VRTUOSI

STEP BY STEP, BUILDING A VIRTUAL EXCHANGE PROGRAM BETWEEN FIVE EUROPEAN UNIVERSITIES

Andrés Redchuk,  Javier M. Moguerza,  David Rios,  Javier Cano

Departament of Statistics and Operations Research

Rey Juan Carlos University
1. Introduction

- **ERASMUS** is regarded as one of the biggest successes of the EU educational policy, with more than 3,000,000 students and teachers since 1987.

- However, the majority of the participants has been undergraduate students.

- One of the main reason for this may be that postgraduate students might have more restrictive family, professional and/or work ties being more mature.

- With this motivation in mind, we have proposed the EU our VRTUOSI program, [http://www.vrtuosi.com](http://www.vrtuosi.com), within the Virtual Campus framework of the EU Lifelong Learning Programme (LLP), which was one of the five proposals chosen by the EU in the 2009 call.
2. General description of VRTUOSI

• VRTUOSI allows the exchange of virtual courses between five European universities. The company Habber Tec also participates in the program as a partner.

• VRTUOSI focuses on the exchange of courses at postgraduate level (Master and PhD degrees) for students original from these five universities in Decision Sciences.

• It provides open access to part of the material, being the rest of the material restricted to the students taking the courses, who will get credits after completing the proposed tasks.
2. General description of VRTUOSI

- **Óbuda University** (Budapest Tech)
  http://www.vrtuosi.com/members/obuda-university

- **Tampereen Teknillinen Yliopisto (Tampere Technological Inst.)**
  http://www.vrtuosi.com/members/tampereen-teknillinen-yliopisto

- **Universidade de Coimbra**
  http://www.vrtuosi.com/members/universidade-de-coimbra

- **Université Paris Dauphine**
  http://www.vrtuosi.com/members/universite-paris-dauphine

- **Habber Tec S.L.**
  http://www.habber.com
2. General description of VRTUOSI

The courses are taught in English, including the following courses, all of them of 3 ECTS:

**Rey Juan Carlos University**
- Simulation
- Quality Control: Six Sigma

**Öbuda University**
- Operational Research Methods
- Computational Intelligence

**Universidade de Coimbra**
- Multiobjective Meta-Heuristics
- Multicriteria Decision Analysis

**Université Paris-Dauphine**
- Tools for public policy evaluation
- Game Theory and Practice

**Tampereen Teknillinen Yliopisto**
- Many valued similarities
- Data Mining
2. General description of VRTUOSI

- In this way, each university:
  - Teaches **two courses**, and
  - Sends **six students** to each course.
  - Then, each **course** is undertaken by **30 students**, and
  - The whole **master** is attended by **300 students** in this first edition 2010–11, which covers 30 ECTS.

- Each **student**:
  - Is allowed to register in a maximum of **6 ECTS**
  - (the usual academic load is **60 ECTS** per year for postgraduate students).
3. Implementation

The implementation of VRTUOSI has required specific actions from each participant university, and a common coordinated action, in matters as

- Legal Framework
- A First Insight on the Virtual Campus
- Virtual Campus E-learning Tool
- Training
- Diffusion and Registering
- Courses
3. Implementation

I. Legal Framework

– Initial agreement signed by the coordinating university (URJC), and the EU.

– An ad hoc FP7-type agreement issued by the six members of VRTUOSI

– Useful for future similar programs, see the VRTUOSI webpage for specific details.

II. A First insight on the Virtual Campus

– First idea: to launch a Metacampus over the virtual campuses of all universities.

– However, due to the different maturity of these virtual campuses, we created a new website offering information about VRTUOSI, containing open-access material and facilitating access to the URJC Virtual Campus.

– All the VRTUOSI courses are then hosted at the URJC Virtual Campus, http://www.campusvirtual.urjc.es, supported by a WebCT platform, www.blackboard.com, http://courses3.webct.com/webct/public/home.pl

– Unique domain, homogenization

– Common structure and tools, videos and interactive sessions using Adobe Connect.
3. Implementation

III. Virtual Campus E-learning tool

– Through the VRTUOSI webpage, and once identified by the system after introducing his/her unique login and password, a student can access his/her assigned courses.

– The Virtual Campus is the main tool for e-learning purposes. It hosts basic information, materials and rules about the courses. It also allows participants to communicate within a secure environment.

– The main modules from within Campus Virtual are: Control Panel, Guide, Materials, Calendar, Teachers, Students, Marks, Progress, Resources, Assignments, Exams, Communications and e-Talk
3. Implementation

IV. Training

- Given the different maturity degrees in the development of the virtual campuses of the five universities, we undertook three training courses.

- The first session took place in Madrid. Two others were online sessions using Adobe Connect®. Sixteen teachers attended the courses.

V. Diffusion and Registering

- VRTUOSI program was advertised through its website, and in the areas of influence of the five universities. Besides, additional diffusion was achieved by publicizing it in different seminars, conferences, websites, distribution lists, etc.

- Registration process is done through VRTUOSI website. After validating the origin of the applicant students, we grant them an accreditation, username and password to gain access to the selected courses.
3. Implementation

VI. Courses

- Within the Virtual Campus, the ten courses follow the same methodology, based on that of the URJC Virtual Campus, acknowledged with the quality certificate EFQUEL (http://www.qualityfoundation.org/).

- The main part of the teaching material, except the tests and the exams, are available in the open-access area of the Virtual Campus.

- Courses are taught sequentially, in three-weeks slots (plus the time needed by the students to accomplish and deliver the tasks).

- Time length needed to implement VRTUOSI is 36 weeks, being the overall time length of the program two years.
4. Improving Quality using Six-Sigma

- To ensure satisfactory quality levels in the rendered service to the potential users of VRTUOSI, we have developed and implemented a Six-Sigma based quality management system, which allows us to identify the weaknesses of our program or its courses.

- Six-Sigma is a flexible methodology whose stages are, in addition, based on the principles of the scientific paradigm.

- The key point is to use the scientific method for the design and implementation of the VRTUOSI project.

- In this way, the whole project can be afforded as a scientific problem and, as a consequence, the scientific method can be used to solve it.
4. Improving Quality using Six-Sigma

• Therefore, we have used characteristic techniques of the Six-Sigma methodology on the design and development of the processes within VRTUOSI
  – DMAIC cycle;
  – Failure Mode and Effects Analysis (FMEA) (Stamatis, 2003);
  – Processes Mapping, like the Suppliers, Inputs, Process, Outputs, Customers (SIPOC) standard (Damelio, 1996);
  – Advanced Data Analysis, like multivariate statistics, Multivariate Analysis of the Variance (MANOVA), and others (Spicer, 2005)
5. Conclusions

• VRTUOSI is a pioneer online program for the international exchange of virtual courses.

• Our university favors the internationalization of our postgraduate programs, allowing our students to access high quality courses of other European universities.

• The interaction between teachers from different universities is facilitating the launching of new similar joint programs. In this way, apart from various research programs we have in mind, we are planning to launch a joint Virtual Master based on the VRTUOSI courses.

• 2010-11 is the first academic course in which VRTUOSI is being implemented, and we are currently recording our first empirical results, which will be included in future works.
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Questions?

Andres Redchuk

andres.redchuk@urjc.es