

# NISL

NATIONAL INSTITUTE FOR  
SCHOOL LEADERSHIP®

THE LEADER IN SCHOOL LEADERSHIP®



## Teacher and Leader Preparation Programs: National Institute of Education, Singapore

### Case Study Series

Supporting Education System Redesign

**NCEE**  
National Center On  
EDUCATION  
And The Economy

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## TEACHER AND LEADER PREPARATION PROGRAMS: NATIONAL INSTITUTE OF EDUCATION, SINGAPORE

### Guiding Questions

- ❓ How are NIE's "attributes of the 21st century teaching professional" (see the V<sup>3</sup>SK model in Figure 2) reflected in
  - ❓ education programs that prepare new teachers hired by your district?
  - ❓ in-service supports provided by your district?

"Welcome to the heart of teacher education," reads a sign at the entrance to the National Institute of Education (NIE) in Singapore. Located on the campus of Nanyang Technical University, NIE is a research institution that is the sole provider of teacher preparation in the country. It also provides extensive leadership training programs and a host of professional development and continuing education offerings for teachers. And it conducts world-class research on instruction and learning.

The word *heart* in its motto is well chosen. Not only is the Institute at the center of teacher education in Singapore, heart is at the center of its mission and approach. The framework for teacher education focuses on values—the values of teaching, the values of teachers as professionals, and the values of the teaching community.

Over its relatively brief history, NIE has developed one of the strongest educator corps in the world. Its unusual position as the sole teacher-preparation institution in the country—as well as a key provider of leadership development and professional learning for educators—and its close relationships with the Ministry of Education and

the schools has enabled NIE to play a key role in making Singapore one of the world leaders in education performance. The capability of its teachers and leaders is a major reason for that success.

### Singapore Context

Singapore is an extraordinary success story. In less than 50 years, it has gone from an impoverished island with no natural resources and a population whose majority were illiterate to a country of 4.7 million people with living standards that match those of the most highly developed industrial nations.

Singapore's education system became globally prominent as Singaporean students topped the international rankings in mathematics and science achievement in the 2003 Trends in International Mathematics and Science Study (TIMSS).<sup>1</sup> More significantly, 90 percent of the student population who took this test achieved scores that were above the international median score. This achievement was especially

<sup>1</sup> Ina V.S. Mullis, Michael O. Martin, Eugenio J. Gonzalez, and Steven J. Chrostowski, *Findings from IEA's Trends in International Mathematics and Science Study at Fourth and Eighth Grades*. (Chestnut Hill, MA: TIMSS & PIRLS International Study Center, Boston College, 2004).

*This case was developed solely by NISL for use within its executive development programs as a stimulus for analysis and discussion. It is not intended to endorse any particular decision or organization.*

noteworthy because, even though English has been used as a medium of instruction in all Singapore schools since 1987 (most Singapore schools were using English as the medium of instruction by the 1970s), it is not the home language for most Singaporean students. As of the most recent census in 2010, only 45 percent of individual children between the ages of 5 and 19 years live in homes where English is most frequently spoken.

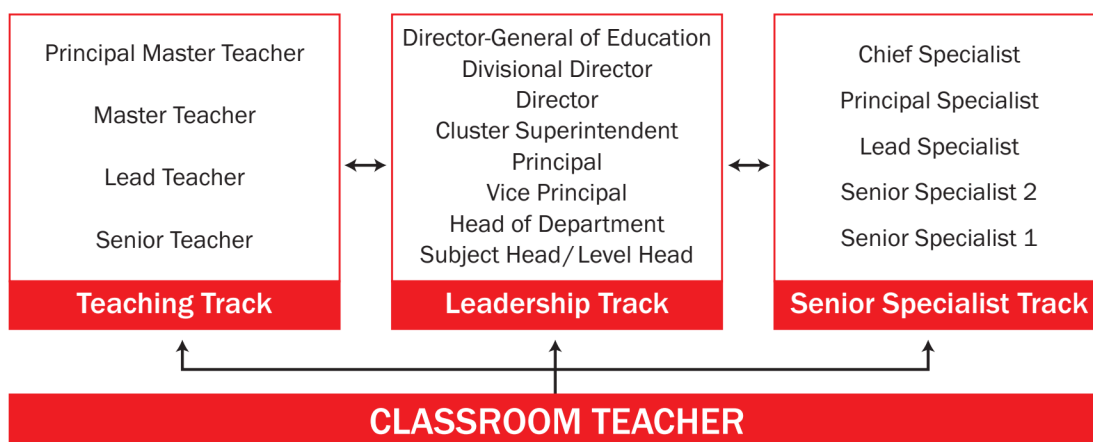
Singapore has a clear aim to equip every person with basic skills so that each is employable and able to earn a decent living, thus helping to reduce poverty and empowering every citizen to maximize their life’s potential.

To achieve this aspiration, Singapore has established a comprehensive education system from preschool to university, as well as continuing education and training during work. The system includes many academic pathways in order to ensure that the potential of every child can be developed to the fullest. The pathways cater to those who not only demonstrate academic strength but other strengths as well. The system consists of five major phases:

Pre-School (4–6 years old), Primary (7–12 years old), Secondary (13–16/17 years old), Post-Secondary (17–19 years old), University (20–23 years old), and continuing education and training (CET). At the end of primary school, students take the Primary School Leaving Examination (PSLE). Based on their scores on that exam, students enter secondary school in one of three streams: an express stream, in which they pursue an academic curriculum leading to University of Cambridge O-level exams after four years; a normal academic stream, in which students pursue an academic curriculum leading to an O-level exam after five years; and a normal technical stream, in which students pursue an applied curriculum over five years, usually leading to further technical studies and a career. However, students can move between streams and students in all streams have higher education options.

Singapore also has a well-developed career ladder for teachers, offering teachers different routes for advancement and leadership. The career ladders provide strong incentives for teachers to continue their professional learning. There are three main routes for

**Figure 1: Career Tracks for Teachers**



Source: Singapore Ministry of Education

career advancement: the teaching track, the leadership track, and the senior specialist track.

## NIE

NIE began as the Teachers' Training College in 1950 but in 1991 became one of the schools housed within Nanyang Technological University one of Singapore's four universities.

The move to the university was the result of recommendations of a committee formed in 1989 to study the state of teacher education in Singapore. At the time, teachers had been trained by the Institute of Education (IE), the successor to the Teachers' Training College and the College of Physical Education (CPE). The committee was formed because of concern about the quantity and quality of primary teachers. It proposed merging the IE and the CPE, creating a single institution—now to be known as the National Institute of Education—to prepare all teachers, and housing it in a research university. Such a move, the committee reasoned, would raise standards for the profession, provide a greater range of postgraduate offerings, and strengthen research on teaching. By all accounts, NIE has achieved all of these goals.<sup>2</sup>

Since 1998, NIE has trained about 2,000 candidates for initial teacher education each year. However, because Singapore achieved its target teaching force of about 33,000 teachers in 2012 and the system has a very low teacher

<sup>2</sup> See, for example, Susan Sclafani, *Rethinking Human Capital in Education: Singapore as a Model for Teacher Development* (Washington, DC: Aspen Institute, 2008); OECD, *Lessons from PISA for the United States, Strong Performers and Successful Reformers in Education*, (Paris: OECD Publishing, 2011), <http://dx.doi.org/10.1787/9789264096660-en>.

attrition rate of around 3 percent, preservice cohorts at NIE have recently been reduced to about the annual replacement rate of between 1,100–1,500 candidates. As a consequence, NIE can keep its very high admissions standards.

NIE also provides professional development and graduate-level education for about 11,000 educators each year.

Unlike universities in the United States, which place a high premium on academic freedom and allow each teacher training institute to develop its own program, NIE sees itself as a partner to the Ministry of Education (MOE) and the schools. NIE works closely with the MOE to develop a program that prepares teachers to teach the national curriculum, and it works closely with educators to develop professional development offerings and a research agenda that will advance their needs.

“There is an alignment of purposes between schools, MOE, and NIE,” said Professor Oon Seng Tan, NIE's director.<sup>3</sup> “There is a lot of conversation, and we always come to consensus. If something is to be done, let's do it together.”

NIE's commitment to schools is reflected in its faculty. Some 85 percent of the faculty are former teachers, and NIE requires new faculty members to spend a total of two weeks in two schools at the start of their tenure in order to understand the needs of teachers and principals.

<sup>3</sup> Oon Seng Tan, personal communication, October 18, 2016.

## Initial Teacher Preparation

The purpose of initial teacher preparation at NIE is just that: to prepare students so that they will be highly effective teachers on the day they enter classrooms and become responsible for student learning. To that end, the program focuses squarely on pedagogy and learning. It draws individuals who are committed to students and provides them with content and experiences that will equip them with the knowledge, skills, and dispositions they need.

“We want to ensure that this program prepares them to be the best teaching professionals,” said Tan.<sup>4</sup> “What happens in the classroom is emphasized—there is not much on the philosophy or sociology of education. We focus on the pedagogical aspects. You are first a teacher of learners and second, a teacher of your subject. All assignments have to be classroom-based.”

There are two routes to teaching degrees at NIE. The largest is a four-year undergraduate program leading to a Bachelor of Arts (ED) or a Bachelor of Science (ED) degree. Most of the students who go through the undergraduate program teach in primary schools. NIE also offers an 18-month graduate program for students who already hold a bachelor’s degree in a content area. Most students who go through that program teach in secondary schools.

The program begins with recruiting the best individuals into teaching. NIE employs a rigorous process to ensure that capable, committed students enter the profession. NIE draws from the

top 30 percent of secondary school graduates, and ensures that applicants have a high level of literacy. They also conduct extensive interviews with candidates to gauge their commitment to children and to teaching.<sup>5</sup>

As this process makes clear, the candidates must show not only strong academic capabilities, but also the attitudes and dispositions required to work with children. “A teacher needs to be strongly grounded in content knowledge,” said Tan. “That makes lot of difference in the depth they can bring students. But many good students with very good grades get rejected. The panel of principals reviewing candidates is looking for dispositions. We are looking for the true core to be a teacher: somebody who really wants to work with youth and children.”<sup>6</sup>

The interviewers seek to learn more about the following qualities in an individual: passion for teaching; ability to communicate well with others; creative and innovative spirit; confidence; leadership qualities; good role model.

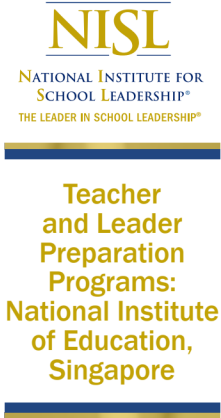
## Teacher Education Course of Study

The framework for teacher education in Singapore undergirds NIE’s emphasis on ensuring that teachers have appropriate values, as well as the necessary content knowledge and pedagogical skills. The framework, known as V<sup>3</sup>SK, focuses on teachers’ values as teachers of learners, as ethical professionals, and as members of a

<sup>5</sup> Michael Barber and Mona Mourshed, *How the World’s Best-Performing School Systems Come Out on Top*, (McKinsey & Company, 2007), [http://mckinseysociety.com/downloads/reports/Education/Worlds\\_School\\_Systems\\_Final.pdf](http://mckinseysociety.com/downloads/reports/Education/Worlds_School_Systems_Final.pdf).

<sup>6</sup> Oon Seng Tan, personal communication, October 18, 2016.

<sup>4</sup> Ibid.



professional and global community. As Tan noted, these three values form a triple braid, which cannot be broken. They form the core of skills and knowledge (S and K).

The curriculum of the four-year undergraduate teacher-education program is rigorous. All students major in a content area and receive either a Bachelor of Arts (ED) or a Bachelor of Science (ED) degree. The curriculum includes coursework in the following areas:

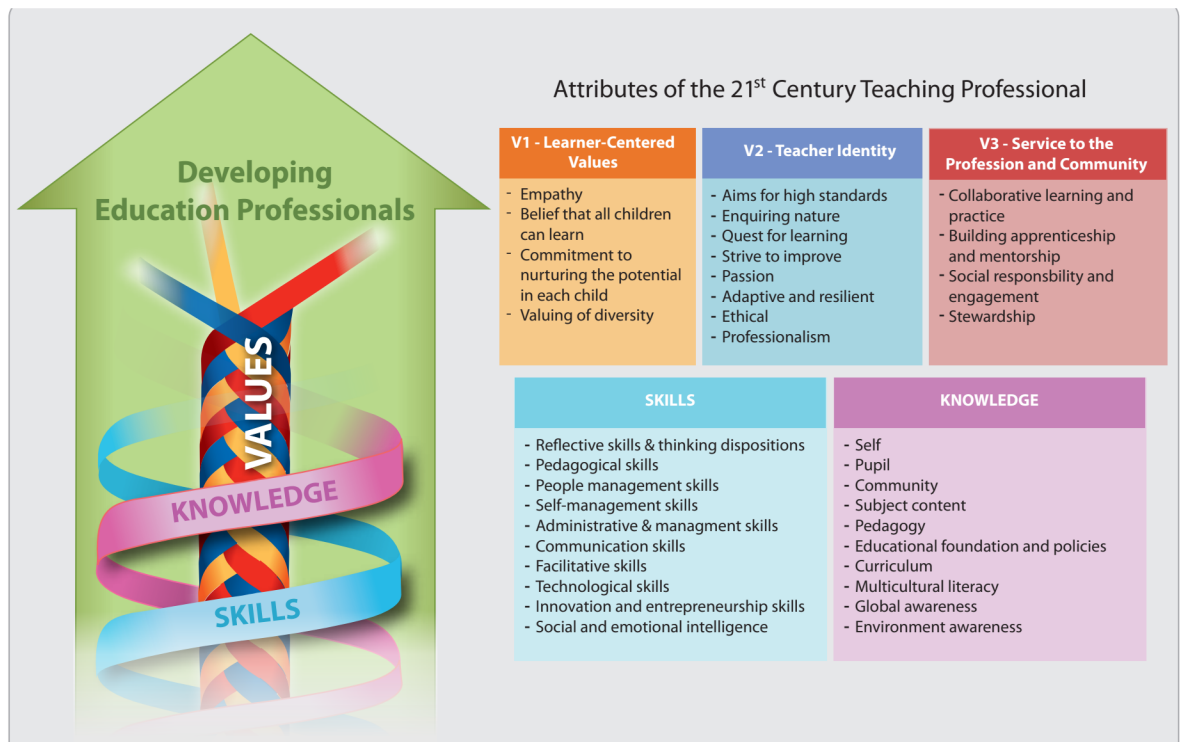
- ✓ Academic subjects, which develop and build candidates' content knowledge
- ✓ Education studies, which include courses on psychology, professional

practice, assessment, and information and communications technology

- ✓ Curriculum studies, which include courses on pedagogy
- ✓ Language enhancement and academic discourse skills, which focus on oral and written communication

The program also includes a strong emphasis on research skills; candidates are required to complete an academic research project in their subject area and an educational inquiry project. This focus is aimed at providing teachers with a strong background in research that they are expected to continue to use as professional learners throughout their career.

Figure 2: New Values, Skill, and Knowledge (V<sup>3</sup>SK) Model



Source: National Institute of Education<sup>7</sup>

<sup>7</sup> National Institute of Education, *The New V<sup>3</sup>SK Model*, [http://www.nie.edu.sg/docs/default-source/td\\_practicum/te21---v3sk.pdf](http://www.nie.edu.sg/docs/default-source/td_practicum/te21---v3sk.pdf).

In addition, candidates are also required to engage in a group service learning project. Working in groups of 20, candidates must spend at least 20 hours working in the community and produce a tangible product. The project requirement is aimed at building candidates' characters and forging their connections to the community they will serve as teachers.

NIE also provides candidates with opportunities to learn and work overseas. Candidates can take part in a student exchange program, in which candidates spend a semester studying and conducting research in one of about a dozen partner universities around the world (including the University of Illinois and the University of California, Santa Barbara); an international practicum, in which they spend five weeks teaching in schools in another country; or an overseas service learning project.

The goal of the international exposure is to broaden the prospective teachers' perspectives, said Tan.<sup>8</sup> "If you teach in another system, the way you look at things is very different," he said. "We all grow up in our own system. That can hinder you from thinking in different ways."

Another program provides candidates with opportunities to learn about the world that the candidates' future students will encounter. Under this program, known as Building University Interns for Leadership Development (BUILD), candidates spend five weeks in a non-educational company or organization. "If teachers do not understand the needs of the community and the challenges in industry, it's

not easy to prepare students so that they shape the future of the country," said Liu Woon Chia, dean of teacher education at NIE.<sup>9</sup>

The design of classrooms at NIE and the pedagogy there is also aimed at encouraging students to think differently about instruction. Students sit at pentagonal tables and engage in many group activities, often involving technology, rather than spend all of their time in didactic lectures. In that way, when the candidates become teachers, they can help change schools to reflect new knowledge about instruction, said Tan.

The NIE undergraduate teacher education program also includes extensive clinical practice. Beginning with two weeks in their first year, candidates spend a total of 22 weeks over their four years at NIE—10 percent of their time there—in classrooms under the supervision of trained mentor teachers. In their first year, the candidates observe classes; in the second year, they spend five weeks as a teacher's assistant; in the third year, they spend five weeks practice teaching; and in their fourth year, they spend 10 weeks practice teaching.

The mentors are not paid an additional amount, noted Chia. "It's part of your identity as a teacher," she said, referring to one of the values emphasized in the NIE framework. "You were mentored, now you mentor the next generation."<sup>10</sup>

As part of their field experience, candidates compile an electronic portfolio that consists of their reflections on what they observed and did in the classroom and artifacts from their

<sup>8</sup> Oon Seng Tan, personal communication, October 18, 2016.

<sup>9</sup> Liu Woon Chia, personal communication, October 18, 2016.

<sup>10</sup> Ibid.



experiences. The portfolio enables candidates to take responsibility for their learning from the experience, and ties their field experience back to their NIE classes, said Chia. “We want students to learn for teaching and learn from teaching,” she said. “They are encouraged to observe and bring back artifacts so they can discuss what they observed in their next course.”<sup>11</sup>

In addition to the undergraduate program, NIE also offers a postgraduate teacher education program for candidates with bachelor’s degrees in a content area. The postgraduate program includes both coursework and clinical experience. Originally a one-year program, the program was expanded to one and a half years in 2016 in order to expand the field experience component. The first cohort of the expanded postgraduate program will consist of 500 students.

Candidates accepted into postgraduate diploma programs are required to attend the Teacher Preparatory Programme, run by the Academy of Singapore Teachers (AST), an institution created by the Ministry of Education to provide teacher-led professional learning for teachers. In this way, prospective teacher candidates are connected with experienced teachers even before the start of formal training. The program is an introductory course that provides the teacher candidates with an awareness of the expectations and ethos of the profession, and the fundamentals of teaching. These include adopting a growth mindset, lesson planning and enactment, assessment for learning, classroom management, Information and Communication Technology (ICT) infusion, and Character and Citizenship Education.

<sup>11</sup> Ibid.

Following the Teacher Preparatory Programme, applicants spend time in schools as untrained contract teachers. The purpose of this stint—usually between a month and a year in length—is to enable the school to assess the applicant’s suitability for teaching, and for applicants to affirm their interest and passion for the profession. It is also to allow applicants to experience the life of a teacher and relate their future learning at NIE to real life experience.

If candidates are assessed by the school as being suitable for teaching at the end of their school stint, they will be enrolled in NIE to undergo initial teacher preparation. Candidates will continue to be monitored at NIE while they undergo their initial teacher preparation. Those who do not meet the requirements on attitude, aptitude, and personality—typically a small number—will be removed from the program. Starting from the school stint before entering pre-service education, candidates receive a stipend from the MOE that covers their tuition and teacher training fees.

## Leadership Development

As part of its career ladder system, Singapore offers teachers identified by the Ministry with leadership potential to rise through the leadership ranks. To prepare them for those positions, NIE offers extensive leadership development.

There are three leadership programs at NIE.

The *Leaders in Education* program is a six-month, full-time program to prepare aspiring principals for leadership positions. Those selected for the program have received high ratings

on performance appraisals and been interviewed about their suitability for the principalship by the MOE. Upon completion of the program, the candidates are posted to a school, although not all receive principal positions right away; many are posted as vice principals until principal positions open up.

Under the program, each aspiring principal is connected with a mentor principal, selected by the MOE, who coaches them in the practical realities of the job while they take coursework. The aspiring principals also spend two weeks overseas at a school in order to observe a different system and reflect on Singapore's schools through that lens. As a culminating project, the aspiring principals complete a creative action project, in which they envision their mentor's school 10 years in the future and develop a plan to implement a change that will lead to that result.

The *Management and Leadership in Schools (MLS)* program is designed for prospective middle managers, such as curriculum specialists in schools. It is a full-time, 17-week course that includes a visit to another country in the Southeast Asian-Pacific region. Participants complete a project to develop an innovative curriculum in a local school.

The *Building Education Bridges* program is a two-week program for school leaders that pairs the leaders from Singapore with leaders from another country. The pairs spend a week in Singapore and a week in the partner's country. The goal is to promote greater understanding of other systems and to generate ideas for innovation.

## Professional Learning

To encourage practicing teachers to continue their learning, Singapore offers a number of incentives for ongoing professional learning. The NIE plays a key role in providing such opportunities.

All teachers are entitled to 100 hours of paid professional development each year, and according to the Teaching and Learning International Study (TALIS), a survey conducted by the Organization for Economic Cooperation and Development (OECD), 93 percent of Singapore teachers have taken coursework or workshops to fulfill that requirement.<sup>12</sup> The NIE provides graduate-level courses for teachers on subject-area content and pedagogy, and NIE works with the AST to develop custom-designed professional learning opportunities.

The MOE also offers paid time for teachers to pursue graduate degrees and has set a goal that 30 percent of the teaching force will have master's degrees by 2020. Currently, 1,486 teachers are in master's programs at NIE, 102 are in EdD programs, and 185 are in PhD programs.<sup>13</sup> NIE offers a range of graduate programs, including content area studies and pedagogy. NIE also operates a master's program in leadership and educational change jointly with Teachers College, Columbia University.

NIE allows teachers to sign up for graduate courses without pursuing a degree. However, if they choose to enter

<sup>12</sup> OECD, "Singapore: Key Findings from the Teaching and Learning International Survey (TALIS)," (2014), <https://www.oecd.org/edu/school/TALIS-2013-country-note-Singapore.pdf>.

<sup>13</sup> Oon Seng Tan, personal communication, October 18, 2016.

a degree program, NIE will award them credit for the non-degree courses they have taken.

## Research

As an institute in a research university—which is ranked 13th in the world by QS,<sup>14</sup> an international research organization—NIE has a robust research program. The research budget has grown considerably over the past 15 years, from S\$48 million (US\$35 million) in 2002 to S\$111.58 million (US\$80.56 million) in 2017.<sup>15</sup> And with that growth has been a shift in the focus of the research, from an examination of what is happening in schools to the development and testing of research-based interventions to improve student learning.

In keeping with its mission to support Singapore schools, NIE's research agenda focuses on pedagogy and the learning sciences, said Tan. For example, he noted, as the government has shifted its emphasis in schools to student-centered learning, NIE has conducted studies to determine how the shift is implemented in schools. The researchers have found some challenges, Tan noted. "Teachers are doing more group work, but the power of group work—rich conversations—is still missing," he said. "We were hoping to discover students learning from other students, but it was disappointing. It's not so easy. It's not just about student-centered learning. Simply having students talk and be engaged in activities doesn't mean deep learning."<sup>16</sup>

<sup>14</sup> "World University Rankings: Who Rules?" *QS Top Universities*, <http://www.topuniversities.com/university-rankings/world-university-rankings/2016>.

<sup>15</sup> Oon Seng Tan, personal communication, October 18, 2016.

<sup>16</sup> Ibid.

Based on these findings, NIE is testing some interventions to improve the quality of inquiry learning in schools. And in doing so, NIE has engaged teachers in a new way, Tan said.

"Early on, students and teachers were subjects," he said. "As we've moved, we've upped professional knowledge of teachers in research. Soon, we will make teachers partners with us in research."

## A Unique Institution

To Americans accustomed to research universities that stand apart from the day-to-day challenges of schools, NIE appears to be an unusual institution. Its mission is clear: to support Singapore schools by preparing teachers to teach the national curriculum, preparing future school leaders, providing ongoing professional learning, and conducting research that will lead to improvements in practice.

Judging by the results—Singapore's performance on international assessments—NIE has been enormously successful. But NIE is not resting on its laurels. It is increasing its efforts to share its research findings and preparation programs throughout the country.

"We should have presence in almost every school," said Tan. "We should let them know what is happening in NIE."<sup>17</sup>

<sup>17</sup> Ibid.