

# He completed one Ph.D. in mathematics, then came back for another

'Are you sure you want to do this?' adviser asked

By Leila Belkora

Getting two Doctor of Philosophy degrees is rare. Getting two doctorates with the same adviser is unheard of.

But M. Vali Siadat received his second doctoral diploma last spring — having returned to UIC a few years after obtaining his first degree, completed a second full set of courses and exams and worked in a new area of research under the same adviser.

In 1990 Siadat, a native of Iran, presented a dissertation in an extremely abstract area of pure mathematics.

"His research was about proving inequalities in  $n$ -dimensional space," says his adviser, Yoram Sagher, professor of mathematics, adding that there is really no easily-described practical side of this work.

Siadat taught in the California state university system, but soon became dissatisfied with the level of preparation some of his students had.

"I felt a great need to come up with a new methodology for teaching mathematics at a lower level," says Siadat.

In search of a doctoral program in mathematics education, he returned to UIC, one

of the few universities in the country to offer both the research-oriented Doctor of Philosophy in pure mathematics and the teaching-oriented Doctor of Arts in math education.

"Are you sure you want to do this? It will take a lot of energy," warned Sagher.

Siadat could not count the classes he took the first time around toward his second doctorate.

Undeterred, he went on to devise a novel and apparently highly effective way to improve the mathematical skills of students taking basic math at the college level.

Part of Siadat's technique is to test students every day, using multiple-choice tests that include "distractors," or incorrect answers, that a confused student might make.

Before the next test, the teacher discusses the questions many students answered incorrectly.

The teacher also monitors the distribution of students' grades. When the gap between the best and worst-performing students becomes large, the class breaks up into groups for cooperative learning.

When the tests show the gap has narrowed, regular teaching continues.

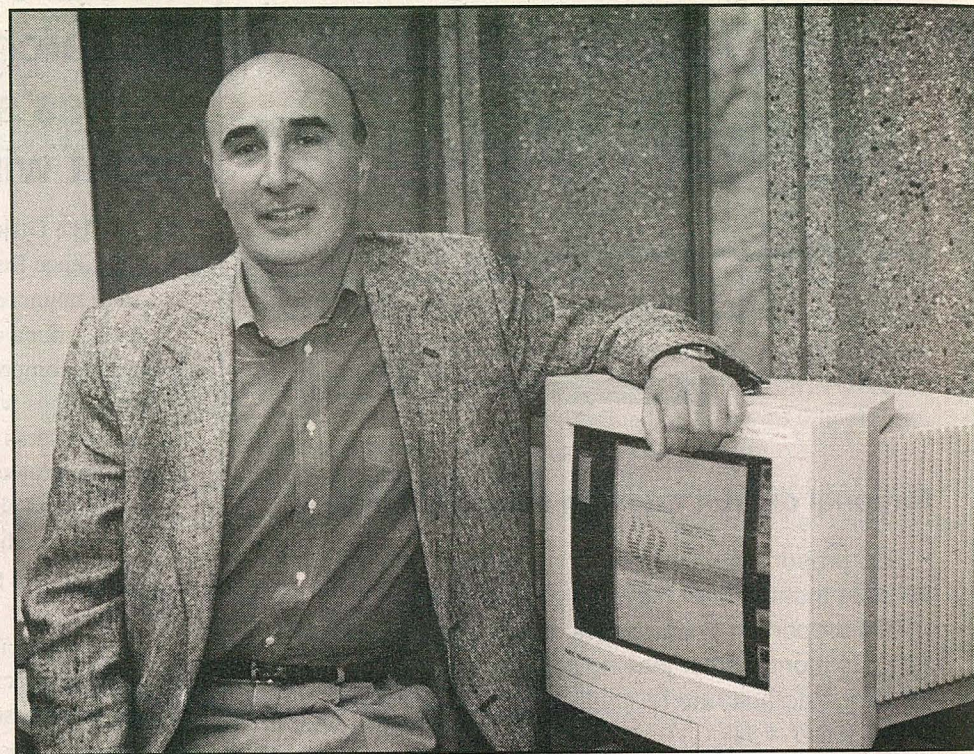


Photo: Roberta Dupuis-Devlin

**After M. Vali Siadat finished his Ph.D. and began teaching in California universities, he decided to develop a new teaching method to prepare students for college math.**

Sagher says that not only did students' scores rise dramatically in mathematics, but they surged ahead in reading comprehension. Scores of students in a control group who did not follow Siadat's techniques did not improve.

Members of Siadat's thesis committee, which included experts from other universities as well as UIC, say part of the success of his project may have been to train students to have better powers of concentration.

"One hypothesis is that this method taught students how to regulate their atten-

tion better," says Jerre Levy, professor of neuropsychology at the University of Chicago.

She characterizes Siadat's thesis results as "extremely interesting and very important."

Siadat is now a professor teaching both basic and advanced math courses at Daley College in Chicago.

His former adviser, Sagher, is helping the University of Alabama implement the approach Siadat developed in his second — and probably final — doctorate.