SHORT COMMUNICATION

IN-SERVICE HIGH SCHOOL MATHEMATICS TEACHER TRAINING IN MEXICO

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ABSTRACT. Since the training of high school mathematics teachers in Mexico is not organized in form of a well defined teacher training program, those teachers go into high school mathematics teaching without being specially prepared for it. This situation makes in-service teacher training more and more important. Most of it is done by means of graduate (Master's) degrees in mathematics education.

INTRODUCTION

The last three pre-university years in the Mexican unitary school system are called “Bachillerato” or “nivel medio superior” which is equivalent to grades 10, 11, 12 (Senior High School) in the United States. Before entering this high school, students spend 6 years in the elementary school (Grade 1–6) and 3 years in the secondary school (7–9). [See Fig. 1.]

Both the elementary and secondary cycle is subject to a national curriculum made by the Ministry of Education (Secretaria de Educación Pública – SEP). Teacher education at this level is also controlled by the Ministry and is being offered in normal schools or teacher colleges.

At the high school level, however, there is no unified curriculum nor a teacher training program. Most mathematics teachers at this level are mathematicians, physicists, engineers, chemists or professionals with a five-year undergraduate degree, called licenciatura, in an area with a certain mathematical, scientific orientation who have a vocation and interest in teaching. A great number have completed the course-work of the licenciatura, but never written the thesis required for graduation and therefore do not possess the degree. It must also be mentioned that many high school teachers are only part-time teachers or teach at more than one institution in order to survive on the low salaries.

This situation of the teachers contributes certainly to the high index of failure in mathematics at the high school level and the low interest of Mexican high school graduates in scientific and engineering careers which require a good knowledge of mathematics. Since there is no well defined program for high school mathematics teachers in Mexico, the need for in-service training is very pronounced and it mostly takes place at the graduate level in the form of Master's degrees. In 1975, the first Master's
degree in Mathematics Education was established at the National Polytechnical Institute and in 1981 the National Autonomous University of Mexico (UNAM) followed with its own Master of Science in Mathematics Education whose students are mainly in-service high school teachers of the university owned high school system. The course program of the Master's degree was revised in 1988 and a proposal of a new study plan was elaborated which was recently approved by the University Council, the last step for its definite approval by the authorities.

The revision of the course program was necessary after an evaluation of the original Master's program which opened in 1981. The main problems detected were related to the bad economic situation high school teachers find themselves in. Low pay forces them to teach at several schools and time dedicated to the Master's program on a part-time basis was very limited. Deficiencies in the students' background knowledge and the relevance of course work in the program were also causes for failure.

MASTER OF SCIENCE IN MATHEMATICS EDUCATION AT UNAM

The general objective of this Master's program is the formation of professionals who can recognize and formulate adequately the problems related to the teaching-learning process in mathematics and can propose solutions.

In order to design the new curriculum for the master's degree, the main tasks a future graduate could encounter in his professional practice were identified as:

1. Teaching mathematics courses
2. Curriculum development in mathematics
3. Research in mathematics education
4. Development and evaluation of didactical materials
5. Pre-service and in-service teacher training.