Cross-national studies.

Britton, E. D., & Raizen, S. A. (Eds.). (1996). *Examining the examinations*. Boston, MA: Kluwer Academic Publishers. [This is a cross-national comparison of "school-leaving" exams, which are exams given to students at the end of high school.]

Ma, Liping. (in preparation). *Knowledge and teaching competence: Exploring mathematics teaching superiority from a cross-national perspective.* Mahwah, NJ: Lawrence Erlbaum Associates. [This is a comparision of the mathematical knowledge of U.S. and Chinese elementary teachers. Some Chinese elementary teachers have what Ma calls "Profound understanding of fundamental mathematics." From the introduction: Profound understanding of fundamental mathematics goes beyond being able to compute correctly and to give a rationale for computational algorithms. A teacher with profound understanding of fundamental mathematics is not only aware of the conceptual structure and basic attitudes of mathematics inherent in elementary mathematics, but intends and is able to teach them to students.]

McKnight, Curtis et al. (1987). *The underachieving curriculum: Assessing U.S. school mathematics from an international perspective.* Champaign, IL: Stipes Publishing Company. [This is one of the reports of the results of the Second International Mathematics Study. It focuses on the contrast between results for the U.S. and other countries. Much of the material is presented graphically.]

Stevenson, Harold & Stigler, James. (1991). How Asian teachers polish each lesson to perfection. *American Educator 12*, 14-20, 43-47. [This is about first and fifth grade classroom practices in China, Japan, Taiwan, and the U.S. The article has been incorporated into Stevenson and Stigler's book *The Learning Gap*. The latter is written for a general audience (as is the article) and discusses the findings of a large-scale study conducted by the authors and their colleagues. This study examined student achievement, teaching practices, as well as outside of school factors (parents' beliefs about effort and ability, how much TV students watched (Japanese elementary students watched more TV than their U.S. counterparts), whether children had desks at home, etc.).]

Stigler, James, Fernandez, Clea, & Yoshida, Makoto. (1996). Cultures of mathematics instruction in Japanese and American elementary classrooms. In Thomas P. Rohlen & Gerald K. LeTendre (Eds.), *Teaching and learning in Japan* (pp. 213–247). Cambridge: Cambridge University Press. [This article was given out at the workshop. The book from which it was taken, *Teaching and Learning in Japan* , has articles on juku (cram school) and kummon (another outside of school program).]

Stigler, James & Hiebert, James. (1997). Understanding and improving classroom mathematics instruction: An overview of the TIMSS video study. *Phi Delta Kappan 79* (1), 14-21. [As a part of the TIMSS study, a random subsample of 8th grade TIMSS classrooms in Japan, Germany, and the U.S. were videotaped. The final video sample included 321 classrooms: 100 in Germany, 50 in Japan, and 81 in the United States. The video samples were analyzed in several ways. For example, a group of mathematicians analyzed detailed descriptions of mathematical content from 90 lessons (15 algebra and 15 geometry lessons from each country). They found that one-fourth of the 90 lessons contained instances of what they defined as deductive reasoning. These instances occurred in 62% of the Japanese lessons, 21% of the German lessons, and 0% of the U.S. lessons.]

TIMSS web site http://nces.ed.gov/timss

Precollege standardized tests. Much time and money is spent on standardized testing in U.S. schools. Testing also has important effects on teachers and students. Some articles about those effects are:

Madaus, G. F. (1991). The effects of important tests on students: Implications for a national examination system *Phi Delta Kappan, 73*, 226-31.

Paris, S., Lawton, T., Turner, J., & Roth, J. (1991). A developmental perspective on standardized achievement testing. *Educational Researcher 20*(5) 12–20. ["Many districts routinely test all their students in Grades 2–12 every year. . . . The Commission [on Testing and Public Policy] (1990) estimates that direct costs to taxpayers of purchasing and scoring state and local tests may exceed $100 million per year. Adding in related services pushes the bill to nearly half a billion dollars annually, and even that does not include the cost of curriculum materials that publishers produce to fit the tests. No other country in the world has as much achievement testing as the USA. . . ." (p. 13)]

Smith, M. L. (1991). Put to the test: The effects of external testing on teachers. *Educational Researcher, 20*(5), 8-11. [From the abstract: Teachers believe that scores are used against them, despite the perceived invalidity of the tests themselves. From classroom observations it was concluded that testing programs substantially reduce the time available for instruction, narrow curricular offerings and modes of instruction, and potentially reduce the capacities of teachers to teach content and to use methods and materials that are incompatible with standardized testing formats.]

Cognitive science and mathematics education research. Two introductions to uses of cognitive science in mathematics education research:

De Corte, Erik, Greer, Brian, & Verschaffel, Lieven. (1996). Mathematics teaching and learning. In David C. Berliner & Robert C. Calfee (Eds.), *Handbook of educational psychology* (pp. 491-549). New York: Macmillan.

Schoenfeld, Alan H. (1992). Learning to think mathematically: Problem solving, metacognition, and sense making in mathematics. In Douglas Grouws (Ed.), *The handbook of research on the teaching and learning of mathematics* (pp. 334-370). New York: Macmillan.

De Franco, Thomas C. (1996). A perspective on mathematical problem-solving expertise based on the performances of male Ph.D. mathematicians. In James J. Kaput, Alan H. Schoenfeld, & Ed Dubinsky (Eds.), *Research in Collegiate Mathematics Education II* (pp. 195-214). Providence, RI: American Mathematical Society. [A comparison of the knowledge and perspectives of world-class mathematicians versus more or less ordinary Ph.D.s.]