Chapter 2
Teacher Education Policy: Recruitment, Preparation and Progression

Ee-Ling Low and Oon-Seng Tan

2.1 Introduction

Despite the small geographical size of the nation, the Singapore economy is one of the most prosperous in the world. Not only does it rank as the best country in the world to do business (*Economy Watch* 2011), but Singapore has also been highlighted as a high-performing education system with features that other systems could learn from (Barber and Mourshed 2007). The Organisation for Economic Cooperation and Development (OECD 2010) also commented on the strong link between education and economic development in Singapore, as well as between policy formulation and policy implementation. By continuously investing in the upgrading of its education system, Singapore's curriculum is well-developed with rigorous standards aligned to instruction and assessment. Education spending usually makes up about 20% of the annual national budget. In 2010, there was an increase of 11% budget over 2009's budget, providing a total of $9.88 billion (Singapore Budget 2010, 2011). The total projected expenditure of the Ministry of Education (MOE) in FY2014 is S$10.5 billion (Singapore Budget 2015). Of the total 2014 estimated expenditure, $10.60 billion or 91.27% was for the operating expenditure, while the remaining $888 million or 8.73% was for the development expenditure (Ministry of Finance 2014).

MOE oversees and manages all Singapore's state schools and has a strong supervisory role over private schools. In 2015, the island state had 182 primary schools, of which 46 are government-funded private schools, and 154 secondary

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schools, of which 31 are government-funded private institutions. The size of the teaching force stands at about 33,000 (En 2014). Being a single system, Singapore is able to design a comprehensive strategy to develop a high-quality educational system, and at the centre of this approach are the well-trained and well-supported teachers and school leaders (Darling-Hammond 2013).

Knowing that teacher quality makes the largest difference in student achievement, the most effective school systems invest in the professional and personal development of their educators (Mizell 2010). This chapter documents how teachers are selected from the top 30% of each cohort in Singapore, MOE's teacher education sponsorship of selected candidates, the teacher education pathways available and the career progression tracks. These are underpinned by a respective framework to ensure that each teacher's career development prospects are carefully tailored to the individual, thereby allowing each individual to fully realise his or her potential.

2.1.1 Singaporean Students' Performance in Internationally Benchmarked Tests

In recent years, Singapore has ranked among the top five countries in the world in internationally benchmarked tests of science, mathematics and reading achievement. In 2012, Singapore was ranked fifth in the world by the Pearson Group, which did a survey on the cognitive skills and educational attainment levels of children in 50 countries and territories (Yong 2012). In the 2012 Programme for International Student Assessment (PISA) given to 15-year-old school pupils of OECD member and non-member nations, Singapore emerged second in mathematics, science and reading (OECD 2014). In the 2011 Trends in International Mathematics and Science Study (TIMSS), Singapore's Primary 4 (Grade 4) students performed best in the world in mathematics and second best in science (Martin et al. 2012; Mullis et al. 2012a, b). Similarly, Secondary 2 (Grade 8) students led in science and came in second in mathematics (Martin et al. 2012; Mullis et al. 2012a, b). In the 2011 Progress in International Reading Literacy Study (PIRLS), Singapore's Primary 4 students also showed strength in reading, ranking fourth place out of 49 countries (Mullis et al. 2012a, b). National assessments tell a similar story. In 2013, 97.5% of Singaporean students passed their sixth-grade 'leaving' examination (*The Straits Times* 2013). Likewise, Singapore's universities are at par with the world's best. Based on the 2015/2016 QS World University Rankings, both the National University of Singapore (NUS) and the Nanyang Technological University (NTU) have improved their international rankings, with NUS at 12th and remaining the top Asian university and NTU at 13th place (*QS Top Universities* 2016). NTU is also the top ranked university for universities aged 50 years or younger (*QS Top Universities* 2015).

In 2007, McKinsey and Company recognised Singapore as one of the top-performing education systems in the world in its study (Barber and Mourshed

2007). Three important factors, which Singapore had, set the top 10 performing school systems apart were emphasised in the report: (1) get the right people to be teachers, (2) develop them into effective teachers and (3) ensure that the system is able to deliver the best possible instruction to all children. This chapter focuses on the first two factors and makes a deliberate attempt to take a deep dive into the systemic processes. The second section will first provide a broad overview of the Singapore education system to provide a background understanding before delving into the actual selection, recruitment, preparation and development process for teachers within the system.

2.2 Background of the Singapore Education System

The mission of education in Singapore is to mould the future of the nation—that is, to provide the best learning opportunities for young people who will eventually lead the nation and, hence, determine its future. What sets the Singapore education apart is that it is a well-structured, well-planned and efficient system which provides education pathways and differently paced curricula to tailor to the various student needs, capabilities, aptitudes and learning modalities. Abilities and interests of students are identified early on, and the system's flexible education programmes try to accommodate the different requirements of each group of students (Tan et al. 2007). Singapore's education is geared towards providing a holistic education allowing students to draw from a diversity of knowledge, learning experiences and opportunities in order to pursue their passions and develop special talents (MOE 2012). The goal is to nurture young Singaporeans to develop a strong moral conscience and a future-oriented mindset so that they will be ready to compete in the highly innovative and highly entrepreneurial economy of the future (Chen 2000; Lee 2006; Shanmugaratnam 2003, 2004, 2006; Teo 1999a, b, 2001a, b).

There is a minimum of 10 years compulsory education, comprising six years of primary education and four years of secondary education (Fig. 2.1), which every child in Singapore must undergo. Formal education begins at the age of seven with primary education that comprises a four-year foundation stage (from Primary 1–4 or Grades 1–4) and a two-year orientation stage from Primary 5–6 (Grades 5–6). Students are encouraged to participate in co-curricular activities (CCAs) and Community Involvement Programmes (CIPs). The six years of primary education end with the Primary School Leaving Examinations (PSLE). Following the successful completion of PSLE, all students proceed to do four or five years of secondary education. Depending on how they perform in PSLE, students are placed into the express, normal (academic) or normal (technical) streams. Students placed in the four-year express stream will work towards the Singapore–Cambridge General Certificate of Education (GCE) 'O' level examination (taken at Secondary 4 or Grade 10). Students posted to the normal (academic) stream will do the GCE 'N' level examination after four years and may progress for another year to do the GCE 'O' level examination; selected 'N' level students may also take certain 'O'

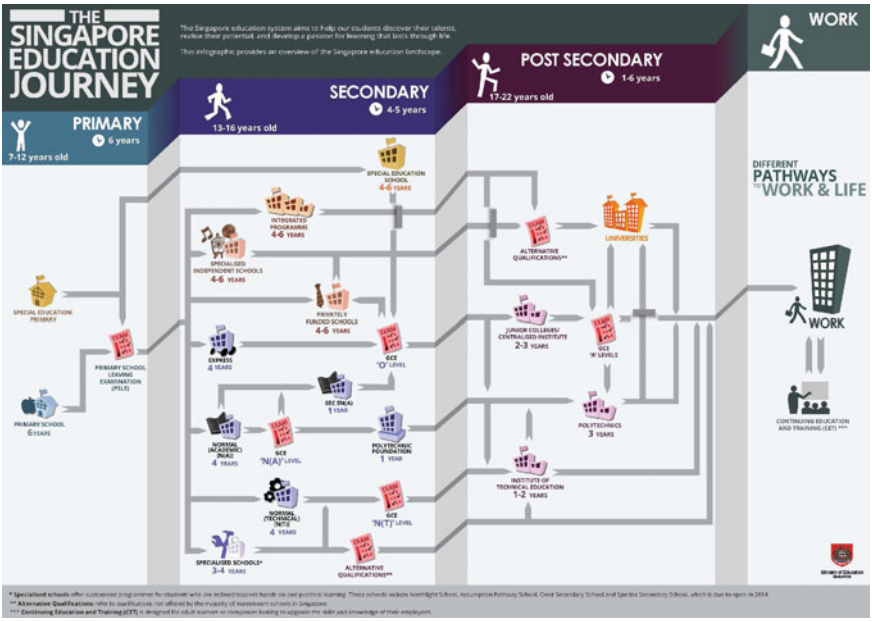

Fig. 2.1 Various education pathways in the Singapore education system (MOE 2016c). *Source* Ministry of Education, Singapore (2016)

level subjects in their fourth year. The normal (technical) course is a four-year course leading to the GCE 'N' level examination with subjects of technical and practical emphasis.

Post-secondary education lasts for two or three years depending on whether students are enrolled in junior colleges (JC), centralised institutes (CIs) and the Institutes of Technical Education (ITEs). Students from ITEs can continue to further their studies in the polytechnics. The five polytechnics, namely Singapore Polytechnic, Ngee Ann Polytechnic, Temasek Polytechnic, Nanyang Polytechnic and Republic Polytechnic, provide a comprehensive range of post-secondary programmes that meet the needs of industries and businesses. Alternatively, students in certain niche programmes may continue to pursue technical diplomas in ITEs. These technical diplomas, held in collaborations with quality foreign institutions, provide an upgrading pathway for students in niche, skills-based programmes. Upon the successful completion of post-secondary education from their respective JCs, CIs and polytechnics, students can then proceed to apply for entry into universities, either locally or abroad.

This section has provided a quick overview of the Singapore education journey, while the next section will explain how MOE, the National Institute of Education (NIE) which is the nation's sole teacher education institute, and all schools in Singapore work in close partnership to deliver a highly qualified teaching workforce for Singapore.

2.3 The Singapore Teaching Workforce

Singapore confronts the multifaceted challenges of education by a matrix of connectivity and alignment, enabling a balance of autonomy and optimal monitoring and resourcing. Teacher education at NIE builds on MOE's vision for education, which is for Singapore to become a nation of thinking and committed citizens who have the ability, attitude and skill to contribute towards Singapore's continued growth and prosperity, and can become creative thinkers, lifelong learners and leaders of change. There is a well-balanced 'autonomy versus standardisation' framework guiding MOE, NIE and the schools in their practices. Each plays a distinct yet harmonising role to achieve the desired education outcomes.

Having recognised that the quality of teachers determines the quality of education, Singapore was also cognisant that a strong and sustained strategic partnership was needed between the key educational stakeholders, namely MOE, NIE and all schools in Singapore (NIE 2009). The Policies-Practices-Partnership (PPP) Model (Fig. 2.2), mooted by Lee and Low (2014), aims to provide the necessary collaborative framework of shared values and goals which are aligned to a unified outcome.

MOE, being the pivotal lead agency of the education system, provides the leadership to establish the goals of education. MOE has articulated a set of desired student and key competencies that learners ought to possess for the twenty-first century (known as the Twenty-First Century Competencies and Student Outcomes Framework that is meant to produce a confident person, a self-directed learner, an active contributor and a concerned citizen; MOE 2016a). With these goals and outcomes of education being articulated, key education policies can be put in place in enabling these goals to be achieved. NIE and schools are key enablers in ensuring that the goals of education are achieved and are responsible for translating the policies into practices that allow students to be educated in a way that achieves the desired goals. For schools, this involves proper planning and implementation of the curricula studied, pedagogies adopted, design of the learning environment and

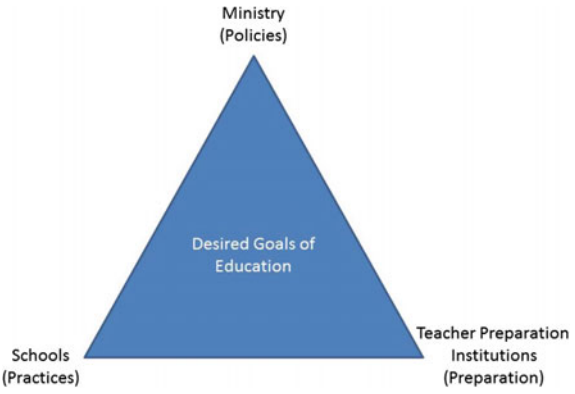

Fig. 2.2 Schematic representation of the PPP model for education in Singapore (Lee and Low 2014)

assessment practices. CCAs that ensure that values are being inculcated in students and a good character is developed are also essential. For NIE, this involves translating the policies into relevant preparation programmes to ensure that teachers have the competencies to deliver the desired outcomes.

2.4 Recruitment, Preparation and Progression of Singapore Teachers

In order to meet the changing needs and demands of the twenty-first-century learning environment, it is critical for Singapore to be able to attract, select and retain the people needed to educate the younger generation. While MOE takes sole responsibility over the recruitment, preparation, certification, appointment and deployment of teachers for Singapore schools, this is not done in isolation but by partnering NIE, schools and other stakeholders (e.g. teachers, parents, other government ministries, universities and the private sector). As Singapore seeks to continue providing high level of qualifications among teachers, engagements like these go beyond those related to licensing standards that are common in other countries. Every year, MOE gets feedback from schools as well as its own data to make strategic forecasting on recruitment, planning for new schools, initiatives and programmes. This section details the national teaching standards from recruitment to preparation to progression in the teaching career.

2.4.1 Academic Qualifications Required for Teaching

MOE recruits teachers from the top one-third of each cohort of the graduating class that qualifies for tertiary education, and only one of eight applicants interviewed is accepted. Apart from satisfying basic academic standards, aspiring teachers also must have the aptitude and interest in teaching. This is ascertained in the interviews held by MOE officers and experienced principals and teachers (Teo 2000). Throughout the year, MOE organises several recruitment seminars named as 'Teaching as a Career' for interested applicants to attend as well as an opportunity for them to ask questions. Prospective students can apply to either a graduate or non-graduate teacher education programme depending on their academic qualifications. The Ministry also invests heavily in the branding of the teaching career as one that is intricately linked with the important mission of nation building. For example, a bus advertisement on teaching had the following tagline, 'Shaping the future of the nation: One student at a time'.

To be eligible to be a graduate teacher, students must possess a university degree (bachelors, undergraduate or college), including having done coursework in the requisite teaching subjects. If the desired programme involves teaching a major

subject in school, the individual must have studied at the undergraduate level to qualify to teach such a subject (see MOE 2015a, b, c for the specified disciplinary majors). To be considered in a non-graduate programme, the applicant must have the following academic qualifications: (a) the General Certificate of Education (GCE) 'O' level (Grade 10); (b) GCE 'A' level (Grade 12); or (c) a polytechnic diploma. Students are then shortlisted for the interview once they satisfy the admission criteria of the teacher education programme chosen. The interviews seek to find out more about a potential teacher in terms of the individual's passion for teaching, ability to communicate well with others, creativity and innovative spirit, confidence, leadership qualities and potential to be a good role model.

Unlike in other countries, the recruitment, preparation and deployment of teachers in Singapore are unique. It is important to note that student teachers are hired as full-time civil-service employees (called General Education Officers) of the Ministry and therefore are sponsored to attend NIE programmes. Student teachers receive a monthly salary, including Central Provident Fund (CPF)[1] contributions, year-end bonuses, NIE tuition grant and other benefits. As this is a huge capital investment by the government in terms of salaries and tuition grants, student teachers are required to serve a teaching bond, which ranges from three to four years, after they graduate from NIE. This teaching bond is also a guaranteed teaching position in schools. While the base salaries are not particularly high when compared to many other top-performing countries, they are high enough to make monetary compensation an unimportant consideration for candidates weighing teaching against other professions. As a guide, beginning teachers are paid equivalent salaries to those of beginning accountants and engineers in the civil service. Singapore also has a system of generous bonuses that boost teachers' salaries over the course of their careers. The bonuses are based on Singapore's sophisticated teacher appraisal system which will be described later in this chapter.

Having covered the stringent selection and recruitment policies, the next section will briefly describe the rigorous pre-service teacher education programmes.

2.4.2 Teacher Preparation

NIE, located within NTU, is the only teacher education institution in Singapore. NIE offers different programmes that cater to different teaching candidates, depending on their level of education and qualification. These are the Diploma in Education (DipEd), the Postgraduate Diploma in Education (PGDE) and the Bachelor of Arts/Science (Education) (BA/BSc Ed); and the course durations range from one to four years. NIE programmes focus on the development of pedagogical,

[1]The Central Provident Fund (CPF) is a comprehensive social security savings plan for the Singapore workforce.

skills and knowledge competencies. The curriculum is regularly updated to reflect the changing needs of twenty-first-century learners.

In its endeavour to develop a strong teaching force for the twenty-first century, NIE designed and implemented a new Teacher Education Model for the Twenty-First Century (TE^{21}; NIE 2009). TE^{21} comprises six recommendations that are intended to enhance the key elements of teacher education, which include the underlying philosophy, curriculum, desired outcomes for teachers and academic pathways. The V^3SK Model (values, skills and knowledge; see Fig. 2.3) highlights the requisite knowledge and skills that Singapore teachers must possess in meeting the challenges of the twenty-first-century classroom. The V^3SK Model represents the underpinning philosophy of teacher education at NIE, which is values-driven. How the model has impacted the pre-service and in-service teachers of NIE will be discussed in the subsequent chapters. The three value paradigms of V^3SK are as follows:

- *Learner-centredness values* which place the learner at the centre of teachers' work. The teacher is acutely aware of the learner's development and diversity, believes that all learners can learn, care for others, strive for scholarship in content teaching, know how people learn best, and learn to design the best learning environment possible.
- *A strong sense of teacher identity* refers to having high standards and strong drive to learn in view of rapid changes in the education milieu and to being responsive to students' needs.

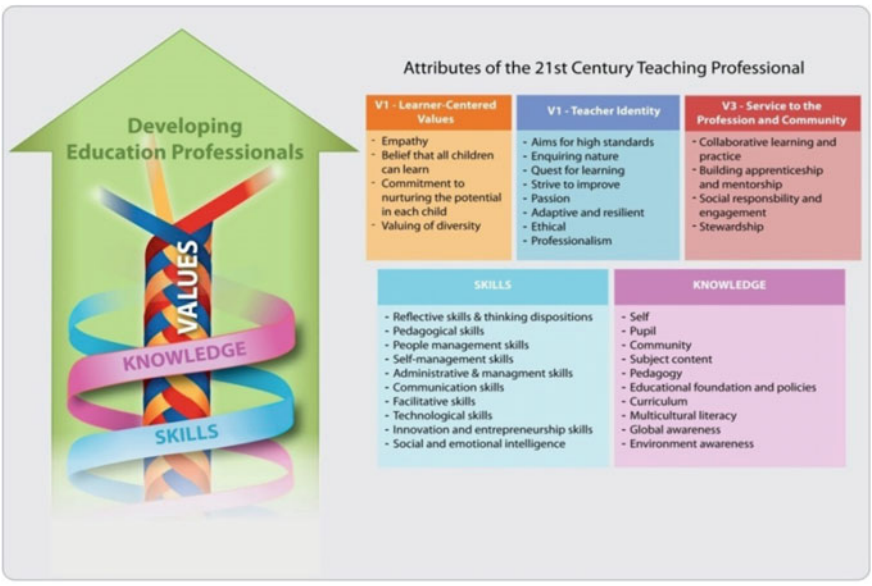

Fig. 2.3 V^3SK model (NIE 2009)

- *Service to the profession and community* focuses on teachers' commitment to their profession through active collaborations and striving to become better practitioners to benefit the teaching community.

Furthermore, an internal reorganisation at NIE in March 2014 created the Strategic Planning and Academic Quality (SPAQ) office to tap on the synergies and linkages between strategic planning and evidence-informed academic quality enhancement efforts to aid institute-wide planning, decision-making and quality assurance. SPAQ assists the NIE leadership in overseeing the formulation, implementation and communication of the Institute's medium-term strategic plan. Figure 2.4 shows the framework used for evaluation to ensure that NIE teacher education philosophy set in the V^3SK are upheld.

The evaluation cycle framework looks at three components—processes, product and input—that are essential in maintaining quality teaching and learning at NIE. Programmes are regularly assessed and an Academic Group Quality Review carried out to identify best practices, identify areas of improvement, and establish improved processes and performance outcomes. Likewise, to ascertain the preparedness of beginning teachers, surveys are conducted and graduation trends analysed. Finally, significant in maintaining consistent academic quality is the profile of student population; therefore, a rigorous admissions process is being observed.

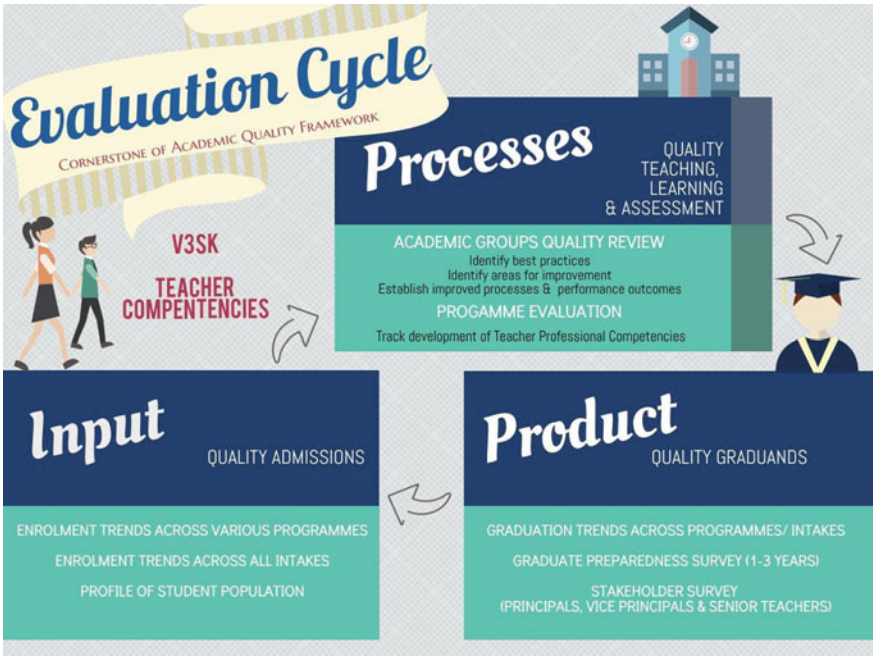

Fig. 2.4 SPAQ evaluation cycle (NIE 2014b)

2.4.3 Roles of NIE in Teacher Education

With the creation of the Teachers' Training College (TTC) in 1950, the offering of teacher education in Singapore on a long-term and organised basis commenced. Initially, TTC offered certificate courses in education for non-graduates. Graduate teachers were trained at the School of Education at the then University of Malaya (later the University of Singapore). Twenty-three years later, the Institute of Education (IE) was established out of TTC to train both graduate and non-graduate teachers on a full-time basis with a part-time teaching cadetship scheme. Less than a decade later in 1960, a full-time teacher-in-training programme was employed for all aspects of teacher preparation.

The present NIE is the product of the merger between IE and the College of Physical Education[2] in 1991, and it became an autonomous institute of NTU. Along with its autonomous status, NIE shares a dynamic relationship with MOE. While MOE hires the teachers, NIE prepares them and also collaborates with MOE to define the standards of academic qualifications when recruiting different categories of teachers and provides input into the selection process (Tan et al. 2007).

Due to this close partnership, all student teachers who successfully complete any of NIE's teacher education programmes automatically become certified to teach in the Singapore school system; there are no additional examinations and/or further certification needed through a separate teaching standards board as NIE under NTU acts as the accreditation board (Tan et al. 2007). Through its quality programmes and stated outcomes, NIE maintains the professional teaching standards that define what accomplished teachers should know and be able to do as they enter into schools. In this interrelated system, MOE and NIE act as the standards board.

Another pivotal role NIE plays in the Singapore education system is its involvement, through its faculty, in the numerous MOE curriculum review committees that make recommendations for any curriculum changes and initiatives. Such curricular changes are reflected in timely revisions to NIE's teacher education programmes with the aim that teachers are current in their knowledge and qualifications. This applies to both the preparation of new teachers and the professional development for over 33,000 practising teachers in over 360 schools (MOE 2012).

2.4.4 Programmes Offered by NIE to Prepare Teachers

NIE offers a variety of initial teaching preparation programmes to help individuals prepare for a teaching profession. These programmes are as follows: (a) Bachelor of Arts (Education)/Bachelor of Science (Education)/Bachelor of Education

[2]The College of Physical Education was set up in July 1984 to train specialist teachers in physical education.

(BA/BSc/BEd); (b) Diploma in Education programmes; and (c) Postgraduate Diploma in Education (PGDE) programmes.

The **undergraduate programmes** at NIE are positioned to combine the best of an academic degree with a good foundation in the field of education to produce graduates with the knowledge and skills to excel in careers in both education and education-related fields and beyond. The BA/BSc/BEd programmes admit candidates who hold either GCE 'A' Levels or polytechnic diplomas. Moreover, this programme also admits returning teachers with NIE Diploma qualifications, Certificate of Education and NIE's Advanced Diploma qualifications (NIE 2012–2013). Teaching tracks offered in the undergraduate programmes include the BA (Ed) (General) (Primary), BA(Ed) (Chinese/Malay Language Specialisation) (Primary), BA(Ed) (General) (Secondary), BA(Ed) (Chinese/Malay Language Specialisation) (Secondary), BSc(Ed) (General) (Primary), BSc(Ed) (Physical Education and Sports Science) (Primary), BSc(Ed) (General) (Secondary), BSc(Ed) (Physical Education and Sports Science) (Secondary) and BEd (Primary).

There are two tracks a student can take when pursuing a **Diploma in Education**: the General and the Specialisation. The General track prepares student teachers to become generalist primary school teachers, while the Specialisation track provides for specialisation in the teaching of the mother tongue languages and Physical Education at the primary or secondary school level, and Art, Music or Home Economics at the secondary level. Another area is in Special Needs Education, and candidates who are interested may be offered a Diploma in Special Education (DISE). DISE is a one-year full-time programme that prepares student teachers to teach children and young adults with a range of disabilities, including intellectual, physical, sensory, behavioural and psychological. Generally, the diploma programmes admit candidates who hold either GCE 'A' Levels or polytechnic diplomas, and candidates applying for DISE should have one-month relevant experience (NIE 2015–2016).

The **Postgraduate Diploma in Education (PGDE)** programme aims to prepare university graduates to become primary school, secondary school or junior college teachers. It is a one-year programme except for those specialising in the two-year PGDE (Physical Education). Candidates must hold at least a bachelor's degree to be admitted to the PGDE programme (NIE 2015a).

The **NTU-NIE Teaching Scholars Programme (TSP)** is the latest addition to Nanyang Technological University's (NTU) Premier Scholar's Programmes (PSP). TSP is a four-year programme that includes a multidisciplinary curriculum that supplements the core curriculum in the Bachelor of Arts (Education)/Bachelor of Science (Education) programme (NIE 2014a). TSP scholars are encouraged to pursue their interest and create their own learning plan through an extensive selection of electives offered at NIE, NTU or partnered overseas universities. To hone their research skills, scholars will embark on a research project with an eminent research mentor or through the Undergraduate Research Experience on Campus (URECA) offered at NTU. They will be exposed to a wide-array of innovative pedagogical approaches used to enhance learning such as collaborative learning, self-directed learning, problem-based learning and flipped classroom.

With the aim of preparing scholars to be future leaders of education, the TSP curriculum is designed to help them acquire practical experience from industry and become thought leaders on best practices and managements globally, and to sharpen their analytical skills and develop their research expertise. Scholars are able to attend overseas conference presentation, guaranteed an international practicum and/or semester exchange, given the opportunity to be involved in leading-edge research, and have the option to pursue postgraduate study.

2.4.5 The Graduand Competency Framework

Teacher education needs to be transformative in order to produce quality teachers equipped with the values, knowledge and skills to raise a new generation of twenty-first-century learners. TE^{21}, which aims to prepare autonomous *thinking teachers* for the twenty-first century, is value-based, with a strong focus on the theory–practice nexus. One of the defining elements in the TE^{21} model is the use of the e-Portfolio to help student teachers build their conceptual map of learning and teaching. Recent studies have shown that there has been an increase in the worldwide use of e-Portfolios in higher education across Asia, USA and Europe (Chou and Chen 2009).

First piloted with the PGDE JC July 2010 cohort (NIE 2010) and subsequently formally implemented, the e-Portfolio initiative provides student teachers with a structure within which they document what they know and are able to do as teachers, and affords them ongoing opportunities to reflect about their growing understandings of what constitute good teaching (NIE 2012a, b). While the portfolio can take on various forms, NIE has chosen to utilise an e-platform, which allows student teachers to share their e-Portfolio with their school coordinating mentors (SCMs) and NIE supervisors during the focused conversations and pre- and post-practicum conference.

The NIE e-Portfolio is a learning and teaching portfolio (Fig. 2.5; for more details about the e-Portfolio, see Chap. 10). On the personal level, the e-Portfolio serves as a means for the student teacher to track his/her growth and experiences as a teacher, to chart his/her developmental journey and to be used to explore, extend, showcase and

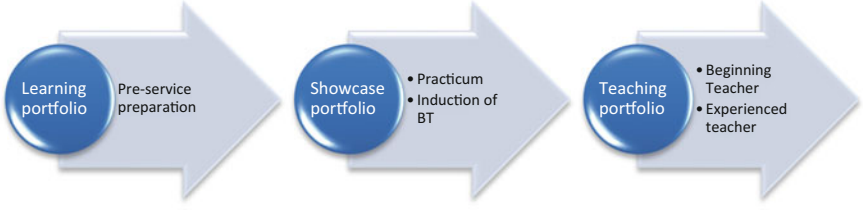

Fig. 2.5 Professional practice and inquiry (PPI) e-Portfolio model (NIE 2015b)

reflect on his/her personal learning. The e-Portfolio is potentially a vehicle for: (1) charting the academic journey of the student teacher from admission to graduation; (2) providing a platform for the student teacher to present his/her personal teaching philosophy over time; (3) providing evidence of the establishment of the theory–practice link in the student teacher; (4) providing an avenue for the integration of the reflective practice model (this will be explained further in Chap. 11); (5) providing evidence of the student teacher's integration of V^3SK; and (6) providing evidence of the attainment of the Graduand Teacher Competencies (GTCs).

The GTC Framework (Table 2.1) articulates a set of professional standards for NIE graduands. By aligning GTCs with the professional standards set by MOE, a common language is established and graduands will be able to continue developing these competencies beyond their pre-service preparation to the classroom. GTCs are also embedded in NIE's programmes and courses, and used to evaluate student teacher outcomes. It provides student teachers with a common baseline to work towards, mentors with a good developmental framework to work with and stakeholders with clear expectations in terms of the competencies of NIE graduands should have upon graduation.

Table 2.1 Graduand teacher competency framework (NIE 2009)

Performance dimensions	Core competencies	Focus level of ITP learning
Professional practice	1. Nurturing the child	CB
	2. Providing quality learning of child	CB
	3. Providing quality learning of child in CCA	CB
	4. Cultivating knowledge:	AR
	i. With subject mastery	CB
	ii. With reflective thinking	CB
	iii. With analytic thinking	CB
	iv. With initiative	AR
	v. With creative teaching	AR
	vi. With a future focus	AR
Leadership and management	1. Winning hearts and minds:	AR
	i. Understanding the environment	AR
	ii. Developing others	AR
	2. Working with others:	AR
	i. Partnering parents	AR
	ii. Working in teams	CB
Personal effectiveness	1. Knowing self and others:	CB
	i. Tuning into self	CB
	ii. Exercising personal integrity	AR
	iii. Understanding and respecting others	CB
	iv. Resilience and adaptability	CB

What is noteworthy about GTCs is that they outline competencies where capacities have been built after the completion of pre-service education (i.e. capacities-built or CB) or where the awareness levels have been raised (i.e. awareness-raised or AR). Those marked AR outlines areas of professional development are required when they graduate to become beginning teachers.

2.4.6 Performance Appraisal and Career Pathways

Like any other profession in Singapore, the performance of teachers is appraised annually to enhance teacher effectiveness and ensure that the highest performing teachers have incentives to stay in the profession. Research has shown that given the prospect to progress in their careers and if they are generously remunerated for their outstanding work, high-performing employees are more likely to stay in the profession (Hausknecht 2009; Trevor et al. 2007). MOE is also a strong proponent that teacher quality affects the quality of the education system as much as curricula and that the performance appraisal system plays a key role in improving teacher quality (Teo 2001a, b). Instituted in 2005 as part of larger structural and cultural reforms throughout the educational system (Gopinathan 1999; Sharpe and Gopinathan 2002), the Enhanced Performance Management System (EPMS) provides a standardised framework of performance standards by which teachers, school leaders and administrators are routinely evaluated. EPMS encompasses the contribution of individual teachers to the academic and character development of their students, their collaboration with parents and community groups, and their contribution to their colleagues and the whole school. It sits within the context of great attention to the school's overall plan for educational excellence (OECD 2010). EPMS oversees the reward of promotions, tenure, salary increases and performance bonuses and underscores the importance of reflective practice among teachers.

Central to this system is the work review form, a standardised protocol that documents and evaluates the work of Job Holders (JHs) in MOE. The work review form enables reporting officers (ROs), heads of department, principals and ministry officials to 'track' the performances of teachers throughout their professional careers (Liew 2012). Recognising that teachers have different aspirations, MOE has identified three career tracks or fields of excellence for teachers to pursue depending on their interest, performance and potential. These are the teaching track, the leadership track, and the senior specialist track (Teo 2003; Fig. 2.6). (For more details about Singapore teacher career progression, see Chap. 15.)

The EPMS process involves performance planning, performance coaching and performance appraisal. Performance planning involves a teacher's self-appraisal and a discussion with his/her RO about goals setting and professional development plans. Performance coaching is ongoing and includes a formative mid-year review. By the end of the year, a performance appraisal is conducted through an interview and a rating of actual performance against goals set during the performance planning phase. Teachers are evaluated based on actual achievement as well as the

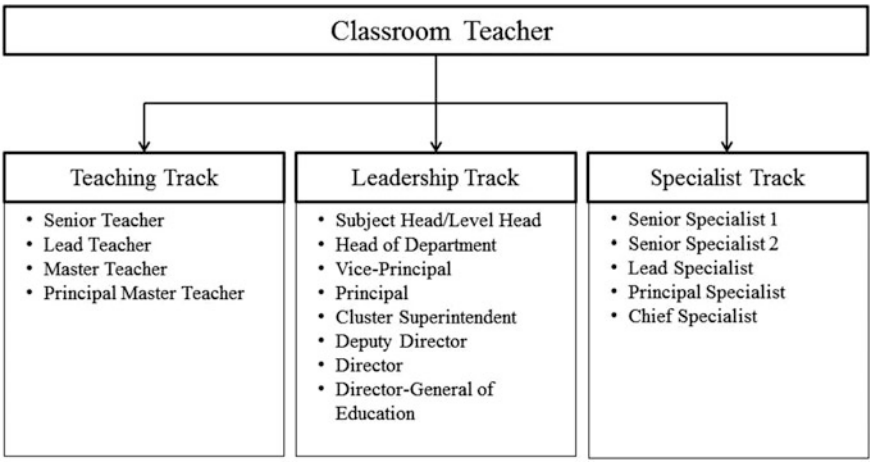

Fig. 2.6 Singapore career tracks in education (MOE 2016b). *Source* Ministry of Education, Singapore (2016)

teacher's future potential known as the current estimated potential (CEP). CEP is decided by senior colleagues (e.g. department chairs, RO, principal) based on observation, dialogue, portfolio evidence and the teacher's contribution to the school and community (Lee and Tan 2010). The final performance grade affects the annual performance bonus as well as promotions to the next level of the career pathway.

In 2014, EPMS underwent revision to improve implementation of processes and simplify programmes and activities. The Steering Committee led by the Human Resource Group (HRG) of MOE with the Academy of Singapore Teacher (AST) and the Organisational Psychology Branch actively worked with schools divisions and other stakeholder to review and enhance the EPMS appraisal and career planning process (Table 2.2).

The new system has a more qualitative approach and encourages JHs to go beyond numbers and include plans and outcomes. Even with the reduction in the quantity of information needed, the quality of information is not compromised since it captures the essential evidence and provides more room for in-depth discussion between JH and RO. With less time needed to complete the work review form, there is more time to plan for the teacher's career growth more effectively.

2.4.7 Professional Growth

MOE introduced the GROW package in 2006 to promote the professional and personal **G**rowth of Education Officers through better **R**ecognition, **O**pportunities, and seeing to their **W**ell-being. An enhanced GROW 2.0 package was introduced in

Table 2.2 Streamlining the EPMS appraisal and career planning process (adapted from MOE 2016d)

Items	Before (2005)	Changes (2014)
Work review form	The form was lengthy and tedious to complete. It consisted of 15 pages, 8 sections and 7 key result areas (KRAs)	Number of pages, sections and KRAs were reduced to five
Key result areas	Job holders (JHs) were unsure of the contributions to include in the appraisal form	The KRAs were categorised under three main headings: 1. Student outcomes: a. Quality learning of students b. Character development of students 2. Professional outcomes: a. Professional development of self b. Professional development of others 3. Organisational outcomes: a. Contributions to projects/committee work
Approach	More focused on quantitative outcomes	*Targets* were renamed *plans* to encourage JHs to go beyond numbers and include qualitative plans and outcomes
Merging sections (work review form)	Section 2.4: training and development plan during period under review Section 6: training and development plans for next assessment year	Sections 2.4 and 6 were merged into Sect. 2.3: learning and development plans
Connection between sections	The individual sections in the form came across as being separate, with no bearing on the other sections	The connections between various sections were indicated clearly for JHs to understand EPMS as a whole
Link between competencies and skills	There was no link between the competencies. JHs were tasked to develop and the skills highlighted in the learning frameworks, such as the Teacher Growth Model (TGM) and Leader Growth Model (LGM)	EPMS competencies were linked to the learning outcomes under the TGM and LGM
Broader definitions	Each competency was strictly defined by specific behavioural indicators (BIs). The JH was assessed on his competencies using a 4-point scale	In addition to BIs, each competency has a one-line definition that captures its elements. JH were more able to think more broadly about their development and were encouraged to have in-depth qualitative discussions with RO The 4-point scale had been removed. JH and RO will discuss the 13 competencies and identify areas of strengths in the context of

(continued)

Table 2.2 (continued)

Items	Before (2005)	Changes (2014)
		work outcomes states in Sect. 2.1 of the form The JH and RO will also identify competencies that the JH would like to develop for the year
Career development	There was one competency model for each career track—Teaching, Leadership and Senior Specialist. This made it difficult for those moving across tracks to monitor and plan their career development	The three models are integrated into one single Competency Model that is applicable to all three tracks. In the new Competency Model, there were 13 competencies categorised into four broad areas
Customised support	When EPMA was first rolled out in 2005, supporting materials comprising nearly 250 pages were provided to all educators regardless of their job function	The supporting materials had been streamlined into just two key documents—a 7-to-8-page user guide, and an A3 page checklist—to provide the right amount of customised support for teachers, ROs or school leaders

2007 with more attractive remuneration, better career development opportunities and greater flexibility to balance the demands of work and family. This complemented the introduction of the TEACH Framework to further support the professional upgrading and retention of teachers, as well as their aspirations and work–life needs (MOE 2016b; Heng 2012). The key thrusts of the TEACH Framework include supporting teacher-led professional development, supporting academic upgrading through postgraduate scholarships and awards, enhancing work–life harmony through greater flexibility in work arrangements and expanding the career advancement pathways for teachers (see Fig. 2.7).

There are several professional development opportunities for teachers to upgrade themselves and broaden their horizons. These include Professional Development Packages and Leave Scheme, Teachers' Work Attachment programme, Management and Leadership in Schools (MLS) programme and Leaders in Education Programme (LEP), and AST. The Professional Development Packages and Leave Scheme programme (MOE 2016b) allows teachers to further their undergraduate/postgraduate studies through scholarships, study loans and leave provisions. The Teachers' Work Attachment programme provides a chance for teachers to participate in short-term attachments at external organisations to gain new perspectives and exposure. Also available are opportunities for professional development courses and conferences to help upgrade their professional knowledge. Through AST, teachers are able to experience a stronger teacher-led culture of professional collaboration and excellence (2016b).

To deepen the engagement with teachers, the Education Ministry has partnered schools and teachers with human resource agencies, which will provide consultancy services on strategic. Likewise, MOE has provided multiple communication points,

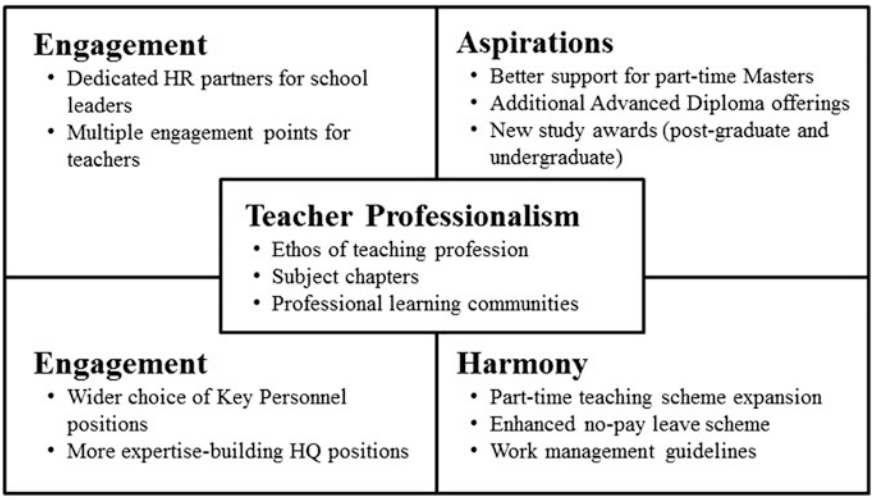

Fig. 2.7 TEACH Framework (MOE 2016b). *Source* Ministry of Education, Singapore (2016)

such as an online resource portal, administrative managers in school and a one-stop call centre, to strengthen engagement with teachers (MOE 2016b).

To upgrade their knowledge and skills, teachers are provided with opportunities to pursue further studies. For teachers who want to do a part-time master's degree, they are given the added option to take on part-time teaching while studying. Upon completing their part-time Master's degree in an approved course of study, teacher will be given a one-off monetary award of $4,000. Additionally, the Ministry will introduce a full-time Postgraduate Award to encourage teachers to pursue higher studies. Non-graduate teachers can apply for a full-time Advanced Diploma programmes at NIE. Those who do well in the diploma course can purse a degree programme. It is the objective that by 2020, almost all teachers will be graduates and those with postgraduate degrees increase to 20% (MOE 2016b).

With the creation of 1,500 more key personnel positions such as department heads and subject heads in schools, teachers can look forward to more chances of assuming middle-level leadership positions to enrich their career experience and deepen their expertise.

In achieving a work–life balance, a part-time teaching scheme will be extended to teachers pursuing part-time studies. Each school will be provided additional teachers and resources to support those who are doing part-time teaching. Flexible school-based employment will also be offered to teachers who need to go on no-pay leave due to childcare commitments or further studies. As part of the overall enhanced career management plan for teachers, schools will implement work management guidelines for the allocation of classroom, co-curricular and school duties.

2.5 Conclusion

As discussed, the V^3SK framework embodied in the TE^{21} Model focuses on the main characteristics of the twenty-first-century professional, which reflect an extended role of the teacher as one with an enhanced sense of identity and mission directed towards students, colleagues and the wider community.

Perhaps the most striking feature of Singapore's teacher education and the process that produced is the comprehensiveness and coherence of the system. Good teacher education programmes entails a vision and mission of being able to prepare and equip teachers with the relevant values, skills and knowledge. The enormous will and expense it must take to design and fully prepare teachers involves a holistic effort of all key stakeholders in the education system who share the vision of education.

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