CHALLENGING THE NOTION OF PHYSICAL MOBILITY: ICT INNOVATIONS BETWEEN TWO EUROPEAN HIGHER EDUCATION INSTITUTIONS

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ABSTRACT

The Double Degree Program (DDP) between the University of Applied Sciences Technikum Wien (UASTW) and the Università degli Studi di Guglielmo Marconi (GMU) is based on virtual mobility. Introduced in 2016, the DDP combines the Master’s program “Software Engineering” at UASTW and the Master’s program “Computer Science” at GMU and encompasses four semesters (30 ETS per semester, 120 ECTS in total). The DDP is available in two different versions, depending on the home institution students come from: students can choose whether to start in Italy or in Austria. The ones who start the DDP at GMU need to finish the first year at GMU and add a second year at UASTW, while students who start at UASTW need to study one semester at GMU (either second or third semester) and complete all other courses in Vienna. This special structure allows the combination of the 60 ECTS program of GMU with the 120 ECTS program at UASTW. In order to finish the program of both Master’s degrees, students have to complete 50% of the study program at each institution.

For students of the home institution UASTW, the semester at GMU is purely organized in distance-learning, thus introducing virtual mobility. For working professionals who study, this is especially interesting, as they do not need to move physically from Austria to Italy for the whole semester. Students of the home institution GMU are able to get into touch with Austrian companies in the field of IT. In many cases, the Master’s thesis is done in cooperation with companies.

KEYWORDS: Double degree program, Computer science, Software engineering, Virtual mobility

INTRODUCTION

One of the key challenges faced by Higher Education Institutions (HEIs) in Austria in regards to internationalization is the exhaustion of resources of physical mobility. With rapid changes in industry, it is not only ICT graduates that are in high demand at the labor market, but also students of ICT programs have proven to be desired professionals. Their willingness to engage in business lives during their studies makes them more employable from the start. This is an advantage for the student as well as the company, which has a highly-motivated and dynamic worker at hand, who learns to apply certain procedures and skills acquired at his or her educational institution. Due to a rapidly changing inter-connected global world, companies expect their workers to additionally bring along the needed soft skills as to engage with customers and co-workers, apply critical thinking, and to reflect on statements made by others - qualities often learned when being abroad.

While continuous importance has to be placed on physical mobility as one of the pillars of international higher education, new and innovative ways of receiving global input should be offered in addition.
ICT INNOVATIONS: ADDED VALUE FOR THE GLOBAL STUDENT

Under the Erasmus+ program of the European Union, HEIs experiences with physical mobility have proven as a huge advantage, however, have also shown its limitations. A comparatively small number of students choose to go abroad for a study-related experience in comparison to the total number of 376,000 students enrolled at an Austrian HEI in the academic year 2014/2015. Only 4,438 of those students completed an academic stay abroad while studying at one of the 21 Universities of Applied Sciences in Austria. With ICT methods, students who are increasingly less mobile due to their professional or family lives have the possibility to receive global input, not only academically but also in hindsight to their inter-cultural awareness. Today’s educational market hence overcomes the challenges to, on the one hand, equip the working professional with expert knowledge and, on the other hand, enable them to acquire intercultural experience and social competence. Introduced by the European Commission’s education policy in 2013, Beelen and Jones stress internationalization at home as a solid pillar of global education:

"... It is increasingly clear that the mobility can bring substantial benefits to participants, and countries around the world are seeking to increase the number of students taking part. However, it is also recognized that mobile students will continue to make up a relatively small proportion of the student body, and internationalization at home is a convenient term to designate internationalization activity aimed at the whole student body."

In addition, they find that:

"... the definition stresses inclusion of international and intercultural aspects into curricula in a purposeful way. ... In talking of ‘domestic learning environments’, the definition makes it clear that these may extend beyond the home campus and the formal learning context to include other intercultural and/or international learning opportunities within local community. ... It also includes technology-enabled or virtual mobility; such as through Collaborative Online International Learning."

The very specific value of the common double degree between the Università degli Studi Guglielmo Marconi and the University of Applied Sciences Technikum Wien is the focus on inter-cultural competence as a clear learning outcome. Courses solely based on online elements, as offered by the Italian HEI in and parts at the Austrian HEI, stress the means of an open online learning as opposed to classroom-based learning and hence put emphasis on the added value that is created for the students. Betty Leask conducted a survey with students and staff in Hong Kong and Australia all involved in the same Australian degree in both locations and finds intercultural learning as an important part of internationalization of the curriculum – in any context. She stresses:

"... it involves the development of understanding of how the languages and cultures of others influence their thoughts, values, actions and feelings, and it is argued that this cannot occur unless we also understand the ways in which our own language and culture influences our actions, reactions, values and beliefs."

However, in order to provide this environment, services for all participants must be provided:

“... Staff and students offshore and onshore will have different needs at different times. The development of international perspectives needs to be incremental and take account of the dynamic social, educational and personal contexts within which staff and students work.”

Leask further designs a conceptual framework, where she differentiates the following sub-roles of each agent, teacher and student:

- Teachers as intercultural learners
- Teaching as an intercultural conversation
- Teachers as managers of the intercultural learning environment
- Students as intercultural learners
- Learning as an intercultural conversation
- Student as managers of their own intercultural learning

She concludes her essay by referring to a third place that is needed, as a “meeting place between cultures”, but also a “place of challenge and opportunity”, so Leask.

By establishing online platforms for learning, the need to travel is eliminated and an open learning environment is encouraged. All learners receive the same training and material; they are, however, flexible in their time management. Close to the source of a technical University of Applied Sciences, the double degree offers the possibility to take part in a program taught fully online from home and hence reduces time away from work. As an addition, not a substitution, as also suggested by Beelen and Jones, cross-cultural experience at home is made possible.

While the traditional notion of mobility is based on two places, home and away, the third place, as suggested by Leask, combines those two places. At their home institution, students have the possibility to take foreign language classes, visit international lectures and exchange ideas with incoming students, while they receive new academic skills, gain insights into diverse educational systems and apply new technological skills in the virtual world.

STRUCTURE OF THE DOUBLE DEGREE PROGRAM

Two measures build the foundation of the DDP in Software Engineering (UASTW) and Computer Science (GMU): one, Internationalization at Home (iah), two, virtual internationalization. The first measure is based on classes held in English at both institutions as well as providing an international environment for everyone involved, the second on offering ICT students remote study places in order to acquire new academic skills. With the use of modern ICT teaching, international experience is available even if traveling possibilities are limited. They receive double the input: one, by international influence at home, two, via online elements. The development of a joint program between the programs Computer Science (GMU) and Software Engineering (UASTW) hence meets the needs of the working student.

The DDP is a 120 ECTS program and encompasses four semesters. Depending on their home institution, the program is available in two different versions: Students enrolled in the joint program have to be regular students of the Master’s degree program Software Engineering at UASTW or of the Master’s program Computer Science at GMU.
As a general rule, all students have to complete 50% of the study program of both of the given Master’s degree programs in addition to the sum of all completed courses which make up 120 ECTS in total. UASTW provides a wide range of courses organized in blended learning, designed for working professionals who want to study. The course in Computer Science is organized in 50% face-to-face teaching and 50% distance learning. GMU provides a wide range of courses predominately organized in distance learning.

Master’s program in Software Engineering at UASTW

The following picture shows a scheme of the Master’s program in Software Engineering at UASTW. Like all Master’s programs at UASTW, it consists of 120 ECTS credits and encompasses four semesters.

The first year contains the majority of theoretical lessons. The second year focuses on the Master’s project and on the Master’s thesis plus lessons students have to select from a pool of electives. Most Computer Science students at Master’s level are full-time employees in companies. The curriculum is, hence, designed to address the working professional who wants to complete a Master’s degree. One of the key elements is the Master’s thesis and the Master’s project, which is predominately done in cooperation with companies. Many companies offer projects and employ students; their research and work as well as the results are supervised by faculty members. The companies give valuable feedback and therefore also contribute to optimizing the curriculum.

Master’s program in Computer Science at GMU

The MCS degree program at GMU consists of four modules:

- Computer networks (12CFU/9 quarter credits)
- Database (12CFU/9 quarter credits)
- Software Engineering (18CFU/13.5 quarter credits)
- Security (12CFU/9 quarter credits)

The GMU program is organized in two semesters; the workload of all modules accounts to 60 ECTS. The Master’s is organized entirely through online-classes and flexible when it comes to start and end of the program: prospective students are hence able to enroll throughout the semester. As soon as a predefined minimum number of students are signed up, the courses at GMU begin. This concept offers maximum flexibility to professionals who want to earn a degree in Computer Science. The following figure shows a scheme of this Master’s program.
### Maximum Flexibility for Students: Two Possible Combinations

**Start of study at GMU**

The following scheme was developed in order to fulfill the criteria of completing at least 50% of both study programs and to acquire 120 ECTS:

- Students first need acquire 60 ECTS at their home institution GMU
- Students then leave for Vienna to receive another 60 ECTS at UASTW in semester three and four of their studies

**Start of study at UASTW**

Students complete the Master’s program in Computer Science in Italy and subsequently move to Austria to be enrolled in the second year of the Master’s program Software Engineering at UASTW, where they then complete their courses and are awarded the Double Degree.

### Conclusion

Double Degree Programs (DDP) provide an attractive way of adding flexibility and international experience to the various study programs by creating a platform, a third space, as suggested by Leask. The joint program at hand between UASTW and GMU allows students from Austria and Italy to gain insight into each culture and ways of thinking. Close to the source of a technical higher education institution, participation in virtual internationalization is made possible with the use of ICT. This alternative to the classical physical mobility enables all students to experience...
an international environment. UASTW and GMU encourage the students to receive international expertise and inputs in their fields of interest and apply this knowledge in their work lives. Traditional teaching and learning approached are challenged and serve as enrichment not only for students but also teachers of both institutions. The joint program stresses the importance of inter-cultural competence and, as becomes clear from the data present, shows the high demand of such programs, as the planned number of study places has been extended by 30% in the first year of the program.

References


