

## **Anexo: Ponencia propia.**

### **1. Introduction**

The National Technological University -UTN- was created in 1952 to foster the industrial development of the country, and was conceived as an educational space closely linked with the production field, aiming at the education of factory engineers who had been former students at technical schools working in the different disciplines.

This genesis imprinted on the University distinctive characteristics that are retained to the present: a federal character throughout its 29 faculties all over the country; a dedication to the teaching of engineering and other programs related to technology; teachers come from the productive sector and students belong to the working force. In 2004, its 57,654 students represented more than 50 % of all engineering students in the country.

### **EDI 2007 Abstract**

#### **2. Main problems underlying Argentinean education:**

Social Exclusion:

30 % of the population under the poverty line (9.2 million poor people)

9 % indigents (3 million people)

Low teachers' salaries

Low educational budgets

High primary, secondary school & university dropout numbers.

Marked heterogeneity in the educational system quality.

#### **3. Main advantages underlying Argentinean education:**

Existence of a public educational system

Even when deteriorated, it has been recognized as a high quality one until well advanced the 1970's.

No under represented minorities (URMs) related to creeds problems:

80 % of Argentineans are nominal Catholics.

No URMs related to racial problems:

90 % are descendants from European (80 % between Italian & Spanish); no African Americans, American Indians, Asian, Native Americans, Latinos, etc.

*First Conclusion: This situation is very similar to almost all countries in Latin America. The bottom line is that the problem of inequity in educational chances must be tackled and solved before any other problems.*

#### **4. Situation of the Argentinean education of Engineering in relation to gender problems:**

Women constituted 57 % of the total of the whole public university system (1,293,489 students in 2004). The women's preferences are: 74.2 % in Humanities, 63.8 % in Basic Sc (Professoriates), 67.8 % in Health Sc, 58.8% in Social Sc and **35.3 % in Applied Sc**. In general, preferred programs by women are: Professorates, Lows, Public Accountancy, Pharmacy and Biochemistry, Psychology, Medicine, etc.

Within the **Applied Sc** (315,465 total students), Engngs (77,552 total students) have 17 % women, against 71.3% Statistics, 70.6% Biochemistry & Pharmacy, 51.1 % Architecture & Design, 51.1% Meteorology, 48.4% Astronomy, 27,3% Informatics, and so on.

A much lower 6% of the students (males + females) in the public university system follow an Engng program.

The private university system had 233,821 students in 2004, with no much Engng programs. Its weight is irrelevant in Engng.

#### About UTN:

At UTN (almost 60 % of the students of Engineering in Argentina), the preferred programs by women are: Chemical Engng (44.6 % woman), Computing Engng (25 %) and Civil Engng (15.6 %).

Other classical Engng programs at UTN have very low women components: Electronics (3.4 %), Electro mechanics (3.2%), Mechanics (2.2%), Electric (2%), Industrial (1.5), Aeronautics (0.9%).

Generally speaking, of 57,654 (100%) students at UTN in 2004, only 21 % were women.

*Second conclusion: the Argentinean Engng student's composition –in general and related to gender- follows international patterns; namely, not only do Engng programs have far fewer women, but also fewer males than the other disciplines.*

#### **5. Some possible interventions to attract more people to study engineering programs, especially women & other URMs**

- To the average citizen, Engng accomplishments are largely invisible. Hence, it is vital to “socialize” the Engng, by increasing the “visibility” and promoting the value of the profession as well as to improve its image through the “humanization”.
- Make it possible for poor people to study Engng by awarding scholarships to Engng students.

- Math is the language of Engng. Hence, to include more scs & math in primary and secondary and in the basics of the Engng programs taught by more skilled, specialized and compromised teachers
- Implication of the mass media and institutions in campaigns that encourage people to choose Engngs
- Promote the creation of women engineers associations (to foster actions such as reaching women engineers with solid academic backgrounds and strong professional attitude as role models, etc)
- Obtain subsidies for the Universities for them to employ more women as professors.
- Design Engng curricula that take into consideration the Human condition (Ethics, Philosophy, Psychology, arts), not only creation & innovation.
- Creation of nets for promoting equity in engngs & scs
- Mentoring or a community of colleagues to improve the retention of women and URM's in graduate school.
- Establish prizes and recognition to individuals and Departments that effectively mentor URM's.
- Enterprises should offer equal opportunities for employment, payment and advancement. To develop practices and working environments that are welcoming to women engineers.
- Governments should facilitate the activities organized by associations to promote Sc, Engng & Tech

**Liberto Ercoli, Dr. Eng.**  
**Dean**  
**Facultad Regional Bahía Blanca**  
**Universidad Tecnológica Nacional**