

ON THE ROLE OF DIDACTIC MATERIALS IN TEACHING AND LEARNING MATHEMATICS**ROBERT P. HUNTING**The Institute of Mathematics Education
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We begin with a discussion about how we come to know the concept of a square. The problem of how best to teach fractions, and by what means we approach this daunting task follows. The example of the CopyCat, a prototype computer-based learning environment is used to illustrate strengths and weaknesses. Other didactic materials such as Steffe and Olive's Sticks, and Kieren and Pirie's paper folding are discussed, and we conclude that there is no possibility of finding physical material with the properties that will mirror the precise essence of the mathematical concept we have in mind to teach. A view of the role of physical materials in an enlarged pedagogy involving what Cobb called the interactive negotiation of mathematical meaning is suggested as a solution. We are reminded also that students operate on material of the mind including re-presentations of past actions, memories, and visual images. Remaining unanswered questions are posed.

* Paper not available for publication