Robert Davis’ work and writings have focused for more than twenty years on two objectives: trying to improve instructional programs in mathematics and attempting to build an abstract model of human mathematical thought. His writings, particularly *Learning Mathematics: The Cognitive Science Approach to Mathematics Education*, have been a major influence, shaping my theoretical perspective and goals as a classroom teacher, curriculum developer, and researcher. His writings have contributed to my intellectual growth and understanding of fundamental issues in the learning and teaching of mathematics. Bob lived his beliefs—and spent his lifetime working to solve the novel, difficult problems of meeting the social and human needs of students. As a teacher, he shared his vision and wisdom, offering us problems and challenges that aroused our interest. Each of us who was privileged to know him has our own cognitive collages of uniquely wonderful memories of Bob. I am grateful for his friendship, encouragement, and generosity of spirit over the years and consider myself privileged to have known him—to have been able to exchange ideas, share a meal or two, and plan future projects with him. In the past few years, Bob’s writings reflected his concern about the growing polarization reflected in the paradigm differences that presently divide those concerned with the learning and teaching of mathematics. Characteristically, his concern was tempered by his optimism and hope for the future. It seems only fitting that a man who spent his life finding ways to gently challenge his students and colleagues has left us yet another problem to focus our energies on:

Speaking personally, I hope we will pay far more attention in this new era to the paradigm differences that divide those of us who are concerned with the learning and teaching of mathematics. These differences exist, they are extreme, and if we ignore them we shall balkanize an area of intellectual activity that deserves better.

It is to the memory of Robert B. Davis that I dedicate this thesis—a cognitive collage shaped by his ideas and vision—an attempt to take up his challenge.