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Title	Infant-toddler care in Singapore: Journey towards quality
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Source	<i>Policy Futures in Education</i>
Published by	SAGE Publications

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This is the author's accepted manuscript (post-print) of a work that was accepted for publication in the *Policy Futures in Education* (2020)

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The final publication is also available at <https://doi.org/10.1177/1478210320966503>

## **Infant-toddler care in Singapore: Journey towards quality**

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### **Abstract**

In Singapore, early childhood care and education has evolved according to the nation's needs since its independence in 1965. From a welfare scheme to custodial care, early childhood care and education is now recognised as a critical part of children's learning and development. Over the years, the government has progressively implemented policies to raise the quality of early childhood care and education and while increased efforts have been effective, there is still a gap between policy and practice. This article reviews the policies and frameworks throughout the history of early childhood care and education, with a focus on infant toddler care and examines some of the alignment and gaps. It identifies two key areas for improvement – staff to child ratio and teacher quality for quality infant toddler care. In the current staff to child ratio, an 'educarer' oversees 5 children between 2 and 18 months. This indicates that the educarer needs to be well trained for this role to cater to a wide range of learning and developmental needs. However, the quality of teacher training has been disparate and was only harmonised in 2017. This suggests that the quality of educarers is still uneven in the sector. In terms of qualifications, educarers only need to fulfil the minimum level of teacher certification, which means that the youngest children in their most formative years are being taught and cared for by the least qualified educators (Bull and Bautista, 2018). Cognisant of these issues, this article proposes recommendations to address issues of manpower allocation and teacher quality.

### **Keywords**

Infant toddler care, policies and frameworks in the early years, staff to child ratio, teacher quality, programme quality

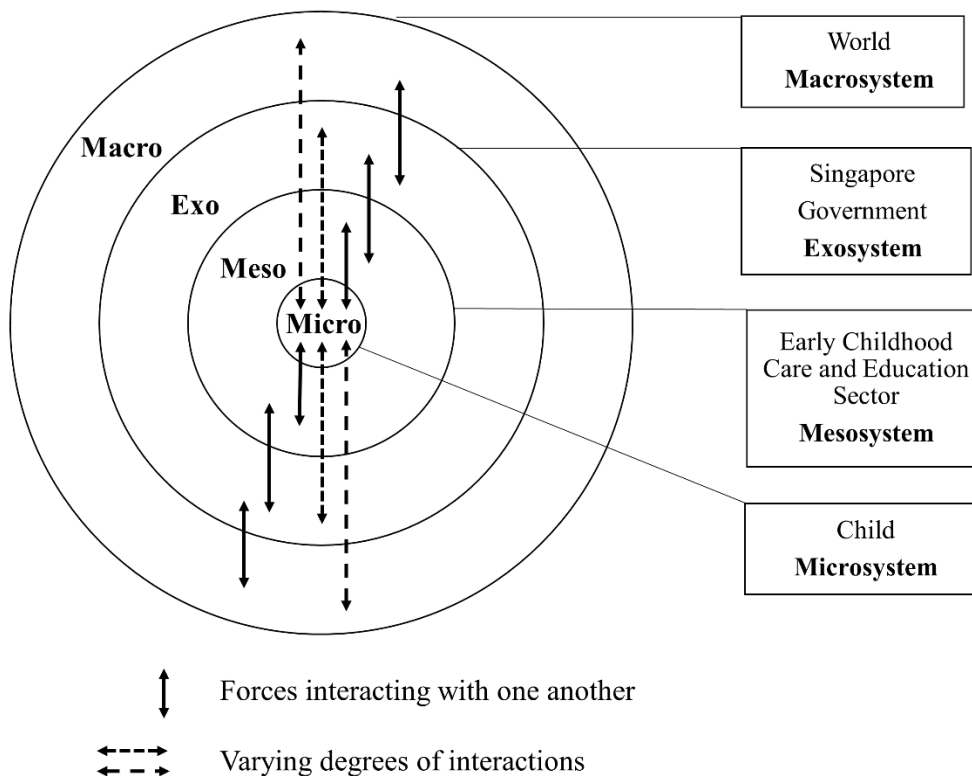
## Introduction

In Singapore, early childhood care and education (ECCE) has evolved considerably according to the nation's needs in a span of over 50 years since its independence in 1965. ECCE was first introduced as a welfare policy when Singapore was a British colony and was subsequently regarded as custodial care post-independence (Khoo, 2010). Today, it is recognised as a critical part of children's early learning and development. ECCE caters to children from birth to six in Singapore. In the pre-school landscape, infant toddler care (ITC) caters to children below three. Over the years, the government has progressively implemented policies to raise the quality of ECCE. While increased efforts such as the introduction of national curriculum and quality assurance frameworks, harmonisation of teacher training programmes, have been effective, there are still gaps between policy and practice (Lipponen et al., 2019). This article systematically reviews the policies and frameworks on ECCE with a focus on ITC throughout its history and documents the changes that have taken place in chronological order. It examines some of the alignment and gaps in the policies and frameworks; identifies areas for improvement and provides recommendations to resolve these issues.

### Theoretical framework

Bronfenbrenner's (1994) ecological systems theory is used to organise the discussion of global forces and influences in the context of the local ECCE landscape (see Figure 1).

Figure 1. Adaptation of Bronfenbrenner's ecological systems framework.



This framework offers a systems approach in examining the macro forces that influence the exosystem in Singapore, which in turn impact on the meso- and microsystems. From the diagram, the forces at different levels of the ecosystems interact with one another in a two-way direction in varying degrees. At each level, there are active actors that interact with the actors from the other ecosystems. The macrosystem consists of worldviews, ideologies and cultural inclinations that influence the behaviours and activities at the various ecosystem levels surrounding the child. Global trends influence policymaking due to the processes of globalisation which create 'increasing international interdependence in areas such as economics, politics, culture, environment, and communication' across countries (Faas and Wasmuth, 2019: 1). Policy borrowing and exchanges of knowledge occur at this level as many countries often refer to international research and trends to implement educational reforms (Faas and Wasmuth, 2019). At the exosystem level, forces such as mainstream ideologies about early childhood, dominant social values, belief systems, social conventions and public policies impact on ECCE. While the institutions and actors at this level do not directly interact with the child at the microsystem level, their activities indirectly impact on the child through factors such as socioeconomic status, family background, parents' qualifications etc. Instead, these forces have a more direct impact on the mesosystem, such as family units and the early childhood community. The mesosystem directly impacts on children as the actors in this level are children's parents, caregivers, family and educators. The contexts and relationships in the microsystem – primarily, the home environment and the child care facility – are dynamic and can affect children's growth, learning, development and well-being (Shaffer and Kipp, 2010). Parents are the first educators of their children, however, when they return to work, they leave their children in a child care facility, which makes the centre environment and the actors in it such as the centre principal, teachers and other children a significant and integral part of the children's microsystem (Swim and Watson, 2011; Gestwicki, 2016). This framework serves to organise the article according to the various ecosystems, with a focus on the exosystem as this is where public policies are made and affect the rest of the meso- and microsystems. It offers a macro to micro perspective on the forces and actors that interact with one another in ECCE.

### **Macrosystem level: Global forces on policymaking**

#### **Research developments in early childhood**

The advent of science and technology has brought about research on brain development. In fact, neuroscience research indicates that around 90% of children's brain development occurs in the first three years of their lives (Hawley and Gunner, 2000). This is accentuated by the findings from the Center on the Developing Child at Harvard University (2020) which demonstrate that early relationships and the quality of social interactions build brain architecture. Another body of research identifies the first five years of children's lives as the critical period where they develop and acquire social-emotional, language and communicative skills that will contribute to their future academic and social learning outcomes (Morrissey and Warner, 2007; National Research Council, 2001; National Research Council and Institute of Medicine, 2000; Barnett, 2008). Other studies delineate the first eight years of children's lives as the period where children learn, grow and develop most rapidly (Bronfenbrenner, 1994; Trawick-Smith, 2003).

The definition of ECCE evolves with research developments, and influences the way it is

organised according to each country's conception of early childhood, the image of the child, the sociocultural contexts and the value placed upon ECCE. Governments organise their pre-school and primary school systems according to how they delineate the age groups for early childhood and elementary education. For instance, in England, children start primary school around at the age of five whereas children in the USA begin primary school at six years old. In Singapore, children attend primary school when they turn seven. Countries that appreciate these findings may also design policies that prioritise ECCE and emphasise relationships and interactions in their national curricula. Global forces at the macrosystem level interact with different exosystems and influence policymaking in different countries. In the next section, we can see how globalisation influences curriculum at the exosystem level.

### **Western curriculum models**

Due to the dominance of Western cultural hegemony brought about by globalisation, governments tend to adopt curriculum models that are prominent in ECCE (Yang and Li, 2019; Wu and Wenning, 2016). Global influences affect the exchange between the exo and meso-systems resulting in the adoption and adaptation of curriculum models in the country's national curricula and frameworks for ECCE. Some of these curriculum models include the Montessori approach, Reggio Emilia model, Steiner approach, multiple intelligences approach, play-based learning, inquiry-based learning and emergent curriculum (Wu, 2017; Yang and Li, 2019). In ITC, quality relationships and interactions form the bedrock for children's learning and development as research indicates that these are key to brain development and overall holistic development (Center on the Developing Child at Harvard University, 2020; National Scientific Council on the Developing Child, 2004). These principles are also advocated in programmes and frameworks such as the Program for Infant Toddler Caregivers, Zero to Three and Resources for Infant Educators approach in the USA (Magda et al., 2013; Mangione et al., 1988; Zero to Three, 2010); the Te Whāriki: Early Childhood Curriculum in New Zealand (New Zealand Ministry of Education, 1998); Belonging, Being and Becoming: The Early Years Learning Framework for Australia (Australian Government Department of Education and Training, 2009), and the Early Years Development Framework (EYDF) in Singapore (Ministry of Social and Family development, 2011). In Singapore, the EYDF emphasises the importance of the responsive, respectful and reciprocal approach in educators' interactions with infants and toddlers (Ministry of Social and Family Affairs, 2011).

The different philosophies and pedagogies of these curriculum models reflect the ideologies of early childhood, the image of the child and the sociocultural perceptions of children, which tend to be reflected in the countries' policies and frameworks. While Western models are prevalent in ECCE, countries also possess the autonomy to customise and localise these models in accordance with their own early childhood landscape. Hence, the actors at the exo- and mesosystem levels are not passive recipients of macro forces, rather, they interact with the forces and actors at the macrosystem level. In Singapore, the national frameworks are guided by theories, research and good practices. However, these frameworks are not mandatory for centres to adopt. Instead, they act as guidelines that can be adapted by the different curriculum models that are available in the preschool landscape as the provision of ECCE is largely market driven (Wu, 2017).

### **Returns on investment in early education**

Studies have shown that early investments in ECCE contribute to the development of human capital and reduce social costs in the areas of public health, crime rates and adult outcomes. These returns on investment have become a catalyst for governments to provide quality ECCE and support for young children and families, particularly for those from disadvantaged backgrounds (Sum et al., 2018; Millei and Joronen, 2016; Watson et al., 2012; Heckman, 2012). Backed by economic reasoning, ECCE is now a national priority in many countries as there is a growing consensus that governments need to invest in the early years because the returns far outweigh the social costs that result from a lack of investment and intervention in ECCE (Gupta, 2018; Heckman, 2012). In Singapore, the government also invests heavily in ECCE and has increasingly catered to children from low income families over time.

### **Exosystem level: Policies on early childhood care and education in Singapore**

#### **Policymaking for national needs**

Globalisation has made the ‘influence and assimilation of foreign ideas and practices into local contexts’ possible (Gupta, 2018: 12), and its impact is evident in the history of Singapore’s policies in ECCE. The government makes significant investments in education for human capital development to support the nation’s economic growth and progress (Ismail and Rasdi, 2016; Lim-Ratnam, 2013). For a small nation-state without natural resources, its people are the country’s only asset; and in a span of over 50 years, Singapore has become a success through effective public governance and policies. This is underscored by the political will to developing citizens who embrace a strong work ethic, innovative thinking and lifelong learners to participate in the global economy (Chua, 2008; Reyes and Gopinathan, 2013). Education policies are also designed to support national strategic policies. The intent is to ensure that these are consistent with the incumbent national goals.

The political aspirations stated in the Desired Outcomes of Education and the 21<sup>st</sup> Century Competencies (21CC) are for each Singaporean to become a confident person, a self-directed learner, an active contributor, and a concerned citizen at the end of their educational journey; to acquire and continue to develop the 21CC through lifelong learning (Ministry of Education [MOE], 2010). Education is pivotal to inculcating national identity – this starts from ECCE and is complemented by national education and character and citizenship education in formal schooling under MOE. Formal education begins in primary schools when children turn seven. Prior to primary schooling, children receive two main types of pre-school education in either child care centres and/or kindergartens (Khoo, 2010).

#### **History of early childhood education and care in Singapore**

Historically, child care centres and kindergartens were set up for different policy objectives – child care for custodial care to enable more women to return to the workforce and kindergartens for educational purposes (Tan, 2017). The preschool landscape was overseen by two different Ministries – MOE regulated the kindergartens through the 1958 Education Act and child care centres were under the purview of the Ministry of Community Development, Youth and Sports (MCYS), now known as the Ministry of Social and Family Development (MSF) (Gupta, 2018; Khoo, 2010). Such split governance created a view that care and education were separate functions of early childhood development (Tan, 2017), dissecting care from education, both of which are essential in early childhood. Child care centres and kindergartens also co-existed in a parallel

system as they both offer pre-school education to children between four and six years of age (Khoo, 2010). Consequently, the split and parallel system resulted in fragmentation and inefficiencies in ECCE which the government acknowledged when the ECCE sector was compared against a global trend of countries moving towards an integrated system of care and educational services in early childhood (Tan, 2017). Today, ECCE is regulated by an autonomous government unit, the Early Childhood Development Agency (ECDA) that was set up in 2013, and reports to both MSF and MOE (Bull and Bautista, 2018). This is a monumental milestone in pre-school education as it indicates a move towards harmonising child care and kindergarten under a single agency.

As this segment focuses on policies and frameworks in the early years, the history of child care centres is essential to examining the evolution of ITC as child care centres offer infant toddler programmes. The history of child care services traces back to pre-independence days which started off as a feeding scheme for poor and malnourished children during post-war times in the 1940s (Khoo, 2010). As a colony, the British government influenced the way child care centres were set up (Khoo, 2010). Subsequently, child care centres became a provider of custodial care for children from low-income families at a highly subsidised fee so that mothers could return to the workforce (Khoo, 2010; Tan, 2017). This arrangement continued until 1979 when the government divested its role as a service provider to take on a regulatory role as child care centres became too expensive to sustain (Khoo, 2010). The task of caring for and educating the young was then shared between MCYS and MOE for children of different age groups in the split and parallel systems.

### **Quality assurance, affordability and accessibility to services**

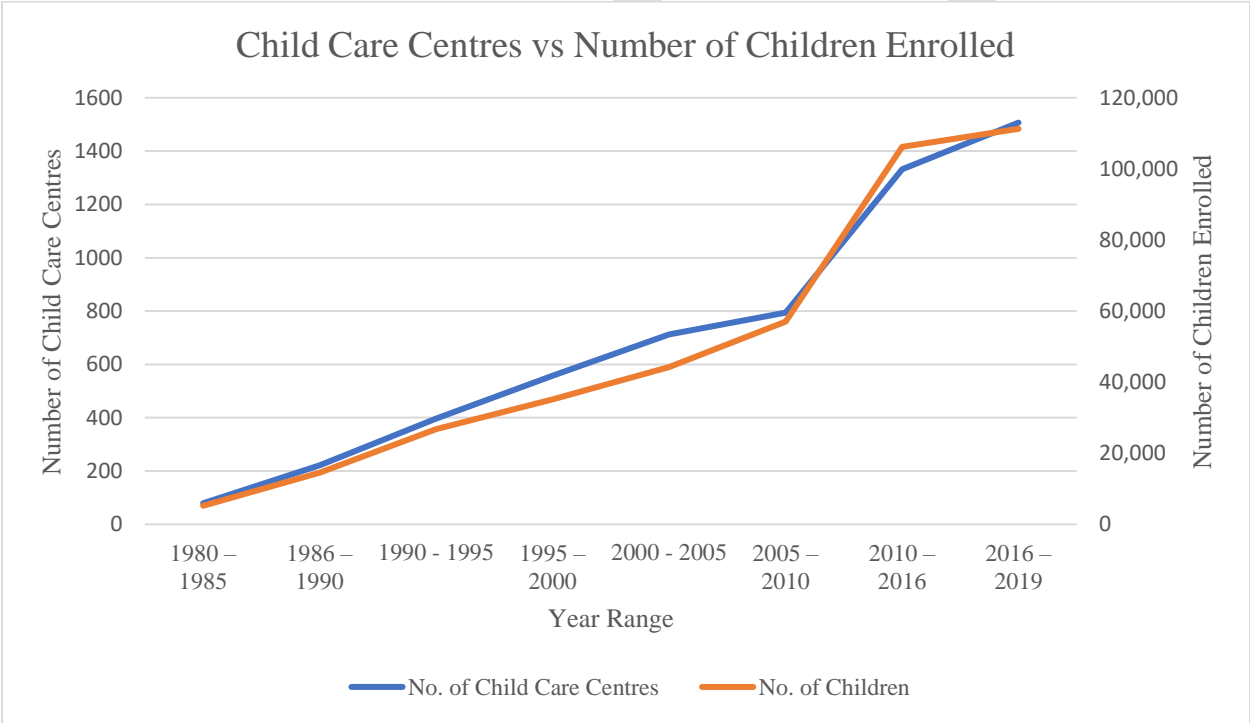
The government made policies to meet national needs at that time and two initiatives were implemented to raise the quality and affordability of ECCE – the establishment of the Childcare Centres Act and Regulations in 1988 and the provision of subsidies to make infant care and child care more affordable for working mothers to encourage them to rejoin the workforce (Khoo, 2010). At the mesosystem level, caregiving is now defined by the state as a service, rather than the role of mothers. Hence, mothers are able, and strongly encouraged, to assume their role as productive workers instead of staying at home to take care of their children.

The Childcare Centres Act and Regulations stipulate licensing standards and requirements for operators to assure parents of quality child care services while subsidies serve to incentivise working mothers to send their children to infant care and child care. Working mothers are eligible for SG\$300 monthly subsidy for half-day infant care and SG\$600 for full-day infant care. Compared to the disbursement of SG\$150 for non-working mothers, working mothers receive SG\$300 for full-day child care programmes (Khoo, 2010). These policies were put in place to encourage working couples to have more children, provide care services to facilitate work continuity and ease the financial burden through child care subsidies. These measures also serve to minimise job disruption and the loss of productivity to counter labour shortages, low fertility rates and slow population growth.

Khoo (2010) posits that certain national policies encompassing welfare provisions, social trends, female labour inclusion and population rate decline have necessitated the strengthening of the child care sector as an institution. As Khoo (2010) infers, the quality of care, development and education that young children are entitled to have been influenced by changes in welfare, economic, social, population and education policies over the years. The policy direction has evolved to ensure

financial accessibility, quality of service and the right to equitable learning opportunities according to national needs to benefit as many families and children as possible. At the exosystem level, MSF sets the principles and goals for the provision and delivery of custodial care services in child care centres and takes the lead role to coordinate public and social policies to offer families equal opportunities for child care that is accessible, affordable and of a quality to serve the developmental needs of infants and toddlers (Tan, 2017; Bull and Bautista, 2018; Khoo, 2010). The ministry licenses child care centres to provide care services and educational programmes from the age of two months to six years (Lim, 2017) This marks a paradigm shift in the perception of ITC custodial care or ‘babysitting’ and ‘childminding’ to one where care and education are intertwined.

To create greater accessibility to child care services, MSF sought to increase the number of child care providers by inviting new players into the sector and providing support for new operators to meet licensing requirements (Khoo, 2010). Under this initiative, operators began entering the market, leading to a rapid expansion and proliferation of child care centres. The numbers of child care centres and child enrolment from 1980 to 2019 can be seen in Figure 2 below (Khoo, 2010; ECDA, 2019).



From 1980 to 2019, there was an exponential increase in the number of centres and child enrolment, which demonstrates that the policies have been effective in creating access to child care services. It lends itself to the assumption that dual-income families have become more prevalent in Singapore. At the exosystem level, policies have shaped the ideology of the family, the role of parents and caregiving. The increase in centres and child enrolment demonstrate the success of the policies in creating availability of child care services for families.

Other government efforts include building large child care centres in high demand areas, creating greater access to quality and affordable government-supported pre-school centres, offering higher



subsidies to families, increasing support for low-income families and children, and providing enhanced support for operators to defray infrastructure-related expenses (ECDA, 2015; ECDA, 2019a; ECDA, 2020), which is in line with ECDA's mandate to promote accessibility by master-planning the infrastructure and manpower resources to support the early childhood sector and enhance affordability through subsidies and grants to keep quality pre-school programmes affordable (ECDA, 2019b). It ferries out the vision that ensures every child has access to affordable, quality child care and kindergarten services. Such a vision is fulfilled by government accredited anchor operators and partner operators that render child care services at subsidised rates based on the government funding received (Lipponen et al., 2019).

To ensure quality standards, all child care centres and kindergartens, other than the MOE kindergartens (MKs), are regulated by the Early Childhood Development Centres (ECDC) Act, which supersedes the Childcare Centres Act and Regulations as of 2017. The Act categorises child care centres and kindergartens as ECDCs serving children from two months to six years old, and stipulates the requisite licences that operators need to acquire. These licences and permits are mandatory for all operators and prescribe quality-of-service measures to be taken before the operation. The Act serves to regulate the operation of early childhood development centres to protect the safety, well-being and welfare of children at early childhood development centres; and promote the quality, and continuous improvement in the quality, of early childhood development services at early childhood development centres (ECDC, 2017).

While the Act does not apply to the MKs, there is an internal audit exercised by MOE for quality assurance (ECDC, 2017). Phillipson et al. (2019) posit that the government envisions MOE to set the benchmark for the nation's desired pre-school standard as 'parents know that they can trust the MOE brand' (National Day Rally, 2017). This implies that the MKs signal an industry standard for other operators in a market-driven sector. Notably, MKs offer programmes for five and six-year-old children; hence, the focus is still on kindergarten education. In pragmatic policymaking, human capital development is a national priority and the age group that the government focuses on is the preschool education of five to six-year-old children before they enter primary school. MOE continues to increase the number of kindergartens, which suggests that MOE is gearing up for a larger market share to compete with the other players on the ground. The dynamics between MOE at the exosystem level and operators in the mesosystem level implies an increasing level of government intervention in raising quality standards not just through policymaking, but also through market competition. MOE now plays a dual role in the exo- and meso-systems as a regulator and a competitor.

The ECDC Act sets the baseline standards for the sector (ECDA, 2017), whereas the Singapore Pre-school Accreditation Framework (SPARK) is a step-up from the licensing requirements for ECDCs. SPARK is one of the high leverage policies for government regulatory frameworks and accreditation initiatives (Lim, 2017) and ECDCs wanting to obtain accreditation certificates need to undergo evaluation using an assessment instrument called the Quality Rating Scale (QRS). Evaluations are carried out by SPARK accreditation assessors using the QRS which comprises eight criteria and 28 items that are designed to prepare centres to deliver a more holistic ECCE programme in their settings. Through this instrument, it is hoped that pre-school centres would improve the quality of their programmes for four to six-year-olds and adopt a more comprehensive approach in assessing centre quality. In 2019, a revised QRS was introduced for centres to conduct

self-appraisal and assessment. It integrates quality indicators for programmes that cater to children from birth to six years. This demonstrates a more holistic approach in assessing the quality of programmes for the whole spectrum of early childhood as compared to the focus on programmes for four to six-year-olds previously. The new criterion includes age and developmentally appropriate physical environment and resources, family involvement, general principles for pedagogy, early language development, physical development, aesthetic development, early numeracy and natural environment to assess the quality of programmes for two months to three years old. The revised instrument is part of ECDA's continual effort to raise the quality of the pre-school sector in Singapore (ECDA, 2019c). From 2020, it would be mandatory for centres participating in SPARK assessment (both new applicants and those renewing their certificates) to apply the QRS to their programme evaluation (ECDA, 2019c).

### **Government Efforts Towards Teacher Quality**

The (Organisation for Economic Co-operation and Development [OECD], 2001) highlights that the driving forces behind high-quality early years education are teacher training and professionalism in the workforce. In enhancing the quality of the sector, the government targets teacher quality by charting professional pathways for child care teachers and leaders. In 1999, MCYS set up the Child Care Qualifications Accreditation Committee to look into the quality of training and trainers. In 2000, the Pre-school Qualification Accreditation Committee (PQAC) was formed to oversee teacher quality issues (Khoo, 2010). In the split system, MCYS oversees ITC and the training and qualifications of educators who are required to either possess a certificate in infant-toddler care and development, register as state nurses (Khoo, 2010). According to Khoo (2004), training for pre-school teachers was ad hoc and brief when it was first introduced in the 1970s as teachers would typically undergo basic training in pre-school teacher programmes that range between 60 hours and 120 hours. In 1998, there were three levels of training for child care and kindergarten teachers: (a) 120-hour basic course, (b) 210-hour certificate in pre-school teaching intermediate course, and (c) 120-hour certificate in pre-school management and administration advanced course (Sharpe, 1998). There was a three-tier training structure (a) fundamental course for child care assistants, (b) intermediate course for child care teachers and (c) advanced course for centre supervisors, which was subsequently raised to diploma level in teaching for teachers and leadership for centre supervisors respectively; the first 3-year diploma course was launched in Ngee Ann Polytechnic in 1999 (Khoo, 2010; Tan, 2017).

An inter-ministerial taskforce comprising representatives from the PQAC and the Early Years Qualification Accreditation Committee (EYQAC) was formed in 2000 to develop a common training route for teachers and principals, resulting in the Pre-school Education Teacher Training and Accreditation Framework for teaching and leadership programmes in 2001 (Tan, 2017; Bull and Bautista, 2018). The taskforce focused on raising teacher quality and professionalism, and monitored the content of training programmes (Lim 2017; Ministry of Community Development, Youth and Sports [MCYS], 2008). Consequently, training providers were required to obtain the necessary accreditation to conduct training for the sector. There were six standards that training agencies needed to adhere to in the design and delivery of their training programmes: (a) admission requirements and practices, (b) administration of courses, (c) course content, (d) modes of assessment and supervised teaching practice, (e) quality of faculty and (f) facilities and resources (MCYS 2008; MCYS 2012).

Under the framework, the minimum qualification for pre-school teachers was a Certificate in Pre-school Teaching (470 hours of training). All principals were required to complete 1,200 hours of a two-tier diploma training programme – Diploma in Pre-school Education-Teaching (700 hours) and Diploma in Pre-school Education-Leadership (500 hours) by 2006. MOE then raised the bar to stipulate that all teachers must be certificate-trained by 2008, and one in four teachers should attain a Diploma in Preschool Education-Teaching (Tan, 2017). In 2009, the academic requirements were raised to 5 O' Level credits and a B4 credit in the English Language (ECDA, 2018). There were alternative training routes for teachers who did not meet the mark to obtain the requisite grades within two years from the point of teacher registration (MOE-MCYS Pre-School Qualification Accreditation Committee, 2008). The raise in qualifications was a push for higher teacher quality and standards by the government at the exosystem level. Time is needed for these changes to pan out at the mesosystem level. However, amidst the push for teacher quality, these changes did not apply to educarers working with infants and toddlers. Educarers, who are pivotal to the quality of ITC were not required to obtain higher qualifications. This suggests that educarer quality did not fall within the government's quality radar despite its progressive move towards teacher quality for those teaching children between the ages of two to six years of ages.

Two institutions took on the role of raising teacher quality – ECDA and the National Institute of Early Childhood Development (NIEC). Part of ECDA's mandate is to develop teacher capabilities and raise the quality standards of centres and professionals by enforcing licensing and quality assurance standards and enhancing teacher quality through training and professional development programmes (ECDA, 2019b). In an effort to strengthen the training and professional development of early childhood professionals, NIEC was set up in 2017 by MOE to harmonise training programmes from the Institute of Technical Education, Ngee Ann Polytechnic, Temasek Polytechnic and SEED Institute, and to provide enhanced training curriculum, robust teaching resources and pedagogies for the training and professional development of early childhood educators (MOE, 2017). While there is government intervention in raising teacher quality, policies at the exosystem level still need to negotiate with the practices of players at the mesosystem level which comprise private training agencies offering teacher training. In the spirit of free enterprise, these agencies are given the opportunity to revisit their current offerings and improve teacher training. As NIEC has been recently set up, it is still too early to assess the effect on teacher training (Bull and Bautista, 2018). Notably, the disparity in teacher quality will continue to exist due to the different training providers that had existed prior to NIEC. Under NIEC, there are two levels of teacher preparation programmes for educarers and educators – certificate and diploma (see Table 1 below).

Table 1. Adaptation of NIEC Course Schedule 2020

<b>Certificate Level</b>			
Minimum Entry Requirements	Course	Duration	Upon Graduation
Sec 4 education and Statement of Attainment 5 (SOA 5) in Work Place Literacy Programme (WPL)	Advanced Certificate in Early Years (ACEY)	600 hours	Educarers can care for children from 2 months to 3 years

Completion of HSK <sup>1</sup> 5 Class	Advanced Certificate in Early Years (ACEY) (CL) <sup>2</sup>	600 hours	
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At the certificate level, educarers can teach children from 2 months to 3 years, and with an advanced certificate, they can teach children from 18 months up to 4 years old or assist in teaching kindergarten children. The certificate is a minimum requirement for educarers to teach in infant toddler programmes. Diploma trained teachers can teach children from 18 months to 6 years old, which means that children from two to 18 months are only taught by educarers pegged at the certificate level. Again, this demonstrates that educarers only require the baseline qualification to care for the youngest children, which indicates that there is still room for improvement in raising teacher quality for ITC. These training programmes are designed to equip educators with the knowledge and understanding of the principles and practices in the Nurturing Early Learners framework and EYDF.

### **National curriculum frameworks for early childhood programmes**

In 2011, the EYDF was rolled out by MSF (MSF, 2011). The framework emphasises developmentally appropriate curriculum that supports the holistic development of infants and toddlers and is used as a guide for quality care and learning experiences (MSF, 2011). This raises the bar for professionalism in educarers and consequently, the quality of ITC, as it addresses the care and learning needs of infants and toddlers (Khoo, 2010, Lim, 2017). Notably, this came years after MOE articulated the Desired Outcomes of Pre-school Education in 2000 and launched the first official kindergarten curriculum framework in 2003 (Tan, 2017), which suggests that efforts towards raising the quality of ITC only gained traction in the recent decade. The kindergarten framework was replaced by the NEL framework that focuses on the educational needs of children, and the quality of classroom teaching and learning (Tan, 2017). In the NEL framework, children's holistic development is supported by six learning areas, and children are to be equipped with key knowledge, skills, dispositions and 21CC to achieve the desired outcomes of pre-school education (MOE, 2013a, Bull and Bautista, 2018).

Educarers refer to the EYDF for children from two months to three years old, whereas teachers refer to the NEL framework for children from four to six years old. Educators make use of both frameworks to ensure that children transit smoothly from pre-school education to primary schooling as the frameworks play complementary roles in the provision of guidelines and a general approach to achieving programme goals and the outcomes of pre-school education (Sum et al., 2018). However, because ECDCs are autonomous and the frameworks are not mandatory, the government does not have control over centre programmes and curriculum, and can only put in place policies and recommend good practices for quality ECCE. This, in turn, affects the degree of policy effectiveness and the level of centres' fidelity to the curriculum frameworks, particularly for ITC as the revised SPARK accreditation only comes into effect in 2020.

### **Links and gaps in policies and frameworks**

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<sup>1</sup> Hanyu Shuiping Kaoshi (HSK)

<sup>2</sup> CL denotes Chinese Language

Singapore has made good progress in the policy changes pertaining to licensing and regulations, teacher training and accreditation and increased efforts and funding have improved the quality of ECCE (Bull and Bautista, 2018). However, there is still a gap between policy and practice, and the authors have identified two key areas for discussion – staff to child ratios and teacher quality.

### Staff to Child Ratios

There are three official references that ECDCs can use as guides for quality programmes – the Early Childhood Development Centre Regulations of 2018, the Guide to Setting up an ECDC and the EYDF (2019). The Guide to Setting up an ECDC, which will be referred to as the guide hereafter, lists out the four licensing – specific baselines for centre compliance. For centres that are already in operation, these baselines act as points of reference for quality improvements. When assessing improvements in programme quality concerning staff to child ratios and teacher qualifications, there are specific factors and items to be achieved such as programme levels, age groups, special needs of children, staff to child ratio and staff training (Sciarra and Dorsey, 2002). These are not just indicators for estimating costs and investments but also critical factors to quality interactions, learning outcomes, child safety and well-being, and teaching experience for teachers (Bertram and Pascal, 2016; Marotz, 2014). Considering how staff to child ratios can impact the staff's ability to perform well, countries usually set minimum staff to child ratio standards for children of different age groups (Taguma et al., 2012).

In Singapore, the staff-child ratios are presented in Table 2 for Class A, B and C centres.

Table 2. License Classification of Centres

	Description of Types of Licences		
	Class A	Class B	Class C
Periods of Operation	<ul style="list-style-type: none"> <li>Monday to Friday (7 am to 7 pm)</li> <li>Saturday (7 am to 2 pm)</li> </ul> Operates 5½ days a week throughout the year, except on Sundays and public holidays		Monday to Friday Operates during school terms, according to MOE's academic calendar, except Centres which follow an international curriculum and academic year.
Operational Hours	12 hours or more		6 hours or less
Age of Children	2 to 18 months	18 months to 7 years	18 months to below 7 years
Programme Type(s)	<ul style="list-style-type: none"> <li>Full day</li> <li>Half day</li> <li>Flexible options (at least 12 to 24 hours a week, and 3 hours per session)</li> </ul>		Half day (Single, dual, triple sessions)

For centres that offer ITC for children between two and 18 months, a staff to infant ratio of 1:5 is required under the Class A license. This grouping is consistent with the ECDC Regulations 2018, which state that 'infant class means a class conducted at a centre for children who are two months of age or older but are below 18 months of age'. Playgroup is designed for children 18 months to

below 3, whereas pre-nursery is for children who have reached 3 years old (36 months) at the time class commences, and nursery is for children are 4 years old (48 months) at the time the school year begins. In the EYDF, there are three age groups of children: (a) infants: 2 to 12 months; (b) toddlers: 13 to 30 months, and (c) prenursery: 31 to 36 months. There is an age gap between the ECDC Regulations provision and the EYDF provision of six months in the infants, toddlers and playgroup levels, and a gap of five months at the pre-nursery level. Table 3 below illustrates the groupings and the age gaps between the ECDC Regulations and EYDF.

Table 3. Regulations, Classifications and Age Gaps

	<b>Infants</b>	<b>Toddlers</b>	<b>Playgroup</b>	<b>Pre-Nursery</b>
<b>ECDC Regulations</b>	2 to 18 months	18 to 36 months		At least 36 months
<b>EYDF</b>	2 to 12 months	13 to 30 months		31 to 36 months
<b>Age Gap</b>	<b>6 months</b>			<b>5 months</b>

The age gap discrepancy highlights the need for clarity and reconsideration in the manpower allocation in the early years as there is a possibility that some educators may not be sufficiently trained in terms of qualifications and may lack the experience to carry out care and learning experiences for a mixed-age grouping comprising infants (2 to 12 months) and toddlers (13 to 18 months). More crucially, this 6-month age gap between the youngest infants (2 months) and the oldest toddlers (36 months) could well occur at any point in any of the three groupings. This, in turn, exacerbates the challenges of educating in mixed-age groupings due to the differences in children's developmental and learning needs. Mixed age groupings. In mixed-age groupings, educators need to be well grounded in child development to cater appropriately to different age groups because the safety and learning of children may be compromised if the educator is not equipped with the skills and knowledge to manage the variations in a mixed-age group. Therefore, it is crucial for educators to be mindful and sensitive to the needs of young children and carry out developmentally appropriate practices to support children's learning and development (Gestwicki, 2016).

As the child's microsystem begins to expand and interact with the other actors in the mesosystem, as s/he becomes more receptive to and interactive with the educators and peers in his/her life (Sumaroka and Bornstein, 2009). These relationships affect the child's learning and development because positive relationships and secure attachment start to form in the early years (Swim and Watson, 2011). There are potential benefits such as promoting interactions between older and younger children, facilitating the continuity of care as children progress from infancy to toddlerhood, but it also has its potential disadvantages that rely on the features of pre-school programmes, classroom quality, and teacher's education and experience (Early et al., 2007; Hatfield et al., 2016; Mashburn et al., 2008). As such, the success of a mixed-age classroom often depends on the teachers who plan, organise and implement successful teaching techniques and deliver activities that support both individual and group learning in the classroom environment (Thurber and Bandy, 2018).

Research indicates that teachers often lack a full understanding of mixed-age education, which result in inadequacy in lesson planning, selecting appropriate resources and materials, and conducting meaningful learning experiences for children of different abilities and ages (Farkas and Duffet, 2008). Therefore, programmes for mixed-age groupings should be child centred

instead of being curriculum-centred (Stone, 2010). Child-centred programmes should have a ‘focus on designing learning experiences that recognise and respond to the individual needs of each student’ (Harris et al., 2013: 3). As such, teachers need to be experienced and well-trained in pedagogical practices and use a differentiated approach for group and individual learning, and receive support from their centre leaders to carry out quality programmes. Children will not be able to reap the optimal benefits from mixed-age groupings if the teachers are not equipped with the requisite skills to implement differentiated instructional strategies, set up developmentally appropriate environments and conduct suitable observation and assessments. Barber (2015) observes that teachers tend to require more knowledge and skills on how to facilitate peer learning and group practices and need to attend professional development training on how to support children’s diverse learning needs in a mixed-age setting. In addition, teachers must also be able and willing to work collaboratively in team teaching and group planning and provide a safe, supportive, and nurturing classroom environment (Barber, 2015; Davenport, 1998; Heins et al., 2000; Hoffman, 2002, 2003; Lingam, 2007; Main, 2008; Smit et al., 2015). The workload of an educator thus requires s/he to be well trained.

To manage workload and manpower shortage issues in the early years, the government has revised the staff to child ratios to include para-educators or para-educators to increase the ratios to cater for more flexibility in centres’ manpower allocation (ECDA, 2019) (see table 4 below).

Table 4. Age Group, Staff to Child Ratio and Teacher Qualifications

Age Group (Months)	Level	Staff to Child Ratio	Staff to Child Ratio (with para-educators/educarers)	Minimum Teacher Qualifications
2 – 18	Infant-Toddler Care	1: 5	-	Advanced Certificate in Early Years (ACEY)
18 – 30	Playgroup	1:8	1 + 1: 12	Advanced Certificate in Early Childhood Care & Education (ACECCE)
30 – 36	Nursery 1	1:12	1 + 1: 18	Diploma in Early Childhood Care & Education-Teaching (DECCE-T)

(Adapted from ECDA, 2011 and NIEC Course Schedule, 2020)

While the 1:5 ratio remains for ITC, in the playgroup, the staff to child ratio increases to 2 personnel, 1 educator and a para-educator or para-educator, to a group of 12 toddlers; 2 personnel to a group of 18 toddlers in Nursery 1. The increase in group size to 12 for playgroup and 18 for Nursery 1 implies that the para-educators also need to be adequately trained to manage such a group size to cater to the age range of the children in the two groups.

### Manpower re-allocation

According to Ruprecht et al. (2018), the continuity of care refers to a relationship-based practice where a primary caregiver is assigned a small group of infants/toddlers for an extended period of time (three years) to promote secure and supportive relationships in quality infant toddler programmes. A study by Elicker et al. (2014) reveals that toddlers who attended continuity of care classrooms for at least nine months exhibit higher levels of social competence and are more engaged in high-level interactions with their caregivers than those in the non-continuity classrooms. With reference to the Singapore context, there is only a maximum window period of 16 months supporting the continuity of care for children between two and 18 months, if the class is allocated to an EY1 educator (ACEY). Unless the educator obtains an advanced certificate (ACECCE), as only EY2 educators can teach both ITC and playgroup, it would be difficult for the children to sustain meaningful relationships with their educator. Therefore, it is the group of EY2 educators who are the potential actors that can support the continuity of care and this is an area which the government could look into to improve the quality of ITC.

Given the importance of staff to child ratio and teacher quality to promote quality interactions in the early years, the government could consider reviewing the current staff to child ratios to align the ECDC regulations with EYDF to ensure consistency in the national documents and to facilitate the delivery of quality ITC programmes in ECDCs. The staff to child ratio in the mixed-age groupings must support positive staff to child interactions and relationships for children's holistic development (OECD, 2019). The staff to child ratio should also take into consideration children who may need additional assistance to fully participate in mixed-age groupings in terms of their learning needs, abilities, language proficiency, developmental stages, or other sociocultural factors such as migrant background and cultural differences (OECD, 2019).

### **Teacher Quality**

A high quality workforce is critical for the delivery of ECCE programmes as teachers have a strong, positive impact on children's learning, development, well-being and future outcomes (Mitter and Putcha, 2018). Coupled with growing evidence that a well-trained and supported workforce is key to the provision of high quality ECCE for children and families, there are two significant factors in teacher quality – pre-service and in-service training for continual professional development (Mitter and Putcha, 2018). The qualifications and training of educators and educators should adequately prepare them for quality curriculum implementation. According to the OECD's (2019) Teaching and Learning International Survey (TALIS) Starting Strong report, teaching practices that facilitate group organisations and individual support, the quality of interactions between staff and children, staff and parents and amongst children, and parent engagement contribute to children's language, literacy, numeracy, and socio-emotional development. Hence, teacher quality is the next crucial factor to raise quality in ITC.

### **Teacher training and professional development**

In Singapore, NIEC oversees teacher training and professional development. However, issues of teacher quality persist because it will take time for harmonisation to take effect. The provision of standardised training programmes and structured pathways will enable effective teacher training and facilitate ongoing professional development when the duration, structure and content of training programmes are aligned across the training institutes, and when the content of professional development programmes is mapped against the competencies to meet the learning needs of the teachers.



Effective pre-service and in-service teacher training have been associated with high quality interactions between staff and children in ECCE, which is a critical factor in ITC, and continual professional development for teachers is related to strong learning and development for children (OECD, 2019). Hence, in promoting positive learning, development, wellbeing and outcomes for children, four key factors affect teacher quality: (a) gender and experience; (b) training and professional development; (c) job satisfaction and sources of stress, and (d) workforce status and working hours (OECD, 2019). In the gendered workforce of ECCE, understanding the profile of a female dominated sector is necessary for designing and implementing training that can meet the needs of early childhood educators, particularly in the content of training programmes (OECD, 2019).

### **Structured Pathway for Educarers**

One of the key issues in teacher quality for ITC is that educarers are only required to be qualified at the certificate level – the minimum level of qualification – which contributes to the ‘paradox of deploying the least qualified professionals to teach children in the most formative years’ (Bull and Bautista, 2018: 172). This also contradicts with EYDF’s guidelines to provide ‘optimal support and experiences for growth, development and learning’ in ITC (MSF, 2011: 18) because educarers do require the theoretical understanding of child development and developmentally appropriate pedagogies and skills to implement quality programmes. As such, the recommendation for raising the quality of educarers is to implement a mandatory professional development structure in the educarer pathway. Instead of capping educarers’ qualifications at the certificate level, all educarers should advance to a Diploma in Early Years programme after three years in service. This is to ensure that educarers have sufficient practical experience before they progress to developing their knowledge and skills. A compulsory diploma in the early years can be put in place to bridge theory and practice and in time, educarers should also work towards a Bachelor degree and subsequently, a higher degree so as to raise the baseline standard for educarers. This recommendation is in line with the national Skills Future movement that promotes continual professional development for educarers to upgrade themselves, which will raise the professionalism of the sector and contribute to the delivery of quality ITC.

There are barriers which the government needs to mitigate such as manpower shortage issues which make the procurement of replacement teachers challenging for centres and in turn, deters centres from sending their teachers for professional development, and provide support and funding for educarers to participate in continual professional learning. Hence, ensuring a pool of para-educators would be helpful when centres send teachers for courses and training. Since staff wellbeing is related to the level of job satisfaction and stress that correlates with workload and workforce status of the sector (OECD, 2019), the government and centres can work hand in hand to improve the structures, support, resources, welfare and remuneration packages to retain staff and encourage them to upgrade themselves continually.

### **Conclusion**

From the article, the authors have highlighted two areas for improvement with recommendations to raise the quality of ITC. At the exosystem level, the government has the power to effect positive change when actors at the mesosystem level receive sufficient support and funding, and cooperate to fulfil the policy intent at the centre level, teacher level and programmatic level. The government should look into reorganising the mixed age group in the national staff to child ratio for ITC. This

is to ensure that infants are better cared for by educators. A structured pathway for educators with high quality pre- and in-service training should also be put in place to ensure teacher quality. When educators are well trained to provide developmentally appropriate infant toddler programmes, the quality of ITC increases, which in turn benefits the children at the microsystem level.

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