

New Report: Elementary Teacher Subject-Matter Expertise is Key Driver of High Student Performance

Report Details Policies Producing Teachers with Deep Content Knowledge and Understanding of How to Teach That Content

Washington, DC- The National Center on Education and the Economy's (NCEE) Center on International Education Benchmarking's (CIEB) new report, *Not So Elementary: Primary School Teacher Quality in Top-Performing Systems*, gives new insights into a critical driver of the success of the world's top-performing education systems—developing elementary teachers with deep content knowledge.

These high-performing systems recognize that a strong foundation in the core subjects in the early grades increases the chances that all students will achieve at higher levels throughout their schooling. The report finds that teacher preparation in Finland, Japan, Shanghai, and Hong Kong builds deep understanding of the content being taught in elementary schools as well as of how young students learn and understand that content—two essential components of highly effective teaching. The report also gives guidance on what the United States can learn from these systems to strengthen teaching in elementary schools.

"*Not So Elementary* underscores the reality for teaching in today's world: the best education systems have identified deep content knowledge as a critical component of highly effective instructional systems, starting with elementary teachers," said NCEE President and CEO Marc Tucker. "Countries whose high school graduates are among the world's best-educated can recruit their teachers from the middle of the range of their graduating seniors, but countries like the United States whose high school graduates are not among the world's best educated are asking for real trouble by recruiting their teachers from the lower ranges of high school graduates. We now face an enormous challenge: raising the segment of high school graduates from which we recruit our elementary school teachers, demanding much deeper grounding of prospective teachers in the subjects they will teach, and, at the same time, raising the game of the teachers already in our schools."

"The countries with the best-performing education systems are recruiting very able students from their high schools, and investing heavily in the initial training and continuous development of their teachers to ensure that they have a deep understanding of the subject they will teach and the most effective ways to teach that subject to their students. Without a deep understanding of the subjects being taught in elementary school, a teacher will not be able to identify the specific misunderstandings of the underlying concepts that defeat students and cannot help them grasp the concepts that constitute the essential foundation for more advanced work in middle and high school."

In the report, leading Australian researcher Ben Jensen describes how high-performing countries ensure that their elementary teachers have strong content knowledge. They have done so by focusing on the *selection* of teachers, *content specialization*, *initial teacher education*, and *professional learning* systems in their schools. These four policy levers, combined with a well-integrated and highly effective education *system* as a whole, serve as a powerful means of improving student learning.

Selection

High-performing systems set rigorous standards for becoming a teacher in order to ensure that only the most well-qualified individuals enter classrooms. According to the report, each jurisdiction studied has developed quality control checks at different points in the teacher development pathway. Some—like Finland—have very high admissions requirements for entry into teacher education institutions, the very beginning of the development pathway. Others—like Japan—place the quality

control check at the point of hiring in the form of an employment examination. Only the top-scoring candidates are hired for teaching positions.

Specialization

Specialization refers to the idea that elementary school teachers have some sort of subject-specialization in their preparation and development. It can also mean a narrower teaching role—instead of teaching all subjects, elementary teachers may study and teach only one or a few, as is the case in Hong Kong and Shanghai. In Finland and Japan, elementary school teachers are generalists, as they are in the United States, studying and teaching all subjects. In both Finland and Japan, however unlike the U.S., elementary teachers also choose a subject to major or minor in, so they receive particularly specialized content knowledge in at least one subject area. In Japan, teachers with specialized knowledge lead professional learning in that subject area. In all these countries, the general level of high school graduates of the core subjects in the elementary school curriculum is significantly higher than in the U.S., so it is much less likely than in the United States that a teacher of, say, mathematics will not have a sound grasp of the conceptual underpinning of the material being taught.

Initial Teacher Education

Initial teacher education programs in high-performing systems share three things in common, according to *Not So Elementary*. First, they focus on foundational knowledge of the content that teachers will teach at the elementary school level. Rather than taking advanced mathematics courses, for instance, elementary math teachers develop a deep and flexible understanding of the actual mathematics topics they will teach. Second, there is a strong emphasis on how students learn and understand the specific content that will be taught and not just general teaching skills. Finally, teacher education institutions have a high degree of alignment between their courses and curricula and the curriculum being taught in elementary schools.

Professional Learning

Many of the top-performing countries essentially apprentice new teachers to senior master teachers during the first year and sometimes the first two years of their work as teachers. This kind of strong apprenticeship enables the new teachers to learn their craft in a way that is simply not possible in a traditionally organized university experience. But that is not the end of a new teacher's growth and development. High-performing systems build professional learning strategies and practices to support all teachers through their whole professional career. In Shanghai, teacher professional learning is largely structured to develop subject-specific expertise through mentoring relationships and teacher research and lesson development groups. In Hong Kong, new teachers observe classrooms in their specialized subject area and have their classrooms observed as well with the goal of constantly improving lessons. They then take part in reflection activities to understand what they have learned from their peers.

Systemic Approach

Though often difficult to quantify, one of the most important characteristics of top performers' success in elementary school teacher quality is the systemic nature of the education system itself. In Hong Kong, Shanghai, Japan, and Finland, different parts of the system constantly support and reinforce the need for deep subject expertise and understanding of student learning. *Not So Elementary* describes how all parts of the system, from selection to initial teacher education, school curriculum, school organization and professional development, work in an integrated and highly effective manner to support teachers and the students that they teach.

In addition to the report and an accompanying policy brief released today, researchers have collected authentic tools used by the systems highlighted to assist policymakers and practitioners interested in adapting lessons learned for their own context and culture. The tools are available at www.NCEE.org/cieb.

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