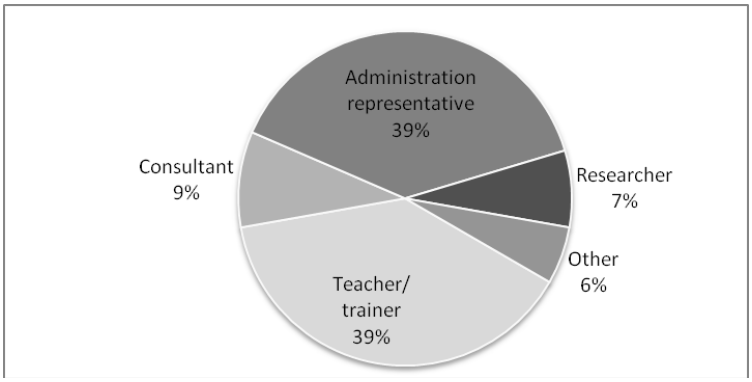


Figure 3.22. Positions of respondents of the survey

It was very important to identify who the respondents of the survey were and their positions and responsibilities in the organisation. Though the survey addressed teachers and administration representatives, enterprise representatives, trainers and consultants, the following positions and responsibilities were also represented in the survey (see Fig. 3.22.). The fact that 39% of the respondents represented administration of institutions, and also 39 % were teachers and trainers – directly increases the probability that the respondents were or should have been aware of the existing virtual mobility schemes and procedural documents within the institution.

The following questions were related with the virtual mobility practices and procedures, as well as the needs within the institutions of the respondents.

3 respondents indicated that they had a separate administrative model for virtual mobility organisation. 50 respondents admitted not having such a model; however, 20 respondents (i.e. 38%) chose the response that they would like to have such a model. Only 12 institutions (23%) out of all 53 participating in the survey indicated that they had a separate campus for virtual mobility implementation and indicated the online address of these campuses. 1 campus was distributed out of the 12 mentioned, while 11 were indicated as centralized campuses.

Though institutions have very limited practice in virtual mobility organisation among teachers and students, as can be seen from the answers' analysis, the respondents of the study were asked to identify the impact of virtual mobility upon modernization. The answers revealed the impact upon modernization of study curriculum, better carrier opportunities, enhancing employability, teacher and student upgraded skills, quality improvement in student services, quality improvement in research, in teaching and learning, and the impact upon high level institutional management.

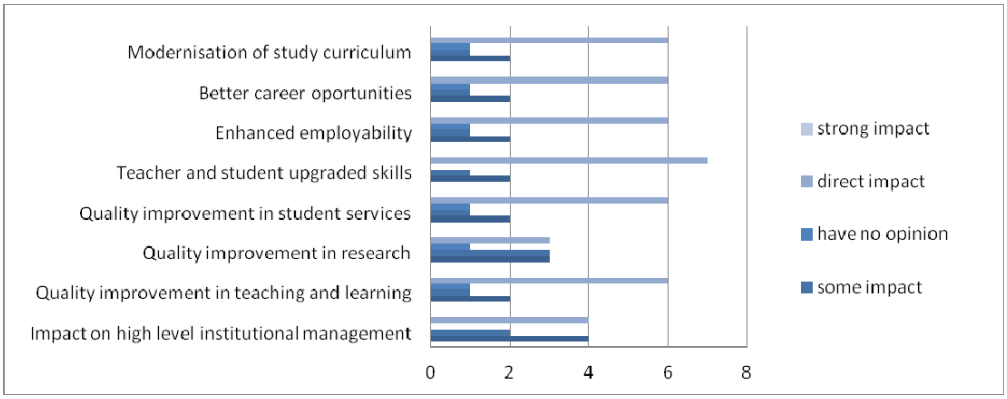


Figure 3.23. Indicators of virtual mobility impact

The respondents' answers show that the greatest and direct impact of virtual mobility is upon teacher and student upgraded skills (7 respondents gave the first priority for this criterion), 6 respondents agreed that virtual mobility had a direct impact upon modernization of the study curriculum, better career opportunities, enhanced employability, quality improvement of student services and teaching and learning (see Fig. 3.23.).

The least expressed criteria were quality improvement in research and impact on high level institutional management, where the respondents indicated that they had no opinion by choosing the answer "some impact" and even "no impact can be identified yet".

There was other very relevant questions (see Annex 8) in the survey addressing only the teachers who filled in the survey and indicated that they had some experience in virtual mobility. However, it turned out that there was only 1 teacher who corresponded to these characteristics and, therefore, the outcomes would not be valid in terms of quantity.

The survey was aimed to identify the needs for virtual mobility and the attitude of the teachers and administration representative upon the usability of virtual mobility. Several options to identify the use of virtual mobility were suggested for the respondents. They were asked to indicate the degree of usefulness of each of the option.

The greatest number of the respondents chose the variable "very important" which results in the use of virtual mobility for the disadvantaged groups and as a support for home student groups and lifelong learners. A high number of respondents indicated that virtual mobility is "very important" in introducing new learning methods and developing additional skills in networking and socio-cultural exchange.

The respondents agreed that virtual mobility introduces transparency of teaching and upgrades skills in general, improves curriculum quality standards, and enhances employability.

All the criteria were acknowledged respectfully and can provide the outcomes of the research (see Fig. 3.24.).

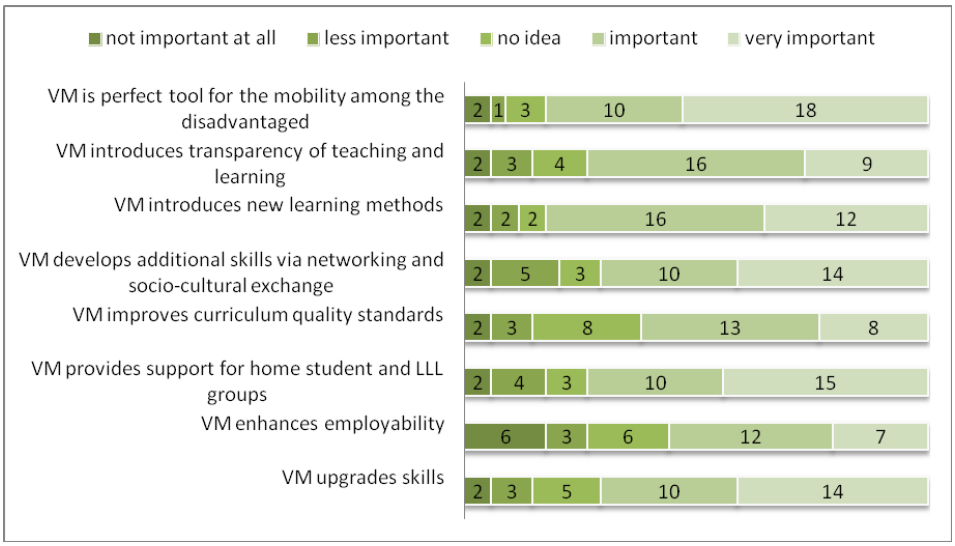


Figure 3.24. Benefits of virtual mobility

Furthermore, the question regarding virtual mobility implementation barriers identified the problems and obstacles that institutions face aiming at virtual mobility implementation. The most important problem area is the recognition procedures of teacher and students virtual mobility. (see Fig. 3.25.).

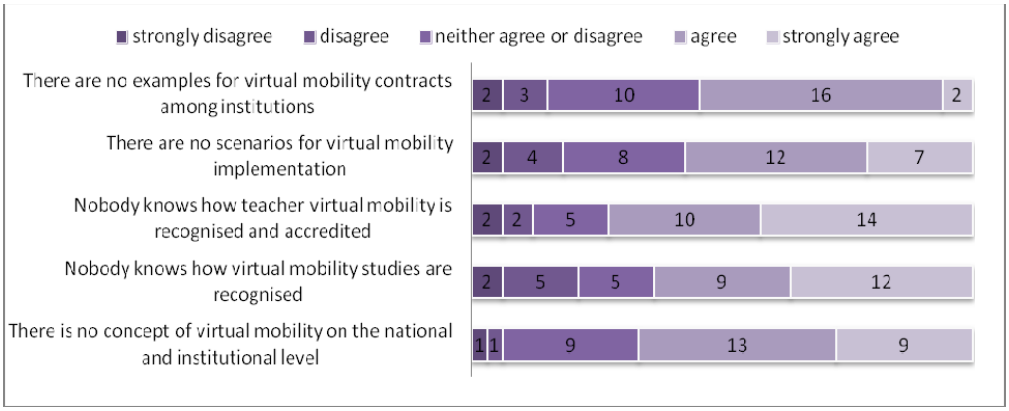


Figure 3.25. Barriers for virtual mobility implementation

Also, the definition of the concept of virtual mobility at national and institutional levels and the lack of knowledge of possible scenarios and examples are other obstacles stressed by the majority of the respondents. These obstacles should be overcome first in order to successfully apply virtual mobility initiatives at educational institutions.

Conclusions of the situation analysis update - very few institutions (only 3 out of 53) have specific regulations for virtual mobility implementation for teachers and students in 2011; however, the rest do not have such regulations, but would like to have. This leads to the increase of VM practices organised, but a lot of steps are still needed to be taken in order to have a common framework for VM practice to become a regular HE activity. Various campus solutions are applied for the initiation of virtual mobility in education institutions, as well as positive impact upon study modernization is proved by the survey respondents; however, such problem areas as the lack of the definition of the concept of virtual mobility at national and institutional levels, lack of knowledge on how virtual mobility can be recognized among teachers and students, the lack of cases and examples of scenarios for virtual mobility, examples or existing templates for virtual mobility contracts are the barriers and obstacles to successfully apply virtual mobility initiatives at educational institutions.

3.1.5. Lessons learnt from virtual mobility module implementation: teacher experience

Most of the interviewed teachers stressed that this VM experience was their first time experience of VM, so even after a few years, they all referred to the case positively – "*I think it was very positive, because we didn't have drops outs or very small drops out*" (I1), and called it successful – "*This case was successful ... very successful as all people were inclined to try it*" (I2), "*it was successful, because you had some lessons, you learnt ... and in this term it was successful for us*"(I3). Others called it "*a very interesting experience*" (I4) or a special and interesting experience "*it was pretty special for me ... very interesting, extremely interesting, so interesting that I asked for another project*" (I5).

Although the case was considered to be positive and successful, teachers were rather critical and could name the reasons why it could be called successful; nevertheless, they also indicated some drawbacks. As more reasons why it was successful were indicated, their revision will be started from several drawbacks mentioned. First, more cultural exchange activities and reflection might have been used. "*There was only one task on culture models that was used in our exchange, however I think that we had to have some activities or tasks where they would contribute in their national languages or with the national cultural learning objects and would exchange this learning information, but we did not do cultural exchange and that was our drawback*" (I1).

Another improvement that was mentioned was "*evaluation criteria for assignments*"(I1) which were missed due to intensive preparation, "*because the assignments were treated as experiential ones, but they were not taken as real assignment assessing exercise*" (I1). Another teacher reflected that "*the technological solutions were effective, but relations on how to set up*

this was built quite artificially within the project and in lasted just for the project"(I3), so the stress on long term partnership need was expressed.

There were several reasons for the case successfulness mentioned, however, some of them are interrelated and are merely different aspects stressed by teachers. One of them was a possibility for teachers to participate not only in the module delivery, but also in its design – "*You participate not only in the teaching phase, but also in the designing of the course, this was very important*"(I5). Several teachers mentioned the discussions that were necessary to agree upon and how much time they took – "*it looks to be pretty simple thing – learning outcomes of the study subject, but it took us so much time and discussions to agree upon them"* (I2), „*So I think that one lesson that I learnt, it takes time to get common picture, but it's possible to do it. So it was possible, from my point of view to build a whole course with a coherent framework*" (I4).

Another side of this success factor was the blended mobility possibility for teachers stressed - "*one of the important things was that were some mobility also for teachers to collaborate in preparing a course*" (I5), or "*obviously in TeaCamp we had many virtual contacts, but we also had face-to-face, physical contacts*" (I4). The sum up of this, can be mentioned that during the interview teachers mentioned different issues, as the difficulties on learning outcome agreements, on the agreements of learning outcome coherence with certain volume of learning materials, on the use of different methods in virtual environment, different teaching traditions and terminology used, and so on, but during the discussions and meeting possibilities the teachers were able to agree upon them – "*it's a success that we managed to come to a joint agreement*" (I2).

One more success factor mentioned was video conferences or regular synchronous meetings: „*our every week meetings that took every Friday, also was a very good solution, because synchronous meetings are necessary, otherwise, people get lost in space and they just say that they will do these activities later and later in time*" (I1). It was also stressed by several teachers – "*maybe because of these videoconferences which happened, students and I didn't meet face-to-face, but it was a very rich and fantastic experience for students and for me*" (I4).

To prove the VM case success such factors as „*pretty small size of the course, referring just to 6 ECTS*" (I2) , or well planned preparation and curricula design, support for teachers and for students (I1), different technological solutions (I3), a common framework for the course (I4), involvement of different countries and a number of institutions leading to real cultural differences and different approaches (I1), international student groups formed for students to have some contact (I4) were also mentioned among the factors contributing to success. To

finalize, the comment of one teacher may be used – "*obviously all of us, we grew as professionals on this experience*" (I4)

Interview findings. The VM teacher interview results also stressed the increase of VM activities and interest in them from 2009 to 2013, a quote from the teacher interview in 2013 may be expressed:"*when I tried to write a first paper about VM, in the middle of the TeaCamp project* [i.e. 2010, E.D.]*, I was looking for reference, and it was near impossible to meet the reference that speaks about VM. One week ago, I asked for references for documenting one part of the presentation and we found 6 references in one hour. So things are changing"(I4).*

Finally it can be stated that the VM case was called to be successful by module teachers because of enthusiasm, rich discussions and communication, teacher willingness to agree, try and experience VM, as well as certain decisions to involve teachers in the curriculum design case, to organize course designing by blending physical and virtual mobility, and providing students with synchronous and asynchronous meetings and activities. Some more lessons such as organisation of this experience with long term collaboration based partnership, devoting much time for agreements and pre-planning were also indicated as some success factors.

3.1.6. Case study research findings

The common question that is raised in case study generalizations is as follows: how far the findings can be generalised? It should be remembered that the data were collected only from students and teachers after one VM module experience. The last questionnaire aimed at receiving a broader link for further VM practices, however, the findings were not so enthusiastic and not leading to the development of another case to make comparisons or broader generalisations. So the case findings are valid only for this case, they are not to be transferred to all other VM cases, however, exploring VM components in the VM process, some features of the VM in HE have been recognized.

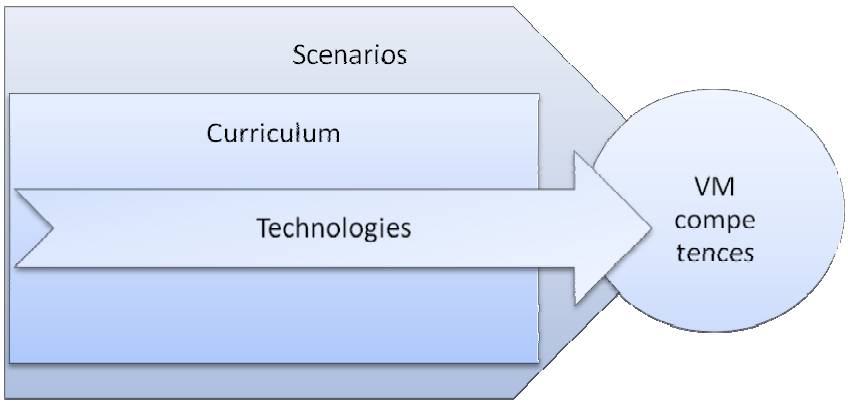


Figure 3.26. Interrelations between VM components

To sum up, intercultural exchange or the development of VM competences was indicated as the key component of VM experience, as it is the main aim or added value of each mobility. Bringing the process into the educational area, the significance of institution and its decisions should also be in focus. The importance of VM scenario in the decision making process was crucial as some decisions made (such as possibility to recognize the exchange) should have been followed or the process had to come back to the first phase. However, the main idea motivating the students, who are the main target group in HE institutions, to participate in VM experience is ability to develop certain competences which are called VM competences in this research. In order to develop VM competences, a VM curriculum is necessary. As the mobility is virtual, appropriate technologies have to be used. The link constructed from ICT and Scenarios which are based on the mutual trust of institutions indicate the movement towards the development of VM competences or intercultural exchange, which is the target to be reached. This reveals the relations between distinguished VM components (see Fig. 3.26.).

To relate the case findings with the results of the theoretical part, the complexity of the phenomenon was verified. The chosen VM case was very complex due to the multilateral VM model, involvement of 6 HEIs, and student and teacher virtual mobility (see the Fig. 3.1.). The links between the VM scenario, curriculum design, participants' competences improved and tools used were recorded in the case observation reporting documents and support the theoretical reasoning. The interrelationships of the components also suggests the complexity of the VM phenomenon.

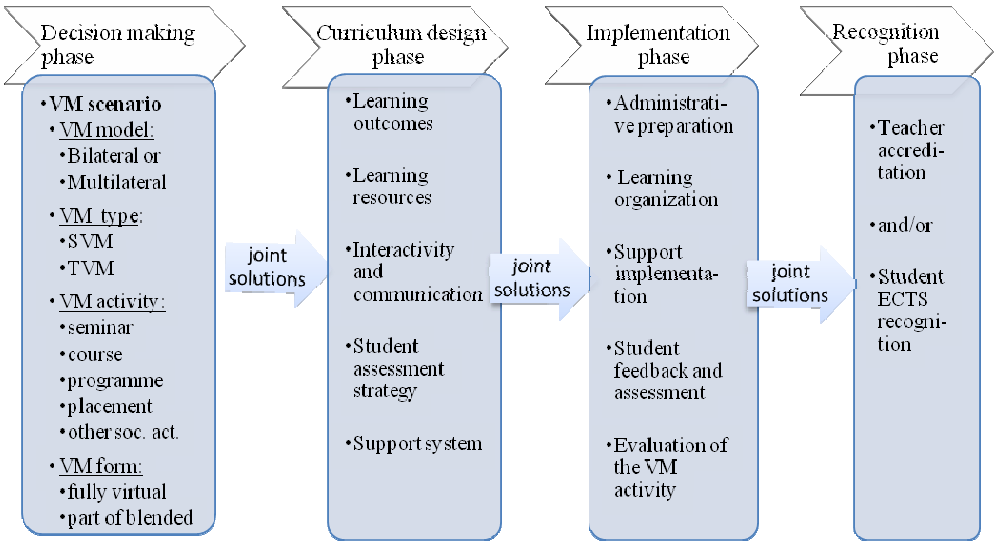


Figure 3.27. Virtual mobility process

Figure 3.27. shows the VM process in 4 suggested phases, indicating the main ideas, outcomes and elements that are important and play significant role in the certain phase. The process starts from the decision making phase when such decisions as VM model, VM type, VM activity, and VM form are chosen. Based on these decisions other phases are constructed.

The curriculum design phase includes teacher and other academic staff cooperation for designing curriculum for VM activities. Independently from the VM activity model, the phase should be finalized by such joint solutions as VM activity learning outcomes and competences, interactivity and communication of VM activity participants, learning resources, student assessment strategy and support system.

VM process implementation phase involves administrative preparation, learning organization and support implementing VM activity, student feedback and assessment, and evaluation of the VM activity for possible improvements. As each of the exchange cases may be different, its evaluation may stand as a focus of the research as well.

The virtual exchange is finalized by the teacher accreditation and/or student ECTS recognition phase. The link between recognition procedure and decision making phase should be stressed, as the credit or experience recognition has to be planned in the beginning, when institutions sign the agreements for VM cooperation. The significance of the recognition phase for participants' motivation was also identified in the research and is discussed in the Part 3 Subchapter 3.2.1.

Analysing VM components in the VM process the following **4 VM dimensions** may be suggested:

- Institutional (which covers VM scenario, mutual trust, and credit recognition);
- Educational (which girdles VM curriculum design, learning organization and assessment, and support for teachers and students);
- Technological (which integrates the use of different, appropriate technological solutions in different VM process phases);
- Intercultural (which connects competences developed by teachers and students in virtual, multicultural setting).

3.2 VIRTUAL MOBILITY DIMENSIONS: VIRTUAL MOBILITY EXPERTS' PERSPECTIVE

The aim of the VM expert interview was to explore and enrich VM concept by interrelations between VM components in different VM cases verifying the identified VM dimensions. It also aimed at discussing the institutions' needs for VM, obstacles for its implementation, summarizing the key success factors for VM implementation in HE. There were 12 semi-structured interviews taken from virtual mobility experts. Virtual mobility expert

was defined as a person who had participated or organised any type of virtual mobility activity at least several times. The students of VM practices were not chosen to be experts, as the main focus of this research was the deepening of VM dimensions, and analysing the phenomenon from teacher and institution point of view. So the student point of view is a bit limited in this research, however this may be the focus of further research in VM phenomenon analysis.

Most of the experts (n=10) were familiar with the concept of VM, so their understanding of VM and its description was also focused in the interviews. Each expert stressed different features of VM phenomenon, based on their experience. Depending on the expert background or institution affiliated, the stress for blended or fully online approach to VM may be seen. The focus on different actors of VM was also underlined: different scenarios and aims of student virtual mobility and teacher virtual mobility were indicated.

The main characteristics of the VM phenomenon, stressed in the expert interviews were as follows (in the sequence and frequency, as stressed by experts):

- Collaboration of institutions, teachers, and students of different countries;
- Intercultural aspect as aim of mobility;
- Experience or competences gained;
- Either fully online or blended, ICT related activities, organised in institution.

Summarizing these main characteristics, the previously indicated 4 dimensions of VM can be referred to each group of the above mentioned VM characteristics: the analysis and different possibilities for collaboration of institutions, teachers, and students of different countries may be represented in the VM dimension – VM scenarios; intercultural aspect as the aim of mobility can be involved in the curriculum design for VM; experience or competences gained directly reiterate the VM competence dimension; and either fully online or blended, ICT related activities, organised in institution are represented by VM tools. As the blocs of questions were focused on exploring the manifestation of VM dimensions in VM process, the expert answers are summarized in the VM dimension describing blocs.

Defining VM, experts contributed to the history of evaluation of the concept since its start in the last decade of the 20th century, indicating the reasons why it was started - *to experiment the potential of ICT in strengthening collaboration* (I5) between traditional European universities, and *to try to figure out another aspect of internationalisation of higher education* (I5). The experts stressed the need for funding of the technological solutions that were rather expensive, and concluded that *the idea was probably immature in that time, because the technology was not ready to support a large scale use of coproduction of learning programmes (I5).* However, as the idea of such a cooperation was *seen as sort of flower revolution of the academic world* (I5), so the European Commission funding supported it by various projects that

were organised as *starting, practicing, defining, pre-defining VM, increasing quality for distance and VM organisation, which led to that the concept was in a sense banalized and every collaboration between distance teaching universities was named VM (I5).* So the funding of the European Commission, boost of technologies and modernization agenda of HEI influenced the concept definition. And as all this has happened during the last 15-18 years, the concept is still understood differently by different participants, facilitators, researchers, etc.

VM experts' opinion on VM maturity may be treated differently – the initiators saying that it has ***reached now the point of maturity*** *(I5),* what may probably be true for the concept itself, as it is being recognized. But the implementation of VM in traditional universities is still a rare practice, what can be supported by the representatives, practising it - *Virtual mobility is in the programme, but it's only marginal activity unfortunately (I2),* it *is not supported enough and still hasn't found its place in the universities* (I6), ***VM at this moment is not a very mature possibility****, because we need more, not necessarily technology related support, but support for getting good immersion of the student or of the researcher in the other context. At this moment a person that is in experience of VM, feels too far from the destination and we must reach that...* ***at this moment the foreign institution is too far*** *(I12).*

Since the start of VM implementation, VM aimed at cooperation of institutions and modernization of HEI by *openness, internationality, visibility of universities*, which also means "*being open for visiting students",* attracting them, opening and "*widening the mind of participants*", "*providing them wider possibilities*", introducing the subject from "*different points of view".* One more benefit, gained via VM experience and stressed by experts, is more experienced and qualified staff, which also leads to quality of HE – *gaining experience from international collaboration is important not only for students but also for the teachers, so having this possibility to collaborate with foreign partners in different projects, in common study programmes is also a very big advantage and boost in the quality of education (I8).*

3.2.1. Institutional dimension of virtual mobility in higher education

The key component in institutional dimension is a VM scenario. The VM experts shared in detail 18 most interesting or successful cases of different type of VM activities – seminars, blended or fully virtual courses, virtual activities to support physical mobility, and virtual internships. Most of the cases were oriented at student virtual mobility, and 5 were also oriented to teacher VM and teacher cooperation. VM experts also shared the resources where more of the interesting cases, especially on 19 virtual internship cases, could be found.

Summarizing the expert experience on different VM practices, it can be stressed that *it has to start from a real need (I4)* and *evolve naturally* (I8) in order to last after the project ends.

The preparation for VM requires a lot of planning and is time consuming and expensive, so different European projects and their initiatives are created and implemented in order to try various different scenarios that might be cost effective in the long-term, but are expensive in the beginning.

One of the aspects that is very important while making decisions on a possible VM scenario is the partnership who will implement VM. Experts suggest that it *should evolve naturally* (I8), and you should do mobility with those partners that you trust, as *mutual trust is a condition to make VM functioning* (I5).

Based on VM expert experience, the decision on VM scenario is important when speaking about recognition of VM activities. A very interesting, complex and unusual TeaCamp scenario (more thoroughly presented in subchapters 2.2 and 3.1.) was created, however, summarizing its experience, the recognition of VM module in TeaCamp *was not real, because efforts and results, achieved during VM learning process were recognized only by certificates. Which is very good, but it is not sufficient. We need recognition, formal recognition in order to transfer credits. So if students participate in VM in one or another country virtually, these credits should be transferred to their home institution. For this reason, during VM sessions, students should really be listed in hosting institution academic department student lists (I6),* which means that a student cannot be enrolled in the student lists of 2 higher education institutions at the same semester. So the decision on VM scenario has to confirm to the institutions regulations for credit recognition and be taken into account in early collaboration phases.

Based on the experienced VM recognition obstacles, one of the experts even suggested that the recognition procedure should be implemented based on the competences achieved, rather than merely ECTS credits (I12).

It also takes **time** for different institutions to create successful cooperation agreements on different levels. According to the experience shared by one of the experts, although their cooperation on the certain VM case has lasted already for 6 years, the recognition procedure has still not been finalized, although they have been working on it, and students have been really learning in the international context, cooperating on different assignments and guided by 2 teachers, in the diploma they share only the title of the course, and have different names of the teachers in both countries. So although teacher cooperation is very successful in terms of learning organisation, it is not recognized in neither of the institutions.

Recognition of the credits as one of the most common issues in physical mobility was mentioned by several experts (I4, I7) – *even for physical mobility if you talk to students the first*

thing they come up with some challenge and problems is recognizing the credits properly, so it should be the same for VM. Everybody knows Erasmus now, I think, and is familiar with it and VM still not that familiar for everybody, so the students should be very careful with this (I4). It was stressed that the recognition issue has to go before the students make a decision to participate - *we have to be careful not spreading it a lot, until our universities are with us and recognize the courses. So I think that this is the main issue (I11).* There were 2 types of suggestions on the recognition issue proposed by VM experts:

First, if institution or faculty is not very familiar with VM practice, trying this kind of mobility, it would be *easier to start by organising short term teacher virtual mobility, or short term student and teacher virtual mobility, i.e. just for the part of the course. This way it would be easier to agree upon and the recognition would not be an issue. However seeking for full course or programme joint delivery or virtual course exchanges, institutional position is very important, will it be promoted or not, and top management decisions have to be made* (I7).

The second suggestion was to embed VM courses into the programmes - *so the trick should be to engage, to embed VM at the programme level as the integral part of the learning curricula in the learning path* (I3). It means a possibility to choose a course at a distance from a certain block of optional courses that might be suggested by home and host institutions, or a possibility to choose a course delivered in a traditional, local way or an international, VM course. One of the VM experts also mentioned that in their case this VM course was in the beginning suggested as an optional course to be chosen, but as the students started participating and valued the experience and approach gained, it became a compulsory course in the programme.

Another aspect shared by VM experts to be considered while making a decision on VM scenarios is the **preparation and adaptation of VM curricula**. A smaller size, VM experience is much easier to organize, however if it is a bigger scale practice, 3 levels of stakeholders need to be involved in the VM process: *the first one would be high level management involvement in these universities - leading them into signing agreements and actually making them apply policies that will foster this implementation; the second level is to do with faculty itself - it only will happen if faculty, if teachers will actually see what they can benefit from it and will apply in the course organisation; the third level it has to do with students' engagement (I3). However the collaboration of teachers in VM is crucial (I10),* as in a jointly delivered course, not just institutional agreements, but the agreements on learning outcomes, its transfer to the virtual course, semester and time schedules, language decisions and other organisational issues have also to be considered and applied while building the VM scenario.

Several experts (I1, I3, I12) mentioned that it was difficult to attract students, as this is a new practice and student awareness raising is necessary (*at this moment we convince them more than they have the initiative to participate (I12)*); however, the students were very satisfied with the experience after the course was finished. So the decision on the possibilities suggested for students have to be considered, while designing a VM scenario. It is also important to take into account the type of students' studies – even for a virtual student to be enrolled in a course at another institution requires some additional information and time. *If someone is in a traditional, face to face university, and enrols in a course on a fully online basis, he should be able prior to have some kind of training for it, and that should be free or part of the package, because the additional costs issue is very important (I3).* Some other experts from traditional universities also stress that VM can be an alternative for those who cannot travel due to some reasons - *there are people who cannot move physically because they are handicapped, because they don't have financial meanings for doing this, so they don't have this opportunity of physical mobility. And VM is a way for them to do it* (I11); however, it should not replace the physical mobility, thus, experts suggest *trying to do it in a blended way* (I3), as *it is better when it is combined with traditional mobility (I7), the blended mobility is the best mix of the situation (I9).*

So there are various issues to be taken into account while making decisions on the VM scenario; however, these decisions have to be made before or together with the agreements of cooperation, and on the basis of the decision chosen curriculum design and implementation stages will be grounded, where decisions on certain learning outcomes and VM tools are to be made.

To sum up, the following components constitute the institutional dimension of virtual mobility in higher education: VM scenarios, administrative procedures, mutual trust and recognition of competences/credits.

3.2.2. Educational dimension of virtual mobility in higher education

Although the educational dimension of VM phenomenon in higher education could be a separate research area as it is rather broad, this research refers to the educational dimension from the perspective of curriculum design and teaching and learning in HE in VM setting. Therefore, the VM curriculum design guidance and peculiarities for learning organization were addressed at the VM expert interview. It was found that VM experts had participated in VM in different roles, and most of them in several roles – as organisers, developers, teachers, and researchers. 7 of the 12 VM experts were also teachers in HEIs, so their remarks on the curriculum design in multicultural setting were focused on the interviews. Some of the remarks focus on learning scenarios in VM; while other ideas refer to the curriculum design for certain VM activities.

It is necessary to note that while answering the questions about the VM curriculum design, different understanding of a curriculum concept was noticed – some of the VM experts were referring to curriculum as learning content, while others as a study programme. Although curriculum in this research stands for interdependence of the main parameters of the educational process, this different understanding supported curriculum design guidance for courses, programmes, internships, and some other PM supporting virtual activities. It can also be noted that some experts provided more guidance on the design of the VM activities, while others concentrated more on certain examples or supported the learning content of different activities more.

In mobility setting whether it's virtual or physical, first of all you're aiming at some cultural exchange, some experience exchange among institutions, among different countries (I8). So if the VM experience *has this cultural exchange, of course, it depends on the designing of it (I8).* As one of the experts stressed, defining the VM concept from other similar phenomenon, *when you add socio-cultural aspect next to the academic one, you are in the field of VM (I12),* socio-cultural or inter-cultural aspect has to play a role in order for the course not to be merely a virtual or distance course - *in this VM course, this transnational dimension and intercultural dimension is one key issue, this is an added value, students will not have in simple online course (I11).* So, some experts stress this focus on deepening and strengthening the cultural exchange, especially in the VM course design, *because you're gaining not only the knowledge of the subject, but you are also gaining some experience in this international, intercultural setting (I8).*

Others do not stress this intercultural exchange in virtual setting, but see it as a possibility for different learning cultures and different learning institutions. More of VM experts ideas about intercultural exchange would be analysed in the subsequent subchapter 3.2.2, as intercultural competence was suggested to be one of the competences improved by VM activities. Anyway, in the curriculum design there might be s*ome activities or tasks where learners would contribute in their national languages, or work with the national cultural learning objects, and would exchange this learning information (I6).* So depending on the aim of the activity, the intercultural setting may be in the aim, or just as the *additional motivation for the students to enter this VM and participate in this VM - the tasks need to be to organised somehow that also involve this intercultural communication and intercultural exchange, to make the course even more attractive for the students (I8)*.

There are different scenarios how VM intercultural exchange may be aimed at; moreover, experts also mentioned some from their cases. One of the teachers explained that there is little research in the English language on their certain course topic, representing national

background and national approach, so the students are encouraged to read some scientific literature in their native - national language, and then in the task, when they provide arguments on certain topics, reflect on national authors opinions, so the students from another country are introduced to different national approaches.

Another example from the intercultural setting is the introduction on the countries that students are from, especially this is an added value opportunity if the students are from very different contexts, so the learners would know more on the country's cultural setting.

Already from the first VM practices, they *revealed to be extremely interesting in terms of opening up the mind of the students, comparing how in different countries the same problem was addressed (I5).* So the first subject or topics that were tried in VM setting were *chosen to be interesting to be seen from different countries perspectives. That's why the choice on the content on which to activate VM is quite important (I5).* The VM expert stresses that *VM takes a* ***meaning when you compare*** *things done differently in different countries (I5).*

Although expert opinion slightly differed with regard to the question if every subject could be delivered in the VM way - *theoretically it is possible, but doesn't make too much sense(I5)* or *every subject can be delivered in VM, absolutely every subject, here are no limits (I7),* but most of them support the idea that different cultural approach to the learning content is necessary - *In order to justify the effort of joint design, joint delivery, joint assessment, you need to have audiences and subjects that justify the efforts. In principle, of course, any sort of international collaboration while studying may be worthy. But what makes a* ***value of VM*** *even more than physical mobility is that from educational design what you do is* ***truly motivating by an increase of quality in terms of learning outcomes expected****. If to produce the comparative dimension, the areas that are particularly relevant at VM, are the areas that comparative dimension in countries create the added value to the curriculum, to the learner (I5). This is not just different learning, it is approaching the same subject, the same topic from a different perspective, and this provides a wider, different approach from another country, from another culture(I7); the same problem may be addressed from various perspectives (I1, I10); and this generates a much wider understanding of the situation, and it is a very big point, huge advantage. In a small country we posses this syndrome of closeness – we may easily close and bubble in this closed environment, and bubble in between us, but when students see a wider world, they approach problems differently, and it's the same with teachers and every person (I7). So every subject may find some topics that would be useful to deliver in VM (I4).* It was indicated that ***social and cultural aspect or technological aspect, also a psychological aspect*** *as subjects are perfect to be taught in VM, because they are particularly* ***useful, for example, for***

exercise, collaborative group, work in group, and to build-up together experience through network*, so they are particularly useful for this kind of approach (I9).*

The experts see the organisation of VM as a rather complicated and time consuming activity: *The organisation of VM at the moment is much more complicated than in physical mobility case, because you need more things to collaborate on (I10) and the preparation involves more work for teachers in collaboration and inner discussions (I7);* therefore, they suggested starting VM practice from small parts – *it is advisable to organise a small portion of VM, say 2 or three weeks only, it will be useful, particularly with regard to language. But to organise virtual mobility in a broader sense, as the whole programme or the whole course, it would be more complicated due to cooperation as it would be necessary to agree on a number of issues (I7).*

So when it comes to a more regular practice, VM experts also stress that *we shouldn't waste our energy on VM based on lectures. Lectures are a natural component, but VM takes a meaning when you compare things done differently in different countries. And it is also important to associate VM with* ***active learning strategies*** *– like asking the groups of students in a different country to investigate an issue and then to report in the international groups what they have discovered, or organising project work and reporting on the difficulties and solutions encountered, all of this is also part of the development of key competences in university students that are very important at the moment of finding an employment, a good employment(I5).* The similar ideas were supported by other experts stating that *in HE we have been discussing for long already that we should change from teacher centred approach to student centred approach. In VM it's much more difficult to have a traditional way of teaching and thinking about how students learnt than in a face-to-face classroom. So more active learning methods should be involved (I11). Interaction is very important, it is crucial in VM (I10).*

Another aspect that was mentioned by VM experts and which complements active learning strategies, but also involves OER and different ICT tools, addresses the importance of student controlled activities or focuses on learning but not traditional teaching, is a possibility to use online resources: *there are lots of various theoretical references online, which are open, and also there are references that can be accessed through university accounts. So teacher should only suggest some validated resources for students, but the main attention should be focused on student group work, where they get a task, where they select resources that are suggested by the teacher, add their own resources, they should be trained to be* ***autonomous, active and responsible****, and* ***teachers should lose some control****, they should let them act, and curriculum*

should also imply all types of collaborative tools, so they could use them, they could produce artefacts out of these activities, and should present them in groups. (I6).

One more aspect referring to teaching in VM setting was mentioned – the technology influence on the teaching methods: *technologies amplify what you are in presence. So, if your method in presence is good, and your reasoning in presence is good, and your teaching in presence is good – it will be amplified with technologies or by technologies. On the other hand, if you are not a good teacher or use bad methods in presence, it will be amplified in negative in VM. In VM you have more power in your hands, but more power in positive or in negative, not only in positive, also in negative (I9).* The expert also stressed that more preparation is necessary - *in VM you have that time, that slot, these possibilities, so you have to be ready and you have to be detailed and precise.. so it doesn't matter which methods, but use the ones you are best in* (I9). So the importance of the teaching methods used may be summarized with the note that "*You cannot become a better teacher with VM, absolutely no, you are who you are. Technologies amplify who you are"* (I9).

Experts (I7, I3, I6, I11) also draw attention to one more time consuming but necessary issue (that was also discussed in teachers' interviews in the VM case study) to be discussed in the VM curriculum design phase (which refers more to the joint curriculum design), that is, the agreement on the course, seminar, part of the course or even programme learning outcomes. This takes time; however, this is the basis for cooperation; it is easier to exchange curricula based on learning outcomes (*it is easier to exchange curriculum and to form teacher groups for the same curriculum development for VM if curriculum is designed on the basis of learning outcomes,* I6) and to recognize it (I12). So in order to come up with VM programme, VM experts suggest starting from learning outcomes and basing the VM scenarios on modular courses, also based on ECTS (I3). Agreements on assessment also have to be discussed and assessment methods and possibilities applied in different institutions have to be taken into account and agreed upon (I3), while designing curricula.

The joint curricula design is stressed here because of the expert suggestions not only to include student virtual mobility, but teacher virtual mobility as well. Teacher VM starts with the curriculum design - *it will be much richer if other universities which will be involved as participants in the VM course will also be involved in the development or design of the course (I11).*

So the design of VM curriculum or learning content depend a lot on the aim and type of the VM activity chosen. As most of the experts were teachers in VM courses, other activities of curricula design were not discussed here. To sum up, the following components constitute the

educational dimension of virtual mobility in higher education: VM curriculum design, learning organization and assessment, support for teachers and students.

3.2.3. Intercultural dimension of virtual mobility in higher education

Intercultural exchange was identified to be one of the main aims in a multicultural, virtual mobility setting. The scientific literature analysis revealed that different skills, attitudes and knowledge fall under intercultural competence definition, which may constantly be developed. Virtual mobility competences in this research were defined as the ones which are developed in the VM setting and which cover intercultural, digital, foreign language and other personal, social, transversal competences. However, the main one was proved to be the intercultural competence, which also includes certain knowledge, communication, social and personal attitudes and skills. More in-depth research needs to be implemented to verify which of the competences is broader - the intercultural competence or VM competences. However, the intercultural dimension of virtual mobility was proved to be of key significance.

Although in traditional higher education classroom there is a certain difference between the teacher and student roles, following one of the VM experts' ideas, in VM it is difficult to separate learners from teachers, as *when I am in VM I always teach something, but I always learn something, because you always meet people that can learn from you, but you all meet with people that can teach you, so I was enriched by this experience of VM.* Although it can be agreed and built upon, however, this research focuses on VM in higher education institution where teachers also learn, but their main responsibility is to guide student in virtual learning process in multicultural setting.

VM experts were addressed with 2 types of questions – what competences are improved by students and by teachers during VM experience. Some of the competences improved in VM setting refer to both, but some are more expressive from a certain point of view.

3.2.3.1. Competences developed by students in virtual mobility

Document analysis and case analysis revealed that the main competences improved by students in VM settings were intercultural competences, language competence, digital competences, learning outcomes (LO) related competences and personal, social competences. LO related competences are general academic competences, though they are not somehow specific in VM, as the same ones may be addressed in regular online courses, so their focus was discussed in the curriculum design of the educational dimension. The VM specific competences were the following – intercultural, language, ICT and personal, social competences. The VM experts were asked to confirm or identify any competences that are VM specific that students may acquire or improve.

The main competence improved by VM activities, as identified by experts, was **intercultural competence** (I1, I3, I4, I7, I11, I12), and though some experts addressed it as not a real competence (I6), it was supported by such features as *intercultural exchange of a different perspective, so it will not be a typical cultural competences that we are used to identify, but in fact, we are dealing with communities that have to be reorganised and when you have a multicultural environment, even in the virtual multicultural environment, also that process of social matching, generating these communities spirit is very much intense, so although this is not typically the same cultural competences, these are the certain set of competences that can be clearly developed on a VM scheme and, of course, these could be unique in a sense (I3).*

Other expert supported the development of intercultural competence by providing some scenarios how they can be improved, finalizing that *some students say 'in VM you can't have intercultural competences, it's not the same when you learn online', but we think you can (I4).* The improvement of intercultural competence in VM setting may be also supported by the **knowledge** that they get on different cultures - *they would get more knowledge on intercultural issues, like what is traditional way or approach of the same issue in another country (I6), different learning cultural experience* (I3), and **attitudes** towards different cultures: *it is preparation to go to another country, preparation about what is happening in these universities, which teaching forms there are or can be, how teachers can treat students differently; sometimes students have a number of fears before leaving, they think it will be so difficult there, it is so scary .. so VM can be seen as a possibility to check their English language knowledge and a test of other features, such as tolerance with regard to another nation (I7).*

Although one expert had doubts with regard to the improvement of intercultural skills during VM (I6), this can be opposed by some authors researching intercultural competence, such as Deardorf (2006) who states intercultural competence skills are the ones which address the acquisition and processing of knowledge by observation, listening, evaluating, analysis, interpreting, relating. All of these activities are possible in the virtual mobility setting with the present tools. So the wish to improve intercultural competence depends also on a person and possibilities for communication created in the virtual environment.

According to Deardorf (2010) and other intercultural scholars, intercultural competence is "effective and appropriate behaviour and communication in an intercultural situations", consequently, some of the experts also mentioned the development of ***intercultural communication****, because whatever subject you will take, you'll discover similarities and differences by comparing not only the phenomenon in itself that you are studying, but also how the group behaves, in communication strategy of a group of one country and another, if it's*

always the teacher introducing or distance students have the autonomy in presenting the way they want to present (I5). All this knowledge, skills and attitudes suggest the development of partly different cultural competence than is improved in traditional mobility; however, intercultural competence improvement is the focus in VM and *from a student's point of view, of course, it's clear that* ***having international experience you are more competitive in an international market****. And it's easier to find a job, it's easier, at least to have it in your CV (I8).* As *mobility has an aspect of going to another place, trying to be part of that culture, society and community there and if we talk about VM, we also want to have this experience, so the intercultural aspect is also important (I2).*

The intercultural aspect may also be an additional motivator for this kind or experience - *I see this intercultural exchange more like additional motivation for the students to enter this VM and participate in this VM. Because you're* ***gaining not only the knowledge of the subject, but you are also gaining some experience in this international, intercultural setting.*** (I8)

Anyway, the experts agree that ***experience of studying internationally is an experience that every student should have in a globalized world.*** *That's why accessing programmes that are developed jointly between different universities and different countries, having a possibility to listen to teachers from other countries, having a possibility to collaborate with students of other countries while staying in your own institution surrounded by your university fellows and your teachers is from an educational point of view something that is equally important as experiencing another country where to live (I5).*

One more thing worth noting that is related to intercultural competences and that was expressed by the VM experts who have experience in virtual internships organisation is that there is a need for preparation and introduction of some cultural background in the beginning or beforehand for a successful cooperation - *something that you have to make really more explicit, like intercultural competences, you need to make some arrangements about it*, *and something that we recommend is that if the students are virtual interns in your company then try to also involve them in some other way, that it's not all he/she has to do is the tasks, have some virtual time when you introduce them to colleagues, like virtual party or virtual cafe where you try to introduce them in other aspects of the company and culture, but I think that also something that students certainly learn(I4).*

Summing up intercultural competence development in virtual setting it should be noted that communication tools may influence and hide some cultural attitudes and if certain culture knowledge is not presented during VM activity, the intercultural competence development may be limited. But, as Deardorf (2010) stresses, intercultural competence is a lifelong process and

there is no point at which individual becomes completely interculturally competent, when VM activities involve communication of participants from different cultures, the development of this competence begins or continues.

While culture specific knowledge and intercultural attitudes may be one of the main aims of VM activities, ICT related skills or **digital competence** is also one of the skills or competences that is naturally developed in the virtual setting. Although some VM experts indicated it as an additional competence or skill, however, *it is inevitable* (I1) and *important (I6)* in VM setting. Others addressed them as e-skills (I4) or **media literacy** (I3). *And it has to do with choosing the proper tools to help you which will work. There's a lot of different kinds of media that are available now, especially social media. And some students are familiar with this and some are familiar with that but you need to make a selection if you want to learn something and that skill how to select proper tools for the purpose that you want that is something that we need to master ... I cannot teach you how you should select a proper tool for your purposes, if you are doing a research, for instance, I don't know what kind of tools you like to use in this case and it has to do with your personality, it has to do with your topic of research, it has to do with maybe time consumption, it has to do with the organisation that you working in or so on.. I mean I cannot teach you how to select this, I don't think that there's any course with that kind of approach. And the technologies are changing all the time, going so far that even if I would like to make a course on this, up to date it may be outdated. This is something you need to learn from personal scope... I think* ***everyone needs to learn that kind of skills*** *and that is something virtual mobility can help with (I2).* One more name was used for this competence (which was also valid for language and some other competences) - transversal competences - *there are competences that are transferable in other domains, and ICT competences, from my point of view, are transferable, so students not only gain competences of the content of the course, but they also develop transversal competences, like ICT competences, language competences, communicative competences (I11).*

One more of the additional competences improved by students in VM setting were foreign language competences (I1) or *linguistic skills, so they would start speaking, writing, in English or another language* (I6). *In the moment you are in the international context, you speak English, and are improving* (I4). VM opportunity even may be seen as a check for English language practice (I7) or a place, a way for students to learn a foreign language (I4, I8). It was also expressed by VM experts that sometimes language is a challenge – *Our students have a lot of ideas, they have a lot what to say, but language or insufficient competence in a foreign language somehow makes them slow down, being afraid to make mistakes stops them* (I1). However students who participated in the VM course *say that they gained more self-confidence*

in themselves and in their English language competence, as they understood that they can speak, when they speak other people comprehend them, there is communication and it is kind of checking oneself (I1).

One more type of competences improved in the VM setting was *typical research competences, because typically in order to be interesting you need to answer, you need to provide students with fresh information, fresh knowledge on the certain phenomenon in order to compare to the similar phenomenon in another country. There is a certain capacity, the analytical capacity of comparing the phenomena in the different countries (I5).*

Among other additional skills mentioned were **skill to track personal achievements and soft skills**: *for example, being able to work in groups, but also in the national groups. Also I think students would become more open and they would not be so shy, they would discuss, they would speak, they would act. And especially in some cultural settings like Lithuanian setting, not all students like to be active, while foreign students like this publishing of those personal things and cultural things, and news and tweets. So they would be more open and state their opinion probably more frequently. ... Another skill would be tracking personal achievements. Because a lot of students who have only physical mobility or even traditional lectures at university, they do not like tracking their outcomes, tracking their assignments, achievements, some artefacts, and it is not necessarily to design portfolio, but to have a blog, or some space where they collect evidences of what they have (I6).*

Among other things and competences improved by the students in VM setting was the possibility created by technologies and stated be *the **complexity**, the complexity of a world, the complexity and the crossing of the world which can have together and bring together a lot of variables - how to learn, how to teach, social and cultural matters, the idea why are you learning about the matters, but you are learning a lot of the other many aspects and the idea that you can live in more than one context, not only your physical context, but a dashboard of context of your life (I9).* All this is a proof that the experience and possibilities created by VM are rather rich.

To sum up the competences improved by students in VM setting, most of experts stress intercultural and learning cultural experience, ICT or media literacy competences, and mention language competences as additional ones, together with research competences, soft skills, complexity and skill to track personal achievements.

3.2.3.2. Teacher competences developed in virtual mobility

Teacher VM competences were also addressed at VM experts interviews as more than half of the experts were teachers in VM practices and others were researchers or organisers, also dealing with teachers in VM practices. In VM case study, the competences acquired and

improved by teachers in VM were treated the same as the ones that students improve. However, the VM case study findings indicated much less improvement of teacher competences comparing with student competences improved. This led to a more in-depth analysis of this issue and was addressed by VM experts in the interview.

First, it led to the analysis and identification of competences necessary to have (or pre-requisite competences for VM) in order to be able to teach in VM settings. One of these competences was foreign language competence. It is one of the competences that may be improved by teachers as well as students during VM experience, however, students may go for this kind of experience to learn the language, while teachers have to have **decent foreign language skills** to go for a VM practice - *in order to participate in VM, a teacher should master international language agreed among consortium institutions, it doesn't matter in which context, project context, or real life context. So the teacher should master either French, English or Spanish, or whatever other common language (I6); in fact, it is so shameful if you do not know the language, you should not go on exchange to teach if you have no language competence (I7); you should be quite fluent in English if you go to teach in English language. It's not the place where you'll go to learn language. But naturally, you improve your language in the process (I8).* ***The language competence*** *is developed, undoubtedly, it develops all the time, it does not allow for the language to die (I1).*

It was also indicated by experts that the second pre-requisite for teachers to go for a VM practice would be ***master the ECTS system****, because he or she has to design curriculum on the basis of ECTS* (I6). And the third pre-requisite was mentioned to be **ICT skills** - *in this kind of courses we have to develop ICT competences (I11)*; however, if students should have some ICT background or media literacy skills, the teachers may be experts in technology, or experts in the subject and get additional help from the institution IT staff: *in some cases, especially if the teacher, professor is very good in the subject field, and he wants to go for VM, he can have very good assistance from a specialists in the field who would help him and he doesn't need to be an expert in ICT to design a good course. Because having good consultancy with experts you can implement good course. Of course, the ICT skills, having in mind that all university courses are now moving to the e-learning environments, are crucial for the teachers and I believe that* ***every teacher should have these ICT skills and should learn how to use the VLE and how to organize activities, learning process in VLE, how to communicate with the students online****, so I believe that for the future teacher it's necessary (I8). The world is developing towards technology advancement, you feel stronger with regard to the use of these technologies if you can use them in your teaching process (I7).* S*ometimes students are already more familiar with tools than teachers, but this is something that teachers can improve (I4).*

So these 3 pre-requisites are necessary for teachers; however, language and ICT competences, and their knowledge on ECTS can be improved during the VM practice. Among other professional skills and competences that are important and improved during this practice are research competences (I5, I12) and knowledge on the subject (I7) – *You always become stronger when you go to a conference and see what topics are researched by others, how the research is performed, you see how other people view the same issue, what they teach, relevant issues (I7);* and attitude towards *openness, to collaboration, other universities, other teachers, and overcoming of this fear that everybody will see my curriculum, and suddenly someone will say that it is bad. So I think this is the change of the attitude to the more positive approach... so VM would probably change the attitude of teachers first of all, which is very difficult to do (I6). From the point of view of academic skills, it is also important to see* ***how the teaching is carried out in other countrie****s, because many times we think that perhaps things are made worse, and perhaps we have a lot of things to learn from the other country (I12).* So, VM experience not only provides possibilities for teachers to get new ideas, compare their abilities, but also to become more critical, to improve and update their professional competences.

VM practice also contributes to teacher personal and social competences development. Such as wider approach, knowledge of otherness (I1), *teachers should be open, so it is cultural development of a teacher, because teacher should accept peer review results, and recommendations and should improve accordingly teaching practice, and also flexibility, because teachers, I think, like inertia movements, when they have their curriculum, when they teach the same curriculum for a couple of years, or for a couple decades of years, and now they have to change, they have to be flexible, they should also* ***minimize control*** *of their students and their learning (I6), flexible in order to understand different values and put them together (I9). The perfect teacher or the ideal teacher is a teacher who first of all wants to learn (I9).*

Building collaboration among the international team of students, intercultural team of students it's quite a challenge, because sometimes these cultural differences reflect very much in the communication (I8). So during the VM experience teachers also renew their intercultural competence (I7), but it was not that much stressed as during student VM. However, as intercultural competence is defined very broadly, some of the features (such as flexibility, respect, openness) that are called as personal or social competences by VM experts may also be treated as intercultural competence (according to Deardorf, 2006).

To conclude, *there are very different scenarios in VM, so the competences are also very different and depend on the scenarios (I4)* and the curriculum designed. The intercultural dimension of virtual mobility in higher education is constituted of competences developed during the multicultural exchange.

3.2.4. Technological dimension of virtual mobility in higher education

There are many technological solutions that can be used for VM, as different learning organisation methods may be used by teachers for different purposes and in different activities. So the aim of this part was not to address certain technologies, but to investigate what technological solutions are used in terms of functions and purpose, i.e. how technologies help to implement VM activities, and what could stand as examples for future VM scenarios implementation. As the background of this research is not technological but educational, it is not aimed at specifying certain technologies or promoting any of them, but at supporting certain communication and collaboration, teaching and learning, assessment and feedback methods by proper tools.

As it was indicated in the scientific literature and document analysis, centralized or decentralized virtual campuses are used. They embed tools for two types of communication – synchronous and asynchronous; and there is also a need for accessing the learning materials or guidance information, and learner-groups collaboration that virtual learning environment may also be used. These were also the main technologies mentioned by VM experts. As there were 15 interesting cases and their scenarios shared by VM experts, the below table represents the variety of tools used in different VM activities for different purposes; however, they cover either synchronous (asynchronous) communication tools and platforms or virtual learning environments with embedded tools for collaboration and leaning organisation.

Table 3.2.4. Technologies mentioned by VM experts for VM activities' organisation

VM activity	VM tools and purpose for their use
Joint study module 1	Videoconferencing facilities – for synchronous student communication; Blog – for sharing learning resources Email and skype for (a)synchronous student communication and joint assignment production
Joint study module 2	Videoconferencing facilities – for synchronous student communication; Web-conferencing tools for student collaboration in groups. Virtual learning environment – for content sharing and learning organisation, with pre-recorded lectures, prepared assignments for individuals, national groups and international groups, e-portfolio, forums, wikis, VLE Moodle networking plug-in for entering VLE with institutional logins, etc.
Virtual examination for intensive blended course	Web-conferences and video conferences for virtual examinations
Virtual buddy system	Special platform for making connections of students
Mobility preparatory course	Virtual learning environment, decentralized virtual campus
Virtual course for interns	Virtual learning environment

One of the elements addressed by VM experts in VM concept definition was *ICT related activities organised at an institutional level (I5)*, which stress the importance of institution's decision for certain technology use. So the technologies used in VM depend a lot on the VM scenario, learning scenario and institution culture or decisions to use certain technologies. When first VM activities were started ***to experiment the potential of ICT*** *in strengthening collaboration (I5)* between different HE institutions that were already cooperating among themselves, t*he idea was probably immature at that time, because the technology was not ready to support a large scale use of coproduction of learning programmes (I5).* However, technology has evolved a lot in these 20 years and the notion of open educational resources appeared on stage, and this contributed to the facilitation of VM ideas - *the movement of OER has brought a new attention to the phenomenon of openly and cooperatively organised resources amongst institutions that trust each other (I5).*

The technology evolving also helped a lot for much easier and user-friendly solutions to be used and get use of, which are not that expensive anymore; however, it was highlighted by VM experts that the new possibilities created by technologies should not be admired too much, but the use of media rich resources should be balanced. *From one point of view it is so fine to view, but we have also the possibility and opportunity to analyze, to think logically, and when we are captured by the image we tend to less use the reasoning part of our brain. So willing to think critically, pay attention not to remove the part in which we can read analytically and more use the instrument of logical penetration of our brain in concept (I9).* Critical thinking about the technologies and selecting them should also be applied - ***this is a world in which you have to be able to think critically****, not enthusiastic, not to avoid, but to think critically - this is the technology that can help me, no, this is the technology for wasting time. So you have to choose and you learn also in this field (I9)*.

VM experts do not link technology evolving to VM practice a lot, as it is more based on the cooperation idea, institution aims, need and strategies - *I think that VM doesn't depend only on ICT development. Now technology is more available and much cheaper than it was, but the concept of working together, sharing the design of learning program, of mixing the study groups of different universities, recognizing titles that are developed together, but only partially in each university, is more a cultural problem than a technological problem, a matter of opening up the mind of academic institution and showing that this is possible (I5).* However thinking about the future technologies and VM experience, some expectations are valid - *perhaps what will be better-changing in the future, perhaps in ten years we have things that we don't even think of today for facilitating, doing things like 3D printers could bring things that are in another place,*

so it could be that in 10 years things will facilitate knowing, touching things that are impossible to touch in the computer (I12).

So the ICT itself is not a driving force for institution cooperation, but only one of the elements needed to implement it, together with socio cultural experience, which is necessary to experience in VM. To finalize the ideas about technologies in VM, a quote to stress other aspects may be cited – "*Maybe we must leave the mind, fly and think of how to put the context, immersion of the foreign institution inside the institution of student. Because, I think, the computer is not enough at this moment for getting this kind of immersion (12). It is good, it could be 80% of the process, but I think there is a barrier in general that don't let the student to be integrated, to feel that she/he knows the other culture" (I12).*

To sum up, technological dimension of virtual mobility in higher education is constituted of different technological solutions applied during different VM process phases.

3.2.5. Key success factors for virtual mobility

Summarizing the interviews, VM experts were also asked to indicate VM success factors or indicators from their own experience. As the experience of VM experts differs as well as the experienced cases, the success indicators are also rather different. They are discussed below, providing explanations given by experts, and the sequence provided does not have any relation to the importance:

- VM is successful ***if you even don't notice that it's virtual mobility****, you have like a favour oh I'm there, I feel like oh ok I'm part of that community there, and we are using the technology, yes, but it's not like a barrier there, it's not like something special, just like a mainstream, just something normal, something we even don't notice that we're using it; if there are no barriers any more, it's like a very natural thing to happen then I think that would be successful (I2).* And to support it, from a technological point of view, *the* ***technology should be transparent*** *(I2);* it's necessary *to make it as simple as possible, so there* ***should not be technical barriers*** *for the entering environment, for working inside environment, the environment has to be built in this way that student should not need any guidance in this environment. So it should be very simple (I8).*
- ***The partnership should evolve naturally.*** *In short term projects, the partnership which was built and which was tested, it will not necessarily last for a longer term. And sometimes you can have good ideas, you can have good intentions, but you cannot force this (I8); so it has to start from a real need (I4) and cooperation. Experimentations were mostly conducted in groups of universities that already had some research relation and some good collaboration level, so the mutual trust is a condition to make VM functioning. And, of course, mutual trust*

is normally built in a long working relationship. That's why you should do VM with institutions that you trust, with which you already had some possibility to work (I5).

- VM successful implementation **requires engagement of all 3 levels** – top management level, faculty/teacher level and students: *one thing is, of course, in the certain project to leave or to push university principles, rectors, presidents or whatever, to leading into signing an agreement, as you cannot organize VM if you don't engage top level leadership, because there are a lot of policies, tools, that have to be, but actually it only will happen if faculty, if teachers, if the partner departments will actually see what they can benefit from it, and will of course apply in the course organisation, so they would implement in their own course offer or programme offer elements that will foster this; and it has to do with students' engagement, I mean all the needed tools may be there, but actually the students don't engage(I3).* Nevertheless, most crucial it is to have teacher collaboration in VM course delivery (I10, I11).
- *VM will only be successful **if it can scale**, scale at a level much higher than physical mobility, because otherwise people would just say, ok we already have a very successful Erasmus programme why should we need a virtual Erasmus. So to make it really a mass oriented phenomenon the target group that could actually do it is actually formal students. VM also has to be applied as a kind of norm to formal students then it can achieve enough scale to become European mass phenomenon and the rest will follow. If it is always seen as a side option, if it is not something that is imbedded in the programme design, it would not be successful (I3). It should become a normal practice to be perfectly accepted as one modality of internationalizing HE, as a strategy that is relevant at an individual level, and important for people who do not travel, to complement those who go for mobility (I5).*
- ***Try to do this in a blended way**. Of course, there is a possibility to do everything fully online, but still I think you should go for a blended approach, because it's always live experience and live people, it's a bit different if we can do it in a blended approach (I4). It is very important to do this in **parallel with physical mobility**, because VM is more and more important for me when I have experience in physical mobility. Because for the physical mobility, in first, I can appreciate a lot the cultural exchange, then I understand that it is impossible to be always in physical mobility, and so you go in parallel with VM, trying to obtain from VM all the advantages of physical mobility, not wasting time in travelling, and using the more advantage of professional use of technologies (I9).*

  Also blended approach is very important to be considered, certainly, if you want to do everything virtually, make pre-arrangement between students, teachers, (I4).

- **Enthusiasm and effective team work.** *Our case was very successful because everyone was in the vein to try, everyone wanted to participate, and there were very different universities, very different people, but the success was that we were able to agree upon course learning outcomes. So maybe the main thing is the willingness for it to happen, the enthusiasm of the people, and then you meet and communicate, and if you have some team skills, so the team can come to an agreement. So the main things would be willingness and teamwork, the effective teacher teamwork (I6).*
- **Common framework and *recognition from universities*** *(I11). First, we need to design a framework what VM is and what it is not. For everybody to know what VM is, so I have to interchange this experience, and I can also recognize this experience - if you are in a VM process, or you are not.. so, first, the framework that we can recognize, the second one – change the norms, the minds for recognizing, and the third, having a general curriculum for VM, for evaluating the final result. Because, what at the end is VM? When I know that you are participating in VM? When you get the ECTS? Or when you also have to know and speak the language of foreign institution? Or when you also know that the gastronomy of this country? I don't know where to put this end ... (I12).*
- **Initial teacher training and support**. *We had a very successful, I think, time when we noticed that teachers maybe due to their inertia actions or something, would be acting a little bit passively in the beginning. And therefore we did internal teacher training or internal teacher discussion and encouraged them to stimulate, to activate learners more in the same process, so it was kind of support for teachers as well as for students (I7).*
- **Benevolent attitude and encouragement of the teacher**. *One of the success indicators of our course is benevolent attitude of the professor from America to the fact that our student do not speak perfect English, they make mistakes while speaking, while writing, and the professor always encourages them and stress that if we don't speak English, we wouldn't be able to have this course, she tries to speak slowly, asks students to express themselves more slowly and sometimes even explains what American students mean. And this stimulates and encourages not native language speaking students a lot. And this attitude and encouragement is very important (I1).*
- **Everything has to be pre-planned**. *Another success factor was that everything was pre-planned, the curriculum was pre-reviewed (I7), and everything was communicated to students. While accepting the students, we explain them rather widely, what and how it will be, and what to expect, students are presented with the assessment criteria in the beginning, we prepare the student guide with the learning material, assessment criteria and etc., so in the beginning of the course they know what kind of exam they will have to take (I1).*

- **Synchronous meetings**. *Our every week meetings that took every Friday, also was a very good solution, because synchronous meetings are necessary, otherwise, people get lost in space and they just say that they will do these activities later and later in time (I7).*
- A person willing to participate in the VM experience has to have certain features – ***attitude to learn*****,** be ***mature person***, and ***motivated*** *to do this - inside you have to have attitudes to that – the desire to learn, the desire to meet other people in social and cultural matters, and the desire to listen to other people too. And the desire to amplify your power through the technologies and to be confident of technologies, but not to be enthusiastic too (I9).*
- Experience of **real cultural difference and different perspectives lead to wider approach of participants**. *It was very successful, because a lot of institutions and a lot of countries participated, and we experienced a real cultural difference and different approaches (I7). We all are really very closed in our society, we see our problems on national level at most, and this VM opportunity provides some other approach, students say that "we understood", "we found out" and this wider approach is also very important, I think (I1).*
- Summarizing the success factors for VM it can be noted that different experiences lead to different suggestions – as some experts stress that VM will only be successful if it is virtual; while others encourage to do everything in a blended way. But experts also stress the involvement of different parties in the process, their willingness and communication that would lead to a better prepared and organised experience, not forgetting the added value that can be created by different approaches, more confidence, and knowledge.

3.2.6. Empirical research findings and recommendations from VM expert interviews

The aim of the VM expert interviews was to verify and explore VM components and their relations in different VM cases. During the interviews, VM experts indicated the reasons why and how VM was started, shared 18 VM scenarios of cases with the most focus on virtual courses, but also mentioning VM support activities for physical mobility and virtual internships.

VM experts stressed the importance of collaboration of teachers in curriculum design and shared the successful experience of more learner centred approach and learner controlled teaching and learning methods used for the courses in VM setting. However, more guidance and instructions were noted to be necessary for virtual internships and cultural dimension oriented courses. They also stressed the importance of VM activities of comparing different approaches and learning resources, and use of active learning strategies rather than regular lectures to increase the value of VM experience.

Unique intercultural competences (different from intercultural competences improved during physical mobility) were confirmed to be developed in VM setting, comprising most of different cultural backgrounds and different learning cultures. ICT competences were seen as a natural component and a minimal pre-requisite for the participation and only reflection on that raised the awareness of improving such skills or competence. Fluent foreign language was seen as a pre-requisite for teachers, and the use of language contributed to the further development of the linguistic skills. The minimal language competence was seen necessary for students and the participation in virtual courses improved this competence a lot. VM experiences contribute a lot to various personal and social competences of students and teachers, providing unique experience and much wider understanding of the phenomenon studied, researched and compared.

Various different technologies were used in VM practices and no common conclusions may be provided from VM practices as technology evolvement is faster that the institutional and teacher cooperation, which revealed to be successful when evolved naturally. In addition to that, different success factor for VM experiences were shared and stressed the cooperation success dependence on the need, engagement and enthusiasm of different levels at institutions, importance of planning, preparation and fulfilment of commonly agreed goals.

The interview data analysis supported the inter-connectedness of VM components, and identified more of the elements that enrich the distinguished VM components. This led to the verification of VM dimensions, permeating VM implementation in HE. The dimensions are based on the analysed VM components realized in the VM process. To sum up, the following dimensions were constructed and verified, based on the empirical research (see Fig.3.1.28.).

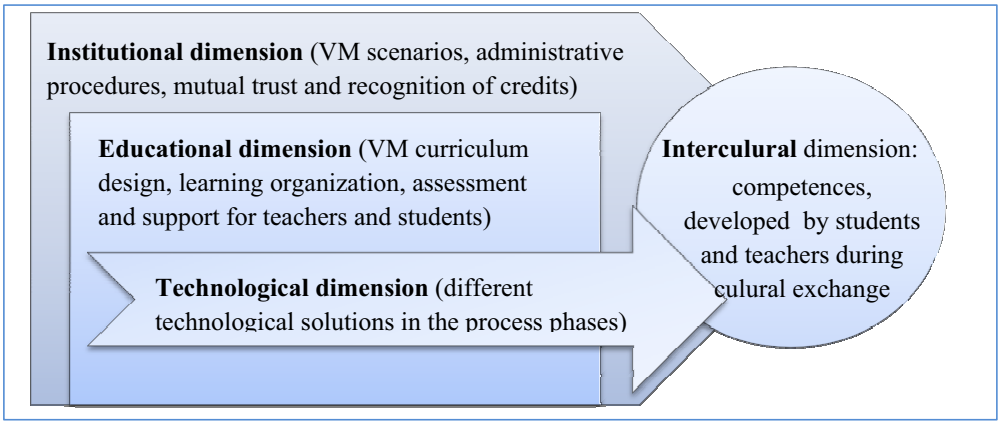


Figure 3.28. Interrelations between VM dimensions, permeating VM process in HE

VM experts suggested to plan VM implementation in HE based on the following success factors: from the institutional perspective or based on the institutional dimension – a commonly agreed framework, involvement of different countries, natural evolvement of partnership, engagement of 3 stakeholders of institution's top management, faculty and student, and agreements that lead to recognition of VM experience; from the educational perspective or based on the educational dimension – use of common framework, time consuming preparation and detailed planning, blended mobility of teachers while designing the curriculum, and coherently pre-planned support system for students and teachers; from the intercultural perspective or based on the intercultural dimension – real cultural exchange, participants' willingness to try and to learn, benevolent attitude, enthusiasm, and effective team work; and from the technological dimension – transparent and appropriate use of technologies, combined with necessary trainings to foster critical thinking and responsible use of technology.

REFLECTIONS

VM concept is rather a new phenomenon in higher education and is still a marginal activity. Its characteristics are defined in various VM practices and some research papers that are rather rare. The concept of virtual mobility is still vivid and understood differently by various researchers and practitioners. This research problem called for an in-depth analysis of the VM phenomenon in higher education.

The identification of the 10 VM elements by Dondi and Salandin (2010) has brought some guidance for VM concept agreements, still, the very different contexts that the elements brought together, called for their scientific revision, grouping, identifying and justifying of the main ones. There were 4 main and most complex components distinguished – a virtual mobility scenario (that covers combination of VM forms, models, activities and forms// or such elements as international student groups, international teaching groups, joint choice of subject to be studied, joint titles and mutual confidence relationships), virtual mobility curriculum, virtual mobility competences and virtual mobility tools (that cover the element of use of appropriate technological solutions).

The following 10 VM elements were the basis for VM phenomenon conceptualization: International student groups, Interactivity and communication between students of different countries through ICT, International teaching groups, Multicultural exchange, Use of appropriate technological solutions, Joint choice of the subject to be studied through VM, Joint curricula design, Joint production of learning resources, Joint titles, and Mutual confidence relationships.

Multicultural exchange was identified as the main aim of virtual mobility experience. It was verified in the case study research and VM expert interviews which proved the components' significance. The findings of VM expert interviews supported the idea to use blended VM for stronger multicultural exchange experience. The importance of Mutual confidence relationships or just Mutual trust was defined to be the significant element for institutional cooperation and VM activity recognition. It was supported by research findings as a necessary element for a long-term cooperation. Appropriate technological solutions proved to be necessary and important for various reasons – communication related issues, VM activity curriculum design and implementation processes, and e-competence development possibilities. Although they are not the object of educational research, the necessity of technologies for the process is programmed in the "virtual" term.

Analysing different VM practices and implementing VM in the case study research, a virtual mobility process of 4 phases was defined and verified. Although some researchers of VM seminars, (Vanbuel, et al., 2008), internships (Vriens & Van Petegem, 2012) and various virtual

support activities for physical mobility (Vriens, Van Petegem, Op de Beeck, & Achten, 2010), (Op de Beeck, Bijnens, & Van Petegem, 2008) divide VM process into 3 phases of before mobility, during mobility and post mobility, this kind of structuring is too simple and does not reveal the complexity of the phenomenon, as well as institution's role and significance.

The identified inter-connectedness between the main VM components proved the complexity of the phenomenon, proposing the reasons for different VM interpretations. The complexity of VM phenomenon was also discussed by Boninsegna and Dondi (1998), Dondi and Salandin (2010), Juan Fuente, Fueyo, and Menéndez (2011), Montes, Gea, Dondi, and Salandin (2011). These publications were revised and some of them were used as a guidance while implementing the VM case study. Although the generalizations about the phenomenon may not be based on the conclusions from one case study, this research was used to identify and justify the relationships between the components, which resulted in the VM dimensions permeating VM implementation.

The 4 VM implementation permeating dimensions were suggested by the case findings and were verified by the VM expert interviews. It was also revealed that certain attitudes, obtained by the participants and characteristics of the participants are necessary together with the long preparation, planning and engagement of different levels of HEI for successful VM process implementation. Based on the VM expert experience additional elements were added to constitute the VM dimensions. Each of the VM dimensions connects and highlights different VM elements in the VM process implemented in HE. Case study implementation and analysis pointed out the existence of most of the components.

The case study findings revealed the importance of teacher collaboration in the **curriculum design** phase: the willingness to collaborate, and positive approach aimed at continuous learning led to the VM module success. The presence of international student groups and group collaboration focused tasks contributed to the intercultural exchange in the multicultural setting; furthermore, the need to stimulate and involve all students in collaboration were suggested for active learning and teaching methods to be used. The variety of learning and teaching methods and various methods for feedback should be used for VM activities implementation as students may not be used to virtual learning. Moreover, the guidance on subject-matter for teachers was indicated during VM curriculum design phase as VM experts stressed the need to compare things to be done differently in different countries and organize VM in social, cultural, psychological and technological aspects, using active learning strategies to foster autonomous and responsible learners.

Document analysis and cases analysis revealed that the **main competences** improved by students in VM settings were intercultural competences, language competence, ICT

competences, learning outcomes related competences and personal, social competences. Although most of the same VM competences may be improved by teacher in VM setting, the pre-requisites for teachers to participate in VM activities are higher than those for students. Before the VM exchange teachers have to have decent foreign language skills, master ECTS system and possess ICT or media literacy skills, while the need for students to be mature and willing to learn in order to enrol in the VM was stressed by VM experts.

The VM tools analysis identified different tools used for VM experience. The need for simple, user-friendly and online **tools** was stressed. Drastic technological changes limited the scope of VM tools stressing their main functions as engaging synchronous communication and asynchronous cooperation and access to learning resources as the main ones. The technology amplification on the teaching methods used in virtual setting was stressed, as well as the use of simple and appropriate tools.

Research findings from VM expert interviews showed that the learners have to be matured, autonomous and motivated in VM environments. Cross (2010) summarising the university influencing trends highlights the competences that universities have to develop in their students – students have to be "self-directed and autonomous learners, reflective investigators, artists of networking and communication." (Cross, 2010, pp. 53-54).

While discussing critical success factors identified in the European projects Van Petegem (2009) emphasises some of the aspects that were identified by VM expert interviews for virtual mobility implementation; the common ones are as follows:

- clear distribution of roles of all stakeholders, good timing and careful planning with respect to academic calendars,
- formal agreements between institutions, commitment of university management and other stakeholders,
- empowerment and motivation of teachers and learners,
- new didactical models (probably with a well-thought mixture of virtual and contact moments), proper assessment procedures.

It was verified by VM expert interviews and institutional survey that VM practice contributes to the quality of education, as the joint development of curriculum corresponds to the professional competence development of educators. Koke, Muraskovska and Jonina's (2013) research also support the idea by supplementing it with the following: "educators' involvement in a ongoing dialog with their peers about everyday practice and in a common search for solutions makes professional development more authentic, connects it to solving real problems, thus, making experience meaningful for educators helping them come to deeper understanding" (p. 213).

Among the identified success factors for VM is a recommendation to go for VM when there is a real need for it. Koke, Muraskovska and Jonina (2013) also stress that "solutions which are constructed by educators as a response to their real problems are more sustainable as they serve specific purposes of educators, who, believing in the efficiency of the new practice, are motivated to sustain and share their success" (p. 213).

One more of the identified factors that leads to the VM process was the involvement of 3 levels of HE institution staff – management, faculty/teachers and students. It was also noted that active engagement of participating staff is necessary. Eastcott, Brand, Wynne, and Millard (2003) stress that "strategic change in learning and teaching will only succeed if the enthusiasm and commitment of individual innovators is combined with leadership from institutional managers" (p. 169).

Among identified key success factors of VM implementation is participants' willingness to try and to learn, and their enthusiasm, which comes from the need to foster VM in HE. However, this should not be referred to the enthusiastic use of technologies, but more to the critical thinking and critical approach to the technologies, which is supported by a number of researchers (such as Kariuki Njenga and Henry Fourie, 2010, Mouzakitis and Tuncay, 2011). This idea is reiterated in the Kariuki Njenga and Henry Fourie's (2010) research conclusions which state that "research has shown that technopositivism has led to the adoption of inferior innovations, and to the rejection of superior ones. Therefore, technoskepticism, or 'counterassumptions' to the technopositivism should be theorised and investigated in the process of e-learning" (p. 209).

To sum up, the research findings and discussions on it stress the necessity for further research on either of VM components and/or dimensions to be performed, indicating the need for institutional guidance to be supported by the research in any of the VM dimensions' area.

CONCLUSIONS

1. Virtual mobility in higher education is a way of learning, teaching, research, communication, or collaboration, based on the following characteristics:

- ✓ Development of intercultural competence;
- ✓ Cooperation of higher education institutions;
- ✓ Application of appropriate technological solutions for teaching and learning, communication and collaboration;
- ✓ Aimed at achieving academic goals and recognition of the achieved learning outcomes.

The dynamic changes in the VM concept and its understanding have been recorded since the start of VM implementation in the last decade of the 20th century. First, it was related to the joint seminars or delivery of lectures in order to create possible collaborative models of universities. Later, the concept was broadened and all virtual collaborative activities were embraced under the umbrella term of "virtual campus" in the current meaning of "virtual mobility". Finally, the concept was revised in the attempt to provide some structure and specified by its 10 elements; however, the concept of VM is still not widely known and sometimes confused with virtual learning, even by teachers and students implementing it. Taking into account the recent emergence of the VM phenomenon, the concept and its current understanding will presumably be refined and purified in the near future.

2. The emphasis on mobility in different EU political documents, indicating it as one of the priorities and tools for knowledge society and its economy, promotes the phenomenon of VM in HE institutions. Although fast development of technologies reduces the necessity for travelling; however, different conceptual approaches and time-consuming preparation constrain the involvement of VM into the mainstream activities in HE institutions yet.

Mobility of students and academic staff in higher education is a tool for internationalization and access to different approaches. Although physical mobility is a necessity and rich experience, it is impossible to be in physical mobility all the time. Virtual mobility can be a way to reach the same objectives while staying at home or preferred country. It may facilitate the further physical mobility, but it may also create as many or sometimes even more possibilities for international and intercultural collaboration of students and academic staff as physical mobility.

Virtual mobility fosters cooperation of institutions and contributes to the modernization of higher education by increased quality and transparency of educational processes, broadened research and study areas, and extensive use of technologies for academic purposes. VM leads to openness, visibility and attractiveness of universities, also creating such benefits for VM

participants as introduction to different points of view on the subject, more experienced and qualified staff, and development of VM competences.

3. The main VM components distinguished on the basis of scientific literature review were as follows:

✓ **Virtual mobility scenario**. There are 2 different models of institutional collaboration important in virtual mobility context – based on bilateral agreements or multilateral agreements. There are 2 types of virtual mobility – student virtual mobility or teacher virtual mobility that may be aimed at in higher education institution and the combination of both is possible and of the same importance from institutional point of view. Virtual mobility may have 2 forms – fully virtual mobility or a part of blended - that are equally important but depend a lot on financial constrains. There may be different virtual mobility activities implemented in virtual mobility that can be categorized as virtual mobility seminar, virtual mobility course, virtual mobility programme, virtual mobility placement, and other virtual socio-cultural activities. **Virtual mobility scenario** is a composition of institutional decisions on VM model, type, form and activity and their combination.

✓ **Virtual mobility curriculum**. Virtual mobility curriculum is the interdependence of the main parameters of the educational process (aims, content, organisation, teaching methods, aids, and assessment) of virtual mobility activity, and the interaction of these parameters in the context of constant renewal (development). VM curriculum depends on the decisions made while composing a VM scenario.

✓ **Virtual mobility competences**. There are different competences developed in VM activity: related to VM activity learning outcomes that need to be acquired during the activity, and additionally improved competences which may be composed of intercultural, language, digital and other personal, social competences. The developed and acquired VM competences depend a lot on the VM scenario chosen and VM curriculum designed.

✓ **Technologies for virtual mobility**. Technologies for virtual mobility are the tools used for virtual mobility curriculum design and implementation in order to achieve VM activity learning outcomes and improve VM competences. The tools depend a lot on the VM scenario chosen.

So the backbone of the VM in HE is the VM scenario which suggests the framework for VM curriculum design. The later aims at the development of VM competences and is implemented using the tools for VM. The identified interrelationship of VM components proves the complexity of the VM concept.

4. The 4 phase VM process was suggested and verified in the case study research. The VM process phases are as follows:

- ✓ decision making phase,
- ✓ curriculum design phase,
- ✓ implementation phase,
- ✓ and recognition phase.

The VM implementation suggested the VM dimensions that were verified by the VM expert interview. The VM dimensions, permeating VM process implementation, are the following:

- Institutional. The institutional dimension is composed of VM scenarios and various administrative solutions, mutual trust of institutions leading to recognition of the experience. It goes through in all VM process phases, mainly connecting the decision making phase with the recognition.
- Educational. The main component of the educational dimension is virtual mobility curriculum design, which covers such elements as learning outcomes, learning content and resources, interactivity and communication, assessment strategy and support system. It depends a lot on the decisions made in the decision making phase; it is very significant in the curriculum design and implementation phases and leads to the recognition of learning outcomes and other competences developed.
- Technological. The technological dimension covers the use of various and different technological solutions that are agreed upon in different VM process phases by different target groups.
- Intercultural. The intercultural dimension is the target of all VM experience. It covers different VM competences, necessary for VM implementation, and developed during the experience.

5. The main need for the VM activities to be implemented in HE institution comes from the institution's willingness to upgrade student and teacher skills or, in other words, to provide students with transversal competences and international experience. It also refers to the modernization of study curriculum and quality improvement in teaching and learning or services provided for students. The need to implement VM in HE also arises from the possibilities of better career opportunities for participants and their enhanced employability, created by the increased access to the mobility among the disadvantaged, and provided support for the mobile students and LLL groups.

The main issues and barriers for VM implementation are unclear recognition procedures of student and/or teacher VM, and diverse understanding of virtual mobility concept in national and international levels. The necessity to agree upon the common framework and recognition possibilities, initial teacher training and support, coherent preplanning combination with physical mobility, and much time for preparation were identified as the main institutional issues that need to be overcome for successful VM implementation.

The identified key success factors for VM implementation in HE institution are as follows: from the institutional dimension – a commonly agreed framework, involvement of different countries, natural evolvement of partnership, engagement of the institution, faculty and student, and the recognition of experience; from the educational dimension – the use of common framework, time consuming preparation and detailed planning, blended mobility of teachers while designing a curriculum, and support system for students and teachers; from the intercultural dimension – real cultural exchange, participants' willingness to try and to learn, benevolent attitude, enthusiasm, and effective team work; and from the technological dimension – transparent and appropriate use of technologies, combined with necessary trainings.

Recommendations for institutions in regard to virtual mobility:

- To define VM concept on national and international levels.
- To increase the awareness of students, teachers and researchers by introducing VM concept, possibilities and benefits.
- To prepare VM framework and documents for VM implementation and recognition.
- To foster research on virtual mobility.
- To promote the collaboration of teachers to create joint courses.
- To base VM curriculum design on the development of intercultural competence.

BIBLIOGRAPHY

1. "Virtual". (n.d.). *Merriam-Webster.com*. Retrieved September 13, 2013, from Merriam-Webster.com: http://www.merriam-webster.com/dictionary/virtual
2. Abramuszkinová Pavlíková, E. (2011). Being mobile virtually. *Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis, LIX*(7), 9-16.
3. Achten, M., Brogan, K., De Gruyter, J., De Vriendt, C., Gea, M., Ilhami, N., . . . Walsh, R. (2010). *Home & Away Forum Conference Proceedings.* (M. Achten, I. Op De Beeck, & W. Van Petegem, Mont.) Heverlee, Belgium: EuroPACE ivzw.
4. Active Asia project partners. (2010). *Academic wayfarers. Asian-European Initiative in Virtual Mobility. Guide for Virtual Mobility in Higher Education.* UNED.
5. Ally, M. (2008). Foundations of Educational Theory for online learning. In T. Anderson (Ed.), *Theory and practice of online learning* (pp. 15-45). AU press, Athabasca University.
6. Arinto, P. B. (2013). A Framework for Developing Competencies in Open and Distance Learning. *International Review of Research in Open and Distance Learning,, 14*(1), 167-185.
7. Atanasiu, S., Dimitrova, T., & Vansteen, A. (2005). *International BEST Symposium Report "Teaching methods of the future: elearning and project-based learning".*
8. Bacsich, P., Bastiaens, T., Bristow, S. F., Op de Beeck, I., Reynolds, S., & Schreurs, B. (2009). *Reviewing the Virtual Campus Phenomenon. The Rise of Larger-scale e-Learning Initiatives Worldwide.* (B. Schreurs, Ed.) Heverlee: EuroPACE ivzw. Retrieved December 21, 2010, from The Rise of Large-Scale E-learning Initiatives Worldwide: http://revica.europace.org/Re.ViCa%20Online%20Handbook.pdf
9. Barajas Frutos, M. (Ed.). (2003). *Virtual Learning Environments in Higher Education: A European View.* Spain: Publicacions de la Universitat de Barcelona.
10. Bassey, M. (1999). *Case Study Reaserch in Educational Settings.* (P. Sikes, Ed.) Berkshire, UK: Open University Press.
11. *Being-mobile project network*. (2006). Retrieved October 15, 2009, from http://www.being-mobile.net/
12. BENVIC project partners. (2000). *Typology of virtual campuses/universities.* Retrieved August 13, 2013, from http://www.benvic.odl.org/typology.htm
13. Berger, P., & Luckmann, T. (1999). *The social construction of reality (In Lithuanian).* Vilnius: Pradai.
14. BEST Educational Committee. (2006). Virtual Mobility – The educational challenge of the future. *BEST (Board of European students of Technology) Symposium on Education, 23-29 July 2006*, (psl. 1-20). Bucharest.

15. BEST Educational Committee. (2007). E-learning and Student Mobility in Higher Education. *Report of BEST Symposium on Education, Gothenburg, 2nd June – 10th June, 2007*, (pp. 1-19). Gothenburg, Sweden.
16. Bijnens, H., & Op de Beeck, I. (2006). Virtual Mobility in Europe from Pilot Level Towards Integration in Mainstream Education. *Bridging the gap between business and business schools - Being Mobile* -, (psl. 39-44). Vilnius.
17. Bijnens, H., Boussemaere, M., Rajagopal, K., Op de Beeck, I., & Van Petegem, W. (Eds.). (2006). *Best practice manual "European Cooperation in Education through Virtual Mobility".* Retrieved from http://www.europace.org/articles%20and%20reports/Being%20Mobile%20Manual%20-%20Internet%20version.pdf
18. Bijnens, H.; Op de Beeck, I. (2006, February 7). *Elearningeurope.info.* Retrieved October 22, 2009, from The Integration of Virtual Mobility in Europe.: http://www.elearningeuropa.info/ directory/index.php?page=doc&doc_id=7245&doclng=6
19. Byram, M. (Ed.). (2000). *Routledge encyclopedia of Language Teaching and Learning.* London and New York: Routledge.
20. Boninsegna, A., & Dondi, C. (1998). *HUMANITIES Guidelines for the implementation of ODL and a VIRTUAL MOBILITY approach in Conventional Universities.*
21. Börjeson, L., Höjer, M., Dreborg, K. H., Ekvall, T., & Finnveden, G. (2005). *Towards a user's guide to scenarios - a report on scenario types and scenario techniques.* Stockholm: US AB. Retrieved May 27, 2013, from http://www.infra.kth.se/comcen/fms/pdf/ScenarioRapportVer1_1b.pdf
22. Boud, D. (2004). Creating assessment for learning throughout life. In V. M. Gil, I. Alarcao, & H. Hooghoff (Eds.), *Callenges in Teaching and Learning in Higher Education* (pp. 39-52). Aveiro: University of Aveiro.
23. Brey, C. et al. (2007). *EADTU.* Retrieved October 15, 2009, from Guide to Virtual Mobility.: http://145.20.178.4/Portals/0/documents/The_Guide_to_Virtual_Mobility.pdf
24. Bulajeva, T. (2013). Internationalization policy challenges to Lithuanian higher education: competition vs. cooperation. *Acta Pedagogica Vilnensia, 30*, 104-113.
25. Bunt-Kokhuis, S. G. (1996, 2001, January/February). Academic Pilgrims: Faculty Mobility in the Virtual World. *On the Horizon, 9*(1), 1-6. Retrieved December 27, 2012
26. Casa Nova, D., Costa, N., Leal, R., & Oliveira, D. (2011). Curriculum Development in Virtual Mobility Educational Contexts. In *Virtual Mobility for Teachers and Students in Higher Education* (pp. 35-42). Kaunas: Vytauto Didžiojo universitetas.

27. Casa Nova, D., Moreira, A., & Costa, N. (2011). Technology Enhanced Learning in Higher Education: results from the design of a quality evaluation framework. *Procedia - Social and Behavioral Sciences, 29*, 893-902.
28. Cohen, L., Manion, L., & Morrison, K. (2007). *Research methods in education.* London and New York: Routledge.
29. Commision of the European Communities. (2001). *Communcation from the Commission to the Council and the European Parlament. The eLearning Action Plan. Designing Tomorrow's Education.* Brussels, 28.3.2001, COM(2001)172 final. Retrieved March 26, 2013, from http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2001:0172:FIN:EN:PDF
30. Commission of the European Communities. (2009, July 8). *Green paper: Promoting the learning mobility of young people.* Retrieved October 22, 2009, from http://ec.europa.eu/education/lifelong-learning-policy/doc/mobility/com329_en.pdf
31. Cross, J. (2010). "They had People Called Professors..!"Changing Worlds of Learning: Strengthening Informal Learning in Formal Institutions? In U.-D. Ehlers, & D. Schneckenberg (Eds.), *Changing Cultures in Higher Education: Moving Ahead to Future Learning* (pp. 43-54). Heidelberg: Springer.
32. Daukilas, S. (2010). The Attributes of Educational Technologies Possessed by Innovative Teachers (In Lithuanian). *Management theory and studies for rural business and infrastructure. Research papers., 2010, No. 5*(24), 1-11. Retrieved from http://vadyba.asu.lt/24/45.pdf
33. Daukšienė, E., & Teresevičienė, M. (2011). Virtual mobility for lifelong learning. In N. Lobanov, & V. Skvortsov (Ed.), *Lifelong learning: Continuous Education for Sustainable Development. Proceedings of international cooperation. Volume 9*, pp. 45-49. Saint-Petersburg: Leningrad State University named after A.S.Pushkin.
34. Daukšienė, E., Teresevičienė, M., & Volungevičienė, A. (2009). Teacher virtual mobility for research and practice. *Innovation and creativity in e-learning : international conference proceedings* (pp. 1-6). Kaunas: Kaunas University of Technology.
35. Daukšienė, E., Teresevičienė, M., & Volungevičienė, A. (2010). Virtual mobility creates oportunities. *Application of ICT in Education 2010: Experience, Issues and Perspectives of e-Studies: conference proceedings* (pp. 30-35). Kaunas: Kauno kolegija.
36. Daukšienė, E., Teresevičienė, M., Volungevičienė, A., & Krakowska, M. (2011). Virtual mobility concept. In M. Teresevičienė, A. Volungevičienė, & E. Daukšienė (Eds.), *Virtual Mobility for Teachers and Students in Higher Education* (pp. 9-21). Kaunas: Vytauto Didžiojo universitetas.

37. De Gruyter, J., & Van Petegem, W. (2007). Virtual Internships. In A. Boonen, & W. Van Petegem (Eds.), *European Networking and Learning for the Future. The EuroPACE Approach* (pp. 160-169). Antwerpen-Apeldoorn: Garant.
38. De Gruyter, J., Achten, M., Op de Beeck, I., & Van Petegem, W. (2010). Virtual Mobility: Definition and Types. In M. Achten, I. Op de Beeck, & W. Van Petegem (Eds.), *Home & Away Forum Conference Proceedings* (pp. 18-21). Heverlee, Belgium: EuroPACE ivzw.
39. De Kraker, J., & Cörvers, R. (2009). Virtual learning networks for sustainable development. *the 23rd ICDE World Conference on Open Learning and Distance Education: Flexible Education for all*, (pp. 1-5). Maastricht, The Netherlands. Retrieved June 17, 2012, from http://dspace.ou.nl/bitstream/1820/2372/1/De%20Kraker%20%26%20C%C3%B6rvers%202009%20ICDE%20M-2009%20Paper.pdf
40. De Smet, C. (2009, October 23). *My position on connectivism.* Retrieved from Paper 1, CCK09: http://drsmetty.com/wp-content/uploads/2009/10/Paper1cck09CindyDeSmet251009.pdf
41. Deardorf, D. K. (2011). Assessing Intercultural Competence. *New Directions for Institutional Research, No. 149, Spring 2011*, pp. 65-79. doi:10.1002/ir.381
42. Deardorff, D. K. (2006, 2009). The Identification and Assessment of Intercultural Competence as a Student Outcome of Internationalization at Institutions of Higher Education in the United States. *Journal of Studies in International Education, Fall 2006*(10), 241-266; and in The SAGE Handbook of Intercultural Competence, 2009. Thousand Oaks: Sage.
43. Deardorff, D. K. (2009). Exploring interculturally competent teaching in social sciences classrooms. *ELiSS, Vol 2*(Issue 1, July 2009), pp. 1-18.
44. Deardorff, D. K. (2010). *Theory Reflections: Intercultural Competence Framework/Model (invited paper from NASFA).* Retrieved from NAFSA: Association of international educators: http://www.nafsa.org/_/file/_/theory_connections_intercultural_competence.pdf
45. Dillenbourg, P., Mendelshon, P., & Jermann, P. (1999). Why spatial metaphors are relevant to virtual campuses? *Learning in Multiple Contexts and Settings*, 1-12.
46. Dondi, C., & Salandin, T. (2010). *The Movinter White Paper: "In prise of Virtual mobility. How ICT can support institutional Cooperation and Intrnationalization of Curricula in Higher Education".* Erasmus Mundus project MOVINTER. Retrieved 3 21, 2012, from http://www.epics-ve.eu/index.php?option=com_content&view=category&layout=blog&id=2&Itemid=5
47. *EADTU network*. (2007). Retrieved October 22, 2009 from An operational conception of virtual mobility: http://www.eadtu.nl/e-move/

48. (2004). *EADTU Task Force on Virtual mobility*. Heerlen.
49. Eastcott, D., Brand, S., Wynne, N., & Millard, L. (2003). Fostering innovation and embedding change. In V. M. Gil, I. Alarcao, & H. Hooghoff (Eds.), *Challenges in Teaching and Learning in Higher Education* (pp. 167-180). Aveiro: University of Aveiro.
50. *Elearningeuropa.info*. (2009). Retrieved October 23, 2009, from Glossary:Virtual Mobility: http://www.elearningeuropa.info/main/index.php?page=glossary&abc=V
51. EPICS project team. (2010). *EPICS: New Opportunities for International student mobility*. Netherlands: EADTU.
52. *EuroPACE*. (2010). Retrieved November 15, 2010, from Interests – Virtual mobility: http://www.europace.org/interest3.php
53. European Commission. (2007). *Key Competences for Lifelong Learning – A European Framework.* Luxembourg: Office for Official Publications of the European Communities. Retrieved July 30, 2013, from http://ec.europa.eu/dgs/education_culture/publ/pdf/ll-learning/keycomp_en.pdf
54. European Commission. (2011). *Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL establishing "ERASMUS FOR ALL". The Union Programme for Education, Training, Youth and Sport.* Brussels, 23.11.2011, COM(2011) 788 final.
55. European Commission. (2011). Supporting growth and jobs - an agenda for the modernization of Europe's higher education systems. *Communication from the Commission to European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, Brussels, 20.9.2011. COM(2011) 567 final*.
56. *European Commission Glossary on the Lifelong Learning Programme 2007-2013*. (2010). Retrieved May 2, 2010, from Virtual Mobility: http://ec.europa.eu/education/programmes/llp/guide/glossary_en.html#117
57. Evene project partners. (2008). *Project Experience. EVENE. Erasmus Virtual. Economics & Management Studies Exchange.* Zlin: Tomas Bata University in Zlin.
58. Eyal, L. (2012). Digital Assessment Literacy—the Core Role of the Teacher in a Digital Environment. Educational Technology & Society, 15(2), 37-49.
59. Fisher, T., & Gea, M. (2009). Retrieved 2011, from www.mobi-blog.eu
60. Fridolin, I., Meigas, K., Parve, T., & Vedru, J. (2007). *Evicab WP2: Final report. Pilot Curriculum for Virtual Campus for Biomedical Engineering.* Project: European Virtual Campus for Biomedical Engineering (EVICAB).

61. Fusch, D. (2012, July 13). *International Student Success: The Missing Piece*. Retrieved from AI Academic Impressions: http://www.academicimpressions.com/news/international-student-success-missing-piece?qq=13409h441768jK202
62. Gardner, H. (1999). *The disciplined mind: what all students should understand.* New York: Simon and Schuster.
63. Gedvilienė, G., & Zuzevičiūtė, V. (2007). *Educology (in Lithuanian).* Kaunas: Vytauto Didžiojo universitetas.
64. Gerring, J. (2006). What is a case study? In *Case study research. Principles and practices* (pp. 17-36). Cambridge: Cambridge University Press. Retrieved August 3, 2013, from http://dx.doi.org.ezproxy.vdu.lt/10.1017/CBO9780511803123.004
65. Gomm, R., Hammersley, M., & Foster, P. (2000). Case study and generalization. In R. Gomm, M. Hammersley, & P. Foster (Eds.). London: SAGE Publications Ltd.
66. Guder, C. (2010, February 10). Patrons and Pedagogy: A Look at the Theory of Connectivism. *Public Services Quarterly, 6*(1), 36-42. doi:10.1080/15228950903523728
67. Haywood, D., Haywood, J., Joyce, A., Timmis, S., Tredgold, J., Pérez, I., . . . Sonveaux, N. (2007). *Student Mobility in a Digital World.* Final Report of the VICTORIOUS Project. Retrieved February 27, 2013, from http://www.coimbra-group.eu/victorious/05_publication.htm
68. Hammersley, M., & Gomm, R. (2000). Introduction. In R. Gomm, M. Hammersley, & P. Foster (Eds.), *Case Study Method* (pp. 1-16). London: SAGE Publications.
69. Hansen, M., Petters, P., Rienties, B., Giesbers, B., McLuckie, J., Luchoomun, D., . . . Alisauskiene, S. (2008). *Pedagogical framework for online remedial teaching.* EU MINERVA M.A.S.T.E.R. project.
70. Holtkamp, P., & Pawlowski, J. (2011). Learning Scenarios in Virtual Mobility. In M. Teresevičienė, A. Volungevičienė, & E. Daukšienė (Eds.), *Virtual Mobility for Teachers and students in Higher Education* (pp. 43-49). Kaunas: Vytauto Didziojo universitetas.
71. Jakšienė, V. (2012). *The expression of university teacher's ICT competence in the studies of physical and social sciences: PhD thesis.* Kaunas: Kaunas University of Technology.
72. Jakubė, A., & Juozaitis, A. (2012). *The development of key competences in higher education (In Lithuanian).* Vilnius: Vilnius University.
73. Joris, M. (2006). What is Internationalization at Home and Why do We Need to Introduce it? *SPACE and Being Mobile Conference "Bridging the gap between business and business schools"*, (pp. 59-68). Vilnius.
74. Juan Fuente, A. A., & Menendez Ferreira, R. (2011). *TeaCamp Scenario and Barriers.* WP7: TeaCamp Exploitation, TeaCamp project.

75. Juan Fuente, A. A., Fueyo, A., & Menéndez, R. (2011). Virtual Mobility Tools. In M. Teresevičienė, A. Volungevičienė, & E. Daukšienė (Eds.), *Virtual Mobility for Teachers and Students in Higher Education* (pp. 50-57). Kaunas: Vytauto Didžiojo universitetas. Retrieved from http://www.teacamp.eu/sites/default/files/Teacamp_book_final_final 20110606.pdf
76. Juan Fuente, A. A., Menéndez Ferreira, R., & Fueyo, A. (2011, September 9). *TeaCamp scenario for virtual mobility.* Retrieved from TeaCamp project web site: http://www.teacamp.eu/sites/default/files/TeaCamp_VM_exploitation_scenario.pdf
77. Jucevičienė, P. (2007). Rethinking University Teacher Competence. In P. Maoyuan, F. Yibong, & Z. Yu, *Key to University Quality Assurance, Faculty/ Staff Development in the Global Context* (pp. 75-88). Xiamen.
78. Jung, I. (2005). ICT-Pedagogy Integration in Teacher Training: Application Cases Worldwide. *Educational Technology &. Society, 8*(2), 94-101.
79. Kariuki Njenga, J., & Henry Fourie, L. C. (2010). The myths about e-learning in higher education. *British Journal of Educational Technology, 41*(2), 199-212. doi:10.1111/j.1467-8535.2008.00910.x
80. Kieslinger, B., & Fiedler, S. (2006). *iCamp: a cross-cultural research approach for a cross-cultural learning design.* FP6 project iCamp Nextspace.
81. Kim, B. (2001). Social constructivism. In M. Orey (Ed.), *Emerging perspectives on learning, teaching, and technology* (pp. 1-6). Retrieved June 18, 2013, from http://www.coe.uga.edu/epltt/SocialConstructivism.htm
82. Koke, T., Muraskovska, I., & Jonina, R. (2013). Educators' professional development: from policy guidelines to collaborative learning in action. In Z. Rubene, & B. Drinck (Eds.), *The perspectives of the Pedagogy: Innovative Solutions* (pp. 204-214). Riga, Latvia: University of Latvia.
83. Kop, R., & Hill, A. (2008). Connectivism: Learning theory of the future or vestige of the past? *International Review of Research in Open and Distance Learning, 9*(3), 1-13.
84. Laužackas, R. (2005). *The Explanatory Dictionary of VET Terms (In Lithuanian).* Kaunas: Vytauto Didžiojo universitetas.
85. Laužackas, R., Stasiūnaitienė, E., & Teresevičienė, M. (2005). *Assessment of competences in non-formal and informal learning (In Lithuanian).* Kaunas: Vytauto Didžiojo universitetas.
86. Lincoln, Y. S., & Guba, E. G. (2000). The only generalization is: there is no generalization. In R. Gomm, M. Hammersley, & P. Foster (Eds.), *Case study method* (pp. 27-44). London, Thousand Oaks, Delhi: Sage Publications.

87. Manikoth, N. N., Verkhohlyad, O., Malaeb, R. C., & Lazányi, K. (2011). Reflections on the 11th International Conference on Human Resource Development Research and Practice across Europe, Pecs, Hungary: looking through the lens of global mobility. *Human Resource Development International,, 14*(1), 75-82. doi:10.1080/13678868.2011.542899
88. Marozas, V., Jegelavičius, D., Kybartaitė, A., & Nousiainen, J. (2007). *Review of e-teaching/ e-learning practices and technologies. WP4: Final report.* European Virtual Campus for Biomedical Engineering (EVICAB).
89. Maslo, I., & Fernate, A. (2010). Social cultural competency as a concept of Integrative core competences in the context of life wide learning in Latvia. In S. Han, *Managing and developing core competences in a learning society* (pp. 43-78). Seoul: Seoul National University Press.
90. Mázár, I., & Op de Beeck, I. (2006). Reve - Real Virtual Erasmus: Opportunities and Challenges. *SPACE and Being Mobile Conference "Bridging the gap between business and business schools"*, (psl. 44-51). Vilnius.
91. Mažeikienė, N., & Loher, D. (2008). Teachers' Intercultural Competence in Mobility Programmes. *Social Sciences / Socialiniai Mokslai*(2 (60)), 48-65. Retrieved June 9, 2013, from http://etalpykla.lituanistikadb.lt/fedora/get/LT-LDB-0001:J.04~2008~1367165184548/DS.002.1.01.ARTIC
92. McMahon, M. (1997). Social Constructivism and the World Wide Web - A Paradigm for Learning. Retrieved June 28, 2013, from ASCILITE'97: http://www.ascilite.org.au/conferences/perth97/papers/Mcmahon/Mcmahon.html
93. Montes, R., Gea, M., Dondi, C., & Salandin, T. (2011, April). *Virtual mobility: the value of inter-cultural exchange.* Retrieved March 21, 2012, from eLearning Papers N.24: www.elearningpapers.eu
94. Morrone, F., Keegan, H., Jandl, M., Barbuto, G., Walasek, T., Piatkowski, J., ..., Sarkasiyan, A. (2006). *ESMOS Work Package 7 – Protocols Development.* ESMOS – Enhancing Student Mobility through Online Support project, 116733-CP-I-2004-I-UK-MINERV A-M.
95. Mouzakitis, G. S., & Tuncay, N. (2011 m. January). E-learning and lifelong learning. *Turkish Online Journal of Distance Education (TOJDE), 12*(1), 166-173.
96. Noor, K. (2008). Case Study: A Strategic Research Methodology. *American Journal of Applied Sciences , 5* (11), 1602-1604.
97. Op de Beeck, I., & Van Petegem, W. (2012). Virtual mobility: an alternative or complement to physical mobility? *ERACON 2011 & 2012 Dual Year Proceedings*, (psl. 160 - 169).

98. Op de Beeck, I., Bijnens, K., & Van Petegem, W. (Eds.). (2008). *Home & Away. Coaching exchange students from a distance. A best-practice manual on blended mobility.* Heverlee Belgium: EuroPACE ivzw.
99. Op de Beeck, I.; Bijnens, H.; Michielsens, C.; Van Petegem, W. (2007). Extending and supporting physical student mobility through virtual mobility. Nicosia (Cyprus).
100. Peraya, D. (1995). *Humanities project report.* University of Geneva. Retrieved March 3, 2011, from http://tecfa.unige.ch/tecfa/research/humanities/humanities-report.html
101. Petkūnas, V. (2007). *The influence of the implementation od information and communication technologies in secondary education on the change of educational paradigm: summary of doctoral disertation.* Kaunas: Kauno technologijos universitetas. Retrieved June 13, 2013 , from http://en.ktu.lt/sites/default/files/2007-10-05%20vytautas%20petkunas.pdf
102. Pigliapoco, E.; Bogliolo, A. (2007, November 8-9). *Accessible virtual mobility.* Retrieved January 21, 2010, from EADTU's 20th Anniversary Conference 2007 "International cources and services online: Virtual Erasmus and a new generation of Open Educational Resources for a European and global outreach: http://www.eadtu.nl/conference-2007/files/I6.pdf
103. Plavcan, P. (2012). Quality of higher education in th international context. In V. Tomasova, M. Sari, & e. al., *Quality Management System of Universities and the Quality of Education* (pp. 116-120). Baja, Hungary: Eotvos Jozsef College.
104. Poulova, P., Černa, M., & Svobodova, L. (2009a). Key factord affecting efficiency of virtual mobility - case study. *WSEAS TRANSACTIONS on ADVANCES in ENGINEERING EDUCATION, 6*(5), 142-151.
105. Poulova, P., Černa, M., & Svobodova, L. (2009b). University Network – Efficiency of Virtual Mobility. *Proceedings of the 5th WSEAS/IASME International Conference on EDUCATIONAL TECHNOLOGIES (EDUTE' 09)*, (pp. 87-92).
106. Prusakova, V. (2013). Key processes in adult education quality. In V. Tomasova, & e. al., *Quality in the context of Adult education and lifelong education* (pp. 87-95). Dubnica nad Vahom, Slovakia: Dubnica Institute of Technology in Dubnica nad Vahom.
107. Pursula, M., Warsta, M., & Laaksonen, I. (2005, December). Virtual university-a vehicle for development, cooperation and internationalisation in teaching and learning. *European Journal of Engineering Education, 30*(4), 439-446.
108. Rienties, B., & Tempelaar, D. T. (2009). The mobility of lifelong learners. Insdustry & Higher Education, 265-267.

109. Sabaliauskas, T., Bukantaite, D., & Pukelis, K. (2006). Designing teacher information and communication technology competencies' areas. *Realities of Vocational Education and Training*.
110. Salandin, T., Dondi, C., & Boonen, A. (2010). *Virtual Mobility: a modelling framework.* Movinter project.
111. Schofield, J. W. (2000). Increasing the generalizability of qualitative research. In R. Gomm, M. Hammersley, & P. Foster (Eds.), *Case Study Method* (pp. 69-97). London: SAGE Publications.
112. Schreurs, B., Verjans, S., & Van Petegem, W. (2006). Towards Sustainable Virtual Mobility in Higher Education Institutions. *EADTU Annual Conference 2006.*
113. Shriram, R., & Warner, S. C. (2010). Connectivism and the Impact of Web 2.0 Technologies on Education. *Asian Journal of Distance Education, 8*(2), 4-17.
114. Siemens, G. (2005). Conectivism: A learning theory for the digital age. *International Journal of Instructional Technology and Distance Learning, 2*(1). Retrieved September 14, 2012, from http://www.itdl.org/Journal/Jan_05/index.htm
115. Siemens, G. (2008). *About: Description of connectivism.* Retrieved September 15, 2013, from Connectivism: A learning theory for today's learner: http://www.connectivism.ca/about.html
116. Siemens, G. (2008, January 27). Learning and knowing in networks: changing roles for educators and designers. *Article presented to ITFORUM*, (pp. 1-26). Retrieved June 27, 2013, from http://itforum.coe.uga.edu/Paper105/Siemens.pdf
117. Silvio, J. (2003). *Global Learning and Virtual Mobility.* (T. Varis, T. Utsumi, & W. R. Klemm, Eds.) Retrieved November 20, 2010, from http://www.friends-partners.org/glosas/Global_University/Global%20University%20System/UNESCO_Chair_Book/Manuscripts/Part_IV_Global_Collaboration/Silvio,%20Jose/Silvio_web/SilvioD9.htm
118. Smith, N. V. (2010). The Acquisition of Phonology.
119. Spot+ project team. (2001). *Training Module 2: A Virtual Erasmus Student.* Retrieved November 30, 2010, from http://www.spotplus.odl.org/downloads/Training_module_2.pdf
120. Sputnic project partners. (2007). *What is virtual mobility?* Retrieved from Sputnik project website: http://sputnic.europace.org/vm1.php
121. Stake, R. E. (2000). The case study method in social inquiry. In R. Gomm, M. Hammersley, & P. Foster (Eds.), *Case study method* (pp. 19-26). London, Thousand Oaks, New Delhi: Sage Publications.

122. Stansfield, M., Connolly, T., Cartelli, A., Jimoyiannis, A., Magalhaes, H., & Maillet, K. (2009). The Identification of Key Issues in the Development of Sustainable e-Learning and Virtual Campus Initiatives. *Electronic Journal of e-Learning, 7*(2), 155-164.

123. Sursock, A., & Smidt, H. (2010). *Trends 2010: A decade of change in European higher education.* Brussels: European University Association.

124. TeaCamp project consortium. (2010, November 2). *TeaCamp course description.* Retrieved from TeaCamp Moodle: http://www.teacamp.eu/moodle/file.php/1/Annex_5_1_ TeaCamp_course_description_final_3_.pdf

125. Teichler, U. (2007). *Higher Education and the European Labour Market.* EUA Bologna Handbook, RAABE.

126. Teresevičienė, M., & Gedvilienė, G. (2003). *Learning in groups and personal change (in Lithuanian).* Kaunas: Vytauto Didziojo universitetas.

127. Teresevičienė, M., Sabaliauskas, T., Volungevičienė, A., & Daukšienė, E. (2011). Chapter 1. Empirical research design. Reseach Methodology. In M. Teresevičienė, A. Volungevičienė, & E. Daukšienė (Eds.), *Virtual Mobility for students in Higher Education* (pp. 58-71). Kaunas: Vytauto Didziojo universitetas.

128. Teresevičienė, M., Volungevičienė, A., & Daukšienė, E. (Eds.). (2011). *Virtual Mobility for Teachers and Students in Higher Education.* Kaunas: Vytauto Didziojo universitetas.

129. The High Level Expert Forum on Mobility. (2008). *Making learning mobility an opportunity for all.* Retrieved April 28, 2013, from http://ec.europa.eu/education/doc/2008/mobilityreport_en.pdf

130. Thijssen, J. P. (2006). Towards a European Higher Education market. *SPACE and Being Mobile Conference "Bridging the gap between business and business schools"*, (pp. 7-13). Vilnius.

131. Valiuskeviciute, A., Keegan, H., Jandl, M., Grillitsch, A., Gomboz, I., Morrone, F., . . . Piatkowski, J. (2006). *Methodology of student support in international placement and exchange situations.ESMOS WP5 report.* ESMOS project: Enhancing Student Mobility through Online Support.

132. Van den Branden, et al. (2004). *Manual for a Collaborative European Virtual University.* Leuven.

133. Van den Branden, J., Van Heddegem, J., & Van der Perre, G. (2007). EuroPACE Models. In A. Boonen, & W. Van Petegem (Eds.), *European Networking and Learning for the Future. The EuroPACE Approach* (pp. 109-124). Antwerp-Apeldoorn: Garant.

134. Van der Perre, G. (2007). A European Virtual Learning Area, Now or Never? In A. Boonen, & W. Van Petegem (Eds.), *European Networking and Learning for the Future. Europace approach.* (pp. 21-30). Antwerpen-Apeldoorn, Belgium: Europace.
135. Van der Wende, M. (Ed.). (1998). *Virtual Mobility: New Technologies and the Internationalization of Higher Education.* The Hague, Netherlands Organization for International Cooperation in Higher Education (NUFFIC).
136. Van Petegem, W. (2007). Using and choosing new educational technologies. In A. Boonen, & W. Van Petegem (Eds.), *European Networking and Learning for the Future. Europace approach* (pp. 95-101). Antwerp-Apeldoorn: Garant.
137. Van Petegem, W. (2009, April). Virtual Campus and Virtual Mobility – What did we learn from EU projects. Retrieved July 25, 2013, from http://www3.virtuaaliyliopisto.fi/vy_printable.asp?node2load=vy_nakokulma_0904_sve
138. Van Petegem, W. (2012). *Drivers for driven learners in the driving seat.* Retrieved from EDEN Research Workshop: http://www.slideshare.net/eden_online/drivers-for-driven-learners-in-the-driving-seat-wim-van-petegem
139. Van Zanten, W. (2006). Virtual Learning Company: Upgrading National Virtual Mobility to International Virtual Mobility. *SPACE and Being Mobile Conference "Bridging the gap between business and business schools"*, (pp. 90-97). Vilnius.
140. Vanbuel, M., Andries, P., Bijnens, M., Boussemaere, M., Kairamo, A.-K., Sinko, M., . . . Stefanelli, C. (2008). *Virtual Seminars. Creating new opportunities for universities.* (S. Reynolds, K. Rajagopal, & B. Schreurs, Eds.) Heverlee, Belgium: EuroPACE.
141. Varbanova, L. (2010). *Virtual mobility: A contribution to artistic innovations, participatory approach and new angle of policy making: an interview with Judith Staines.* Retrieved November 22, 2010, from http://www.labforculture.org/en/users/site-users/site-members/site-committors/site-moderators/lidia-varbanova/51495/68004
142. Vilhelmson, B.; Thulin, E. (2005 m. November). Virtual Mobility of Urban Youth: ICT-based Communication in Sweden. *Tijdschrift voor Economische en Sociale Geografie (Journal of Economic & Social Geography), 96*(5), p. 477-487.
143. Vilhelmson, B.; Thulin, E. (2008). Virtual mobility, time use and the place of the home. *Tijdschrift voor Economische en Sociale Geografie, 99*(5), p. 602–618.
144. Volungeviciene, A., & Tereseviciene, M. (2008). Quality assessment dimensions of distance teaching/learning curriculum design. *The quality of higher education, 5*, 32-53.
145. Volungevičienė, A., & Daukšienė, E. (2013). *Quality assurance handbook for virtual mobility.* VMCOLAB project (527770-LLP-1-2012-1-BE-ERASMUS-ESMO). Retrieved

September 2013, from http://files.vmcolab.eu/wp-content/uploads/2013/10/VMCo-LABQualityAssuranceHandbook-V02.pdf

146. Volungevičienė, A., & Teresevičienė, M. (2011). *Quality assessment of technology enhanced curriculum (In Lithuanian).* Kaunas: Vytauto Didžiojo universitetas.

147. Volungevičienė, A., Teresevičienė, M., & Daukšienė, E. (2011). Curriculum design for virtual mobility - Significance of Teacher-Student Interaction. In M. Teresevičienė, A. Volungevičiennė, & E. Daukšienė (Eds.), *Virtual Mobility for Teachers and Students in Higher Education* (pp. 22-34). Kaunas: Vytauto Didžiojo universitetas.

148. Vriens, M., & Van Petegem, W. (Eds.). (2012). *Make it work! Integrating virtual mobility in international work placements.* Leuven, Belgium.

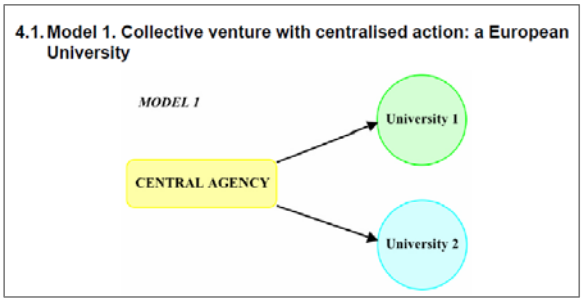
149. Vriens, M., Van Petegem, W., Op de Beeck, I., & Achten, M. (2010, July 5-7). *Virtual mobility as an alternative or complement to physical mobility.* Retrieved from Abstract submitted for EDULEARN conference in Barcelona, Spain: http://move-it.europace.org/kfm/uploads/Edulearn_Move-IT_VM.pdf

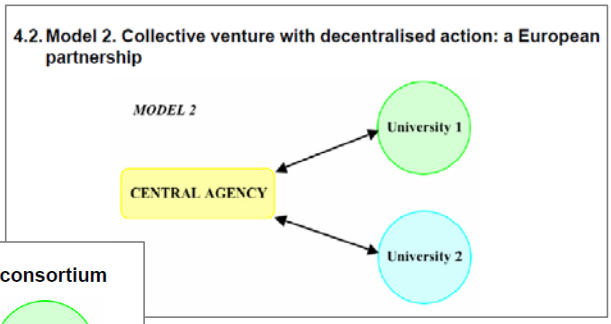
150. Wellington, J. (2006). *Educational Research. Contemporary Issues and Practical Approaches.* London: Continuum.

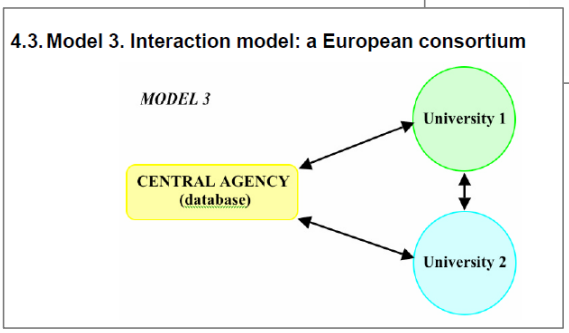
ANNEXES

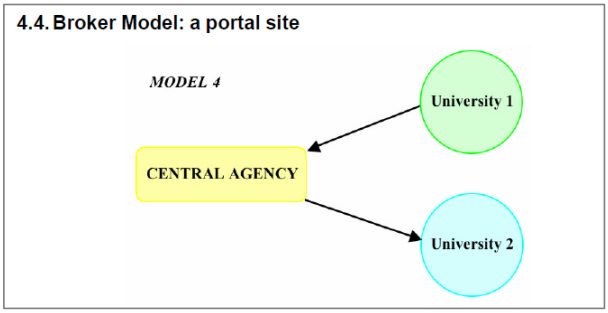
Annex 1

1. Visualization of institutional 4 cEVU models





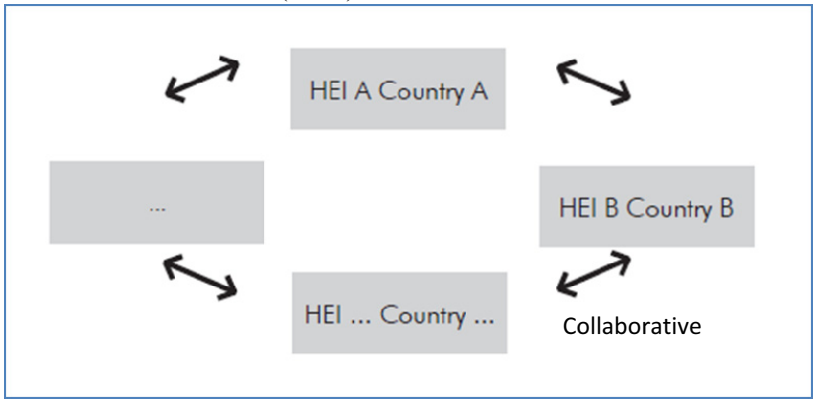


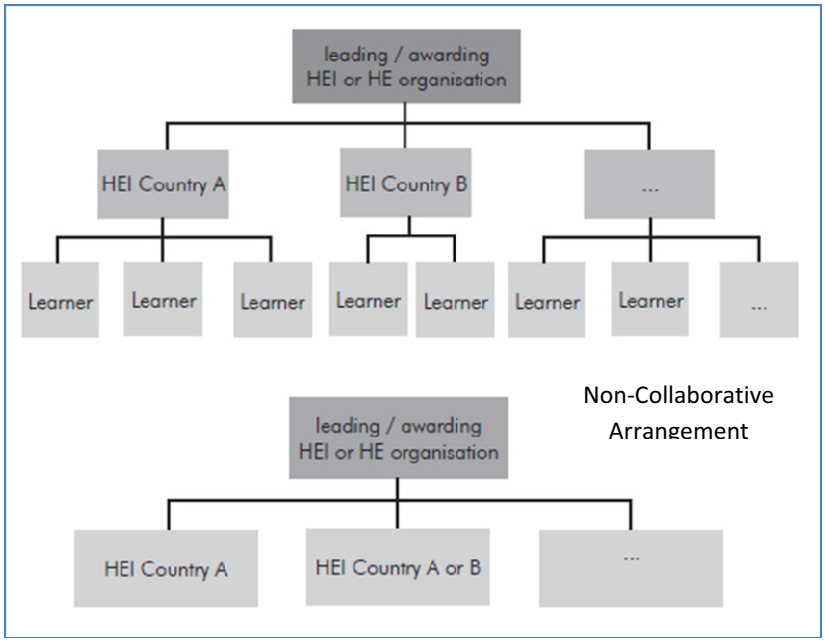


Source: Jef Van den Branden, et al. (cEVU project consortium). (2004). *Manual for a Collaborative European Virtual University*. Leuven.

Annex 2

Models of virtual course or seminar (series) in collaborative and non-collaborative arrangements





Source: Eds. Bijnens, H.; Boussemaere,M.; Rajagopal, K.; Op de Beeck, I.; Van Petegem, W. (2006). *Best practice manual "European Cooperation in Education through Virtual Mobility".*

Annex 3

Table 1.2.6. The main features of the Participation Model and the Acquisition Model

	Participation Model	Acquisition Model
Key Definition of Learning	Learning as participation, the process of becoming a member of a community	Learning as knowledge acquisition and concept development
Key Words	Apprenticeship, situatedness, contextuality, cultural embeddedness, discourse, communication, social constructivism, co-operative learning	Knowledge, concept, misconception, meaning, fact, contents, acquisition, construction, internalization, transmission, attainment, accumulation
Emphasis on	The evolving bonds between the individual and others; the dialectic nature of the learning interaction: the whole and the parts affect and inform each other	The individual mind and what goes into it; the 'inward' movement of knowledge
Ideal	Mutuality; community building	Individualised learning
Role of Instructor	Facilitator, mentor, expert participant, preserver of practice/discourse	Delivering, conveying, facilitating, clarifying

Author: Anna Sfard, here from Vanbuel, et al., Virtual Seminars. Creating new opportunities for universities, 2008, p. 17

Annex 4

Questionnaire for institution representatives

Research aim is to Make a survey on curriculum subjects to be applied in Erasmus Virtual mobility and their types of learning/ teaching organization methods. **Virtual mobility** in the scope of this research is defined as a form of learning, research and communication which consists of virtual components through an ICT supported learning environment, based on a cooperation of at least 2 higher education institutions that includes collaboration of people from different background and cultures working and studying together, dedicated to supplement and foster physical mobility

I. Legal framework of virtual mobility at national level

1. Is it possible to point out any existing legal regulations at national level on
- E-learning(EL) □ Yes □ No □ Don't know
  If yes, please specify the most important ones: _____
- Virtual mobility(VM) □ Yes □ No □ Don't know
  If yes, please specify the most important ones: _____
- Distance learning(DL) □ Yes □ No □ Don't know
  If yes, please specify the most important ones: _____

2. Are there any separate governmental regulations concerning EL/VM/DL in HE institutions:
- E-learning(EL) □ Yes □ No □ Don't know
  If yes, please specify the most important ones: _____
- Virtual mobility(VM) □ Yes □ No □ Don't know
  If yes, please specify the most important ones: _____
- Distance learning(DL) □ Yes □ No □ Don't know
  If yes, please specify the most important ones: _____

3. Are there any national strategies or national policy papers concerning VM in higher education institutions (HEI)? □ Yes □ No □ Don't know
   If yes, please specify the most important ones: _____
4. Are there any ongoing national initiatives concerning VM in HEI?
   □ Yes □ No □ Don't know
   If yes, please specify the most important ones: _____
5. Are there any research activities concerning VM in HEI at national level?
   □ Yes □ No □ Don't know

II. Legal framework of virtual mobility at institutional level

1. Are there any existing institutional regulations for teacher, academic staff and student VM?
   □ Yes □ No □ Don't know
   If yes, please specify the most important ones: _____
2. Is VM mentioned at your university development strategy?
   □ Yes □ No □ Don't know
3. Are there any legal restrictions for VM among teachers and students?
   □ Yes □ No □ Don't know
   If yes, please specify the most important ones: _____
4. Please indicate to what extent VM is possible at your institution?
   □ 100% VM □ 80% VM + 20% Face-to-face □ *Please specify your case*: _____

III. Curriculum subjects for Virtual mobility and types of learning/teaching organization methods

1. Please indicate main virtual learning/teaching methods commonly used at your university
2. Please indicate up to 5 curriculum subjects that could be applied in Virtual mobility

Annex 5

Pre-session questionnaire for the students

1.1. 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				

1.2. Please indicate 3 reasons for choosing this module

1. ……

2. ……...

3. ……

Annex 6

VLHE module questionnaire for students

Aim of the 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				

Learning outcome achieved	*Strong/ well developed*	*Satisfactory/ adequate*	*Minimal*	*None*
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				
Social networking tools				
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			

Learning organization methods	*Yes*	*No*	*Difficult to say*
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 assignments			
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	*Strongly/ well developed*	*Satisfactorily/ adequately*	*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. Have your motivation for choosing the module changed during Virtual Mobility sessions?

□ Yes □ No □ Partly □ I am not sure?

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. 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 7

Questionnaire for VLHE module teachers

Aim of the 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)? (*please, chose one option in each column*)

	up to 5 hours individually		And		up to 5 hours in international group discussions
	from 6 to 10 hours individually				from 5 to 10 hours in international group discussions
	from 10 to 20 hours individually		Or		from 11 to 20 hours in international group discussions
	over 20 hours individually				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 used 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 students 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				
Social networking tools				
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 a group		
It was clearly stated for learners, how and when they would 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	***Strongly/ well developed***	***Satisfactorily/ adequately***	***Minimally***	***None***
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. Has your participation in the course changed your attitude towards virtual mobility (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

4.4. 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

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 8

Questionnaire for representatives of European institutions on VM practices

International consortium implements the survey on potential uptake of virtual mobility practices. **The aim of this survey** is to identify existing initiatives on and practices in virtual mobility.

1. Your institution is *(Please, choose one of the following answers)*:
□ Higher education institution
□ VET institution
□ Adult education institution
□ Enterprise
□ Self-employed
□ Other, please indicate _____

2. Your role within institution *(Please, choose one of the following answers)*:
□ teacher/ trainer
□ consultant
□ administration representative
□ researcher
□ Other, please indicate _____

3. Is your institution involved in virtual mobility? *(Please, choose one of the following answers)*
□ yes *(please, proceed to question 3.1)*
□ no *(please, proceed to question 4/6)*
□ no, but would like to get involved *(please, proceed to question 4/6)*

3. 1.Do you have a separate administrative model for virtual mobility?
□ yes *(please proceed to question 3.1.1.)*
□ no *(please proceed to question 3.2.)*

3.1.1. Could you provide a link to the regulations/documents online?
_____

3. 2. Is your institution involved in teacher virtual mobility?
□ yes *(please, proceed to question 3.2.1.)*
□ no *(please, proceed to question 3.3.)*

1.2.1. Do you have specific Erasmus agreements for teacher virtual mobility or are these general inter-institutional agreements?
□ specific virtual mobility agreements
□ general inter-institutional agreements

3. 3. Is your institution involved in student virtual mobility?
□ yes *(please proceed to question 3.3.1.)*
□ no *(please proceed to question 3.4.)*

3.3.1. Do you have specific Erasmus agreements for student virtual mobility or are these general inter-institutional agreements?
□ specific virtual mobility agreements
□ general inter-institutional agreements

3. 4. Do you have virtual campus established at your institution?
□ yes *(please proceed to question 3.4.1.)*
□ no *(please proceed to question 3.5.)*

3.4.1. Is the platform centralized or distributed?
□ centralized (Could you provide a link to the regulations/documents online? .....)
□ distributed (Could you provide a link to the regulations/documents online? .....)

3. 5. Which tools do you use for virtual mobility academic exchange? (Check any that apply)

□ Video conferencing tools
□ Virtual learning environment (closed area)
□ Virtual learning environment (open area)
□ Collaborative online tools (video function)
□ Collaborative online tools (audio format)
□ Collaborative writing tools
□ Collaborative graphical tools
□ Social networking tools
□ Desktop sharing tools
□ Class management tools
□ Survey and various - purpose evaluation and assessment tools
□ Other tools, please, indicate _____

3. 6. Do you combine virtual mobility with physical mobility practices?

□ yes □ no

3. 7. How many institutions participate in each mobility?

□ 2 □ 3 □ 4 and more □ other - indicate

3. 8. Is Erasmus virtual mobility active at present at your institution?

□ yes □ no

3. 9. Do you implement credit - recognition policy in virtual mobility?

□ yes □ no

3. 10. What impact of virtual mobility upon modernization of studies can you identify*?(only for higher education institutions)*

□ Impact on high level institutional management
□ Quality improvement in teaching and learning
□ Quality improvement in research
□ Quality improvement in student services
□ Teacher and student upgraded skills
□ Enhanced employability
□ Better career opportunities
□ Modernisation of study curriculum
□ I cannot answer this question

4. Are you as a teacher/ trainer/ consultant involved in virtual mobility? *(only for teachers/ trainers/ consultants)*

□ yes *(please, proceed to question 4.1)*
□ no *(please, proceed to question 6.)*
□ no, but would like to get involved *(please, proceed to question 6.)*

4. 1. Could you describe your experience in virtual mobility (what kind of initiative it is)? _____

4. 2. Is this involvement supported by your institution?

□ yes □ no

4. 3. Do you combine physical mobility with virtual mobility?

□ yes □ no

4. 4. What impact of virtual mobility did you notice upon your professional activities?

	Strong impact	*Direct impact*	*Have no opinion*	*Some impact*	*No impact can be identified yet*
Quality improvement in teaching methods					
Quality improvement in research					
Upgraded skills					
Enhanced employability					
Better career oportunities					
Modernisation of study curriculum					
Personal development					
Networking with academics					
Exchange of good practices					

5. Which tools do you see as most useful for virtual mobility implementation via virtual teaching and learning? (Check any that apply, *addressed only at teachers/trainers/consultants*)

□ Video conferencing tools
□ Virtual learning environment (closed area)
□ Virtual learning environment (open area)
□ Collaborative online tools (video function)
□ Collaborative online tools (audio format)
□ Collaborative writing tools
□ Collaborative graphical tools
□ Social networking tools
□ Desktop sharing tools
□ Class management tools
□ Survey and various - purpose evaluation and assessment tools
□ Other tools, please, indicate _____

6. How important do you think virtual mobility is for students, lifelong learners and employees?

	Very important	*Important*	*No idea*	*Less important*	*Not important at all*
VM upgrades skills					
VM enhances employability					
VM provides support for home student and LLL groups					
VM improves curriculum quality standards					
VM develops additional skills via networking and socio-cultural exchange					
VM introduces new learning methods					
VM introduces transparency of teaching and learing					
VM is perfect tool for the mobility among the disadvantaged					

7. Please, indicate what barriers sustain exploitation of VM:

	Strongly agree	*Agree*	*Neither agree or disagree*	*Disagree*	*Strongly disagree*
There is no concept of virtual mobility on the national and institutional level					
Nobody knows how virtual mobility studies are recognised					
Nobody knows how teacher virtual mobility is recognised and accredited					
There are no scenarios for virtual mobility implementation					
There are no examples for virtual mobility contracts among institutions					
There is no evidence how virtual mobility is useful for a company/ university/ individuals					

8. Do you know any successful initiative that overcame the barriers listed above?

□ yes *(please, indicate more details on your experience: _____)*

□ no

□ no, but would like to know about that

Thank you for participation in the survey.

Annex 9

Questions for module teacher interview (implemented during case study research)

1. Was the VLHE module successful?
2. What could you specify as the lessons learnt from the module?

Questions for the semi-structured interview of VM experts:

No.	VM concept / component	Questions	Target groups	Expected results
1.	Virtual mobility concept	1. How would you define, what is VM? Why is it important for institution, teacher, student?	organizers, researchers	VM concept VM benefits
2.	VM scenario	2. Could you share how VM was organized in the case you have participated? What technologies were used? What was specific, different in learning organization in VM setting?	Teachers, researchers, organizers	Components of Institutional and technological dimensions
3.	VM curriculum	3. How was the curriculum designed in the VM case you participated?	Teachers	Educational dimension components
4.	VM competencies	4. What are the competences that students and teachers develop during VM experience?	Teachers (learners), researchers	Intercultural dimension components
5.	VM implementation guidelines	5. What are key success factors for VM implementation?	Teachers, researchers, organizers	Success indicators

Estela DAUKŠIENĖ

VIRTUAL MOBILITY IN HIGHER EDUCATION

Doctoral Dissertation

Išleido ir spausdino – Vytauto Didžiojo universiteto leidykla
(S. Daukanto g. 27, LT-44249 Kaunas)
Užsakymo Nr. K13-110. Tiražas 15 egz. 2013 11 12.
Nemokamai.