

# 28 How Asian Teachers Polish Each Lesson to Perfection

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During middle childhood, much of children's academic work concentrates on the development and refinement of basic skills of reading, writing, and mathematics. It is clear that if children do not develop these skills during this time, they will face many difficulties in school in the years ahead. In recent years, mathematics achievement during the years of middle childhood has become a particular area of concern. Cross-national research indicates that, in general, children in the United States fall far behind children in other nations, especially China and Japan, in mathematics. Given the importance of understanding mathematics both for further learning in this domain as well as for learning science in high school and beyond, this lag is very disturbing.

Many developmental psychologists have attempted to understand these cross-national patterns. The most successful research to date was conducted by James W. Stigler and Harold W. Stevenson, who describe their work in the following article. The researchers focused on children's experiences in the classroom in China, Japan, and the United States. Specifically, they examined educational practices and goals in the three societies. Their observations indicate that both the processes and the outcomes of schooling in those communities support children's learning of mathematics in different ways. In addition, many of the educational practices that are used in China and Japan reflect deeply held cultural values and practices in those societies. As a result, this research suggests that modeling classrooms in the United States after the classrooms in China and Japan would not necessarily benefit U.S. children in the absence of the meaning and direction provided by the broader cultural context.

The research described in this article is important for several reasons. It connects children's experiences in the mathematics classroom to specific learning outcomes. Although this seems like an obvious step, the classroom context, especially across cultures, has rarely been examined in enough detail to establish how different classroom practices affect children's learning. The research is also an excellent example of cultural psychology, in that it studies children and their experiences in relation to the broader social and cultural context in which development occurs. Finally, because it provides insight into different ways that teachers teach mathematics, this research offers some new and interesting ideas about how to approach mathematics instruction.

Although there is no overall difference in intelligence, the differences in mathematical achievement of American children and their Asian counterparts are staggering.<sup>1</sup>

Let us look first at the results of a study we conducted in 120 classrooms in three cities: Taipei (Taiwan); Sendai (Japan); and the Minneapolis

metropolitan area. First and fifth graders from representative schools in these cities were given a test of mathematics that required computation and problem solving. Among the one hundred first graders in the three locations who received the lowest scores, fifty-eight were American children; among the one hundred lowest-scoring fifth graders, sixty-seven were

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