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If you're looking for a 21st-century teacher education model, Singapore is one to watch.

Singapore Leads the Way in Changing Teacher Education

Across the globe, countries are trying to raise their educational achievement. There is enormous attention to and debate about getting the policy infrastructure right, but policies won't achieve results without building the capacity of schools to carry them out. Increasingly, the quality of teachers is seen as *a* if not *the* crucial factor in delivering high-quality education. So, the challenge of preparing high-quality teachers is central to every country's agenda.

This challenge is becoming more acute as the roles of teachers change. Teachers are now expected to prepare students to become knowledge workers, not just factory workers; to produce higher-order cognitive skills; to help *every* child succeed, not just the "easy to teach"; to address the increasing ethnic diversity of most school systems; and to adapt to and harness new technologies — all in the context of increasingly rapid globalization. Schools need even higher-quality teachers in the future than in the past.

There is much innovation in the United States and internationally on this issue. Take Singapore, for example. Singapore has gone from being a third-world to a first-world economy in the space of 40 years and from being a low-performing education system to one that produces world-class performance on a range of international assessments. How has teacher education played a role in this and how is teacher education in Singapore now moving from a 20th- to a 21st-century model?

Changing a System

When Singapore became independent in 1965, it was an impoverished country where many children didn't attend school at all. The goal at that point was to establish universal primary education as soon as possible, so there was mass recruitment of teachers, crash programs, and a dilution of standards. By the

1970s, demand had stabilized somewhat and attention shifted from quantity to quality of teachers and of training. The Institute for Education was created in 1973 as the single teacher education and professional development institution for Singapore, and the expanding secondary school sector led to a greater focus on specialized teachers, especially in math, science, and vocational education. In the 1990s, another broad set of changes was made to increase the quality and attractiveness of the teaching profession. As part of this, the Institute of Education became the National Institute of Education (NIE), an autonomous unit of Nanyang Technological University. New degrees were introduced, and research to improve teaching and inform policy development became a more significant part of NIE's mission.

The preparation of teachers in Singapore is regarded as a lifelong enterprise. Graduates are recruited from the top third of their high school class. Financial support is provided during training, and initial compensation is comparable to salaries for graduates in other professions. All new teachers experience mentoring and induction, and the country has a serious commitment to ongoing professional development — an entitlement of 100 hours a year. As a result, Singapore has very little teacher attrition, and the profession is attractive to men as well as women (30% of teachers are males). By the end of the 20th century, the system had produced top-level performance on international assessments, and the National Institute of Education had also become recognized as one of the premier teacher training institutions in the world.

No Time to Rest

However, even strong systems cannot afford to be complacent.

In September 2009, Singapore passed another milestone in this journey of continuous innovation. NIE released its new Teacher Education Model for the 21st Century (TE²¹ for

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short). Based on the premise that education must urgently respond to the global, technology-driven, knowledge economy, the central theme of TE²¹ is that 21st-century learners need 21st-century teachers and that teacher education therefore needs to rethink its core assumptions in this new context. In the 21st century, to add to their strong subject-matter skills, students will need: learning and innovation skills, including critical thinking and problem solving; media and technology skills; life skills, including initiative, teamwork, cross-cultural, and leadership skills; and citizenship skills, including global and environmental awareness. Teachers must not only have these 21st-century literacies themselves but be able to create 21st-century learning environments that enable their students to develop them.

How different is this from what teachers do now? Very. Research over the past five years by NIE's Centre for Research on Pedagogy and Practices suggests where work needs to be done to shift teaching from a 20th-century toward a 21st-century model of instruction and outcomes. The research found that while several types of instructional strategies are used, including direct instruction, authentic instruction, and memorization, the last is the dominant pedagogy; that whole-class lectures and Q&A dominate over small-group work; that classroom discourse is heavily dominated by teachers and that most questions asked by teachers are closed-ended rather than open-ended; and that students have limited opportunities for extended writing or speaking. Overall, knowledge transmission is the dominant model of instruction and assessment, with students having limited opportunity to engage in complex knowledge construction.

To move teacher education from a 20th-century knowledge transmission model to a 21st-century focus on building capacities, the task forces that made up TE²¹ made a series of recommendations for strengthening teacher education along the whole continuum from initial teacher preparation to teacher professional development. These included strengthening the learner-centered, professional-identity, and service-orientation *values* that act as a compass for teachers; developing a set of initial teacher *competencies* that articulate and commit what NIE will deliver to the schools; creating better *connections between theory and practice* by giving student teachers more practical experience in schools, extending mentoring, and involving NIE faculty more deeply in

schools; extending teachers' *pedagogical repertoire* to promote depth and engagement and use of new technology; and enhancing teachers' *knowledge of assessment* so that they can use best practices in developing and evaluating both traditional and 21st-century student outcomes.



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Finally, TE²¹ will enhance pathways for professional development and accelerate passage toward master's degrees. Just as important, TE²¹ also emphasized that NIE classrooms themselves need to become models of 21st-century practice.

Will this new plan for teacher education make a difference in classrooms? In many parts of the world, the answer would be no. But in Singapore, a number of factors continue to drive the system forward. For example, there is very close alignment between the Ministry of Education, NIE, and schools that produces great consistency of implementation across schools. The existing human resource management system, which treats teacher education as a lifetime pursuit for all teachers, provides an important infrastructure for changing practice. A coherent performance management system on a wide range of measures holds everyone in the system accountable, whether they work in schools, the ministry, or NIE. And the well-honed strategy of routinely searching the world for best practices and using this as well as domestic research to feed into teacher preparation and practice propels continuous improvement. All this is made easier, to be sure, by Singapore's small size — it's like turning around a kayak rather than a battleship. But if you're looking for a 21st-century teacher education model, Singapore is one to watch. **K**

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