Journal Plus Education, ISSN: 1842-077X, E-ISSN (online) 2068-1151 Vol XIX (2018), No. 1. pp. 321-324

# CHALLENGES AND CHALLENGES IN HIGHER EDUCATION AND SCIENTIFIC RESEARCH IN LATIN AMERICA, ARGENTINA IN SPECIAL

*Marta Elena Roque
**Departamento de Biología, Bioquímica y Farmacia, Instituto de Ciencias Biológicas y Biomédicas del Sur (INBIOSUR), Universidad Nacional del Sur, Argentina**
**mroque@uns.edu.ar**

**Abstract:** *This article focuses on the recent changes and advances in Higher Education in Latin American and Caribbean countries resulting from the impact that the European System of Higher Education has had in this region and provides data related to some indicators of Higher Education and Science and Technology in order to highlight visible differences among countries of this area, particularly Argentina.*

**Keywords:** *University Higher Education; Science and Technology; Latin America and the caribbean, European System.*

## 1. Introduction

Higher education innovative projects as well as scientific and technological development policies greatly impact on the socio-cultural and economic conditions of countries.

In the 90´s it became necessary to implement a paradigm shift in higher education to ensure institutional quality in the universities. Within this context, new evaluation models were developed which influenced some Latin American countries.

Based on these first initiatives as well as on others, the Bologna Process emerged in Italy in 1999 setting the bases for the creation of a "European Space for Higher Education" (Malo, 2005) The main objectives of the Bologna Process were to transform the European System of Higher Education into a reference model to students and teachers from European

countries as well as from other parts of the world and to increase employment in the European Union. Further objectives were outlined during the Bologna Process, such as the mobility of students, teachers and researchers and the implementation of quality standards and common degrees (Bulgarin Olvera, 2009).

The Tuning Project was created within this changing trend to generate spaces of integration among the European countries to reach points of convergence (González,Wagenaar & Beneitone, 2004). It was accepted internationally and generated new higher education paradigms, such as student-centered teaching-learning, development of skills and competences for professional practice, academic credit systems and program quality. Still, one of the main objections to the Tuning Project was the fact that it was centered on Europe**.** The subsequent integration of Latin American and Caribbean countries to the European Union gave rise to the Latin American Tuning Project whose creation took place in Mexico city (2005) with the participation of 62 universities from 18 Latin American and Caribbean countries and 135 universities from 25 European countries (Beneitone, Esquetini, González, Marty Maletá, Siuti & Wagenaar, 2004-2007). The Latin American Tuning Project is an initiative from universities to foster collaboration among higher education institutions to guarantee quality, effectiveness, transparency, and recognition of qualifications between Latin America and the Caribbean and the European Union.

As of the Latin American Tuning Project onwards, homologation procedures were followed by the different higher education systems in relation to the duration of careers, the structure of cycles and system of credits in order to improve the quality of university teaching (Beneitone, Esquetini, González, Marty Maletá, Siuti & Wagenaar, 2004-2007).

Among the main obstacles that made the articulation of initiatives between Latin America and the Caribbean and the European Union so slow are the diversity of degrees awarded by Latin American and Caribbean institutions and the lack of financial resources for the development of innovative projects.

### 1.1.The Higher Education and Science and Technology in Latin America and the Caribbean

It is nonetheless worthy of note that thanks to the Latin American Tuning Project, higher education in Latin America and the Caribbean has undergone

important and positive changes through the implementation of programs aimed at improving educational levels.

On the other hand, science and technology in Latin América and the Caribbean have witnessed a significant growth not only in the investments in Innovation and Development (I+D) in some countries of this region but also in the incorporation of researchers into scientific programs.

The source of information consulted to give support to the advances herein reported on higher education as well as on science and technology is the *Red de Indicadores de Ciencia y Tecnología Iberoamericana e Interamericana* (RICYT) [Ibero-American and Inter-American Network of Science and Technology Indicators] (www.ricyt.org ).

The increase in the number of graduate and doctoral degrees awarded in Latin América and the Caribbean is a clear evidence of the progress of higher education in this region. The highest percentage of undergraduate degrees awarded in Iberoamérica corresponds to the Social Sciences (55%) and it is followed by Engineering and Technology (16%) and the Medical Sciences (15%), the Humanistic and Natural Sciences being the fields with the lowest percentage (www.ricyt.org; Albornoz, Barrere & Sokil, 2017).

The number of Ph.D. degrees completed in Iberoamérica also show a significant growth, with similar percentages in the Natural, Exact, Social, and Humanistic Sciences (Albornoz, Barrere & Sokil, 2017). In Argentina, the largest number of Ph.D. degrees has been awarded in the field of Exact and Natural Sciences, whereas the largest number of doctorates in Brazil and Colombia has been awarded in the Humanistic Sciences. In México and Costa Rica, the highest number of Ph.D. theses awarded has been in the area of the Social Sciences.

The largest investments in Research and Development (I+D) in Latin American and Caribbean countries (Purchasing Power Parity in dollars, World Bank conversion rates) are reported to have been made in Brazil (64%), México (17%), Argentina (8%), and other countries (11%) (www.ricyt.org). The analysis of investments in relation to the type of research performed shows that the highest investments are devoted to applied research in Argentina, Chile, Spain, and Costa Rica, followed by investments devoted to basic research in Argentina and Chile In Spain and Costa Rica, applied research was followed by research in experimental development (Albornoz, Barrere & Sokil, 2017).

Based on the literature consulted, it becomes clear that Latin American universities have a key role in Research and Development and that the majority of researchers belong mainly to public universities (Albornoz, Barrere & Sokil, 2017). As pointed out by García Giménez (2016), excellence and the university are closely linked, excellence being defined by indicators of performance, academic compromise between students and teachers, and implementation of programs with academic freedom.

## 2. Conclusions

In Latin American and Caribbean countries, higher education has evolved significantly in terms of the expansion of enrollments and graduate and Ph.D. degrees. Although there are some divergences in the region, permanent university teaching staffs in this region are ─in the majority─ composed of professors who have reached Ph.D. status. As a final remark, it can be concluded that the investment in I+D has increased particularly in some countries of Latin América and the Caribbean, and that this increase can be translated into an increment in the number of researchers, especially in public universities, particularly in Argentina in the period 2009-2015.

**References:**

Albornoz, M., Barrere, R., & Sokil, J. (2017). El Estado de la Ciencia: Principales indicadores de Ciencia y Tecnología Iberoamericanos Interamericanos. Las universidades lideran las I+D en América Latina.

Bulgarin Olvera, R. (2009). Educación Superior en América Latina y el Proceso de Bolonia: Alcances y Desafíos. Revista Mexicana de Orientación Educativa, .6 (16), 50-58

García Giménez E. (2016). Conceptos de Excelencia en la Educación Superior Universitaria. Educación Médica, 17, 83-87.

González, J., Wagenaar, R., & Beneitone, P. (2004) TUNING -AMERICA LATINA:Un Proyecto de las Universidades. Revista iberoamericana de educación, 35, 152-164.

Malo, S. (2005). Proceso de Bolonia y América Latina. Foreing Affairs. Revista Iberoamericana, 5, 21-33.

Red de Indicadores de Ciencia y Tecnología Iberoamericana e Interamericana (RICYT) (*www.ricyt.org*).

Reflexiones y perspectivas de la educación superior en América Latina. Libro Tuning America Latina. Informe final (2004-2007). Editors. Beneitone P., Esquetini, C.,González, J., Marty Maletá, M., Siuti, G. & Wagenaar, R.