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A Group Effort to Discover a Theory of Logic Teaching:
The Mexican Experience. (Extended Abstract)

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Mexico is one of the few countries where logic is taught to virtually all students before they study a career. There is a strong tradition in the teaching of logic that dates back to the XVI century.

Our first philosophy teacher was a logic teacher, Alonso Gutiérrez de la Vera Cruz (Caspueñas 1505-Mexico 1584), author of *Recognitio Summularum* (Mexico, 1554) and *Dialectica Resolutio* (Mexico, 1554). Alonso, who studied in Alcalá and Salamanca, combined a nominalist approach to the *consequentia*, and explores multiple predicate quantification. He criticized strongly the teaching of useless dialectical technicalities, and gives praise to authors that center on the most useful aspects of logic.

The famous "Lógica Mexicana" (Alcalá, 1605) by Antonio Rubio de Rueda (1548-1615), was so popular in Europe that Descartes remembered it "depuis 20 ans" (see his letter to Mersenne, September 30th, 1640). It was the official textbook at Universidad Complutense, and quoted by Leibniz.

But the most interesting figure for the theory of logic teaching in Mexico during this period was another Salamanca alumnus, Tomás de Mercado (Sevilla 1523-Veracruz 1575). He wrote *Commentarii lucidissimi in textum Petri Hispani*, and *In logicam magnam Aristotelis* (both Seville, 1571). de Mercado warns against the excessive proliferation of rules, distinctions and precepts. In order to be helpful to the students, he proposes in the Preface to his Commentaries a few methodological precepts for the teaching of logic: start with the clearest and best known; do not teach argumentation without examples, exercises, or engaging the students in serious questioning and discussion; do not mix in other disciplines; use errors as a learning tool; do not give definitions or distinctions out of the context of objections and arguments.

In spite of these auspicious beginnings, the present state of education in Mexico shows a limited success in the teaching of logic in our school system, and there is a pressing need for Mexican educational institutions to devise programs that enhance the pedagogical capabilities of the teachers. Of course, it won´t be possible to improve the teaching of logical skills unless we first develop the needed human resources, supported by an up-to-date theory and the necessary teaching materials. This theory in turn must be scientifically supported by methods that allow us to objectively gauge the efficacy of those materials.

With those goals in mind, a group of logic teachers gathered in early 1996 to research the scope and principles of the theory of logic teaching. We tried to share our experiences on subjects like student motivation for formal disciplines, classroom techniques, group dynamics, advantages and disadvantages of group work in logic, the teaching of logic from grade school to bachelor studies, research on the logical skills of Mexican students (and of students from other countries), logic teaching software, etc. We have developed materials on philosophical analysis,

natural deduction, logical skills of college level students, history of logical machines, use of software to teach logic.

As a result of these meetings the Workshop on the Didactic of Logic ("Taller de Didáctica de la Lógica" or "TDL") put together a complete study plan for a concentration in logic for the B.A. program at the National University, specifying courses, content, and sequencing. This plan was voluntarily put in practice by professors at the National University who taught courses like *History of Logic, Extensions to Classical Logic, Rivals for Classical Logic, Philosophy of Logic, Metalogic, Logical Analysis of Philosophical Arguments.* Recently the official Plan of Study was modified to reflect a more ambitious approach to teaching logic at the university level. Also, new courses geared toward the logic teachers have been devised and taught, some in summer sessions, other in year-long plans. These courses emphasize the integration of the Art of logic, and the Science of logic.

Without any financial support, we have received speakers from different parts of the country, as well as from Australia, Canada, Norway, and the United States. It is important to notice that besides its regional coordinators, every year the TDL has a new national coordinator (there have been five so far), the latest ones from universities outside the capital of the country. This has given it a national character reflected in its National Workshop on Critical Thinking, and its National Conference on the Teaching of Logic, whose materials have been published in books and philosophical journals.

Currently, the main lines of research in this project are:

> Repository: We are creating since 1999 a National Repository of didactic materials, with the purpose of finding out what is available, catalogue it and evaluate it. This repository includes materials produced in this project such as videos, working papers and books.

> Web page: We have started to build a series of Web pages to give easy access to the many Internet resources on the teaching of logic. The research includes a listing and evaluation of bibliographic, hemerographic and electronic resources on Critical Thinking and Logic for Children.

> Laboratory of didactic techniques for logic: Its goal is to evaluate and improve teacher's techniques and to test programs and course proposals. We evaluate course texts and designs for single courses, programs and specialties in logic. We have worked with the University of Melbourne in the creation of software for On Line Teaching of informal logic.

> Research networks: Together with the Permanent Seminar of the TDL, we have built a National Virtual Network for Research on the Didactic of Logic. This network links, so far, five important cities in the country (Mexico City, Puebla, Querétaro, Coatzacoalcos and Xalapa), and several other ones have expressed their interest. We employ Internet resources, interactive teleconferences, and printed publications (two books and a bulletin to date).

> Academic events: A regional, and a national Congress were held the last two years to present and discuss the progress and results in the lines of research of the project, and to compare them to similar results of internationally renowned researchers.

> Formation of human resources: The formation of researchers is actively supported. They have offered presentations and reports, and are working on B. A., M. A. and Ph.D. thesis on central issues of the teaching of logic, such as the acquisition of logical skills,

enthymematic reasoning, informal logic and moral education, or the theory of argumentation.

   Publications: As mentioned before, several kinds of materials have been published, including a bulletin for the project, and two anthologies of original articles from members of the project. Part of the research is also "e-published" in the Web pages of the project.

This project is in its fifth year and it has gathered a wealth of information. The goals and opportunities in learning how to teach logic have become clearer, as have the obstacles. And the scope and principles of teaching logic have come more into focus as we continue to ponder on what to teach, when, to whom, and how.