PROJECTX - A TOOL TO PROMOTE STUDENT MOBILITY

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Abstract

The authors consider that student and teacher mobility between partner institutions is very beneficial for everybody. The teachers can learn in a different environment than their home-institution different teaching and relational approach for their students. The students can better understand what global market and global education means. This paper describes the results obtained through using the tool called ProjectX. This instrument is the end-result of Transfer of Innovation Leonardo da Vinci project that was developed between seven European educational institutions. The authors focused on the current situation of student mobility in Europe, mainly on the data about their home countries. A different data that was analyzed was the involvement of students in Lifelong Learning Programs. The article presents the ProjectX methodology and the results that were obtained during the project development. In addition, the authors have some conclusions after the project ended and what could be some of the long-term benefits of using this tool.

Keywords: ProjectX, one2one, mobility, educational institutions, Erasmus+.

1 INTRODUCTION

Student and teacher mobility is a very important tool for their development [1]. Because of this, EU launched several mobility programs for members of the academic community. However, there are many difficulties in acquiring this expectation.

There are some common causes for both teachers as for students that lead to relatively low levels of mobility. We have identified three of them:

- Language – will I be able to understand the people?
- Learning/Training activities – what am I going to do there? How is the quality of the training?
- Recognition – how can all the learning be recognised and validated in my home institution?

The widest working language in Erasmus+ program is English. This language is taught in many schools across Europe. In many aspects, English became the “lingua franca” of communication in many fields of activity [2] [3]. Therefore, at least this aspect can be overcome by doing research and study at home.

Nevertheless, the second and third reasons for mobility remain unsolved. As a consequence, there are many cases of both teachers and students that prefer not to get involved in European mobility due to their fear of not being able to manage the studies or to waste the time in this kind of mobility. This reaction is spread at the pre-university studies mainly, but it is also present at university level. As the study level increases, this tendency decreases.

In order to address the latest two problems, the ProjectX methodology was developed and tested. In this paper we firstly will present the current situation of students’ mobility in Europe, focusing in the six countries involved in the project. Secondly, we will present ProjectX methodology which is a helpful tool to promote recognition and validation in short term mobility. The third section is devoted to present the main results of the project. Finally we will present the main conclusions of our work.

2 CURRENT SITUATION OF MOBILITY

In this section, the authors analyse the case of seven European countries: Spain, Finland, Romania, Portugal, UK, Turkey and France. These countries are not located in the same European area and have different development stages.
Due to their background, these countries present interesting evolution in time regarding the educational field. Each of them has some particularities, difficulties and strong points in the analyzed areas. One common ground is that all of them had implement educational measures so that their youth will be able to integrate easier in the local or global work market. All youth in each of the analyzed countries have their own difficulties to make the transition from student to the working life.

## 2.1 Educational data and facts

Figure 1 indicates the public expenditure on education by the governments of the analyzed countries during 2000 – 2011. The data reflects the fact that UK and France are the biggest investors in education. The following country is Spain. Figure 1 reflects the fact that the Spain, France and UK have a continuous growing rate of education budget. Despite the fact that Turkey is only the fourth biggest investor in education, the date indicates a very large growing investment in education. In the analyzed countries, Romania is the country that less invests in education and the growing rate is very little when compared with the rest of the countries.

![Figure 1. Total public expenditure on education.](image)

The evolution of the world is toward increasing technology and its use in everyday life for both professional as well as for the private life. Nowadays the technological gadgets are present in everyday life of all people, especially teenagers and youth. All industries and other fields of activities
are using high level of technological instruments. This trend is announced in the news every day worldwide, including in Europe.

Besides this information, Figure 2 indicates a very surprising fact: the rate of young people involved in education in science and technology is very low both in males as in females. Nevertheless there is an improvement, as in it can be seen a growing trend in the preferences of young people for science and technology. By 2012 the level of science and technology graduates is not very different for the analyzed countries. This demonstrates that technology is spreading very fast and is not refrained by borders or cultures.

Due to various reasons, Europe has a problem related to employment for youth and low skilled persons. Figure 3 indicates that by 2015 the percentages of low skilled people that are not employed were very high: more than 50%. In the case of youth it is easier to find a job depending on the country. It can be seen that the employment rate in UK and France has a very low variation, while the largest variation is in Spain and Portugal.

Another frightening aspect is the number of young people that are not involved in any activity (NEET). The highest rate of young people that are not involved in any productive or educational activity is in

Figure 3. Employment rate.

Figure 4. Young people outside education.
Romania, while the largest percentage of early leavers from education and training can be found Portugal, Turkey and Spain as indicated in Figure 4.

### 2.2 European mobility

The European Union promotes student and teacher mobility between its’ member countries. This has a very good impact in the development of students and teachers. In the medium term, it could lead to a greater integration of EU members.

Figure 5 indicates a clear increase of student mobility during 2001 – 2012. In the analyzed period, the number of mobility participants doubled in Europe in general. Figure 6 indicates this analysis focused on the target countries. The biggest number of mobility participants is recorded for Turkey. In Finland the mobility rate seems to be constant and it’s the lowest when compared to the rest of the countries. The data for Romania shows that the mobility rate in 2012 is more than double comparing with 2001. Practically this is the highest growing rate.

Figure 7 indicates “where to” and “where from” are the participants in the mobility actions. Similar to Figure 6 the graph indicates that the countries that ‘export’ more participants in mobility are Turkey, Romania and France, followed by Spain. Apparently these students are more eager to ‘see the world’ than their counterparts from the rest of the countries. On the other side, the countries that received most of the mobile students are UK, France and Spain. It is interesting how Finland is one of the
country with less outgoing mobility and incoming mobility. Finnish is a difficult language to learn and also it is a very expensive country and the EU funding sometimes is not enough to cover all expenses.

Figure 8. Lifelong learning.

Figure 8 shows the percentage of people that are involved in Lifelong learning activities. It is not a surprise that UK has the highest percentage participation in LLP programs. An interesting indication is that even though Finland does not have a high rate of mobility participants (incoming or outgoing) a great number of its population participate in LLP programs.

For all the countries, the involvement in LLP has an increasing rate. Out of all the seven analyzed countries, Romania is the only one ex-communist country and has the lowest investment in education (Figure 1). These characteristics are also reflected in the involvement in LLP that even though is increasing, it still remains the lowest one.

During many years, the participation rate in LLP was similar for Spain, France, Portugal and Turkey. Nevertheless, in recent years in Spain and Portugal, the involvement of population in LLP almost doubled. In Spain, due to the economic crisis, the youth policy promoted the participation in this kind of projects as a way to boost employment and to raise the attractiveness of VET [8].

In France and UK, this indicator almost tripled. As far as involvement according to gender, there are no significant differences between all the countries.

3 ONE2ONE PROPOSAL

Taking into consideration the main issues underlined in chapter 2, some educational institutions located in the seven analyzed countries decided to present the Transfer of Innovation Leonardo da Vinci project “One teacher and one student working with ProjectX (one2one)’’.

The main objective of ‘one2one’ project was to develop a methodological guide for teaching industrial maintenance topics in different technical specialties during short periods of time (two or three weeks) that can be used in Learners’ Mobility under the KA1 of Erasmus+ Program as they require a period at VET school with periods of work-based learning in a relevant organisation [10]. It is was a step further after the ToPMoSt project [8] in which a database of learning outcomes related to industrial maintenance was developed for designing, planning and managing the mobility of Vocational Education and Training (VET) students.

The one2one project was prepared and delivered by seven educational institutions across Europe:
The final result of the project was a methodological guide, called ProjectX, for the student to carry out a concrete activity, one to one with the teacher, in which theory and practice are both perfectly integrated and is related to the real workplace. ProjectX methodology was developed so that it could be applied in any country in any type of educational institution, regardless of its level.

A ProjectX is an independent unit/module that can be included in School Based educational systems within any official academic program. This module must be a concrete task that is performed in a company in the region so in this sense, the training centre “simulates” what is doing in the company.

Therefore, the ProjectX methodology is based on the principle of “learning by doing” and “project based learning” method. These methods are more efficient than learning in theoretical classes. The students are assigned one task to be done, the estimated time required, the acquired competences and the evaluation methodology in one document.

Each ProjectX develops a group of the learning outcomes included in the VET qualification of the learner, which means that it is based in the ECVET credit system having positive effects in mobility. On one hand, the tasks developed by students will be assessed in the hosting institution and validated by the sending institution. On the other hand, teachers and trainers can travel abroad for teaching assignments using an existing ProjectX.

A ProjectX is structured on three levels:

- The first level is the “General Description” that describes the learning outcomes that are expected to be achieved by the student
- The second level is the “Student Guide” and it includes an in-depth description of all the tasks to be performed by the student must be described, and all the materials needed must be added as annexes or said where to find them
- The third level is “Transferability” and it includes all the tools for making the ProjectX transferable according to the European EQF and ECVET credit system: assessment, evaluation, etc.

An important feature is that the each ProjectX was agreed by at least two training centres, and all the training resources developed were validated and approved by them. As a consequence, the benefits for an educational institutions that that would like to use ProjectX include:

- Improving the quality of mobility as all the tasks and the related training materials are developed accordingly to the Learning Outcomes of the qualification. The ProjectX can be used not only by mobility students, but by ordinary students of the centre.
- Facilitating the assessment, recognition and validation process. In this way the transferability of the learning acquired abroad is guaranteed avoiding a waste of time of the learner during mobility.
- Training of their teachers/trainers in the use of a standardized teaching methodology. The authors’ institutions applied this methodology in technical areas, because they teach engineering related topics. Nevertheless, the ProjectX methodology could be applied in other fields of education that require the students to do practical/ laboratory courses.
- Promoting and facilitating mobility of teachers in teaching/training assignments, as both visiting and hosting institutions know beforehand what it is expected from them.

Besides the previous benefits, the main impact of the one2one project is that it overcomes the two biggest barriers for mobility of both learners and teachers presented at the beginning of this paper. On the one hand, it overcomes the fear if wasting time while abroad, as this methodology guarantees that all the learning acquired abroad will be validated at the host institution. On the other, as the
participants know beforehand all the activities and training material, the fear of not being able to fulfill what it might be expected by the hosting institution is reduced.

4 ONE2ONE RESULTS

After the two years of duration of the project, the Methodological Guide “How to teach with ProjectX” was developed [11]. Based on this methodology, each educational institution prepared a set of at least 3 ProjectX, according to their field of activity, building a catalogue of .25 ProjectX that are available for general public upon request:

- **Xabec Vocational Training Centre**
  - Split system, pipe repair, F-Gas charge and test
  - Making a portable bench
  - Balancing a direct drive fan
  - Wiring and programming an automated control of a canal lock
  - Test Efficiency & performance of a boiler in two different installations
  - Computer control of a refrigeration system
  - Implementation of a PLC control for a Refrigeration System with an AKO regulator

- **Savo Consortium for Education**
  - Replacing bearings in electric motor
  - Product manufacturing CNC-assisted learning
  - Pump and electric motor alignment

- **Meram Technical and Vocational High School**
  - CCTV Security Camera System
  - Basic logic gates
  - Installing home satellite system

- **Val do Rio Vocational School**
  - Code of resistance
  - Solder electronic components
  - Measures of signal on CATV and IPTV

- **South and City College Birmingham**
  - RAC-Practical vapour compression systems
  - RAC-Handling F-gas. (category 1 personnel)
  - RAC-Install Wiring Systems and Enclosures

- **Lycée Polyvalent Isaac Newton**
  - Industry risk analysis
  - Electrical power analyzer
  - Electrotechnical wiring harness for a motor starter

- **University of Pitesti**
  - Checking characteristics of an induction machine [4]
  - Starting of the induction machine [5]
  - Implementation of digital frequency dividers [6]

In the academic year 2016-2017 partners from Portugal, Finland, United Kingdom and France hosted students from other partners and delivered 7 ProjectX using Erasmus+ Learners’ Mobility Project. In addition students from Germany, Finland and Denmark went to Spain to carry out a ProjectX in the automation area.
There were at least 10 teachers involved in those experiences and all mobility experiences were certified by the Europass Mobility Document.

At the present time, the ProjectX methodology help the participant training centres in delivering a stable offer of international modules, making easier all the management and reducing the workload of their international departments.

The project’s web page was completely functional in January 2014. Since the beginning, it raised a great interest from a broad category of possible interested persons or institutions as indicated in Table 1. The data shows that there were more than 10,000 accessions from outside of the partner institutions, which is more than 50%.

Other interesting indication in Table 1 is that OAPEE, which was the Spanish National Agency for LLP programmes, accessed the project’s web page 81 times. This demonstrates the interest raised by this project.

The ProjectX methodology has been presented in different international events. Three partners (Romania, France and Spain) presented the final results of the project to responsible people of Vocational Training and Education of the European Commission in September 2015.

One year later, the director of the project was invited to the ECVET Conference held in Rome in October 2016 to present the methodology and preliminary results of international mobility projects.

The methodology and the practical ProjectX have been disseminated to more than 10 technical schools of Ireland, Turkey, Belgium, Germany, Denmark and Poland during year 2016 and 2017 and it was presented to different regional authorities from Turkey during year 2016.

5 CONCLUSIONS

The authors presented the results of the one2one project funded by the LLP in the VET field that was carried out by seven educational institutions from across Europe, making the results of the project relevant at European level.

In this paper we had described the main aspects of the methodological guide called “ProjectX”. This methodology allows the development of practical activities based on common learning outcomes and therefore improves the quality of mobility projects not only because of the development of practical activities and the correspondent training material, but also because it guarantees the transferability of the learning acquired abroad. The sending and hosting institution agree on the ProjectX to be carried out by the student, the hosting institution assesses the performance of the learner and the sending institution recognises and validates the results.

The methodology developed was used to produce a catalogue of 25 ProjectXs. Seven of them were successfully tested in 5 different countries with more than 10 students. All of them obtained the Europass Mobility Project as validation of their mobility experience, and the assessment of learning outcomes acquired in the hosting institution were validated by their home institution.
By increasing the quality of mobility and guaranteeing the validation and recognition, mobility of learners has been boosted, at least in the participating educational institutions. In addition, as all the training materials and activities are known in advance, we hope it will facilitate the mobility of teachers among partners.

The partners involved provide different levels of education from EQF level 4 to 6: this implicates that the methodology can be also applied at different levels of education: and in knowledge areas beyond industrial maintenance.

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