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# Preparing Teachers for the 21st Century

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## Abstract

The quality of any education system is significantly dependent on the quality of teachers in that system. A 21st century teacher professionalism requiring specialist knowledge and skills is essential for ensuring the quality of teachers. This paper will describe the key features of the teacher education model used in Singapore. In addition, the paper will discuss some key challenges for the teaching profession in the 21st century and possible ways to prepare teachers for the 21st century. Since its establishment as the Teacher Training College in 1950, the National Institute of Education (NIE) has served as the national teacher education institute in Singapore. NIE provides all levels of teacher education, from initial teacher education programmes to professional development programmes as well as higher degree programmes. The NIE's Teacher Education Model for the 21st Century (TE21) and how this model addresses several key challenges for teacher education are explained in this paper. NIE's TE21 Model revolves around the Values, Skill and Knowledge (V3SK) model which focus on three value paradigms: *Learner-centredness, Teacher Identity, and Service to the profession and community.* Finally, the paper will outline some possible issues relevant for the improvement of teacher education.

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## Preparing Teachers for the 21st Century

This paper will start with the often-quoted statement that the quality of any education system is significantly dependent on the quality of teachers in that system (Barber & Mourshed, 2007). It is also accepted that 21st century teacher professionalism requires specialized knowledge and skills essential for ensuring the quality of teachers (Darling-Hammond, 2010). These are but two of the challenges of preparing teachers for the 21st century. Teacher education programmes are essential for the preparation of teachers for the opportunities and challenges of preparing children for the unknown future (Goodwin, 2015).

As teachers are often cited as the 2nd most important source of socialization for children other than the children's families, a clear paradigm and purpose of a values curriculum within the teacher education programmes (e.g., service learning) is essential for encouraging student teachers to reflect and develop a value-based teaching philosophy (Boland, 2009; NIE, 2009).

Teachers are responsible for the education for the whole-child (morally, intellectually, physically, socially & aesthetically) (NIE, 2009).

Teacher education programmes that aspire to develop 21st century teacher professionalism among its

*Table 1. Type and Duration of NIE's Initial Teacher Education Programmes*

| Programme | Level for Teaching | Duration |
|---|---|---|
| Diploma in Education | Primary /Secondary | 2 years |
| Bachelor of Arts (Education) Bachelor of Science (Education) | Primary & Secondary | 4 years |
| Bachelor of Education | Primary | 3 years Part-time + 0.5 year Full-time |
| PGDE (Primary) PGDE (Secondary) PGDE (Junior College) | Primary, Secondary Junior College | 1 year (2 years for Physical Education) |
| Diploma in Special Education | Special Education/ Allied Educators | 1 year |

graduates need to be cognizant of the need for a 21st century curriculum which is interdisciplinary, project-based, research-driven, connected to the community and collaborative, embraces technology, authentic assessments and service learning, and nurtures higher order thinking skills, multiple intelligences and 21st century literacy (Lim, 2013, 2014).

As teachers are key to the quality of any education system (Harris, 2011; McKinsey, 2010), a constant challenge for Singapore is to ensure that its teacher education system is relevant, responsive and produces quality teachers able to cater to the needs of learners (National Institute of Education, 2007, 2012). The new paradigms for learning and teaching in a rapidly changing 21century environment add to the challenges of teacher education.

This paper describes the key features of the teacher education model currently used by the National Institute of Education (NIE) in Singapore. The description of the main characteristics of the characteristics required of teachers in the 21st century was based on the NIE Model of Teacher Education.

**Teacher Education System in Singapore**

As the main teacher education institute in Singapore, the National Institute of Education (NIE) provides all levels of teacher education, from initial teacher education programmes to professional development programmes for in-service teachers and executive leadership programmes for Principals, Departmental Heads and other school leaders.

Since its establishment as the Teacher Training College in 1950, NIE has since developed into one of the leading teacher education institutes in the world (Chen & Koay, 2010). NIE's initial teacher education programmes prepare teachers for all government schools ranging from primary schools to Junior Colleges in Singapore.

There are various pathways for qualified candidates to complete initial teacher education at NIE to complete their qualifications to be teachers in Singapore. NIE's initial teacher education programmes include the Diploma in Education, Bachelor of Science (Education), Bachelor of Arts (Education) and the Postgraduate Diploma in Education (PGDE) (see Table 1). The Bachelor of Education programme is designed

to help primary school teachers to achieve their goals of completing a degree.

On average, the total intake for NIE's initial teacher education programmes is about 2000 student teachers per academic year (AY) (e.g., 1656 for AY2013-14, 2019 for AY2012-13, 2066 for AY2011-12, and 2320 for AY2010-11).

NIE administers postgraduate programmes that lead to the award of higher degrees (i.e., Master of Arts, Master of Science, Master of Education, Master of Teaching, Ph.D. and Doctor in Education). In addition, NIE also provides the *Management and Leadership in Schools* (MLS) and *Leaders in Education (International) (LEPI)* for overseas education leaders, as well as the joint *Master of Arts in Leadership and Educational Change* programme between NIE and Teachers College, Columbia University. NIE also supports the Singapore Ministry of Education through evidence-based advice gleaned through education research to inform education policies and school curriculum. Working in partnership with the Ministry of Education (MOE) and schools, NIE plays an integral role in the development and improvement of the education service in Singapore.

In terms of organizational structure, NIE is an autonomous institute of the Nanyang Technological University (NTU). NTU is a comprehensive university with colleges of Engineering, Business, Science, Humanities, Arts, & Social Sciences, an Interdisciplinary Graduate School, a medical school (set up jointly with Imperial College London), and autonomous institutes such as the S. Rajaratnam School of International Studies, Earth Observatory of Singapore, Singapore Centre on Environmental Life Sciences Engineering and NIE.

## NIE's Model of Teacher Education for the 21st Century (TE21)

Globalisation and the increasing pervasiveness of digital technologies are the defining characteristics of our world at the turn of this century. As boundaries blur due to the swiftness of information transfer, knowledge becomes power. With governments gearing up to prepare their citizens for the knowledge-based economy, greater responsibility has been placed on education institutions to meet the challenges brought by this new landscape.

Apart from the ultimate objectives of education and the desire of teachers to help each child to achieve their fullest potential, a good education system is also important for economic growth. A good and efficient education system has been linked to the basis for developing and sustaining strong economic growth and progress (e.g., Economic Review Committee, 1986). A well-funded and efficient public education system in Singapore has contributed to significant improvements in a number of aspects. For example, between 1970 and 2013 literacy rates has improved from 68.9% to 96.5% (Department of Statistics Singapore, 2014a). Between the same timeframe, the percentage of university graduates within the population has increased from 1.9% to 27.3% (Department of Statistics Singapore, 2014b).

Educators must be cognizant of what 21st century learners need to learn and how 21st century learners learn. As such, 21st century learners call for 21st century teachers'. This provided the impetus for the Programme Review and Enhancement 2008-2009 for NIE. Based on extensive literature review, understanding of existing and emerging trends, local profile, changing landscape in policies and initiatives, and research data, NIE explored possible and viable avenues for enhancements – the culmination of these efforts is a new Model for Teacher Education for the 21st Century (TE21) at NIE.

NIE's Model of Teacher Education for the 21st century (TE21) revolves around the Values, Skills and Knowledge (V3SK) model which focuses on three value paradigms (NIE, 2009, 2012):

> *"Learner-centredness* puts the learner at the centre of teachers' work and the teacher must be aware of learner development and diversity, believe that all youths can learn, care for [the learner], strive for scholarship in content teaching, know how people can learn best, and learn to design the best learning environment possible (Lim, 2013, pp. 2-3).
>
> *Developing a strong sense of teacher identity* refers to upholding the highest standards in teaching and being a teacher

and possessing a strong drive to learn in view of rapid changes in the education milieu and to being responsive to students' needs (Lim, 2013, pp. 2-3).

*Service to the profession and community* focuses on teachers' commitment to growing beginning teachers within their profession through active collaborations and striving to become better practitioners in order to benefit the teaching fraternity as a whole" (Lim, 2013, pp. 2-3).

The TE21 V³SK Model also stresses that it is important for good teachers to have skills such as reflective skills and thinking dispositions, pedagogical skills, people- and self- management skills, administrative and management skills, communication and facilitative skills, technological skills, innovation and entrepreneurship skills, as well as social and emotional intelligence. At the same time, teachers capable of nurturing the learning needs of 21st century learners should possess knowledge related to self, pupil, community, subject content, curriculum and pedagogy, educational foundation and policies, global and environment awareness as well as multicultural literacy (NIE, 2009, 2012). NIE's values-driven teacher education programmes help student teachers to reinforce their beliefs in the learner, take pride in being a teacher and remain committed to the teaching profession (Tan, 2012).

The Values, Skills and Knowledge components of NIE TE²¹ Model are closely aligned with MOE's desired outcomes of preparing students to be collaborative learners, confident persons, active contributors and concerned citizens (Masagos, 2011). In addition to the V³SK model, NIE's Graduand Teacher Competency (GTC) framework articulates the types of competencies at the beginning teachers' level. Based on the three performance dimensions (professional practice, leadership and management) and personal effectiveness stated in the MOE competencies framework for beginning teachers, NIE's GTC and V³SK Model provide the framework for a teacher education curriculum that is relevant for Singapore's needs.

As values are the key characteristics of a true teacher, NIE has worked hard to incorporate both formal curriculum and experiential learning such as service learning in its teacher education programmes to promote the essentials of values. All student teachers

at NIE take part in two core mandatory programmes: the Group Endeavours in Service Learning (GESL) and the Meranti Project (a personal and professional development 2-day non- residential workshop).

"GESL provides hands-on opportunities for student teachers to engage with a community partner of their choice and to contribute towards furthering the cause of that community and in so doing, helps student teachers to hone values such as team- work, resilience, empathy, service to the community to name a few. Service learning has been used as a pedagogical tool at NIE since 2004 to develop teachers who will be able to lead, care, and inspire the young people and forge trusting partnerships with the community." (Lim, 2013, p.3).

"The Meranti Project facilitates student teachers to develop better self- awareness; clarify their role in nurturing National Education; understand how to better work with diversity in the classroom; develop strategies for coping; and affirm their choice of teaching as a career." (Lim, 2013, p.4).

As is true for most teacher education programmes around the world, the teaching practicum is one of the key components for preparing new teachers. This is when student teachers put into practice in a real life classroom the skills and knowledge they have acquired from the teacher education courses. Coherence in the links between courses and teaching practicum or clinical practice is essential for the effectiveness of any teacher education programme (Darling-Hammond, 2010).

NIE has implemented several key enhancements to its practicum structure to build a stronger theory-practice link. One key change is the introduction of *Focused Conversations (FC)* which allows student teachers to share with their school mentors about their learning in NIE, issues encountered during the practicum on classroom management and motivating pupils, and about their learning in school towards developing teaching competencies" (Lim, 2013, p.4). The use of a Reflective Practice framework has proven effective in facilitating the development of the reflective teacher.

Research has shown that courses such as *Educational Psychology* and *Social Context of Teaching and Learning* have a positive influence of the development of strong and positive teacher identity. Teacher identities that reflected notions of "teaching with heart" and "being reflective" have been demonstrated by NIE student teachers. The use of the e-portfolio that help student teachers integrate and reflect on their learning across various courses such as *Educational Psychology* and *Social Context of Teaching and Learning* has been found to be useful in helping student teachers strengthen their positive teacher identity (Zhou, Chye, Koh & Liu, 2013).

Changes in the curriculum may not be sufficient to support the effective enhancement of a teacher education programme. For this reason, NIE has transformed the physical infrastructure in NIE, such as the collaborative tutorial rooms, the model Primary English Language classrooms and Teachers' Language Development Centre, to support the new pedagogical approaches designed to achieve the desired teaching and learning outcomes. The collaborative tutorial rooms are equipped with technology-driven learning tools and designed with learning spaces that allows student teachers to conduct collaborative activities.

### Challenges for the National Institute of Education

Although the teaching profession in Singapore is respected and has received positive evaluations and Singapore students' performance in recent international standardized assessments (e.g., Organisation for Economic Co-operation and Development (OECD) Programme for International Student Assessment (PISA) and Trends in International Mathematics and Science Study (TIMSS)) (e.g., Ministry of Education Singapore, 2012, 2014a), NIE is aware that its teacher education programmes need to be constantly reviewed and revised to ensure that they remain relevant in preparing teachers to work effectively in meeting the learning needs of 21$^{st}$ century learners.

NIE works closely with relevant stakeholders, mainly the Ministry of Education and schools to address these issues. For example, NIE has worked with the Ministry of Education and other agencies to incorporate a systematic series of key events within the initial teacher education programmes to enhance student teachers' sense of professional ethos. These events include dialogue sessions with key leaders,

workshops, and a reflective teacher model during the teaching practicum in schools.

### Challenges and Opportunities for Teacher Education and the Teaching Profession

The challenges and opportunities for teacher education and the teaching profession are likely to be common across different countries. A number of factors that may be of concern for teacher education and the teaching profession include:

1. Processes to improve recruitment of candidates

2. Curriculum within teacher education programmes to enhance professional values and ethos among student teachers and beginning teachers

3. Improving mutual understanding of teacher education among relevant stakeholders such as teacher educators, policy-makers and teachers

4. Alignment of teacher education with education system

5. Coherence within teacher education programme (course and practicum)

6. Strengthening theory-practice nexus through evidence-based teacher education programmes

7. Ensuring relevancy of professional development for in-service teachers

8. Processes to retain good teachers in education system

9. Enhancing trust and support among parents and community for education system

By working together, it is possible to find common strategies to address the challenges and problems. A platform such as the AsTEN conference is a good example of how we can work together to improve teacher education and the teaching profession.

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