The Academic Globalization in the North-East of Argentina and Paraguay

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ABSTRACT

The UNNE (National University of the Northeast, Argentina) jointly with American and Spanish universities, have been developing since the late 1990s a considerable amount of cooperation actions tending to the development of teaching resources of postgraduate in several Argentine and Paraguayan universities. The purpose of this paper is to analyze the development of cooperation activities of graduate, in the field of computer science, between the above-mentioned universities, in recent years, and within the framework of cooperation general programmes of the AECI (Spanish Agency of International Cooperation for Development), as PCI (Inter-University Cooperation Programme), or specific programs between universities.

Keywords: inter-university, postgraduate courses, computer science, American universities, UNNE, AECID, PCI.

1. INTRODUCTION

One of the aspects which will surely distinguish to our time in the overall context of history will be that it developed the "global village", which alludes to the community whose members relate to each other through the media of masses [1]. In this sense, the "global village" extends and reaches ever wider geographic areas and more areas of social reality [2].

In this context and in the framework of the cooperation actions institutionally provided for by specific agencies and in the context of the spaces of interaction among universities themselves, with the aim of developing human resources, especially through activities of graduate (to cover areas of vacancy), is been able to develop a number of activities, such as post-graduate programmes, post-graduate courses, exchange of teachers and students to carry out teaching activities and research, etc.

In this work are considered such actions developed with the participation of the Departamento de Informática of the Facultad de Ciencias Exacta y Naturales y Agrimensura (FaCENA) of the Universidad Nacional del Nordeste (UNNE) [3], of Argentina and obviously referring to the computer sciences.

2. INSTITUTIONAL ENVIRONMENT

From the institutional point of view they participated the AECID [4] through the PCI, the UNNE through the Secretaría de Relaciones Internacionales, the FaCENA through its Departamento de Informática, American and Spanish universities through their Secretariats or Vice President of International Relations and their specific academic departments, namely:

- Departamento de Matemática Aplicada y Ciencias de la Computación - Universidad de Cantabria [5].
- Departamento de Lenguajes, Sistemas Informáticos e Ingeniería del Software - Universidad Pontificia de Salamanca Campus Madrid [6] and [7].
- Departamento de Lenguajes y Ciencias de la Computación - Universidad de Málaga [8].
- Departamento de Electrónica y Tecnología de Computadores - Universidad de Granada [9].
- Departamento de Ciencias de la Computación e Inteligencia Artificial - Universidad de Granada [9].
- Departamento de Informática - Universidad de Jaén [10].
- Departamento de Sociología - Universidad de Santiago de Compostela [11].
- Departamento de Informática - Universidad de Castilla – La Mancha [12].

3. MAIN ACTIONS IN THE FRAMEWORK OF GENERAL COOPERATION PROGRAMS

The busiest program of cooperation has been the so-called PCI or Inter-university Cooperation Programme implemented by the AECID, through the respective agreements with the Government and universities of Argentine.

The implementation of the program began in 1999; many Spanish teachers and students traveled to the UNNE, and teachers and students from the UNNE traveled to Spanish universities; specific work of teaching and research was carried out.

Several Spanish universities have sent teachers to provide training or postgraduate courses and for assessing the master's thesis in Informatics and computing:

- Univ. Pontificia de Salamanca Campus Madrid.
- Univ. de Cantabria.
- Univ. de Málaga.
- Univ. de Granada.
- Univ. de Santiago de Compostela.

This has meant the displacement from Spain towards Argentina of twelve teachers, some of them several times, for the accomplishment of specific tasks previously agreed.

The courses given at the UNNE by invited professors are as follows:

- Scientific Software.

- Object Oriented Analysis.
- Object Oriented Design.
- Virtual Teaching in Geographic Information Systems.
- Analysis and Design of Algorithms.
- Tridimensional Computer Graphics.
- Fuzzy Sets and Applications.
- Virtual Reality.
- Knowledge Management.
- E-Commerce.
- Unix Operating System.
- Evolutionary Algorithms.
- Web Engineering.
- Voice and Audio Compression.
- Voice Analysis and Recognition.
- Graphic Photorealism.
- Organizational Sociology.

It is noted that these activities are the first of its kind developed in the Departmento de Informática of the FaCENA of the UNNE. As a result of the joint work of teachers of Spanish universities and professors of the Departmento de Informática of the FaCENA of the UNNE, there have been over twenty research articles published in specialized journals and international conferences.

4. MAIN ACTIONS IN THE FRAMEWORK OF SPECIFIC COOPERATION PROGRAMS

Actions by its magnitude and importance beyond the scope of general programmes are implemented through specific agreements and specific programs. The development of these activities has been used the face-to-face mode for the dictation of the postgraduate courses, staying later contact with teachers via the Internet for the development of work and other activities. In this sense the main actions implemented are the following:

Specific agreement between the Universidad de Cantabria (Spain) and the UNNE to the dictates of a master's degree in computer science and informatic at the UNNE

It was implemented from 1998, postgraduate courses were issued during the years 1998 and 1999, then the theses, which began to be defended in the year 2001; were 23 students completed the master's program.

The courses were in charge of nine professors of the Universidad de Cantabria (Spain), one professor of the Universidad Pontificia de Salamanca Campus Madrid (Spain) and one professor of the Universidad de San Juan (Argentina).

The courses were as follows:
- Numerical Methods.
- Preparation of Scientific Documents with LaTex.
- Symbolic Calculus with Mathematica.
- Neural Networks.
- Internet and Intranet.
- Java Language.
- Expert Systems and Bayesian Networks.
- Computational Geometry.
- Computer Aided Design I and II.
- Multimedia Methods.

- Information Systems and Scientific Software.

This master was the first of its kind issued in the UNNE.

Specific agreement between the Universidad de Castilla - La Mancha (Spain), the UNNE and the Universidad Nacional de Misiones (UNaM) (Argentina) for the issuing of a master's degree in computer science and informatic at UNaM

It was implemented from 2001, postgraduate courses were issued during the years 2001, 2002 and 2003, then the theses, which began to be defended in the year 2005; were completed the master's 6 pupils.

The courses were in charge of six professors of the Universidad de Castilla - La Mancha, six professors from the UNNE, one professor of the Universidad de Cantabria and one professor of the UNaM [13].

The courses were as follows:
- Mathematical Programming Methods – Optimization.
- Preparation of Scientific Documents with LaTex.
- Symbolic Calculus with Mathematica.
- Neural Networks.
- Internet and Intranet.
- Numerical Methods.
- Java Language.
- Expert Systems and Bayesian Networks.
- Multimedia Methods.
- Information Systems.
- Database Technologies.
- Data Warehouses.
- Epistemology and Research Methodology.
- Informatics Audit.

This master was the first of its kind issued in the UNaM.

Specific agreement between the Universidad Nacional de Pilar (UNP) (Paraguay), the UNNE and the UNaM (Argentina) for the issuing of a master's degree in computer science and informatic at UNP

It was implemented from 2006, postgraduate courses were issued during the years 2006 and 2007, then the theses, which began to be defended in the year 2009; were completed the master's 1 pupil.

The courses were in charge of two professors of the Universidad de Castilla - La Mancha, five professors from the UNNE, one professor of the Universidad de Cantabria, three professor of the UNaM, one professor of the Florida Atlantic University (USA) [14], one professor of the Universidad de Málaga (Spain), one professor of the Universidad Tecnológica Nacional (UTN) [15] and one professor of the UNP [16].

The courses were as follows:
- Mathematical Programming Methods – Optimization.
- Preparation of Scientific Documents with LaTex.
- Symbolic Calculus with Mathematica.
- Neural Networks.
- Java Language.
- Expert Systems and Bayesian Networks.
- Multimedia Methods.

- Information Systems.
- Database Technologies.
- Data Warehouses.
- Informatics Audit.
- Security in Distributed Systems.
- Knowledge Management and e-Commerce.
- Multiplatform Emerging Technology.
- e-Government.
- Distance Education.
- Epistemology and Research Methodology.

This master was the first of its kind issued in the UNP.

Specific agreement between the Universitdad Nacional del Este (UNE) (Paraguay), the UNNE and the UNaM (Argentina) for the issuing of a master's degree in computer science and informatic at UNE [17]

It was implemented from 2006, postgraduate courses were issued during the years 2006, 2007 and 2008, then the theses.

The courses were in charge of one professor of the Universidad de Castilla - La Mancha, four professors from the UNNE, one professor of the Universidad de Cantabria, three professors of the UNaM, one professor of the Florida Atlantic University (USA), one professor of the Universidad de Málaga (Spain) and two professors of the Universidad Tecnológica Nacional (UTN).

The courses were as follows:
- Mathematical Programming Methods – Optimization.
- Preparation of Scientific Documents with LaTex.
- Neural Networks.
- Java Language.
- Expert Systems and Bayesian Networks.
- Information Systems.
- Database Technologies.
- Data Warehouses.
- Informatics Audit.
- Security in Distributed Systems.
- Knowledge Management and e-Commerce.
- e-Government.
- Distance Education.
- Digital Image Processing and its Applications.
- Programming for Internet Applications.
- Decision Support Systems.
- Epistemology and Research Methodology.

This master was the first of its kind issued in the UNE.

Specific agreement between the Universidad de Málaga (UMA) (España) and the UNNE for the issuing of a PhD in systems engineering and computing at UNNE

It was implemented from 2007; the courses were issued during the 2007-2008 academic cycle; supervised research projects have been implemented in the academic cycle 2008-2009; to access the DEA evaluations were implemented during the 2009-2010 academic cycle; the thesis are currently underway.

Six postgraduate courses, which were in charge of six professors of the Universidad de Málaga were issued.

The courses were as follows:
- Epistemology and Methodology of Research.
- Functional Programming.
- Applications of Fuzzy Logic in Artificial Intelligence.
- Neural Networks - Evolutionary Algorithms.
- On-Line Decision Support Systems.
- Multiplatform Emerging Technology.

Have been developed 33 supervised research projects that were will be tutored by 18 professors of the Universidad de Málaga; 28 doctoral students approved minimum research capacity (DEA).

The lines of research were the following:
- Advanced Technologies for the Transmission of Data.
- Web Engineering and e-Commerce.
- Evolutionary Programming and Computational Intelligence.
- Fuzzy Databases.

Were completed the doctoral program 1 pupil.

This doctoral program was the first of its kind issued in the UNNE.

5. CONCLUSIONS

Inter-university cooperation programs are being developed for many years. You have them has been used extensively in computer science at the UNNE. Have been generating many very useful and concrete actions that have transcended to the Departamento de Informática of the UNNE to extend to the UNaM, the UNP and the UNE, in an integrated project and far-reaching.

It should be noted the attitude of wide collaboration observed in Spanish universities and their staff of teachers, who on several occasions have sacrificed their holidays to travel to the Argentina in the framework of a program of collaboration such as those mentioned.

Many universities in developing countries face the challenge of serving one growing population of students. These students are socially and culturally more diverse, in a new social environment. To meet its objectives, universities often have very limited budgets.

Natural applicants to degree and postgraduate university studies joined professionals, technicians and others who wish to become actors in the new knowledge society.

Universities must respond to demands of permanent training, increasingly diversified, including temporary restrictions. Students often are adults who cannot travel to foreign training centers. Universities may not only use the traditional form of teaching and learning and their own resources. It is necessary to implement cooperation programs for postgraduate courses, master's degrees and doctorates, in the Argentine and Latin American universities. These courses must be conducted by teachers and researchers from foreign universities, through agreements that facilitate the financing of the transfer of teachers and students.

Also, the diversity of contacts with teachers and students of foreign universities must promote interdisciplinary and a university curriculum of increasing levels. Today, the challenge is to develop a critical thinking that allows crossing borders and find information and evidence, recreate realities, implement more coherent and sustainable practices in the most profitable way, using new technologies and the new possibilities in the teaching – learning process.

The knowledge society, with all its potential, puts to the test its protagonists, particularly to teachers and educational systems. Teachers have the responsibility for making the most of new opportunities of education.

Finally, is considered of great importance implement programs of masters and doctorate, developed in Latin American universities by teachers of universities of Europe, United States and Latin America. Should make it easier for teachers of Latin America access to master's degrees and doctorates, and develop local human resources to cover areas of vacancy, especially at the postgraduate level, and then produce the multiplier effect.

Firm and continued support from the highest levels of institutional decision is essential to achieve these objectives. It is also essential resources for travel of teachers and students, for example through programs such as the PCI of the AECI.

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