



Universitising teacher education in Singapore: from the TTC to the NIE

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Abstract

The emergence of a modern teacher education system in Singapore can be traced to 1950 when the Teachers Training College (TTC) was established. The TTC was a separate entity from the School of Education at the University of Singapore. Rapid economic growth in the 1970s and 80s necessitated changes to upgrade the education system, such that school leavers could be better prepared for work in a post-industrial economy. It was recognised then that teacher preparation had to be upgraded to represent the field as an evidence-based profession, thus leading to the establishment of the Institute of Education in 1973; this was a significant first step in the journey towards universitising teacher education in Singapore. Continued and transformative economic growth in the 1980s and 90 s necessitated further changes in education goals, best represented by the Thinking Schools, Learning Nation initiative in 1997, the Teach Less Learn More initiative in 2004, and the ICT MasterPlans initiatives. In response, in 1991, the National Institute of Education (NIE) was established, as an institute of Nanyang Technological University. The move to universitise teacher education in Singapore enabled the profession to attract a better calibre of teacher-students, develop rigorous graduate and postgraduate programmes in education, recruit faculty with postgraduate qualifications, and invest in Singapore-centric education research. Though the journey has been long, steady progress towards universitisation has contributed significantly to Singapore's development, and the NIE can today claim to be an internationally recognised Institute of Distinction.

Keywords Universitisation · Teacher education · Teacher training · Evidence-based preparation · Education research · Singapore

1 Introduction

As one of the consistently high-performing education systems in the world, Singapore's education success story is well-documented and well-referenced by scholars and policy-makers worldwide. What may be less known, however, is the journey it has taken, and the role teacher preparation played beginning from the Teachers' Training College—the

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nation's first institutionalised teacher preparation institute, founded only after the end of the Second World War in 1950. Teacher training, much less teacher *education*, has had far humbler origins in Singapore's history than may be alluded to from its renowned and well-reputed model today. Indeed, while a School of Education in the 1950s offered graduate and postgraduate degrees in Education, a comprehensive and mainstream model of teacher education universitisation only began with the Institute of Education in 1973. In advancing the universitisation model too, there were many considerations. Singapore experienced great economic changes throughout the 1980s that shifted national priorities and saw the nation ready to conceptualise a teacher education model fit for the twenty-first century. The National Institute of Education, opened in Nanyang Technological University in 1991, finally brought teacher education, in particular primary teacher preparation, up to speed with the contemporary demands and rigour required of the teaching profession. Its inception sets the framework for close links between education research, pedagogy, and practice and further cemented teaching as an evidence-based profession that attracted and developed students of high calibre and academic standing.

As the universitisation process enabled education research to thrive, the NIE's various research centres gained repute as a valuable education research base that provided a space for Asian—and Southeast Asian-centric education research, which in turn contributes to the continual growth and upgrading of students and faculty to develop quality educators. This paper looks at the key milestones in teacher education in Singapore from its very inception, touching on how teacher preparation policies have evolved over the years in accordance with changing socio-economic circumstances, the considerations and benefits of universitisation, and finally provides a short commentary about teacher education in its current incarnation at the NIE. This includes how we may look towards a teacher education programme truly fit for the twenty-first century, with all its challenges and opportunities.

2 Terminology and context

As we consider the evolution and strengthening of teacher preparation in Singapore, we begin with teacher training being the more popular method of teacher preparation as opposed to teacher education (as evidenced by the TTC's name), even as this shifted over time to encompass the latter. For the purposes of this paper, we take teacher training to mean the acquisition of the knowledge, attitudes, and skills necessary to complete a job or task; in this context, to be able to teach effectively in a classroom (Mulenga, 2020; Rowntree, 1981). Teacher education has the broader, more philosophical scope of preparing teachers not just to acquire practical classroom competencies, but in “developing versatile, reflective practitioners with a wealth of professional competencies” (Mulenga, 2020, p. 109), including mastery in both educational theory and subject-specific pedagogy.

In this paper, the term *universitisation* refers to the process of locating teacher education within a university, which necessarily entails education research in some capacity, alongside the imparting of the practical aspects of classroom teaching. We also refer to universitisation as the decision-making process of arriving at today's model of teacher education at the NIE, across the various evolutions of teacher preparation programmes, in response to changing socio-economic priorities throughout Singapore's short history. Universitisation in Singapore's context was a response to the need for raising teacher quality, particularly for elementary school teaching, to make teaching an all-graduate profession. As we will later observe, universitisation of teacher education was a carefully considered choice by the

state to also invest in Singapore-centric education research, alongside raising admissions criteria for all student teachers and all postgraduate qualifications for faculty.

3 Early forms of teacher education in Singapore

Formal institutionalisation of teacher training in Singapore began with the Teachers' Training College (TTC), established in 1950. The TTC focussed on training a large number of non-graduates for primary and secondary school teaching to meet the schooling requirements of the post-war baby boom. It sought primarily to address the need for teachers arising from the adoption of the 10-Year Education Plan and the 1950 Supplementary Five Year Plan, both of which considerably expanded the school system. The TTC offered a range of part-time and full-time courses, culminating in a Certificate in Education for primary school teachers. Teacher training for Chinese-medium teachers began in 1954 and for Malay medium teachers in 1957. To meet the demands of a young and growing population, teacher's training at the TTC was often teaching classes in schools and studying part-time on the job, and received stipends for doing so (Sim, 2016). This model of teacher training was both efficient and popular and was able to attract the desired number of teacher trainees necessary to meet the demands of a rapidly modernising school system. The resultant mass recruitment of student teachers, however, resulted in debates about the quality of teacher training, particularly at the primary school level; the goal at that time prioritised the quantity of students needed to fill post-war teaching positions, and a sacrifice in the quality of teacher training programmes was accepted as a "necessary evil" (Lun & Chan, 1983, p. 10). These concerns regarding quality in teacher training would later, as in Lord Dainton's and Dr Seet Ai Mee's reports, become the impetus for re-conceptualising primary-level teacher education, and spurring teacher education institutional reform at large.

At the same time, the TTC was in operation, the School of Education (SoE) at the University of Singapore (first, the Department of Education in 1950, and then renamed School of Education in 1958) was being positioned to prepare graduates for secondary school teaching, offering full-time courses for a Diploma in Education (DipEd) and Master's in Education (MEd). As with most developed countries at the time, it was considered adequate for primary school teachers with GCSE A' Level qualifications to graduate with non-degree Certificates in Education, while secondary school teacher preparation required a university route (Sharpe & Gopinathan, 1993). If we consider the process of universitisation to simply mean locating teacher education programmes in the university, then universitisation of teacher education in Singapore can trace its roots to the School of Education. Before merging with the TTC to form the Institute of Education (IE), however, SoE's programme faced issues such as low student recruitment and popularity due to the cost of full-time study (Loh & Hu, 2019), particularly in comparison with their stipend-earning counterparts at the TTC. The segmentation of teacher preparation programmes into two institutions, one with a greater focus on teacher training while the other on a broader teacher education programme, also meant that the university-based model at the School of Education did not have a centralised and comprehensive overview of secondary teacher preparation in Singapore; for instance, both the TTC and the School of Education conducted separate secondary school teacher preparation programmes that were only merged in 1969 (Sim, 2016). Due to these issues, in 1971, the School of Education was closed, and for a brief period, all teacher training programmes were located at the TTC. When the Institute of Education Act was passed in 1970, the TTC, School of Education, and the

Research Unit of the Ministry of Education (MOE) were brought together to form the Institute of Education (IE) which began to offer programmes in 1973.

Dr Ruth Wong became the first Director of the Institute of Education. She was a distinguished and far-sighted educator who laid the foundations for the world class teacher education system that Singapore has today. Amongst her keystone contributions to teacher preparation and education in Singapore are raising the calibre of teacher trainees by only admitting those with a Higher School Certificate qualifications (today's equivalent of an A-Level qualification) to its Certificate in Education Programme, and university graduates into its Diploma in Education Programme; establishing in 1974, IE-associated schools that promoted the blending of theory and practice by testing new ideas in real classrooms settings; initiating the two-year Advanced Certificate in Education course as further professional development for primary school teachers in 1975; paving the way for the later establishment of a pre-school unit within the IE in 1978; recruiting better qualified and competent staff for the IE; and, pioneering the first inclusion of guidance and counselling in schools by establishing a Guidance Clinic and Remedial Reading Clinic on the IE's campus in 1974, thus setting the stage for the implementation of pastoral care and career guidance in all schools in 1988 (Loo, 2020). She also set about recruiting better qualified and competent staff. Her role as the IE's first director was pivotal in elevating teaching to an evidence-based profession. During her short tenure as Director, she made milestone strides in uplifting the quality of teaching and teacher education in Singapore for the greater benefit of young generations.

4 From the institute of education to the national institute of education

With the formation of the Institute of Education, teacher education and education research became the responsibility of a single body. It marked a significant shift away from teacher training as the predominant mode of teacher preparation, with a greater focus on teacher education. The IE as an independent institute could grant degrees to students and require advanced qualifications for faculty. Under this model, the IE went on to teach and confer Bachelors and Masters in Education degrees, alongside the Diploma in Education programme for graduate teachers inherited from the School of Education. It retained the two-year non-graduate Certificate in Education programme for all primary school teachers, whose training path by and large remained unchanged. The only exception was a one-year additional full-time Further Professional Certificate in Education introduced in 1981, for primary teachers' continued professional development (Loh & Hu, 2019). As the sole provider of teacher education and with a mandate to undertake relevant education research, the IE was able to introduce improvements in the range and quality of teacher training programmes and lay the foundations for a robust programme of education research, which in turn enabled Singapore to make teacher preparation an evidence-based undertaking. In 1984, a College of Physical Education (CPE) was established to offer a two-year Diploma in Physical Education.

Major developments in Singapore's socio-economic profile in the 1980s led to the need to reform teacher education. Rapid economic growth and a desire to transition into a knowledge-based economy necessitated improved human resource development through education (Sharpe & Gopinathan, 1993). For Singapore to meet contemporary development goals and be well-prepared for twenty-first century challenges and opportunities, reforms to improve education were necessary; in particular, reforming primary school

teacher preparation to meet the increasingly complex demands of primary teaching (Sharpe & Gopinathan, 1993). Reviews of primary school curricula (as for example, in the Seet Ai Mee Report in 1990) highlighted the need for a review of primary school teacher training, which had, up till this point, maintained the two-year non-graduate Certificate of Education programme as the predominant qualification requirement for primary school teachers. A Postgraduate Diploma in Education was introduced in 1990 to upgrade these teachers. However, it was clear that initial teacher preparation programmes particularly at the primary level were inadequate to meet rising teaching–learning challenges. Concurrently, opportunities for post-secondary education were expanding with the introduction of two new polytechnics, and the re-conceptualisation of the Chinese-medium Nanyang University into the English-medium Nanyang Technological Institute in 1980, later forming the Nanyang Technological University (NTU) in 1991 where the National Institute of Education (NIE) would be located in. Together, these developments in Singapore’s economic and educational landscape offered a timely opportunity to review teacher education provisions as a whole, and re-conceptualise a university teacher education model fit for the twenty-first century.

Two reports, Dr Seet Ai Mee’s *Teacher Training in the 1990s: issues and strategies* (Seet, 1990), and Lord Dainton’s *Report on University Education in Singapore* (Dainton, 1979), detailed the necessity for a restructuring of teacher education from the IE model. Key recommendations from Dr Seet’s report include the merging of the IE with the CPE to form the National Institute of Education; the introduction of a four-year degree programme for primary school trainees, culminating in a Bachelor in Arts or Science, and a Diploma in Education; and upgrading the existing two-year Certificate in Education programme for primary school trainees to a two-year Diploma in Education programme, with pathways to further obtain a BA/BSc and encouragement for non-graduate teachers to do so. It was proposed that the new National Institute of Education campus be developed and situated in the Nanyang Technological University (NTU) campus. The report stressed the need to raise standards for student recruitment, and the need to position teaching as an evidence-based profession. Elevating the qualifications of primary school teacher trainees to a BA/BSc was intended to ensure that applicants of suitable calibre would be recruited, necessary for ensuring quality and rigour in a revamped suite of teacher education programmes (Sharpe & Gopinathan, 1993). Lord Dainton’s report in 1979 emphasised the benefits of merging the University of Singapore and Nanyang University to become the National University of Singapore (NUS) in 1980. The merger paved the way for the eventual formation of the Nanyang Technological Institute in 1991, in which the new NIE was to be a constituent part. Initially opened on the IE’s old campus in Bukit Timah in 1991, The National Institute of Education moved to its specially designed campus in Jurong on the NTU’s main campus, in December 2000 (Kow, 2009).

5 The NIE and universitisation outcomes

Today, NIE is the nation’s foremost teacher education provider, with programmes catering to both pre-service teacher education and postgraduate professional development. Teacher education for primary teachers had successfully been upgraded, with baseline requirements for all teachers comprising a BA/BSc coupled with a Diploma in Education. The structure of these programmes and qualifications ensures a balance between academic rigour and training teachers’ professional capabilities, addressing concerns in

the global discourse at the time that universitising initial teacher preparation may end up sacrificing professional relevance for theoretical knowledge (Sharpe & Gopinathan, 1993). Today, all initial teacher preparation programmes include a compulsory practicum component, where student teachers acquire key teaching competencies through practice, in addition to theory-based classes (NIE, 2021b). Further, NIE has also been expanding opportunities for student teachers to embark on international practicum exchanges, in partnership with reputed universities and schools abroad for students to build greater depth in pedagogical approaches in different cultural and social settings (NIE, 2015).

In addition to overseeing pre-service teacher provision and education, the expansion of postgraduate education programmes also positioned NIE well to develop a strong education research capacity. The Centre for Research in Education was launched in 1991 when IE was on the Bukit Timah campus, then renamed the NIE Centre for Education Research in 1995, before evolving into NIE's Centre for Research in Pedagogy and Practice (CRPP) in 2002. Today, NIE has four main research centres, the newest addition being the Science of Learning in Education Centre established in 2021.

As a result of the universitisation of teacher education in Singapore, the NIE has been able to invest in education research that enabled it to design and implement evidence-based teacher education reforms specific to Singapore's unique educational contexts. Pro-active research based on contextualised classroom experiences and pedagogy allowed the NIE to develop its own innovation benchmarks and prototypes for reform recommendations, even where international literature was lacking; an example of this would be the Core Research Programme undertaken in 2005 by the CRPP (Luke et al. 2005). Today, the existence of an expansive Singapore-centric database of education and pedagogical knowledge, with the tight alignment of the NIE as a major education research centre and pre-service teacher training provider, close links with schools and the Ministry of Education are all key factors in the emergence of Singapore's education system as a world class system (Hogan & Gopinathan, 2008). Additionally, the CRPP and subsequently established education research centres have allowed the NIE to establish an extensive database on teaching and learning features of Singapore schools and thus strengthen its ability to formulate and implement evidence-based teacher education initiatives.

Since 2008, NIE staffs have published more than 600 journal papers (Kow, 2009) and established reputable journals emphasising Singapore- and Asian-centric educational research, including the establishment of the Asia Pacific Journal of Education (APJE) in 2005 that has cemented the institute's reputation as a valuable education research base. The NIE as of 2021 ranks 9th in the global Quacquarelli Symonds (QS) rankings. The Ministry of Education has strongly supported the NIE's research efforts, providing in excess of S\$350 million in funding since 2002.

With its reformed and highly selective admissions criteria, commitment to education research, and extensive development of postgraduate programmes, the NIE's programmes have successfully elevated the academic qualifications of its students and provided all teacher trainees a robust system in which they can constantly upgrade their skills. As postgraduate programmes expand and thrive, and as most students in the NIE become practising teachers, we can safely assert that the quality and expertise of Singapore's teaching force have increased along with it.

In addition to developing a strong research base with tight links to pedagogy and practice, NIE's business consulting arm, NIE International was established in 2009 to bring Singapore's successful model of teacher education overseas (NIE International, 2021). NIE International has worked with countries such as Bahrain, Bhutan, Abu Dhabi, China, and

Germany, amongst others, to help strengthen teacher education institutes and help them re-conceptualise existing programmes.

Coming a long way from struggling to recruit suitable candidates for the TTC in the 1950s, teacher preparation in Singapore has evolved from predominantly teacher training, to a comprehensive teacher education ecosystem that balances education research and theory with pedagogical and practical classroom expertise. Teacher preparation in Singapore has made milestone achievements in centralising and upgrading the quality of teacher education to develop a unique universitisation model that has helped position the NIE as a global leader in its field.

6 Teaching for the twenty-first century

Since its inception in 1991, NIE has expanded its teacher education programmes and philosophy to prepare teachers for the evolving needs of the twenty-first century, as well as in accordance with Singapore's evolving educational and economic policies. As the sole teacher training and education provider in a developmental state, the NIE straddles dual obligations to both its parent university (the NTU) and the Ministry of Education (see Gopinathan, 2007); the former necessitates adherence to the principles of rigorous research, academic freedom, and integrity, while the latter demands a focus on practice and practical results, as well as the execution of state-mandated Desired Outcomes of Education (MOE Singapore, 2021a) and for education to fulfil other nation-building objectives. This unique tripartite partnership between the MOE, NTU, and NIE has resulted in a close alignment between developments in education research, teacher education, and state development (Chong & Low, 2010). The resultant partnership has also meant that state education policies are allowed to be nimble and respond quickly to the evolving needs and demands of education, both responding to developing research in the global conversation while attuning policies to still align with state developmental objectives. As Gopinathan, 2007 has noted, "[e]ducation reform in Singapore [as a developmental state] is primarily a way of retooling the productive capacity of the system, one that the state has taken at periodic intervals." Since the days of the TTC and Singapore's independence, state policy on education has shifted from a 'survival-driven' ethos (1965–1978), to an 'efficiency-driven' one (1979–1996), to an 'ability-driven' focus (1997–2011), and finally to the 'values-driven' focus still present today, taking heavy references from international benchmarks for a robust twenty-first century education such as the OECD Learning Compass and twenty-first century competencies (Nazeer-Ikeda & Gopinathan, 2021).

In its current incarnation, teacher education at the NIE seems to have surmounted the various challenges of initial teacher education universitisation, as well as developed an intricate and extensive network of lifelong learning opportunities for all teachers, starting from pre-service training. Its Bachelor's degree programme, with emphasis on both theoretical mastery and compulsory practicum, seems to have struck the right balance between pedagogical and content preparation (Gopinathan & Sharpe, 2002). In 2009, the MOE developed its twenty-first century competency framework for students, outlining six core values, five social-emotional competencies, and three twenty-first century competencies for a Globalised World (MOE, 2021b). The framework, still in use in its original design today, details key skills and competencies required for students to meet the challenges of a rapidly changing world and be fully prepared to both face its challenges and seize its opportunities (Fig. 1).

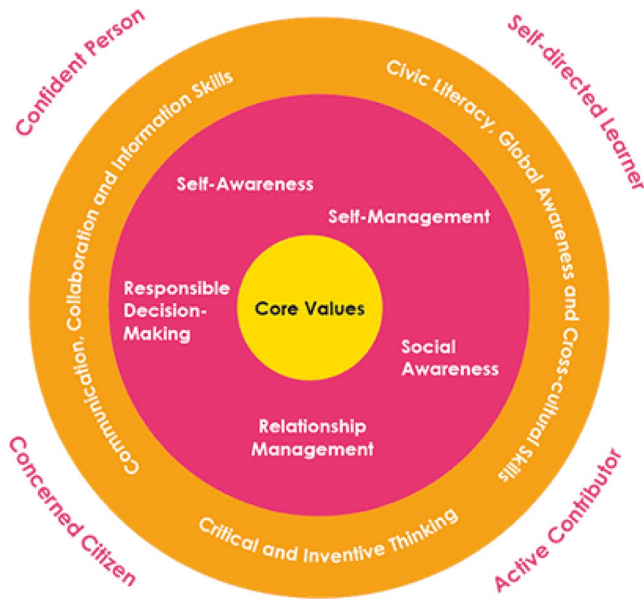


Fig. 1 MOE's twenty-first century competencies framework (MOE, 2021b)

To develop holistic teachers in response to the framework, NIE's pre-service teacher education programme design has also been reviewed and updated. Core modules in its Education Studies curriculum draw from foundational disciplines of Psychology, Sociology, Pedagogy, and the like, include Educational Psychology, Teaching and Managing Learners, the Social Context of Teaching and Learning, Character and Citizenship Education, ICT for Meaningful Learning, and Assessment, amongst others to ensure a holistic teacher education curriculum (Tan et al., 2017). To prepare teachers for teaching the Values in Action (VIA) programme, teacher trainees experience character-building and citizenship education through service learning, via the Meranti Project, the Group Endeavours in Service Learning (GESL) programme, and the Singapore Kaleidoscope (SgK) programme (D'Rozario et al., 2017; NIE, 2021a).

7 A changing climate

For all of NIE's programme developments underpinned by robust research to produce well-prepared teachers ready for the twenty-first century, we need to ask if pre-service teacher education programmes are responding quickly enough to the fast-changing socio-political landscapes we live in, and if we are reaping the full potential of universitisation to do so. In his speech at the Civil Service College's Social-Economic Nexus Speaking Engagement Series, Minister for Education Mr Chan Chun Sing addressed some of the challenges Singapore faces in the twenty-first century. These include increasing geopolitical uncertainty exacerbated by the COVID-19 crisis, a rapidly changing economy where the demand for skills is dynamic and short-lived, risks of exacerbating social divide from a population with increasingly diverse aspirations, and managing education strategies that support a diversity of pathways with diverse and nimble skillsets that meet changing economic needs (MOE,

2021c). Mr Chan’s speech comes at a time of educational disruptions due to the COVID-19 pandemic, as well as hot on the heels of two high-profile incidents in local schools, both occurring in 2021 alone (see Kurohi, 2021, Choo, 2021, and MOE, 2021d). Both incidents called into question teachers’ ability to support and embrace students of diverse identities and needs, and initiate various conversations on students’ mental well-being in relation to performing in a highly competitive education system. Coupled with the added stress of home-based learning arrangements brought about by the pandemic, students’ mental health is a topic that has increasingly been in the spotlight, as debates continue around how a high-functioning, yet highly pressurising education system can move forward (see Cheow, 2019, and Goh & Yip, 2021). Conversations around genuine intercultural acceptance and understanding amongst students are also being re-visited, with the efficacy of events such as Racial Harmony Day and the continued relevance of SAP schools being called into question (Nazeer-Ikeda & Gopinathan, 2021 and Davie, 2021).

As it stands, discussion and understanding of many of the pertinent issues highlighted above fall predominantly under the subject of Character and Citizenship Education (CCE), with already great demands being placed on the subject to “navigate the complexities of today’s fast-changing social paradigm [including strengthening of mental health and cyber wellness]” (MOE, 2021e) and have the standing obligations to impart to students “values, character, social-emotional well-being, and citizenship dispositions in a coherent and holistic way” (MOE, 2020) as part of nation-building strategies. Apart from also being an over-taxed subject, student anecdotes describe CCE modules to not be quite effective in achieving its aims, particularly when it touches on sensitive social issues such as those mentioned above in large class sizes of over 40 (Goh & Yip, 2021). In response to the spotlight on students’ mental health, MOE has announced plans to deploy more than 1,000 teacher-counsellors in schools, an additional 300 from current figures, while all teachers are to receive baseline training on mental health literacy (MOE, 2021d). However, the efficacy and practicality of training additional teacher-counsellors can also be questioned, particularly when teachers are already being made to juggle multiple roles, and the role of a counsellor may conflict with teachers being in a position to deliver academic results (Goh & Yip, 2021).

Highlighted here are just some of the leading issues school systems, students, and teachers have faced in the past years. As we look towards a post-pandemic teaching and learning environment, it is clear that much can still be done to adapt schools and teachers for the challenges that they currently face, and for those sure to come. Given the brief analysis of the challenges facing teaching, and thus teacher education as laid out above, we may consider how teaching roles have perhaps evolved overtime, and how the NIE can rethink teacher education to cope with post-pandemic realities.

With regard to student mental health and embracing student diversity for example, we can consider whether increasing the number of teacher-counsellors is the most effective model moving forward, or whether increasing the number of mental health professionals in schools, coupled with efforts to de-stigmatise seeking mental health support, is more effective. Should baseline mental health awareness training also be extended to all teacher-students as well, or perhaps augmented? Are there possibilities for pre-service teacher education to integrate teaching practises sensitive to student identity and mental well-being into pedagogy and actual classroom practice?

Racial and class disparities in student achievement also remain a reality (see Tan, 1997 and Ali, 2014 and Staff, Global-is-Asian, 2018). As social structures and policies evolve and wrangle with the paradoxes of Singapore’s system of meritocracy (MOE, 2018), teacher education has to first evolve to acknowledge and address these disparities before greater equality is achieved. Teacher education can involve training teachers on how they

can better support students from a lower socio-economic background, and to be sensitive to their particular circumstances and how they impact student behaviour and performance. While such sensitivity is already present in some teachers on the ground, it is not an obvious or natural inclination for many others as teachers are still trained and held to the primary role of raising their students' grades (Goh & Yip, 2021). Where initial teacher preparation can build in greater sensitivity and understanding of how social disparities impact student behaviour and performance, the NIE may benefit enormously from greater cross-collaborations between NIE's research and teacher training faculty, and faculty from NTU's Humanities departments. The latter's focus on contemporary social science research can have great potential to provide the academic contexts for which existing teacher education modules might be upgraded, in particular to understand and better meet students' needs. Such inter-faculty collaborations may also produce new opportunities for updating curricula, and imparting, particularly to older students, well-researched and factual grounds for understanding the contemporary social challenges that persist in these times, including those raised above. As a developmental state, Singapore has always positioned education to play a key role in nation building even as educational models and priorities constantly evolve. Particularly as social inequities and difference become pronounced sources of conflict during economically difficult times (Lai, 2004), it is more crucial than ever for the state, and thus education, to "generate even greater social cohesion, more social capital, in a context of greater social risk and uncertainty" (Gopinathan, 2007). Given present circumstances of unprecedented trial and disruption, it is thus imperative that reforms to teacher education go beyond a single subject or instance, are far-reaching, forward-looking, empathetic, and reflect the evolving social sensibilities of the times.

Even as teacher education evolves to keep up with the compounding issues of social harmony, teachers will face new realities of post-pandemic teaching impacting every nation, such as the unprecedented scale of learning loss (as yet to be quantified in Singapore's case), unique mental health and social implications as related to hybrid schooling, and coaching parents to become co-educators in their child's hybrid learning journey, amongst others. Sharing the role with parents of becoming co-educators to students is an unprecedented event brought on by pandemic-era schooling arrangements, with many schools and families struggling to adapt. A recent playbook released by think tank Brookings Institution reveals the necessity of detailed strategies to better connect families to schools, in a year where a child's learning highly depends on how connected, informed, and cooperative families are in working with teachers to ensure learning outcomes (Winthrop et. al. 2021). The first of its kind, the playbook, was researched and developed over the two years which schools and families had to drastically adapt to such a model of co-educating students and emphasise how family-school engagement is crucial to improving and transforming education systems, particularly in a time of great disruption and change. The unprecedented extent of parental involvement in students' education and the sharing of educational responsibilities are components that need to be addressed in teacher education curricula, as the responsibilities and roles teachers play in students' education are being reconsidered. This will be extremely relevant for incoming new teachers to understand, as whole education systems adapt to post-pandemic models of schooling that may well continue into the foreseeable future.

Amidst the chaos of adapting to remote teaching and student well-being occupying the spotlight, the well-being of teachers too should not be overlooked. Recent investigations into the mental well-being of teachers in Singapore reveal that teachers are over-taxed, have poor work-life balance, and face undue stress due to unclear boundaries and non-uniform performance appraisal gradings across different schools (Lim, 2021). The article

also raises another aspect of teaching not often discussed: a teachers' sense of responsibility for and emotional attachment to their students, whose futures and well-being they are incredibly invested in. Feeling overwhelmed and helpless to aid their students in the face of an over-burdened workload is another big cause for teacher burnout. Teacher preparation programmes need to consider refreshing and further investing in their programmes to address maintaining teachers' socio-emotional well-being while on the job, and before structural and systemic change can be enacted to remove some of these undue burdens, prepare teachers for on-the-job realities. This is especially crucial in a time when the role of teachers will continue to shift and bear greater responsibilities, as pandemic-era schooling continues to evolve.

The NIE should continue to invest in education research addressing these pandemic-era and post-pandemic concerns, particularly as many of these challenges to schooling will persist. It will be incredibly beneficial for teacher education to not just remain flexible and adapt in the face of great change, but be open to greater inter-faculty collaboration within the NTU, expanding on the benefits of its unique position within the university to create new programmes that meet the needs of teaching in the twenty-first century.

8 Conclusion

Teacher education in Singapore has evolved tremendously in its short history, alongside Singapore's rapid and remarkable growth from independence to her current position as an affluent and developed nation-state. Teacher education evolved from its early days at the Teachers Training College and the University of Singapore's School of Education, to being consolidated within the IE, and finally attaining full universitisation status and Renown as the National Institute of Education. Teacher education reforms in Singapore have elevated teaching to a respectable and evidence-based profession and played a key role over the decades in shaping the nation by preparing young minds for every challenge. It is evident, however, that the socio-economic circumstance of the present day poses unprecedented and unique challenges to teaching and teacher education. For teacher education to remain up to date on the challenges and discourse relevant to young students, it too must adapt to be ahead of the curve and incorporate well-integrated reforms to teacher education that reflect evolving social sensibilities. Although with its robust track record in adopting comprehensive teacher education reforms in response to rapid changes and national needs, and keeping up with global best practices in teaching, there is no doubt the NIE will continue to thrive and make great strides in overcoming the difficulties faced today and carry its legacy as an institute of distinction well into a post-pandemic future.

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