

Mathematics

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Mutual Enrichment Through School-University Cooperation

The teaching of undergraduate mathematics is, to be kind, less than adequate. To help remedy this, the National Council of Teachers of Mathematics has included in their working draft of "Professional Standards for Teaching Mathematics" a call for colleges and universities to collaborate "with practicing professionals regarding the design of preservice and inservice programs" and "to model appropriate pedagogical strategies" in mathematics as well as in mathematics education courses. Another constant theme throughout the standards is the need for practicing teachers to continue learning.

Unfortunately, the mechanisms for continued cooperative interaction between schools and local colleges and universities are almost nonexistent. To address this need, several programs have been created around the country to encourage schools and higher education institutions to work together. One such program that has been very successful was created three years ago by Professor Elias Toubassi of the University of Arizona Department of Mathematics.

Toubassi was put in charge of the entry-level mathematics courses and charged with improving the teaching of those courses. One of the many things he did to carry out this mandate was to create the "Co-op Program." He invites excellent local junior high and high school mathematics teachers to join the university faculty for one year. The school district continues to pay the full salary and benefits for the teacher, but the university pays the full cost of a substitute teacher—not a substantially greater amount than it would spend on a graduate teaching assistant. Thus, neither the teacher nor the school district loses any money.

The teachers teach three mathematics courses each semester. In return for their services, they take courses at

the university to improve their own knowledge.

The teaching of entry-level courses has improved markedly, at least partially because of the co-op teachers. At the end of the year, the co-op teachers return to their schools with a fresh outlook and some new information. The close cooperation established between the university and school faculties continues into the following years to the benefit of both. In short, this cooperative program between the university and the local school districts seems to benefit everybody at essentially no cost.

University and school faculty members who are truly interested in im-

proving the teaching of mathematics can emulate the co-op program. Even if there is not an institution of higher learning near your school, you may be able to work out an arrangement for some of your teachers to move to a university for a year, though that would certainly be less convenient, especially for teachers with families.

Most proposals to improve education require substantial investments of money, time, energy, and commitment. The co-op program is a way to help improve education in which everybody wins. Teachers continue their formal education and build lasting professional relationships with each other and with college faculty, schools receive the advantage of rejuvenated and better prepared teachers, and colleges benefit from the teaching skills and knowledge of master teachers. □

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Junior high and high school mathematics teachers involved in the University of Arizona's Co-op Program have helped improve entry-level instruction at the university while enriching their own knowledge of mathematics.

Photograph by Marcia Marlow, Bedford, Massachusetts

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