

## **Implementation Conclusions**

The \$21,000 per teacher cost to implement IMP, without the reduction in teaching load, is fairly accurate based on our experience. To properly learn how to teach IMP, teachers need 40 days of training (either on school time or compensated time), in-classroom mentoring, a classroom set of graphics calculators, a closet of classroom materials, overhead projector and LCD panel and, of course, IMP textbooks. These are hard and fast requirements. Assuming the average salary and benefits of teachers are at least \$50,000 per year or \$200,000 over four years, this \$21,000 represents a 10% investment over and above normal personnel costs.

The reduction in teaching load combined with team teaching is the ideal model. But much of the benefits of that model can be achieved through a semester block schedule, which has a built-in reduction in student load, and rostering a common prep period for teachers. All of a mathematics' department teaching staff should be trained in the IMP curriculum for all four years to prevent loss of program capacity in the event of teacher transfers, retirements, extended absences and deaths. In addition, the more mobile teachers are within a large district, or within a region, the more advantageous it is to train all of a district's or region's math teachers in either IMP or a comparable NSF sponsored standards-based curricula.

There are other considerations in implementing systemic change, such as preparing teachers for change, articulating with higher education, systematizing data collection and program evaluation, updating hiring practices, establishing different teacher evaluation protocols, training and mentoring new teachers, and on-going administrative education.

Systemic change is more likely to occur in an educational environment that includes mandated mathematics curriculum standards, revamped assessment including performance assessments, and a strong school and district accountability system based on student achievement.

**However, we have found that without strong top-level administrative support and direction, systemic change will not happen, despite these external inducements and sanctions.** Change must reach into the classroom involving every member of the mathematics teaching staff. Utilization of research-based curriculum and instructional methods should not be an option teachers could reject. Conversely, merely purchasing these textbooks is insufficient and even counter-productive.

What follows is a summary of the research results of the Philadelphia experience implementing the *Interactive Mathematics Program*.