



## THE TEACHER DEVELOPMENT CONTINUUM IN THE UNITED STATES AND CHINA Summary of a Workshop (2010)

In 1999, Liping Ma published her book *Knowing and Teaching Elementary Mathematics: Teachers' Understanding of Fundamental Mathematics in the United States and China*, which probed the kinds of knowledge that elementary school teachers need to convey mathematical concepts and procedures effectively to their students. Later that year, Roger Howe, a member of the U.S. National Commission on Mathematics Instruction (USNC/MI), reviewed the book

for the *Notices of the American Mathematical Society*, concluding that it “has lessons for all educational policymakers.”

Several years ago, Professor Howe was attending an international conference on mathematics education when a particular phrase caught his ear; the Chinese educators often talked of “superrank” teachers, i.e., teachers with the honor of “Special Class” (*Te Ji Jiao Shi* in Chinese). This is an honorary designation in the Chinese career teacher hierarchy that involves special responsibilities for leadership, professional development, and research. Although there is no equivalent designation in the United States, the common roles of master teachers in both countries are math coaches and consultants, technology coordinators, mentor teachers, mentoring and induction coordinators, peer reviewers, special education inclusion coordinators, department chairs, grade-level team leaders, and house leaders.

Concluding that this was something U.S. educators wanted to know more about, Professor Howe shared this information with the USNC/MI. Intrigued by the idea of superrank teachers, the USNC/MI sponsored a workshop entitled “The Teacher Development Continuum in the United States and China.” The purpose of the workshop was to examine the structure of the mathematics teaching profession in the United States and China, as described in the following statement of task:

*A public workshop will be organized that will bring U.S. and Chinese experts on mathematics education together to discuss professional development methods and techniques commonly used in their countries. The workshop will feature invited presentations and discussion that will focus on the teacher development process used in the U.S. and China, and how the professional lives of teachers are structured to receive ongoing professional development. The activity will bring together U.S. and Chinese experienced and highly qualified teachers that provide professional development (such as master teachers, mentors, or coaches). Comparing and contrasting the roles and status of master teachers in both countries will be one of the main goals. An individually-authored workshop summary and a 13 minute-video with highlights of the event was produced <http://sites.nationalacademies.org/pgabiso/ICMI/>.*



Held in Newport Beach, California, on July 31–August 2, 2009, the workshop brought together about 40 mathematics educators, mathematicians, education researchers, and other mathematics education specialists from the two countries. There were participants from three regions of China, Beijing, Shanghai, and Jiangsu Province (north of Shanghai), as well as several Chinese scholars who now work in the United States.

**SUMMARY OF KEY DIFFERENCES IN THE MATHEMATICS TEACHING PROFESSION IN CHINA AND THE UNITED STATES AS IDENTIFIED BY WORKSHOP SPEAKERS**

CHINA	UNITED STATES
<p>Math teachers are usually specialists even at the elementary level.</p> <p>Teaching is a public practice with norms and structures that promote collaboration.</p> <p>The teaching profession has a clear career hierarchy with distinct, formal ranks from novice (second rank) to master teacher.</p> <p>Master teachers continue to teach and perform their additional responsibilities, using their classrooms as a base. Work occurs in the communal context of the school.</p> <p>Professional development is embedded in the daily life of the school.</p> <p>A national curriculum allows teachers more time for continuous improvement in lesson preparation.</p> <p>K–12 teachers are actively involved in generating knowledge on how to improve teaching.</p>	<p>Math teachers are usually generalists in the elementary level and specialists at the secondary level.</p> <p>Teaching is largely a private practice with norms and structures that favor autonomy.</p> <p>The teaching profession does not have a clear hierarchy, though there is some movement toward creating differentiated roles for teachers.</p> <p>Master teachers often have to move outside of the classroom, to a new position, to take on additional responsibilities.</p> <p>Professional development often occurs outside the daily life of the school.</p> <p>Without a national curriculum, teachers often spend a lot of time aligning standards, curriculum, testing, and so on, rather than developing and reflecting on lessons.</p> <p>There is a greater separation between research on improving teaching and actual practice.</p>

**WORKSHOP ORGANIZERS**

The workshop was planned and organized by two staff members from the Board on International Scientific Organizations (BISO), Ana Ferreras and Kofi Kpikpitse, with the assistance of five USNC/MI members: Patrick (Rick) Scott, New Mexico Higher Education Department; Joseph G. Rosenstein, Rutgers University; Janine Remillard, University of Pennsylvania; Roger Howe, Yale University; and Ann Lawrence, Capitol Hill Day School (retired). Steve Olson, consultant, served as Rapporteur for the workshop and A. Ester Sztein, BISO staff member, as Editor of the workshop summary.

**For More Information**

Copies of *The Teacher Development Continuum in the United States and China: Summary of a Workshop* are available from The National Academies Press; call (800) 624-6242 or (202) 334-3313 (in the Washington metropolitan area), or visit the NAP website at [http://www.nap.edu/catalog.php?record\\_id=12874](http://www.nap.edu/catalog.php?record_id=12874). For more information on the project, contact staff at (202) 334-1697 or visit the U.S. National Committee on Mathematics Instruction website at <http://sites.nationalacademies.org/pga/biso/ICMI/>.