



# **Early Childhood Intervention: What We Know and Where We Are Headed**

***A Review of Local and International Literature and Implications for Singapore***

Xie Huichao, Nah Yong Hwee, Yang Xueyan, Sengalrayan Bernadine Wilhelmina, Kenneth Kin-Loong Poon

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# **Early Childhood Intervention: What We Know and Where We Are Headed**

## **A Review of Local and International Literature and Implications for Singapore**

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### **Abstract**

*There is increasing attention to, and acceptance of, that providing high quality early childhood intervention in a timely manner enhances the development and well-being of young children and their families. This paper covers the important topics in intervention and special education provided for young children from birth to six years old, as well as describes the local early childhood intervention system in Singapore. Based on a review of both local and international literature, this paper first provides an overview of the local early childhood education and early intervention landscape. After that, a brief summary is provided on the evidence-based practices in inclusion of children with developmental or special educational needs, identifying special needs in early childhood, personnel preparation and professional development, transitioning from early childhood to formal schooling, and family engagement and collaboration. Linking the findings from the literature to the local context, recommendations for advancing early childhood intervention services in Singapore are provided under each topic as well as summarised at the end of the paper.*

*Note: This paper was written in 2020. There have been some changes in early childhood policies and programmes since the paper was written.*

## **Section 1: Introduction**

The early years (birth to six years) are foundational to a child's development and outcomes in life. Quality early childhood experiences and environments give children a head start in life by supporting the development of competencies that foster school readiness and increase the probability of future success (Heckman, 2008; Masten & Coatsworth, 1998; Shonkoff, Phillips, & National Research Council, 2000; Tough, 2012). These competencies pertain to the cognitive (e.g., literacy and numeracy) and socioemotional (e.g., regulating behaviour, following rules, getting along with peers) skills that facilitate subsequent learning (Cunha, Heckman, Lochner & Masterov, 2006; Heckman, 2008) and enable children to cope with the rigours of formal education.

In Singapore, a similar range of cognitive and socioemotional skills are incorporated into the Key Stage Outcomes of Pre-School Education (Ministry of Education [MOE], 2012), which specify the competencies that children should possess by the end of preschool education. These outcomes not only emphasise the holistic development of children, but also stress the importance of laying the requisite socioemotional and cognitive foundations in early childhood to facilitate the transition from preschool to primary school as well as future learning.

Whilst some children achieve these key stage outcomes by the end of preschool, others face difficulties in doing so. Not every child develops at the same pace, but the emergence of gaps in skills and abilities at the preschool level warrants attention. This is because children who lag behind their peers from an early age are likely to struggle in primary school and beyond, which puts them at greater risk of low educational attainment and other detrimental life outcomes (Chowdry & Oppenheim, 2015; Tickell, 2011). Nonetheless, it is possible to prevent such children from experiencing significant difficulties later in life with some form of early childhood intervention (ECI). ECI refers to the supports and services provided to children with developmental needs (i.e., a developmental disability or delay), or who are at risk. In this paper, we focus on ECI as it pertains to children from nursery to kindergarten.

Who are these children? What is currently known about how best to support the development of their competencies? What are the directions forward? This paper seeks to address the above questions within the context of international research and applying them against that of Singapore. It also aims to identify recommendations for policy and practice.

In the sections that follow, we first clarify terminologies used in this paper. We then present an overview of the local landscape of early childhood education (ECE) and ECI. Next, we describe five areas of focus examining the research base from local and international literature, accompanied by recommendations for policy and practice. The five areas of focus are: (a) Inclusion of children with developmental needs in mainstream early childhood education settings; (b) Identification, monitoring, and evaluation using a multi-tiered system of support; (c) Personnel preparation and professional development; (d) Transition to primary education; and (e) Family engagement and collaboration.

## **Terminologies related to early intervention**

This section presents a brief clarification of key terminologies that will be used in this paper. ECI or early intervention (EI) refers to the provision of intervention services and supports to children with developmental needs. Children with developmental needs refer to children with a diagnosed disability or developmental delay. Children with developmental delays may have delays in their motor skills, speech and communication skills, cognitive skills, self-care or adaptive skills, or social and behavioural skills.

Children at risk may be born with or exposed to biological risk factors (e.g., low birth weight); they may also come from disadvantaged environments (e.g., poverty) that may make them susceptible to poor outcomes in life. Service provision and service delivery refer to the intervention services that therapists or educators may provide to children and their families.

## **Overview of local ECE and ECI landscape**

ECE and care for children aged four to six in Singapore is provided

primarily in kindergartens and child care centres. Prior to 2013, early childhood education and care fell under the purview of the Ministry of Education (MOE) which oversaw policy and management of kindergartens, while the Ministry of Community Development, Youth, and Sports (MCYS), now the Ministry of Social and Family Development (MSF), oversaw child care regulation and policies. In 2013, the Early Childhood Development Agency (ECDA) was created to coordinate oversight over the areas of early childhood education and care. Both MOE and MSF jointly oversee ECDA (<https://www.ecda.gov.sg/pages/aboutus.aspx>).

## **ECE in Singapore**

### ***Provision of ECE services***

Kindergartens usually provide preschool developmental programmes for children from age two to six. Kindergarten programmes include at least Kindergarten 1 and Kindergarten 2 levels, and may also include Playgroup, Pre-nursery (Nursery 1), or Nursery (Nursery 2). Sessions for Nursery to Kindergarten levels range between 3–4 hours, while Playgroup and Pre-Nursery levels range between 2–3 hours. Child care centres provide preschool developmental programmes as well as child care services for children from 18 months to six years old. Infant care programmes for children from 2–18 months may also be available at some child care centres. Sessions at child care centres may range from half day, full day, or flexible programmes to meet the needs of parents with varied work schedules. Both kindergartens and child care centres come under the oversight of ECDA. Enrolment of children in infant care programmes is relatively low (21%). However, enrolment at Nursery 1 is at 69%, increasing to 89–91% for subsequent preschool years (Bull, Bautista, Salleh, & Karuppiah, 2018).

Most kindergartens or child care centres are provided by the private sector, including government-supported, non-profit, and for-profit centres. A small, but growing number of government kindergartens are also available. Two funding programmes are administered by the government: the Anchor Operator Scheme (AOP), and the Partner Operator Scheme (POP) for childcare, infant care, and kindergarten

service providers. ECDA provides funding through these schemes directly to preschool operators to enable centres to keep fees low, making quality early education and care more affordable and accessible to families. AOPs are required to invest in quality improvement and support the continuing professional development of their staff. While accreditation is not compulsory, centres are monitored and can apply for accreditation by the Singapore Preschool Accreditation Framework (SPARK). POPs are required to obtain SPARK certification.

### ***Curriculum frameworks in ECE in Singapore***

Curriculum frameworks have been developed by the government for children aged two months to three years (Early Years Development Framework [EYDF]) and for children aged four to six years (Nurturing Early Learners [NEL] Kindergarten Curriculum Framework) (Bull et al., 2018). These frameworks are not mandatory, but are recommended guidelines for centres. The EYDF embraces a broad vision of “children being secure, confident, safe, and healthy”, “children being involved, engaged, and enquiring”, and “centres, families, and the community connecting and relating” (Early Childhood Development Agency [ECDA], 2013).

Six core principles guide the NEL Framework: (a) integrated approach to learning; (b) teachers as facilitators of learning; (c) engaging children in learning through purposeful play; (d) authentic learning through quality interactions; (e) children as constructors of knowledge; and (f) holistic development (MOE, 2012). The NEL Framework outlines six core learning areas that support the holistic development of children: (a) Aesthetics and Creative Expression, (b) Discovery of the World (which includes people and cultures; natural and built environments; places and spaces; science, time and events; and inventions and technology), (c) Language and Literacy, (d) Motor Development, (e) Numeracy, and (f) Social and Emotional Development (Bull et al., 2018). Within each learning area are a set of learning goals reflecting what children are expected to know and do at the end of Kindergarten 2. As religion is not a recognised area of learning, parents who wish their child to receive religious education may send their children to faith-based preschools run by churches, mosques, or temples.

While most children benefit from preschool education and care, children with developmental needs or who are at risk benefit from receiving more intensive supports either within the child care or kindergartens, or at more specialised settings specifically for children with developmental needs. In the next section, we discuss the ECI landscape in Singapore.

## **Early Childhood Intervention (ECI)**

### ***What is ECI? \****

ECI encompasses multi-disciplinary programmes and services that seek to optimise child development by addressing problems that have emerged or could potentially emerge for young children. Such issues can pertain to a child's health, well-being and development of cognitive and socioemotional competencies, and are addressed by ECI in the form of individualised programmes and services (Shonkoff & Meisels, 2000). Besides promoting child development, ECI also seeks to minimise the likelihood of children experiencing detrimental outcomes later in life. Recipients of ECI typically include children with identified developmental needs and/or known biological or environmental risk factors as well as families of children who receive such programmes or services.

In Singapore, ECI is targeted at children between the ages of zero and six, who are diagnosed with developmental needs and/or affected by known biological or environmental risk factors. Some of the existing ECI programmes and services in Singapore that are nationally offered include the Early Intervention Programme for Infants and Children (EIPIC), Pilot for Private Intervention Providers (PPIP), Learning Support (LS) and Developmental Support (DS) Programme, Integrated Child Care Programme (ICCP), and KidSTART, but there are also programmes that are offered by specific organisations (e.g., Circle of Care [COC]) (see Lien Foundation, 2018, for a fuller description of the programmes).

ECI can take many different forms. Offord et al. (1999) posit three levels of intervention. First, at the clinical level, intervention is provided after the problem emerges. This type of intervention targets a

\*The scope of ECI as used in this paper takes reference from current research literature, and may not necessarily align with that of local government agencies

specific area of development (e.g., motor skills) or all areas of a child's development. Second, at the level of targeted intervention, intervention is provided to a group at risk of developing a problem. The third level is that of universal programmes that are available to everyone. Consequently, interventions are generally targeted at children with developmental needs whereas those with environmental or biological risk of a delay in one or more of the developmental domains may benefit from a preventive programme.

### ***Why is ECI important?***

As child development is most robust between the ages of zero and six (Meisels & Shonkoff, 2000), the early childhood years would be the most opportune period for providing intervention to children with developmental needs and/or risk conditions. This is supported by studies that examine the outcomes experienced by children who receive receive interventions (e.g., Hebbeler et al., 2007; Heckman, 2008). The studies reveal that early provision of the requisite support can minimise the likelihood of children requiring special education services or remedial programmes when they are older. Even for children who would eventually require special education services, ECI could mitigate the severity of their impairments and/or equip them with compensatory skills that would improve their quality of life. Furthermore, ECI can also benefit families of children who receive such services by providing them with the information and resources that would enable them to better support their child's development and manage the implications of their conditions (Hebbeler et al., 2007).

Ultimately, ECI plays a central role in efforts to foster inclusion and address inequalities in society. Apart from maximising the potential of children with developmental needs, ECI can also narrow gaps in skills and abilities at the preschool level by equipping disadvantaged children with a foundation of competencies that support future learning (Cunha et al, 2006; Heckman, 2008). In doing so, children who lag behind would be able to catch up with their peers at an earlier stage.

## ***ECI programmes for children with developmental needs in Singapore***

In an effort to provide a seamless continuum of ECI services in Singapore, a suite of services for young children with risk and for those with developmental needs have been provided. Figure 1 summarises the continuum of subsidised ECI services in Singapore. The services are ordered in terms of increasing specialisation (and reduced inclusivity) on the vertical axis. Correspondingly, the children are also profiled according to their degree of support needs as proposed by Ho (2007).

EIPIC is a government-subsidised programme serving about 40% of young children with developmental needs in Singapore (Enabling Masterplan Committee, 2011). As indicated in Figure 3, EIPIC is designed to serve children with moderate to severe developmental needs (Poon & Lim, 2012). In comparison with the other service providers, Poon and Yang (2016) reported that most EIPIC centres provide individualised teaching supports (88% of the responding centres) and therapies (100%), compared to ICCP (75% and 25% of respondents) and preschools (14% and 14% of respondents). Additionally, some EIPIC centres have started to deliver home-based intervention services though most centres are still delivering intervention services in a centre- based format.

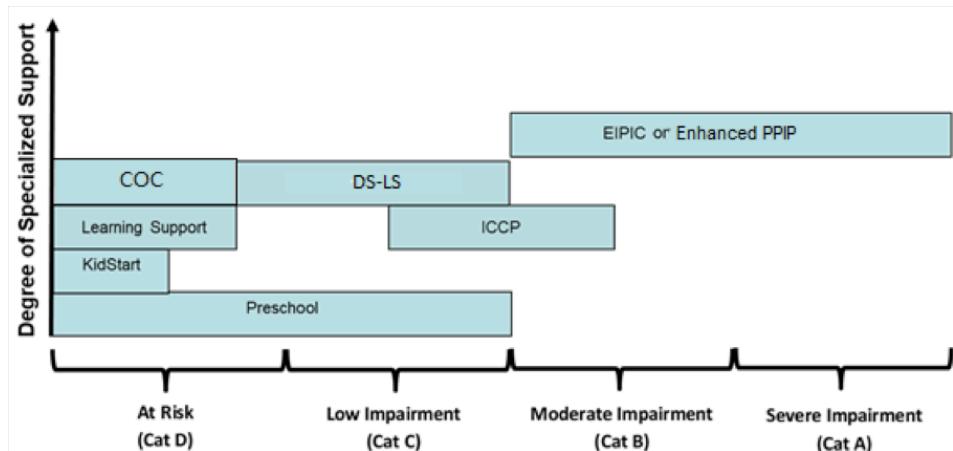


Figure 1. *EIPIC and the broader continuum of ECI services (adapted from Xie & Poon, 2019)*.

The enhanced PPIP scheme provides qualifying families with subsidies to receive ECI in specific private early intervention providers. The model and efficacy of support provided at the PPIP centres is undocumented.

The Integrated Child Care Programme (ICCP) is a government-funded initiative providing resources for the support of children with mild to moderate levels of needs in preschools (SG Enable, 2015b). As reported by Poon and Yang (2016), ICCPs reported higher levels of individualised teaching supports (75% as opposed to 14% of preschools that responded) and therapy (25% as opposed to 14% in preschools that responded). ICCPs also do not deliver an individualised curriculum but rather make adaptations to the curriculum to meet children's needs. In contrast to EIPIC centres, ICCPs provide opportunities for young children to learn and develop alongside their typically developing same age peers (100% of ICCPs compared to 13% of EIPIC respondents).

The Developmental Support and Learning Support Programmes (DS-LS) is a newly emerged programme serving preschool children with teacher-identified developmental concerns. It consists of LS and DS (SG Enable, 2015a). Since the DS-LS is a new programme, no figures are provided in comparison to the programmes discussed in earlier sections. Children in this programme receive individualised instruction or therapy for 10 or 15 weeks within preschool settings. Those who need further intervention can have DS-LS extended by one additional block of 10–15 week intervention. Additionally, teachers are encouraged to continue supporting the child by applying the strategies used in DS-LS sessions within the preschool environments.

### ***ECI for preventing delays among children at risk in Singapore***

Children experiencing factors that may possess risks to their development can benefit from preventative interventions aiming to enhance positive parent-child relationships and provide high quality preschool education (Belsky & Fearon, 2002; Crosnoe & Cooper, 2010). New programmes have been initiated to support at-risk children in Singapore, such as KidSTART and COC.

KidSTART is an ECI initiative started in 2016 by ECDA with the purpose to enrich the early years of children from disadvantaged families. Under this scheme, ECDA collaborates with partners such as preschools, hospitals, social service offices and family service centres to identify and provide coordinated support to families whose children aged six years and below may benefit from ECI (Channel NewsAsia, 2016). Such children will be given access to health, learning and developmental support and their progress is monitored from birth to age six. Children identified to have developmental needs would be referred to providers offering the appropriate programmes and services that would address their needs.

Besides children, KidSTART also offers support to parents by equipping them with the requisite knowledge and skills that would enable them to better nurture their children in their early years of development (ECDA, 2016). Such assistance takes the form of regular home visits, parent support groups and the provision of parenting workshops and reading programmes at preschools. Up to 1,000 children living in pilot sites are expected to benefit from this initiative in the first three years.

COC is an ECI initiative jointly developed by the Lien Foundation and Care Corner Singapore in 2013. The programme was piloted at Care Corner's Leng Kee and Admiralty child care centres in 2013, where the vast majority of children come from low-income households (defined as gross household income of S\$1,500 a month or less). Under this initiative, early childhood professionals, such as teachers, educational therapists and social workers, healthcare professionals and community partners are brought together to provide integrated care for children and improve their long-term life outcomes, particularly those from disadvantaged households (Lien Foundation, 2016). COC provides intervention to children within the child care centre setting and engages parents as partners in their children's development. The initiative also provides talks, workshops and support as part of efforts to enhance parenting skills and knowledge while social workers conduct regular home visits to engage parents.

Since the introduction of COC, the programme has provided intervention to at least 76 at-risk children, which can take the form of social work support, educational therapy or a combination of both. The vast majority of children (more than 70%) who received educational support demonstrated improvements in literacy and numeracy skills, which exemplify how COC has led to improvements in child developmental outcomes. Furthermore, efforts by social workers to encourage parental participation in parent-teacher conferences have successfully raised attendance rates at these meetings from 32% in 2013 to 54% in 2015 (Lien Foundation, 2016). This shows that parents are more actively involved in their children's development, which is central to optimising child development.

COC was also introduced to more preschools in 2016, including anchor operators such as PAP Community Foundation and MY World Preschool. Two primary schools have been brought on board to facilitate the preschool to primary school transition and ensure the sustainability of ECI effects. In doing so, the progress made by children who received intervention would endure beyond preschool and those who require further support would also receive the assistance they require. The expanded COC will be supported by a \$3.8m grant from the Lien Foundation and \$500,000 from Care Corner Singapore and plan for up to 15 preschools taking part by 2018 (Lien Foundation, 2016). In addition, medical staff from the National University Hospital (NUH) have recently joined the team of experts providing care for the children by conducting medical and developmental screening for children at the pre-schools and also checking on the social and emotional health of the children (Davie, 2017). If a child is found with any concerns, the doctors will have a discussion with the parents who attend the screening and refer the child to specialists at NUH.

## **Section 2: Inclusion of children with developmental and special educational needs**

The movement toward inclusive education has gained traction in the international early childhood education scene. Singapore is

moving along a similar vein toward integrating more children with developmental and special educational needs (SEN) into mainstream settings in both early childhood and compulsory education. As Lim (2009) noted in his commentary on an inclusive society in Singapore:

*There is a growing recognition in Singapore that it is the mainstream society itself that needs to relearn and unlearn its values and attitudes toward particular groups of individuals so that society can open up a hospitable space within for these individuals to be a part of rather than apart from society.* (p. 84)

This was evidenced by the Prime Minister's inauguration speech in 2004 and subsequent National Day rally speeches envisioning an inclusive Singapore that included all diverse members of its society, including differently-abled persons (Lim, 2009).

## **Definition of inclusion**

The term “inclusive education” has been defined by various terminologies in the past, including mainstreaming and integrated education. This change in terminology reflects, in part, the philosophy that inclusion extends beyond the concept of the physical placement of children with disabilities (i.e., developmental needs) in the same settings as their typically developing peers (Odom, Buysse, & Soukakou, 2011). The use of the term “inclusion” is intended to convey an understanding that “children with disabilities would become a part of larger social, community, and societal systems” (Odom et al., 2011, p. 345). In other words, the term inclusion refers to a philosophical understanding that all children can, and have, the right to learn together.

The Division for Early Childhood (DEC) and National Association for the Education of Young Children (NAEYC) in the United States developed a joint position statement (DEC/NAEYC, 2009) defining early childhood inclusion as one that “embodies the values, policies, and practices that support the right of every infant and young child and his or her family, regardless of ability, to participate in a broad range of activities and contexts as full members of families,

communities, and society". They go on to describe the desired outcomes from an inclusive early childhood environment as one that "include (a) a sense of belonging and membership, (b) positive social relationships and friendships, and (c) development and learning to reach their full potential" (DEC/NAEYC, 2009).

The position statement also outlines three key defining features of what constitutes high quality early childhood programmes. These include (a) "access to a range of activities and environments with multiple ways to learn and develop", (b) participation—"using a range of instructional approaches to promote engagement in play and learning activities, and a sense of belonging for every child", and (c) supports—"broader aspects of the system such as professional development, incentives for inclusion, and opportunities for communication and collaboration among families and professionals" (DEC/NAEYC, 2009).

## **Benefits of inclusive education**

Research has indicated that all children can benefit from an inclusive education setting (Odom et al., 2004). In a review of studies on early childhood inclusion in the United States, Odom, Buysee, and Soukakou (2011) summarised the key components for inclusion to be successful in early childhood settings. These include the collaboration of adults involved (e.g., professionals and parents), resources and support at both the centre or school level and at systemic levels, and specialised and individualised instruction.

Benefits to the child with developmental needs include being able to form a sense of belonging and developing positive social relationships with peers, while typically developing peers benefit from having knowledge and more positive attitudes toward their peers with disabilities (Odom et al., 2011). Children with developmental needs were found to make more progress in developmental, social, and behavioural outcomes such as social interaction, with more prosocial play, and less inappropriate behaviour in inclusive settings than in segregated settings (Odom et al., 2004; Odom et al., 2011). Typically developing peers provide a natural peer model for social behaviour and

as socially responsive playmates for children with cognitive impairments (Li & Chong, 2011; Odom & Diamond, 1998).

Research on the effect of inclusive education on typically developing children suggests that typically developing children make similar developmental gains in regular and inclusive preschools, and are able to engage actively in inclusive settings, develop friendships, and gain positive knowledge and attitudes about developmental needs (Odom et al., 2011). In a unique study on the benefits of inclusion for typically developing children, Peck, Carlson, and Helmstetter (1992) surveyed parents whose children were typically developing and were in inclusive programmes. Parents indicated that their children were more accepting of differences, more aware of the needs of others, and had less discomfort around people with developmental or special educational needs, attributing their children's increased empathy and understanding of diversity to being in an inclusive programme.

### **Importance of the inclusive setting**

The importance of the inclusive setting is demonstrated in a 4-year follow-up study of young children with autism by Strain (2017). The study matched a child entering a more inclusive kindergarten setting with another child of similar symptom severity level entering a less inclusive kindergarten setting. A setting was deemed to be inclusive if the child participated in classes with typically developing peers 80% of the time or more. Following that, the factors associated with the settings contributed to child outcomes after four years were investigated. Within each pair, the child who had entered more inclusive settings performed better on measures measuring academic achievement, language development, adaptive behaviour, and prosocial behaviour. Their mean levels of autism symptom severity were also significantly reduced compared to their counterpart in the segregated setting.

Based on qualitative interviews with the research team from the initial study, Strain (2017) hypothesised that there were a few factors that could have contributed to this difference, such as higher expectations, more challenging learning opportunities, and paraeducators focusing more on encouraging children's independence

in inclusive settings. Hence, the dosage and quality of instruction, and high expectations in inclusive settings appear to be factors associated with positive child outcomes. It is worth noting that the findings from Strain's study (2017) should be interpreted with caution due to the small scale and the preliminary research design. Despite the large effect size of benefits of being placed in an inclusive setting, future research is needed to replicate these effects of placement and more importantly, to examine critical factors that caused the effects.

## **Key features of inclusive early childhood education**

In a synthesis of research studies on inclusive preschool programmes, Odom et al. (2011) highlight several features of inclusive early childhood education. These components include collaboration among stakeholders, the provision of specialised instruction and support, and systems-level supports. As Odom et al. (2011) noted, "collaboration is a cornerstone of high-quality inclusion" (p. 347). In fact, Leiber et al. (1997) noted that the success of inclusive programmes depended less on the characteristics of the children in the programme and more on the collaborative relationships among the adults. They noted that important features of collaboration facilitating inclusion included joint participation in planning, shared philosophies, a shared sense of ownership for all children, communication, stability of the relationships, and administrative support. While the nature of collaboration may differ depending on the model of inclusion, relationships among the adults may include coaching, mentoring or feedback by the specialised professional (e.g., therapist or special education teacher to the lead preschool teacher). Communication between professionals and parents was also an important factor in supporting inclusion efforts (Yeo et al., 2011)

Specialised instruction to meet the individual needs of the children in inclusive settings is an important feature of successful inclusion. High-quality early childhood education environment alone is insufficient in addressing the learning needs of children with developmental needs (Odom & Bailey, 2001). Specialised instruction strategies include naturalistic interventions applied within daily routines and activities, such as using embedded learning

opportunities (Horn & Banerjee, 2009), peer-mediated interventions (Robertson, Green, Alper, Schloss, & Kohler, 2003), and activity-based interventions (Ozen & Ergenekon, 2011).

Given that preschool inclusion operates within a larger ecological context, the availability of systems-level supports is important for preschool inclusion to be successful. Examples of systems-level supports include leadership and administrative commitment to provide support for the teachers' professional development, ongoing coaching of and collaboration between professionals, and time for communication and planning (Odom et al., 2011). As Yeo and colleagues (2011) found, teachers in an inclusive preschool programme reported that the availability of training, resources and materials to work with children was helpful in facilitating the inclusion of children with developmental needs in the setting. Additionally, the readiness of the setting for inclusion was evident in how principals recognised the need for additional specialist support and a change in the attitudes of teachers toward supporting a "child-ready school" culture (Yeo, Neihart, Tang, Chong, & Huan, 2011). Similarly, the positive attitudes of administrators and principals of preschool programmes toward including children with developmental needs in their programmes in Cheng's (2014) study suggest that support and advocacy by leaders in the school is important in making inclusive programmes successful.

## **Barriers to inclusion**

Despite the importance and benefits of inclusion, barriers to inclusion have been identified in the literature. In Yeo et al.'s (2011) study,

the four barriers to inclusion included the following: person-related hindrances, structural obstacles, gaps in programmes, and limited specialised training and resources. Person-related factors included issues of family difficulties, negative teacher attitudes, perceptions of developmental and special educational needs and the practice of inclusion. Structural obstacles were systemic and included issues related to class sizes and student-teacher ratios, as well as manpower constraints. Inadequate or insufficient training of teachers and a lack of resources have also been noted as important barriers to inclusion.

Teachers often report lacking adequate knowledge and training to support children with developmental needs, and feeling anxious about their ability to meet the needs of the children with developmental needs in an inclusive setting (Yeo et al., 2011). Nonetheless, teachers demonstrated a willingness to learn strategies to support the children with developmental needs in their classrooms.

## Inclusive programmes in Singapore

There is a continuum of publicly funded early childhood programmes available to children identified with SEN or developmental delays. As Xie and Poon (2019) note, ECI programmes in Singapore run along a continuum, from programmes solely designed to service children with developmental needs to in-school support in the preschools. The settings include EIPIC centres, ICCPs, DS and LS, KidSTART, and preschools (Xie & Poon, 2019). Children with moderate to severe impairments can apply for EIPIC centres, which are self-contained and designed to serve children with moderate to severe impairments (Acar, Chen, & Xie, 2019; Ho, 2018; Poon & Lim, 2012). ICCPs provide inclusive education for children with mild to moderate needs and are equipped with teachers who have been trained to support the children's learning and social needs (Ho, 2018). Children with milder support needs can enter preschool with additional supports through the Development Support Programme (DSP). The profile of children served in different ECI settings is supported by a survey conducted by Poon and Yang (2016) of 87 ECI programmes across four settings: EIPIC, private ECI, ICCPs, and preschools. The study found that children with higher support needs (e.g., autism spectrum disorder [ASD], global developmental delay/ intellectual disability, chromosomal abnormalities, syndromic disorders, and multiple disabilities) tend to be supported in EIPIC and private ECI centres. Children with milder developmental needs such as developmental delays or specific learning disabilities were more often present in preschools. Children in ICCPs fell between these two groups.

To date, we have found only three studies specifically examining inclusive preschool programmes for children with developmental needs in Singapore, namely Project ASSIST (Quah, 1997), Therapy Outreach Programme [TOP] (Yeo et al., 2011),

and Mission I'm Possible [MIP] (Chong et al., 2014). Both the Project ASSIST and TOP programmes targeted children with mild developmental needs with the intent of supporting these children in regular preschools. In both programmes, itinerant therapists and interventionists worked with teachers and parents to support children, providing training and in-class support for teachers who were eventually expected to work with the child on their own. The MIP project, on the other hand, delivered pull-out early literacy intervention for children identified by their class teachers as possessing emerging problems in reading (Chong et al., 2014).

Key features contributing to inclusive teacher attitudes included prior work experience with children with developmental needs, knowledge about developmental needs and training on supporting the child, and platforms supporting bi-directional communication and collaborative practices between families, educators, and therapists. Nonetheless, teachers indicated needing more specific and on-going training and access to resources and materials to support the child. They also highlighted challenges with large class sizes and limited manpower. Parents indicated a need for information on supporting their child, as well as a need for self-help and counselling to meet their own needs as parents.

## **Teacher perspective and beliefs on inclusion**

Most preschool teachers surveyed in Singapore indicate supportive attitudes toward inclusion (Lian et al., 2008; Nonis, 2006; Quah, 1997). Teachers also indicate interest in developing their skills in supporting children with SEN in their class through professional development and training, and appreciate support from professionals and therapists who provide guidance around strategies to use in supporting children with SEN (Nonis, 2006; Nonis, Chong, Moore, Tang, & Koh, 2016; Quah, 1997). Nonetheless, teachers demonstrate some apprehension about having children with SEN in their classrooms because of a lack of confidence in their ability to best teach and support the child (Nonis, 2006; Nonis et al., 2016; Quah, 1997). Teachers also appeared to lack knowledge about the resources available and lacked the time and knowledge to develop materials to teach children with SEN (Lian et al., 2008; Nonis, 2006; Yeo et al., 2011). Two studies found that teachers

also lack knowledge about the typical developmental milestones of young children and may have misconceptions about different developmental needs conditions (Lian et al., 2008; Nonis, 2006).

## **Practical implications for practice in Singapore**

### ***Pre-service training and professional development***

As reflected in the studies, the training for teachers in supporting children with developmental needs in the regular preschool classroom is important. Pre-service training should equip teachers with knowledge about typical developmental milestones of young children, the common types of developmental needs among young children, as well as practical strategies for instruction and behaviour support of diverse children. Pre-service training should also address strategies for collaborating with other professionals. Professional development is also critical for teachers already in the classrooms. Equipping them with evidence-based practices and knowledge about how young children with developmental needs may be identified and supported is a way to address problems of practices teachers may encounter. The mere attendance of professional training courses and workshops is insufficient. It is necessary for communities of practice to be established within the preschool environments.

### ***Support from professionals***

Specialised support from professionals such as therapists who provide direct intervention and training for teachers was found to be important to teachers working in inclusive preschools (Quah et al., 1997; Yeo et al., 2011). This reflects a need for collaboration and teaming between therapists and educators when supporting children with developmental needs in the regular classroom. When professionals demonstrate and equip teachers with the knowledge and skills to support children with developmental needs in the classroom, they are better able to support the child on their own. The notion of teaming provides situated opportunities for the transfer of knowledge and skills, allowing the therapist and learning support educators to serve as an itinerant support for the child and the teacher.

### ***Systemic support***

As Quah et al. (1997) and Yeo et al. (2011) noted, preschools with

inclusive programmes tend to cater to children with mild to moderate needs. However, many children enrolled in EIPIC also attend child care centres or preschools. These children include those with higher levels of support needs. Given that preschool teachers have indicated feeling insufficiently equipped to support children with developmental needs in their classrooms, this may point to a need for systemic support such as the provision of resources and time for teachers to receive the training needed. As mentioned, specialised instruction strategies include naturalistic interventions such as using embedded learning opportunities (Horn & Banerjee, 2009), peer-mediated interventions (Robertson, Green, Alper, Schloss, & Kohler, 2003), and activity-based interventions (Ozen & Ergenekon, 2011). Furthermore as Odom et al. (2011) highlighted, administrative and leadership support are important in implementing a successful inclusive programme that is ready to serve children with diverse needs. Apart from training and leadership, a multi-tier system of support is likely one that maximises the resource used in the support process.

### **Section 3: Identification, monitoring, and evaluation based on the multi-tier system of support framework**

In order to identify children needing intervention services in a timely manner, it is necessary to monitor young children's development on a regular basis to identify delays as soon as they arise (American Academy of Paediatrics [AAP], 2006; Johnson, Myers, & Council on Children with Disabilities, 2005).

#### **Effective practices in the identification of children who need intervention**

Effective early identification requires coordination across disciplines, as well as between professionals and families in the community (Bricker, Macy, Squires, & Marks, 2013). For example, in the United States, the Individuals with Disabilities Education Act (IDEA; PL 108-446, 20 U.S.C. § 1400 et seq) mandates each state to conduct periodic and appropriate developmental screening practices for infants, toddlers, and pre-schoolers. Developmental screening, a “brief, easy-to-complete formal test” of young children’s skills, is a commonly used practice to

quickly identify children who should be referred for further evaluations to decide whether they are eligible for ECI (Bricker et al., 2013, p. 6). Children who are identified with concerns in development will then be referred for a more comprehensive evaluation to determine whether they are eligible for ECI services (McLean, Hemmeter & Snyder,

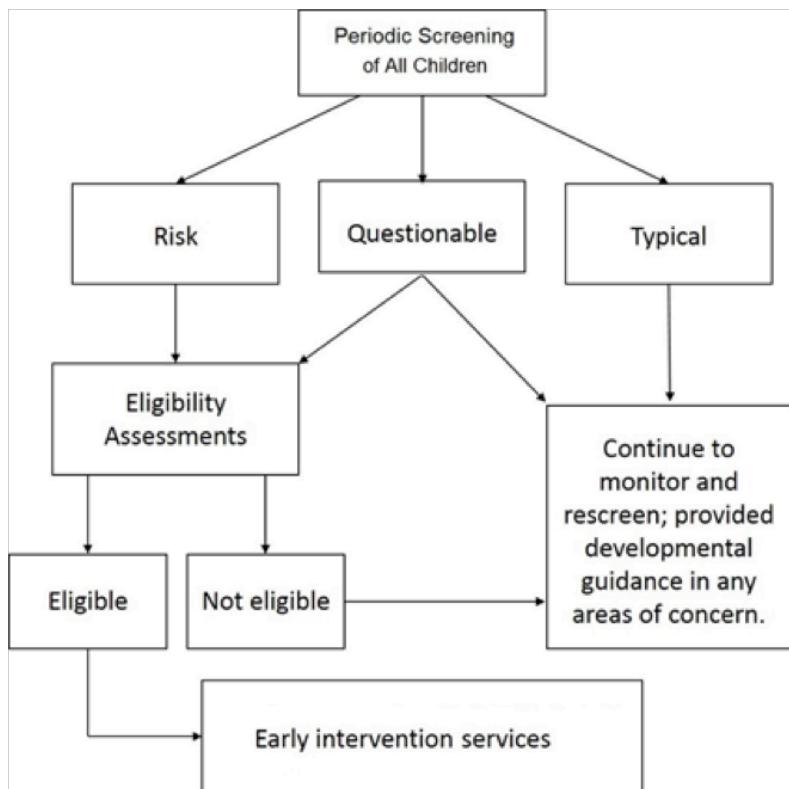


Figure 2. *Early detection of needs for early intervention/early childhood special education. Adapted from "General Screening Procedures" by Bricker et al., 2013, Developmental screening in your community: An integrated approach for connecting children with services, p. 36. Copyright 2013 by Brookes Publishing.*

2014). Figure 2 demonstrates the steps and components of an early identification system, as well as how it links to ECI services.

International literature has documented evidence for effective developmental screening practices, such as involving and collaborating with caregivers, using formal, high-quality assessment tools, and conducting periodic screening on all children.

### ***Caregiver involvement***

A primary caregiver (e.g., parent, grandparent, child care provider, etc.) who spends long periods of time having meaningful interactions with the child can provide the most valuable sources for developmental information in a screening process (Bagnato, Neisworth & Pretti-Frontczak, 2010; Committee on Children with Disabilities, 2001). Therefore, it is recommended to enhance caregivers' involvement in the screening process (AAP, 2006; Copple & Bredekamp, 2009). Developmental screening is hence the first step of a long-term journey of receiving special education and intervention services for children with developmental concerns. Involving primary caregivers in this first step was found to promote caregivers' involvement in future intervention and education, which is an important predictor of the effectiveness of intervention (Division for Early Childhood [DEC], 2015).

### ***Using formal developmental screening instruments***

Inadequate developmental screening practices reduces the accuracy and efficiency of early identification of young children in need for intervention. Although many low-cost developmental screening tools have been developed and examined, some practitioners still rely on clinical judgement without using any formal instruments in screening young children, which could have missed nearly half of children who indeed are eligible for ECI (AAP, 2006; Glascoe, 2005; Mackrides & Rhyerd, 2011). However, most developmental measures were developed in Western countries. In addition to selecting high quality instruments with solid psychometric evidence, the cultural responsiveness of existing developmental assessments on Singaporean children also requires systematic examination (Hambleton, Merenda & Spielberger, 2005).

### ***Periodically screening and referral for all young children***

Young children experience rapid growth in early childhood, a period in which they learn and gain new skills on a daily basis (Berk, 2013). In this dynamic process of child development, delays or problems can occur at any point of time. With increasing evidence supporting the importance of early identification of developmental problems such as autism (Boyd, Odom, Humphreys, & Sam, 2010; Kim et al., 2010; Wallace & Rogers, 2010), expanded efforts are underway to universally screen all children from birth onward (Bricker et al., 2013). As illustrated in Figure 2, an efficient early identification system requires timely referral for follow-up services (e.g., diagnostic evaluation or intervention) after developmental screening. Research showed that using formal and high quality screening tools largely improve the referral rates by 224% (Hix-Small, Marks, Squires, & Nickel, 2007).

### **Current practices to identify children who need ECI in Singapore**

In Singapore, the Enabling Masterplan (Enabling Masterplan Committee, 2016) describes a developmental screening network consisting of efforts from primary care agencies (e.g., hospitals, polyclinics), families and caregivers, and other community partners (e.g., preschools, family service centres), which is consistent with the international literature that effective early identification requires coordination across disciplines (Bricker et al., 2013). Guided by this developmental screening network, gaps and room for improvement still exist. For example, in Singapore, young children are referred to ECI at a much older age (35.8 months) than in the United States (15.5 months; Enabling Masterplan Committee, 2011). One possible factor contributing to the late referral age may be the low follow-through rates of developmental check-ups at health care settings, which is probably due to parents' difficulties in understanding and completing the developmental checklist embedded in the Singapore Health Booklet (Koh et al., 2016). Researchers (Koh, et al., 2016) suggested making the developmental checklist easier for parents to understand, providing electronic application for easy completion, and replacing the checklist with newer developmental screening tools as possible means to facilitate better follow-through rates.

## **Practical implications for practice in Singapore**

As Bricker et al. (2013) pointed out, effective early identification requires coordination across disciplines such as early childhood care, health care, education, social work, et cetera. This calls for a collaborative effort amongst multiple government branches, as well as between public and private service providers, to ensure every child receives timely and accurate developmental screening. The current provision of the DS-LS Programme allows not only screening and support of children within some preschools across Singapore but also a direct system of referral to the specialist tertiary services staffed by developmental and behavioural paediatricians, and allied health professionals. However, this system is by no means universal, and this screening and support is provided only to preschools run by the anchor operators with access to the DS-LS programmes. In short, a cost-efficient early detection and referral system should be established across disciplines to administer annual developmental screening for all young children from birth to 6 years old in Singapore. Families should be involved in more aspects of the identification process, such as rating of their child's performance, development of intervention programmes and goals, and the monitoring of intervention effects.

## **Summary**

This section summarises the recommended practices in timely and accurate identification of young children who would benefit from ECI services and the local context in Singapore. The timely identification of young children who need extra support in their development requires ongoing efforts to improve instruments and practices at the system's level. Research showed that in the United States where a national Child Find system has been established, still fewer than 50% of children with developmental disabilities were identified before school entry at the age of 5 years old (Bricker et al., 2013). With children with developmental and special educational needs (such as those with developmental disabilities) being included within Compulsory Education in 2019, the enhancement of the developmental screening network such as described in the Enabling Masterplan 2017—2020 (Enabling Masterplan Committee, 2016) can help facilitate the timely and appropriate support for children needing such support.

## **Section 4: Personnel preparation & professional development**

As a field that requires collaborations of professionals from multiple disciplines, it is not an easy task to describe the preparation and development of all ECI professionals since the philosophical foundations, professional requirements, practice standards and professional organisations may differ across disciplines (Bruder, 2010). Resources have been invested in supporting the pre-service and in-service training for ECI professionals, such as the Social Service Tripartite Taskforce (STT) announced in COS 2019 (MSF, 2019).

### **Preservice personnel preparation**

In the United States, each state has developed its own set of requirements for teaching license, including the license for practising ECI, which is called “early intervention/early childhood special education (EI/ECSE)”. However, EI/ECSE programmes vary in universities in terms of the level of degree (e.g., bachelor, master, doctoral), requirement of coursework, requirement of field work, integration with the state licensure requirements, and methods of delivery (e.g., traditional on-site instructions, web-based distant instructions, or a blend of both). In order to establish consensus in EI/ECSE teacher qualification, the national special education professional organisation, Council for Exceptional Children (CEC) and its sub-department of DEC have developed personnel standards as the guidelines for training EI/ECSE professionals (DEC, 2016). These professional standards are divided into 2 levels: the initial standards for entry-level professionals who do not possess a license/credential in special education and the advanced standards for professionals who already possess a special education license/credential and are preparing to be special education specialists. Within each level of standards, CEC developed common standards for special education teachers across all specialties while DEC developed the specialty set specific for EI/ECSE professionals. Guided by the CEC and DEC personnel standards, each state depicts the required educational attainment, competency proof and examinations for obtaining either an initial or an advanced teaching license for practising EI/ECSE.

## **Research in ECI preparation**

A 5-year research project on EI/ECSE personnel preparation programmes in the United States was conducted from 2003 to 2008, led by the University of Connecticut (UConn UCEDD, 2016). Researchers collected and analysed information about certification and licensure requirements in 50 states, the quality of personnel preparation programmes, and the supply and demand of EI/ECSE professionals. Recommendations for personnel preparation programmes in higher education were provided to advance the quality of personnel and services:

- Curriculum should align with the professional standards developed by corresponding professional organisations, such as the CEC/DEC standards;
- Field experiences should be mandated;
- Active family involvement should be supported and encouraged;
- Collaboration across disciplines should be embedded in all aspects of training, and alignment should be established across training programmes across disciplines;
- Valid and measurable competencies should be developed for evaluating students and the programme.

Research in ECI professional training has emphasised the importance of field experience with effective supervision (Barton, Chen, Pribble, Pomes, & Kim, 2013; Codding, Feinberg, Dunn, & Pace, 2005; Lavie & Sturmey, 2002). Coaching is important in professional development for in-service ECI teachers. Many studies repeatedly pointed out that “one-shot” workshops are insufficient in changing teachers’ practices and called for support in implementation and sustainable use of new practices (Odom, 2009). Snyder et al. (2018) further reported that coaching by more experienced/qualified practitioner is particularly important for teachers who have not been not frequently using EI/ECSE practices before the training.

Clifford and colleagues (2005) described a clinical supervision model that had been implemented and evolved into the EI/ECSE master level training programme at the University of Oregon for decades, rooted in adult learning/training models (e.g., Pajak, 2000). This clinical supervision model typically requires 240 hours of practicum for students not preparing for a teaching license, 600 hours of practicum and supervised teaching for students aiming for a teaching license and encourages an additional 120 hours of supervised advanced teaching in a summer EI/ECSE summer school, in addition to other coursework (University of Oregon, 2016). During these field practices, each student is observed by and receives performance feedback from 1 university supervisor, 1 cooperating professional from the practicum site and 1 peer from the EI/ECSE programme. In addition, practicum students participate in weekly reflection activities such as writing a teaching journal and discussions in team meetings.

An earlier study (Straka, Losardo & Bricker, 1998) evaluated the effectiveness of this clinical supervision model and reported high level of student satisfaction in their field experiences. A more recent study (Barton et al., 2013) reported that training in the university classroom alone did not result in increased use of target practices, but training followed by a coaching component did. In addition, children's target behaviours also increased as a secondary outcome of introducing the coaching component. Although preservice personnel preparation research is quite scarce, the findings summarised above consistently highlight the importance of providing supervised practicum opportunities outside university classrooms by coaching from more experienced practitioners.

Another ECI area in which web-based technologies have had a rapid growth is teacher training, including personnel preparation and professional development. Barton, Fuller, and Schnitz (2016) studied the use of emails to provide performance feedback for preservice ECI student teachers and reported increased use of target practices which maintained after 4 months of coaching by more experienced practitioners. Another innovative technology, the bug-in-ear, has also

been studied for providing performance feedback for teachers in real time during interactions with children. Research indicated that the use of bug-in-ear improved the communication strategies used by early childhood and ECI teachers (Ottley, Coogle, Rahn, & Spear, 2017; Coogle, Rahn, Ottley, & Storie, 2016; Ottley & Hanline, 2014).

As a comparatively new and active field, research in ECI has documented a large body of evidence for the effectiveness of practices in the international literature, but the effects in the Singapore context still need to be examined and documented.

### **Practical implications for ECI practice in Singapore**

High quality early childhood care and education (ECCE) should be made accessible and affordable to all children from birth to school age in Singapore as a solid foundation to prevent developmental delays or problems. ECCE practices are supposed to provide a developmentally appropriate and engaging environment to support the Key Stage Outcomes of Pre-School Education (MOE, 2012), as well as to implement periodic developmental screening to timely identify needs for further support. At this level, classroom professionals need to be trained to implement sound and effective strategies to ensure all children participate and meaningfully engage in various activities, despite their learning patterns and developmental levels.

Lian et al. (2008) highlighted that early childhood professionals in Singapore barely had any training to serve these children. An early childhood resource unit is proposed to provide support for early childhood care providers. Based on the profiles of children and needs of the early childhood programme, support can be provided in multiple formats such as case referral, teacher training, ECI consultation and direct intervention services delivered in early childhood settings.

Early childhood professionals need to be trained in how to support children with developmental needs in their classroom. Facing an increasing diversity in the development and needs of the children served, early childhood practitioners must “learn about each child and [this] has implications for how best to adapt and be responsive to

that individual variation.” (Copple & Bredekamp, 2009, pp.9). A study showed that early childhood teachers in Singapore generally had low knowledge of developmental and behavioural problems in young children (Lian et al., 2008). More research is needed to identify key training topics (e.g., recognition and management of development and behavioural issues) and effective formats of training pertaining to professionals with different backgrounds (e.g., educational degrees, years of experiences, discipline of training, profiles of children serving and programme characteristics).

Having the skills to support young children only is not enough, early childhood professionals should be prepared to effectively collaborate in a multi-disciplinary team using evidence-based strategies for co-teaching, consultation and coaching. These professionals may need additional training in “soft skills” such as co-planning skills, motivational conversation skills, modelling and shaping skills to work with other professionals as well as skills specific for different types of collaboration relationship (e.g., consultation, cooperative teaching). Teacher preparation programmes should incorporate cross-disciplinary collaboration in every aspect of training. Field experiences should be provided for teachers to practise strategies in communicating, collaborating, consulting with, and even to coach, families and other professionals. Such training should also be provided for in-service professionals. Similarly, in-service personnel should be supported by their on-site mentors or supervisors from their university’s programme in their attempts to apply the learned strategies in actual practice.

The current professional preparation programmes for ECI professionals is fragmented with separate pathways for the training of teachers in EIPIC and DSP. This narrow approach to professional preparation potentially exacerbates the issue of personnel turnover; as such, there is a need for the personnel’s retraining (often requiring them to attend courses after work hours) to assume a related job. Coupled with the gaps in professional development (e.g., lack of adequate knowledge of ECI professionals in recognising and supporting children with developmental needs) as highlighted by the local studies (e.g., Lian et al., 2008), a rationalisation and realignment of the local training

pathways is required, preferably coordinated by the Disability Office at MSF and/or ECDA. A possible approach may take the following model:

### ***Foundation training***

All ECE professionals are trained to include children with developmental needs in their classrooms. Teacher preparation programmes could include an awareness/empathy component, knowledge of developmental needs, strategies for collaboration with different stakeholders as well as cardinal principles for support (e.g., activity or routine-based instruction, positive behaviour support) that may be applied across settings.

### ***Intermediate training***

Although the foundational training may provide teachers with some degree of comfort in supporting children with developmental needs, specialised courses will be required to prepare and equip these professionals to support children with specific developmental needs. As mentioned, the training should include knowledge of assessment and the use of data to guide and monitor intervention progress, the use of activity or routine-based interventions in the support process, as well as having the skills to collaborate and consult with stakeholders (e.g., parents and other teachers). A practical component is also needed to deepen the skills taught. Unlike the foundation training that is provided to all ECE professionals, this intermediate level of training should form the basis of specialised professionals working within ECI to support children with risk or identified developmental needs. As mentioned, professional development should go beyond courses and workshops, and instead focus on in-situ mentoring and peer support programmes which are essential for the development of communities of practice.

### ***Advanced/focused training***

Building upon the intermediate training, advanced or focused training deepens the level of skills that professionals in ECI employ in their work. These may take the form of topics required for work within this sector (e.g., transdisciplinary collaboration, atypical development), a further deepening of skill sets (e.g., child testing, positive behaviour support), or population specific interventions (e.g., using alternative and augmentative communication for nonverbal or minimally verbal individuals, literacy interventions for children from disadvantaged environments).

In Singapore, the National Institute of Early Childhood Development (NIEC) has plans to roll out various diplomas and advanced/specialist diplomas in early childhood education as early as January 2020 which will help to prepare our early childhood teachers in their skill development. As this young and evolving field thrives in Singapore, it is critical to establish and maintain standards of professional qualification to ensure practitioners are sufficiently prepared to follow the professional guidelines in serving young children with SEN and their families.

## **Summary**

While the delivery may be different for pre-service and in-service training, the literature has accumulated effective strategies in supporting the development of ECI professionals such as supervised field practice and collaborations with other disciplines. The increasing need for high quality ECI services cannot be met without providing the training and support for professionals.

## **Section 5: Transition process of preschool students with SEN to primary education (mainstream/special school)**

The transition from preschool to primary school is usually the first formal education transition that children and their parents encounter (Organization for Economic Cooperation and Development [OECD], 2017; Quintero & McIntyre, 2011) and is often marked by significant changes in the children's environment and daily routine, and has profound effects on scholastic success (Forest, Horner, Lewis Palmer, & Todd, 2004). In addition, there are changes in instructional settings to a more formal one with a much larger school environment and population, higher academic and social demands and a higher expectation for independent functioning (Elkind, 2003).

This transition process becomes more complex and difficult if the child has SEN (McIntyre, Blacher, & Baker, 2006). Their families also face difficult decisions and barriers related to the future of their children's education (Janus, Kopechanski, Cameron, & Hughes, 2008). This section provides a definition of transition, a brief overview

of research in school transition and implications for practice in the Singapore context.

## **Definition of transition**

The term transition typically refers to the process of moving from a stage in one's life to the next. In the context of education, transition is the process of moving from one educational setting to another, usually by means of moving from one phase of education to another (Forest et al., 2004). In this section, transition is defined as the process of movement that begins before a preschool child enters primary school (mainstream or special school), where families start to make decisions and seek information about school choices, and extends to nearly the end of the first year in the new school.

## **Overview of research in school transition**

A study in 2015 by the Organisation for Economic Co-operation and Development, which conducted in-depth reports in 9 countries (i.e., Austria, Denmark, Finland, Japan, Norway, Slovenia, Sweden and Wales, United Kingdom) and a survey in 30 countries (e.g., the United States, New Zealand, Korea, and Japan), summarised 4 key areas of recommended strategies to improve the transition from early childhood to primary education (OECD, 2017). These 4 key areas include:

- Organisation and governance. In many regions of the world, ECE and primary education are overseen by different branches of the government and follow different regulations. Challenges exist in the coherence of policies and services when transitioning from ECE to primary education, collaboration across ECE and primary schools and their corresponding government branches, and ensuring equity in transitions.
- Professional continuity. While the importance of communication and collaboration between preschool and primary teachers are reported in the literature, discrepancies still exist in the qualification levels and perspectives among teachers from ECE and primary sectors, teacher training and supports relevant to transition.

- Curriculum and pedagogical continuity. It is recommended to strengthen the consistencies in curriculum and pedagogies between ECE and primary schools. Structural misalignments such as a reduction in the staff-child ratio when children enter the first year of primary school are challenging to their learning and well-being.
- Developmental continuity. The report highlighted the variance in recognition of the importance of children's participation in transition preparations across schools, regions, and countries. Recommendations were made to engage children and families in the transition process and partnership between ECE and primary schools as well as co-operation among multiple child development services.

While there is a good number of studies conducted to understand the different aspects of transition between preschools and regular schools (e.g., Dockett & Perry, 2004; Giallo, Treyvaud, Matthews & Kienhuis, 2010; Yeboah, 2002), there were limited studies that examine the transition issues that students with special educational needs face (e.g., Denkyirah & Agbeke, 2010; Janus et al., 2008). In addition, current research on effective transition practices has been predominantly conducted in a Western context, which may not be completely applicable to an Asian or, more specifically, the Singapore context. For instance, Western countries have long extolled the benefits and virtues of inclusive education for students both with and without special educational needs (Lim & Sang, 2000). However, inclusive education for students with developmental or special educational needs depends on the severity and needs of the student. For instance, students with severe special educational needs may be educated separately in their own special education schools, while students with mild special educational needs may attend mainstream schools. Therefore, we may need to exercise caution when applying findings from transition research conducted in a Western context to Singapore context. Meanwhile, local research is needed to better examine transition practices in Singapore.

The ecological model of transition is understood in terms of the influence of contexts (for example, family, classroom, community)

and the connections among these contexts (e.g., family-school relationships) at any given time (Pianta, Rimm-Kaufman, & Cox, 1999). This is based on Bronfenbrenner's theory of ecological systems (Bronfenbrenner, 1986) which has a significant impact on the approach in studying the development of children and their ability to adapt in school. With reference to the ecological model of Bronfenbrenner, Rimm-Kaufman and Pianta (2000) introduced the ecological and dynamic model of transition. In this model, transition in school occurs in an environment where there are constant interactions among child, classroom, school, family and community. This model heavily emphasises the development of relationships between contexts, with the child's development as the main goal. At the same time, this model recognises the importance of the combined influences of contexts, such as school, family and peers, on the child, be it direct or indirect, as well as the dynamic effects that contexts have on children's transition.

The transition to school can be a stressful event for families with children with developmental or special educational needs as they are often faced with difficult decisions and barriers related to their children's educational futures (Janus et al., 2008). These decisions, while contingent on the context and the nature of the children's special educational needs, are usually about the kind of school or educational setting that they think best suits their children. Parents also have to overcome or work around barriers in terms of funding and support (Janus et al., 2008). They have to contend with the availability of support in terms of resources and properly trained personnel (Valeo, 2003). Several studies highlighted the frustration of parents, who are often dissatisfied with the lack of school resources (Hess, Molina, & Kozleskiat, 2006; Janus, Lefort, Cameron & Kopechanski, 2007). These parents also had to wait for school vacancies to avail, wait for test results, or even wait to see how an impairment manifests while their children continue to be deprived of intervention (Dockett, Perry, & Kearney, 2011). Because of this, parents are concerned that their children begin the school term without proper support (Janus et al., 2008).

As children transit from one placement to another, they often experience discontinuity (Carlson et al., 2009) as support that was available to them ceases and new support is often based on fresh assessments and the availability of such support. This discontinuity poses a major challenge to families as they soon find their children back on waiting lists. Without a place in a school, the children are deprived of proper schooling and intervention. Discontinuities can also result in the repetition of assessments, the filling up of more application forms and requests for services or funding that seemingly leads to inaction and longer waiting times (Dockett et al., 2011). The absence of communication between schools and services during the transition process deprives these children of the opportunity to build on prior experiences. The responsibility often then falls to parents to be the link during the transition process and be an advocate for their children (Hess et al., 2006; Wang, Mannan, Poston, Turnbull, & Summers, 2004).

Schools themselves face difficulties of their own. A number of studies (e.g., Pecek, Cuk, & Lesar, 2008; Poon-McBrayer & McBrayer, 2013) delved into the transition process from the viewpoint of schools and teachers. They revealed that schools faced strong requests from parents for customised support. However, schools themselves face challenges in manpower and funding, and are unable to accede to their requests (Pianta & Cox, 1999). These issues often arise because of differences in expectations between parents and schools (Pecek et al., 2008).

### ***The transition and adjustment of children with special educational needs: A local study***

In 2018, a new research project was launched to investigate the first three years of outcomes of children with special educational needs as they transition from early childhood to primary or special education schools and influencing factors. This ongoing study aimed to recruit a total of 600 children, of whom 350 would be registered in primary schools and another 250 registered in special schools. A mixed-methods design would be used to inform a comprehensive and in-depth understanding of children's learning needs and outcomes, the

supports provided in schools, and the experiences and adjustments of their families. Findings from this project are expected to provide implications for schools and policy makers to better support students with special educational needs and their families in the transition period.

## **Practical implications for practice in Singapore**

This section describes and discusses the different ways that children with developmental needs and their families can be supported during the transition process. A sample of practices identified in the literature, which are deemed to be effective in supporting them, is presented.

### ***Skills building for stakeholders***

During transition, the child and his/her family, the ECE agent, and the primary school/SPED school are all stakeholders. It is important to build the skills needed for each stakeholder so that they can get “ready” for the transition period (OECD, 2017). School readiness, thus, is not just focusing on how to prepare a child for the next level of schooling, but to look at the whole picture of all stakeholders to identify needs for support.

### ***Parent/caregiver involvement in transition***

In the current educational landscape overseas, there is a greater emphasis on parental involvement and collaboration between families and schools for successful transition (e.g., OECD, 2017; Yeboah, 2002). Parents play a critical role as they often are the provider of guidance and experience which promote life skills, abilities and attitudes that are critical for the success of their children in school (Pelletier & Brent, 2002). They possess important and unique information, and are pivotal in contributing to the effectiveness of services in meeting their needs and the needs of their children (McNaughton, 1994). However, there have been cases where parents complained about not being involved in the planning and implementation of interventions (Able-Boone, Goodwin, Sandall, Gordon, & Martin, 1992) and experiencing tensions in their roles as both parents and therapists, or educators, for their children (Paige-Smith & Rix, 2006).

There have been numerous studies suggesting that parental expertise is not something to be ignored (e.g., Dockett & Perry, 2001). Parents can be vital sources of unique information on their children and they often have a good understanding of the needs of their children. It is therefore worthwhile to acknowledge parents' opinions and incorporate their suggestions into school-based practices for children with SEN (Stoner, Angell, House, & Bock, 2007). One way of improving the partnership between schools and families is to increase collaboration between both parties. For example, schools can work with families as equal partners during Individualised Education Programme (IEP) planning meetings. A research study by Fish (2008) found that parents felt valued at IEP meetings because schools sought their inputs and treated them as equal decision makers.

Moreover, parents play a critical role in the transition process as collaborators with their children, schools and community. They can help develop effective transitional components by providing important information about their child's strengths, weaknesses, behaviour, needs and interests and are thus key figures in the transition process (Austin, 2000). Therefore, professionals should shift their own beliefs and attitudes to cultivate a more equal parent-professional relationship and collaboration (Hess et al., 2006). For example, during the transition period, schools can involve the family by providing information about school options, arranging for school visits to help connect the family with the next school, and involving the family in supporting their child to develop the skills needed for future learning.

### ***Programme continuity***

Secondly, there needs to be a degree of continuity of preschool education practices in the next school for a successful transition (Dockett & Perry, 2001; OECD, 2017; Yeboah, 2002). Programme continuity is even more crucial for children with developmental needs because they, by nature of their cognitive impairments and deficits in adaptive behaviours, are at higher risk of experiencing a difficult school entry compared to typically developing children (Janus et al., 2008; Denkyriah & Agbeke, 2010). However, poor communication between service providers can often lead to gaps in

service availability and unnecessary duplication of procedures, and is a significant barrier to the success of transition for children with developmental needs (Janus et al., 2008).

It is crucial to have in place a systematic transition management in school with adequate and clear support plans for these children, with a proper system of transferring of information and handing or taking over between staff, schools and services. Having these arrangements in place would greatly aid school staff in their early preparation of the transition process and the concurrent collaboration with parents.

### ***Continual communication channel***

Lastly, a continual communication channel serves to enhance trust between parents and schools and to manage expectations. The OECD report (2017) highlighted the importance of communication and co-operation between ECE and primary school, as well as among multiple stakeholders in child development services. In doing so, parents are able to share information and strategies with school personnel, and vice versa, to help children transition quickly into a new school environment. Schools and parents can also engage in continuous discussion to improve the academic progress and schooling experience for the children. A study conducted by Denkyirah and Agbeke (2010) showed that early preparation and collaboration with parents allow teachers to adopt strategies employed by parents to support their children and families to access needed resources from school. The result was that children responded better and more appropriately in the new school placement. The authors also suggested school professionals to adopt the language and terminology used by the family during the sharing of information for successful transition.

### **Summary**

Going back to Bronfenbrenner's framework, ideally, ecological approaches recognise the importance of having multiple stakeholders in collaboration to provide support for families and children (Dockett et al., 2011). In reality, however, the coordination and collaboration of multiple stakeholders can be challenging because of the different perspectives, expectations, and authority levels. Therefore, promoting a successful

transition for children with developmental or special educational needs would require educators to be open to the perspectives, experiences and expectations of everyone involved in the process. Only when this is satisfied can the various stakeholders work towards developing effective strategies and approaches that promote collaboration amongst themselves.

## **Section 6: Family engagement and collaboration**

Given that family plays an important role of primary caregiver for their child, the delivery of ECI services has experienced a shift from a traditional medical model addressing only the child's deficits and needs to a more ecological and dynamic approach targeting at empowering the family in their resources and capacity to nurture child development (Hanson, 2013). For example, in the United States, an Individualized Family Service Plan (IFST) is mandated as the blueprint for delivery of ECI to infants and toddlers, and even pre-schoolers in some states (Gargiulo & Kilgo, 2014). This shift in the understanding of family has resulted in an empowerment model of family practices in ECI as described below.

### **Family-centered early intervention practices**

Dunst (2002, p.139) defined family-centred beliefs and practices as those which “treat families with dignity and respect; [consist of] information sharing so families can make informed decisions; family choice regarding their involvement in and provision of services; and parent/professional collaborations and partnerships as the context for family-program relations”. Family-centred practices consist of 2 components. Relational practices usually refer to active listening, showing compassion and empathy, being non-judgemental, and respecting the family’s strengths. Participatory practices refer to practices which are individualised, flexible and responsive to family concerns and priorities, actively involving families in decision-making, collaborating with families and supporting families to take action towards desired goals and outcomes.

A meta-analysis of 47 studies found that the more family-centred the practices, the more the families were satisfied with the

practitioners and the programmes, had stronger self-efficacy beliefs, and rated the support and resources provided by the practitioners and programs as helpful (Dunst, Trivette, & Hamby, 2007). Another study (Dunst & Trivette, 2009) using a meta-analytic structural equation modelling design found that family-centred practices had indirect effects on parent and child psychological health, mediated by self-efficacy beliefs.

## **Engaging and collaborating with families in early intervention**

In order to enhance the participatory component of family-centred practices, a series of strategies have been developed and examined. One approach is via active involvement of parents in developmental screening and other assessment procedures, as discussed in Section 3. Another approach is to involve parents in the implementation of interventions. Parent-implemented intervention, parent training/coaching and parent consultation are commonly used terminologies in ECI.

### ***Parent-implemented intervention***

The purpose of parent-implemented interventions is to train parents or primary caregivers to implement evidence-based intervention strategies in everyday routines and activities such as toileting, eating, getting dressed, bathing, et cetera. An accumulating body of empirical evidence has shown that parent-implemented intervention can be effective with young children from infancy to elementary school age (6–11 years). Likewise, a report on effective interventions for children with ASD (Wong et al., 2013) summarised that parent-implemented intervention can enhance multiple outcomes for children with ASD, including social, communication, behaviour, joint attention, play, cognitive, school-readiness, academic, and adaptive skills. These studies are also consistent with the findings of a literature review (Roberts & Kaiser, 2011) which indicated that parent-implemented language intervention is also effective for young children with language impairments.

Although research has indicated the effectiveness of parent-implemented intervention, Barton and Fettig (2013) expressed a

concern regarding the lack of implementation fidelity and the failure to meet contemporary research design standards in existing research, thus calling for extra caution in understanding the findings. On the other hand, concerns about parent-implemented intervention also came from the high demand of time and resources upon the family (Gargiulo & Kilgo, 2014). Professionals should always respect the family's decision on whether and how much they are involved in their child's intervention (Dunst & Trivette, 2009).

### ***Parent training and coaching***

Research has examined and identified effective strategies to empower parents in early intervention, such as parent training and coaching. Parent training is critical to the fidelity of parent-implemented intervention and to the positive impact on child outcomes (Barton & Fettig, 2013). This literature review also pointed out that performance-based feedback, modelling, and opportunities for practice were most frequently reported parent training practices in the literature (Barton & Fettig, 2013). While specific training practices will be listed later in parent coaching, it is worth noting that the efficacy of parent training differentiated across populations.

In a meta-analysis of 63 articles, Lundahl and colleagues (2006) pointed out that the higher the adversity level parents and children face, the less they benefit from parent training, especially when they are experiencing financial disadvantages. For financially disadvantaged families, individualised parent training on using behavioural interventions worked better than training in a group format. Another implication from this study is that self-directed parent training programmes demonstrated similar effectiveness as face-to-face programmes. A self-directed training programme typically provides parents with reading materials, audio or video clips, and web-based modules with minimal contact between the parent trainer and trainee.

Another review study of 77 articles (Kaminski, Valle, Filene, & Boyle, 2008) pointed out that parent training components are associated with large effects, such as increasing positive parent-child interactions and emotional communication skills, teaching parents to use time out and the importance of parenting consistency, and

encouraging parents to practise new skills with their children during training sessions.

Parent coaching is a structured training system for professionals to plan jointly with parents their children's learning goals, model effective practices, and provide feedback on parent's performance (Rush & Shelden, 2011, pp.3). Coaching was found effective in supporting parents' learning about their children's development and parenting skills (Marchant & Young, 2001; Peterson, Luze, Eshbaugh, Jeon, & Kantz, 2007; Shanley & Niec, 2010). Based on the understanding of adult learning, the key characteristics of coaching include joint planning, observation, action, reflection and feedback (Rush & Sheldon, 2011). The literature (e.g., Barton & Fettig, 2013; Friedman, Woods, & Salisbury, 2012) has documented many commonly used coaching strategies, including conversation and information sharing, demonstrating and modelling, direct teaching, guided practice, observation, performance-based feedback, problem solving and reflection.

## **Practical implications in Singapore**

Families and homes are usually the primary and most constant caregivers of young children with developmental needs (Odom & Wolery, 2003). Therefore, one of the fundamental principles in ECI is to support and empower families (DEC, 2014). Based on the Singapore context, here are some recommendations for improving family engagement in early intervention.

### ***Enhancing family involvement in the assessment procedures***

Parents of all infants and young children should be provided with high quality resources for parent-administered and regular developmental screening to identify possible risks; parents should be part of the assessment team in diagnosing their child and should be invited to provide information about their child for accurate assessment. Parents should also be presented with thorough information about, and interpretation of, the assessment results and diagnostic judgements to make informed decisions about their child's education and intervention.

### ***Empowering families' competency and self-efficacy***

Family support should address the wider needs of a family in parenting, such as social support (e.g., support from spouse, co-workers, extended family members, friends and neighbours), emotional support (e.g., feeling of being accepted and appreciated), and practical support (e.g., respite services). Well-functioning families are more competent in providing the supports of the child with developmental needs. Family well-being and outcomes should be included in the evaluation of ECI services to ensure the implementation of family-centred practices.

### ***Adapting intervention services based on family characteristics***

Families have different linguistic contexts, cultural practices, family structures, family concerns and priorities, therefore early intervention services should be adapted to best serve different families. Early childhood professionals, including interventionists, should be trained with the necessary cross-cultural competencies (Hanson & Lynch, 2011) to be able to implement evidence-based practices in diverse contexts. For example, professionals and families should communicate and collaborate in identifying the child's intervention goals that are reflective of the family's expectations and priority in terms of what the important skills for the child's age are.

### ***Supporting families in transitions***

Families need guidance and support during transition periods such as enrolling their child with developmental or special educational needs in a mainstream child care programme, when their child exits ECI and enters a primary or special school, and even before and after their child receives the short-term LS or DS interventions. During these transitions, a family should be provided with the necessary information and other resources (e.g., consultation, participation in important decision-making and service planning procedures, access to their child's educational documents, opportunities to visit future settings, etc). Professionals in early childhood programmes should be trained to support families during these transition periods.

## **Summary**

Given the heterogeneous nature of children and families being served in ECI, the evaluation of efficacy has moved beyond the general question of whether ECI works to a more refined inquiry asking for whom, under what circumstances, at what dosage, and towards what outcomes that a specific intervention programme or strategy works (Guralnick, 1997; Bailey, 2000; Zigler, 2000).

## **Conclusion**

Based on the review of international and domestic literature in the definition and five major issues in early childhood intervention, implications have been drawn for future improvement in the local context in the following areas:

- 1. Improvement in personnel resources.** As described in details in Section 2, 4, and 6, it is critical to develop new models as well as to revise and update current models in pre-service and in-service training of ECE and ECI professionals. More resources have been allocated to the training of ECI professionals, such as the Social Service Tripartite Taskforce (MSF, 2019). Teachers, interventionists, therapists, psychologists, and other professionals working with young children with and without developmental needs and their families need to be equipped with evidence-based practices in supporting diverse learning needs, as well as to develop a strengths-based, capacity-building approach to service delivery. As elaborated in the implications for Section 4, the provision of professional training should be more systematic to support sustainable pathways of professional development
- 2. Encouraging active involvement of families.** The important role of family in young children's development and well-being can never be exaggerated. In Singapore, parents need to be supported to play a more active role in their child's developmental screening and subsequent assessments and interventions, especially during the transition from early childhood to primary education.

Active involvement of families means parents are not only making the major decisions, but also become an equal partner in the education and intervention team to be an asset in the assessment, instruction, intervention, and progress monitoring and other aspects of specialised educational services for their child.

3. **System's level innovations.** Improvements are rarely sustainable without corresponding changes to the system and infrastructure. As mentioned in Section 2, moving toward more and more inclusive preschools in Singapore requires integrated efforts from teachers and families, but also call for supports from administrators and leaders to coordinate the ECE service system. The improvement of early identification also needs communication and collaborations at the system's level, across multiple service sectors, government branches, and between service providers and families. ECI involves multiple disciplines such as healthcare, childcare, education, family services, and therapy sciences and the sub-branches under each discipline. During this period of rapid development, ECI should pay attention to systemic gaps to achieve a consistently higher quality of service delivery and more sustainable development.

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