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## AN ARGENTINIAN EXPERIENCE OF STATISTICS TEACHING FOR TEACHERS OF SECONDARY SCHOOL

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### Abstract

In Argentina, when the Federal Board of Education approved a new structure of education in 1993, the Common Basic Contents that constitute the relevant knowledge for the teaching process of all the Country were defined. The Common Basic Contents of Math have been organised in 6 blocks in the Polimodal Education. In block 4 'Statistics and Probability' which achievement expectations are that the pupils can collect, organise, process and interpret statistics information and understand, estimate and use probability, valuing these procedures for the decision making. As in their teacher's training degree, all the teachers haven't studied statistics, here is outlined how we organised the educational training through a course of statistics that permits the teachers to learn statistics through workshops, discussing strategies, formulating conjecture, estimating results, examining alternatives, analysing the most useful and economic procedures, that will permit the teachers to show the students the concepts and procedures and to take decisions will fluency and correctness.

### Overview of secondary education system.

In Argentina the Federal Board of Education approved a new structure of education in 1993 in which we have 10 years compulsory education from the age of five to fourteen, which is called General Basic Education (EGB) and then, three years post-obligatory which is called Polimodal Education, for the ages of fifteen to seventeen. This system is in the development stage, and so far it has not yet begun at the Polimodal Education level.

The Federal Board of Education has generated an expectation in the teachers throughout all the country. Those expectations imply a renewal in their way of acting in class, and in their *professional training*.

So, as trainers of teachers, we have to understand the fact that teachers must 'go deep' into their former education, basically renewing teaching contents, their auto-evaluation criteria and their way of acting.

**In the Polimodal Education, Mathematics is organised as follows:**

Block 1	Number and operations
Block 2	Functions and infinitesimal calculus
Block 3	Algebra and Geometry
Block 4	Statistics and Probability
Block 5	Procedure Contents related to Mathematical business
Block 6	General attitudinal contents

**Achievement expectations:**

The expectations on finishing the Polimodal Education, is that students must:

- be able to interpret the terminology of probability and statistics,
- have knowledge of the scope and limitation for this discipline and
- apply its concepts to problem solving and its results to making decisions.

**Basic knowledge of statistics and probability in Polimodal Education.**

The basics of the proposal are:

- To study and to analyse these Math blocks in the Polimodal Education in its scientific aspects and in its didactic transposition into the CBC and Polimodal sphere.
- To propose present content, emphasising its relationship with other area blocks and with other areas.

**To whom the activity is focused:**

The activity is focused on the EGB teachers, basically those of the 3rd stage and Polimodal. It is required that the teachers interested in the course handle block 6 contents for the 3rd stage of EGB which is about introduction to statistics and block 5 contents for Polimodal education about procedure contents.

**Analytical programme.**

- Nucleus 1: Probability
- Nucleus 2: Probability distributions and its parameters
- Nucleus 3: Introduction to inference. Covariance and correlation central limit theorem.

**Description of the activity:**

- Explanatory and audiovisual techniques
- Individual and group data collection and further discussion
- Reflection workshops - specific problematic workshops.

### **General Target**

To mediate introspectively on the role of the teacher as an organiser of learning situations, and as a leader of the shared - with the students - learning process developments.

### **Training work features**

The proposal will adopt the following work features:

- Cooperative development of theoretical contents.
- Application practical problem solving and new contents motivation workshop.
- Organisation and planning contents workshops, to be discussed in class.
- Bibliography analysis seminars
- Analysis of statistical information given by some educational software, such as PC globe.

### **Activity timing**

7 four class-hour meetings

1 two class-hour meeting

Weekly meetings. Total class hours: 30

### **Pass Marks**

This course is passed under these conditions:

80% attendance to the meetings

70% practical work passed

70% individual evaluation problems passed. (in the last meeting)

### **Evaluation of the activity**

As a participant by:

doing a scientific-didactic test, proposed by the coordinator teacher  
performing an opinion survey on the course

As a coordinator teacher by:

elaborating a report estimating the achievement of the proposed targets,  
in order to suggest - if necessary - future modifications.

### **The expected probable impact:**

The importance of the class theme is its intrinsic value - the need of training teachers in some 5 aspects that were not included in their education, and that, consequently, are more interesting for them.

The project considers the results of the surveys, in which teachers asked for more and urgent training.

In order to control, to evaluate and to perform management control, there is the Research Department to produce diagnosis and to plan concrete improvement and training actions.

I like to finish my talk with an expression of an Argentinian author Ernesto Sabats:

*'The human being learns only if he takes part in discovery and invention'*