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**Mind the Gap:**  
**A Case Study on the Influence of**  
**Parental Involvement and Infocomm Technologies**  
**on the Literacy Level of Singapore's Malay Pre-Schoolers**

**A thesis submitted by**  
**Thomas CHONG**  
**for the degree of Doctor of Philosophy,**  
**in the College of Arts, Society & Education**  
**James Cook University, Australia.**

**26<sup>th</sup> October 2017**

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## **THE CONTRIBUTION OF OTHERS**

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**ABSTRACT**

There is a (literacy) gap among Malay pre-schoolers – they are not reading at their age level – and more can be done to help affected families so that their preschool children may recognise words, spell, read and make sense of simple sentences. This case study focused on the influence of parental involvement and Information Communication Technology (ICT) on the literacy level of Singapore’s Malay pre-schoolers. It started with a discussion on Singapore’s state of ICT- readiness, the choice of preschool, access and potential bias, assumptions, delimitations of this study and a review of the literature before discussing the findings and conclusion.

This case study comprised a survey, a documentary analysis, and an analysis of narratives of Malay parents. The Malays are an aboriginal group commonly found in this part of South-east Asia comprising Malaysia, Indonesia, Brunei and Singapore. In fact, the provision of assistance to the Malays is enshrined in the Constitution of the Republic of Singapore.

The case study site is a group of 3 Singapore preschools under the People’s Action Party Community Foundation, a large charity. The case study site is representative of preschools serving low-income families. Thirty-one teachers and 48 parents or care-givers of children from these participating pre-schools participated in interviews. Through this case study method, the issues are better understood. Hence, recommendations are made to enhance literacy levels of pre-schoolers among the Malays, who are over-represented among the poor and the under-performers in school.

There is also a discussion on the advantages and disadvantages of the case study design. The subject of triangulation was also discussed and especially related issues such as validity and reliability. Triangulation involved the analyses of qualitative data as well as quantitative data. Triangulation involved a documentary analysis relating to

parliamentary speeches and media releases from various government bodies, a narrative analysis of interviews with teachers and parents, and a survey questionnaire (quantitative data) completed voluntarily by teachers and parents. The documentary analysis centred on parliamentary speeches on pre-school policies and media releases from the Ministry of Education, Ministry of Community Development, Youth and Sports, Ministry of Social and Family Development, and other different data sources such as journal articles and books. The narrative analysis focused on interviews with teachers and parents. The survey questionnaire for teachers was designed to gather information about the level of ICT-readiness among them while the survey questionnaire for parents was designed to gather information about their nature and level of parental involvement with their preschool children.

Broadly speaking, case studies are complex because they generally involved multiple sources of data and consequentially tended to produce large amounts of data for analysis. Nevertheless, with a more in-depth understanding of key questions such as ‘why’ and ‘how’, the critical success factors were identified. As was expected, a pattern emerged and several repeated themes surfaced from the narrative analysis. It was also interesting that a pair of somewhat unexpected factors emerged namely ‘religious upbringing’ and ‘religiosity’ which were then discussed in the context of how they helped or hindered the literacy development of the Malay pre-school children.

This study also served to illustrate how the case study research method could be used to answer the “why” and "how" research questions. This study concluded that ICT can enhance teaching and learning, if integrated and harnessed appropriately to bring about engaged learning in the preschool environment. It also concluded that more parental involvement in a child’s literacy development might not lead to desired results if the parents

were still struggling with bread-and-butter issues or if they were not well-equipped with parenting skills. It also briefly demonstrated the technique of discussing the case around a few repeated themes (including religiosity). Finally, this case study made the argument for more initiatives to be carried out upstream, from as early as the preschool years so as to raise the pre-school children's phonemic awareness and literacy, before making suggestions for further research.

**Key words:** Aboriginal, case study, documentary analysis, ICT, literacy gap, Malay, narrative analysis, parental involvement, pre-schoolers, religiosity, and religious upbringing.

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**Thomas CHONG**

Thesis submitted in fulfilment of the PhD degree with

James Cook University (Australia)

**Primary Supervisor: Prof Neil Anderson**

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## Chapter 1

### Mind the Gap

#### Malay pre-schoolers are *not* reading at their age level

##### Introduction

In an article in the front-page news of the TODAY newspaper in Singapore on 1<sup>st</sup> August 2015 entitled “The Big Read: Educators flag absentee rate of children of low-income families as a concern”, Ng (2015) reported that “Educators and social workers say it is a challenge getting the children of lower-income families to attend pre-school regularly, with higher rates of absenteeism among these children despite the readily available financial support”. Ng (2015) also added a cautionary note that “while there is almost full participation rate for pre-school education here — 99 per cent of children here are enrolled in pre-schools by the age of six for each cohort — the reality on the ground paints a different picture” (p. 1). We shall learn more about this from the Singapore Parliamentary Reports to be discussed later in this chapter.

More recently on 20<sup>th</sup> August 2017, in a National Day Rally (NDR) speech, Prime Minister (PM) Lee Hsien Loong promised that more will be done for the Malay families and their children, without making any direct reference to the Malay children even though that part of his speech on pre-school education was in the Malay segment of his NDR speech and not in his speech in Mandarin (to the Singaporean Chinese audience). PM Lee said that a child’s education should “begin ‘much earlier’ than Primary 1, saying there are specific developmental windows at an early age” (ChannelNewsAsia, 2017a, n.p.). Other reports, however, revealed that the Malays are over-represented among those who need assistance and this shall be discussed in more detail in the subsequent chapters.

A spokesperson from the People's Action Party Community Foundation (PCF), a foundation set up by the ruling political party and an anchor pre-school operator with 360 preschools nationwide including those in Marsiling, said that "whilst our centres encourage all children to attend school regularly, some of these children do have irregular or low attendance," and revealed that "one-third of its children are on financial assistance schemes" (Ng, 2015, p. 2). Indeed, just because the children were enrolled in the preschool did not mean they are attending the preschool regularly, and their lack of finances has much to do with their (lack of) attendance at the preschool. Moreover, educators and social workers had also earlier highlighted that "due to the lack of exposure to the English language at home, the children are further handicapped in their learning, given their weak grasp of the main language of instruction" which is English (Ng, 2015, p. 1). In short, not only are the Malay preschool children not reading at their age level, they are also not attending preschool regularly.

In a 30<sup>th</sup> September 2016 news article in the TODAY daily newspaper entitled "More support for low-income pre-schoolers at My First Skool", Mr Chan Chun Sing, Minister in the Prime Minister's Office (PMO), announced the provision of support in the form of child-enabling executives who "will look after the children's well-being and ensure that they attend school regularly" (TODAY, 2016, p. 38). In another 30<sup>th</sup> September 2016 TODAY newspaper article entitled "More help for pre-schoolers beyond just fee assistance", NTUC First Campus updated that "some 2,000 children across its centres are benefitting from programmes ... to meet needs such as improving literacy, therapy for those with mild developmental delays and parental support" (The Straits Times, p. B4). Hence, any effort to address the literacy gap of pre-school children has to be multi-prong i.e. involving teachers, parents and the appropriate use of education tools including and not limited to information communication technology (ICT) and innovative pedagogy.

**Rationale for this case study**

On 23<sup>rd</sup> March, 2009, in reply to a Parliamentary question on the reading abilities of Primary 1 students, Singapore's then-Minister for Education Dr Ng Eng Hen revealed that "over the last 5 years, around 12% to 14% of the children who entered Primary 1 have very weak oral English and literacy skills....they were not able to recognize simple English words (or) understand very simple oral instructions in English" (Singapore Parliament Reports, 2009, para 42, n.p.). Despite being in the "Focused Language Assistance in Reading" or FLAiR, a Learning Support Programme (LSP) with a senior teacher and smaller classes, only about 45% of them were able to pass their schools' English Language examinations and read at their age level. This is a problem which this case study shall attempt to address by examining the influence of parental involvement and ICT on the literacy level of Singapore's Malay pre-schoolers.

In 2010, in a Parliamentary speech, the then-Minister of State (MOS) for Education, Masagos Zulkifli, said that "preschool education in Singapore is unlikely to be made compulsory in the near future" (AsiaOneNews, 2010). In her caution not to make pre-school mandatory, fellow REACH policy study workgroup (PSW) member Dr Christine Chen, who was also the then-President of the Association for Early Childhood Educators, "urged pre-schools to raise their game by making their programmes more enjoyable for the children" and she added that "if they (the children) are so motivated to go to school, which parent won't be moved?" (Ng, 2015, p. 3). Dr Chen also highlighted that making pre-school mandatory "might intensify the pressure cooker environment here" (Ng, 2015, p. 3). Indeed, learning at the preschool can be made enjoyable and ICT can enhance that enjoyment in a purposeful way, if used appropriately. It is appropriate and timely to now consider the following definition of key terms before delving deeper into the issues.

**Definition of key terms**

The following key terms shall be defined: ‘case study’, ‘Malays’, ‘literacy’, ‘literacy development’, ‘ICT’, ‘ICT-readiness of teachers’, ‘edu-care’ and ‘after-school care’.

**Case Study**

According to Lincoln and Guba (1985), “while the literature is replete with references to case studies and with examples of case study reports, there seems to be little agreement about what a case study is” (p. 360). Since 1985, proponents of case study method such as Yin, Stake and Merriam clarified and further defined the method. Yin (2009) defined a case study as “an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between the phenomenon and context are not clearly evident” (p. 18). Stake (1995) described case study as “the study of particularity and complexity of a single case, coming to understand its activity within important circumstances” (p. xi). The Merriam (1988) likens case study to a process in which the researcher would analyse the data by hand, and hold "a conversation with the data" (p. 131).

The term, “case study” has also been defined as an intensive analysis of an individual unit (e.g., a person, group, or event) stressing developmental factors in relation to context (Flyvbjerg, 2011). It might be descriptive or explanatory. The latter type was used to explore causation in order to find underlying principles (Shepard & Greene, 2003; Yin, 2009). The term, “case study” might also be prospective (in which criteria were established and cases fitting the criteria were included as they became available) or retrospective (in which criteria were established for selecting cases from historical records for inclusion in the study).

Thomas (2011) offered the following definition: "Case studies are analyses of persons, events, decisions, periods, projects, policies, institutions, or other systems that are studied holistically by one or more methods. The case that is the *subject* of the inquiry will be an instance of a class of phenomena that provides an analytical frame — an *object* — within which the study is conducted and which the case illuminates and explicates" (pp. 511-512). For the purposes of this case study, the definitions by both Yin (2009) and Stake (1995), which are not mutually-exclusive, shall be used.

### **Definition of ‘Malays’**

The definition of Malay can be quite complex; in fact, the inaugural reserved Presidential Election in Singapore to be held in September 2017, reserved for Malays, accentuated the difficulties of defining and recognising a Malay person as they are also Indian-Muslims, Chinese-Muslims, etc. who had been accepted by the Malay community as one of them. Moreover, there are others who are defined as Malays because of where their forefathers came from, for example, the Boyanese, Javanese, Bugis, etc. These different groups of Malays come from different parts of the Malay archipelago.

There are three core traits of a Malay, and these are defined along the lines of religion, language and one's adherence to the common Malay traditions, e.g., circumcision, not eating pork, fasting during the month of Ramadhan, attending weekly religious classes, etc. Hence, a Malay person is defined as a Muslim who speaks Malay and observes the Malay/Muslim customs; this shall be the definition used in this case study. Thus, a Malay person is one whose forefathers were once inhabitants of the Malay archipelago which includes Malaysia, Indonesia and Brunei. The Malay person usually speaks the Austronesian language called Malay which is spoken by about 20 million people (Oxford Dictionaries, 2017). There are dialects and variants of the language depending largely on the geographical

area a Malay community came from or resided in. Due largely to years of immigration and assimilation, there are now various Malay communities or sub-groups defined or recognised according to their respective genetic, linguistic, cultural, social and religious backgrounds. Of these backgrounds or traits, the more definitive ones are the religion of the Malay community (e.g. Sunni or Shia or a variant), the language or dialect and the traditions as well as laws of the community.

Due to the limitations in this case study, we shall not go into the details of the variants of Islam i.e. Sunni or Shia, or even what type of Malay language. Suffice it to highlight that there are many dialects and variants of the Malay language, for example, there is “Bahasa Indonesia” which is spoken in Indonesia, yet each province in Indonesia has its own dialect.

Another example of variants of the Malay language is the “Baba Malay” variant which is spoken among the “Peranakans” translated “children of the land” whose fathers or forefathers came from China to trade and seek a future in the Malay archipelago and then settled down, marrying Malay women. My father, born 1914, was one such example. These different Malay groups or groups with mixed parentage are quite diverse in terms of religion, diet, customs and economic status. The Peranakans, being traders and subsequently bankers and land-owners, are of high economic status. Historically, the Malays lived as coastal-trading communities with fluid cultural characteristics (Barnard, 2004; Milner, 2010).

### **Literacy – past, present and future**

According to the Raising Children Network, Australia, “Literacy is most commonly understood as reading and writing. But before children can read and write, they

need to learn about sounds, words, language, books and stories” (Raising Children Network, 2016, n. p.).

In fact, the term, “literacy” (which includes reading ability) is an evolving one. With ICT, reading can take many forms. Leu, Kinzer, Coiro and Cammack (2004) challenged old definitions of reading and books, and suggested that “definitions of literacy must move beyond being located in only paper-printed media” (p. 13). They added that “children's literature cannot be limited only to the pages in a paper-based book of printed pages, but must include books in electronic formats as well” (p. 13). Indeed, according to Leu et al (2004), definitions of reading and literacy must move with the times, not unlike “a moving target”, evolving its meaning and purpose “on what society expects literate individuals to do” (p. 11).

To gain a better understanding of how the definition of literacy has evolved, it is necessary to examine how literacy has expanded beyond one’s ability to read and write. While Flesch (1955) provided early views of the need to teach the child “letter-by-letter and sound-by-sound until he knows it—and when he knows it, he knows how to read” (p. 121),

Twenty-five years later, Flesch (1981) suggested that “learning to read is like learning to drive a car.... The child learns the mechanics of reading, and when he's through, he can read” (p. 3). Over the years, definitions of reading had been put forth by others such as Goodman (1976), Dechant (1982) and Rumelhart (1994), and these included the interaction between the text and the readers, the comprehension of the message, and the decoding of the printed page. These definitions came from “a perspective of print and owe their historical roots and conceptions of literacy to a largely print-based world” (Leu et al, 2004, p. 12).

However, in more recent studies, researchers such as Cloonan (2005) stated that literacy is more than grammar, lexicon and semantics. It has to consider what children themselves regarded as being literate. For a start, in today's context, it might mean being able to access and enjoy games on the PlayStation Portable or PSP, a handheld video game. As children grew older, they might consider literacy as the ability to use the various features and applications on an iPhone and use multiple features within Facebook, a social utility that connected! people with others via a web portal. Hence, literacy is also influenced by the medium that children use. To illustrate, when children worked with just paper and pen to spell a word, they had to spell as best as they could, on their own. However, when children used! a phone and tried to text a message after keying in only 2 letters e.g. 'b' and 'u', they might be assisted or prompted by in-phone features such as 'predictive text' and they might then have to select the correct spelling from several choices e.g. 'bud', 'bug', 'bum', 'bun', 'bus', 'but', 'bury', 'busy', 'buy', etc. Indeed, Cohen and Spenciner (2011) stated that "with the ubiquitousness of technologies throughout our society, there has been a shift in the vision of what it means to be literate" and urged that "students should be able to search, identify, download and read Web-based texts and information...use Web search engines and tools, contribute to blogs and comprehend wikis" (p. 225).

For the purpose of this case study, however, the definition of the term, 'literacy level of Malay pre-schoolers' is confined to 'the ability of Malay pre-schoolers to recognize simple English words and understand very simple instructions in English'. Annex 1 shows the list of simple English words used to test Malay pre-schoolers' understanding of simple instructions in English. This is similar to the tests administered by the MOE to determine a Primary 1 child's basic literacy. Hence, the format of the test has a bearing on how the term 'literacy' is defined in this case study.

Suffice it to highlight that this same test as shown in Annex 1 was featured in this case study not because of its comprehensiveness or lack thereof. Rather, this sample test is used and discussed because it was such a test that was used by MOE to determine which students would be channelled into the LSP. Featuring or discussing this sample test should not be taken to mean an endorsement of the test or an instruction on how it was to be used in the school. Nevertheless, an explanation for the use of such a test had been included in the next chapter: Such a test helped to measure phonemic awareness. To a certain extent, a child's ability to “perform a phoneme segmentation task were more strongly related to reading and spelling than were their abilities to detect and produce rhyme” (Muter, Hulme & Snowling, 1997, p. 307).

### **Literacy development**

“Literacy development” could be defined as the growth of literacy skills i.e. the ability to speak, listen, understand, watch and even draw (Raising Children Network, 2016, n. p.). These are considered the building blocks for literacy, and with practice, the child would also come to understand the connection between the following:

- “pictures and objects – how you can use words to talk about them
- letters and words – their shapes, sounds and names
- sounds – how words can rhyme, begin and end with the same letters, be broken up into parts (for example, syllables), be formed by blending different sounds, and so on”.

(Raising Children Network, 2016, n. p.)

For the purposes of this case study, literacy development is focused on the Malay preschool children’s ability to recognise words and spell which form a key building

block in developing a child's phoneme awareness (Good, Simmons, and Kame'enui, 2001; Torgesen, 2004).

In Singapore, incoming Primary One students were grouped into LSP classes according to their ability on a test taken in the first few months of entering Primary One. This test assessed the child's ability in spelling and word recognition, matching of words on a text to pictures and identifying letters and words – their shapes, sounds and names. This is by far not the most comprehensive way of testing for literacy but it had proven to be very easy to administer and served its purpose well enough, for the Singapore MOE, which explains its continued use. Its purpose is to identify students who needed more assistance in reading at the most basic level.

Moreover, the administration of such a test for a yearly cohort of about 35,000 children is neither time-consuming nor onerous. Hence, for the purposes of this case study, the term “literacy” is taken to mean “...reading and writing. ... about sounds, words, language, books and stories” (Raising Children Network, 2016, n. p.).

### **What is ICT?**

The use of information communication technology or ICT in Singapore pre-schools is a contemporary phenomenon, and it has been considered as complex because there are many reasons why and how ICT is being used (or not used) in pre-schools. The term, “ICT” includes DVDs, interactive multimedia programmes, digital cameras and even telephones and how they could be used to support and enhance teaching as well as learning. This involved teaching children through mediated child-computer interaction, for instance, to recall, record, relate, review and even re-frame their world so as to develop (early) literacy, numeracy and communication skills.

**ICT-readiness of teachers**

The term, “ICT-readiness of teachers” is defined as preschool teachers’ ability to carry out certain tasks involving ICT e.g. using a digital camera, organizing folders, or using a word processing application. More of such tasks had been incorporated in a questionnaire for preschool teachers who participated in this survey voluntarily (Annex 2).

**‘Edu-care’ and After-school care**

By the term, ‘edu-care’ (a combination of the words, ‘education’ and ‘care’), one expected services to include care as well as opportunities to learn in a safe environment. This was why when a pre-school teacher ill-treated a child at a childcare centre, the child’s parents, members of the public and government officials were outraged (ChannelNewsAsia, 2013; MSF, 2013; MOE, 2013; ECDA, 2013) (Annex 3). This accentuated the importance parents placed on good before- and after-school care (BASC).

According to the Australian Bureau of Statistics (ABS) in Australia, the number of children using BASC? had doubled from 6% in 1996 to 12% in 2005 and 2008 (ABS, 2007a; ABS, 2008). On average, a child spent about 6 hours a week in BASC. Taken as a whole, across the school-year and over several years, these daily 6-hour routines amounted to a considerable part of children’s lives and development. Hence, what transpired during Out of School Hours Care (OSHC) or BASC should not be under-estimated and should instead be optimized for a child’s learning and development. Lessons should be gleaned from the work of Mahoney, Lord and Carryl (2005) so as to better understand how disadvantaged children and adolescents could benefit from such programmes. Both researchers and practitioners agreed that the quality of care contributed to children’s developmental outcomes, where high quality child care is associated with positive outcomes and poor quality care, negative ones.

Early childhood services were considered to offer ‘edu-care’ services i.e. both care and education for young children, whereas school-age children were thought to be educated at school, and cared for at OSHC or its equivalent type of service in Singapore, namely ASC until their parents arrived to take them home (ABS, 2007; Department of Family and Community Services, 2005; Elliot, 1998).

The child care services in Singapore looked as comprehensive when compared to those in Australia where OSHC services operated for 5 hours a day during school term and up to 10 hours a day during the school vacation (Commission for Children and Young People and Child Guardian, 2007; MCYS, 2011). Like other child care services, OSHC had serious difficulties recruiting and retaining staff (Community Services Minister Advisory Council, 2006; Organisation for Economic Co-operation and Development, 2006). The situation in Singapore is no different. On 14 September 2009, the regional broadcasting company, ChannelNewsAsia posted an article entitled “2000 more preschool teachers needed” (Ow, 2009, n.p.). The Singapore government had to first address this more fundamental problem i.e. the acute teacher shortage in pre-schools even as we delved deeper into the subject of having ICT-ready teachers to help address the literacy gap among Malay children.

In the subsequent chapters, more would be said about child care services in Singapore and how the government agencies had been recruiting more teachers.

The above-mentioned definitions of key terms serve to provide the context for this case study and the discussion surrounding the influence of parental involvement and ICT in the literacy development of Malay preschool children. It is now timely to examine the case study site and how access was obtained.

**The case study site and access**

The study site is a preschool in the heartlands of Singapore or housing estates outside Singapore's central business district. It is representative of more than 260 kindergartens operated by a foundation whose mission is to provide affordable preschool education. Whang (2012) reported that "six out of 10 preschool children here (in Singapore) enrol at its kindergartens" (p. 1).

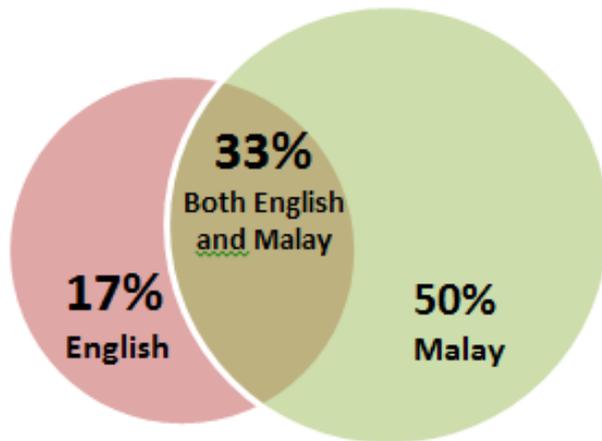
Today, preschool is still not mandatory. The Singapore government has earlier investigated the advantages and disadvantages of making preschool education mandatory. In fact, in 2009, I served as a member of the REACH PSW that was appointed by Ministry of Education (MOE) and the then-Ministry of Community Development, Youth and Sports (MCYS) to study preschool education, before being recruited by PCF as its Head of Corporate Communications as well as the Director of its Early Childhood Institute overseeing the professional development of its 1200 teaching staff. This partly explains why access was granted. Usually, access to preschools for educational research is seldom granted.

**How little English is used at home**

In 2011, at the Presentation Ceremony of *Arif Budiman* Malay Language Teacher Awards 2011, Singapore's then-Education Minister Heng Swee Keat, revealed that in a 2010 survey with Malay students, the MOE found out that "50% of the students reported using mostly Malay at home and 17% reported using mostly English at home; the rest reported equal use of English and Malay at home" (Heng, 2011, p. 1), as shown in Figure 1.1 below. English, the first language used in school and in pre-school, however, is not the main language used at home.

Figure 1-1

## Percentage of Malay students who used English and/or Malay at home



Former Education Minister Heng agreed with his predecessor Minister Ng on the way to mind this gap (that Malay preschool children are not reading at their age level), i.e. arrest the problem, *upstream*. Minister Ng had earlier stated that “for better results, we believe that we should be working upstream” i.e. at the pre-school level (Singapore Parliament Reports, 2009, para 42). Similarly, the then-MOS for Education and Defence, Lawrence Wong, in a Parliamentary reply in March 2012, highlighted that “the formative years before primary (school) education are critical for the holistic development of a child” and stressed that the “MOE too recognizes the importance for our children to get a good early foundation, and has invested in pre-school opportunities for all Singaporeans” (Wong, 2012, para 42).

At the NDR on 20<sup>th</sup> August 2017, PM Lee reiterated the importance of pre-school education and how critical it was” for a child’s education to begin ‘much earlier’ than Primary 1, saying there are specific developmental windows at an early age - for instance, a child picks up language skills most easily and rapidly in the first three years” (ChannelNewsAsia, 2017a, n.p.).

### **One size or test does not fit all**

The Office of First Minister and Deputy First Minister (2014, n. p.) has posted a comic strip on one of its web pages showing a bird, a cat, an elephant, a frog, a monkey and a goldfish in a bowl appearing for a test before a wise owl (the examiner) who was quoted as saying, “To ensure a fair selection, you all get the same test. You are to climb that tree in the shortest possible time” (Annex 4). Is this a fair test? Yet, the education system in Singapore (and in many other countries in the world) had been assessing a child’s competencies based on a particular set of rules and a specific task

In Singapore, upon entering formal schooling at Primary One, children regardless of their pre-schooling experience, were tested on their ability to spell, match words to pictures, and recognise sounds of a list of words. Those who did not do well in this test were channelled into the LSP mentioned earlier. This mode of testing for children’s literacy level (that does not fit all) accentuated the problem for Malay pre-school children. After all, for quite some time already, the Malay community had been viewed as having “weak oral English and literacy skills” (Singapore Parliament Reports, 2009, para 42).

### **Importance of differentiated instruction and accentuating the positive**

If Malay children prefer to kick a ball or play music, what is taking preschools and the authorities so long to teach Malay pre-schoolers in a way that taps on their bodily-kinesthetic and musical intelligence? (Gardner, 1983). Why are lessons still being conducted in neat rows of tables and chairs with a lot of teacher “talk and chalk”? Why is the same type of instructional method being used for learners with different learning styles? Should we not promote differentiated instruction more? After all, each child is endowed with different abilities and intelligences. In fact, in a 18 July 2014 article in a daily newspaper in

the United Kingdom, The Daily Mail (2015), it was reported that “schools are being penalised for using traditional ‘chalk and talk’ lessons because Ofsted inspectors are biased in favour of trendy teaching methods” (The Telegraph, 2014).

The following story further illustrates the need to accentuate the positive instead of examining the issues from a deficit perspective: there is a Mexican folktale of a certain Juan who wanted a small plot of land with poor soil despite his neighbours laughing at him. But because of Juan’s diligence and shrewdness in listening to the advice of his friends - the indigenous people of Mexico – he enjoyed a successful harvest. His friends had advised him to plant corn, beans, and squash (collectively known as the "three sisters") that complemented one another during the growing season, resulting in the successful harvest. This showed that through one’s (and Juan’s) determination and diligence, success could be achieved. According to Ferlazzo (2012), “educators often perceive English language learners the way that Juan's neighbors viewed him - through a lens of deficits” or in this folktale, poor soil and unfavourable factors (p. 44). The challenge is of course, to move from a deficit perspective to an asset perspective.

When the positive is accentuated, instruction is based on the way Malay children learn best. In one national competition after another, the Malays are found to be talented in singing, dancing and music. After all, the Singapore Idol (Annex 5) and Final 1 (Annex 6) national competitions were won by Malays – and they sang in English! This illustrates how the Malay children may be engaged more and nurtured better, in a way that they can demonstrate their literacy – perhaps through music. This need to engage children through “many pedagogies that teachers can use in their teaching” was later raised in Parliament by the Senior Minister of State (SMS) for Education Indranee Rajah (Rajah, 2014, para 74), and shall be discussed in detail in the subsequent chapters. In short, to

improve literacy levels, we need to re-examine the effectiveness of our curriculum, instructional strategies and models of assessment, mediated by education tools (including ICT) and supported by involved parents as well as competent teachers, to achieve desired results.

### **Literacy improvements through instructional strategies, ICT and parental involvement**

Most learners, including English Language learners (ELLs), contributed and leveraged their experience and life-skills when they participated in a learning environment while astute teachers helped them apply those skills to reading. According to Ferlazzo (2012), “if we use instructional strategies to maximize these students' strengths, we can help them make tremendous strides in reading” (p. 44). Ferlazzo (2012) added that “in helping ELLs choose what to read, ... teachers must achieve the delicate balance of finding material that is engaging and challenging; that connects to students' background knowledge and attaches new understandings to that knowledge” (p. 45); this known-unknown interface is critical in getting children to learn new material and how ICT is used to bring about engaged learning is important too.

Interestingly, “at Beacon Primary School, students found such ICT-based learning to be engaging and fun” (Heng, 2011, p.2). In fact, according to a report on a \$1.5-million PlayMaker programme featured in the 24<sup>th</sup> September 2015 edition of the Straits Times newspaper in Singapore, “tech toys in the form of toys and robots can help pre-schoolers with their cognitive development and social growth, as they are more interactive and physical, compared with screen-focused technology such as iPad apps” (Hio, 2015, page B3).

On 23<sup>rd</sup> September 2015, then-Minister in the PM's Office, Ms Grace Fu launched the PlayMaker programme ) developed by the then-Infocomm Development Authority in Singapore or iDA, a statutory board of the Ministry of Communication and Information. On 1<sup>st</sup> October 2016, the iDA and the Media Development Authority had been re-structured to form the Info-communications Media Development Authority of Singapore or IMDA (IMDA, 2016). In fact, pre-school children have taken engaging roles as child reporters presenting news of the week, such as the dangers of mosquito breeding or presenting the week's events in short video clips, according to a 30<sup>th</sup> September 2016 newspaper article entitled "Reporter roles get pre-schoolers keen on language, news" (TODAY, 2016, p.40).

It is also important that parents are involved in the child's learning. It is critical that "activities like summarizing daily learning, self-assessing, and goal setting" are supervised by teachers *as well as* parents (Chong, 2012b, p. 21). Just like how the growing of complementary plants could help us get good yield from poor soil, we would investigate how ICT and parental involvement could help us get better literacy improvements among the pre-schoolers entering Primary 1, especially after then-Education Minister Dr Ng highlighted that 12%-14% of preschool graduates have "weak oral English and literacy skills" (Singapore Parliament Reports, 2009, para 42).

### **Aim of this study**

The aim of the study is to critically examine the level of literacy of Malay pre-schoolers and how to help these pre-schoolers improve e.g. for teachers to use ICT tools and for parents to be more involved so as to bring about enhanced literacy level among Malay pre-schoolers. To examine the level of literacy of Malay pre-schoolers, we examined how

well they were able to recognize simple English words and understand very simple oral instructions in English.

A survey questionnaire was used to gather information about the level of ICT-readiness among preschool teachers. It was self-designed because there is no existing survey questionnaire that is localized or customized to examine the possible patterns between teacher ICT-readiness and parental involvement on one hand, and the literacy development of Malay pre-schoolers, on the other hand (Annex 8). It took about 15 minutes to administer and capture the teacher's self-reported use of ICT in the pre-school classroom. It contained both open and closed questions. It was designed based on the criteria listed in the inclusive model of early literacy assessment by Bell and McCallum (2007), the skilled reading model by Scarborough (2009), iTeach principles (MOE, 2012) and the Kindergarten Curriculum Framework (ECDA, 2013b). More about this instrument shall be discussed in Chapter 3 on the methodology used in this case study. A sample test very similar to the one administered with pre-schoolers had been attached in Annex 1.

This case study also focused on the level of parental involvement and the readiness of pre-school teachers in using ICT as a tool to enhance teaching and learning, and how both might or might not have an impact on the literacy level of Malay pre-schoolers. In achieving the aim of this study, it is hoped that we also address the challenges facing the Malay community, specifically in terms of the literacy development of their pre-school children.

### **The challenges of the Malays**

As far back as the 1950s, in a press article entitled '*Orang-orang Islam perlu banyak berusaha*' (translated, 'Muslims need to work very hard'), the then-MOS in the PMO,

Haji Ya'acob Mohammed had urged the members of the Malay community to strive hard or otherwise be left behind ending up as “observers” of the success of those from the other communities (*Berita Harian*, 1972a). *Berita Harian* translated ‘the Daily News’ was the major newspaper in the Malay language.

In another press article entitled ‘*Ya'acob: Beratkan pelajaran anak-anak bangsa*’ (translated, ‘Put more emphasis on your child’s education’) six months thereafter, Haji Ya'acob also urged the Malay people to impress upon their children the importance of education so as to level up with the children of the non-Malays (*Berita Harian*, 1972b). About a year thereafter, Haji Ya'acob appealed to the Singaporean Malays to work very hard “if we want to progress together with the other groups in this republic” (*Berita Harian*, 1973). Such appeals and comparisons with the non-Malays suggested that the Malays were trailing behind the non-Malays.

Singapore’s Minister for Muslim Affairs, Yaacob Ibrahim, in his parliamentary speech during the Committee of Supply 2010 Debates, highlighted that “the issue of low-income families trapped in multiple problems received a disproportionate amount of public airing late last year,” and that “this is not a new issue” (Ibrahim, 2010, p.2). The kind of programmes (and remedial action) implemented to address these complex and varied issues of low-income (Malay) families suggested these families needed help in “parenting skills”, “strengthen(ing) communication and bond among members” and “establish(ing) a sense of ambition and aspiration for the family” (Ibrahim, 2010, p.3).

Lawrence Wong who has assumed a new Cabinet portfolio as Minister for National Development since 1<sup>st</sup> October 2015 had called for more measures for improvement. In fact, the responsibility to bring about such improvements is enshrined in Article 152 of the Constitution of the Republic of Singapore which addresses the minorities and special position of Malays, as follows:

“(1) It shall be the responsibility of the Government constantly to care for the interests of the racial and religious minorities in Singapore (and)

(2) The Government shall exercise its functions in such manner as to recognise the special position of the Malays, who are the indigenous people of Singapore, and accordingly it shall be the responsibility of the Government to protect, safeguard, support, foster and promote their political, educational, religious, economic, social and cultural interests and the Malay language”.

(Attorney-General’s Chambers, 2014, n.p.)

Wong (2011) highlighted that it could be quite worrying to have the lowest strata of the economy and population identified along ethnic and racial lines, and as early as in the preschool years (Wong, L, personal communication, October 14, 2011).

### **Importance of this case study**

Indeed, as a nation, Singapore cannot afford to have the lowest strata of the economy and population identified along ethnic and racial lines. This is why this case study is so important and the lagging literacy development of Malay pre-schoolers must be addressed more fully. It cannot be over-emphasised that the rights of the indigenous Malays are enshrined in the Constitution of the Republic of Singapore; hence, it is necessary that more assistance is rendered to the Malay community. This had been highlighted by the Minister for Muslim Affairs Dr Yaacob Ibrahim as well as his fellow parliamentarians who repeated in parliamentary sittings that when the Malays did not perform well in school, they

tended to have lower-paying jobs and they were thus not able to afford better housing and care for their children (Singapore Parliament Reports, 2009).

To recapitulate, this study is important for several reasons: First, there is a dearth of literature on how Malay pre-schoolers had been performing in schools and how the home and the learning environment were affecting them. Even when their performance is reported in the media, it was obvious that the public statements were somewhat politically-correct and did not clearly state the gaps. As long as thirty years ago, Watts (1982) in her observations of indigenous education in Australia lamented that “even when they find their way into the literature, one has no knowledge of how well the initiative is implemented .... poor practices are rarely reported publicly” (p. 59).

Second, notwithstanding after-school care or ASC (at home, a relative’s home or child-care centre), children did not seem to be ready for Primary One (at age 7). This suggested that more than care was required; that reading programmes remained highly in demand so that such children did not start Primary One lagging behind their peers in terms of reading and numeracy skills. This explained why, according to Singapore’s former Education Minister Dr Ng, the MOE pumped more financial resources into the FLAiR programme since 2009 (Ng, 2009), and why the then-MCYS had followed suit. The MCYS has since been re-organised into 2! separate but related ministries namely the Ministry of Social and Family Development (MSF) and the Ministry of Culture, Community and Youth (MCCY).

Today, the FLAiR programme continues to provide certain pre-schoolers with the additional assistance in the English language. As some children lacked exposure at home, FLAiR provided the opportunity for them “to be exposed to reading materials, writing experiences, and speaking and listening to English Language in an engaging and fun way” (Singapore Parliament Reports, 2009, para 42).

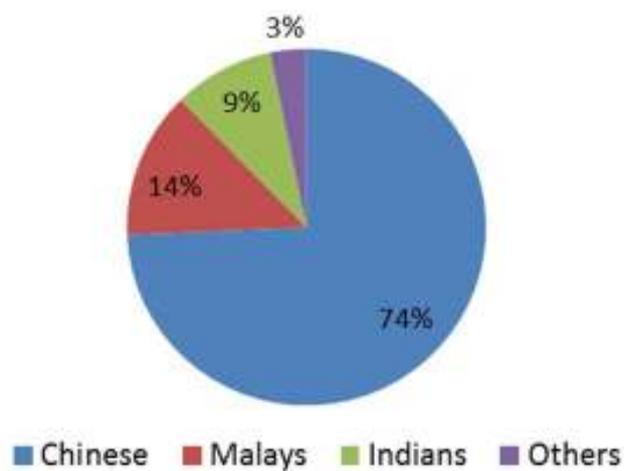
In 2013, a new statutory board, the Early Childhood Development Agency or ECDA, was formed to regulate the pre-school sector and attract as well as retain talent. According to SMS Indranee (2014), “ECDA was formed to integrate the Government’s approach towards early childhood care and education” (para 69). According to ECDA, early childhood education (ECE) professionals shall be better remunerated (ECDA, 2013a, n.p.).

### The over-representation of Malays among drug abusers

According to Census 2010 from the Singapore Department of Statistics (2013), and as illustrated in Figure 1-2, the Malays constituted 14% of the population in Singapore, behind the Chinese who constituted 74% but ahead of the Indians (9%) and other ethnic groups like the Eurasians (3%).

**Figure 1-2**

**Population Distribution of Singapore by Ethnic Group (2016)**

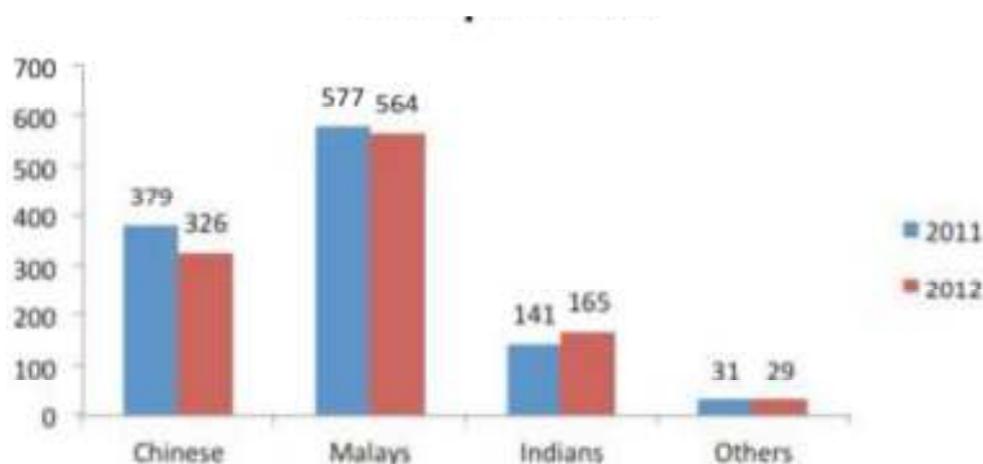


Unfortunately, as much as the authorities had tried *not* to highlight statistics that did not cast a positive light on the Malay community (e.g. the Malays’ low literacy

levels), the Malays have been observed to be over-represented among the poor, the under-performers in school and the drug abusers. Such statistics had not been frequently made public, but when they were shared in the public domain, debate and discussion quickly followed. One such occurrence took place after the airing of the Suara Musyawarah Committee Report (2013) which relied on the Central Narcotics Bureau (CNB) Drug Situation 2012 Report that stated “Malays constituted 51% (or 1,760) of the total drug abusers arrested” (p. 64). In fact, 577 out of 1097 of new drug abusers (or about 52%) were detected in 2012 (Suara Musyawarah Committee Report, 2013, p. 65), as illustrated in Figure 1-3 below. Recommendations listed in the Suara Musyawarah Committee Report 2013 included parenting skills for parents of preschool children (Annex 7).

**Figure 1-3**

**Number of new abusers by ethnic group in 2012**



Source: Suara Musyawarah Committee Report (2013, p. 65).

The Malays had been over-represented because they formed only 14% of Singapore’s population, yet 51% of the drug abusers were Malays. This statistic is relevant because it shows that while the men in the family (fathers) were serving time in prison or undergoing treatment in the drug rehabilitation centre, their spouses were raising the family

alone and that parental involvement was reduced to 50% during the time they were serving time for drug abuse. From this background of challenges and the importance of this case study, we sought answers to the following research questions.

### **Research questions**

It is understandable that a 10-question test that required a child to spell a word correctly, match words to pictures, and recognise sounds of a list of words is not considered a comprehensive test to assess a child's literacy level. Yet the MOE had administered such a test to pre-school graduates entering Primary (A very similar test shown in Annex 1 served as a sample). This was probably and primarily because such a test was easy to administer and had helped schools to quickly identify those who could not spell or recognise common vocabulary words. In fact, such a test had been used with 35,000 children at Primary One, every year and had served its purpose relatively well. The next chapter on the review of the literature would elaborate on the strong linkages between pre-school children's literacy development and their ability to spell and recognise words.

Given that such a test is here for the foreseeable future and parliamentarians had urged parents to be more involved in their children's literacy development, this case study sought answers to the following research questions:

1. Are Malay children in Singapore able to read and write before they enter Primary Schools i.e. formal schooling years?
2. How involved are the parents of Malay pre-schoolers especially in the latter's literacy development?
3. How do the parents' distinct parenting styles (authoritarian, authoritative and permissive) influence the literacy development of their children?

4. What kind of impact does the upbringing of these Malay children have on their literacy development?
5. How can parents and teachers use ICT (and possibly other tools) to engage the children to improve their literacy?
6. What lessons can we learn in using ICT tools and in involving parents to bridge the literacy gap among Malay preschool children?

### **Factors affecting children's development**

The combination of physical, social, cultural, economic and historical factors or circumstances that constituted a child's socio-cultural context has a bearing on many aspects of children's development (Siegler, Deloache & Eisenber, 2006). They could protect or make the children stronger, or they could put the children at risk or in harm's way.

Anthony, Alter and Jenson (2009) highlighted that "protective factors are those characteristics of children, their families and environments that increase the chances of children's adaptive functioning, while risk factors are events, conditions or experiences (that) increase the probability that a problem will be formed, maintained, or exacerbated" (p. 45).

Anthony et al (2009) added that when a child developed more resilience, he or she is more likely to be able to have stronger academic achievement.

While the effects of early care arrangements on children's development had come under considerable examination by researchers, much less attention had been paid to care arrangements of school-aged children. While the authorities in Singapore forecasted an increased demand for child care arrangements, largely due to government agencies' growing success in getting mothers to return to work, not many Malay children had been enrolled for ASC which MSF and MCCY found out these parents were not able to afford. In fact, many

children tended to be latch-key children or were placed in the care of relatives who did not necessarily provide any tutoring or coaching with school work.

The Singapore government enabled children from such low-income Malay families to attend pre-school as well as BASC with its funding schemes and affordable fees. These had been briefly mentioned earlier in this chapter when Minister Chan assured that child-enabling executives would be hired to "...look after the children's well-being and ensure that they attend school regularly" (TODAY, p. 38). This would be elaborated on in the subsequent chapters.

Another possible factor worth examining is the influence of the media in highlighting how Malays perhaps "*tak boleh*" (Malay term for "cannot make it"), and subtly perpetuating the notion that the Malays could not make it (in examinations or in fighting drug abuse). This was implied in a news report entitled '*Malays boleh*' (The Sunday Times, 6 March 2011, HOME p. 10). It is thus necessary for teachers to "set aside deficit logic" (Yunkaporta & McGinty, 2009, p. 55).

Indeed, studies involving aborigines (and Malays are aborigines in this region), found that more could be done to "unpack and reject this deficit logic" and to help us to be careful in how "low expectations were communicated informally through the curriculum, the school design and the organisational structure" (Yunkaporta & McGinty, 2009, p. 70). While the influence of the media and the role of teachers are critical, one must not under-estimate the influence of the family which is the core context for human development (Bronfenbrenner, 1979).

Yet another factor affecting the child's development is the way tests are conducted in schools; in short, there appears to be a "conflict in practice with still dominant traditional learning expectations, teaching practices and models of assessment" (Richards, 2004, p. 399). Put simply, the way children are tested in examinations still requires drill-and-

practice, which makes it difficult for teachers to move away from traditional learning methods and to embrace more of ICT. According to Richards (2005), this resulted in ICT becoming at best “an add-on” and not integrated in the child’s learning environment (p. 60).

### **Over-arching framework and theoretical underpinning**

Theories such as Bruner’s cognitive theory of learning (1960) provided an over-arching framework and Bronfenbrenner’s ecological systems theory (1979) provided the theoretical underpinning for this case study. To further explain the relevance of Bruner’s Theory (1960), we considered the idea of learning as an active process in which learners constructed new ideas based upon their current knowledge.

Moreover, as far back as the 1960s, Bruner (1960) had argued that instruction could be made more efficient through careful sequencing of curriculum and learning materials that would allow learners to build upon what they already knew and to go beyond the basic information to construct new knowledge. In doing so, learners discovered the key principles by themselves, as active learners. By building upon what they already knew, the learners would inevitably move from the known to the unknown, and from the simple to the complex. It is thus not surprising that Bruner (1996) defined knowledge as the ability to “derive the unknown from the known” (p. 51).

According to Bronfenbrenner (1979), the family is the core context for human development, and that the inter-relationships between, as well as among, family members were influenced by other systems. To illustrate, parent-child relations might be strengthened or weakened by third parties and external factors. Bronfenbrenner’s (2002) theory therefore guided the research questions herein as well as the analysis and discussion of this study’s findings. Gardiner and Kosmitzki (2008) acknowledged their use of Bronfenbrenner’s ecological model as the basis for the coverage of human development from a cultural

perspective. The cultural background is important; after all, children reacted to their environment and in so doing, might alter the environment and/or adapt.

Suffice it to state that biological and environmental factors combined to influence the development of not only a person but also a community (group of people). These factors – including and not limited to children’s individual characteristics, family characteristics and the environments they lived in, - supported decades of developmental research that stressed that the interplay of such factors could produce different outcomes for children’s development (Bronfenbrenner, 1979; Bronfenbrenner & Morris, 1998). This is particularly so since Bruner (1960) had argued that any subject could be taught to any child at any stage of development, “if it was presented in the proper manner” (p. 6).

The role of the teacher must not be under-estimated. According to Bruner (1960), “it takes a sensitive teacher to distinguish an intuitive mistake – an interestingly wrong leap – from a stupid or ignorant mistake, and it requires a teacher who can give approval and correction simultaneously to the intuitive student” (p. 21). The importance of the teacher had not changed over the last 50 years, and as former Education Minister Heng put it, “as with all endeavours in education, the key remains our teachers” (Heng, 2011, p. 1).

Bronfenbrenner’s ecological system theory is a suitable theoretical framework for this thesis; the factors in his ecological system could be critical even as we enhanced teacher ICT-readiness and parental involvement to address the literacy gap among Malay students. However, the students, regardless of ethnic background and gender, should be provided as much opportunity to learn as active learners. This is why this study is also anchored to Bruner’s theory as well as Bronfenbrenner’s ecological system theory, and this shall be elaborated in the next chapter.

**Possible benefits of this study**

Issues pertaining to the Malay community and discussions along ethnic lines had largely been taken out of the public domain despite the issues being persistently discussed inside and outside of Parliament. In fact, any statistics on prison populations, recidivism, juvenile delinquency, etc. had seldom, if ever, been discussed along ethnic or racial lines. Interestingly, *Mendaki*, the Council for Muslim Development, a self-help group for the Malay community has a research division but their data, findings and the research literature had not been made available to the general public.

It is hoped that the findings from this case study would potentially assist parents, the school community, non-profit organisations and advocacy groups as fellow-stakeholders to address the critical success factors and implement more effective programmes so as to narrow the literacy gap among Malay pre-school children.

**Ethical issues and Permissions**

The questionnaire and method of this case study were subjected to review and approval by the Research Ethics Committee of the University. As the study involved a survey questionnaire (Annex 8), consent from the Chairman of the preschool (Annex 9) as well as respondents (i.e. parents who enrolled their children in the preschool and the participating preschool teachers) were obtained, in writing (Annexes 10a and 10b). The Branch Chairman of the preschool in Marsiling up until August 2015 was Mr Hawazi Daipi who was also the Member of Parliament (MP) for the Marsiling Division of the Sembawang Group Representation Constituency or GRC. The survey and interviews were completed before Mr Hawazi's retirement from politics in August 2015. He was also the Senior Parliamentary Secretary (SPS) for MOE and the Ministry of Manpower (MOM) as well as the chairman of a national advisory council known as Community of Parents in Support of

Schools or COMPASS (MOE, 2015). Both the chairman of the preschool as well as respondents were provided details of the study's aims and objectives, and background information of the researcher and the purpose of this research, which is in fulfilment of the requirements of the doctoral degree programme. Respondents were also assured of the confidentiality of their responses and that their responses would be used solely for the research.

### **Delimitations**

Cultural differences between Singapore, on one hand, and other countries such as the United States of America (USA) and Australia, on the other hand, may mean findings are not transferable to any other context. As a case study, the results relating to the challenges faced by Malay students' behaviour could not be over-generalised to this population as a whole, even though there might be some similarities in their populations or samples.

While more sites might be selected and examined to see if the findings could be replicated, no two cases are the same. A population, of course, is comprised of many individuals or 'cases'. Suffice it to state that a single case is not representative of an entire population and hence, is not a good basis for generalization, although Stake (2005) made an argument for "naturalistic generalization" if the aim was to "generalize to similar cases", and not to a population (p. 64). Yin (2009) concurred with Stake (2005) on this point and according to both renowned researchers, the findings from a case study and other case studies of different populations, might be aggregated to allow some generalisations.

More importantly, however, these findings are not meant to apply to all children. In accordance with Bronfenbrenner's (1979) theory, child development is not universal; rather, it is dependent on the time, place, culture they live in and the services and

resources available to them. In short, the results from this study might not be generalized to parent populations or teacher populations at other times and in other settings. Moreover, the results are not necessarily reflective of other parent populations, teacher populations and pre-schools in Singapore or elsewhere, although they might be generalizable to similar cases (Stake, 2005).

## Chapter 2

### All is *not* well in Singapore Preschools

#### Singapore preschools ranked 29<sup>th</sup> out of 45 countries

For a long time, Singapore policy-makers and senior officials of the Singapore MOE have been praising Singapore's education system, citing praise-worthy achievements at Trends in International Mathematics and Science Study or TIMSS, and Singapore scored top marks in many other global benchmarks such as Progress in International Reading Literacy Study or PIRLS (MOE, 2000; MOE, 2004; MOE, 2007; MOE, 2008).

In July 2012, at the Yale-NUS College ground-breaking ceremony, Singapore's PM Mr Lee Hsien Loong even highlighted that "generally, I think the education system has done well. Certainly, by international comparisons, we do well in the rankings on the Programme for International Student Assessment (PISA) which is done by Organisation for Economic Cooperation and Development (OECD), and on TIMSS. And if you look at the top universities in the world, Singaporeans are significantly over-represented, even though these universities have national quotas for admission" (Lee, 2012a, n.p.).

A year earlier, in 2011, PM Lee reminded his audience at a celebratory dinner that "this education system has come a long way since then. Today, every child can enjoy a high quality education, regardless of his family or social background. And our students perform well, not just comparing with ourselves but comparing internationally, in rankings and contests, whether it's the TIMSS... whether it's the Olympiads for science, for mathematics, for IT; whether it's the international debates, choir festivals, dance performances and so on. Internationally, we rank high" (Lee, 2011, n.p.).

However, the 27 June 2012 ‘Starting Well Index’ (SWI) Report (Oon, 2012), released by the Lien Foundation and instantaneously carried by numerous newspapers as well as online cyber-sites, strongly suggested that “busy parents who lack the time to get involved in their children’s development . . . was one of the key factors leading to Singapore being ranked 29<sup>th</sup> out of 45 countries. In hoping to bring about system-wide improvements in early childhood care and education (ECCE), the SWI Report identified gaps including and not limited to parental involvement in preschools. Moreover, the Economist Intelligence Unit (2012) gave an unflattering headline for this same Report – “Singapore scores low in preschool education” (n.p.). Indeed, while generally Singapore scored well at the primary school, secondary school and tertiary levels globally, all is not well, upstream, at the pre-school level.

Moreover, the Lien Foundation (2012) added that the use of technology formed a key strategy in the Foundation’s efforts to “increase efficiencies and enhanced professionalism” in the preschool sector (n.p.). A literature search revealed that little research on the use of ICT in Singapore pre-schools has been published thus far. There have been a few articles on innovations such as the use of digital cameras and computer tablets in learning (MOE, 2011) but little on the parental involvement of Malay pre-schoolers and ICT have been published. There are, however, a lot of case studies on ICT implementations in primary schools, secondary schools and colleges across the world (including Singapore) and these are even recorded by well-established bodies including the United States Department of Education (US Department of Education, 2011) and the OECD (OECD, 2011). According to the Economist Intelligence Unit, “while stories abound of Singapore’s success in primary education and up, the nation seems to be falling short when it

comes to teaching its toddlers” (Tan, 2012, n.p.). No Singaporean would take delight in discussing the shortcomings and shortfalls of his or her country’s preschool education system. However, such a discussion should not be misconstrued as disloyalty or a lack of patriotism to one’s country. In fact, let it be argued that it is precisely because Singaporean researchers and academics are so loyal and patriotic that they wishd to discuss and research further on the issues and challenges so as to examine, address and bridge the gap.

### **The challenges of the Malay community**

In a dialogue with about 500 Muslim professionals on 30 June 2012, Singapore’s PM Lee acknowledged that “under-performance in education” remained a “difficult issue that the community has been wrestling with’ for a long time. Still, he highlighted the progress made” (Sunday Times, 1 July 2012).

At the Third National Convention of the Association of Muslim Professionals (AMP) on 29 June 2012, its Guest-of-Honour, PM Lee encouraged the AMP to continue improving the socio-economic performance of the Malay-Muslim community and to help all segments of the community while pledging “the government will continue to support the efforts of the Malay-Muslim organisations and back them up with national programmes” (ChannelNewsAsia, 2012, p.1). Such conventions have taken place once every ten years.

PM Lee also announced that “challenges remain, such as the issue of drug abuse within the community”, highlighting that “education, strong families and financial skills are key to improving the community's socio-economic performance” (ChannelNewsAsia, 2012, p.1). PM Lee further noted the “Malay-Muslim community has

done well in Singapore's merit-based system and without affirmative action” (Lee, 2012, n.p.). PM Lee added that “not many other communities in the world have done this (without affirmative action)” (ChannelNewsAsia, 2012, p.1).

### **Reading in the early years**

The skill of reading remains a critical building block for children’s academic success. Children experience more print exposure and consequent growth in numerous knowledge domains if they have a good head-start with reading in their early years (Pellin & Edmonds, 2001). On the other hand, those without such a head-start missed the opportunities to develop reading comprehension strategies (Al-Biblawi, 2001) and often encounter reading material that they may find too advanced for their skills (Pellin & Edmonds, 2001).

Researchers have also shown that when the children’s family members are involved in their reading activities together, reading can be enhanced; this accentuates how reading develops in social situations (National Reading Panel, 2000; Snow, Burns & Griffin, 1998).

According to Lewin (2000), knowledge of the alphabet (i.e., knowing the names of letters and the sounds they represent) at entry into school is one of the strongest single predictors of short- and long term success in learning to read. This perhaps explains the MOE’s continued use of such a simple test to determine children’s school-readiness at Primary 1 (Annex 1).

### **ICT literacy**

ICT literacy may be defined as the interest, attitude and ability of individuals to appropriately use digital technology and communication tools to access, manage, integrate

and evaluate information, construct new knowledge, and communicate with others in order to participate effectively in society (Van Joolingen, 2004).

ICT offers many possibilities in the early childhood settings, and the potential value of a personal computer in early childhood development has been debated consistently among both practitioners and researchers for many years. Building upon the work of educational researchers and practitioners, the National Association for the Education of Young Children or NAEYC has acknowledged that computers can enhance young children's learning and collaborative experiences with peers and have issued guidelines for selecting software and using computers in the classroom (NAEYC, 1996).

World-wide, the use of ICT in preschool settings is not new. According to the National Center for Education Statistics or NCES (2005), in 2003, 67% of children in nursery school and 80% in kindergarten used the computer. Moreover, 23% of children in nursery school and 32% in kindergarten used the Internet (NCES, 2005). Clements (2001) added that "computers ...open new and unforeseen avenues for learning". The NAEYC Executive Director, Mark Ginsburg reminded that "computers are re-defining how we interact with others and how we gain knowledge about the world around us... and they are increasingly important in our daily lives" (NAEYC, 2001, n.p.).

At the 2012 Annual Dinner of the Harvard Club of Singapore, Singapore's former Education Minister Mr Heng, who is a Harvard alumnus, reminded the audience that "we live in a time of constant and rapid change. Technological advances have and will continue to shape industries fundamentally" and that "ICT..... has and will continue to pervade all sectors of the economy and our society. We are now in the midst of a digital revolution in which the outcomes are still unknown — all we know is that the changes will not be incremental, but transformational" (Heng, 2012, n.p.).

**Equipping Singaporeans for the future**

In her Committee of Supply (COS) 2014 Debate speech, SMS Indranee reiterated the need to keep “equipping Singaporeans for the future” (MOE, 2014, para 23). SMS Indranee, a lawyer by training, pointed out the few machines which have been known as the forefront of technology some 26 years ago in law firms, namely “the electronic typewriter with a two-line screen, the telex machine, the fax machine, and the phone that was routed through the switchboard” (MOE, 2014, para 25). Then she highlighted how one device such as the ubiquitous iPhone could carry out all the 4 afore-said tasks and transformed the way we worked and learnt. SMS Indranee reminded that “today, we have the iPhone ..... this one single device has disrupted jobs and changed the economic scene” (MOE, 2014, para 26).

In his COS 2016 Debate speech, Minister Tan Chuan-Jin from the MSF pledged continued support for parents from disadvantaged family circumstances as he reiterated the importance of early years as “the time our children develop language competencies, habits and socio-emotional skills that provide the foundation for their future” (MSF, 2016b, n.p.).

**ICT is not a panacea**

ICT can be a multifunctional tool for learning among pre-school children; however, it is not a panacea and it cannot replace real life experiences and physical activities (IBM Kidsmart, 2004). Just like the lesson from the Mexican folktale of growing corn, beans and squash (mentioned in the previous chapter), without good teachers and parental involvement, ICT on its own would have limited success. Put simply, in promoting the use of computers, we may solve one problem and create yet another, especially given that “the sedentary nature of computer use is of public health concern” (Straker, Pollock, Zubrick &

Kurinczuk, 2006, p. 343). Moreover, the potentially damaging effects of poor ergonomics especially during prolonged sessions at the computer must not be under-estimated (Cordes & Miller, 2000).

Singapore's MOE (2009) stressed that the use of ICT must not occur at the expense of the development of positive dispositions among preschool children e.g. "aesthetics and creative expression, the development of motor skills, environmental awareness, self and social awareness" (p. 16). In other words, if we promote the use of ICT in the preschool classroom and then the children become inarticulate, selfish and inattentive to people and things around them, then it would have become clear that we have not succeeded in developing the whole child.

### **The need to integrate technology**

Indeed, Siraj-Blatchford and Siraj-Blatchford (2006) stressed that "if we are to use ICT to support early learning across the curriculum then the technology should be integrated to support the development of positive dispositions towards learning" (p. 5). Indeed, an across-the-curriculum approach complements as well as extends a more skills-focused and specialized use of ICT in formal education, making such as approach critical to ICT integration in teaching and learning (Richards, 1998). Chong (2012a) spoke of how children, under the supervision of a trained pre-school teacher, learned to operate a cashier's register in a 'pretend' play situation at a make-believe supermarket, within the preschool classroom. They pretended to sell vegetables and applied their knowledge of simple mathematical operations like addition, subtraction and multiple addition (multiplication). As the children developed communication and literacy skills, they used vocabulary words they had learned earlier e.g. vegetables, carrots, potatoes, etc. Critcher (2008) pointed out that the influence of digital media on children's lives have been growing and such exposure come at a

critical time when children have been acquiring and developing communication and literacy skills. It is thus timely to integrate technology to enhance learning in the preschool learning environment.

### **Clever use of ICT**

Acknowledging criticisms of ICT in pre-school years, Siraj-Blatchford and Siraj-Blatchford (2006) clarified that “the most appropriate curriculum model ... is arguably an emergent one” (p. 5). They reiterated the Early Learning Goals which advocate that pre-school children should be encouraged to find out about and identify uses of technology in their everyday lives, and “they should also be using computers and programmed toys to support their learning” (p. 5). Moreover, Siraj-Blatchford and Siraj-Blatchford (2006) added that “evidence from studies in the UK show that there is enormous scope for the integration of technology into young children’s play environments” (p. 7) e.g. the preschool teacher can encourage the use of ‘pretend’ or functioning telephones, cash registers and computers in socio-dramatic role play.

Siraj-Blatchford and Siraj-Blatchford (2006) also recommended ways to manage the “ergonomic difficulties associated with young children using desktop computers ... by adopting applications that involve the children in working away from the computer part of the time” (p. 12). In fact, they further argued that as soon as the ergonomic set-up has been put in place, teachers should seize the opportunity to teach the children “to take responsibility themselves for these aspects of health and safety from an early age” because “children need to see ICT used in a meaningful context and for real purposes’ (p. 7). They also reasoned that a more balanced approach is better, e.g. strategies that “combine the provision of free play opportunities with more focused group work involving adult direct instruction” (Siraj-Blatchford and Siraj-Blatchford, 2006, p.11).

The IBM's KidSmart initiative has been praised for demonstrating "how ICT might be integrated right across the preschool play-based curriculum" and for the "significant curriculum development and substantial improvements in teaching and learning" (IBM KidSmart 2011, p. 1). The following Table 2-1 showed there was improved quality between visits, due to the interventions under the IBM KidSmart programme implemented across countries such as UK, Spain, Italy, Germany, France and Portugal. These improvements in the quality of teaching and learning were observed and recorded by IBM researchers, and pertained to information handling, communication skills, control of ICT tools and the use of ICT (IBM KidSmart 2011, p. 1). For instance, in the IBM KidSmart programme in the UK, the children's control of ICT tools and the use of ICT were rated at 2.1 and 2.3 at the first visit (prior to intervention) but improved to 5.2 and 4.8, respectively, at the final visit. In the IBM KidSmart programme in France, the children's control of ICT tools and the use of ICT were rated at 2.3 and 1.5 at the first visit (prior to intervention) but improved to 5.5 and 5.3, respectively, at the final visit.

**Table 2-1. Improved quality of teaching and learning with ICT in KidSmart settings (IBM KidSmart, 2011)**

|          | Information handling and communication skills |             | Access and control of ICT tools |             | Learning about the uses of ICT |             |
|----------|---|-------------|---------------------------------|-------------|--------------------------------|-------------|
|          | Visit 1 Pre-intervention                      | Final Visit | Visit 1 Pre-intervention        | Final Visit | Visit 1 Pre-intervention       | Final Visit |
| UK       | 2.7   | 4.9         | 2.1                             | 5.2         | 2.3                            | 4.8         |
| Spain    | 1.0   | 2.4         | 1.0                             | 2.8         | 1.0                            | 2.8         |
| Italy    | 3.0   | 5.0         | 2.7                             | 5.0         | 1.3                            | 4.4         |
| Germany  | 1.4   | 3.9         | 1.0                             | 4.0         | 2.4                            | 3.4         |
| France   | 2.0   | 4.0         | 2.3                             | 5.5         | 1.5                            | 5.3         |
| Portugal | 3.1   | 5.9         | 3.0                             | 6.0         | 3.1                            | 5.3         |

**Key** 1=inadequate, 3=minimal, 4=fair, 5=good, 6=very good, 7=excellent

### **Importance of Context**

Malay pre-schoolers have often been found to be unable to spell even simple words such as common stationery items such as the ‘pencil’ because their “early spellings are based on their knowledge of syllables and morphemes” and not phonemes (Liow & Lee, 2004, p.1). They have been observed as spelling it as ‘pensil’. Actually, this is the correct spelling, in their *Malay* language. This illustrates the importance of context and culture.

The importance of context is perhaps best explained in the words of Bruner (1996): “it is practically impossible to understand a thought, an act, a move of any sort from the situation in which it occurs” (p. 167).

Context also has a lot to do with the culture. In interviews with Malay parents of pre-school children, all of them stated that religious classes would and must take precedence over tuition or English language learning at home (including reading, spelling and word recognition). The narrative analysis of these interviews would be elaborated on in Chapter 4. Suffice it to state that in the Malay culture, parents play a very important role in directing the children toward the right behaviour and attitude. Whether they like it or not, Malay parents “remained duty-bound for the successful transmission of the teachings of religion and culture to their children” (Field Notes, 28 February 2014). Thus, Malay parents pay careful attention to the growth of the child’s spiritual development.

Moreover, whether the Malay children like it or not, they acknowledge their parents as “authority figures” (Field Notes, 28 February 2014). Family socialization would begin as a process through which children practise and learn rituals, traditions, religion, and activities in their daily life (Krishnan, 2004).

**Phonemic awareness, spelling and word recognition**

There is no single definition of ‘phonemic awareness’ which is sometimes referred to as ‘phonological awareness’. Described as an insight about the segmentation of sounds used in speech communication, the term “phonemic awareness” gained popularity in the 1990s as researchers delved deeper into the study of early-literacy development and reading disability. When children are said to have phonemic awareness, they are able to manipulate the sounds of oral speech. Such children would be able to segment sounds in words (for example, pronounce just the first sound heard in the word *top*) and blend strings of isolated sounds together to form recognizable word forms.

Phonological awareness encompassed larger units of sound too e.g. syllables, onsets, and rimes. We use the term ‘phonemic awareness’ in this case study because much of the theoretical and empirical literature focused specifically on phonemes which, according to Rowland (2014) are the “speech sounds /b/, /m/, /p/, and /t/, which can be combined into syllables (/ba/, /ma/, /pa/, and /at/) and ultimately into words (bat, mat, pat) ...that children have to learn” (p.21). We also chose to use this term ‘phonemes’ because of its more common use in the professional literature and in professional discussions.

Children’s phoneme awareness facilitated their ability to recognise the printed word. Researchers such as Good, Simmons, and Kame'enui (2001) as well as Torgesen (1998, 2004) believed that by studying children’s phoneme awareness, we could quite accurately predict if they would be good readers or poor readers by the end of the 3<sup>rd</sup> grade, even before they learned to read. In short, phonemic awareness facilitated children’s ability in reading, spelling and word recognition.

Snow, Barnes, Chandler, Hemphill and Goodman (1991) observed a connection between oral language and reading. Researchers such as Adams (1990),

Stevenson and Newman (1986) opined that children's knowledge of the alphabet (i.e., knowing the names of letters and the sounds they represented) at the beginning of formal schooling is one of the strongest single predictors of short- and long-term success in learning to read. Other researchers believed that children become better at reading when they understood the conventions of print e.g. left-to-right and top-to-bottom orientation of print, the difference between pictures and print on a page (Clay, 1979a, 1979b) and the functions of print e.g. that the print could tell a story or provide instructions (Purcell-Gates, 1996; Purcell-Gates & Dahl, 1991). With better vocabulary skills, the children could decode and (learn to) read better.

Prediction was possible with simple tests that measured awareness of speech sounds in words, knowledge of letter names, knowledge of sound-symbol correspondence, and vocabulary. It is possible that as one learns more about phonemic awareness, one would reflect, re-think and re-frame one's understanding about literacy development and one would then begin to appreciate the critical factors which Bronfenbrenner (1979) called "micro- and the macrosystems" in his ecological model of development which continues to serve as a useful theoretical framework (Santrock, 2007, p. 45). Muter, Hulme and Snowling (1997) reported that children's abilities to "perform a phoneme segmentation task were more strongly related to reading and spelling than were their abilities to detect and produce rhyme" (pp. 307-308).

Gillon (2012) explained that explicit awareness of phonemes within words (i.e. segmentation skills) might come to reading through spelling experience. Earlier, Frost (2001) suggested that this was particularly evident for graduating pre-school children whose phoneme awareness was limited. Gillon (2012) also explained that there is a strong relationship between phonological awareness on one hand, and reading and spelling

on the other hand. To some extent, this supported MOE's use of the sample test to gauge children's literacy level.

Moreover, other researchers such as Burgess and Lonigan (1998), Cataldo and Ellis (1988), Ehri (1987, 1989), McGuinness, McGuinness and Donohue (1995), Perfetti, Beck, Ball and Hughes (1987), and Read, Zhang, Nie and Ding (1986) also supported the idea that experiences in reading and spelling play a critical role in the development of children's phonological awareness. Thus, it could not be over-emphasised that spelling plays an important role in early reading development by promoting the use of explicit phonological processing knowledge (Gillon, 2012).

### **Spelling mediates phonological awareness on reading**

In their study on children's difficulties in reading, spelling and writing, Pumfrey and Elliot (2013) found out that "spelling acts as a mediator for the influence of explicit phonological awareness on reading" and they suggested that "spelling practice may contribute to the store of associations between spoken words and letter-sound constituents in printed words" enabling children to become familiar with the alphabetic nature of writing and to build a repertoire of letter-sound correspondences and phonemic content in words (n.p.). This suggested how children's ability to spell and recognise words contributes to their literacy development.

Early screening is also important to children's literacy development. It is also what Singapore parliamentarians and Ministers spoke about when they asked that investments and improvements in education be made upstream, at the pre-school level or in the children's early years. To illustrate, "child care places in Punggol and Sengkang have increased by more than 60% in just the last three years (2014-2016), to 13,000 places today. Five large child care centres will be completed this year, adding another 2,000 places in high

demand estates ... Altogether, by 2017, about 10,000 more child care places will be added in Singapore...,” as reported by Minister Tan Chuan-Jin in his COS Debate speech in April, 2016 (MSF, 2016b, n.p.). In fact, in the NDR speech on 20<sup>th</sup> August 2017, PM Lee promised that 40,000 more child care places will be added by 2022, making up a total of 200,000 nation-wide (ChannelNewsAsia, 2017b, n.p.).

According to the Virginia Department of Education (2016), “early literacy screening is the key to providing effective literacy instruction and preventing future reading problems” (n.p.). After all, when exposed to reading in their early years, children “often succeed not because they are exposed to books but because of the opportunity to engage in the experience, the particular strategies utilized by their parent or teacher, and their inter-personal relationships with adults” (Neuman & Dickinson, 2011, p. 409). This highlighted another critical success factor in a child’s literacy development i.e. parental involvement.

Children graduating from kindergarten and entering Primary 1 are expected to be able to recognise and spell a list of words (e.g. ‘hat’, ‘bird’, ‘coat’, etc). Unfortunately, not all children are able to do so. It would not be uncommon to find Primary One (first grade) children having problems with simple associations. Moreover, children could also appear to be struggling at the pre-phonemic stage at which they used letters of the alphabet to write the spoken words but the symbol did not match the sound. Darling-Hammond and Bransford (2012) explained why children spelled words the way they did, and suggested that perhaps the children were still at the pre-phonemic stage or perhaps already able to make simple associations or even strategic extensions between letters and phonemes (See Table 2-2 below).

**Table 2-2. The way some children spell (Darling-Hammond & Bransford, 2012)**

| <b>Examples</b>   | <b>Description</b>  | <b>Possible explanations</b> |
|-------------------|---|------------------------------|
| ‘C’ for ‘Hat’     | Letters of the alphabet were used to write the spoken words but the symbol did not match the sound.   | Pre-phonemic stage           |
| ‘DR’ for ‘Dear’   | Most salient phonemes are represented by certain letters, in the target word.   | Early phonemic stage         |
| ‘wns’ for ‘once’  | Most sounds in the target word are represented in the mis-spelled word. It is quite telling as characterised by the letter that most closely resembles the sound. | Phonetic                     |
| ‘bid’ for ‘bird’  | The target word is represented by simple consonants and vowels. However, complex patterns are not represented very well, if at all.                               | Simple associations          |
| ‘cote’ for ‘coat’ | Child is not yet able to follow conventions of English. Child tries to show complex patterns (diphthongs like ‘oa’) with simple consonants and vowels.            | Strategic extensions         |

In many of the above-mentioned examples in which the Malay children spelled words the way they would in the Malay language, they seemed “to show complex patterns with simple consonants and vowels” e.g. ‘oren’ for ‘orange’; Indeed, the children were “not yet able to follow conventions of English” (Darling-Hammond and Bransford, 2012).

### **Bruner’s Theory**

As early as the 1960s, Bruner (1960) stated that “learning and thinking are always situated in a cultural setting” (p.76). So cultural setting and contextualisation remain important which is why it is not surprising that more than 30 years later, Bruner (1996) reiterated that “some narratives about ‘what happened’ are simply ‘righter’, not just because they are better rooted in factuality, but also because they are better contextualized, rhetorically more fair-minded”. The importance of culture remain high; over the years, a more recent study by Tamminen (2006) suggested the influence of culture on parents’ values, belief system, and socialization goals. Indeed, Bruner (1996) has also implied that some narratives or stories are more correct because they are embraced by the *status quo*.

Nevertheless, “we accept a certain essential contestability of stories” and accept the need to test ideas before coming to a conclusion (Bruner, 1996). After all, “every narrator has a point of view and we have an inalienable right to question it” (Bruner, 1996, p.39). With this statement, Bruner (1996) illustrated that discussion, disagreement and the ability to question or contest a point of view formed the best means of coming to a unified agreement.

### **Bronfenbrenner’s Ecological Systems theory**

To contextualise this research study in terms of child development, Bronfenbrenner’s Ecological Systems theory (1979) was adopted so that the possible effects of parenting, socio-economic status (SES) and behaviour might be discussed more systematically, within a coherent model. After all, the contexts (or environments) within which families work, live and play have a bearing on the development of the children.

Child development researchers and developmental psychologists concur that within a broad social context, a child’s development is influenced by a kaleidoscope of factors such as children’s development, children’s interactions with adults and peers in the contexts of their home, school, community, culture and society.

According to Bronfenbrenner (2002), his Ecological Systems Theory or bio-ecological model explained child development by examining the child, their immediate environments and the influences of other contexts that might or might not involve the child. Nevertheless, children have been viewed as active participants in their relationships and in managing their environments as they developed. Thus, development occurred within social, cultural and historical contexts and might not be considered universal in most instances.

In attempting to first understand and then address the literacy gap among Malay pre-schoolers, it is important to also understand how their parents became and stayed

involved in nurturing them and how teachers might use various levers (e.g. ICT) to improve their teaching and the children's learning. Suffice it to highlight that the interplay of people (children, teachers and parents) and the learning environment could not be over-emphasised. According to Bronfenbrenner (2002), the utmost goal of any scientific effort is to understand, in a systems way, the processes and "results of human development as a common equation of man and environment" (p. 222).

In a review and revision of Kurt Lewin's 1935 classical field theory behaviour formula into the formula of development, with a time factor, Bronfenbrenner (2002) proposed the following: " $D_t = f(t-p)(PE)(t-p)$ , where 't' is time under which development (D) was observed, as a result (f) of the interaction between person (P) and environment (E), with the time period of (t-p)"; he further explained that as a child matured, the processes that had been observed were not necessarily the same as those observed previously (pp. 223-224). While the application of such a person-environment interaction model could benefit our understanding of human development, Bronfenbrenner (2002) cautioned that it was also highly "challenging, theoretically and methodologically" (pp. 225-226.)

Bronfenbrenner's model of development depicted 5 layers of environments or systems with the child and their family centred in the middle circle. It described layers of environments encompassing the child and their family.

"Like a set of Russian dolls, the contexts of human development work in a nested fashion, each one expanding beyond but containing the smaller one. Each one also simultaneously influences and is influenced by the others. Thus the context of the family fits into that of the neighborhood; the context of the neighborhood into the larger contexts of city, work, and government; and all contexts into the largest context of culture.

Whatever factors that may affect any larger context will filter down to affect the innermost unit, the family.”

(Bronfenbrenner, 2005, p. 2).

Figure 2-1 shows the layers or systems surrounding the child included the “microsystem, mesosystem, exosystem, macrosystem and chronosystem” (Bronfenbrenner, 2005, p. 45). Suffice it to state that the environment (mesosystem) would change over time and this is depicted by the chronosystem that includes socio-historical conditions over time. At the centre (core) of this model is the child.

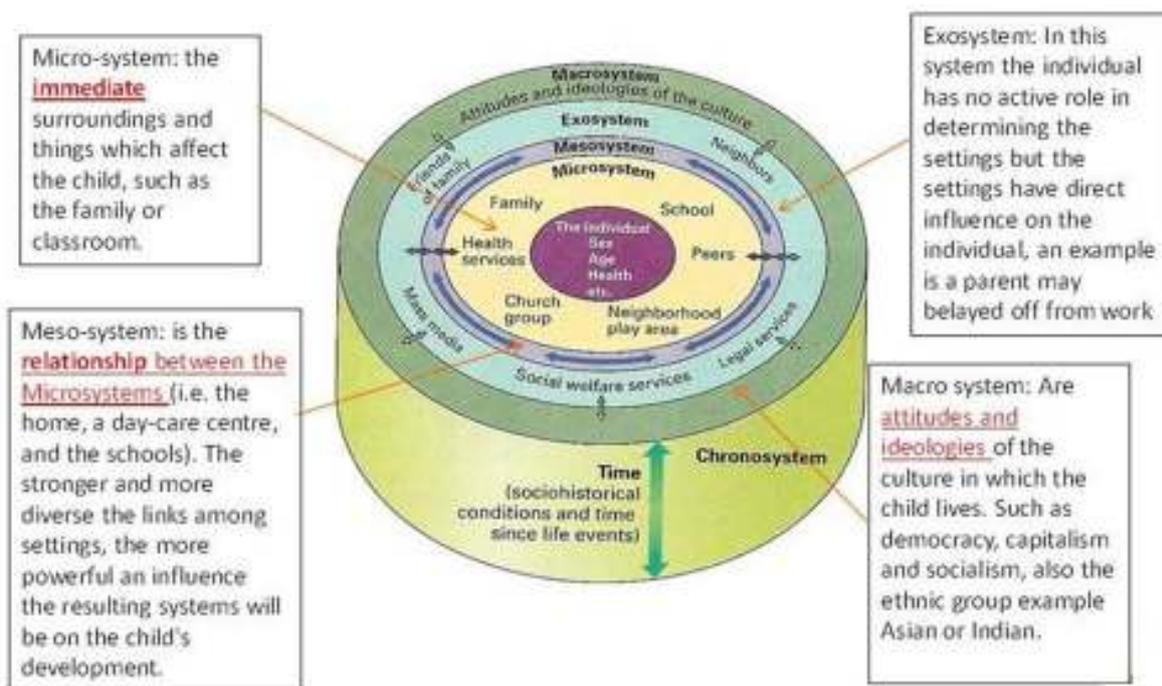


Figure 2-1. Bronfenbrenner’s ecological model of development (Santrock, 2007).

### **The macrosystem as a sociocultural context**

Bronfenbrenner (2002) placed the belief systems in both the micro- and the macrosystems. In the macrosystem definition, Bronfenbrenner (2002) explained that belief systems could be found inside each system, contained by the macrosystem, i.e. the micro-, meso-, and exosystems (pp. 264-266). The macrosystem comprises the societal collective beliefs, values, laws and customs. It includes religion, culture and race, as well as socio-historical events. Such events could be happy such as festivals and birthday celebrations or tragic such as wars and economic downturns.

Different social policies and patterns of beliefs and ideologies distinguish countries (and cultures) from one another and might have an effect on children's development. For example, the duration of the country's paid maternity leave for working women determined how long a mother could afford to bond with the new-born baby and not be worried about subsistence needs, or seeing less of the husband who might have to hold down two jobs to make ends meet (Ministry of Manpower, 2014, n.p.). This could be a real issue.

It was only recently on 13<sup>th</sup> April 2016 that SMS Mrs Josephine Teo of the PMO announced that "a second week of paternity leave will be legislated for fathers of Singapore citizen babies born from Jan 1, 2017" (ChannelNewsAsia, 2016d, n.p.). Such fathers would then be able to have paid paternity leave along with their Singaporean working spouses. Singaporean working mothers had maternity leave of 2 months in 2008, and 3 months in 2009; it was extended to 4 months of paid maternity leave in 2011 (MCYS, 2011).

As a consequence of Bronfenbrenner's (2002) self-critique of his own theory, the definition of the macrosystem changed the most (p. 265). Influenced by Vygotsky's theory especially on the psyche's socio-historical evolution, Bronfenbrenner (2002) led us to view the macrosystem as a sociocultural context, and reiterated that the behavioural and

conceptual models that are characteristic of the macrosystem are transferred from one generation to another through “different cultural institutions like family, school, congregation, workplace and administration that intermediate the processes of socialization” (p. 266).

### **Relationships and roles in the child’s immediate settings**

The microsystem refers to the activities, relationships and roles in the child’s immediate settings of home, child care, school, church and community. The core context for human development occurred within the microsystem, where the family provided love and care, allowing the child to thrive (Bronfenbrenner, 2005).

The role of the teachers remains critical but in order for teachers to perform their roles well, they have to be trained and be further developed professionally. Anderson and Baskin (2002) stated that “Queensland teachers have identified a lack of professional development as a stumbling block to effective educational use of ICT, and have expressed the view that the lack of funds available made hardware acquisition a higher priority than professional development” (p. 128). This is unfortunate especially since teacher training remain a critical success factor in helping teachers become more effective, moving away from ‘chalk and talk’ and instead, engaging children to learn (from a video) for example, how a caterpillar grew into a butterfly. In illustrating the creative use of LEGO bricks, Chong (2011) highlighted that trained preschool teachers would be better equipped to provide “opportunities (for the children) to develop higher-order thinking (HOT) skills as they studied the life cycle of the butterfly and then demonstrated and articulated their understanding by constructing a caterpillar, a cocoon, a butterfly” (p. 36). When teachers competent in using

ICT as learning tools researched and incorporated ICT into their lessons, learning about the life cycle of butterflies, for example, would become very easy. This is because the children would be able to watch (on video) how the caterpillar developed into a butterfly thus illustrating how ICT could facilitate learning and even made learning engaging.

Indeed, as pointed out by Anderson and Baskin (2002), “as online learning moves from the domain of distance education to encompass all modes of educational delivery, future research needs to be targeted towards a thorough examination of teacher readiness and the effectiveness of teacher professional development” (p. 136).

### **Linkages between the home and the school or child care**

The mesosystem comprises the inter-relations between the different components of the microsystem such as the linkages between on one hand, the home and on the other hand, the school or child care. Development could be enhanced when there are positive links including exchange of information, open communication, trust and mutual accommodation between the home and the school. Such linkages might be strengthened by parental involvement.

The exosystem comprises settings that do not usually contain the child but might have an impact on the child's relations with others and their development. Such settings include and are not limited to parents' workplaces and community resources. The latter might refer to shopping malls, public parks and public libraries as well as local health and welfare facilities. Parents' social networks are also part of the exosystem. These settings could either strengthen or weaken parent-child relationships and their environments. Other elements of the exosystem include the ubiquitous television and the internet.

## Internet Access

According to the Asia Pacific Economic Blog (2014), “the internet, or world wide web, has completely shaped the way we communicate, do business, learn, entertain, shop, and do just about anything in today’s world”. Suffice it to state there are advantages as well as disadvantages of internet usage. Do advantages such as ease of communication, access to information (Think Google), entertainment, comfort and convenience (Think eBay) and new economic methods (e.g. e-Commerce makes running a business easier) out-weigh the disadvantages such as the risk of having personal information compromised, pornography, cyber-addiction and ‘widespread audience’? By the term, ‘widespread audience’, we refer to how our personal stories could go viral, without our permission or knowledge.

Indeed, the internet is like a double-edged sword as it could enhance teaching and learning as well as expose children to undesirable online content. Nevertheless, the influence of the internet remains pervasive in Singapore schools as well as around the world. What remains clear, however, is that ICT cannot be avoided in such an inter-connected world. According to Jackson, von Eye and Biocca (2003c), “children who may stand to benefit most from home Internet access are the very children least likely to have it”, unfortunately (n.p.). But access to ICT and the Internet by themselves are not the solution. This is why it is quite fitting that Anderson (2009) reminds that “a key factor in the potent use of ICT is the way that computers are used and the interaction of the participants through the available software and associated educational activities” (p. 4).

According to Anderson (2005), it is possible that “school-based uses of new technologies might actually exacerbate the educational disadvantage of already disadvantaged social groups - particularly, learners from low SES populations” (p. 1). After

all, minority, poor and urban students may not enjoy as much access to computers for higher-order learning than their economically and socially advantaged peers, or “have teachers who have received professional development on technology use” (Anderson, 2005, p. 1).

Indeed, Malay pre-schoolers from low SES backgrounds receive little, if any, exposure to ICT-based learning tools than their counterparts in private preschools. Moreover, these same preschool children do not have ICT-ready teachers. While preschool teachers undergoing their professional teaching certification course have to submit their assignments via the computers, it does not mean that they have had training in *integrating* ICT in their preschool curriculum. In fact, their counterparts in private preschools such as Caterpillar Cove would have had a lot more exposure in using ICT-based lessons and presenting their research at regional and international conferences (AsiaOne, 2014, n.p.). More courses on integration of ICT in preschools should be included in the professional development of preschool teachers.

Clinton and Steyer (2012) pointed out that well-known professor and researcher at the Harvard Graduate School of Education, Dr Howard Gardner had referred “kids' use of digital media and technology (as) epochal change” and suggested that “as a society, we have no choice but to engage with this new reality and work to ensure that it affects our kids in healthy, responsible ways” (n.p.). Indeed, the impact of ICT could be likened to “the invention of the printing press because of its extraordinary impact on the way we communicate, share information and interact with one another” (Clinton & Steyer, 2012, n.p.). However, the vision of the Internet as the technology that could possibly serve as a social equaliser of sorts would remain just that - a vision... unless visionary leaders are determined to provide Internet access for all (Jackson, Barbatsis, von Eye, Biocca, Fitzgerald, & Zhao, 2003).

**No standard definition of the term ‘parental involvement’**

Chong (2012b) highlighted that “while there has been many studies on parental involvement, there is however no standard definition of the term ‘parental involvement’ which is used loosely and means different things to different people” (p. 21). Huntsinger and Jose (2009) thought the term has different meanings in different cultures. It appeared that Sheldon (2002) loosely defined parental involvement as the investment of resources in children by parents. Ho (2003) defined parental involvement as economic and cultural resources provided by parents for their children’s education. Carlisle, Stanley and Kemple (2005) focused on parents’ volunteering in the school and helping children with their homework as they regarded these two components as most often associated with parent involvement. Marchant, Paulson and Rothlisberg (2001) added the dimension of parental values into the definition and emphasized parental involvement in school functions. Baker, Goesling and Letendre (2002) contended that positive learning and general life outcomes increase with more parental involvement in their children’s lives. In a newspaper article entitled “Connecting with Parents”, MyFirstSchool (MFS), a pre-school operator, encouraged parents’ engagement because “children feel a sense of pride when they see their parents at their school events” (TODAY, 2016, p.24).

The SWI Report on international ECCE ranked Singapore just 29th out of some 45 countries across the globe. The Report aims to provide insights so as to bring about system-wide improvements, and it has already identified gaps including parental involvement in preschools. Indeed, Economist Intelligence Unit (2012) gave an unflattering headline for this same Report: “Singapore scores low in preschool education” (n.p.).

Parents need to be involved in order to maximize the children’s potential for schooling. This view has also been validated by Anderson and Minke (2007) who asserted

that parental involvement in children's education is a strong predictor of students' academic achievement and other positive school behaviours. Similarly, Blatchford (2010) found that parents who were actively involved with their children provided a high quality home learning environment, which in turn enhanced the intellectual as well as social development of the children. Rogers, Theule, Ryan, Adams and Keating (2009) found that researchers and policy-makers were increasingly interested in the role and influence of family and parenting on children's school achievement.

During the last decades, parental involvement has been a focus of study. Yet, there are still a few under-researched areas, such as parent *emotional* involvement in children's education and growth itself, parent involvement in *play* with children, and *Malay parent* involvement. There had been some research on Chinese parent involvement but little if any, on Malay parent involvement (Cheng & Koblinsky, 2009). To date, it has been widely-recognized by researchers that parental involvement has strong influences on children's development, not only playing a significant role in predicting children's academic achievement, but also acting as a driving force in shaping their study motivations, and as a catalyst.

### **Parents as important role-models**

In a magazine article on Singapore pre-school children, Chong (2012c) suggested that "dads and mums who work closely with the school can form a vibrant community that is invaluable to the development of the child" (p. 20). Indeed, parents felt welcomed and became more involved when teachers are more inviting of parents' involvement (Anderson & Minke, 2007).

In 2014, the then-SPS for MOE as well as MOM, Mr Hawazi Daipi suggested that “parents, being the first caregivers and teachers, are no doubt a key influence on the holistic development of their child” and shared with his parliamentary colleagues during the COS 2014 Debates that he was “heartened to see parents sharing this vision and working hand in hand with schools in providing a conducive environment to develop the whole child” (Daipi, 2014, para 2). Daipi (2014) also highlighted that “parents are important role models for our students to understand, respect and celebrate such diversity. This is an important part of holistic education, and goes towards fostering social cohesion in Singapore” (para 19).

According to Assistant Professor Dr Sirene Lim, formerly from the National Institute of Education (NIE) in Singapore, “parents are the first educators. That’s why home-school partnerships are very important, particularly for young children, but it’s probably not done or emphasised enough” (The Straits Times, 2013, p. D4). Indeed, the role and involvement of parents could not be over-emphasised. When former Education Minister Heng (2014) started the COS 2014 Debates segment on pre-schools, he highlighted the role of parents: “Let me first acknowledge our Singapore parents. An admirable trait of our parents, is that whatever their financial circumstances, they put their children’s education first and foremost. I have met many such parents myself. I want to help parents succeed in bringing out the best in every one of their children” (para 150). Indeed, no matter how busy or stressed, parents want the best, or what they perceived as the best, for their children.

### **Busy parents and ‘Tiger Moms’**

It was also observed that there was a growth of a certain group of parents more popularly known as ‘Tiger Moms’, a term made popular by law academic and writer

Professor Amy Chua who spoke and wrote about the drive and tenacity of a very driven Chinese mother in modern-day America, conjuring images of a famous ‘Tiger Mom’ who would allow her child a choice by asking, ‘Do you want to practise (the violin) six hours *or five?*’ (Chua, 2011, p. 249).

In a paper presentation at the Pennsylvania Association – Infant Mental Health conference in Pittsburgh in the state of Pennsylvania, USA, Chong (2012) opined that “some working parents in Singapore had sometimes been called RusHians - they rushed here and they rushed there” (p. 1), with little time listening to their children talk about their hobbies, favourite fruit, favourite music, dreams and aspirations. Chong (2012) added that there were also others who “rushed their children from one enrichment centre to another, conjuring images of ‘Tiger Moms’.... in the light of the growing literature on parental involvement and its impact on child development” (p. 1). Singaporean parents labelled as ‘kiasuparents’ which is a colloquial expression for “parents who do not want to lose out” had also been observed to be very busy people who worked ‘*half-day*’ i.e. from 7 in the morning to 7 in the evening! This perhaps explained why, in Singapore, day-care or child-care services run from 6.30 am to 7.30 pm! (Kiasuparents, 2016, n.p.).

### **Money or the lack of it should not be a problem**

Former Education Minister Heng (2014) reiterated that “financial circumstances should not be a limiting factor” (para 151). Heng (2014) also elaborated that “starting from pre-school level, on top of generous child care subsidies ... (with) the Kindergarten Fee Assistance Scheme (KiFAS)... I am happy to add that for MOE Kindergartens (MKs), this could mean paying as low as \$1.50 a month” (para 152). Heng (2014) assured Parliament and parents that “from pre-school to the 10 years of basic

education, there is good support for bringing out the best in every child, whatever his financial starting point” (para 155).

### **Parental involvement as a catalyst**

Bronfenbrenner (1972) referred to parental involvement as a ‘catalyst’ as well as a ‘fixative’ because it could quickly help to fix what is not going right for the child e.g. the child might not like to read or is not able to sight words. Very often, when parents lovingly bring their child onto their laps to read an interesting book, complete with animated moves and role-play, the child would respond positively and associate reading to such pleasant experiences and this would reinforce the habit of reading.

Indeed, the importance of parental involvement could not be over-emphasised. Retired SPS Mr Hawazi Daipi, in a parliamentary speech in March 2012, shared how frustrating it had been for him, as a teacher 40 years ago, not to be able to make contact with “parents who were constantly unreachable” (Daipi, 2012, para 4).

Epstein (2001) described six types of involvement with clear goals to enhance learning for the children, as follows:

1. Parenting – with the goal of helping families set up a conducive home environment for the children to learn,
2. Communication – with the goal of developing good –school-home communications so that school and families may track the children’s progress and enhance their learning,
3. Volunteering – with the goal of recruiting and mobilising parents to support school programmes and learning for their children,

4. Learning at home – with the goal of equipping parents with knowledge and skills so that they may in turn be able to better support their children’s learning at home,
5. Decision making – with the goal of involving parents in school decisions, and nurturing a growing pool of parent representatives and leaders
6. Collaborating with the community – with the goal of leveraging on community resources and services so as to strengthen school programmes and enhance student development.

Retired SPS Mr Hawazi also highlighted that it was different now as parents had multiple avenues to be involved e.g. through Parent Support Groups (PSG) and COMPASS (Daipi, 2012, n.p.). Such parental involvement might serve as a catalyst to help children learn. This accentuated the importance of a conducive home environment for learning.

### **Addressing the needs of minorities – the poor**

Crozier (2001) explained that for parental involvement strategies to succeed, the needs of ethnic minorities must first be acknowledged and addressed. According to the U.S. Census Bureau (2000), with a poverty rate of 11.3% in 2000, “more than 2.5 million families with children below the age of 5 years, live below the poverty line” (n.p.). They did not have access to many resources which in turn affected their ability to be involved in their children’s schooling. Since 2000, the poverty rate has slowly increased, peaking at 15.1% in 2010 and remaining relatively stable ... with “14.8% of the population living in poverty in 2014” (U.S. Census Bureau, 2015, n.p.).

Lamb-Parker, Piotrkowski, Baker, Kessler-Sklar, Clark and Peay (2001), McBride, Bae and Wright (2002), and Sheldon (2002) recorded the hindrances to such parental involvement as follows: tight work schedules (sometimes over 2 or more jobs), need for child care service they might not be able to afford, transportation and other financial difficulties. They did not enjoy the kind of flexibility that parents from higher SES backgrounds generally enjoyed. McBride, Bae and Wright (2002) used the terms ‘parental involvement’, ‘family-school partnership’ and ‘family involvement’ interchangeably to describe the process between schools and families.

### **Possible effects of parental involvement**

Studies in the early 1990s have proposed strong links between parental surveillance of homework and an extrinsic motivational orientation (Ginsburg & Bronstein, 1993). Ten years later, Fantuzzo, McWayne, Perry, and Childs (2004) found similar results: that parental involvement at home was the strongest predictor of children’s readiness for school. Parental involvement is important for children from diverse backgrounds and in different grade levels (Jeynes, 2005, 2008) and could bring about self-regulation, motivation to read and mastery. In their research, Gonzalez-DeHass, Willems, and Holbein (2005) showed that when parents became interested in their children’s education and actually got involved, the children tended to be more attentive and attempted to attain some mastery, even over challenging tasks, and they persevered through the challenges, to achieve their goals. Indeed, parental involvement could enhance the development of positive child outcomes including and not limited to academic skills, positive attitudes and social competence (Hill & Taylor, 2004).

Moreover, the interactions of family physical and emotional or mental factors influenced school achievement (Moon & Lee, 2009, p. 129). It has been suggested that the outcomes of each parenting style on child development are consistent in many different environments throughout the world (Pong, Johnston & Chen, 2010), affirming a study conducted by Cooper, Lindsay, and Nye (2000) who suggested that parental involvement in homework has been associated with higher standardized test scores, class grades, and homework completion.

### **A strong predictor of academic achievement and positive behaviours**

In a more recent research, Anderson and Minke (2007) suggested that parents' involvement in children's educational activities is a strong predictor of children's academic achievement and other positive school behaviours. Indeed, the work of Gonzalez-DeHass et al (2005) also supported the view that parenting practices could have a positive impact on students' academic engagement. In fact, children might be seen beaming with pride when they spotted their parents participating in school activities (Chong, 2012b, p. 21).

Studies by Barnard (2004) as well as Oyserman, Brickman, and Rhodes (2007) suggested a strong correlation between parental involvement in school and positive outcomes. Hill and Taylor (2004) hailed the usefulness of parent-teacher communication such as home-school conferencing as it equipped parents with the necessary background, knowledge and skills to help their children become more ready for school.

Parent expectations referred to parental views about their children's ability to achieve academically (Fan, 2001). Recent evidence suggested that the link might be even stronger in children at risk for low achievement such as children with negative perceptions of

their academic competence (Pomerantz, Ng & Wang, 2006). Zou, Anderson and Tsey (2013) observed that “of family variables contributing to children's school achievement, parent expectation was singled out by researchers to be the most salient and powerful force”. In their research on middle-class Chinese parental expectations for their children's education, Zou et al (2013) reported these parents have high expectations of their children's education, and “actively involve themselves in associated activities” (p. 1).

### **Parental involvement is multifaceted**

Parental involvement is a multifaceted concept and thus, it covered a wide range of parenting practices (Fan, 2001). It took many forms, such as parental aspirations for their children's academic achievement and their conveyance of such aspirations to their children, parents' communication with children about school, parents' participation in school, parents' communication with teachers about their children, and parental rules about learning imposed at home.

### **Models of parental involvement**

Over the years, many researchers have suggested different models to depict and describe parental involvement, starting with a three-factor model, with an increment of 1 factor or variable each time until a 7-factor model is developed (Grolnick & Slowiaczek, 1994; Izzo, Weissberg, Kasprow & Fendrich, 1999; Steinberg, Lamborn, Dornbusch & Darling, 1992; Gonzalez et al., 2005; and Gonzalez-DeHass et al., 2005).

In accounting for six different levels of parental involvement, Epstein (1987, 2001) developed a widely-recognized typology which provided a basic framework for the

study of parenting activities; its results might be used to inform educational practice and policy (Cheng & Koblinsky, 2009). Within this 6-factor model, at Level 1 of ‘parenting’, parents addressed children’s basic needs and established home conditions that supported their children to do well as students. In Level 2 of ‘communicating’, parents communicated with teachers and schools about school programmes and their children’s progress. At Level 3 of ‘volunteering’, parents worked with and supported teachers, students, administrators, and other parents in classrooms or other areas of the school e.g. library duties, traffic duties and even reading a book in class; others might step forward to volunteer at fund-raising events, concerts or sports day. Then at Level 4 of ‘learning at home’, parents worked hand-in-hand with schools to become more involved in their children’s home learning, such as helping children with homework or curriculum-related activities. At Level 5 of ‘decision making’, parents became more involved in school decisions via parent–teacher associations (PTA), parent–teacher organization (PTO), other parent organizations, advisory committees, or school-based parent groups. Finally, at Level 6 of ‘collaborating with community’, parents worked with educational, health, cultural, recreational, or other programmes in the community so as to enhance student learning. This model seemed to address every aspect of parental involvement in schooling. Parental involvement in Levels 3, 5 and 6, however, could be grouped as one type or level e.g. ‘participating in school’.

The 7-factor model mooted by Gonzalez-DeHass et al (2005) covered parents participating in parent–teacher conferences and/or interactions, participating in school activities and/or functions, engaging in activities at home including but not limited to homework, assisting in the selection of student’s courses, keeping abreast of and responding to student’s academic progress, imparting parental values in particular attitudes about the

importance of effort and academic success. The way the questionnaire was designed (Annex 8), it covered several activities described in the 6-factor as well as 7-factor models. In this way, there had been a deliberate attempt to gather findings based on models of parental involvement that had been researched and tested.

### **Religion as a factor critical to the Malay family**

The above models were all developed in western contexts and would appear to be different from the Malay context proposed in this study, and hence unlikely to be complete enough to address the parental involvement practices of Malay parents. To illustrate, Malay families generally rated religious upbringing as a top priority yet this did not feature in any of the above-mentioned models.

The involvement of Malay parents in their child's development, the upbringing of the Malay-Muslim child and the Malay families' emphasis on religious upbringing shall be discussed more fully in the subsequent chapters. After all, the topic of religious upbringing emerged again and again in the survey as well as the narrative analysis of the interviews. Despite the challenges facing the Malays, there is much that is going well for them, especially since the Malay parents involve themselves deeply in inculcating in their children values from young. There is even a Malay proverb to illustrate this: *melentur buluh ketika ia masih muda* (roughly translated as "to bend a bamboo, start when it is a shoot"). From observations and conversations with teachers (e.g. with Teacher T26), it was found that "*Agama tidak boleh dirunding*" which is Malay for 'religion is non-negotiable', suggesting that religion is important and integral in the lives of Malay Muslims (Field Notes, 28<sup>th</sup> February 2014).

Most if not all Malays in Singapore are Muslims, and the Malay community is rather homogenous in their religious observances and upbringing of their children along

religious teachings even though their forefathers (great grandparents) might have come from different parts of Malay or the Indonesian archipelago. In fact, Malay children could hear the refrain (or sometimes rebuke): “*klas agama tak harus dihentikan. Dosa tahu? Mesti ingat... kita kan Muslim*” which when translated into English was ‘religious class must not be discontinued. Sinful, you know? We must remember that we are Muslims’ (Field notes, 20 December 2013). In short, values education through religious classes and religious upbringing is a way of life for the Malay community.

### **The power of parental involvement**

Of all the types of involvement, parents reported that helping with homework is particularly effective for enhancing achievement (Epstein, 1986; Sanders, Epstein & Connors-Tadros, 1999). In fact, studies have suggested that children’s achievement level increased with the amount of time they were read to. Karnes, Shwedel, and Steinberg (1982) found that young children of average intelligence were read to by their parents for about 7 to 8 minutes a day, compared to an average of 21 minutes a day for young gifted children. Results of these studies suggested that a reading schedule of about 8 minutes for 4 to 7 days a week could develop more positive attitudes and competencies in reading. Coleman (1998) suggested that when parents communicate with their school-aged children about school issues, the children tended to be more satisfied with the school and do better academically.

According to the ecology theory of human development of Bronfenbrenner (1979), families served as the core context for children’s development. He emphasized that parents played an essential and enduring role in developing children’s intellectual, social and emotional competencies through interactions based “on a regular basis over an extended period in the child's life, with one or more persons with whom the child develops a strong,

mutual, irrational, emotional attachment and who is committed to the child's well-being and development, preferably for life” (Bronfenbrenner, 1990, p. 29).

Researchers in early years e.g. Becher and McShane (1985) suggested that when children held better perceptions of their parents’ involvement in their education, they tended to become more self-motivated in their study and then achieved more positive academic outcomes. They found that parental involvement and children’s reading achievement were positively and directly correlated (Becher & McShane, 1985). The findings were supported by Marchant et al (2001) who held the view that students’ perceptions of their parents’ values about achievement had the strongest relationship with both motivations and competence. When students perceived that parents valued the importance of effort and academic success, students would have higher perceived academic competence and correspondingly, would place a high priority on their effort, academic ability and grades.

### **Cultural influence**

Cultural explanations tied outcomes to the values passed down to the children and these were learned usually within close quarters i.e. family. Shared values and beliefs could serve as a glue of sorts, holding the family together, banding its members as a cultural unit, in which each member learned his/her definitive role and affiliation to one another within the group (family) as well as to other groups (families). How each member felt about himself or herself was important; indeed, how each parent felt about his or her role was crucial. Moreover, Moon and Lee (2009) revealed that parental psychological well-being was also a crucial factor in children’s academic achievement.

Pearce (2006) viewed SES as a typical example of social structural factors, which could inhibit or enhance academic achievement. Sometimes, these factors could be outside an individual's control e.g. in a recession, an individual might be retrenched and this loss of job in turn affected the family's SES. Certain studies have emphasized the influence of parental education and family income on children's school achievement (Duncan & Magnuson, 2003; Kao & Thompson, 2003).

### **Parental education**

Parental education is often considered one of the most significant predictors of children's school achievement. Students whose parents had higher levels of education had higher scores on standardized tests (Davis-Kean, 2005; Gonzalez, 2002; Song, 2005) compared to students whose parents had lower levels of education.

After his visits to one top primary school and a neighbourhood school, Singapore's first PM, the late Mr Lee Kuan Yew highlighted his observations that entry into a primary school is "not meritocratic" as "the difference really is in the quality of the students, their background" (Lee, 2011, n.p.). Mindful that the government allowed school alumni priority in enrolling their children into their alma mater, Lee added that primary school enrolment is "based on the social class of the parents" (Lee, 2011, n.p.).

### **Family size and other influencers**

Riala, Isohanni, Jokelainen, Jones and Isohanni (2003) found that family size or the number of siblings might have negative effects on children's educational achievement and attainments. Meanwhile, lower educational attainments of students from divorced or single-parent families had been found in some European countries, i.e., Finland and Great

Britain (Powell & Parcel, 1999; Riala, et al, 2003), as well as in the USA (Amato, 2000; Jeynes, 2002). Suffice it to state that the opposite might also be said of children from parents who separated or single-parent families e.g. current US President Barack Obama and former US President Bill Clinton.

In a study on parental involvement, Wendy, Corina, Carolyn and Nicholas (1997) found that teachers wielded a strong influence on parent involvement, because teachers also served as parents' primary contacts within the school and thus, practices in the classroom are potential influences on parent involvement.

### **Parenting style**

On the basis of two dimensions of 'demandingness' and 'responsiveness', as early as the 1960s, Baumrind (1967) had provided 3 types of parenting practices namely authoritarian, authoritative parenting, and permissive parenting. Since then, Maccoby and Martin (1983) had recognized a fourth category i.e. 'uninvolved parenting'. Researchers had found that there is a close relation between parenting style and parent involvement practices (Gonzalez-DeHass et al. 2005).

Pomerantz, Grolnick and Price (2005) suggested that the most effective parental involvement is one that supported the child's autonomy and provided structure in the form of clear and consistent guidelines about homework. Barber, Stolz and Olsen (2005) listed three dimensions of parenting that characterised parental influence across cultural settings, namely parental support, psychological control and behavioural control. They suggested that parental support is characterised by behaviours with "affective, nurturant or companionate" qualities (Barber et al., 2005, p. 139). Parents' attempts and actions in changing their child's thoughts or feelings have been referred to as psychological control

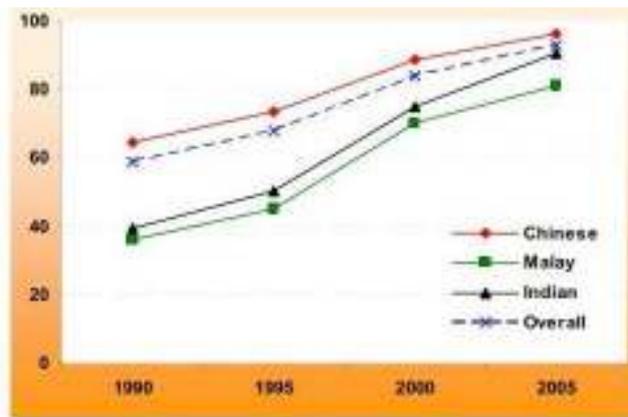
which might take the form of withdrawal of love or affection.

Behavioural control refers to parents' knowledge of their child's activities and their attempt at monitoring and even modifying the behaviour. Differing parental values and needs are associated with variations in child-rearing styles and the discipline responses of parents to their children (Pinderhughes, Dodge, Bates, Pettit & Zelli, 2000).

One of the overarching goals of effective parenting is to support children's development – from dependency and external control to internalisation, the ability to take initiative and to be socially responsible (Smith, Gollop, Taylor & Marshall, 2005). Within family contexts, children gradually internalised social standards and expectations, a process that facilitated greater self-regulation skills and responsibility for their own behaviours.

### **Dearth of research on the Malay issue**

Given the dearth of literature on the topic of the literacy development of Malay preschool children, a modest attempt is made to gather as much relevant information as possible about the Malay ethnic group in Singapore. Hence, if each data-set for example 'percentage of Primary 1 cohort admitted to post-secondary institutions (PSEI)' or 'Teenage Birth per 1,000 Female Residents Aged 10-19 years' or 'Female General Divorce Rate per 1,000 Married Resident Females' represented a dot then we could possibly make better sense of the Malay situation by connecting more 'dots'. Figure 2-2 shows that the Malay students lagged behind their counterparts in PSEI admissions, over the last 25 years, since 1990. As illustrated in Figure 2-2, at the national level, the Singapore MOE statistics reported by MCYS showed that the proportion of Malay Primary 1 cohort admitted to PSEI had more than doubled, from 36% in 1990 to 81% in 2005 (MCYS, 2009). What the statistics did not tell us, however, was which PSEI the Malay students had gone to. Was it the junior college, the polytechnic or the institute of technical education or ITE?



|         | 1990 | 1995 | 2000 | 2005 |
|---------|------|------|------|------|
| Chinese | 65   | 73   | 88   | 96   |
| Malay   | 36   | 45   | 70   | 81   |
| Indian  | 39   | 50   | 75   | 90   |
| Overall | 59   | 68   | 84   | 93   |

Source: Ministry of Education  
 Note: Data for 2005 is preliminary.

**Figure 2-2. Percentage of Primary 1 cohort admitted to PSEI (MCYS, 2009).**

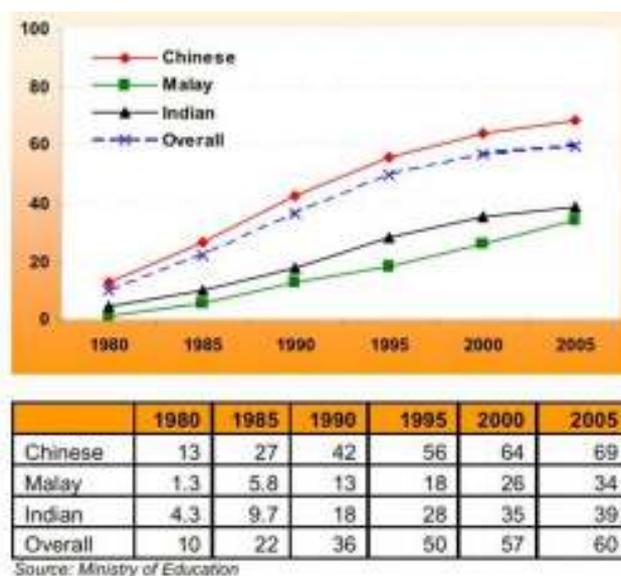
ITEs are vocational institutions whose graduates commanded a far lower starting salary than graduates from the other PSEIs such as the junior colleges and polytechnics. Admission to the ITE required lower academic grades than admission to the junior college or the polytechnic. Put another way, ITE catered for students who did not gain entry to junior college or the polytechnic, upon their completion of their secondary school education; such students are sometimes referred to as the “bottom 25%” (Cox, 2007, p. 12). The top 25% would have achieved good results to enter junior college to undertake the GCE ‘A’ level at the end of 2 years and the next 40% would go to the polytechnic to pursue a 3-year diploma (Cox, 2007, p. 12).

Figure 2-3 provides clues as to what percentage of Malay students proceeded to tertiary education at ITE. After all, if a total of 81% of the Malay cohort entered PSEIs in 2005, and 34% of them to university and polytechnic, then surely the percentage of Malay students in that cohort that went on to ITEs is no more than the difference between these 2 percentages i.e. 81% - 34% which is 47%. As illustrated in Figure 2-3, only 34% of the

Malay Primary One cohort made it to the University and/or the Polytechnic, lagging behind their Chinese and Indian counterparts who had 69% and 39%, respectively.

Why would the PSEI qualifications of the preschool child's parents matter? In purely economic terms and in general, the household incomes of children whose parents had different PSEI qualifications would vary, *ceteris paribus*. The children would therefore have access to different educational experience at the pre-school level especially since, according to the ITE (2016), an ITE graduate earned about \$1800 per month (n.p.). Polytechnic graduates, however, earned an average starting salary of about \$2,300 per month while the university graduates earned about \$2,800 per month (Ngee Ann Polytechnic, 2015, n.p.).

Private preschools with their wide range of enrichment programmes charged \$1400 per month which would be almost 78% of the salary of that parent who was an ITE graduate (ITE, 2016, n.p.). In other words, parents with different academic qualifications would have different pre-school options for their children. The parents involved in this case study had enrolled their pre-school children in this centre which charged monthly fees of \$400, after qualifying for a government subsidy of \$300 a month.



**Figure 2-3. Percentage of Primary 1 cohort admitted to Tertiary Institutions (Polytechnics and Universities) (MCYS, 2009)**

If we combined Figure 2-2 and Figure 2-3, we would be able to see the percentage of the cohort going to the ITE or the labour force. This might give a better picture of how serious the Malay literacy problem was because by inference, it would reveal that no more than 47% could have gone to ITE or into the labour force. It is also possible that part of the 47% of the Malay cohort neither enrolled in ITE nor joined the labour force. In connecting the 'dots', it is hoped that enough is understood about all four systems - the microsystem, mesosystem, exosystem and macrosystem – and how parental involvement and ICT influenced the literacy level of Singapore's Malay pre-schoolers.

The key thrust of this case study remained thus: to mind and address any literacy gap as early as possible and bring about early intervention i.e. in the children's pre-school years, before the problem snowballs into their teen years, and adult years.

At the 60th Anniversary Charity Gala Dinner of the Singapore Muslim Women's Association in 2012, its Guest-of-Honour, Mr Tharman Shanmugaratnam who is one of Singapore's two Deputy Prime Ministers (DPMs) shared his observations: "advantages from one generation are passed down to the next generation, and the disadvantages of one generation are very easily passed down to the children". DPM Tharman who was also Finance Minister at that time, encouraged the community: "We must do our utmost to work against that. Do our utmost to ensure that those who start off behind have the best chance of catching up." He also highlighted that to do this, "early intervention of a child is important" (Shanmugaratnam, 2012, n.p.). In the next few pages, we shall also examine topics like teenage births, divorce rates, vulnerable groups like those who married as minors, and reconstituted families because these have been reported to have affected the degree of parental involvement in the child's development.

### **The problem of teenage births**

In an AMP Review of a clinical study in 2008 that involved 43 adolescent patients, the researchers Dr Suzanna Sulaiman and Dr Sadhana Nadarajah found that all 43 adolescents did not plan their pregnancies (Association of Muslim Professionals, 2008, n.p.). Majority of them (84%) were Malay while the Chinese constituted 14% and Indian 2%. This meant that the Malays who formed no more than 14% of the population were over-represented in the teenage pregnancy statistics. The adolescents were between the ages of 15 and 20. In terms of the patients' highest education level, only 1 had a polytechnic diploma and 4 had GCE 'O' levels. The rest had 'N' levels, ITE qualifications or less.

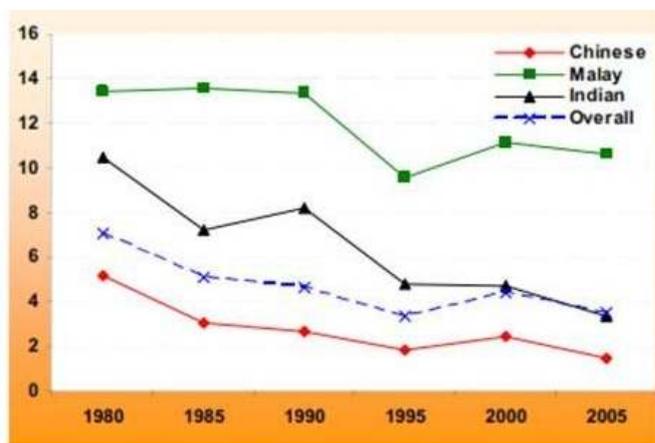
The statistics could be quite telling as they showed the importance of the mesosystem (inter-relations between the home and the students' performance in school, as described in Bronfenbrenner's model): students who did not go on to university or polytechnic had to settle for lower-paying jobs and subsequently, could afford only smaller housing apartments and amenities as well as cheaper pre-school options and lower-quality educational programmes for their children. The macrosystem comprised the collective beliefs, values, laws and customs of the society within which the children lived. It included religion, culture and race, as well as socio-historical events.

Whatever the beliefs among the Malay community, if they were to get married or become pregnant at an earlier age and at an age before they secured a better-paying job or career, the quarrels and problems over money (or the lack of it) could take its toll. Sulaiman and Nadarajah (2008) opined that "a second pregnancy in their teenage years will inevitably reduce the likelihood of their return to school and therefore their chances of acquiring job skills to enter the workforce" (p.3).

According to Jones, Hull and Mohamad (2011), "in 2005, Malay community leaders appeared to be experiencing a kind of 'moral panic' about the perceived crisis of

teenage pregnancy, abortion and venereal disease afflicting the Malay community”. Jones et al (2011) observed that PM Lee was “remarkably frank in referring to ‘dysfunctional Malay families’ in his 2005 National Day speech” (n. p.). Jones et al also recorded that from 2000-2004, “Malays aged 19 and younger gave birth to about half the babies born to teens in Singapore” (n.p.).

As illustrated in Figure 2-4, in Singapore, teenage births had been recorded to be highest among the Malays, at 10.6 per 1000 female residents aged 10-19 years, in 2005 (MCYS, 2009). This was far higher than the teenage birth rates of their Chinese and Indian counterparts at 1.5 and 3.4 per 1000 female residents aged 10-19 years, respectively.



|         | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 |
|---------|------|------|------|------|------|------|
| Chinese | 5.2  | 3.0  | 2.6  | 1.8  | 2.5  | 1.5  |
| Malay   | 13.4 | 13.6 | 13.3 | 9.6  | 11.1 | 10.6 |
| Indian  | 10.5 | 7.2  | 8.2  | 4.8  | 4.7  | 3.4  |
| Overall | 7.1  | 5.1  | 4.6  | 3.3  | 4.4  | 3.5  |

Source: Ministry of Health

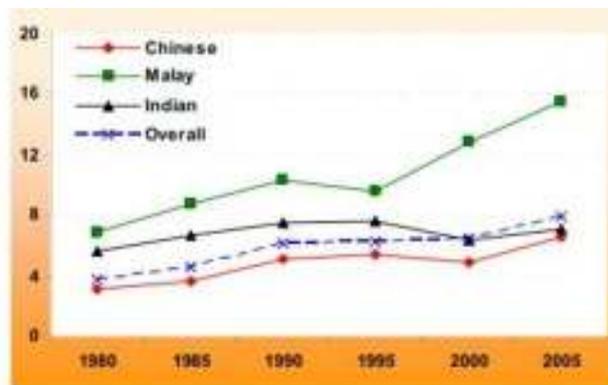
**Figure 2-4. Teenage Birth per 1,000 Female Residents Aged 10-19 years (MCYS, 2009)**

### Divorce rates

Anthony, Alter and Jenson (2009) highlighted that “risk factors are events, conditions or experiences (that) increase the probability that a problem will be formed, maintained, or exacerbated”. Marriage under such circumstances could lead to divorce.

Suffice it to highlight that this is indeed a generalisation; nevertheless, it is one that caused Singapore's parliamentarians some concern, as evidenced by their parliamentary speeches especially those made by Singapore's Minister for Muslim Affairs Dr Yaacob Ibrahim (Ibrahim, 2010).

Figure 2-5 showed the growing divorce rates among Malay families. It is important, however, to note that this study has not made and does not make any claim that children from divorced parents performed poorly in school. In fact, the opposite could be true. By showing this statistic on the 'female general divorce rate of married resident females', it is hoped that what policy-makers and Ministers have spoken about was also made available for this case study so that it could be seen if indeed there was any pattern between Malay divorce rates and the children's immediate surrounding (i.e. family) or the "microsystem" (Bronfenbrenner, 2002, p. 264).



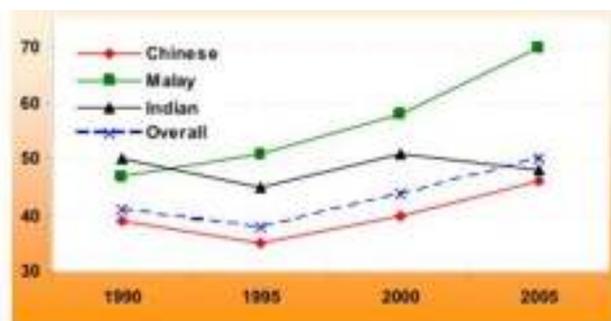
|         | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 |
|---------|------|------|------|------|------|------|
| Chinese | 3.1  | 3.6  | 5.1  | 5.4  | 4.9  | 6.6  |
| Malay   | 6.9  | 8.8  | 10.3 | 9.6  | 12.8 | 15.5 |
| Indian  | 5.6  | 6.7  | 7.5  | 7.6  | 6.4  | 7.1  |
| Overall | 3.8  | 4.6  | 6.1  | 6.2  | 6.5  | 7.9  |

Source: Department of Statistics

**Figure 2-5. Female General Divorce Rate per 1,000 Married Resident Females (MCYS, 2009)**

As illustrated in Figure 2-5, the female general divorce rate (FGDR) of Malay single-parent households has been exceeding the overall rate (across all 3 main ethnic groups) at every 5-year interval since 1980. In 1980, the overall FGDR was 3.8 per 1,000 married resident females (MRF) but it was 6.9 for the Malay FGDR. In 1985, the overall FGDR was 4.6 per 1,000 MRF but it was 8.8 for the Malay FGDR. In 1990, it was 6.1 and 10.3, respectively. In 1995, the overall FGDR was 6.2 per 1,000 MRF but it was 9.6 for the Malay FGDR. In 2000 and 2005, the overall FGDR was 6.5 and 7.9 per 1,000 MRF, respectively but it was 12.8 and 15.5 for the Malay FGDR, respectively. In short, the Malay FGDR exceeded the overall FGDR at every 5-year interval.

As illustrated in Figure 2-6, the number of Malay children in single-parent households, had grown from 47 per 1000 children in Year 1990, to 51 per 1000 children in Year 1995, to 58 per 1000 children in Year 2000, and then to 70 per 1000 children in Year 2005.



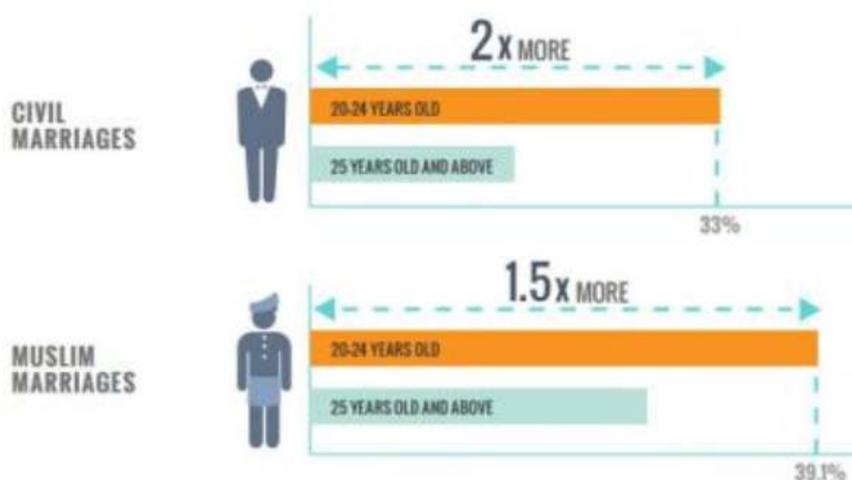
|         | 1990 | 1995 | 2000 | 2005 |
|---------|------|------|------|------|
| Chinese | 39   | 35   | 40   | 46   |
| Malay   | 47   | 51   | 58   | 70   |
| Indian  | 50   | 45   | 51   | 48   |
| Overall | 41   | 38   | 44   | 50   |

Source: Department of Statistics  
 Note: Single parents refer to household heads who are single, widowed, divorced or separated and living with at least 1 child aged below 16 years.

**Figure 2-6. Resident Households headed by Single Parents per 1,000 Resident Households with at least One Child aged below 16 years of age (MCYS, 2009)**

Since 1995, the percentage of Malay single-parent households was highest across the 3 main ethnic groups of Chinese, Indians and Malays. From 1990 to 1995, while the number of single-parent households decreased for the Chinese and Indian ethnic groups, it rose for the Malay single-parent households from 47 per 1000 children to 51 per 1000 children.

More recent statistics relating to divorce had also been quite worrying e.g. the higher proportion of dissolved marriages among younger grooms. The media company, ChannelNewsAsia reported that marriage dissolution rates in Singapore had gone up, with the dissolution of Muslim marriages with younger grooms being 1.5 times higher than the dissolution of Muslim marriages with older grooms or those aged 25 years or older (ChannelNewsAsia, 2015, n.p.). This had been illustrated in Figure 2-7 below. Marriages of younger grooms were more likely to have children who were of the pre-school age range and this would translate to social issues discussed in greater detail later in this chapter.



**Figure 2-7. Percentage of dissolved marriages among those who married in 1998 by the 15<sup>th</sup> anniversary (ChannelNewsAsia, 2015)**

DPM Tharman also stressed that “specific problems in society, such as the difficulties of ... single mothers have to be addressed” (Shanmugaratnam, 2012, n.p.). He also launched a new ICT-based social programme to help low-income families. However, it is important to note that this study did not accept or suggest any correlation between children from single-parent households and poor performance in school.

Nevertheless, the anxieties among policy-makers and the government remained. In a 20<sup>th</sup> April 2015 media report, experts cited money woes and lack of interpersonal skills as “leading causes of break-ups among poorly educated couples” (The Straits Times, 2015, p. A3). It also reported that more Muslim marriages were ending before their 5<sup>th</sup> anniversary – as many as 14% of Muslim marriages compared to 5.1% of Non-Muslim marriages, for marriages registered in 2003 (The Straits Times, 2015, p. A3). The same report highlighted that for marriages in 2003, of 5-9 years duration, 10.5% of Muslim marriages compared to 9.2% of Non-Muslim marriages fell apart (The Straits Times, 2015, p. A3).

The MCYS 2009 Report concluded that “several social challenges remained. Divorce rates are rising. There are high rates of early marriages and teenage pregnancies. The number of single-parent families is also high.” (MCYS, 2009) In tackling the Malay problem, it is important to be mindful of the inter-play of these dynamic systems. The chronosystem described these changes in the child’s environment over time. These changes might be externally imposed (e.g. birth of a sibling, a divorce) or internally imposed (illness, accident or puberty). How these changes affected the child also depended on the time and season e.g. an infant’s response to a family move (to a different geographical area) could be different from that of a teenager who by then, had already forged friendships and might not like the idea of having to re-locate i.e. change school and many activities revolving around his or her school life and friends.

### **Vulnerable groups among the Malays**

During his parliamentary speech during the COS 2010 Debates, Minister Dr Yaacob Ibrahim told his parliamentary colleagues that his agency would continue to “pay special attention to vulnerable groups like those who married as minors and also reconstituted families” (Ibrahim, 2010, p.3). Minister Dr Yaacob Ibrahim revealed that “in 2009, a total of 323 minor couples attended premarital counselling. Of these, 138 (43%) couples changed their minds about marrying” (Ibrahim, 2010, p. 2).

The Syariah Court, the court set up to manage Muslim affairs, which provided the Marriage Counseling Programme, has been busy helping to “prevent the break-up of an average 871 marriages per year, which is about 52% of total Syariah Court cases every year” (Ibrahim, 2010, p. 2). This suggested there have been no less than 1600 cases heading for divorce each year. The then-MCYS officials had hoped that with more families intact, more could then be done to develop children’s well-being and to develop strong, mutual, emotional attachments between the children, on one hand and parents on the other hand (MCYS, 2009).

ChannelNewsAsia (2016c) reported that Minister Tan of MSF had announced that the Mandatory Parenting Programme would be launched at the end of 2016, adding that “the programme will give them (couples contemplating divorce) time and space to think deeply about issues they will face, both during and after divorce, and how they can protect their children's interests will be emphasised in all they do” (n.p.).

How were the children’s interests protected? “In 2013, 1.2 per cent of Muslim grooms and 5.2 per cent of brides were below 21 years old. For non-Muslims, these were 0.4 per cent and 1.6 per cent respectively” (“More break-ups among poorly educated couples: Experts cite money woes and lack of interpersonal skills”, 2015, p. A3). Tai (2015a) cited money woes and lack of interpersonal skills as key factors to break-ups which were more common among poorly educated couples. Tai (2015b) also highlighted that more Muslim

marriages were ending before their fifth anniversary (p. A3). Thus far, the common view among policy-makers as observed during the COS 2010 Debates is that whether or not a family is intact had an impact on the well-being and literacy development of the child. This of course has to be investigated further and it is hoped that this study would uncover some patterns or links between these above-mentioned factors.

### **Integration of ICT into pretend play environments**

Siraj-Blatchford and Siraj-Blatchford (2006) suggested that “well-designed on-screen applications provide for a wide variety of possible responses by the children. Adventure games and simulations offer particular strengths. They also allow the child to try things out” (p.13). In a 30<sup>th</sup> September 2016 news article entitled “Reporter roles get pre-schoolers keen on language, news”, “pint-sized pre-schoolers attending PAP Community Foundation Sparkletots preschool ...present the news live or in the form of short video clips recorded with the help of their teachers or parents” (TODAY, p. 40).

Moreover, such ICT and its applications could provide the children with the necessary challenge and motivation. Furthermore, based on their professional experience, Siraj-Blatchford and Siraj-Blatchford (2006) found that “Early Years practitioners ... have shown that there is enormous scope for the integration of ICT into young children’s pretend play environments” (p.13).

### **Engaged learning and optimal development**

For optimal development, children needed family members who are actively engaged in their lives. Children needed parents who loved them, spent time with them, participated in activities with them and are interested in all facets of their lives. While other settings including school, church, or day care are important to children’s development, none

of these could replace the most important and basic social unit. Bronfenbrenner (2005) explained it, as follows:

“..... it is the family that determines our capacity to function effectively and to profit from later experiences in other contexts in which human beings live and grow-the school, peer group, higher education, business, community, and our society as a whole. In all those settings, what we learn, as well as what we can contribute, depends on the families we come from and the families in which we now live. This is true from early childhood on, until the day we die” (p. 263).

These family relationships are both bidirectional and reciprocal, that is, both adult and child influenced each other's behaviour. Adults affected children's behaviour but children's biological and social characteristics such as physical attributes, abilities and personalities also influenced adult's behaviour toward them. For example a friendly, cooperative child is likely to be treated differently than a sullen, defiant child. Moreover, how children were treated could influence future behaviour. These patterns of interactions might become entrenched over time and would have a lasting effect on development (Berk, 2000).

### **Parent-child dyads**

As stated previously, the microsystem comprised the core context for human development as it contained the parent-child dyad. Parent-child dyads had been viewed as primary dyads or relationships that existed phenomenologically for both members even when absent. This implied the two participants might miss each other and think about the other when they are apart. These dyads are considered especially important in motivating learning

and development. According to Bronfenbrenner (1979), a child might be more likely to acquire values, skills and knowledge from someone with whom they formed a primary dyad than from someone who did not share this relationship.

### **Parent-child relationships**

While the parent-child dyad is the core context for development, a third party is necessary for the dyad to function effectively (Bronfenbrenner, 1979). The presence of an adult who had a positive relationship with the parent and who supported the parent would enhance the parent's ability to effectively interact with the child. Conversely, if there is no other adult or a negative or non-supportive relationship existed between the third party and parent, the parent's ability to function effectively with the child might be diminished. It is not necessary for the other parent to be the third party as studies from divorced families showed that relatives, friends and neighbours could give the parent the required support (Bronfenbrenner, 2005). This served as a good argument that children from single-parent families could still perform well in school. Indeed, according to Bronfenbrenner (1990), "in order to develop -- intellectually, emotionally, socially, and morally -- a child requires participation in progressively more complex reciprocal activity, on a regular basis over an extended period in the child's life, with one or more persons with whom the child develops a strong, mutual, irrational, emotional attachment and who is committed to the child's well-being and development, preferably for life" (p. 29). That is, a child had to engage in increasingly challenging activities with someone such as a parent, relative or caregiver, in which child as well as adults participated actively.

Indeed, the extent to which families could function effectively depended on the support of other contexts. All four systems - the microsystem, mesosystem, exosystem and macrosystem – would play a role in supporting families' ability to facilitate effective

child development. Obvious influences included parents' work, extended family, neighbourhood support, community health and welfare facilities.

According to Bronfenbrenner (2005), the support or lack of support from these settings would determine the confidence or stress that parents would bring to their relations with their child. In fact, in an earlier work, Bronfenbrenner (1990) explained it rather well, recorded as follows:

“The effective functioning of child-rearing processes in the family and other child settings requires public policies and practices that provide place, time, stability, status, recognition, belief systems, customs, and actions in support of child-rearing activities not only on the part of parents, caregivers, teachers, and other professional personnel, but also relatives, friends, neighbors, co-workers, communities, and the major economic, social, and political institutions of the entire society” (p. 37).

### **Development based on cumulative experiences**

Finally, Bronfenbrenner and Morris (1998) proposed that development is based on cumulative experiences. Hence, the characteristics of a person at any one time are the result of the characteristics and the environment of the person over the course of their life till that time. They maintained that experiences that were repeated and sustained influenced development more powerfully than experiences that were not sustained. For instance, regular child care arrangements over the course of a year would have much greater effect on a child's development than one week of alternate care arrangements. Similarly, the developmental outcomes of today would influence future developmental outcomes (Bronfenbrenner, 1989).

Bronfenbrenner's ecological theory had been widely recognised and respected because it focused not only on the child but also on all the other relationships and environments that surrounded the child (Berk, 2006; Ceci, 2006). His theory recognised that development is influenced by contexts and relationships that might or might not include the child. Children could function as active agents in their own lives, shaping their relationships with others. The interactions between these relationships and environments explained differences in child development. The ecological environment, as Bronfenbrenner (1979) put it, is a "set of nested structures, each inside the next like a set of Russian dolls" (p. 3).

As the theoretical framework for this thesis, applications of his theory would be discussed in the following sections and subsequent chapters. The next section briefly looked at moderating and mediating factors. In examining children's development, it became increasingly important to consider how factors might interact under different circumstances and change outcomes.

### **Moderating and mediating factors**

Bronfenbrenner (2005) argued that poverty could act both as a mediating and moderating agent in Elder's work (cited in Bronfenbrenner, 2005) on the effect of father's unemployment during the Great Depression on family conflict and children's development. Outcomes were worse for families where fathers' temperament was described as difficult before the depression and those who had low income to begin with. Bronfenbrenner (2005) concluded that "poverty not only set the vicious circle in motion (a mediating effect) but also accelerated its downward course (a moderating effect)" (p. 79). In this case study, parents' narratives were sought especially with respect to how such moderating and/or mediating factors affected their interactions as well as their well-being.

It could also be possible that, under certain ecological conditions, moderating effects could change direction i.e. negative forces might be transformed into positive forces and *vice versa*. Bronfenbrenner (2005) used the example of Crockenberg's (cited in Bronfenbrenner, 2005) studies to show that the reverse was also possible. This should explain why and how certain children could still thrive in school despite austere conditions in which they lived. Indeed, some children could become resilient through the proverbial school of hard knocks and lived through even the harshest form of parenting.

### **Role of parenting**

The principal role of parenting involved the development of parent-child interactions and relationships that were nurturing and positive, and certainly not those which were characterised by stress, hostility and negativity (Brooks-Gunn & Markman, 2005). We had earlier read about the importance of parental involvement as highlighted by then-SPS Mr Hawazi Daipi (Daipi, 2012) as well as "parenting skills" for the development of Malay children, as highlighted by Singapore's Minister for Muslim Affairs Dr Yaacob Ibrahim (Ibrahim, 2010, p.3). Acquiring the parenting skills was not enough as parents must also set aside time to be involved. Parents might be involved in various ways e.g. parenting, communication, volunteering, learning at home, decision-making, and collaborating with the community (Epstein, 2001).

### **Forces that influenced parenting**

Many forces influenced parenting (Bornstein & Cheah, 2006). From as far back as the 1990s, Holden (1997) identified more than 30 empirical variables influencing parenting. From an ecological perspective, Bornstein (2002) categorized various factors related to parenting into three categories: (a) forces within parents such as biological and

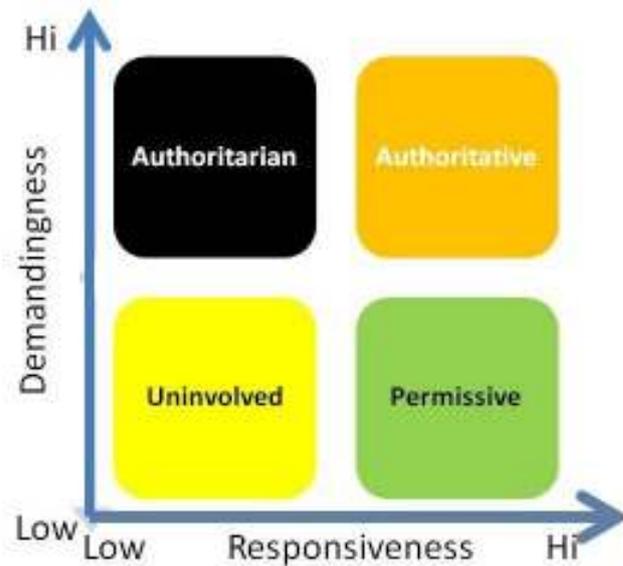
psychological processes and attributes in parents, (b) the perceived or actual child characteristics, and (c) contextual influences including socio-contextual factors, family environment, and culture. In the following paragraphs, parenting practices and parenting styles would be discussed in more detail.

### **Social learning theory**

One overarching theoretical perspective underpinning parental discipline is that of learning and social learning theory. Learning theory suggested that the consequences of behaviour strengthened or weakened behaviour in the future: behaviours that were rewarded continued in the child's repertoire, while behaviours that were punished dropped out (Eisenberg & Valiente, 2002). As children internalised norms of behaviour, the need for external control of behaviour through mechanisms such as reward and punishment is reduced (Smith et al, 2005). Thus mechanisms of reinforcement (or reward) and punishment remain central to learning and socialisation.

Research work that could help us understand a complex topic such as 'effective discipline' is made clearer if viewed within the parenting styles framework, informed by the earlier established works by Baumrind (1967, 1971 and 1991) and Maccoby and Martin (1983). Baumrind (1967) identified three types of parenting styles; authoritarian, authoritative and permissive parenting. Subsequently, Maccoby and Martin (1983) refined Baumrind's (1967) hallmark topology of 3 parental control models and proposed a fourth parenting style i.e. 'uninvolved parenting'. Indeed, in studies of parenting styles, two dimensions of parenting behaviour had emerged: whether parents were high or low in control or demands, and whether parents were high or low in warmth or responsiveness. Figure 2.8 below illustrated how parents might be categorised as authoritative, authoritarian, permissive

or uninvolved, depending on where parents lie along these dimensions of ‘demandingness’ and ‘responsiveness’.



**Figure 2-8. Four Parenting Styles**

(adapted from Baumrind, 1967 and Maccoby & Martin, 1983)

The importance of parental involvement pertained not only to their parenting styles but also to the quality of their relationships with their children. According to Bronfenbrenner (1979) children needed to spend extended time in the company of their parents to allow for progressively more complex reciprocal activities to occur.

Teti and Candelaria (2002) suggested that the parenting style that had most commonly been associated with positive outcomes was authoritative parenting. Suffice it to highlight that each parenting style had its unique strengths and that no one parenting style fitted all children. Lerner, Rothbaum, Boulos and Castellino (2002) suggested that “because the meaning of parents’ behaviour is critical in determining its effect on the child and because community standards determine the meaning of parents’ behaviour, physical punishment is likely to have very different consequences in different communities” (p. 330). It was likely

that children's reactions to disciplinary strategies were influenced by such characteristics as gender, age, temperament and the history of transactions between the child and parent (Holden, 2002). Parents' ineffective responses inadvertently reinforced the child's negative behaviour. As a result, a stable pattern of mutually-coercive cycles of interaction became established over time (Kent & Peplar, 2003).

### **Parenting activities**

According to Pecnic (2007), there were 4 parenting activities that facilitated more positive parenting experiences. Firstly, nurturing behaviour referred to activities that responded to the child's needs for emotional security, such as the provision of warmth and sensitivity within the relationship. Secondly, structure referred to setting boundaries and guiding the child's behaviour through modelling of positive behaviours, without physical or psychological coercion. Thirdly, recognition referred to the child's need to be respected and acknowledged by parents and to foster the potential for mutual understanding and influence to develop. Finally, empowerment referred to combining a sense of personal control with the ability to influence the behaviour of others. Such facilitative parenting activities had to be adjusted to the changing developmental stage of the children and as their environment changed.

### **Correlation between parental education and parenting style**

Hoff, Laursen, and Tardif (2002) in their review of a range of studies, found that parental education was positively correlated with authoritative parenting and negatively correlated with authoritarian parenting. Hoff et al (2002), however, had suggested that the relationship between SES and parenting styles was not so clear or simple and that some aspects of parenting might be more susceptible to the influence of SES than others. Low SES

might indeed be a risk factor for less than optimal parenting, but low SES might be neither a necessary nor sufficient cause for poor parenting.

Kerr, Lopez, Olson and Sameroff (2004) cautioned that generally, coercive, fear-inducing or psychologically-aggressive strategies were less likely to enhance children's ability to develop internal attributions for their behaviour. Smith et al (2005) suggested that just because a parent might have experienced physical punishment as a child did not, however, mean that he or she, as a parent, would also mete out physical punishment to his or her own child. While the personal experience of physical punishment as a child had a powerful impact on the parental use of it as an adult, this cycle of intergenerational transmission could be discontinued.

Families formed the core context for children's development and parents would play an essential role in developing children's intellectual, social and emotional competencies that would last throughout their whole lives (Bronfenbrenner, 1979). Research investigating parenting had examined child-rearing practices or parenting styles, the amount of time parents spent with their children, the nature of this time together, parents and children's satisfaction with the time they had together and children's perceptions of their parents' work and time away from parents. Some researchers had made the distinction between parenting styles and parenting practices. In this case study, only parenting styles would be discussed in greater detail. Darling and Steinberg (1993) referred to parenting style as the "emotional climate within which socialization occurs" that is provided by parents (p. 488).

## **Parenting styles and emotional climate**

Within the literature on parenting styles, researchers as far back as the 1960s had identified two dimensions of parenting (Becker, 1964; Parker, Tupling & Brown, 1979). The first dimension related to parental warmth and acceptance against hostility and rejection. According to more recent research, parents considered family time as key to producing long-lasting and happy memories as well as warmth for children (Daly, 2001), and children of authoritarian parents did not fully internalise the discipline received (Underwood, Chen & Miles, 2009). The second dimension related to parental control, that is, restrictiveness as opposed to permissiveness. Guryan, Hurst, and Kearney (2008) provided evidence that “higher educated parents spend more time with their child(ren) even as they balance work and familial responsibilities” (p. 23).

Over the years, more researchers weighed in with their findings and insights including Maccoby and Martin (1983) who referred to these two dimensions as ‘demandingness’ and ‘responsiveness’. Baumrind (1989) defined ‘demandingness’ as the use of direct confrontation and monitoring, patterns of firm and consistent discipline and high maturity demands. On the other hand, parental responsiveness could refer to affective warmth, cognitive responsiveness, attachment and bonding, involvement, and reciprocity.

Amato (1990) similarly described the two dimensions as ‘parental control’ and ‘parental warmth’. ‘Parental control’ referred to the amount of supervision that parents exercised, the decisions parents made about their children's activities and friends, and the rules parents stipulated for their children. ‘Parental warmth’ could be defined as the expression of interest in children's activities and friends, involvement in children's activities, expression of enthusiasm and praise for children's accomplishments, and demonstration of affection and love.

**Possible effects of parenting styles across cultures**

Although Claes, Lacourse, Bouchard and Perucchini (2003) briefly discussed the beneficial effects of the authoritative style that had been demonstrated for Western cultures, there appeared to be limited research on parenting styles on pre-schoolers in Asian societies such as Malaysia and Singapore. Colpan, Hastings, Lalace-Seguin and Moulton (2002) found that children of authoritarian parents tended to have low self-esteem and lack spontaneity. However, they cautioned readers to also consider the importance of culture when evaluating parenting behaviour. The permissive parent had been characterized as warm, high nurturance, responsive but low in parental control and demand few maturity behaviours. Permissive parents were more likely to give way to the child's impulses, desires and actions. These parents placed few demands on their children and let the children do whatever they wanted. This style of parenting appeared unsuccessful in enabling children to develop a range of self-directing abilities that propelled them to academic success (Diaz, 2005).

Indeed, there had been some discussion and even debates about whether (different) parenting styles could have similar outcomes for children and adolescents who were not of European descent. Chao (2001) provided an interesting insight: That Asian participants might interpret the meaning of authoritarian parenting style differently i.e. authoritarian parents might be defined as caring and concerned parents to Asians although they might come across or be seen as controlling and dictatorial by European American standards. Indeed, Chao (2001) argued that the Chinese version of authoritarian parenting was fundamentally different primarily because Chinese authoritarian parents spent comparatively much more time with their children, and such 'closeness' is a predictor of higher school achievement. Park and Bauer (2002), however, were of the view that the relationship between authoritative parenting style and student academic achievement only applied to the European-Americans.

A study on the effects of parenting style on personal and social variables in Singapore involved three ethnic groups (Indian, Chinese and Malay) and it suggested that Malay children with authoritarian mothers tended to have better adjustment in attitude towards school compared to those who perceived their mothers to be authoritative (Ang, 2006, p. 504). However, Underwood et al (2009) suggested that children from authoritarian families did not fully internalise the discipline aspects deployed by their parents.

### **Time spent with children in the past and present**

Despite such public concern, research suggested that parents were in fact spending more time with their children than ever before. Many assumed that more time together was associated with better quality relationships between parents and their children (e.g., warmer, better communication, more supportive, less hostile and coercive) and better outcomes for children (e.g. mental health, academic engagement and performance).

Having fewer children might mean that parents had more time available per child, and parents who had delayed child-rearing and intentionally chosen to become parents might be more willing to spend time with their children. The more recent work of Guryan et al (2008) suggested that higher-educated parents spent more time with their child(ren) even as they juggled work and familial responsibilities. According to Daly (2001), parents considered family time as an important experience that produced long-lasting and happy memories for children. Bronfenbrenner (1979) proposed that development did not occur in isolation within the family unit but rather within different contexts.

### **SES meant different things to different people**

Although there had been no universally agreed-upon definition of socio-economic status or SES, in general terms, it had been viewed as a family's or individual's

ranking on a hierarchy according to access to employment, wealth, power and social status (Mueller & Parcel, 1981). SES, not a new concept, could typically be tiered according to high SES, middle SES, and low SES which referred to the upper, middle two, and lower quartiles of the population, respectively. Ormrod (2008) suggested that the SES of a family indicated the family's situation within the community (e.g. the choices available to them (in terms of housing, purchases and lifestyle in general) and the educational opportunities they could offer their child(ren).

### **'Kiasu' parents who wanted to keep up with the Joneses**

Pearce (2006) viewed SES as a typical example of social structural factors, which could inhibit or enhance academic achievement. Sometimes, these factors could be outside an individual's control e.g. in a recession, an individual might be retrenched and this loss of job in turn affected the family's SES. Another critical factor could be the growing national pre-occupation to get the pre-school child ready for primary school. Such had been the trend in Singapore as evidenced by websites for 'kiasu' parents, characteristic of the Singaporean culture of keeping up with the Lees, Tans and Chongs (or the Joneses).

### **What's wrong with being a 'Tiger Mom'?**

Cultural explanations tied outcomes to the beliefs and values taught to children and learned by children at the basic unit level i.e., family. Shared values and beliefs could serve as a 'glue' of sorts, to help the family to stick together and be identified as a cultural unit, defining who each member was and one's affiliation to another within the group (family) as well as to other groups. How each member felt about himself or herself had to be important; indeed, how each parent felt about his or her role was crucial.

Thus, it would not be wise to judge the ‘Tiger Mom’; after all, mothers regardless of ethnic group, occupation, culture and SES, would naturally endeavour to have the best for their children and they tended to do whatever they could to achieve that.

### **MOE started own kindergartens**

SMS Indranee Rajah (2014) in her COS 2014 Debate speech stated that “the first five pilot MKs started their first batch of K1 classes in January 2014. All of them are progressing well” (para 59). SMS Rajah (2014) added that “five more MKs will commence operations in 2015. .... these five kindergartens will also have care services, because we understand the need of working parents, and we will continue to pilot innovative approaches to teaching and learning” (paras 61-62).

To ensure affordability for those in the lower income bracket and for families with low SES, SMS Rajah (2014) explained that “we will also continue to reserve a third of the places at these kindergartens for low-income families, and provide subsidies. So, every child in pre-school will have access to the opportunities afforded through education, irrespective of their financial background” (para 63).

### **Main indicators of SES**

The three main indicators of SES were household income, parents’ occupations and parents’ educational levels (Duncan, Featherman & Duncan, 1972). More current research such as that conducted by Dubow, Boxer, and Rowell Huesmann (2009) seemed to validate the research work by Duncan et al (1972) which was already about 44 years old. Dubow et al (2009) viewed parents’ educational level as an important predictor of children’s educational and behavioral outcomes. Interestingly, maternal education which

correlated with SES as a whole, increased in importance as it was linked to parenting beliefs and behaviours across ethnic groups and cultures (Bornstein, Hahn, Suwalsky, and Haynes, 2003).

SES could also influence contexts. After all, children and their families belonged to different SES backgrounds. Family SES had been viewed as a powerful predictor in many areas of child development (Hoff, 2003), with effects beginning prior to birth and continuing into adulthood (Bradley and Corwyn, 2002).

Sirin (2005) cautioned that children from low SES families were more likely to attain low grades and test scores, to repeat grades during their schooling and to drop out before finishing. Research also showed that many of such children received no early education during the preschool years (Australian Bureau of Statistics, 2005; Select Committee on Children Youth and Families, 1990). Lee and Burkam (2002) cautioned that children from low SES families “start school disadvantaged with lower cognitive skills at lower-quality schools”.

On the other hand, Shonkoff and Phillips (2000) highlighted that parents with high SES read more to their children, engaged them in more conversations and provided more teaching opportunities, compared to low SES parents. Moreover, Bradley and Corwyn (2002) highlighted that families with middle and high SES were often in a better position to make their children more ready for school because they, compared with low SES parents, typically could access a wider range of resources. The situation had not been much different in Singapore.

In the USA, in the primary (elementary) grades, as early as the 1990s, Entwisle and Alexander (1993) observed that there was more social class variation between schools than within schools. This was possibly because neighbourhood boundaries and

school catchment areas generally matched so that children from similar SES backgrounds tended to enrol in the same school, creating stark inequities between schools. This was a relevant observation as the preschool in this case study along is only one of 369 preschools run by the Foundation (mentioned earlier in the preceding chapter). These preschools tended to attract children from the lower SES families because of its convenient and accessible geographical location in the housing estates where such families lived.

On the other hand, families from higher SES tended to enrol their children in schools which charged higher fees and thus the school could afford even state-of-the-art learning facilities. Wenglinsky (1998), who compared low-SES schools with higher-SES schools, uncovered several important differences in terms of instructional arrangements, materials, the experience or qualifications of teachers, and teacher-student ratio.

The ramifications and repercussions of such a phenomenon presented lessons for policy-makers interested in and committed to good policy-making in the future. This explained why schools in the Bukit Timah area (where families of high SES resided) had been producing top students at the GCE 'O' levels and GCE 'A' levels. As reported in a press article that made the front page on 25 January 2011, the late Minister Mentor, Mr Lee Kuan Yew who was Singapore's first PM, publicly articulated his observations that "parents' background (is) the edge for students at top schools" and that "higher-educated parents tend to foster better learning environment" (The Straits Times, 2011, p. 1).

### **Family size, social and cultural factors count too**

One might think that the greater the number of siblings in a family, the less attention could be given to each individual child. However, the size of the family alone could not determine the literacy development of a child which could be caused by multiple factors. As long as 56 years ago, Bruner (1960) reminded us that "Education does *not only* occur in

classrooms, but around the dinner table when family members try to make joint sense of what happened that day” (p. 72) (*italics mine*).

The inter-play of factors could not be over-emphasised. In other words, interactions between SES and other factors must be considered when seeking to achieve developmental outcomes. According to Bradley and Corwyn (2002), disentangling how SES influenced children’s well-being from other factors remained difficult as a child’s development would be influenced by multiple factors. For low SES children in particular, it is not easy to separate SES from other factors such as single parenthood, minority status or the learning environment.

Indeed, according to Toutkoushian and Curtis (2005), other factors such as parents’ involvement in children’s education or parents’ emphasis on education might explain higher levels of student achievement rather than SES *per se*. This supported what White (1982) had mooted decades ago i.e. that it might be how parents brought up their children (reading to their children, taking them to the book store or libraries, encouraging them in school or helping them with their homework) rather than their income, occupation and education that made the difference.

Perhaps, this discussion on social capital would not be complete without the advice of Amartya Sen, recipient of the 1998 Nobel Prize for Economics. Sen (2001) reminded his audience at a presentation for the World Bank Group that “no one debates whether culture matters, but how it matters” (n.p.). Sen (2001) also stated that “culture does matter to development because it is about the way the people live, and how the quality of their lives are improved” (n.p.). After all, “culture is one of the things that will influence the success of development. Even if you have high GNP per capita, without art, literature, music, life would not be worth living” (Sen, 2001, n.p.).

**Importance of the family unit**

There is a need for children to be frequently engaged in increasingly challenging activities with someone such as a parent, over a long period of time to develop socially, emotionally, cognitively and physically (Bronfenbrenner, 1979). While other settings including school, church or day care had been considered as important to child development, none of these were as important as the family unit.

Children's development could be further enhanced when families are supported by other people and settings. Thus, appropriate government policy could reduce inequalities in schools and increase the ability of teachers and parents to promote the development of the child. Suffice it to highlight that SES could moderate as well as mediate children's outcomes and is often difficult to disentangle from other factors.

**Mediation and mediated learning**

In a study with 150 kindergarten children of ages 5 to 6 years, Klein, Nir-Gal and Darom (2000) examined the differential effects of three types of adult interaction namely mediation or expanding, encouraging and regulating behaviour; accompaniment, or just responding to children's questions; and no assistance. They found that with adult-mediation, children showed higher levels of performance on cognitive tasks compared to other children who did not have such adult-mediated computer activity.

Mediated learning occurred when adults were involved in the learning environment and provided children with meaningful learning experiences (Feuerstein, Rand & Hoffman, 1979). In the study by Klein et al (2000), children in adult-mediated computer environment scored significantly higher than those in other environments such as one with an adult available to answer their questions and the other in which children received technical assistance only. According to the British Educational and Communications Technology

Association or BECTA (2008), without adult mediation, children's ICT activity "does not make full use of computer technology for the benefit of children's development in the pre-school years" (n.p.).

### **Quality of child care**

Researchers concurred that some developmental outcomes might be influenced by the quality of care received by children (Lamb, 1998; Siraj-Blatchford, 2009). One of the most widely-replicated findings in child care research is that higher quality care was a predictor for enhanced cognitive-linguistic academic functioning (Pluess & Belsky, 2009).

General definitions of high quality care included warm, supportive interactions with caregivers in a safe, healthy and stimulating environment, where early education and trusting relationships combined to support children's physical, emotional, social and intellectual development (Clarke-Stewart & Allhusen, 2005). Indeed, twenty years earlier, Collins, Harris and Susman (1995) suggested that warm, engaging and supportive parent-child relationships were associated with social, cognitive and linguistic development. This suggested that the literature on the characteristics of quality care had not changed over the last 20 years.

### **Structural and process features**

The National Institute of Child Health and Human Development (NICHD) measured quality of care in relation to structural features and process features (NICHD, 2006). Structural features included group size, physical settings, caregiver qualifications, adult-child ratios and could be regulated by state or agency policy. Process features referred

to the interactions between caregivers and children, and the programmes and activities that children engaged in.

According to the NICHD (2006), structural features predicted process features, which in turn predicted children's behaviour and development. In child-care settings that met higher quality standards, care-giving is more positive and resulted in better children's outcomes. Research by NICHD consistently showed a link between higher quality care and better cognitive and language development (NICHD Early Child Care Research Network, 1998, 2000, 2001) as well as better vocabulary scores in the fifth grade (NICHD Early Child Care Research Network, 2007).

### **After-school programmes**

The No Child Left Behind Act of 2001 in the US which aimed to improve the performance of schools by increasing the standards of accountability for states, school districts, and schools, as well as promoting an increased focus on reading and maths had a large effect on After-School Programs (ASPs). Many ASPs in the US had aimed at serving low-income children because their neighbourhoods tended to be less safe than those of middle-income children, and because they were at risk for academic failure and required additional time in educational activities to supplement school experiences (Lauer, Akiba, Wilkerson, Apthorp, Snow & Martin-Glenn, 2006). Studies had also indicated that, in comparison with middle-income children, low-income children were more in need of after-school opportunities and more likely to benefit from them (Mahoney, Lord & Carryl, 2005; Miller, 2003).

There had been great public support for ASPs in the USA where 9 out of 10 Americans thought all youths should have access to ASPs (Afterschool Alliance, Lake, Perry & Associates, 2008). Based on the common perception that ASPs provided relatively more

opportunities for such stimulating experiences, considerable government funding had been allocated to ASPs (Gottfredson, Cross & Soule, 2007).

In Singapore, the need or demand for ASP services seemed to be purely economic; mothers wishing to re-join the workforce were generally not able to rely on their aged parents or parents-in-law to look after their children or provide their children with the desired cognitively-stimulating experiences. In Singapore, there is a monthly subsidy of \$300 for full-day child care and \$150 for half-day child care so that mothers might be able to return to the workforce, holding on to a full-time or part-time job. Working mothers of infants enjoyed a much higher monthly subsidy of \$600 to help them defray the costs of expensive infant-care services (MCYS, 2011).

According to Redd, Cochran, Hair and Moore (2002), many of the ASPs were observed to have been located in low-income neighbourhoods with large minority populations, and most of them targeted children who were considered at risk of one or more negative developmental outcomes. In Singapore, where 80% of the population lived in high-rise buildings in the heart-lands well-served by centres offering ASPs, children from the low SES background tended to go to those centres charging lower fees. Thus, in many ways, social segregation (according to SES) would begin at an early age. Suffice it to highlight that the studies in the USA could not be generalised to the populations in Singapore where there is still a dearth of published data on the subject of ASPs and their impact.

According to Vandell and Posner (1999), “these differences (in children’s dispositions, environments and interactions) are meaningful and are related to the families and neighbourhoods in which the care is situated, and the developmental and individual characteristics of the children utilizing the care” (p. 174) e.g. ASC seemed to benefit children from low income families more as the programmes provided enrichment not available at home.

The ASP could be considered a context for children's development and constituted part of Bronfenbrenner's (1979) microsystem. Children's experiences after school were influenced by the other systems, especially the exosystem which included parents' place of work, community-based services and mass media, and the macrosystem comprising of laws, customs, values and beliefs of the society within which the child lived. The child was thus centred in the middle. The inner circle showed the factors that could immediately affect children's development and experiences while the outer circle showed the factors that could influence children's time after school more distantly. The outer circle containing more distant influences also affected children's after-school experiences and development.

The time in history determined the economic climate of the country where children lived as well as societal attitudes and thinking about child development. Laws and policies determined parents' working conditions, while social policy shaped family experiences. The society in which children lived influenced their experiences with societal norms. Different societies had varying lengths of school days and public programmes for children. The media also had an impact on children's experiences. Children spent more time today before a screen, be it the computer, television or the computer game, than in the past. All these factors (including and not limited to ICT) would shape the children's after-school environment.

According to Bronfenbrenner (1973), child development is important because “. . . if the children and youth of a nation are afforded opportunity to develop their capacities to the fullest, if they are given the knowledge to understand the world and the wisdom to change it, then the prospects for the future are bright; In contrast, a society which neglects its children, however well it may function in other respects, risks eventual disorganization and demise” (p.1).

## Use of ICT

The literature on the use of ICT across the world provided valuable insights on how teaching and learning could take place more effectively. In a magazine article for young families, Chong (2012) asked if we could avoid technology and ICT in our day-to-day routines, notwithstanding the observation that “ICT has shifted some amount of teaching and learning from ‘chalk and talk’ to ‘click and drop’” (p. 21). He challenged us to think about the ubiquitous iPhone that is “more than a phone. It is also a photo album, a movie player, a ‘don’t-leave-home-without-it’ digital organizer and more” (Chong, 2012, p 21). However, Chong (2012) persuaded that “it is not just about IT or technology that children learn” because children would “also have the opportunities to work in pairs or small groups, to socialize and get along with one another even as they go about their digital artworks. By doing so, children communicate with one another and express their likes and dislikes” (p. 21).

Mindful that ICT is not to be equated with school success, it is important to note that ICT is not necessarily a panacea for the future demands at school or at work. What is certain, however, is the fact that the implementation of ICT is not without pain and problems as shall be further discussed in this chapter. The rest of this chapter would list the benefits and challenges of using ICT as well as the insights on which other countries had adopted ICT to prepare their next generation.

Research on the impact of preschool computer use on concepts of print, phonological awareness, and phonics is not as rich or current and many studies showed no difference compared to control group or suggested that teachers made the difference rather than one programme or another (Coiro, Leu, Kinzer, Labbo, Teale, Bergman, Sulzen & Sheng, 2003). This is because any impact depended on how ICT is used to enhance teaching and learning.

Another area of research that demonstrated the impact of computer use on preschooler's vocabulary and background knowledge is somewhat dated but it actually showed that such studies had been taking place quite early. In the early 1990s, Haughland (1992) highlighted that 3 and 4 year olds who used computers with supporting activities had significantly greater gains in intelligence, verbal skills, structural knowledge, long-term memory, and conceptual skills. This, however, must be tested across more classrooms, counties, countries and cultures and with a simple examination of exactly how the computers were used and for what purpose.

A more recent study by Tsantis, Bewick and Thovenelle (2003), however, seemed to validate the finding that computers remained a valuable source of technology enabling children as well as teachers to learn knowledge so they might become skilled learners who were comfortable, confident and competent. After all, ICT and computers provided a different source of multisensory or multimedia experiences (complete with sound, text, graphics and animation) that could enhance as well as extend a child's learning experience.

### **ICT use is not the same as TV watching**

Unlike film, radio and television, the computer required users who had to be more active and less sedentary. In fact, with computer programmes and applications like Brushes and SketchBook Pro, there is a growing community of 'finger painters' who used the iPad and iPhone to create exciting and vibrant artwork using just their fingers.

Digital art, of course, is not a replacement of but a supplement to the hands-on experience of splashing paint on paper or canvas (which is fun); indeed, it played a role in "widening our children's experience and repertoire" (Chong, 2012, p. 21). Children took

ownership of their digital finger-painting work as well as enjoyed the experience as they thought through the revisions they could make almost instantaneously.

### **Importance of ICT**

According to the leaders of the world's 8 major industrialized democracies, ICT had become an engine of growth for the global economy (G8 Heads of State, 2000) and they urged the development of ICT literacy and skills through education, training, and lifelong learning. But it is not only the leaders of developed nations that stressed the importance of ICT. The OECD (2001, 2006) also emphasized the importance of ICT in developed countries and highlighted the need for early development of ICT skills among young people so as to develop a workforce with ICT skills.

The United Nations as well as the World Bank advocated the use of ICT as a critical success factor in the development of the world's poorest countries. In concurrence, the African Heads of State also promoted the use of ICT to improve health care and make education more available (African Union, 2004). At the World Summit on the Information Society, the United Nations (2005) noted the potential of ICT to boost literacy and make quality education more accessible in developing countries.

“Global calls are being made for ICT to be understood as a multifunctional tool for Early Learning that is used to introduce and support, but not replace, real life experiences and physical activities” (IBM Kidsmart, 2004, n.p.). This literature review on ICT provided a contextual framework for the investigation of teachers' ICT-readiness. The various approaches of ICT across the world provided insights to the infrastructure and the growing ICT-driven environment of teaching and learning. ICT could be harnessed to support learner-centred education for all students, to support learning at a distance, to support

broad access to usable information in all fields, opening the door for communications across the world so as to produce better-prepared graduates and to develop the workforce.

### **ICT-readiness and thinking**

Being ICT-ready is more than just being able to use ICT and computers; it is also about thinking. In explaining the importance of ICT to the development of thinking skills, Chong (2012) encouraged teachers to “harness ICT to raise the quality of teaching and learning” and highlighted that “ICT provides many benefits to teachers and learners.... helps children solve problems, think for themselves, and collaborate with other children.... promote(s) the child as an active learner.... enables teachers and parents to spend more time encouraging children to become active participants in their learning.... (and) frees adults and gives them the opportunity to step back a little and observe the learners in action, and to focus on the art of leading and nurturing the children in the development of higher-order thinking (HOT) skills such as analysis and discussions” (p. 21).

### **ICT and the Internet**

According to the Internet Society, there were four (4) Internet host computers in 1969, one hundred thirty thousand in July of 1989, five million in January of 1995, more than 25 million in November of 1997, over 200 million hosts in 2002 and “almost 80% of the planet will be connected on the internet by 2010” (Internet Society, 2011, n.p.).

The Internet had transformed how people interacted with information and with one another through such capabilities as digital online portals, videoconferencing and data streaming. In her COS 2014 Debate speech, SMS Indranee explained the need to keep “equipping Singaporeans for the future” (MOE, 2014, para 23). SMS Indranee pointed out how technology had transformed the way we worked. She spoke of the few machines which

had been known as the forefront of technology some 26 years ago in law firms, namely the electronic typewriter with a two-line screen, the telex machine, the fax machine, and the phone that was routed through the switchboard (MOE, 2014, para 25) and cautioned that “today, we have the iPhone..... this one single device has disrupted jobs and changed the economic scene” (MOE, 2014, para 26).

According to the Internet Society (2011), globally, the number of Internet users had risen steadily in the last decade, from approximately 400 million (roughly 7 users per 100 inhabitants) in 2000 to 1.8 billion (about 27 users per 100 inhabitants) in 2009. In 2000, approximately 400 million people, or 7 in 100 people globally, had been reported to be using the Internet, and in 2009, this statistic is estimated to be 1.8 billion people, or about 27 users in 100 people globally (Internet Society, 2011).

Born as a method of assuring the continuation of command and control functions of the Department of Defense under circumstances of war, the Internet was designed to continue to function regardless of the number of Internet host computers destroyed or disabled. According to the Internet Society (2011), post-secondary institutions (especially universities) were “early adopters of the Internet protocol on their campuses, due primarily to the sponsorship and leadership of the National Science Foundation of the USA” (n.p.). The world- wide web (www) is part of the internet.

According to the Atlantic (2015), “in 1994, for example, there were fewer than 3,000 websites online” but by 2014, this grew phenomenally to “more than 1 billion” or “a 33 *million percent* increase in 20 years”! In Singapore, by 2016, all primary as well as secondary schools used the internet and every single school has a web presence in cyberspace (MOE, 2016). Moreover, in Singapore, few pre-schools are using the internet and ICT as part of their curriculum (town4kids, 2012).

It remained unclear how ICT was affecting student achievement in schools. Nevertheless, there was little doubt that the computer revolution has gone to schools throughout the world (Russell & Haney, 2000, p. 2). ICT education might be seen in various forms including ICT as skills with particular emphasis on tool skills and ICT as an end in itself that provided conceptual frameworks for integrating content and skills learned in other subjects.

To save time and resources, it is wise to learn how schools in other countries had been charting their course in this dynamic world of ICT changes in order to inform the way each country's development of ICT-ready teachers should be crafted. As an integral part of this case study, a global scan of ICT implementations was carried out.

### **International approaches to ICT in education**

Across various countries, the implementation of ICT in the schools has had many challenges. First and foremost, in any country in the world, ICT must be affordable. Otherwise, we only served to unwittingly increase the digital divide between those who could afford and those who could not. IBM's spokes-person Ms Doris Gonzales cautioned that "we must not lose sight of an equally serious source of disparity" and added that "no amount of bandwidth and processing power will close the gap between the advantaged and disadvantaged till every child has access to a high-quality education" (Gonzales, 2002, p. 7).

Buying a computer was only an initial expense and in addition there were costs for software, maintenance and services. The total costs of using ICT across pre-school settings could quickly escalate. Indeed, the total costs of ownership could be quite staggering. Teachers must therefore be equipped to find appropriate and effective curriculum integration to justify the costs. Moreover, teachers must be able to guide students to safely navigate through the internet especially since there had been a lot more pornographic or

inappropriate material than there are educational resources on the internet (PAGi, 2002).

Teachers are also tasked to continually master new technologies so as not to be left behind in the Information Age, especially when governments and their education ministries look to education as a way to ensure their future global competitiveness in a digital age.

The following review of approaches to ICT in education provided insights on the way various countries had been harnessing ICT in education. The review is based on a comparison with the USA on one hand, and a group of countries like Australia, Austria, Belgium, Canada, Chile, China, Denmark, England, Hong Kong, Israel, Japan, Korea, New Zealand and Singapore, on the other hand. Thereafter, a more detailed review of Singapore's ICT implementation became the focus so as to understand how ICT influenced literacy development of pre-school children.

This broad review of the ICT approaches by the above-mentioned 14 countries revealed that all 14 countries implemented ICT at primary, secondary and tertiary education levels whereas only several countries like Austria, Canada, Chile, China, Denmark, and South Korea had an ICT Plan that covered ECE.

Table 2-4 summarized the main points of each approach. It would be interesting to note that Singapore had only just begun to implement ICT at the pre-school level and even then, its efforts had been modest and confined to several PCF pre-school centres and a few niche preschool chains like ChildFirst (ChildFirst, 2016b) and Eton House (Etonhouse, 2017, n.p.). These PCF pre-school centres were funded by the Infocomm Development Authority or iDA to implement a pilot project called "Infocomm for Kindergartens of the 21st Century" or iK.21 which shall be discussed in greater detail later on in this chapter.

Table 2-4: Summary of ICT approaches by 14 countries

| Country/<br>Ministry   | Emphasis  | Any Pre-school<br>implementation<br>?   | Any other<br>levers?  | Internet<br>access<br>(per 100<br>users)                                     | Remarks  |
|--|---|---|---|--|--|
| <b>1) Australia</b><br>The Ministerial<br>Council on<br>Education,<br>Employment,<br>Training and<br>Youth Affairs<br>(2006)   | Integration of<br>ICT by<br>Australian<br>schools.<br>Supported<br>experiential,<br>constructivist<br>learning  | Focus had been<br>children older<br>than primary<br>school age<br>(Arthur, 2010).   | Engaged<br>students to<br>learn in<br>cooperative<br>learning<br>groups.  | 72<br>internet<br>users in<br>Year<br>2008<br>(behind<br>USA and<br>Iceland) |  |
| <b>2) Austria</b><br>Austrian<br>Federal<br>Ministry of<br>Education, Arts<br>and Culture or<br>Bundesministeri<br>um für<br>Unterricht,<br>Kunst und<br>Kultur, or<br>BMUKK<br>(2010) | Its provincial<br>governments<br>used federal<br>government<br>guidelines to<br>implement<br>their ICT<br>strategies to fit<br>their own<br>contexts and<br>meet their own<br>goals.<br><br>Focused on<br>building and<br>maintaining<br>communities<br>of ICT-<br>competent<br>teachers. | Developing<br>literacy among<br>pre-schoolers<br>while leveraging<br>on technology,<br>game-based<br>learning,<br>collaborative<br>learning<br>methods,<br>interactive<br>whiteboards and<br>the internet<br>(Hawle &<br>Lehner, 2010). | Collaborative<br>learning rather<br>than frontal<br>teaching with<br>'old' chalk-<br>and-talk<br>methods.<br><br>Game-based<br>learning<br><br>whiteboard<br>and netbook<br>use | 71<br>internet<br>users  | Pursued a 1-<br>to-1 computer-<br>to-student ratio<br>and preferred<br>mobile devices<br>such as<br>smartphones<br>and netbooks<br>to reach that<br>target.<br><br>The BMUKK<br>favoured<br>increasing<br>students' and<br>teachers'<br>access to<br>online<br>resources<br>through <i>mobile</i><br>devices, rather<br>than installing<br>hardware in<br>the<br>classrooms. |

| Country/<br>Ministry  | Emphasis  | Any Pre-school<br>implementation<br>?  | Any other<br>levers?  | Internet<br>access<br>(per 100<br>users) | Remarks  |
|---|---|--|---|--|--|
| <b>3) Belgium</b><br>A central organization, the Flemish Ministry of Education and Training determined educational policy, school funding and finances as well as monitored the achievement of pre-defined educational goals. | However, the Ministry did not interfere directly in <i>local</i> school policy. (De Craemer, 2010; Denis, Valcke, & van Braak, 2009).               | Focus had been children older than primary school age (Flemish Ministry of Education and Training, 2007).            |   | 68.86 internet users                     | Local schools enjoyed much autonomy and were also responsible and accountable for policy and practices involving ICT.  |
| <b>4) Canada</b><br>The western province of Alberta is considered a leader in ICT in education.   | Since 2004, Alberta had been working towards providing ICT access to schools e.g. classrooms with computers, interactive whiteboards and projectors | Curriculum standards referred to a set of general student outcomes for various grade divisions including grades K–3. | Leveraged on both wired and wireless networks, as well as access to online tools.   | 75.43 internet users                     | The government ensured school access, plus services for teaching and learning, including in the rural areas.   |
| <b>5) Chile</b><br>Since 2007, Enlaces had been implementing a national plan called Technologies for a Quality Education or Plan Tec (Enlaces, 2012a, 2012b).   | Its top objectives were closing the digital divide, increasing teachers' ICT skills and developing new-generation digital resources.                | Plan Tec addressed students from preschool through high school (ages 4–18) (Enlaces, 2012f; Hepp, 2004).             | The Ministry also used other modes of telecommunications e.g. national radio to inform parents to enroll their 4-year old children in the new national preschool programme (Enlaces, 2012c, 2012d). | 32.47 internet users                     | Instead of investing a lot of resources into mobile computing, Enlaces invested into schools to make them the best-wired hubs and <i>rendezvous</i> for the larger community (Enlaces, 2012e). |

| Country/<br>Ministry  | Emphasis  | Any Pre-school<br>implementation<br>?  | Any other<br>levers?  | Internet<br>access<br>(per 100<br>users)  | Remarks   |
|---|---|--|---|---|---|
| <p><b>6) China</b><br/>At the macro-level, by June 2009, the number of netizens recorded was at a staggering 338,000,000. This was a penetration rate of 25.5%.</p> | <p>By 2009, China had become “the world’s largest Internet infrastructure (and) covered all the counties, cities, and towns in China, providing internet access to 90.9% of the administrative villages” where schools were also located.</p> | <p>As of 2009, China has 138,200 kindergartens, with a year-on-year increase of 3.37%.</p>   | <p>Leveraged on the private sector:<br/><br/>In 2010, Shanghai alone has 1,252 kindergartens, 396 or 32% of which were private ones, furnished with state-of-the-art ICT.</p>   | <p>Use of internet is uneven across such a big country, and records are not up-to-date, especially involving rural areas.</p> | <p>The operators of private kindergartens were recognised for “playing a dominate role in the construction and development of kindergartens in China”, with 64.6% of market share in 2009, far exceeding government-linked kindergartens.</p> |
| <p><b>7) Denmark</b><br/>The Danish Ministry of Education oversees public education in Denmark (Larson, 2009).</p>  | <p>The building of day care centres was one of 2 key programmes for educational ICT infrastructure and support.<br/><br/>Education is compulsory for children aged 6–16 years (grades K-9).</p>   | <p>Day care centres were equipped with computer hardware (Danish Evaluation Institute also known as Danmarks Evalueringsinstitut, 2009).</p> | <p>The ‘Electronic Meeting Place for the Educational World’ or EMU, was possibly the most prominent example of improving learning through ICT innovation. EMU was a widely-used national web portal run on an annual budget of USD2–3 million</p> | <p>83.89 internet users</p>   | <p>In 2007, the computer-student ratio was 1:4, for grades K–9, making Denmark a country with one of the highest computer-to-student ratios in Europe.</p>  |

| Country/<br>Ministry   | Emphasis  | Any Pre-school<br>implementation<br>?   | Any other<br>levers?   | Internet<br>access<br>(per 100<br>users) | Remarks  |
|--|---|---|--|--|--|
| <b>8) England</b><br>Education oversight for entire UK is decentralized to England, Northern Ireland, Scotland, and Wales (Cox, 2009). | England has the required ICT infrastructure in place, a goal it achieved as early as 2006 when 99% of schools had online access. However, little was mentioned about preschools.                    | Focus had been children older than primary school age (Brown, 2009; Brown & Chamberlain, 2009).   |  | 76.24 internet users                     | Northern Ireland, Scotland, and Wales have generally similar systems but implemented different activities.   |
| <b>9) Hong Kong SAR, China</b><br>(Education Bureau, 2007, 2008, 2009; Education and Manpower Bureau, 1998)                            | The Ministry had provided resources and supports for primary and secondary schools – for an ICT-enabled learning environment that extended learning opportunities beyond the traditional classroom. | Little was said about funding preschools which were largely privately-run. Focus had been children older than primary school age Education and Manpower Bureau, 2004, 2005) | The Ministry looked to private corporations to develop sustainable ICT resources for the classroom, similar to its successful experience with the textbook publishing industry (Education Bureau, 2009). | 74 internet users                        | Its Education Bureau was responsible for the implementation of all educational planning, policy-making and funding in HK (Education and Manpower Bureau, 2005; Law, 2009). |

| Country/<br>Ministry  | Emphasis   | Any Pre-school<br>implementation<br>?   | Any other<br>levers?   | Internet<br>access<br>(per 100<br>users)  | Remarks   |
|---|--|---|--|---|---|
| <p><b>10) Israel</b><br/>Israel's centralized education system, under its MOE, served about 1.8 million students in grades K–12. Education was free and compulsory for students through age 16 (Dayan, 2010a, 2010b).</p> | <p>In Israel, most ICT in education programmes began as pilot initiatives, operating on a smaller scale (ISRAEL21c, 2010).</p> <p>Expert mentors are experienced in the use of ICT in the classroom.</p>   | <p>Focus had been children older than primary school age.</p> <p>A new push by the Ministry required teachers to demonstrate an ability to teach using ICT in order to qualify as teachers.</p> | <p>Israel enjoyed broad private sector support for its ICT in education initiatives.</p> <p>Israel had national ICT standards for students <i>as well as</i> teachers. Data estimated in 2010 showed that 8% of teachers were meeting these standards.</p> | <p>49.64 Internet users</p> <p>15% of its 1.8 million students were recent immigrants and 20% of whom were Arab, Bedouin or Droze minorities.</p> | <p>If teachers were not yet able to demonstrate required competencies, more support would be provided until they passed the exam.</p> <p>Additional ICT-related support was also available to teachers via expert mentors.</p>  |
| <p><b>11) Japan</b><br/>In June 2010, Japan's Ministry of Internal Affairs and Communication launched the Future Schools project (Ministry of Education, Culture, Sports, Science and Technology, Japan, 2010a).</p>      | <p>With such easy internet access, there was a growing concern for student inappropriate uses of ICT, online bullying and other negative effects e.g. disrespectful, defamatory or seditious comments.</p> | <p>Focus had been on primary and secondary schools (Ministry of Education, Culture, Sports, Science and Technology, Japan, 2010b).</p>  | <p>A large project such as the Future Schools project was aimed at providing digital textbooks and learning resources through one-to-one computing to every student aged 6–15 years.</p>   | <p>75.4 internet users</p>  | <p>Japan's decentralized educational administration system was under different bodies at the national, prefectural and municipal levels – resulting in a wide variety of ICT infrastructure in schools, across prefectures.</p> |

| Country/<br>Ministry  | Emphasis   | Any Pre-school<br>implementation<br>?   | Any other<br>levers?  | Internet<br>access<br>(per 100<br>users) | Remarks  |
|---|--|---|---|--|--|
| <b>12) Korea</b><br>The Korean Ministry of Education, Science and Technology (MEST) supported by the Korea Education and Research Information Service (KERIS), developed the national curriculum. | KERIS supported MEST's broader goal of becoming an education superpower through the effective use of ICTs. Exposure to ICTs at school begins as early as preschool (The Korean Ministry of Education, Science and Technology, 2010). | Preschools in South Korea had high-speed Internet connections to exploit a growing number of online resources designed specifically for ECE.<br><br>Public school started at about 6 years of age and ends at age 18. | S. Korea, widely regarded as a global leader in ICT in education, won a UNESCO prize and a Learning Impact Platinum Award   | 76.5 internet users                      | MEST also developed and approved the materials for teaching.<br><br>The Learning Impact Platinum Award comes from the IMS Global Learning Consortium, in 2007 (KERIS, 2008). |
| <b>13) New Zealand</b><br>Generally, K-12 education was centralized at the national level (Baldwin, 2010).  |  |   | Several government agencies have a say in the K-12 planning and supervision.  | 72 internet users                        | Most ICT spending and investments delegated to school leaders at the school level.   |
| <b>14) Singapore</b><br>The government, through its MOE, remained the primary driver of all education policy and administration (Koh & Lee, 2008).  | It was only recently in 2012 that MOE piloted the use of iPads but even then, it was restricted to the taking of attendance so as to track absences of pre-school children due to fever and SARS.                                    | All 3 IT Masterplans <i>did not include preschools</i> (Cheah, 2010a).<br><br>ECDA facilitates the use of ICT-based curricula in certain pilot preschools, where appropriate.   | Pre-schools may tap on ICT services from commercial or private sector vendors.<br><br>In 2013, a new statutory board, ECDA was formed. It plays a regulatory role for ECE in Singapore. | 73 internet users                        | Teacher education remained centralized under the NIE which provided all pre-service preparation and some in-service professional development                                 |

There are precious lessons that can be drawn from this review of the ICT approaches across the above-mentioned 14 countries, and these shall be discussed in the following pages.

### **Lessons from South Korea**

An interesting example of a country which had its preschools immersed in ICT is South Korea where exposure to ICTs began as early as preschool. However, countries like England, Japan, Israel and Hong Kong focused on children older than primary school age to be immersed in ICT. To gain a better picture of Korea's focus on ICT in education, one should consider the fact that its preschools had high-speed Internet connections to take advantage of a growing suite of online resources designed specifically for ECE. Moreover, ICT implementation is supported and driven by its highest authorities namely KERIS and MEST whose broader goal was making South Korea an education superpower through the effective use of ICTs.

### **Lessons from Chile and China**

Interestingly, Chile (CHL), through its Enlaces, invested resources into schools so as to make them the best-wired hubs and *rendezvous* for the larger community. A key lesson from the review focused on increasing teachers' ICT skills and developing new-generation digital resources as well as members of the larger community which explained why towns in China provided "internet access to 90.9% of the administrative villages" (World Economic Forum, 2011, n.p.).

For a huge country like China where the internet penetration rate is understandably uneven, averaging only 25.5% and the records are not up-to-date, a targeted approach might be better e.g. developing digital communities which explained why certain towns in China provided "internet access to 90.9% of the administrative villages" (World Economic Forum, 2011, n.p.). So, with a targeted approach, China's vast geography may not remain a hindrance as ICT may become pervasive one administrative village at a time.

## **Lessons from Europe, South Africa and Israel**

Over in Europe, the European Commission (2000, 2004) advocated a policy of “information society for all” and emphasized the need to bring every worker, student and citizen into the digital age. Within the European Union, Finland’s government policies focused on the social impact of ICT i.e. on collaboration and knowledge sharing. The Information Science Advisory Board (2000) recorded a Finnish Information Society Programme that envisioned a society that promoted knowledge and expertise as an integral part of “the culture and also the key factor in production” (p. 5). As part of this Information Society Programme, the MOE in Finland (2004) had developed the Information Strategy for Research and Education with several aims including the aim of developing information society skills among all students.

Similarly, the South African education ICT policy document (Department of Education, South Africa (2003) stated, “learning through the use of ICTs is arguably one of the most powerful means of supporting learners to achieve the nationally-stated curriculum goals ... (as ICT) encourages learner-centered learning, active, exploratory, inquiry-based learning; collaborative work among learners and teachers; and creativity, analytical skills, critical thinking and informed decision-making”. (p. 13).

For an advanced country like Israel (ISL), as far as ICT implementation was concerned, the focus had been children older than primary school age. What is particularly interesting about ICT implementation in Israel is the observation that the private sector actively participated in and supported the country’s ICT-driven education initiatives in terms of training, mentoring, curriculum resources, research and infrastructure.

Four governments (Canada, England, France and Israel) tied ICT skills to teacher licensing requirements. In France and Israel, only new teachers needed to meet this requirement. Norway tested teacher skills every two years as part of a national data

collection, but results were not tied to licensing or promotions. This observation of requiring teachers to be tested for ICT-readiness before they are licensed shall be discussed again in the final chapter when we explored recommendations.

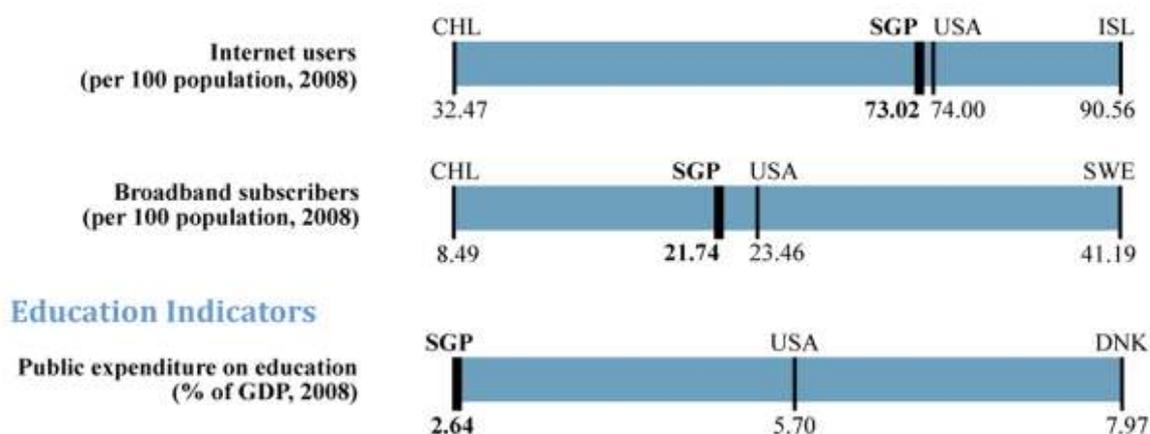
### **ICT in Singapore**

Having attained its infrastructure targets, Singapore turned its attention to advancing student uses of ICT to promote self-directed and collaborated learning, to enhance teacher capability and implement longer-term sustainability of programmes by delegating responsibility to school leaders at the local school level.

The government of Singapore, through its MOE, remained the primary driver of all education policy and administration. The Singapore MOE guides 10 statutory boards namely the Council for Private Education, 5 polytechnics, the ITE; the Yusoff Ishak-Institute of Southeast Asian Studies or Yusoff Ishak-ISEAS, the Singapore Science Centre or SSC and the Singapore Examinations and Assessment Board or SEAB (MOE, 2012). The SEAB administers national examinations such as the Primary School Leaving Examination or PSLE.

H. M. Cheah informed that teacher education remained centralized under the NIE at Nanyang Technological University (NTU), which provided all pre-service preparation and some in-service professional development (personal communication, May 3, 2010). The Ministry determined the number of teachers to be trained and provided public funding to cover teachers' full tuition.

As illustrated in Figure 2-9, Singapore's 2006 public expenditure on education expressed in percentage terms of the GDP, was 2.64%, trailing Denmark's 7.97% and USA's 5.7%.



**Figure 2-9. Comparison of ICT use in Singapore compared to other countries (US Department of Education, 2011)**

With a public expenditure on education of 2.64% of GDP, Singapore had about 73 internet users for every 100 (behind USA and Iceland) and 21.74 broadband subscribers for every 100 population (behind Sweden and USA but ahead of Chile). It appeared that in its ICT implementations, the Singapore MOE is more focused on children older than 6 years. Besides, the mandatory PSLE took precedence over ICT-readiness.

According to the Compulsory Education Act passed in 2000 in Singapore, education is compulsory for all children between the ages of 6–15 who must complete six years at a national primary school (Singapore Statutes Online, 2000, n.p.). Students had the option to enroll at state schools where education remained free or attend private schools run by community organizations, religious bodies or civic or business groups. At the end of the six years, all students sat for the mandatory PSLE, which resulted in their placement into differentiated educational tracks based on ability and interest, including: special, express, normal (academic) and normal (technical). Although authority over many aspects of education rested centrally with the Ministry, the monitoring of instructional programs had been delegated to the individual schools. The Ministry supervised neither school

administration nor implementation of programmes and instead left day-to-day operations and such questions to school leadership.

Singapore's national plan for ICT in education (master plan) was developed solely by MOE and covered students aged 6–15 only. Updated every five to six years, each master plan progressively laid the foundation upon which all the ICT in education programmes were designed in order to target particular needs.

The first master plan was launched in 1997 and was known as the MOE IT Masterplan. The MOE had not, at that time, considered 'communications' which explained why the masterplans were not known as ICT Masterplans, but IT Masterplans. In the beginning years, the MOE focused on building the infrastructure both in terms of technology (i.e. hardware, software and connectivity) and human resources to ensure that teachers achieved the basic competency required for using ICT.

The second master plan, launched in 2002, was aimed at capacity-building within schools, and pushed for cutting edge uses of ICT such as learning management systems (LMS), robotics, 3-D immersive environments. The third master plan or MP3 covered the period 2009–14 and aimed for students to “develop competencies for self-directed and collaborative learning through the effective use of ICT [and to] become discerning and responsible ICT users” with a focus on anytime-anywhere learning (MOE, 2009b, n.p.).

Implementation strategies, each of which was enacted through a variety of programmes, were drafted along with five key strands such as ICT in curriculum, pedagogy and assessment, Cyber Wellness, Professional Development, Research and Development, and ICT Infrastructure. The infrastructure was really beyond the basic infrastructure as we referred to the installation of fiber-optic cables in all schools in 2011 to facilitate high-speed

cyber-highways; this was subsequently accompanied by a shift to mobile devices for anytime, anywhere connectivity, and interoperability standards for LMS used by schools.

However, all IT master-plans including the third master-plan, did not include preschools (MOE, 2009). It was only recently in 2011 that MOE piloted the use of iPads but even then, it was restricted to the taking of attendance so as to track pre-school children who were absent from preschool due to fever and SARS. Today, after more than 4 years, the pilot project had only been trialed at no more than 12 preschools (ECDA, 2015). This is an extremely small number when we consider that there are 360 preschools under PCF alone, and more than 1500 preschools in Singapore.

The following Table 2-3 showed the preschools in Phase 1 and Phase 2 of the iK.21 project initiated by the MOE and the then-iDA (now known as the Infocomm Media Development Authority or IMDA) to explore the adoption of ICT in the pre-school education sector (IMDA, 2017, n.p.).

**Table 2-3. PCF Preschool Centres involved in iK.21:**

|         |  |
|---------|--|
| Phase 1 | PCF Tampines Central Blk 856-854<br>PCF Tampines Changkat Blk 106<br>PCF Tampines Changkat Blk 284-285<br>PCF Tampines East Blk 358<br>PCF Tampines West Blk 140-938<br>Preschool Learning Academy @ Temasek Polytechnic |
| Phase 2 | PCF Cheng San-Seletar Blk 435<br>PCF Cheng San-Seletar Blk 533<br>PCF Teck Ghee Blk 301<br>PCF Teck Ghee Blk 319<br>PCF Teck Ghee Blk 415<br>PCF Teck Ghee Blk 466   |

According to ECDA (2015), the purpose of iK.21 is “to optimise, contextualise and integrate the use of ICT to enhance the learning experience and environment of pre-school children in a collaborative, enriching and interactive way” (n.p.).

In a speech made on 5<sup>th</sup> July at the PCF-Polytechnic Study Awards 2014, PCF Charity Management Committee Member Ms Grace Fu announced that “we have been relentlessly focusing on raising the quality of our pre-schools. We re-designed our curriculum, upgraded our centers and re-trained our teachers. PCF revamped its central kindergarten curriculum in 2013 using MOE's Refreshed Curriculum Framework as the basis. Innovative pedagogical learning aids such as LEGO and iPads were employed to enhance our pre-schoolers' learning experience” (People’s Action Party, 2014). Ms Fu was then the Minister in the PMO, Second Minister for the Environment and Water Resources, and Second Minister for Foreign Affairs. She is now the Minister for MCCY.

However, with ICT, preschools with a shortage of skilled language teachers may tap on services from commercial vendors from the private sector, to ‘share’ their scarce resource so that children within the same network may learn from that skilled language teacher. In fact, this has been done for many years and EdnoLand has been successful in stimulating pre-schoolers’ learning, winning recognition from Fortune, Asiaweek, STAR TV, Koran TV, German TV and CNN (Ednovation, 2012). ECDA also facilitates the use of ICT-based curricula in certain pilot preschools, where appropriate (Early Childhood Development Agency, 2013c).

Despite or perhaps because of the different ways in which Singapore has implemented ICT in education, Singapore’s students had done well in international tests. Darling-Hammond (2010a) reported how, in 2003, Singapore's fourth and eighth grade students scored first in the world in math and science on TIMSS assessments.

Over the last 40 years, Singapore's education system that provided its children "access to strong teaching, an inquiry curriculum and cutting-edge technology" had transformed its cluster of fishing villages or 'kampung' into an economic powerhouse Darling-Hammond (2010a). One fine example was how ChildFirst (2016b) provided an immersive learning environment rich in languages and ICT (n.p.). ChildFirst preschool children in Singapore used ICT to learn both English and Chinese languages (ChildFirst, 2016b, n.p.).

### **Private Sector Involvement**

The government consults with the private sector in its development of policies and programmes to address particular needs identified by the Ministry and in support of its programmes. It does not systematically engage with private institutions. Rather, these arrangements are project-dependent and developed in accordance with mutual goals and agreements. For example, the Ministry has a memorandum of understanding with Microsoft to provide resources, financial or in-kind, to engage in projects such as Cyber Wellness Education or professional learning circles.

### **Masterplans and ICT standards**

Singapore achieved its infrastructure targets during the first master plan, which ended in 2002 (Cheah, 2010). Ongoing efforts occurred at a smaller scale and focused on enhancing the existing infrastructure, such as current initiatives to equip schools with fiber-optic cables to improve connection speed and to integrate mobile devices in order to extend learning beyond traditional classroom boundaries and facilitate anytime-anywhere learning, a key outcome of the third master plan.

Singapore is still developing and measuring 21<sup>st</sup>-century competencies. Called Baseline ICT Standards (2009), this set of minimum ICT skill competencies are for students of ages 6 to 16 years. The Standards covered skill areas mapped against commonly used learning tools used in an ICT-driven workplace, namely basic computer operations, Internet (searching), word processing, multimedia, spreadsheets, communication tools, and data-collection tools. Generically termed to facilitate integration into core subject areas and project work, the Standards were benchmarked against international ICT standards as well as curriculum and existing practices in schools. They also emphasized ethical, legal and safe use, which is supported by the MOE's Cyber Wellness programme, one of the key priority areas under the current masterplan. Teachers also accessed an Internet-based platform called Edumall 2.0, for digital content produced or procured by MOE (MOE, 2012).

### **Importance of the teacher**

Not everything is about technology; this explained why the MOE accentuated the importance of the teacher, the change agent in the learning environment. Hence, one of the Ministry's "ground-up" efforts to identify teacher champions and role-models had been the comprehensive ICT Mentorship programme. Teacher champions or ICT mentors under this programme trained at least two colleagues each year while assisting with the integration of ICT into the curriculum for the school. The MOE aimed to have 4 ICT mentors per school by 2012, or about 5–8 percent of the teacher population in schools. However, such plans had not moved into the pre-schools yet. Indeed, there is little ICT mentoring in the pre-schools which are largely driven or operated by private sector and large voluntary welfare organisations (VWOs). The former are profit-driven and the VWOs such as the PCF and NTUC First Campus endeavor to provide a good level of service at affordable rates (PCF,

2014, n.p.). It was only in January 2014 that the government started operating preschools (MOE, 2013, n.p).

There had been no infrastructure support for ICT in preschools apart from a modest pilot project on the use of iPads to mark attendance of preschool children; PCF's vendor Little Lives recorded the following scenario in PCF Zhenghua kindergarten in Bukit Panjang:

"What sets this high-tech classroom apart is that the pupils are five- and six-year-olds in Zhenghua kindergarten in Bukit Panjang, one of many run by the PAP Community Foundation (PCF). In this HDB estate, the classes begin at 7:45 a.m. when the teacher takes attendance. No pen and paper here. As the teacher calls out each name, the child who has been called walks up to the virtual whiteboard, scrolls up or down to find his name, then taps on it to confirm his attendance."

(Benzinga, 2012, n.p.)

Unfortunately, ICT innovations are not yet widespread in the pre-schools. The largest kindergarten operator, PCF operates 250 kindergartens in Singapore or about 50% of the kindergarten sector. PCF also runs 100 child-care centres or about 10% of the sector but few of their pre-school centres (whether kindergarten or child-care centre) are optimizing the use of ICT to enhance teaching and learning.

### **Commendable efforts in integrating ICT in preschools**

Nevertheless, PCF had made commendable efforts in introducing ICT as an education tool. This was recently highlighted by the guest-of-honour at the PCF-Polytechnic Study Awards 2014. Minister in PM's Office Ms Grace Fu commended the use of "innovative pedagogical learning aids such as LEGO and iPads ... to enhance our preschoolers' learning experience" (People's Action Party, 2014, n.p.).

### **ICT and special needs in education**

Several researchers had observed and documented how ICT had been used with children with special needs. Regtvoort and van der Leij (2007) worked with 31 'at risk' children who had dyslexic parents. After some training and post-testing, they found these children showed better phonemic awareness and letter knowledge than 26 'at risk' children who had no such training. Nevertheless, the trained group did not do any better in first and second grade reading and spelling, suggesting limited effects of such ICT-based training.

Williams, Writing, Callaghan and Coughlan (2002) recorded how autistic preschoolers in the U.S. increased time on task and ability to read and match words compared to those in control group (n.p.). Mioduser, Tur-Kaspa and Leitner (2000) documented how preschoolers with special needs in Israel increased skills in phonological awareness, letter naming, and word recognition (p.54).

### **Trends in ICT in education**

As we examined the development of ICT in education in each of the above-mentioned countries, some trends in ICT emerged and these trends or movements, discussed by Deforge (1972) had been illustrated in Figure 2-10 below:

|                                 |   |                                    |
|---------------------------------|---|------------------------------------|
| Age, Time and group constraints | → | individualised learning            |
| Teacher-controlled learning     | → | teacher-learner partnership        |
| Teacher-centered learning       | → | student-centred learning           |
| Teacher as information-giver    | → | teacher as facilitator of learning |
| Social irrelevance              | → | socially-contextualised            |

**Figure 2-10. Observable trends in ICT in education (adapted from Deforge, 1972)**

As we examined the trend of the development product-centred curriculum to process-centred curriculum, it might be useful to note Bonnett's (1997) observation that product-based "drill and practice" software inadvertently promoted "a passive mentality which seeks only the 'right' answer, thus stifling children's motivation to seek out underlying reasons or to produce answers that are in any way divergent" (pp.157-158).

Webber (2003) recorded that ICT might have a transformative effect and pervaded multiple aspects of our lives -- online banking, shopping, text messaging, movies-on-demand, coordinated traffic flow, light rapid transit scheduling, mobile telephone networks, climate control systems and medical information access" (p. 119). In a simple yet powerful example, ICT had transformed teaching and learning from 'chalk and talk' to 'click and drop' Bates (2002) asserted "there is little doubt that innovations in technology are facilitating many of the processes of globalization" (p. 141). ICT appeared to be transforming schools world-wide including Singapore preschools.

### **Teachers are key to everything we do**

Bruner (1996) asserted that teachers remained “the ultimate change agents” (p. 84). Singapore’s former Education Minister Mr Teo Chee Hean who is also one of Singapore’s two DPMs highlighted the role of such skilled change agents when he reiterated that “good teachers are key to everything we do because education is a completely human enterprise” (MOE, 2001, p. 1) which necessitated that much more needed to be done to help them adapt and appropriate best practices in ICT in education to enhance their teaching.

### **ICT and its benefits for teachers**

According to Thovenelle and Bewick (2003), computers could provide a different source of “multisensory / multimedia experiences” that could enhance, extend, and augment a child’s learning experience. Moreover, for many children, the computer could be a catalyst for information sharing, language development, and decision making (Sarama & Clements, 2001; Fischer & Gillespie, 2003).

According to Chong (2000b), teaching and learning with computers could provide many benefits to teachers. First, ICT helped students solve problems, think for themselves, and collaborate with other students. Second, ICT shifted the teacher’s role from information dispenser to coach, and from sage on the stage to guide by the side (Chong, 2000b, p. 3). Third, ICT could enable teachers to spend more time in encouraging students to become active participants in their learning as well as free the teacher to observe the learning groups in action, and to concentrate on the art of leading the students in their analysis and discussions.

Moreover, ICT had the potential to facilitate group learning. Group learning with computers engaged students as actors and decision makers and might fulfil their need to feel important as contributing members of a team. Quite significantly, ICT also supported

teachers by “reducing the time occupied by the administration associated with it, and in their continuing training and development” (DfEE, 1998, p. 17).

### **Barriers to the use of ICT**

Just as there are many benefits of using ICT, so are there barriers to the use of ICT. Barriers might be internal or external. Internal barriers might include attitudes towards ICT and might, according to Fabry and Higgs (1997), be grouped as “self-confidence with technology, perceived relevance of technology, and innovativeness” (pp. 385-395).

Snoeyink and Ertmer (2001) suggested that other internal barriers could include beliefs about teaching and ICT, as well as openness to change and organisational culture (p. 85).

McFarlane (1997) highlighted that it is “entirely reasonable that many teachers should be skeptical in the absence of sound evidence that (ICT) is of proven value, or clear guidance as to what that value is” (p. 6). After all, computers could motivate students, provide immediate feedback --- things which teachers themselves were expected to do, so students might be more enthusiastic to work with the computer than with the teacher. In fact, Beastall (2008) highlighted the need for more pedagogical support for teachers in order for them to use ICT more often and use it more effectively.

Regardless of the computer’s perceived value in serving the curriculum, many teachers might feel that the very opportunities opened by the computer implied more work e.g. individualizing lessons, matching software to curriculum, scheduling student computer time, monitoring use, providing assistance, troubleshooting (Chong, 2000a). Indeed, Preston, Cox and Cox (2000) highlighted the lack of time for teachers to prepare IT-based resources for lessons. Keeping in mind the barriers of using ICT, it seemed clear that teachers’ use of computers depended on their instructional goals, teaching approach, training, the software and hardware available to them, and the instructional setting. Some teachers might use the

computer to teach lessons to the whole class while others emphasized individual instruction. Silvernail and Lane (2004) recorded how teachers lamented the lack of time, opportunities, support and encouragement to become comfortable with ICT. This had also been found to be true, in a later study by Urwin (2007) who indicated that teachers did not have enough time to learn from (hands-on) experience and had difficulty keeping up to date.

In general, teachers might move away from teaching about computers and computer programming and progressing towards integrating the computer into the curriculum. Teachers could become competent in the use of ICT and function as facilitators of student learning, rather than in their traditional role as presenters of ready-made information, or worse, as resisters.

Maurer (1996), however, observed some positive effects resisters might have to the change movement (such as ICT-readiness) when he highlighted that “often people who resist have something important to tell us...they may see alternatives we never dreamed of” (p. 49). It is therefore worthwhile to remember Maurer’s (1996) advice to go “beyond the wall of resistance” (p. 54) while actively listening to the resisters. Indeed, Claxton (1997) defended resistance or “slow knowing” and reasons that “recent scientific evidence shows convincingly that the more patient, less deliberate modes are particularly suited to making sense of situations that are intricate, shadowy, or ill-defined” (p. 3).

Sometimes the resistance might come from the parents instead. This is because in an examination-oriented culture such as in Singapore, even pre-schoolers had not been spared the extra hours of ‘drill-and-kill’ tuition classes and enrichment classes to make them school-ready. This phenomenon of ‘hot-housing’ prevailed despite the warning that “there is a cost to pushing children to spend the bulk of their time cramming for school” (Business Times Weekend (2010, pp.20-21). Indeed, many parents rushed their children from one enrichment centre to another, conjuring images of 'Tiger Moms'.... in the light of

the growing literature on parental involvement and its impact on child development” (Chong, 2012, p. 1).

### **ICT competence and attitudes of teachers**

van Braak (2004) defined ICT competence as “being able to handle a wide range of varying computer applications for various purposes” (p. 300) while Albirini (2004) called it “beliefs about (one’s) computer knowledge and skills” but went further to insist that beyond the knowledge, the teacher had to have the “skills and experience essential to put them into use”. ICT use is reflected in an individual’s competence with ICT, home access and interests in things ICT (Sime & Priestley, 2005) and the successful use of ICT hinged on teachers’ ICT competence. Indeed, van Braak (2004) summed it well when he said that a high extent of “...computer competence among teachers is a major condition for instructional computer use” (p. 300).

Besides ICT competence, Teo, Lee and Chai (2007) hailed teachers’ attitudes as critical success factors. Noraini Idris, Loh, Norjoharuddeen Mohd. Nor, Ahmad Zabidi and Rahimi Md. Saad (2007) reasoned that teachers with “positive attitudes will have positive feelings about people and situations” as well as “a sense of purpose, excitement, and passion” as they “approach problems in a creative manner” and they could be quite easily identified because they had “a resourceful, positive and enthusiastic air about them” (p. 102). Such teachers might infuse ICT in their teaching in order to bring about learning among their students.

### **Infusion of ICT in preschools**

Today teachers had the choice of using computer tablets, the Apple iPads or computer laptops. Falba, Grove, Anderson and Putney (2001) asserted that “laptops are

powerful instructional tools for student learning” (p. 2) and a few years later, Mouza (2006) confirmed the same.

Perhaps, this is well-illustrated by preschool teachers at the NTUC First Campus where they launched ‘Project Eureka: Technology for Early Education’ (NTUC First Campus, 2011, n.p.). This project set several firsts in a Singapore pre-school centre, from a touch- screen table to classroom management concept that allowed teachers to “manage the interactive devices to track and document the children's works” (NTUC First Campus, 2011, n.p.). Children were able “to tap on tools such as interactive whiteboards, touch screen table and digital cameras to investigate and learn about topics such as bones and germs” and in one of the projects, through the use of digital cameras, “the children learnt concepts such as focus, spatial awareness, fine motor skills, framing, and the capturing of information to review and document their own learning experiences themselves” (NTUC First Campus, 2011, n.p.). The teachers were observed to guide children in using technology, and the children seemed empowered in self-directed learning.

Consistent with findings by Good (1981), ICT-ready “teachers also expect their students to do well, and they work out of this expectation and paradigm” (p. 18). This mode of operations could help to build effective schools that were after all characterized by high expectations (Resnick and Resnick, 1985, p. 16).

### **Teamwork and strong principal-ship**

Samuel and Zaitun Abu Bakar (2006) thought that teachers might use ICT more if there was “support provided by the principal” (p.414). Siraj-Blatchford and Siraj-Blatchford (2006) cited the importance of teamwork and repeated Crook’s (2003) cautionary words:

“...ICT can be a powerful resource in helping to support joint working and classroom collaboration between school age pupils (but) it must be recognised that the social systems of pre-school environments have different dynamics” (p. 13).

### **Assessment**

Assessment in the form of a school-readiness test (SRT) commenced only at Primary 1 (first grade) so this meant that assessment of graduating pre-school children was actually ‘lagging data’. Even then, the SRT was conducted quietly. Children who were found to be ‘not ready’ were encouraged to undergo the LSP, which was first introduced in primary schools in 1992 (MOE, 2002). A specialised early intervention programme, the LSP had been designed to provide additional support in English literacy to children in Primary 1 and Primary 2 levels (MOE, 2002). The SRT was administered to all Primary 1 children at the beginning of each year, to screen for those who did not demonstrate sufficient English literacy skills to access the P1 curriculum. During LSP lessons, drawing on a wide range of teaching methodologies and resource materials, a senior teacher differentiated and delivered lesson content to suit each child's learning needs.

### **A new mindset and motivation**

As classrooms transited from blackboards to computers, tensions in teaching, materials development, assessment and evaluation arose, and teachers’ mindsets somehow changed as they tried to manage change as successfully as possible. According to Stacey (1992), new mindsets helped us to “manage the unknowable”. Having a new mindset is important because change in a complex system such as education was non-linear and therefore full of surprises (Fullan, 1993, p. 4.)

Apparently, across the continents, we had been trying to swim against the torrential currents of the sea of change, “trying to up the ante in getting the latest innovations and policies into place” (Fullan 1993, p. 1). In Singapore, teachers had also been treading in the rough waters of innovations and policies centred on the infusion of ICT into the classrooms. But the then-Education Minister Teo, in an MOE Press release dated 28 April 1997, offered an encouragement: “Technology has changed it (the world). We are now able to reach out from our schoolrooms to any place in this world. The only fences are in our minds” (MOE, 1997).

Having learned lessons from our American and British counterparts, Singapore education policy-makers sought to motivate school principals by providing more autonomy and control in the local management of schools (MOE, 2002). Nevertheless, Beer et al (1990) cautioned that “change efforts that begin by creating corporate programmes to alter the culture of the management of people ... are inherently flawed even when supported by top management” (p. 6). It could be highly presumptuous to assume that a programmatic approach that attempted to change how people thought through mission statements, training programmes or a grand IT Master Plan led to useful changes in how people actually behaved at work, amidst diversity at the workplace.

### **Managing diversity to achieve desired outcomes**

According to a 2010 report by the United Nations Conference on Trade and Development or UNCTAD, “policymakers need to understand the diversity of circumstances and adjust their interventions” (UNCTAD, 2010, p. 103). Mr Ban Ki-Moon, who was then the Secretary-General of the United Nations, reminded that “policy challenges” remained e.g. “the way in which ICTs and wider development strategies are designed” as well as the

various governments' approach to strategy design that ought to be "more inclusive and cohesive" (UNCTAD, 2010, p. 104).

Ban (2010) lamented that "many current ICT policies and strategies have been in place for several years, and were developed before mobile telephony became accessible ... (and that) most of these strategies envisaged that computers rather than mobile devices – and communal rather than individual resources - would provide the main mechanism through which ICTs enhance information and communication resources for the poor" (p. 104). Ban (2010) also urged member nations especially development partners to "reconsider the role of ICTs within their overall development planning, reflecting ICTs' growing importance in national economies and their new and potential role in achieving developmental outcomes" (UNCTAD, 2010, p. 105)

Darling-Hammond (2010b) reported that "one of the few areas of consensus among education policymakers, practitioners, and the general public (in America) today is that improving teacher quality is one of the most direct and promising strategies for improving public education outcomes" (p. 1).

### **Teacher quality**

This was why "we have raised the minimum qualifications for kindergarten-level teachers over the years. For existing teachers, ECDA will provide more professional development opportunities as part of the Continuing Professional Development (CPD) Masterplan launched last year" (Rajah, 2014, para 69).

According to SMS Rajah (2014), "we have stepped up efforts to ensure consistency in the quality of such training with the enhancement of the accreditation system and standards that training providers must adhere to. Our immediate priority is to strengthen the polytechnic training pipeline by increasing intake numbers to meet the increased

manpower demands” (para 70). This accreditation system called the “Singapore Preschool Accreditation framework” or SPARK has come a long way in enhancing quality in preschool curriculum, operations and teaching (ECDA, 2017b, n.p.).

In her COS 2016 Debate speech, SPS Ms Low Yen Ling from MOE reported “that one-in-three pre-schools in Singapore are SPARK-certified – this is a significant jump from the one-in-four figure last year. In 2015, there were 431 SPARK-certified centres, and this year, it has grown to 601” (MOE, 2016, n.p.).

Unfortunately, the issue of teacher quality has been exacerbated by a dire shortage of teachers. Indeed, how could we even begin to talk about quality when we are not been able to keep trained teachers in the service? An 8<sup>th</sup> November 2013 article in the daily newspaper, TODAY (2012) had an eye-catching headline “Pre-school teachers: Leaving before they’ve even started” (n.p.). It lamented how “teachers leave the field due to pay and other working conditions” and even highlighted “another group that figures less often in the policy discussion: The individuals who train as early childhood educators but never enter the field” (TODAY, 2013, n.p.). MOM figures showed that “only 56.5 per cent of fresh ECE graduates from polytechnics are in the labour force — a much lower percentage than many other diploma holders” (TODAY, 2013, n.p.). That is a leakage of 43.5% - which is not a small percentage. Indeed, according to ECE training agencies, “while hard statistics on the number of those leaving prior to starting an ECE career are difficult to come by, it is commonly understood to be relatively high” (TODAY, 2012, n.p.).

### **Teacher strategies in scaffolding language learning (spelling)**

In order to achieve desired outcomes, Darling-Hammond (2010b) emphasised the need for teachers to have “an understanding of learning progressions... so that they could scaffold instruction, identify gaps in students’ understandings, target instruction, and follow

up with appropriate assessments”. This would be consistent with the teachings of Bruner (1996): that “as a teacher, you do not wait for readiness to happen; you foster or ‘scaffold’ it by deepening the child's powers at the stage where you find him or her now” (p. 120).

### **‘Labelling’ is disabling**

Bruner (1996) reminded that “the art of raising challenging questions is easily as important as the art of giving clear answers” (p. 127). For example, instead of answering why Malay pre-schoolers were disadvantaged when they come from low SES families, we could go further and question the question – i.e. why is low SES even a problem? Similarly, why should single-parent families be a problem? Or why did we label children with divorced parents as academically weak, troubled or disadvantaged? From the very outset, one must realize that labeling is *disabling*!

Bruner (1996) warned that any system of education, any theory of pedagogy, any "grand national policy" that diminished the school's role in nurturing its pupils' self-esteem failed at one of its primary functions (p. 38). Hence, when we labeled children, or allowed them to be labeled, we failed in our responsibilities as teachers because we had disabled them and limited their abilities to believe in themselves, to feel good about what they could achieve, and about their capacity to learn.

### **Balancing enrolment along ethnic lines**

According to Oluwole and Green (2008), New Jersey is one of 14 states that had enacted racial balancing provisions so as to limit or eliminate racial isolation and imbalance in schools. Actually, this is not new to the policy-makers in Singapore as the Housing and Development Board (HDB), a statutory board of the Ministry of National Development had already implemented this policy called the Ethnic Integration Policy or EIP

(HDB, 2012). Designed to prevent the formation of racial enclaves by ensuring a balanced ethnic mix among the various ethnic communities living in public housing estates, the EIP promoted racial integration and harmony (HDB, 2012). However, previous studies by Eckes and Trotter (2007) indicated that, in practice, “these controlled choice policies seldom lead to genuine attempts to achieve racial integration”.

### **Integration of ICT for pre-schoolers**

Plowman and Stephen (2007) found that in preschool settings, “children’s use of computers usually took place during periods of free play”. They found that there was little pedagogical guidance over children “choosing for themselves when or if they would use the computer and what they would do” (Plowman & Stephen, 2005, p. 151). In the REPEY study by Siraj-Blatchford et al (2002; 2003), when the adults supervised the children at such play, the supervision seemed to be confined to “guided interaction, reactive supervision and hybrid approach”, and that reactive supervision was the most common form of adult guidance. Indeed, Blackwell, Lauricella, Wartella, Robb and Schomburg (2013) also found the “actual use of technology in the classroom remains infrequent, especially in early childhood education” (p.1). In fact, Parette, Quesenberry and Blum (2010) went further to state that while “technology permeates virtually all aspects of twenty-first century society, ...its integration in early childhood settings and recognition as a developmentally appropriate practice remains problematic” (p. 336).

A BECTA (2008) Report suggested more “emphasis in (early years) teaching should be on what children could learn through ICT and how adults could enhance their learning” (p. 37). Indeed, ICT had been under-utilized as a tool for learning. A lot more benefit could be gained if ICT is “included in curriculum guidance” and “embedded in practice” (BECTA, 2008, p. 33). Sutherland, Facer, Furlong and Furlong (2000) and

Sutherland, Armstrong, Barnes, Brawn, Breeze, Gall, Matthewman, Olivero, Taylor, Triggs, Wishart and John (2004) described how teachers embedded ICT into everyday classroom practices to enhance learning. Siraj-Blatchford and Siraj-Blatchford (2006) encouraged the integration of ICT into their play environments through the use of ‘pretend’ play e.g. using telephones, cash registers, office photocopies, supermarket barcode scanners and microwave ovens in their socio-dramatic role play.

Singapore preschools especially those in the private sector were serious about branding themselves as being able to equip the children with 21<sup>st</sup> century skills as defined in a 2008 OECD survey e.g. creativity, critical thinking, collaboration, communication and leadership which had been considered critical for future professional success in the ICT-driven knowledge economy (Ananiadou, 2009).

One such preschool is ChildFirst which even provided home access to its parent-clients who wished to see how well their children were progressing in preschool (ChildFirst, 2016b, n.p.). So how could internet access help in preschool education? Hajhashemi, Anderson, Jackson, and Caltabiano (2014) summed it up quite well: “Internet and networked technologies have expanded delivery mode opportunities in education” (p. 1).

Practitioners also advocated that when students each owned an Internet-enabled device, they would gain self-confidence with ICTs and take responsibility for their own learning (Stansbury, 2010). Stansbury (2010) also suggested that whether countries invested in hardware for classrooms or mobile devices, thoughtful planning, relevant teacher training, and buy-in from school leadership, teachers, students and parents were all factors in improving student outcomes through ICT (n.p.).

**Mitigating harmful effects of ICT**

Karlqvist, Tornqvist, Hagberg, Hagman and Toomingas (2002) warned of computer-related musculo-skeletal disorders in adulthood, in cases where children played more than 2 hours of computer or video time, per day. Fischer and Gillespie (2003) reminded that ICT had to be used in a developmentally-appropriate manner for it to have a positive effect on children's development. To promote musculo-skeletal health, Straker and Pollock (2005) encouraged more non-ICT work such as drawing (instead of ICT and video games).

**Effect of SES on learning experience**

Not everyone could afford computers. The effect of SES meant that poorer families, if they had any computers at home, might have computers which were older whereas children from higher-income families tended to have the latest gadgets (Mcpake, Stephen, Plowman, Sime & Downey, 2005). This was consistent with the findings of Marsh, Brooks, Hughes, Ritchie, Roberts and Wright (2005): that 'poverty and other social and cultural factors [are] having an impact on the opportunities that children are afforded'. Straker et al (2006) suggested that SES such as the mother's age and level of education are significant predictors of children's computer use. However, if the preschool was equipped with the latest gadgets and newer computers, then the preschool served to bridge the digital divide especially one due to SES.

**ICT and learners with special needs**

Magnan and Ecalle (2006) used ICT to test the effectiveness of audio-visual computer training in discriminating phonetic features of voicing on recognition of written

words. Between the intervention group of pre-schoolers 'at risk' of dyslexia and the control group, they found that the former tended to show higher increases in performance in phonological skills and recoding.

In a small study involving 10 six-year-olds with Down's Syndrome in Spain, Ortega-Tudela and Gomez-Ariza (2006) were able to verify that ICT helped in the learning of basic mathematical concepts and skills, compared with traditional methods for 8 six-year-old 'controls'. This suggested that teaching with ICT could help children acquire basic mathematical knowledge of young children with Down's Syndrome, and enhance their ability. Indeed, ICT also had great potential for students with disabilities, providing tailored supports for students with mental disabilities and new opportunities to participate in class for physically disabled students (e.g., text-to-voice programs or a digital bell to signify raising one's hand to give an answer).

Espinosa, Laffey, Whittaker and Sheng (2006) cautioned that access to technology was insufficient and stressed the importance of adult-mediation so as to optimize the benefits of ICT as learning tools. Marsh et al (2005) reported that parents were generally positive about the role of ICT in their young children's social, emotional, linguistic and cognitive development. BECTA (2008) highlighted that parents welcomed and even favoured ICT use so as to prepare their young children for the digital age (p. 46).

Calvert, Strong and Gallagher (2005) recorded that the children who controlled the computer were able to demonstrate more attention than those who did not actually control the computer but actually watched an adult control the experience. They, however, found that control had no effect on children's memory of visual or verbal content. In studying the possible effects of learning mathematics with multimedia among 116 kindergarten children, Weiss, Kramarski and Talis (2006) found that children who learned with multimedia embedded in co-operative learning or in individual learning tended to out-

perform those not exposed to multimedia. Through survey and case studies of 16 children, Mcpake et al (2005) found that children who experienced ICT at home were able to develop technical competence and skills to operate the computer and certain applications or software therein.

Even though there is potential for ICT in preschools, not much about ICT in preschools had been undertaken as a concerted national effort and documented. If any commendable efforts had been undertaken, they had not been taking place at the national level unlike efforts in primary and secondary schools across countries.

### **Observations of ICT use in preschool settings**

To summarise, the review of the literature uncovered the following key points relating to the influence of parental involvement and ICT on the literacy level of Singapore's Malay pre-schoolers:

- (a) Phonemic awareness and spelling,
- (b) How spelling and word recognition mediate phonological awareness on reading,
- (c) Bruner's Theory and the importance of the macrosystem as a sociocultural context,
- (d) Relationships and roles in the child's immediate settings,
- (e) Linkages between the home and the school or child care,
- (f) the importance of the teacher as mediator,
- (g) parental involvement is affected by other factors such as education level of the parent and employability, household income, SES, and whether both spouses are available for the child,
- (h) parental involvement is also affected by parenting style, and
- (i) parents' response to the use of ICT for their preschool children,

This chapter also uncovered the following key observations of the use of ICT in preschool settings which also have a bearing on the influence of parental involvement and/or ICT on the literacy level of Singapore's Malay pre-schoolers:

- (a) the lack of confidence among preschool teachers,
- (b) the prohibitive costs of computers widened the digital divide between those from lower SES and those more well-off,
- (c) how governments around the world invested in ICT infrastructure to promote nationwide capability development starting as early as the pre-school years but that not all governments started that early,
- (d) based on statistics from the US Department of Education (2011), in terms of public expenditure on education, Singapore spent only 2.64% of its own GDP and that this is less than all the other countries studied in this chapter,
- (e) how ICT helped in the teaching of children with special needs,
- (f) barriers to the use of ICT,
- (g) possible gains in learning and development when ICT is used as an appropriate tool to enhance teaching and learning, and
- (h) ICT implementations in Singapore pre-schools are few and far between.

According to BECTA (2008), “teachers’ roles in a computer learning environment have not been the focus of extensive educational research as yet” (p. 36). Siraj-Blatchford et al (2003) also noted that ‘training opportunities were limited and generally took place on an *ad hoc* basis in the workplace’ (p. 3). Moreover, based on a 2008 BECTA Report, “many practitioners were still not confident enough with their own use of ICT to enable children to use new technologies to enhance their learning in all areas” (BECTA, 2008, p. 39).

The next 2 chapters are important because against the backdrop of this review of the literature in this chapter, Chapter 3 would outline the case study method and Chapter 4 would list the findings, particularly how parental involvement and ICT influenced the literacy level of Singapore's Malay pre-schoolers.

## Chapter 3

### Method

This chapter starts with a brief review of macro-level data on pertinent ICT usage and introduces the rationale for the mixed method case study. It explains the choice of the pre-school group for this case study as well as access and potential bias. Next, this chapter elaborates on how as a research method, the case study facilitates observations and produces insights. It focuses on the illustrative case study method and explains the value of field notes. This is followed by a discussion of the advantages and disadvantages of the case study method. The assumptions and case study design are also discussed. A distinction is made between single and multiple case studies.

This chapter also examines the sources of evidence and principles of data collection under the case study as an empirical inquiry. Issues like validity and reliability are also discussed. Triangulation shall be discussed in the light of documentary analysis, questionnaire survey and narrative analyses of the interviews with parents.

There is also a discussion of the pilot study and what Stake (2005) calls “naturalistic generalization” (p. 64). In particular, more shall be discussed about documenting narratives after the interview, the structures of narrative, narrative pre-construction, and the usefulness of interviews and a narrative analysis. Finally, the chapter is brought to a conclusion with a brief discussion on ethics.

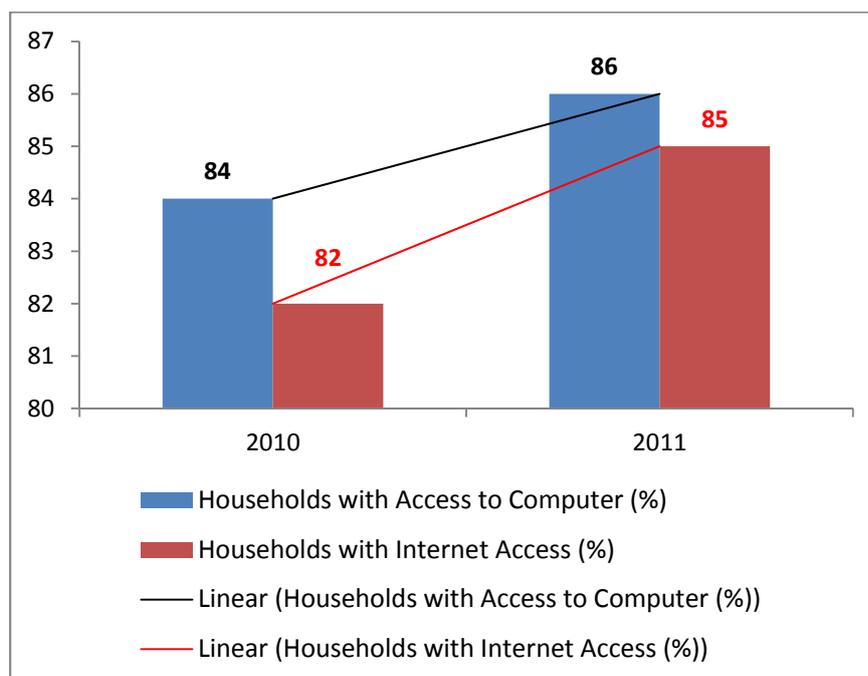
#### **Macro-level data on ICT usage**

The term, ‘ICT-readiness’ or e-Readiness of countries has been investigated by researchers such as Kraemer and Dedrick (2002), and usually in terms of ICT

infrastructure, pervasiveness of broadband or even narrow band internet access (p. 31).

However, such research or available documents have not drilled down to the ICT-readiness of specific populations such as pre-school teachers or children in Singapore.

Even the then-Infocomm Development Authority (iDA) which is now known as the Infocomm Media Development Authority or IMDA did not have such statistics of pre-school teachers or children as it published statistics at the macro-level as illustrated in Figure 3.1 which shows that in the Year 2010, 84% of Singapore households had access to the computer and 82% had access to the internet (iDA, 2012). It did not, however, show what proportion of these were Malay households. There was not enough granularity in the statistics.



**Figure 3-1: Singapore Infocomm Statistics at Macro-level (iDA, 2012, n.p.)**

Indeed, if the available documents did not provide the necessary level of detail on the use of ICT in preschools then the documentary analysis, would not yield useful insights. This is where triangulation used in this case study would provide a fuller picture of the ICT usage and how much of an influence ICT could be on the literacy development of

Malay preschool children. Hence, this case study could present an opportunity to grow and further develop the theoretical and knowledge bases relating to teacher ICT-readiness as more empirical data is sought to broaden the understanding of ICT's influence on the literacy development of Malay pre-schoolers.

### **The mixed method case study**

The mixed method case study design was used to gather data to facilitate a study of any possible patterns between ICT-ready teachers and involved parents on one hand, and the literacy level of Malay pre-school children at a group of 3 pre-schools, on the other hand. More shall be discussed about the case study as a research method, in the next few pages.

### **Choice of pre-school group**

This group of pre-schools is located in the northern part of Singapore in the constituency of Marsiling (close to Malaysia), where there is a sizable population of Malay families. This preschool group in Marsiling was chosen as the case study site because there was easy access, properly secured from and granted by its Group Chairman. The group catered to the heart-landers (Chinese, Malay, Indian and other ethnic minority groups) whose household monthly incomes ranged from S\$600 to S\$3000 and the per capita income is less than S\$600 per month. This preschool group was staffed by teachers who were representative of the national population of pre-school teachers, in terms of professional qualifications and experience, in alignment with public policy (MCYS, 2011).

The population of its Malay pre-school children comprised mostly of children from low-income families. This was representative of the population of pre-schools in the heartlands in the country.

Each of the 3 preschools in the Group operated 2 kindergarten sessions from 8 am to 12 noon, and the afternoon session from 1 p.m. to 5 pm. Each class had no more than 20 children aged 5 years who were attended to by a qualified pre-school teacher who had a Diploma in Preschool (Teaching).

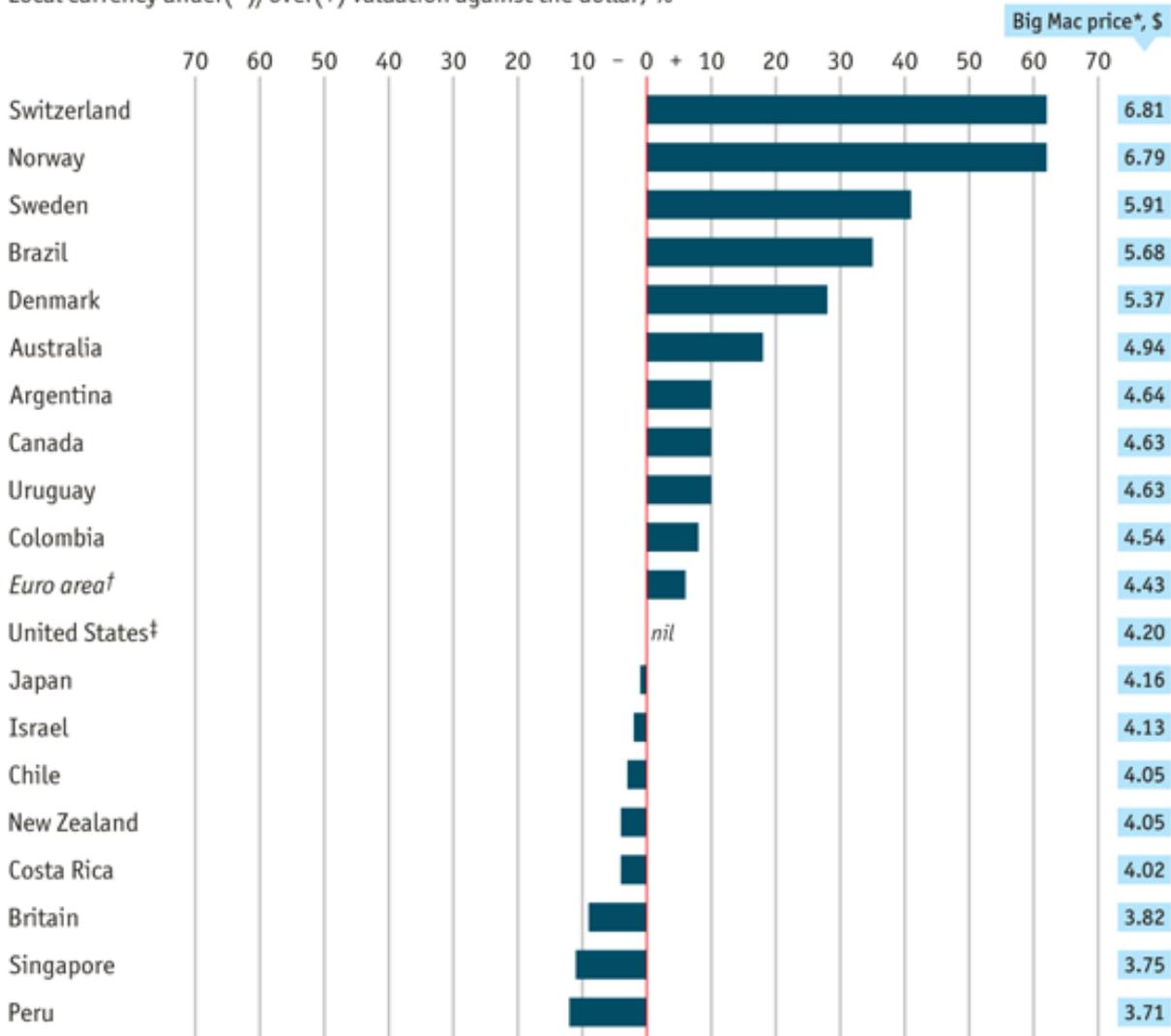
The Kindergarten Financial Assistance Scheme (KiFAS) ensured that kindergarten education remained affordable and accessible for children from low-income families. According to the Ministry of Social and Family Development or MSF, KiFAS provided a grant to eligible lower-income Singaporean families to help them pay for their children's kindergarten education, including a S\$200 start-up grant for each child at the start of the school year and that the grant could be used to pay for "start-up costs such as deposit, registration fee, uniforms and insurance expenses" (MSF, 2012, n.p.). Depending on the kindergarten fee, families that earned S\$1,500 and below might end up co-paying as little as S\$2 per month (MSF, 2012, n.p.).

To be eligible for KiFAS, the child must be a Singapore citizen, and enrolled in a kindergarten operated by Anchor Operators such as PCF kindergarten or a kindergarten run by the Singapore MOE; moreover, the gross monthly household income must be \$6,000 or less and/or for larger families, the per capita monthly income had to be \$1,500 or less (MSF, 2012, n.p.).

According to the British Broadcasting Corporation or BBC (2014), "S\$5 a day is what nearly 400,000 Singaporeans are left with after paying for utilities, school, rent, loan instalments and healthcare" (n.p.). This is comparatively low, based on the theory of purchasing-power parity such as The Economist's Big Mac index whereby "in the long run, exchange rates should adjust to equal the price of a basket of goods and services in different countries" (Economist, 2012, n.p.). Suffice it to highlight that the Big Mac Index is only indicative of the relative size of a household's monthly per capita income.

### The Big Mac index

Local currency under(-)/over(+) valuation against the dollar, %



\* All market exchange rate (January 2012)

**Figure 3-2: Big Mac Index (Source: Economist, 2012, n.p.).**

### Access and Potential Bias

Typically, applying for permission to conduct educational research in a pre-school is a very difficult and tedious process, but I secured permission from Mr Hawazi Daipi, the Branch Chairman of the preschool group in Marsiling (Annex 9). Mr Hawazi was also the Member of Parliament (MP) for the Marsiling Division of the Sembawang Group

Representation Constituency or GRC. From 1<sup>st</sup> September 2015, this same Marsiling Division had merged with other adjacent Divisions to form the Marsiling-Yew Tee GRC.

I continued to serve as an active grassroots leader in the constituency of Marsiling with its new newly-elected Member of Parliament Madam Halimah Yacob who is also the Speaker of Parliament as well as the Chairman of the group of preschools in this case study for the period 1<sup>st</sup> September 2015 – 7<sup>th</sup> August 2017 (ChannelNewsAsia, 2017c). I had been entrusted to use the access strictly for the purpose of research at and involving the pre-school group. I managed to gain access to this group of preschools primarily because of trust - I had served as a Member of the Government Parliamentary Committee Resource Panel, as a grassroots leader in the Sembawang and Marsiling-Yew Tee GRCs for the last 20 years and was once a Research Fellow at a small unit under the PMO. It helped that I am also effectively bilingual in English and Malay.

Although known to the MP, I am not widely known to the parents working or living in Marsiling. I was careful in not asking leading questions and in not influencing their responses to the survey or interviews. Every effort was also made to ensure that interviews and submissions of questionnaires from participants were purely voluntary, and all data collected kept strictly confidential and used only for the purposes of this case study. In fact, data was de-identified with the names of the schools and respondents ‘coded’ and left unknown.

To gain a better understanding of the literacy level of the preschool children, I listened intently to teachers who worked closely with the preschool children on a daily basis. These teachers spoke of the pre-school children’s current vocabulary and how little their pre-school children knew of the words usually tested at Primary 1 (Annex 1). The teachers and I

went through a list of common words which formed the vocabulary expected of a child who graduated from pre-school.

### **Case study method enabled observations and produced insights**

I observed that teachers tended to teach words in isolation i.e. they checked if each preschool child knew how to spell a short list of common words (Annex 3) and if they were able to provide one or 2 sentences to describe that animal or object. In the observations, what struck me was the way several children spelt certain words (e.g. 'pencil' was repeatedly spelled as 'pensil'). Unknown to non-Malay speakers, Malays spell the word 'pencil' with the consonant 's' and not a 'c', hence 'pensil'; I thought this could provide a rich enough empirical data base upon which to check interpretations (Xu, Connelly, He, & Phillion, 2007). More of these would be discussed in Chapter 4.

While the above-mentioned observations were not the main activities, they nevertheless helped me to gain a better understanding of how the children felt about using English in the classroom. I was mindful that the core focus areas remained parental involvement and the use of ICT but I was not going to miss these other rich observations from which could emerge a worthwhile topic for further study (this led me to the important theme of 'context and culture' discussed further in Chapter 4).

A documentary analysis of the pre-school policies by MOE as well as MCYS (later re-structured as MSF) was also undertaken. The Singapore Parliamentary Reports provided a rich resource for such an analysis. These reports centred on speeches made by elected members of parliament who were serving as political appointees in the MOE e.g. its Parliamentary Secretary (PS), SPS, MOS, SMS and the Minister himself (Figure 3-3).

**Prior to General Elections, 2015**Source: <http://app.sgdi.gov.sg>

|                                |                     |
|--------------------------------|---------------------|
| Minister for Education         | – Mr HENG Swee Keat |
| Senior Minister of State       | – Ms Indranee RAJAH |
| Minister of State              | – Ms SIM Ann        |
| Senior Parliamentary Secretary | – Mr HAWAZI Daipi   |

**After General Elections, 2015**Source: <http://www.gov.sg/sgdi/ministries/moe>

|  |                                   |
|--|-----------------------------------|
| Minister for Education (Schools)                     | - Mr NG Chee Meng                 |
| Minister for Education (Higher Education and Skills) | - Mr ONG Ye Kung                  |
| Minister of State                                    | – Dr Janil PUTHUCHEARY            |
| Parliamentary Secretary                              | – A/Prof Muhammad Faishal IBRAHIM |
| Parliamentary Secretary                              | – Ms LOW Yen Ling                 |

**Figure 3-3: Political appointees serving in the Ministry of Education****The Case Study as a Research Method**

Rather than using samples and following a rigid protocol (strict set of rules) to examine limited number of variables, the case study method involved an in-depth, longitudinal (over a long period of time) examination of a single instance or event: a case. It provided a systematic way of looking at events, collecting data, analyzing information, and reporting the results. As a result, the researcher might gain a sharpened understanding of why the instance happened as it did, and what might become important to look at more extensively in future research. Case studies lent themselves to both generating and testing hypotheses (Flyvbjerg, 2011).

Another suggestion is that case study should be defined as a research strategy, an empirical inquiry that investigated a phenomenon within its real-life context. Case study research could mean single and multiple case studies, could include quantitative evidence, relied on multiple sources of evidence, and would benefit from the prior development of

theoretical propositions. Case studies should not to be confused with qualitative research as they could be based on any mix of quantitative and qualitative evidence. Single-subject research provided the statistical framework for making inferences from quantitative case-study data (Yin, 2009).

The case study is a method of learning about a complex instance through extensive description and contextual analysis, yielding a potentially massive amount of data making studying for possible patterns time-consuming and laborious. Yin (2008) defined the case study research method as “an empirical inquiry that investigates a contemporary phenomenon within its real-life context; when the boundaries between phenomenon and context are not clearly evident; and in which multiple sources of evidence are used” (p. 23).

This case study used sources of evidence like MOE documents, surveys and teachers’ narratives through semi-structured interviews. The case study should help us to understand some special person, particular problem, or unique situation in greater depth. Case studies also highlighted details in a context and inter-relationships which might not surface as easily from a quantitative method of research (e.g. survey). Critics often questioned how the study of a small number of cases could establish reliability or generality of findings - that is a fair question.

This study was planned and executed e.g. using the following proposed 6 steps drawn from the established work of Stake (1995), Simons (1980) and Yin (1984) that had stood the test of time (over the decades): defining the research questions, deciding on the cases and determining data gathering and analysis techniques, preparing to collect the data and putting processes in place, collecting the data in the field, evaluating and analyzing the data, and finally preparing the report. In the 4<sup>th</sup> edition of his work, Yin (2009) reiterated the above-mentioned 6 steps.

Datta (1990) listed a few types of case studies namely Illustrative, Exploratory, Critical Instance and Cumulative Case Studies. According to Datta (1990), whilst the illustrative case study could be useful because it was descriptive, used an instance to show what a situation was like, helped interpret other data, made the unfamiliar familiar and usually contained a small and manageable number of cases to sustain reader's interest, it nevertheless required presentation of in-depth information on each illustration, and was relatively time-consuming.

Datta (1990) further presented the critical instance case study as one that could examine a site or two for one or more purposes, could focus on a unique interest with no or little need to generalize, could be suitable for answering cause-and-effect questions but might be difficult to use because the researcher must probe for and address the underlying concerns due to inadequate specification of the evaluation question.

In lauding the cumulative case study, Datta (1990) highlighted that it could be retrospective i.e. the information collected could be from the past, or prospective, allowed for generalization without cost and time of conducting numerous new case studies; allowed generalization without having to manage numerous cases at any one time; ensured sufficient comparability and quality with a backfill technique.

Moreover, findings could be aggregated and could be most useful in instances where there was insufficient information at any one site. However, Berger (1983) cautioned that in the cumulative case study, publication biases might favour programmes that seemed to work, and which could lead to a misleading positive view. Yin (1989) also expressed concerns on verifications of data in terms of quality of the original data and analyses. The crucial next step was to determine if the methodological requirements of the chosen case study method could meet the requirements of this particular case study.

### **Illustrative Case Study Method**

Case study research generally answered one or more questions which might begin with ‘how’ or ‘why’. This study uses the illustrative case study and focuses on the following questions : ‘How ICT-ready were the pre-school teachers at Marsiling?’, ‘How did they get to this state of ICT-readiness?’ and ‘Why were they at this state of ICT-readiness?’ The questions were targeted at all 31 teachers in the preschool group in Marsiling. Non-teaching staff members were not included because they did not carry out any teaching tasks.

A key strength of the illustrative case study method involved using multiple sources of evidence (documents, survey and teachers’ narratives) and techniques (documentary analysis, survey and narrative analysis) in the data gathering process. Case study research was experienced to be flexible, and when changes were made, they were documented systematically in field notes (Yin, 2009).

### **The value of field notes**

Unlike quantitative techniques, field notes could serve as a helpful record of questions, what was felt and works-in-progress. After all, field notes serve as “evidence to produce meaning and an understanding of the culture, social situation, or phenomenon being studied. The notes may ... supplement conventional interview data” (University of Southern California Library Guides, 2017, n.p.)

Indeed, as early as the 1990s, Denzin and Lincoln (1994) recorded that such “qualitative research involves the studied use and collection of a variety of empirical materials – case study, personal experience, introspective, life story, interview, observational, historical, interactional and visual texts – that describe routine and problematic moments and meanings in individuals’ lives” (p. 2).

Such field notes became “the researcher’s detailed and descriptive record of the research experience, including observations, a re-construction of dialogue, personal reflections, a physical description of the setting, and decisions made that alter or direct the research process” (Arsenault & Anderson, 1998, p. 128). Kept separate from the other data being collected, field notes helped in determining whether or not the inquiry needed to be re-formulated or re-defined based on what was observed. Field notes recorded testimonies, stories, illustrations and narratives which could potentially be used in later reports (Wilson, 2009, p. 209). Patton (1990) proposed that field notes should contain a commentary of everything that the researcher deemed worthwhile.

Moreover, field notes might also alert us to “impending bias” because of the detailed exposure of the client to special attention, or give an early signal that a pattern was emerging (Wilson, 2009, p. 209). Raw data was studied and interpreted for linkages between the findings and the research questions while possible patterns and new insights were sought throughout the evaluation and analysis process. When conflicting perceptions surfaced, a closer examination could be carried out expeditiously. Focused, short, repeat interviews were conducted to gather additional data to “verify key observations or check a fact” (Wilson, 2009, p. 209). The survey was used to corroborate and support the qualitative data which could be useful for understanding the rationale or theory underlying any possible relationship.

After all, as explained by Arsenault and Anderson (1998), “like the fisherman on uncharted waters, you may have an idea of what lies beneath the surface, but you cannot always be sure. As a fisherman knows, where you happen to anchor your boat, the particular lure you choose, and the skill you demonstrate in fishing has a great deal to do with what you catch... the researcher’s perspective also influences what might be found” (p. 119).

**Advantages and disadvantages of the case study method**

The case study method might be used to build upon theory, to produce new theory, to dispute or challenge theory, to explain a situation, to provide a basis to apply solutions to situations, to explore, or to describe an object or phenomenon (Yin, 1994). The advantages of the case study method were its applicability to real-life, contemporary, human situations and its public accessibility through written reports (Yin, 1994).

Moreover, Yin (1994) asserted that a case-study approach had an advantage over surveys, experiments, and other research strategies "...when a 'how' or 'why' question is being asked about a contemporary set of events over which the investigator has little or no control" (p. 9). The essence of the case study approach was to collect many different types of data and use them "in a triangulating fashion" (Yin, 1994, p. 13) to converge on an explanation of what happened.

On the other hand, a typical case study research could generate a large amount of data from multiple sources. As such, systematic organization of the data should be paramount otherwise the entire research might crumble for lack of focus and inability to handle the deluge of data. Much effort, discipline and time were required to categorize, sort, store, and retrieve data for analysis.

Moreover, specific training was required to gather data using multiple techniques critical in triangulation during the study's analysis phase. Such training covered key procedures for case study research such as time deadlines, formats for narrative reporting and field notes, guidelines for collection of documents, and guidelines for field procedures to be used. Good questioning techniques, good listening skills, a keen understanding of the research questions and related issues and an ability to read between the lines were also required during this study.

The final challenge was the preparation of the report that had to be easy to read and applicable for further application and research. Sufficient evidence had to be displayed so as to gain the reader's (and examiners') confidence that most, if not all, avenues had been explored and any conflicting proposition addressed.

### **Assumptions**

For this case study, 3 key assumptions were held, namely:

1. That valuable and reliable information on pre-school teachers' ICT-readiness and parental involvement could be gathered from the self-designed questionnaire as well as interviews;
2. That all participating pre-school teachers and parents were able to comprehend the questions in the self-designed questionnaire and provide accurate information, to the best of their ability; and
3. That the composition of the pre-school teachers at the Marsiling group of preschools was representative of the national teacher population.

### **Case study design**

As stated at the beginning of the chapter, this study employed a mixed method case study design to answer the research questions. Qualitative and quantitative methods did not have to be antagonistic or mutually-exclusive, but could complement each other and thereby strengthen the study.

According to Fraenkel and Wallen (2006), a case study might be broadly described as "an in-depth investigation of an individual, group or institution to determine the factors, and relationship among the factors, influencing the current behaviour or status of the

subject of the study” (p. 580). In case studies, Smith (1978) suggested that the entity under investigation was a bounded system, that is, there were boundaries around the unit of analysis whether by time, place, context or components comprising the case.

In this study, the bounded system was a set of Malay pre-schoolers and their families connected to a certain pre-school group in a small geographical area in the northern region of Singapore. As multiple sources of information converged into a certain pattern, it provided us more information about how policies translated into (best) practices, how pre-school teachers embraced ICT, how teamwork became a part of their work-life, how practices might inform (future) policy-making, how policy and practice might enhance the ICT-readiness of pre-school teachers and what results (in terms of children’s literacy development) might be expected or achieved.

There are several advantages of using a case study over other research designs. Depending on the research questions, the study might use only qualitative evidence or quantitative evidence or a mixture of both. Case studies might also involve more than one unit of analysis. If one or more units of analysis were investigated, the study would have an embedded case study design. This is in contrast to a holistic design which examined the global nature of a program or organization (Yin, 2009).

This study contained two primary units of analysis namely the use of ICT to enhance teaching and learning, and parental involvement, both of which were considered as possible key factors affecting children’s literacy development. In this study, every effort was made to provide equal attention to the two sub-units especially since Yin (2009) cautioned that an over-emphasis on any sub-unit could shift the orientation of the study.

There had been some disagreement as to whether case studies were a subject

of study or a methodology. Stake (2005) asserted that case study research was not a methodology but rather a “choice of what is to be studied” (p. 435). Others, however, regarded it as a type of strategy of inquiry (Denzin & Lincoln, 2005), a methodology (Merriam, 1988) and comprehensive research strategy (Yin, 2003). Creswell (2007) further added the idea of case studies being a product of the inquiry.

### **Distinction between single and multiple case studies**

Case studies might be single or multiple cases. Single case studies contained one case or site that was often a unique case, a typical case or one that was critical in testing theory (Yin, 2009). Within a single case study, multiple sites might be used. As the name suggested, multiple case studies comprised more than one case. Each research site was considered a single case study, but if the whole study contained several sites, it was referred to as a multiple case study.

The main distinction between single and multiple case studies was whether or not the results comprised different data sets involving completely different areas that would be combined, e.g. a study of different organisational units within a larger organisation . Studies that combined results on a single phenomenon would be single case studies whereas studies that regarded separate cases would be multiple case studies. As such, this study would be regarded as a single case study (Yin, 2009).

### **The case study as an empirical inquiry**

For the purpose of this study, case studies were regarded as a research strategy as outlined by Yin (2009) who defined a case study as “an empirical inquiry that investigates

a contemporary phenomenon within its real-life context, especially when the boundaries between the phenomenon and context are not clearly evident” (p. 18). Yin (2009) further contended that the case study inquiry “relies on multiple sources of evidence, with data needing to converge in a triangulating fashion, and as another result benefits from the prior development of theoretical propositions to guide data collection and analysis” (p. 19).

As the study of the effects of children’s literacy development could be a complex multivariate study, for the purpose of this case study, we focused on any possible linkages between children’s literacy level on one hand, and their teacher ICT-readiness and parental involvement, on the other hand. Thus, we examined the official reports on the level of literacy of Malay pre-schoolers e.g. how well they were able to recognize simple English words.

Unfortunately, many children graduated from preschools only to enrol in LSP classes for 2-3 years in primary school so that they might receive specialist coaching (in smaller classes) to understand very simple oral instructions in English. This was labour-intensive and required more teaching staff who were far more experienced. This accentuated the need for teachers to use appropriate ICT tools and for parents to be more involved so as to bring about enhanced English literacy level among Malay pre-schoolers.

### **Sources of evidence**

Case studies relied on multiple sources of evidence including any mix of quantitative and qualitative data that allowed for converging lines of inquiry, through a process of triangulation (Yin, 2009). Indeed, any finding or conclusion in a case study would be more convincing and accurate if it came from multiple sources of evidence.

Evidence for case studies was generally derived from several sources including and not limited to documentation, archival records, interviews, direct observations, participant-observation and physical artifacts. An extensive number of other (less common)

sources of evidence also existed including psychological tests, photographs, films and life histories. No source of evidence was regarded above the others as many of them complemented one another.

A good case study would employ as many sources as possible. In this study, the sources of evidence were field notes, interviews for narrative analysis, surveys for descriptive statistics and documentation for documentary analysis, as shown in Table 3-1.

**Table 3-1: Summary of methods used for data collection**

|                                    | <b>Descriptive statistics</b> | <b>Documentary Analysis</b> | <b>Narrative Analysis</b> |
|------------------------------------|-------------------------------|-----------------------------|---------------------------|
| Interviews with parents            |                               |                             | x                         |
| Interviews with teachers           |                               |                             | x                         |
| Press releases                     |                               | x                           |                           |
| Parliamentary Speeches             |                               | x                           |                           |
| Questionnaire survey with parents  | x                             |                             |                           |
| Questionnaire survey with teachers | x                             |                             |                           |
| Reports                            |                               | x                           |                           |

### **Principles of data collection**

Yin (2009) recommended 3 important principles of data collection in case studies namely the use of multiple sources of evidence, the creation of a case study database; and the maintenance of a chain of evidence. Suffice it to state that these principles underpinned high-quality case studies and shall be relevant to all sources of evidence. The first principle concerned itself with triangulation and how it contributed to construct validity. The second principle pertaining to the creation of a case study database shall increase the reliability of information used in the case study.

Yin (2009) argued that by creating a formal, presentable database, evidence shall become open for independent inspection by other researchers. Similarly, the third principle pertaining to the maintenance of a chain of evidence also enhanced reliability of information, as it allowed those interested in the case study to follow the origin of any evidence from the initial research questions to the study conclusions. Hence, one should be able to move from one process of the study to another, with clear cross-referencing to methodological procedures and to the resulting evidence.

Cross-referencing was important e.g. if parents stated that they read to the child a lot but if the child reported the opposite then such data had to be verified again. The chain of evidence allowed for transparency of data collection and sources of information which in turn addressed construct validity questions.

### **Validity**

Four tests had been commonly used to establish the quality of any empirical social research and as such, applied to case studies (Yin, 2009). The four tests were construct validity, internal validity, external validity and reliability. Validity would refer to “the appropriateness, meaningfulness, and usefulness of the inferences a researcher makes” (Fraenkel & Wallen, 1996, p. 152). Decisions about what measures to use, methods of data collection and analysis would contribute to the credibility of a study’s findings.

To address construct validity, we used the correct measures for the concepts being studied. Construct validity related to whether correct operational measures had been used to measure the concepts being studied (Yin, 2009). Researchers must select the concepts they wanted to study and then demonstrate how the measures (they employed) reflected the concepts. There were three ways to improve construct validity; using multiple sources of evidence that could be triangulated, a chain of evidence and member checking.

Member checking described how participants shall be asked to comment on the credibility of findings and interpretations by the investigator (Erlandson, Harris, Skipper, & Allen, 1993; Lincoln & Guba, 1985; Merriam, 1988). According to Lincoln and Guba (1985), this practice is “the most critical technique for establishing credibility” (p. 314).

To address internal validity (especially important with explanatory or causal studies), we used multiple pieces of evidence from multiple sources such as government agency documents, press releases on the school, etc. to uncover (any) converging patterns. This was why an analysis of press releases as well as parliamentary speeches relating to preschool education and parental involvement, had been documented.

To address external validity, we asked if findings were generalizable beyond the immediate case or cases. The more the case study could yield the same findings across variations in places, people, and procedures, the higher its external validity. If the findings of the case study at one preschool centre within the Marsiling Group could be replicated in another preschool centre (across variations in place, people, and procedures), then the external validity could be considered high. Hence, external validity could only be determined upon replication. This was also known as cross-case examination which was typically used to ensure external validity.

### **Reliability**

By the term ‘reliability’, we referred to the stability, accuracy, and precision of measurement. Exemplary case study design ensured that the procedures used were well-documented and could be repeated with the same results over and over again. In this case study, the pre-school children’s mothers were interviewed on their education level and parenting style, and they spoke about their children’s reading habits.

For practical reasons, I interviewed whichever parent sent the child to the pre-school. The field notes indicated that mothers (instead of fathers) usually sent the child to school. As far as possible, in the absence of the parent, the primary care-giver was interviewed; hence, a grand-parent might be interviewed.

Merrell (1999) reported that multiple informants could help provide a more comprehensive, reliable and valid representation of the child, accommodating different perspectives on the children's behaviour and reducing source and setting error variance. This was important as parents might state that they read to the child a lot but if that particular child's teacher reported little evidence of the child's reading ability then such data had to be verified again. This was similar to the idea of cross-referencing which was discussed earlier.

The child's completion of the reading test served as another piece of evidence. These multiple sources of evidence helped us to triangulate and achieve a more complete picture and understanding of the child's reading ability which formed part of our understanding of the child's literacy development.

### **Triangulation**

Yin (2009) listed 4 types of triangulation namely data triangulation, investigator triangulation, theory triangulation and methodological triangulation. For the purpose of this study, data triangulation was based on different data sources including and not limited to journal articles, newspaper articles, books, etc. and data collected from interviews (qualitative data) and questionnaire (quantitative data) (Crowther & Lancaster, 2008) and field notes. According to Yin (2009), data triangulation addressed concerns about construct validity as the multiple sources of evidence provided multiple measures of the same phenomenon.

Stake (2006) argued that “triangulation has been generally considered a process of using multiple perceptions to clarify meaning, but it is also verifying the repeatability of an observation or interpretation” (p. 37).

Bronfenbrenner (1989) also advocated the use of triangulation but under a different guise. He argued that scientific understanding of an individual’s psychological characteristics and development could be deepened when research designs incorporated systematic comparison of assessments made in different contexts by different informants who had varying relationships and roles towards the individual. Efforts were made to include different informants of children’s behaviour including parents, teachers and ASC coordinators (where appropriate), as well as principals and teaching staff. This information was recorded in a field journal or field notes as described earlier.

To verify “the repeatability of an observation or interpretation” (Stake, 2006, p. 37), this case study which served as a pilot study, could be scaled up to involve more Malay families and their children, across more pre-schools in Singapore.

### **Pilot study**

According to Thabane, Ma, Chu, Cheng, Ismalia, Rios, Robson, Thabane, Giangregorio and Goldsmith (2010), pilot studies were “the best way to assess feasibility of a large, expensive full-scale study, and in fact are an almost essential pre-requisite”. In many ways, the single-site case study was like a pilot study as it was carried out before starting a large-scale investigation and safeguarded investment before it scaled into a much larger study which incurred more time and resources.

A pilot study tested the feasibility of methods and procedures before the study was scaled upwards “to search for possible ... associations”, under a much larger study (Everitt, 2006, p. 2).

**Naturalistic generalization**

Generalization from the case, however, was limited. Nevertheless, Stake (2005) offered the idea of “naturalistic generalization” which had been mentioned in the first chapter and shall be further explained hereunder (p. 64).

While an individual person was seldom the target or object of a social inquiry, such an individual or single object was what was considered ‘a case’. Stake (1980) had earlier proposed that the case study method might be in sync with the professional reader's experience and thus be a “natural basis for generalization” (p. 64); hence the term “naturalistic generalisation” was coined.

**Documentary analysis**

A documentary analysis on various documents posted online by government and relevant agencies facilitated the examination of how much had been done to promote teacher ICT-readiness and parental involvement. Most of the documents were released by MOE, MCYS and another government agency - the newly-formed ECDA.

If the study by the Economist Intelligence Unit or EIU on international ECE was to be taken seriously then Singapore “seems to be falling short when it comes to teaching its toddlers” especially when it had been ranked “just 29th out of some 45 countries across the globe” (EIU, 2012, n.p.). According to the EIU (2012), Singapore actually scored as poor as “30th out of 45” for quality, but fared slightly better in affordability (21<sup>st</sup> out of 45)

and availability (25<sup>th</sup> out of 45) (n.p.). Quality was based on student-teacher ratio, average preschool teacher wages, preschool teacher training and linkages between preschool and primary school.

A documentary analysis was also carried out to examine how much had been done to promote teacher ICT-readiness and parental involvement. The documentary analysis was made possible because of the wide range of documents, speeches and press releases posted online. A survey questionnaire was designed to capture aspects of pre-school teachers' readiness for IT as well as the extent of parents' involvement with their children. Aimed at capturing insights that might not have otherwise surfaced in a survey, the narrative analysis was based on interviews with teachers in the pre-school.

The research question, the sub-questions and hypotheses were outlined. The results of the survey were presented in graphical form to illustrate the possible impact of factors such as parents' involvement and the state of teachers' ICT-readiness or their experience in using ICT as an education tool. In researching usefulness of ICT, Gillani and Relan (1997) examined a notable aspect of Vygotsky's theory: "instruction is most efficient when students engage in activities within a supportive learning environment and when they receive appropriate guidance that is mediated by tools" (p. 231).

Data triangulation charts were also used so that multiple sources of evidence could be classified according to key words and uncover any possible patterns. Producing data triangulation charts was time-consuming but it could be worthwhile as it strengthened the case study (Mingers, 2001). Qualitative and quantitative methods need not be viewed as antagonistic, as they could also serve as strong complements to each other, strengthening the study which focused on whether teacher ICT-readiness and parental involvement had any influence in the literacy development of the Malay children.

### Questionnaire survey

The questionnaire survey was self-designed because there is no existing survey questionnaire that is localized or customized to examine the possible patterns between teacher ICT-readiness and parental involvement on one hand, and the literacy development of Malay pre-school children, on the other hand. The results of the survey were then plotted onto radar charts and bar graphs. Each radar chart showed a teacher's state of ICT-readiness in terms of 5 aspects or dimensions (please see Figure 3.4 below). These 5 aspects are the teacher's self-evaluation of ICT competence on using ICT as an education tool (SEIC), the teacher's ability to enthuse children to learn with ICT (AECL); the teacher's own feelings about infusing ICT into the curriculum (FIIC); the teacher's use of ICT with their own child (TUIC), and the teacher's view of her own involvement as a parent in her own child's learning (TICL).

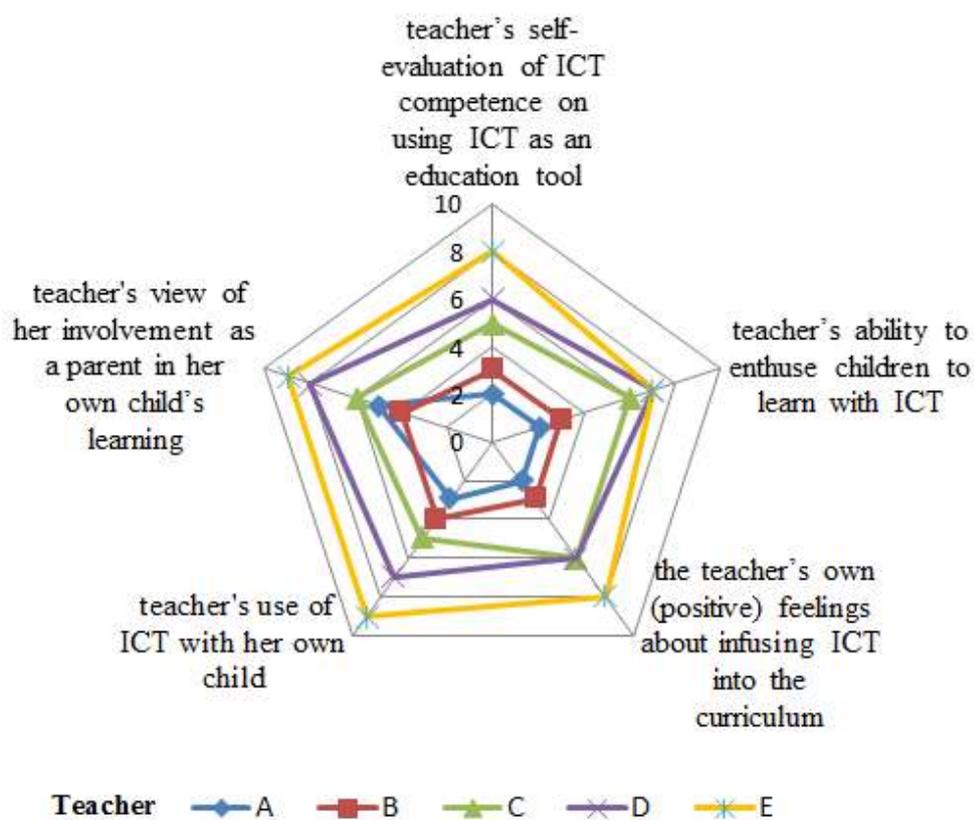
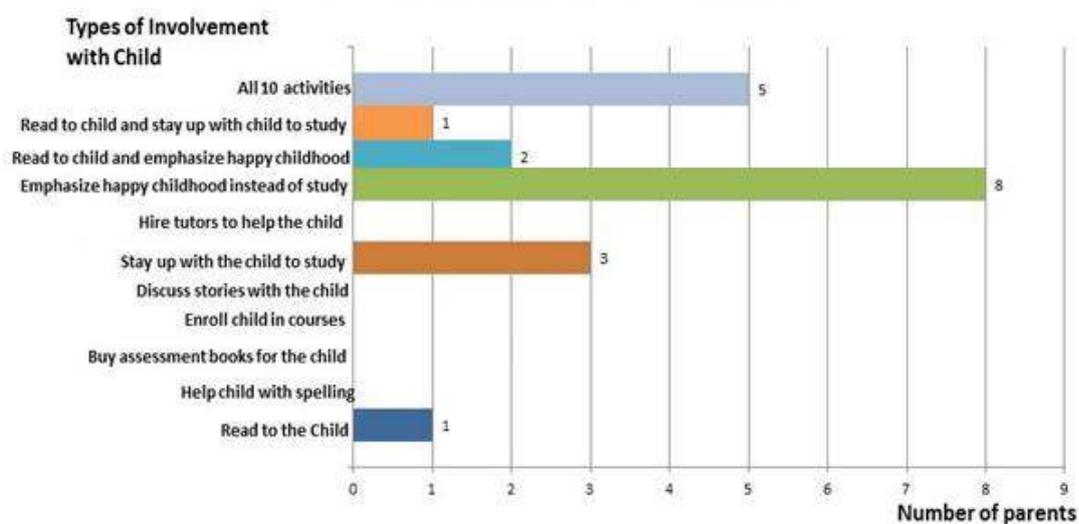


Figure 3-4. Sample Radar Chart showing ICT-readiness of 5 different teachers

In fact, for optimum visual impact, as many as 5 teachers and their 5 aspects of ICT-readiness had been plotted onto the radar chart. The radar chart was preferred to other graphical tools like the histogram, pie charts and line graphs because it was visually clearer in showing the ICT-readiness of teachers in 5 aspects of ICT-readiness. From the radar chart, it was possible to show how the 5 teachers (Teachers A, B, C, D and E) rated themselves in comparison with one another. Each teacher's profile in terms of self-reported or self-rated ICT-readiness formed the shape of a pentagon since 5 aspects of ICT-readiness had been considered. The teacher with the largest shaped pentagon would be one with the highest rating of ICT-readiness, i.e. Teacher E. Teacher A with the smallest shaped pentagon, however, had a higher TICL rating than Teacher B.

A self-designed questionnaire survey was created to capture the educational activities performed by teachers and parents of the pre-school children, with the intent of discovering patterns as well as gain insights on parental behaviour and beliefs. Parents indicated if they involved themselves in any of the ten activities; they could state as many activities that were relevant – as shown in Figure 3-5. The findings would be discussed in greater detail, in the next chapter.



**Figure 3-5. Parental involvement across 10 activities**

With regards to teachers' use of ICT in class, Marcinkiewicz (2011) recommended "instructional technologies that encompass software and hardware to facilitate learning ... (e.g.) online learning management systems, individual audio devices, and online virtual worlds" (p. 208). Moreover, Marcinkiewicz (2011) reminded us that "the challenge, as often happens, is in the actual implementation" (p. 208) and that we ought to "begin by considering the materials, tools, and processes that are useful for instruction" (p. 208).

Since this study focused on parental involvement and the use of ICT, 48 parents or primary care-givers of the pre-school children and all 31 teachers were surveyed and interviewed. In fact, the entire teacher population at the 3 preschools was chosen because we wanted the survey to reflect the range of teachers. The sample had a heterogeneous socioeconomic and ethnic make-up and comprised 31 pre-school teachers, all female.

In highlighting the importance of having teachers who were ICT-ready, the reminder from DPM Teo, in his previous capacity as Education Minister, was useful: "good teachers are key to everything we do because education is a completely human enterprise" (MOE, 2001). According to Noraini Idris et al (2007), "no matter how good the curriculum, infrastructure or teaching aids, at the end of the day, it is the teachers who make the difference" (p.102).

## **Narratives**

Narratives had been viewed and talked about differently by different people. Indeed, as early as the 1970s, Barnlund (1975) recorded that people "talk differently, about different topics, in different ways, to different people, with different consequences" (p. 435). About a decade later, Hardy (1987) provided the view that a narrative is a "primary act of mind" (p.1).

Other researchers like Mitchell and Sackney (2000) suggested that a narrative is “a means by which human beings represent and restructure the world” (p.177). The term, ‘narrative’ could also be drawn from the tradition of experience-centred narrative research (Squire, 2008; Tsai, 2007), which could illustrate the teller’s understanding of an experience.

Researchers in the 1980s such as Polanyi (1985) viewed ‘narrative’ as “a kind of discourse in which a precise time line is established through the telling, comprising discrete moments at which events occur”. Connelly and Claudinin (1988) defined narratives as “the making of meaning through personal experience by way of a process of reflection in which storytelling is a key element and in which metaphors and folk knowledge take their place” (p. 16). When we listened to teachers’ narratives, it is hoped, we would be able to understand what was inside the teachers’ mind. Getting to know what was in the teachers’ mind and on their hearts was important because teachers were key participants in education. Indeed, teachers’ reflections had been studied so as to “get inside teachers’ heads to describe their knowledge, attitudes, beliefs, and values” (Connelly & Claudinin, 1988, p. 14).

Chafe (1990) viewed narratives “as overt manifestations of the mind in action: as windows to both the content of the mind and its ongoing operations” (p. 79). Even a pause or an interruption, intended or otherwise, was important. Chase (2010) described this kind of unexpected narrative interruption as an opportunity “to understand how people create meanings out of events in their lives” (p. 218).

The work of Bruner (1996) suggested that “skill in narrative construction and narrative understanding is crucial to constructing our lives and a ‘place’ for ourselves in the possible world we will encounter” (p. 40) and it might be worth to consider to “convert our efforts at scientific understanding into the form of narratives” (p. 125).

In a paper presentation at the 21st Century Academic Forum Conference at Harvard University in 2014, Chong, Anderson and Anderson (2014) highlighted the

importance of listening to “teachers’ opinions and frustrations” (p. 74), or listening to their voice. As more was expected of teachers, teachers need to be empowered and be given more voice which was but only one aspect of performance. For such a performance to take place, the narrator must have the opportunity to voice out so that the audience may listen and reflect upon what is voiced out.

Sometimes, it might be expected that some teachers were able to show more narratorial control in performance as should be evident in some of the narratives to be recorded and which would be discussed in the subsequent chapters. As Cortazzi (1993) suggested, “many teachers’ narratives have strong performance qualities, most of which are lost on paper: voice quality, gesture pitch and pace disappear in transcription” (p. 110). Thus, narratives could complement the other two methods used in this study and therefore strengthen the study.

In a magazine article entitled ‘Winning Women’, Chong (2012a) listened to a few award-winning preschool professionals in Singapore and found out what motivated them were not just recognition but also “the full support of teachers, principals and the Management Committee”, “work-life balance” and “proximity between home and the workplace” (pp. 36-37).

Many researchers, over the years, also argued that understanding how these voices conducted themselves with respect to events, processes, and other voices could provide insights into how they viewed and felt about schooling (Xu et al, 2007), and about identity formation (Bernard, 2004; Kelchtermans 2005).

It was also important to remember that it was possible that (pre-schoolers’) stories and views were not permanent but might shift and evolve over time and across contexts and interpretations (Cook-Sather, 2007). It was thus important to listen for and attend to these shifting or conflicting accounts. Thus, narratives enable a phenomenon to be described in a way that was deeper in analysis, more detailed, and more insightful.

**The interview**

According to Denscombe (1983), the interview might be considered an expressive medium that should highlight the performance factor. Narratives could thus be performed with dramatic intonation, pauses, gestures, facial expressions and body positions, complete with interesting figures of speech. Some narratives showed a variety of stylistic devices such as figures of speech, rhyme, varied tempos, pitch and intonation – all of which could not be captured in documentary analyses or surveys. The researcher would analyse the data by hand, holding "a conversation with the data" (Merriam, 1988, p. 131), and jot down general thoughts and reflections and search for regularities and patterns to transform into categories.

The face-to-face interviews were used so as to establish rapport, and soothe any anxieties respondents might have about confidentiality. Such techniques had been used to research sensitive topics such as attitudes and behaviours of the certain populations (Layte, McGee, Quail, Rundle, Cousins, Donnelly, Mulcahy, & Conroy, 2006; Watson & Parsons, 2005). For practical reasons, there was a 10-minute time-limit on the length of the interview, which might unfortunately limit the range of issues that could be explored and subsequently studied.

The interviews were organized (or chunked") into "meaning units" and these were studied for patterns and repetitions. Each meaning unit was a direct quotation from the interview. The interview survey method too had its advantages and disadvantages. It was advantageous in that the researcher could know how people were interpreting questions. The method also served as a good avenue for more information and a good source for detailed data. On the other hand, because of the massive amount of detailed information that had to be dealt with, the interview method was relatively time-consuming. Because of time

constraints, the sample size was often limited. Moreover, the interpretation could be quite subjective and the analysis tedious and expensive.

### **Documenting narratives after the interview**

There is a growing interest and effort in equipping Singapore children for the digital age especially when parents favoured the use of ICT to prepare their young children for the digital age (BECTA, 2008, p. 46). This study would (attempt to) document narratives told by 31 teachers who provided insights on the nature of interaction between the teachers and the pre-school children, as they used ICT to enhance teaching and learning. As early as the 1990s, Louden (1991) suggested that a sound knowledge of teachers' perspectives could help improve classroom practice and the educational system (p. 149).

The teachers were also informed that the purpose of the research was to ask about their day-to-day experiences in order to develop a picture of what using ICT as an education tool was really like. Teachers were asked questions pertaining to their beliefs, use of ICT and the abilities of the children in terms of language and literacy. The interviews were organized for a narrative analysis and their findings reported in the subsequent chapters. The radar chart shown earlier, in Figure 3-4, illustrated various teachers' self-evaluation of ICT competence on using ICT as an education tool, ability to enthuse children to learn with ICT; own feelings about infusing ICT into the curriculum; their use of ICT with their own children, and the parents' involvement in the child's learning.

### **Structures of narrative**

The literature on narratives is not new. As long ago as the 1960s, Labov, Cohen, Robins, and Lewis (1968) listed 6 parts to a fully formed oral narrative of personal experience: the abstract initiated the narrative by summarising the point; the orientation

provided details of time, persons, place and situation; the complication marked the turning point or problem; the evaluation highlighted the point of the narrative, the reason for telling the story; the result described the resolution to the problem; and the coda marked the close.

This same 6-part framework is still in use today; recently by Seck (2009) in his work on oral narratives of an aboriginal group. Labov (2007) reiterated his definition and the six steps of a narrative structure as follows:

“A particular way of reporting past events, in which the order of a sequence of independent clauses is interpreted as the order of the events referred to. They then describe the full elaboration of adult narratives of personal experience, beginning with an abstract, orientation, and evaluation section embedded in the complicating action, a resolution and a coda” (Labov, 2007, p.1).

Labov and Waletzky's (1967) narrative framework is well established for the analysis of narrative at the clause level as well as the discourse level. It had been updated by Labov (2007) who analysed the structure of narratives as being made of non-narrative clauses (in syntactic terms) and narrative ones, after stipulating that his framework “has proven useful for many students of narrative in following the path of narrative construction” (p.1).

### **Narrative pre-construction**

One of Labov's recent works, which was a continuation of Labov (1997), was concerned with the idea of narrative pre-construction which presupposed that every narrator must accomplish a narrative pre-construction before starting the narrative itself (Labov 2007). This pre-construction comprised making a selection between the stories a narrator had stored

in his memory, complete with what he or she wanted to focus on and the endpoint for the selected story. The first step in narrative construction, according to Labov (2007), was to select the reportable events. This was followed by a construction of a series of well-linked events preceding the most reportable events (Labov 2007). The recursion of events would generate the complicating action. The third step comprised a section which Labov (2007) referred to as unreportable event, one that ‘does not require an explanation’ yet ‘informs the listener about time, place, participants, and behavioural setting at the beginning of the narrative’ (p. 3).

Narrative clauses could be temporally-sequentially ordered and had been commonly grouped into the following narrative phases:

- (a) Abstract: A phase which shortly announced the punch-line of the narrative. This phase is typically absent from narratives produced in the course of a larger action like a conversation or a TV interview.
- (b) Orientation: A phase in which the teller presented the context of the narrative (time, place, participants...).
- (c) Complication: A sequence of events temporally organized and leading to a climax or a punchline.
- (d) Resolution: According to the type of narrative, it is a phase in which the teller briefly recounted how the problem was solved or what a happy conclusion was drawn from the complication phase.
- (e) Evaluation: A phase in which the teller proposed a personal evaluation either of the events in the narrative or of the narrative itself as a genre (funny, sad...).
- (f) Coda: A short phase in which the teller switched from the narrative to the larger action.

Another model of narrative structure mooted by Longacre and Levinsohn (1978) also had 6 parts namely the Aperture, the Stage, the Episode, the Denouement, the Conclusion, and the Finis (pp. 104-105). For an easy-to-follow structure of oral narrative, Cortazzi's (1993) model was used for all of the 40 narratives:

1. Abstract (What is this about?)
2. Orientation (Who? When? What? Where?)
3. Complication (Then what happened?)
4. Result (What finally happened?)
5. Coda
6. Evaluation (So what?)

The following Table 3-2 is a template that shows how a narrative arising from an interview with a parent, would be recorded and analysed. More narratives would be analysed and discussed in Chapter 4.

**Table 3-2: Analysis of a Narrative from an Interview with a Parent**

|                                    |       |            |        |
|------------------------------------|-------|------------|--------|
| Abstract (What is this about?)     |       |            |        |
| Who?                               | When? | What?      | Where? |
| Complication (Then what happened?) |       |            |        |
| Result (What finally happened?)    |       |            |        |
| Coda                               |       | Evaluation |        |

### **Usefulness of interviews and a narrative analysis**

It was useful that this case study included a narrative analysis which helped uncover issues deemed important to the interviewees. After all, the semi-structured interview allowed the researcher to get off the beaten track as it were, to explore emerging topics such as ‘play’ and ‘religious upbringing’ raised in the interview conversations. Indeed, in the preceding chapter, we learned that multiple informants could help provide a more comprehensive, reliable and valid representation of the child, accommodating different perspectives on the children’s behaviour and reducing source and setting error variance (Merrell, 1999).

A few interviews revealed this: a parent related her child’s lamentations about how *little* his teacher used ICT in class whereas the teacher reported otherwise. Upon verification, it turned out that both had their own perspectives. It was found that the child did not get *called upon* to use the smart-board during the whole-class teaching segment of the lesson even though he had one-to-one hands-on practice on the computer thereafter. So the child’s notion of ‘frequent usage’ was equated with ‘being called upon to show to the whole class’. Would this have been easily uncovered in a quantitative research method? Quite aptly, Bronfenbrenner (1989) argued that an individual’s understanding was enhanced when research designs incorporated systematic comparison of observations made in different contexts by different informants who had diverse relationships with the individual. Even with careful observations, one needs to take note of social desirability bias.

### **Social desirability bias**

Respondents might tend to answer in a way that made them ‘look good’ to the interviewer or researcher (Ghate, Hazel, Creighton, Finch, & Field, 2003; Anderson &

Baskin, 2002). However, the literature had been inconclusive regarding the impact of telephone or face-to-face survey mode on social desirability bias. On the one hand, Weisberg (2005) suggested that social desirability effects might be expected to be greater in face-to-face surveys than in telephone surveys especially when the face-to-face interviewer could develop a stronger rapport with respondents, leading to greater confidence that the results would be confidential (Holbrook, Green & Krosnick, 2003). On the other hand, telephone surveys might also be more prone to social desirability bias effects than face-to-face surveys (Holbrook et al, 2003).

Weisberg (2005) cautioned that many of the differences in mode found between telephone and face-to-face surveys were based on very few studies and differences might arise because of how the survey was organised (in terms of the traits of the interviewers, similarity and familiarity of interviewers to respondents) rather than because of the mode. In short, the literature is inconclusive about the significance and magnitude of differences between telephone and face-to-face interview methods in terms of the validity of sensitive information.

## **Ethics**

Letters of introduction were sent to the participating pre-school teachers so as to inform them of the purpose of the research, assure them of confidentiality, and address any concerns that they might have. All teachers and parents who were approached for the interview had no objections whatsoever, and willingly gave consent for the interview.

The research design involved the case study augmented by documentary analysis, a survey and a narrative analysis. An illustrative case study approach was adopted because it offered an “in-depth study of instances of a phenomenon in its natural context and from the perspective of the participants involved in the phenomenon” (Gall, Borg & Gall,

1996). Indeed, a case study was deemed suitable because it could capture the viewpoints of the participants as well as the researcher.

## **Conclusion**

This chapter began with a quick discussion of the single-site case study method and the choice of the pre-school group, followed by a discussion on a few general methods of case study and survey. The advantages and disadvantages of each method were also discussed. The use of triangulation was also explained for this study. This took the form of a documentary analysis of related parliamentary speeches as well as media releases, followed by a narrative analysis of teacher interviews, and finally a simple but systematic statistical analysis of the results gathered from the self-designed questionnaire survey.

Broadly speaking, case studies are complex because they generally involved multiple sources of data and consequentially produced large amounts of data for analysis. As to be expected, a few patterns emerged and a few central themes surfaced from the study as an attempt was made to produce analytic conclusions answering the original "how" and "why" research questions. This was further tied to a documentary analysis, ensuring some form of quality and to-and-fro checking with the literature review.

Indeed, each issue relating to teachers' use of ICT and parental involvement was developed using the findings and these were discussed according to the research questions, and in the light of the literature review. In short, in this study, we used the technique of discussing the case around the 6 research questions and emerging central themes before making suggestions for further research in the subsequent chapters.

## **Chapter 4**

### **FINDINGS**

In earlier chapters, it was stated that case studies rely on multiple sources of evidence which could include any mix of quantitative and qualitative data which allows for converging lines of inquiry and facilitates a process of triangulation (Yin, 2009). In this case study, triangulation involved a documentary analysis of parliamentary speeches and research papers, a narrative analysis of interviews with teachers and parents and a survey questionnaire completed voluntarily by teachers and parents. Through such triangulation, this case study sought and found answers to the following research questions which were first listed in Chapter 1:

1. Are Malay children in Singapore able to read and write before they enter Primary Schools i.e. formal schooling years? (A sample test very similar to one used by MOE is listed in Annex 1; such a test is used with 35,000 children at Primary 1, every year)
2. How involved are the parents of Malay pre-schoolers especially in the latter's literacy development?
3. How do the parents' distinct parenting styles (authoritarian, authoritative and permissive) influence the literacy development of their children?
4. What kind of impact does the upbringing of these Malay children have on their literacy development?
5. How can parents and teachers use information communication technology or ICT (and possibly other tools) to engage the children to improve their literacy?

This chapter would thus focus on findings in relation to each of the afore-said research question and how the findings were related to the theoretical framework as discussed in Chapter 2 and illustrated in Figure 2-1.

### **Are Malay preschool graduates able to read and write?**

As explained in Chapter 2, MOE had relied on a simple way to gauge a child's literacy with an easy-to-administer test, supplemented by the Primary One (First grade) teacher's observation of the child's language proficiency in the first few months of formal schooling. This test, similar to the one shown in Annex 1, is used with 35,000 Primary 1 (First Grade) children in Singapore schools, every year. The decision on using such a test as an effective way to gauge a child's literacy level had been made after consulting with experts engaged by MOE as well as policy-makers, and had been documented in the literature review chapter.

The findings through the interview of 31 teachers showed that in general, the children could not spell more than half the words in the spelling list (See Annex 1). It was found that these children could neither read a sentence nor string words together to form a proper sentence. This was the reason why the test was made very simple. Indeed, the Minister for Muslim Affairs Dr Yaacob Ibrahim and his fellow parliamentarians who had highlighted in Parliament that “the Malays did not perform well in school” (Singapore Parliament Reports, 2009).

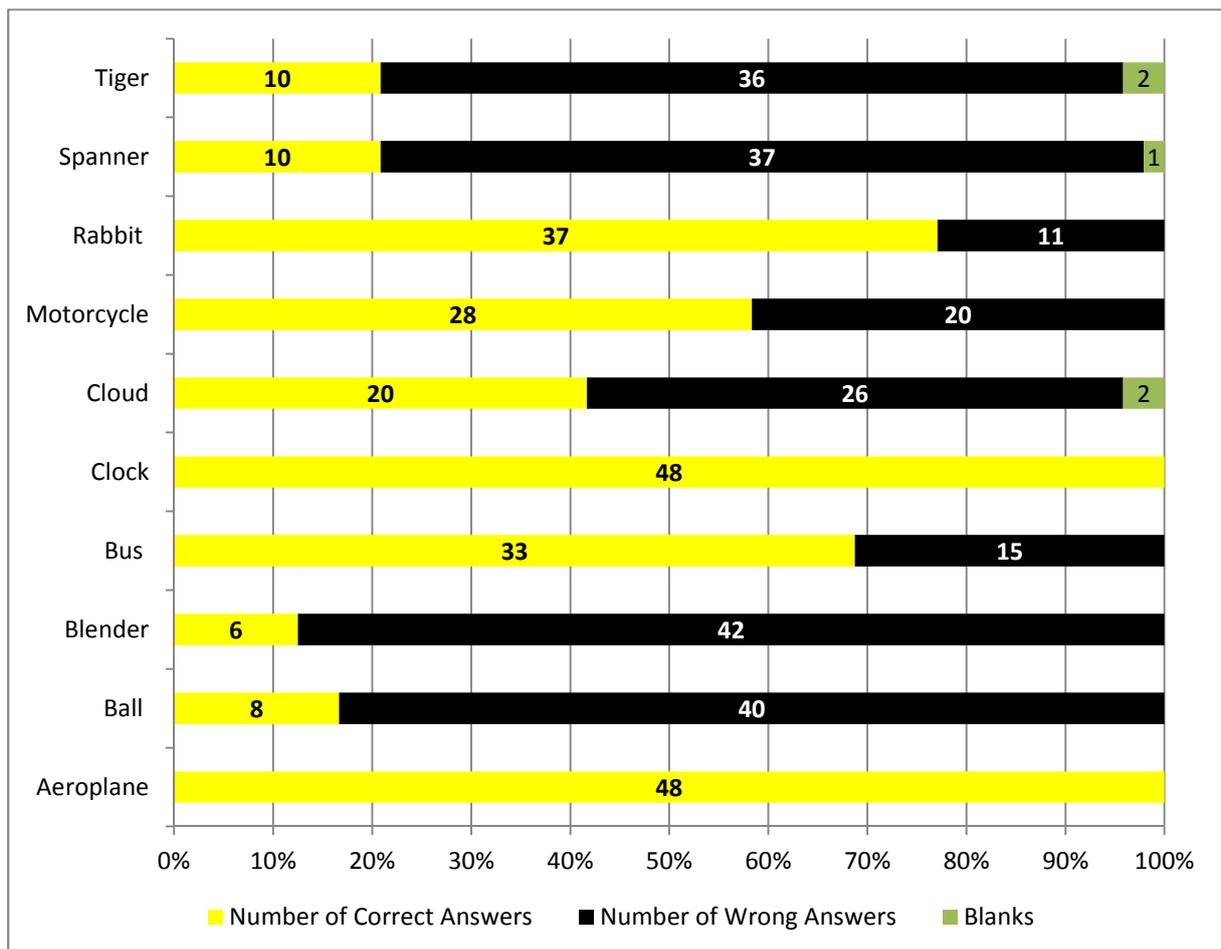
While spelling and word recognition had been considered to be a relatively minor factor in literacy, it was the most obvious and easily observable factor among young children who were still at the pre-phonemic or early phonemic stage as discussed in Chapter 2 (Darling-Hammond & Bransford, 2012). Indeed, it could not be over-emphasised that

literacy is more than spelling and word recognition. Nevertheless, experts such as Darling-Hammond and Bransford (2012) agreed that spelling is one of the early building blocks in the literacy development of the child. As explained in Table 2-2, when children were at the pre-phonemic stage, they were not yet able to read sentences. Interestingly, they were able to spell words, even long ones like “motosikal” (which is ‘motorcycle’ in Malay). This should not be surprising because they were also able to read and spell long words and even phrases from the Muslims’ holy book, the Koran which is in *Jawi*, a foreign language. This is because of the religious classes the children go to every week. The MOE had tested the children’s literacy level with a spelling and oral comprehension test. MOE’s test emphasised on spelling and not reading at that stage of the child’s literacy development, and over the years, this test had helped MOE to identify those who needed more help.

Upon examination of the way these children spelled certain English words, this researcher who is effectively bilingual in English and Malay (written as well as spoken), found that in a different language i.e. in these Malay children’s Mother Tongue, the spelling of certain words were absolutely correct! For instance, the word, ‘bus’ was spelled as ‘*bas*’ – which is 100% correct .... in Malay. This was briefly discussed in the preceding chapter when we discussed the importance of ‘context and culture’. Thus, a researcher unfamiliar with the Malay language would probably miss this pivotal point about ‘context and culture’. The other words the children spelled out were ‘*motosikal*’ (Malay for ‘motorcycle’) and ‘*bola*’ (‘ball’). It was very interesting that the children could spell long words (like “motosikal”) even though they spelled it in Malay; actually, I was not surprised because I had seen how young pre-schoolers were able to spell and write even phrases in *Jawi*.

Suffice it to highlight that it is critical for the teacher to help these Malay children to move from the known (Malay vocabulary words) to the unknown (English

vocabulary words). Figure 4-1 showed the type of words in a sample test and the number of Malay pre-schoolers who were unable to spell each of these words.



**Figure 4-1. Number of Malay pre-schoolers unable to spell words in the Worksheet**

While Figure 4-1 showed the results of the Worksheet or the ‘what’, it was the observations and teachers’ inputs that surfaced the ‘why’ or the insights, as listed below:

- ‘Tiger’ – It is observed that the 36 out of 48 children (75%) spelled the word wrongly; teachers suggested that the children were too familiar with ‘Tigger’ in the “Winnie the Pooh” story.

- ‘Motorcycle’ – All 48 children had this answer right. They must have heard the word before but when asked to spell it without looking at the Worksheet, 20 out of 48 children gave the Malay spelling for the word i.e. ‘*motosikal*’.
- ‘Aeroplane’ – Generally, it appeared the children had no problem identifying this word/object as all 48 children got it right.
- ‘Bus’ – It is also observed that the children had heard the word before but when asked to spell it without looking at the Worksheet, 15 out of 48 children spelled it according to the Malay spelling for the word i.e. ‘*bas*’.
- ‘Clock’ – It was evident all 48 children had no problem identifying this word/object. The teachers explained that the children played the game “Hickory, dickory, dock, the mouse went up the clock” in school daily and used the word “clock” every day to tell time for various activities of the school-day.
- ‘Ball’ – 40 out of 48 had trouble with this word. They spelled it as ‘*bola*’; again, this is the spelling in Malay or their Mother Tongue (language used at home).
- ‘Rabbit’ - 11 out of 48 children seemed to confuse this with hamster which appeared as the first option on the Worksheet. It seemed to suggest that when in doubt, the children gave up easily and chose the first word that appeared on the list.
- ‘Spanner’ – Most of the children (32) chose hammer, a very common word – interestingly, it is also the symbol of the leading opposition party in Singapore. Five (5) children chose ‘pliers’ and only 10 had it right. One (1) child did not answer this question.

- ‘Cloud’ - 1 out of 48 children, chose the last option ‘clown’. Twenty (20) children had it right. Two (2) children left it blank and the remaining 25 children chose the first option on the Worksheet i.e. ‘crowd’. Again, why is the first option in each question the most popular choice? It suggested that when the children faced something unfamiliar, they would choose the first option that appeared on the list especially when they received no guidance or encouragement.
- ‘Blender’ – The first option was chosen by 22 children, more than half of the 48 children. Twenty (20) children chose ‘hot plate’ perhaps (mis)led by the visual cue of heat coming out of the toaster. Only six (6) children had the answer right.

Quite often, each of these words that appeared on the test (e.g. ‘motorcycle’, ‘bus’ and ‘toaster’) has been taught “by themselves or in isolation” and this is precisely what Cohen and Spenciner (2011) caution teachers against doing (p. 365). The importance of ‘culture and context’ cannot be over-emphasised and this points us to Bronfenbrenner’s exposition of the importance of “macro-system”, as explained in Chapter 2.

Earlier, we also read about Malay children who could not spell, much less read a sentence nor string words together to form a proper sentence, in English. This was supported by findings from the documentary analysis of Ministerial statements made in Parliament e.g. (Malay children) “.... have very weak oral English and literacy skills....they were not able to recognize simple English words (or) understand very simple oral instructions in English” (Singapore Parliament Report, 2009, para 42).

## **Involvement of Malay parents in their children’s literacy development**

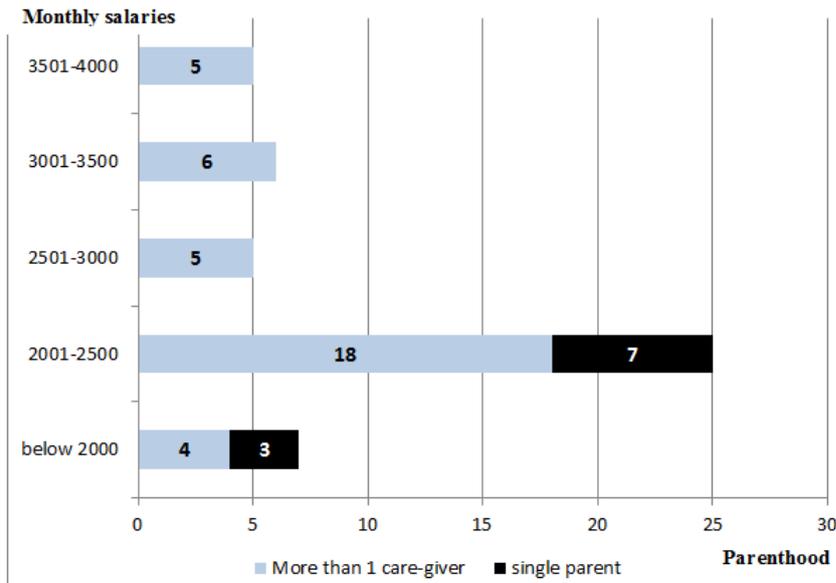
In addressing the involvement of Malay parents in their children’s literacy development, this chapter shall elaborate on the following findings:

- profile of the 48 parents who were interviewed, in terms of gender, SES,
- parental involvement across 10 activities,
- the involvement of fathers,
- what if parents said they could not teach,
- how single parents were involved with their preschool child, and
- other care-givers such as grandmothers.

### **Profile of the 48 parents who were interviewed**

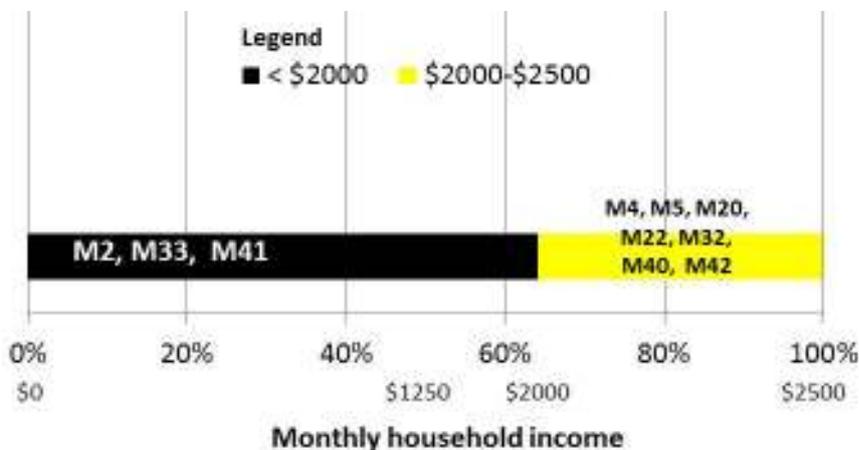
Forty-eight parents were interviewed, of which only 2 were fathers (F1 and F2). Like the two fathers, the 46 mothers (M1 to M46) who were interviewed, spoke in a mixture of English and Malay. All 48 were of a low SES and their median income lagged behind their counterparts as well as the national median.

Thirty-one (31) out of 48 parents or almost two-thirds shared how difficult it had been for them to deal with ‘bread-and-butter’ issues every day. These were Parents M1, M2, M3, M4, M5, M6, M7, M8, M9, M10, M11, M12, M20, M22, M29, M30, M32, M33, M35, M36, M37, M38, M40, M41, M42, M43, M44, M45, M46 and F1 and F2. This brought to mind Darling-Hammond’s (2010) point that “...socio-economic background most affects student outcomes” (n.p.). The figure below illustrated the distribution of parents according to their monthly salaries and whether they were single parents (Figure 4-2).



**Figure 4-2. Distribution of preschoolers’ parents according to monthly salaries and whether they are single parents**

Out of 48 parents interviewed, it was found that 32 or two-thirds of them earned less than \$2500 per month. Ten (10) were single parents namely M2, M4, M5, M20, M22, M32, M33, M40, M41 and M42 and had no support from any other care-giver. The next illustration in Figure 4-3 provided more details: Out of these 10 single parents, 3 parents (M2, M33 and M41) earned less than \$2000 per month and the remaining 7 single parents earned less than \$2500 per month.



**Figure 4-3. Distribution of single parents according to monthly household income**

Hence, many parents resorted to working longer hours “to earn a little bit more” (Field Notes, 22 December 2013) and this of course, meant having less time with their children and being less involved in the care and education of their children.

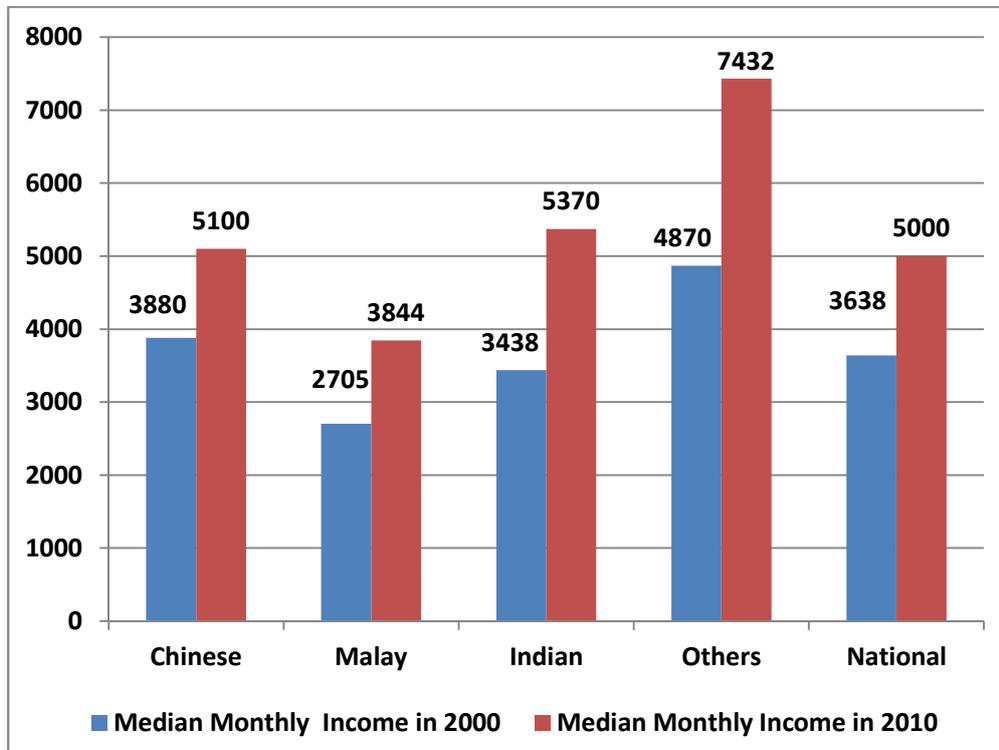
This is where the Government has also been seen to be doing something to address SES, according to the documentary analysis of Singapore Parliamentary Reports and media news. In a recent Ministerial announcement in Parliament during the annual COS Debate on 1<sup>st</sup> April 2016, to address this key factor called SES, Minister Tan Chuan-Jin in charge of the MSF detailed the new S\$20 million KidSTART initiative, “aimed at supporting low income and vulnerable children to enable them to have a ‘good start’ in life” (ChannelNewsAsia, 2016a). A key indicator or statistic studied by policy makers and covered in (the documentary analysis in) this case study was household median incomes and how the Malay household median income compared with that of their ethnic counterparts.

### **Median income**

The typical Malay family is also faced with a stark reality i.e. its median income lagged behind its counterparts as well as the national median (See Figure 4-4). This could be impactful as the lack of income has caused parents to “take on another job, leaving little time for the child” (Field notes, 22 December 2013).

According to the *Suara Musyawarah* Committee Report (2013), “the median Malay household income increased by 1.9% (real average annual growth), from \$2,709 to \$3,844 between 2000 and 2010” (p. 63). Even though the Malay household income has increased over the years, it was a very modest increase which lagged behind the income increases attained by the other ethnic groups during the afore-said 10-year period. Indeed, the Malays, with the median income of \$3,844, have a lot of catching up to do in terms of

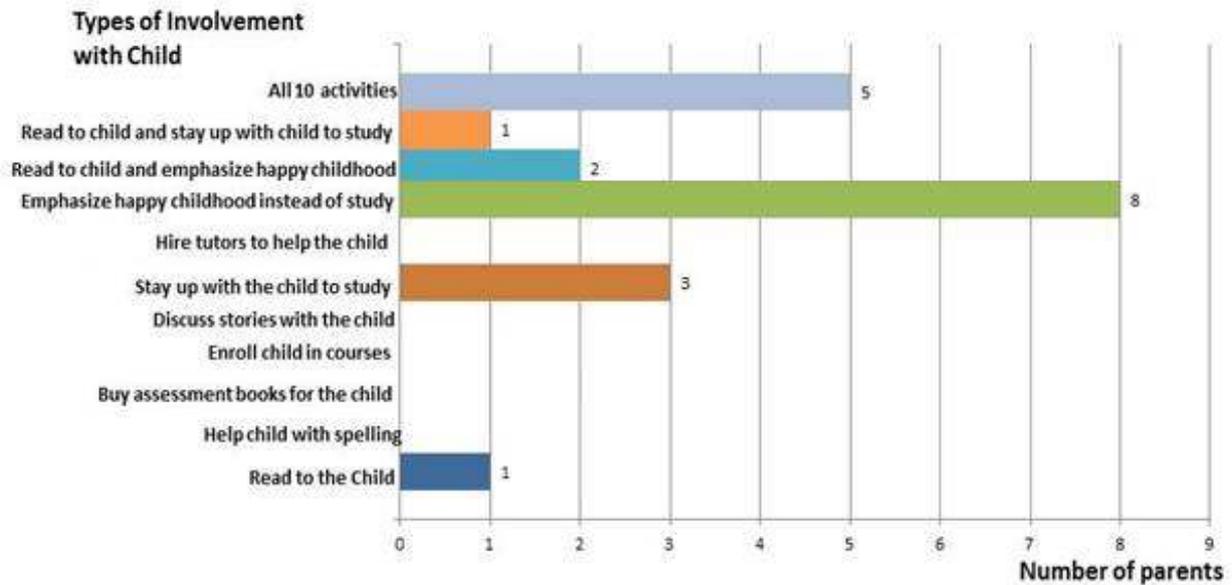
their average and median monthly household incomes, especially since “the national median was \$5,000 in 2010” (*Suara Musyawarah* Committee Report, 2013, p. 63).



**Figure 4-4. Median Income across Ethnic Groups**  
(*Suara Musyawarah* Committee Report, 2013)

#### Parental involvement across 10 activities

Out of the 48 parents or primary care-givers interviewed, only 5 parents (namely M14, M16, M19, M24 and M26) were involved in all 10 ‘parental involvement’ activities with the child, namely reading to the child, helping the child with spelling, buying assessment books for the child, enrolling the child in courses e.g. drama, discussing stories, staying up with the child to study, hiring tutors to help the child, and emphasising happy childhood instead of study. The following Figure summarised the above-mentioned findings of the (lack of) parental involvement, graphically (Figure 4-5).



**Figure 4-5. Parental involvement across 10 activities**

As illustrated in Figure 4-5, it was found that none of the parents hired tutors to help their child. They did not buy assessment books for their child, either. They did not discuss stories with their child or enrol their child in courses. They did not even help their child with spelling. Interestingly, they did not spend any time on enrichment classes and tuition for or with their child, unlike their Chinese counterparts sometimes known as ‘Tiger Moms’ which was briefly discussed in Chapter 2 (Chua, 2011, p.249; Chong, 2012, p.1).

This survey data used in conjunction with parental interviews were later analysed and yielded findings that appeared to relate to the literacy level of the Malay preschool children. More of these findings shall be discussed in the form of tables carefully designed to illustrate how triangulation worked to surface such findings via survey, narrative analysis arising from interviews with parents, and documentary analysis of Singapore Parliamentary Records (SPR), media articles and reports.

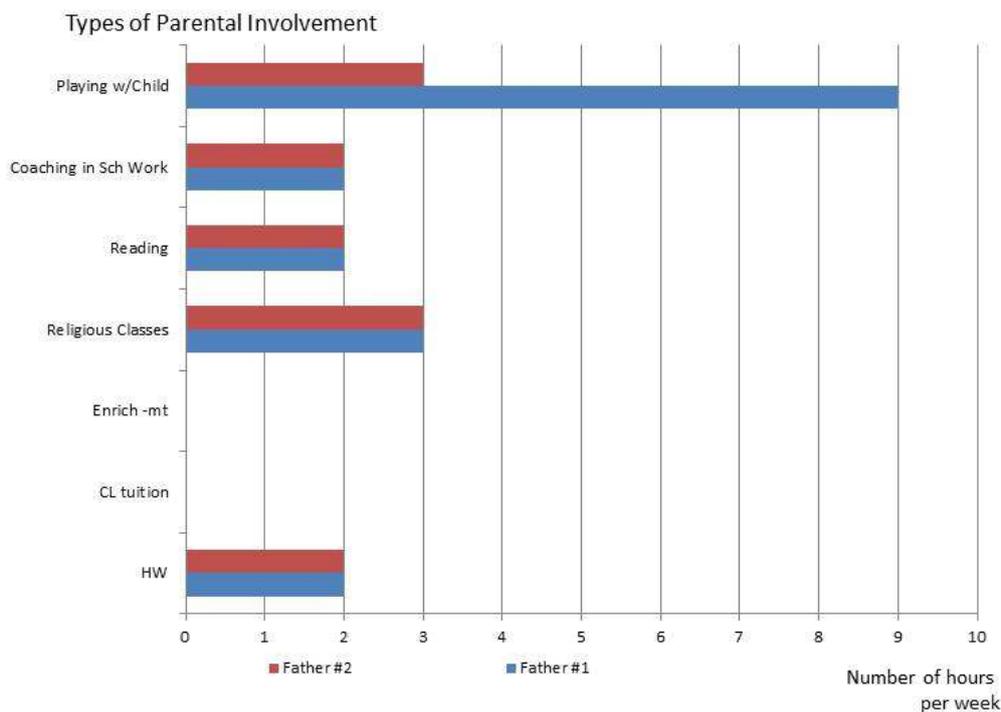
### **Involvement of fathers**

Two mothers (M7 and M36) confided how difficult it has been as single parents to support their children especially when their respective spouses were seldom around to share the responsibility and to serve as a male role-model or father figure. They related how they had to juggle full-time work as well as duties as a single parent. One mother (M7) spoke about the ills of drug abuse and how it had affected her family so badly that she had to juggle a few jobs “just to feed the family” (Field Notes, 22 December 2013).

In separate interviews, fathers F1 and F2 confided that they spent more time playing with their preschool child than over homework or reading. When asked why they did that, these fathers provided similar answers i.e. “*baru berusia lima sahaja, kenapa mesti belajar sangat?*” which is Malay for “the child is only 5 years old so why pressure him to study so much?”

As illustrated in Figure 4-6 below, the father F1 spent 9 hours a week, playing with his preschool child compared to only two hours on coaching in school work, reading, or homework. Father F2 spent even less time a week playing with his child (only 3 hours) compared to only two hours on coaching in school work, reading, or homework. F1 and F2 further added that they “could not afford tuition or enrichment classes for their child” (Field Notes, 20 December 2013). When probed further, it was found that on a weekly basis, fathers spent less time with their children in homework, coaching the children in their school work and reading to them (only 2 hours per week) compared to the weekly religious classes which stretched for 3 hours per session. When asked why the emphasis is on religious classes, both fathers F1 and F2 verbally spoke about character development. However, on closer examination of other source of data, it was found that these two fathers F1 and F2 did not indicate in their survey questionnaire the importance they accorded to character education. F1 nevertheless cautioned “*jangan seperti lalang, makin lama, makin tinggi*” or

in English, “don’t be like the *lalang*, the older it gets, the taller or more arrogant it gets, swaying from right to left” (Field Notes, 20 December 2013). In the Malay culture, the *lalang* is known as a tall wild grass and is sometimes used to refer to a person who is unguided and wild in his ways. In another interview, F2 said he would provide the following encouragement to other parents: “*asalkan jujur and bersopan*” - translated “as long as our child is honest and well-mannered, it is all right” (Field Notes, 22 December 2013).



**Figure 4-6. Number of hours Care-giver (Fathers) spent with their pre-school child on each type of activity per week**

Two other parents, M14 and M17 also gave similar quotes about the *lalang* and the need to emphasise character development. Many interesting findings were uncovered via the narrative analyses of interviews with parents, and more would be discussed in the next chapter. In fact, it was found that “the gestures, pitch and tone of voice” provided more insights (Cortazzi, 1993, p. 110) as they showed parents’ exasperation, displeasure or other feelings – as discussed in earlier chapters.

### **Findings from narrative analyses of interviews with parents**

While the survey described the ‘what’ (e.g. the number of hours parents were involved in their children’s literacy development in terms of the ten activities), the narrative analyses uncovered the reasons or the ‘why’ of such parental involvement. This is where narrative analyses of interviews added more depth to the answers for each of the research questions. These qualitative and quantitative methods served their purpose well and complemented each other.

By capturing insights that might not have otherwise surfaced in a survey, the narrative analysis of interviews with the parents helped to point us to the proverbial needles in the haystack. With the interview method, this researcher managed to gain more granularity and more insights when a deeper investigation or probe was conducted so as to establish more complex details of the family situation e.g. why it was only the mother who was bringing up the child (perhaps the father was serving time in prison, as was the case for M7 and M36).

To illustrate, there were 5 parents (namely M14, M16, M19, M24 and M26) who said they earned more than \$3501 per month, and even had an adult care-giver (usually a grandmother) at home to mind the children. However, a monthly household income of S\$3500 was not very much if the parents had 5 children; after all, this would have translated to a per capita income (PCI) of only S\$500 per month. If the grandmother (at home) was considered a dependent then the PCI is further reduced to  $\$3500 \div 8 = \$437.50$ .

The issue of an adult being at home to mind the children is an important one, otherwise the children would be ‘home alone’ to fend for themselves with no adult supervision whatsoever. In separate interviews with parents M7, M11, M12, M29, M30 and M36, it was found that they had latch-key children who needed After-School Care (ASC) and

would benefit from the recently enhanced KidSTART initiative explained earlier in this chapter.

There were a total of 7 related issues found, namely parents not feeling equipped to teach the child, single-parenthood and the attendant challenges that came with it, lower importance attached to preschool reading, spelling or language class compared to religious classes, the need for parents to work extra hours to pay the bills (NEM), latch-key children (LKC), parents being too exhausted after a hard day's work to spend time with their children (LTE), parents' mindset that it was all right if their children are not keeping up with preschool work because they would have time to catch up when they enter formal schooling at Primary One in 1-2 years' time (CWC).

Table 4-1 summed up the issues 48 parents highlighted during the interview with each of them. The 48 parents have been denoted as M1-M46, F1 and F2 where 'M' is a code for 'mother', and 'F' is a code for 'father'. Because each parent could cite more than one issue, a given issue could be cited multiple times. We found that 5 parents (namely M14, M16, M19, M24 and M26) reasoned that 'character development is far more important than doing well in preschool spelling or language class' or CMI. There were other parents citing CMI as an issue who also cited SPH and CWC as issues; this is illustrated in Figure 4-7, below.

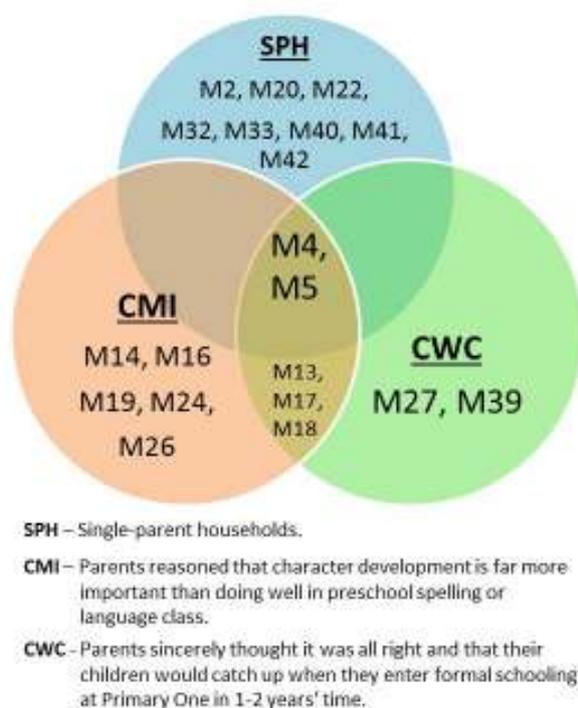
**Table 4-1. Issues parents highlighted during the Interview**

|  |  |
|--|--|
| <b># Parents = 15</b><br><b>Issue</b><br>(Coded FNE) | M1, M3, M6, M10, M15, M21, M23, M25, M28, M31, M34, M37, M38, M43 and M44.<br>Parents did not feel equipped to teach the child. To teach the child or to help teach the child? Teach what?   |
| <b># Parents = 6</b><br><b>Issue</b><br>(Coded NEM)  | M7, M8, M9, M35, M36 and F2.<br>Need to work extra hours to pay the bills.   |
| <b># Parents = 6</b><br><b>Issue</b><br>(Coded LKC)  | M7, M11, M12, M29, M30 and M36.<br>Latch-key children.   |
| <b># Parents = 6</b><br><b>Issue</b><br>(Coded LTE)  | M7, M9, M36, M45, P46 and F1.<br>Spend little time with children because of exhaustion after a hard day's work. Stressed.  |
| <b># Parents = 7</b><br><b>Issue</b><br>(Coded CWC)  | M4, M5, M13, M17, M18, M27 and P39.<br>Parents sincerely thought it was all right and that their children would catch up when they enter formal schooling at Primary One in 1-2 years' time. |
| <b># Parents = 10</b><br><b>Issue</b><br>(Coded SPH) | M2, M4, M5, M20, M22, M32, M33, M40, M41 and M42.<br>Single-parenthood.  |
| <b># Parents = 10</b><br><b>Issue</b><br>(Coded CMI) | M4, M5, M13, M14, M16, M17, M18, M19, M24 and M26.<br>Parents reasoned that character development is far more important than doing well in preschool spelling or language class.             |

Moreover, two parents (M27 and M39) seemed to have comforted themselves when they said it was all right if their children were not keeping up with preschool work because they would have time to catch up when they enter formal schooling at Primary One. M27 said “*tak mengapa. Ada masa lagi*” which is Malay for ‘Not a problem. There’s still time’ whereas M29 said, “*Sudah tentu mereka tahu membaca kemudian*” which is Malay for ‘I’m sure they would know how to read after a while’ (Field Notes, 22 December 2013).

M27 and M29 said that they felt ‘confident that their children would be able to catch up’ (CWC). A total of 8 parents namely M2, M20, M22, M32, M33, M40, M41 and M42 cited ‘single-parenthood as very challenging’ (SPH). Parents M13, M17 and M18 thought CMI and CWC are issues that would work themselves out while 2 parents M4 and M5 cited SPH, CMI and CWC as a “problems that come in a group, cannot be separated” (Field Notes, 22 December 2013). These had been illustrated in Figure 4-7 below. What was interesting to note was that 10 parents (namely M4, M5, M13, M14, M16, M17, M18, M19, M24 and M26) cited ‘character as more important’ (Field Notes, 22 December 2013). This finding would be elaborated upon when we discuss the topic of ‘religious classes’.

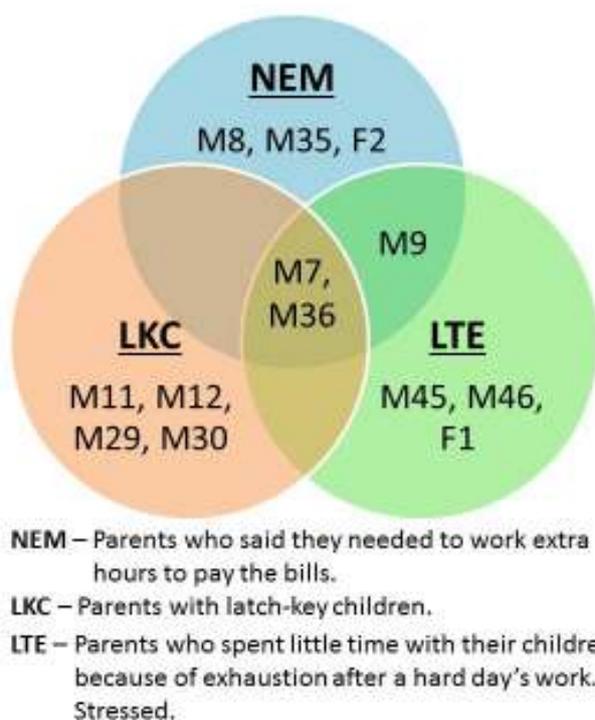
As illustrated in Figure 4-7, single parents M4 and M5 expressed confidence that their children would be able to catch up with their peers in reading ability (CWC) and confided that they took comfort in the hope that their children’s character is more important (CMI) (Field Notes, 22 December 2013).



**Figure 4-7. Distribution of parents who raised issues like SPH, CMI and CWC**

It was found that SPH, CMI and CWC were not the only issues cited by the parents, as challenging. The parents also cited other issues which prevented them from being

more involved with their children in the 10 activities listed earlier. There were 13 parents who cited issues like the ‘need to work extra hours to pay the bills’ (NEM), ‘latch-key children’ (LKC) and ‘spending little time with children because of stress and exhaustion after a hard day’s work’ (LTE). Specifically, 3 parents (M8, M35 and F2) cited NEM as an issue while four parents (M11, M12, M29 and M30) thought LKC was something they could not avoid as they had to go to work to pay the bills. Three parents namely M45, M46 and F1 cited LTE and stress as reasons for their lack of involvement with their children. Parent M9 thought NEM and LTE are issues that are tied together while 2 parents M7 and M36 cited NEM, LKC and LTE as a “3-in-1 problem” (Field Notes, 22 December 2013). These had been illustrated in Figure 4-8 below.



**Figure 4-8. Distribution of parents who raised issues like NEM, LKC and LTE**

### **Parents who said they could not teach**

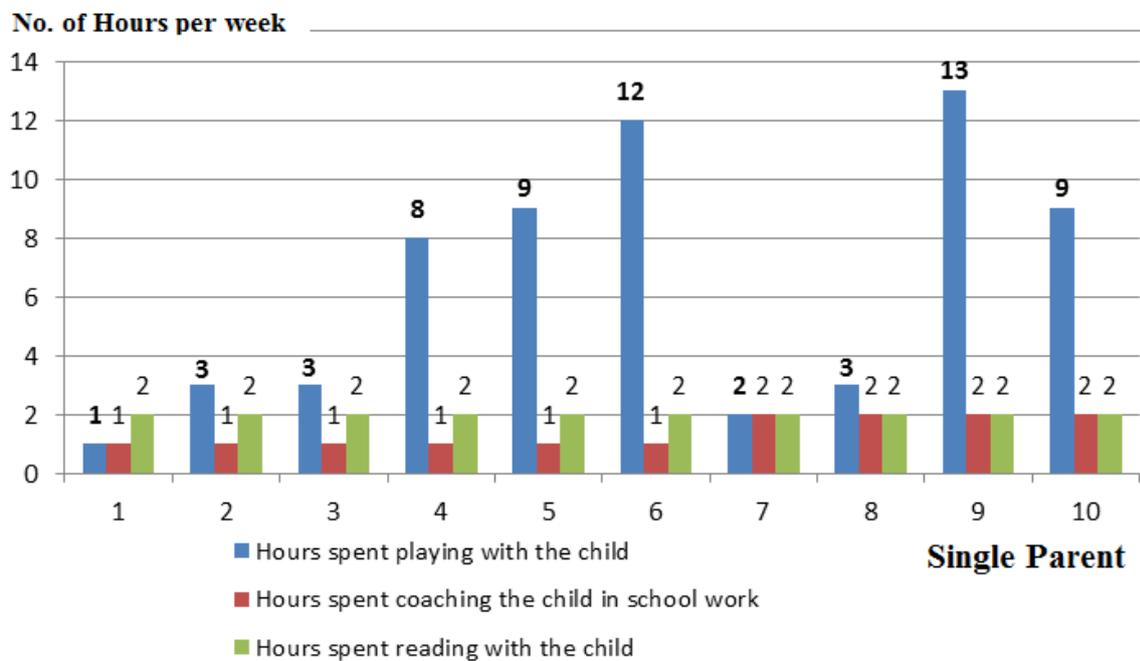
From the survey and interviews, the following was uncovered: There were 15 parents namely M1, M3, M6, M10, M15, M21, M23, M25, M28, M31, M34, M37, M38, M43 and M44 who felt ill-equipped to read to their child. But they explained that whenever they had the time, they would make up for it by “*bawa dia ke library, belajar sedikit*” (which is Malay for ‘take the child to the library to enrol in a free reading programme’ (Field Notes, 22 December 2013). Three of them namely M7, M9 and M36 confided that they were “determined to improve their situation by giving their preschool child more support” (Field notes, 20 December 2013).

As recorded in Field Notes (1 March 2014), 40 out of 48 parents or 83.3% said they did not read to their child. Their reasons varied but they pointed to the need to support the family financially e.g. “*kalau tak kerja bagaimana nak bayar bil*” (translated ‘got to work otherwise how to pay the bills’), “*sibuk lah, nak cari makan*” (translated ‘too busy trying to eke out a living’), and “*tak ada masa sebab mesti kerja part-time*” (translated ‘too bogged down with part-time jobs’). The 8 parents who read to their child were the same ones who said they were involved in all ten activities namely M14, M16, M19, M24 and M26, plus 3 other parents namely M13, M17 and M18.

### **Involvement of single parents**

Figure 4-9 illustrates the involvement of single parents in activities like ‘playing with the child’, ‘coaching the child in school work’ and ‘reading with the child’. Ten single parents (namely M2, M4, M5, M20, M22, M32, M33, M40, M41 and M42) confided that they spent little time with their preschool child over homework as well as reading because they were “not confident in teaching the right thing or in the right way”

(Field notes, 20 December 2013). In fact, they said in separate interviews that they spent no more than 2 hours a week in these two particular activities with their children.



**Figure 4-9. How single parents were involved with their preschool child**

These ten single parents, in separate interviews, also expressed their preference to spend more time with their child playing. They added that this was their way of creating some happy experiences for their child (Field Notes, 20 December 2013).

### **Other care-givers such as grandmothers**

While interviews with grandparents were not the focus in this case study, the findings from such interviews might help validate some of the findings uncovered earlier. In 9 cases, the grandmothers (GMs 1 –9) were the primary care-givers because the child’s mother was busy working or the father was “recovering in a centre” (Field Notes, 20 December 2013). Upon further probing, it was found based on interviews with GM2 and

GM9 that the fathers were either “*dalam penjara*” or “*pusat pemulihan dadah*” which are the Malay terms for ‘in jail’ or ‘in drug rehabilitation centre’, respectively (Field Notes, 20 December 2013). This corroborated with the findings from earlier parental interviews in which two mothers namely M7 and M36 spoke about their difficulties as single parents, supporting their children when their respective spouses were seldom around. Such polite probing helped to uncover more about a case which might not have surfaced in a survey.

Based on the survey questionnaire, all 9 GMs (GMs 1 –9) said they spent a few hours a week playing with the preschool child. But in interviews, they elaborated that they were not able to help the child in homework or reading. Asked if they were able to help with their grandchild’s homework, GM4 simply offered “*mak cik tak tahu lah*” which is Malay for ‘Auntie doesn’t know how to teach’ (Field Notes, 13 December 2013).

Another grandmother, GM7 explained that she was “*sibuk di dapur dan banyak ni nak kemas kemas*” (translated ‘too busy in the kitchen and with household chores’). When probed further, GM2 and GM8 also gave similar admissions: “*mak cik tak tahu lah*” (or words to that effect). Besides, GM3 admitted that the family “*tak mampu hantar cucu ke klas enrichment*” which is Malay for “could not afford tuition or enrichment classes for the child” (Field Notes, 20 December 2013).

A total of 6 GMs (except GM6, GM 7 and GM9) also revealed in the interviews that compared to the child’s father or mother, they did not spend as many hours playing with the preschool child because “*mak cik sudah tua, penat lah*” which is Malay for ‘aunt is getting old and finding it hard to keep up (with the grandchild)’ (Figure 4-10).

When probed further, GM1 and GM5 explained that when it came to getting involved with their grand-child over homework, they merely “*lihat, lihat sahaja*” which is Malay for ‘just keep an eye, in a supervisory way’ whereas GM3 and GM4 explained that they “*memujuk*

*sahaja ... tak kan mak cik tahu surat surat itu*” meaning “we merely encouraged. It is not as if we knew how to read ourselves!” (Field Notes, 22 December 2013).

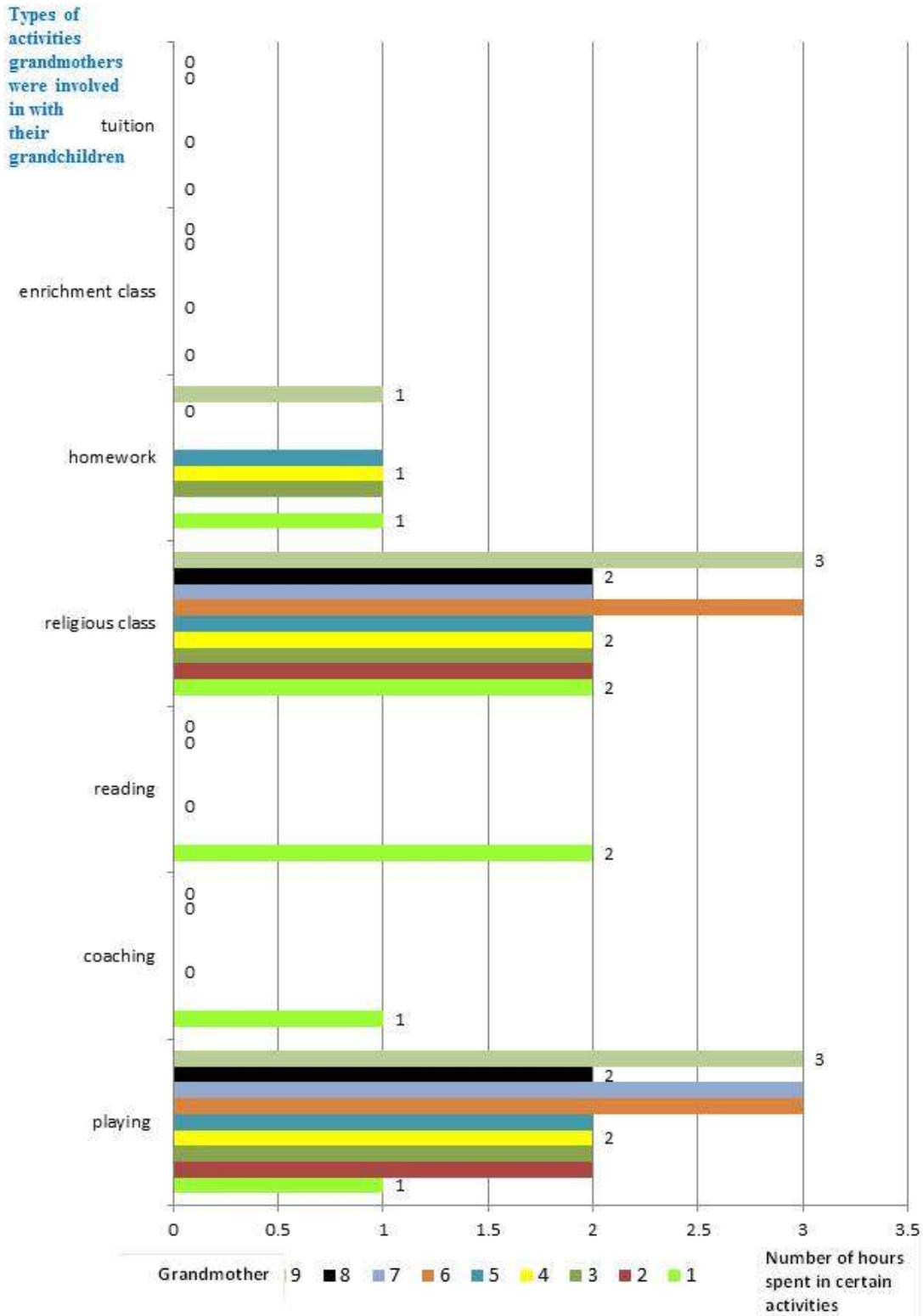


Figure 4-10. How Grandmothers (as Primary Care-givers) were involved with Preschool Child

### Malay parents' parenting styles and their children's literacy development

In Chapter 2, we discussed the different parenting styles. All mothers interviewed said their parenting style was more “permissive” except M14, M16 and M26 who admitted they were more “authoritarian”. Interestingly, upon closer examination, these 3 mothers namely M14, M16 and M26 were also among the 5 parents who earlier indicated they were involved in all ten parental involvement activities such as reading to the child, helping the child with spelling, buying assessment books for the child, enrolling the child in courses e.g. drama, discussing stories, staying up with the child to study, hiring tutors to help the child, and emphasising happy childhood instead of study. This finding made sense because these 3 mothers (M14, M16 and M26) earned more than \$3501 a month and thus could afford buying assessment books for their child and enrolling their child in enrichment courses.

Moreover, with an additional care-giver at home, it would be understandable that these mothers namely M14, M16 and M26 were not so tired or exhausted to be involved in the afore-said parental involvement activities. Only one parent namely M16 admitted that she could identify with the ‘Tiger Mom’ parenting style discussed in Chapter 2 but M16 joked that she was probably not a “*harimau*” which is Malay for ‘Tiger’ but a *kuching* which is Malay for ‘cat’ (Field Notes, 22 December 2013).

In separate interviews, the 3 parents namely M2, M33 and M41, who earned less than \$2000 per month, had confided that their spouses were absent fathers and so were classified as “uninvolved” parents. M33 said, “*Maksudnya, saya ni seorang sahaja yang memelihara anak saya*” which is Malay for ‘This means that I am raising my child by myself, alone’ (Field Notes, 22 December 2013). In short, M2, M33 and M41 stepped up and took on a more active and involved role even when they felt somewhat inadequate to teach their child or read to their child.

This seemed to corroborate with the finding from the documentary analysis of SPRs and Ministerial speeches that centred on the Singapore government's efforts to help Malay parents with parenting skills, financial literacy and reading skills through national programmes as pledged by PM Lee when he addressed AMP's Third National Convention in June 2012 (ChannelNewsAsia, 2012, p.1).

### **Upbringing of Malay children and their literacy development**

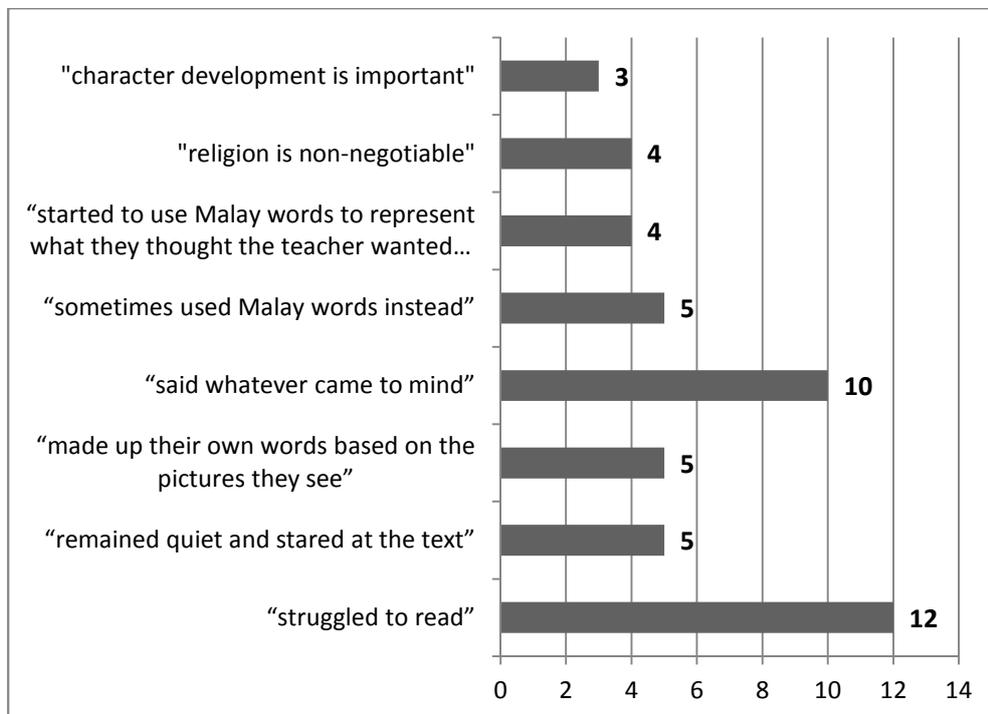
Upbringing of the children differed from family to family but in terms of language used at home, it was found that all the Malay families used the Malay language to communicate at home. This was confirmed in and through the interviews with parents (Field Notes, 22 December 2013). This meant that the vocabulary used at home was Malay. Many Malay words actually sounded similar to their English equivalent e.g. "*motosikal*" for 'motorcycle', "*pensil*" for 'pencil', and "*bas*" for 'bus'. Given such a culture and context, it was not surprising to find out that the Malay pre-schoolers in this study were not able to spell (in English) all the words provided in the sample Worksheet.

Findings that arose from interviews with parents were also checked against the findings from interviews with teachers. Although the latter was not a focus area of this case study, it was useful to see if what the parents said of their children was also observed by the children's teachers. Through the interviews, the following were found:

- a) Twelve teachers T1, T4, T7, T13, T15, T21, T22, T23, T24, T25, T26 and T28 revealed that the children "struggled to read",
- b) Five teachers T2, T8, T16, T27 and T28 observed that the children "remained quiet and stared at the text",
- c) Five teachers T3, T9, T11, T17 and T30 said that the children "made up their own words based on the pictures they see",

- d) Ten teachers T1, T4, T10, T12, T13, T18, T21, T23, T26 and T31 “said whatever came to mind”,
- e) Five teachers T5, T13, T19, T22 and T24 “sometimes used Malay words instead”,
- f) Four teachers T6, T14, T20 and T25 “started to use Malay words to represent what they thought the teacher wanted to hear”
- g) Four teachers T4, T21, T25 and T26 declared that “religion is non-negotiable”, and
- h) Three teachers T13, T17 and T26 persuaded that "character development is important" (Field Notes, 28<sup>th</sup> February 2014).

What 31 teachers thought about the literacy level of the pre-school in their classes under this case study is illustrated in Figure 4-11 below.



**Figure 4-11.**

**What 31 teachers thought about the literacy level of the pre-school in their classes**

**Religious classes and upbringing**

The completed questionnaire showed that parents had also indicated ‘religious classes’ as a parental involvement. This is a rather interesting finding because a lot of the interviewees spoke about religion. This shall be discussed more fully in the next chapter because the topic of religion is also related to two of the research questions, one on the parents’ distinct parenting styles and the other on the kind of impact that the children’s upbringing might have on their literacy development.

Findings from one of the late Mr Lee Kuan Yew’s books entitled ‘Lee Kuan Yew: Hard truths to keep Singapore going’ shall also be discussed. That book is not an ordinary book but more a document in which many public policies had been explained. One of these policies was on the growing religiosity of Muslims, “most of whom are Malay, (who) remained largely unchanged at 15%” of the population and how it has had an impact on the upbringing of the children (Lee, 2011, p. 219).

In this case study, it was found that religious classes took 3 hours per week but when probed further, it was found that these were outsourced to or taught by religious teachers i.e. the religious classes were not conducted by the fathers or parents. In this way, it should not count as parental involvement but would perhaps count as parental influence because the parents had an influence on how their children used their time e.g. in going to the library to participate in reading programmes or to attend religious classes. Nevertheless, based on interviews, it was found that religiosity figured frequently and highly in the interviews.

Through the documentary analysis of speeches of political leaders, it was also found that the late Mr Lee Kuan Yew, Singapore first PM had referred to Islam as a religion whose followers did not integrate as well as their Chinese and Indian counterparts when he said:

“I have to speak candidly to be of value, but I do not want to offend the Muslim community... I would say, today, we can integrate all religions and races, except Islam.” (Lee, 2011, p. 228)

When asked what Muslims could do to integrate, the late Mr Lee offered:

“Be less strict on Islamic observances and say, ‘Okay, I’ll eat with you’.” (Lee, 2011, p. 229)

There was no doubt that the emphasis on religion had a bearing on the upbringing of the Malay pre-schooler because as much as 3 hours were spent on religious classes each week. Singapore’s first PM, the late Mr Lee Kuan Yew had “lamented the way some Muslims were moving towards a stricter observance of Islam” and he cautioned that “the change would inhibit social interaction between Muslims and non-Muslims” (Lee, 2011, p. 220).

A deeper study of the relevant documents including the book, ‘Lee Kuan Yew: Hard truths to keep Singapore going’ revealed another finding: Lee (2011) had been quick to add that “rising religiosity was a reality, not only among Muslims but also Christians and even Buddhists” (p. 224). The topics of ‘religious classes’ and ‘religiosity’ would be discussed in greater detail later in this chapter and in the next two chapters.

### **Religious upbringing insisted by parents**

While parents expressed the importance of school work and the child’s ability to read, it was found through the interviews that they made it clear that these must not be at the expense of religious classes and teachings. After all, 32 out of 48 parents or 75% insisted

that attendance at religious classes was necessary. One parent M18 justified that “*kan klas agama satu petang seminggu sahaja*” which is Malay for ‘religious class takes only one afternoon a week’ and another parent, M17 insisted religion “is part of our lives” (Field Notes, 22 December 2013).

This is consistent with the findings of a think-tank: “Islam is a very important and inseparable part of Muslims’ lives” (Katehon, 2016, n.p.). These 32 parents namely M1-M6, M8- M10, M13-M28, M31-M35, M37-M46, F1 and F2 gave a rating of ‘6’ or ‘7’ i.e. religious classes being very important.

### **What teachers thought about religion and upbringing**

Teacher T26 summed it rather firmly: “*Agama tidak boleh dirunding*” which is Malay for ‘religion is non-negotiable’ (Field Notes, 28<sup>th</sup> February 2014). T21 and T25 thought that religion was something that children do not and must not question. In attempting to understand more about the way Muslim parents dutifully raised their children, the documentary analysis also involved documents of the holy book of the Muslims called the Koran (Quran) as well as prophetic teachings.

T4 who has children of her own and a self-professed staunch Muslim explained that Muslim parents were being held accountable in the raising of their children as dedicated Muslims, according to the guidelines of the Muslims’ holy book known as the *Quran* and the traditions of the Prophets (Field Notes, 28<sup>th</sup> February 2014).

T4 also articulated that “*Allah (SWT) will ask every caretaker about the people under his care, and the man will be asked about the people of his household*” (*Nasa’i, Abu Da’ud*). T4 added that Muslim parents must conscientiously take an active role in the upbringing of their children and be cognizant of the seriousness of any non-compliance, and be mindful to “*teach your children the prayer when they are seven, and beat them if they do not recite it when they are ten.*” (al-Albaani in *al-Irwa’*, 247).

To illustrate how a statement was validated by other sources of data, triangulation was used. Triangulation made it possible for converging lines of inquiry based on quantitative as well as qualitative data from multiple sources of evidence (Yin, 2009). More had been written about triangulation in Chapter 2. The statements from interviews with three teachers (T13, T17 and T26) as well as data from the survey questionnaire had been captured in a data triangulation chart Table 4-2 below, together with pertinent parts of a speech made by a political leader on the same topic of religiosity.

**Table 4-2. Data triangulation chart for interviews with Teachers T13, T14 and T17**

| Source 1  | Source 2  | Source 3   |
|---|---|--|
| Survey with Teacher T13   | Interview with T14 and T17.   | Speech by founding PM, the late Mr Lee Kuan Yew              |
| T13 emphasised character development: “Religion must not be forgotten no matter what; religion will keep my children on the straight path so they won’t be <i>crooked</i> .”  | Both T14 and T17 thought that “it is not how tall the tree is but how straight it is” | We need to have religion as an anchorage (Lee, 2014, p. 85). |
| <p><b>Interpretation</b></p> <p><b>Trigger:</b> Malay/Muslim parents insisted on children spending more time on religious classes than spelling and related (pre)school-work.</p> <p><b>Consequence:</b> Malay pre-schoolers could become very good in <i>Jawi</i> (the language used in religious texts) but would lag behind in English language development (not limited to vocabulary and writing).</p> <p><b>Recommendation:</b> To persuade parents that English is also important, and that their children could actually handle the learning of English if given the encouragement. After all, these same children had demonstrated that they could read in <i>Jawi</i> which is also not their Mother Tongue. More of these recommendations shall be covered in the last 2 chapters.</p> |   |  |

### How parents felt about religion

Another parent, M13 stressed the importance of adhering to their religion: “Religion must not be forgotten no matter what; religion will keep my children on the straight path so they won’t be *crooked* (colloquial term for ‘becoming crooks’)” (Field Notes, 13 December 2013). Yet another parent, M14 seemed to sum it up well: “it is not how tall the tree is but how straight it is” (Field Notes, 13 December 2013).

From the interviews, a general observation was that while these Malay parents considered education to be important, they felt that it was more important that their child also learned about *Allah* (God), showed respect to elders and demonstrated filial piety. This explained why they rated religious classes as very important, even more important than studying the spelling list each week.

Six (6) parents lamented that they were not able to be actively involved with their children’s (preschool) education because they had to hold more than one job in order to meet the expenses of raising their (latch-key) children. They rationalised that it was only pre-school and hence their children would have time to catch up when they entered formal schooling (i.e. primary school). In fact, they used a Malay term that showed how unimportant schooling was to them: “*sekolah makan*” which was Malay for ‘a school that children attend to have snacks while passing time’ (Field Notes, 13 December 2013).

Interestingly, the remaining 13 of them or less than 30% gave a rating of ‘4’ out of 7, suggesting that they were somewhat sitting on the fence, not stating whether religious classes were very important or not important at all. They came across as being non-committal.

But there were also parents who demonstrated their strong feelings and beliefs about religion. A BBC report dated 11<sup>th</sup> February 2002 described how a few Muslim parents defied a Singapore government ban on their school-going children wearing the ‘*tudung*’ to school; it also reported that “for devout Malay Muslims, the ‘*tudung*’, or head scarf, is obligatory once girls reached puberty, but some parents like to start the practice much earlier” as they deemed it fit to see that the religious upbringing was reflected in their attire and personal grooming (BBC News, 2002).

Singapore’s PM at that time, Mr Goh Chok Tong had announced the ban, cautioning that defying the ban would result in suspension for the students. Former PM Goh further explained that the observance of a certain dress code for schooling and the ban for non-compliance had been aimed at “promoting racial harmony in the city-state” (BBC News, 2002, n.p.).

It is commonly understood that religious matters are highly sensitive in multi-racial and multi-religious Singapore and that the authorities preferred to err on the side of caution when having to deal with the ‘*tudung*’ issue. Suffice it to state that the suspension from school could be problematic especially for primary school children because the Compulsory Education Act (Chapter 51) came into effect from 1<sup>st</sup> January 2003.

This Act provides “for compulsory primary education in Singapore and for matters connected therewith” and the relevant sections, as follows:

- (1) A child of compulsory school age who is -
  - (a) born after 1st January 1996;
  - (b) a citizen of Singapore; and
  - (c) residing in Singapore,

shall attend regularly as a pupil at a national primary school.

- (2) Where a child of compulsory school age fails to attend regularly as a pupil at a national primary school as required under subsection (1), each parent of the child shall be guilty of an offence.

(Singapore Statutes Online, 2003, n.p.)

On 25<sup>th</sup> January 2014, the TODAY newspaper reported a 2-hour closed door dialogue PM Lee had with some 100 leaders and representatives from the Malay-Muslim community, at which Mr Lee reiterated the Government's post-Independence policy to “build a multiracial society in which everyone has full and equal opportunities, and minority communities can live their way of life as well as practise their faith to the maximum extent possible, and not be oppressed or marginalised by the majority” (TODAY, 2014).

The analysis of public documents showed that PM Lee understood the Malay-Muslim community's perspective on the ‘*tudung*’ and had persuaded that “changes to the status quo should evolve gradually and in a broad and informal way, as attitudes and expectations change in society, and as people get used to new norms - instead of being pushed for in terms of rights and entitlements and to the detriment of the overall progress of harmony between the communities” (TODAY, 2014).

The ‘*tudung*’ issue had surfaced several times over the past 14 years. To the credit of the Malay community, its understanding and patience on the ‘*tudung*’ issue since 2002 had been nothing short of commendable.

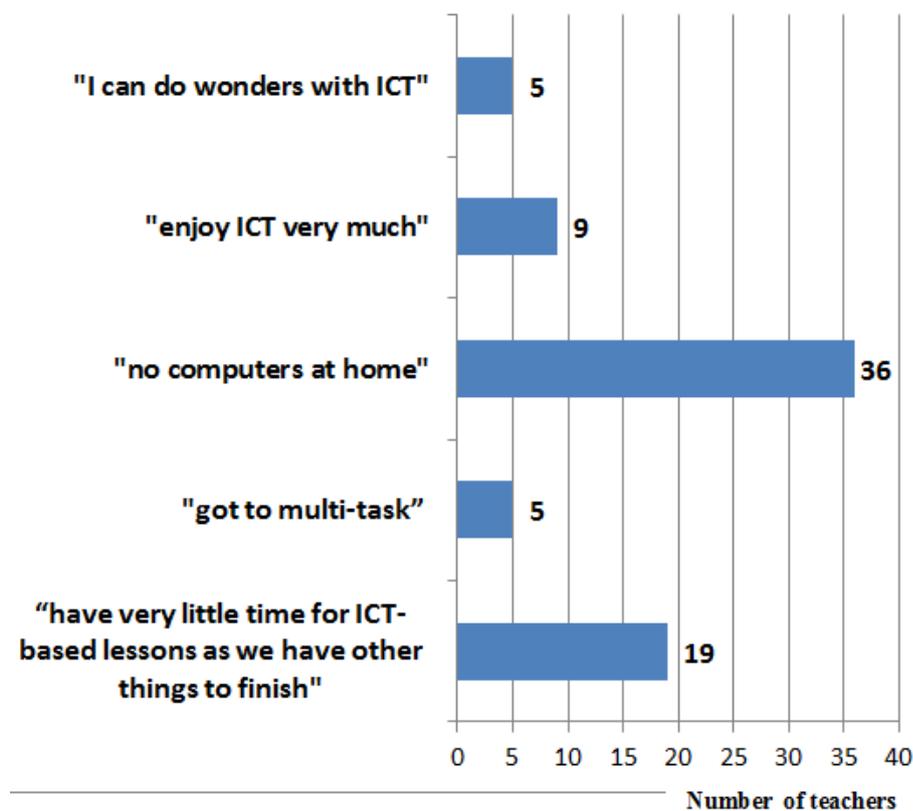
According to TODAY (2014), this was because the Malay/Muslim community had not agitated for “rights and entitlements at the expense of racial and religious harmony between the communities” although at a public debate in September 2013, the ‘*tudung*’ issue re-emerged when a polytechnic lecturer asked why nurses were barred from wearing the Muslim headscarf (n.p.).

It is important to note that at certain places of work (for example, primary schools, secondary schools and even pre-schools), the employees had been free to report to work in a ‘*tudung*’. In fact, a few of our women Members of Parliament wear a head-dress to work and in Parliament including Madam Halimah Yacob, the former Speaker of Parliament who in September 2017, became the President of Singapore. Madam President Halimah is also the first woman President of Singapore.

It would take some time before those in the front-line such as nurses and police officers are not prohibited to wear the ‘*tudung*’. By discussing the ‘*tudung*’ issue, it could be seen how religiosity was addressed and managed sensitively not just by the Malay/Muslim community but also by the government, heads of public service and the other ethnic groups.

### Use of ICT to improve children’s literacy development

The survey with 48 parents revealed what they felt and thought about raising their pre-school children and in particular, their involvement in nurturing their children’s literacy development. Teachers (n = 31) were also asked about the way they used ICT to enhance the children’s literacy development. All 31 teachers registered their appreciation for teaching resources such as computers, smart-boards and a suite of learning videos and CD-ROMs – their feedback was captured in the following graph.

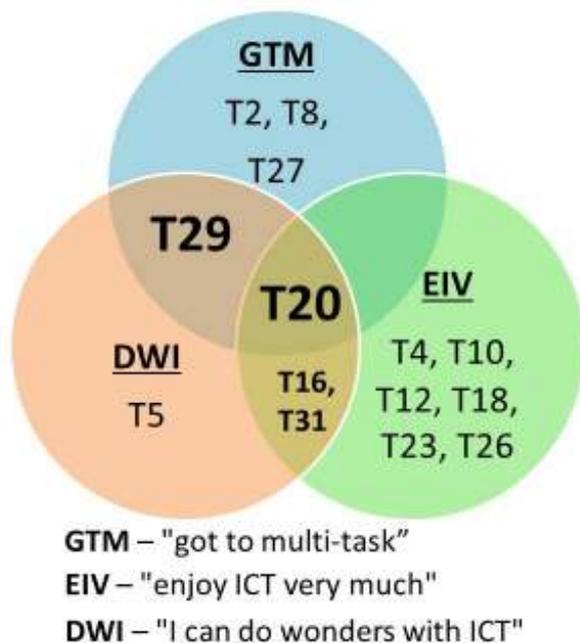


**Figure 4-12. Teachers’ comments about their own ICT-readiness**

From the survey questionnaire, it was found that out of 31 teachers, 19 teachers namely T1, T7, T13, T15, T21, T22, T23, T24, T25, T26, T28, T32, T33, T34, T36, T41, T42, T43 and T45 or 61% said they “have very little time for ICT-based lessons as we

have other things to finish” (Field notes, 20 December 2013). Five teachers namely T2, T8, T20, T27 and T29 spoke about being extremely busy and having to multi-task; however, the interviews provided more insights as to the ‘why’ they were extremely busy – T2, T8, T20, T27 and T29 were the ones who were assessed to be very capable and thus were given more responsibilities at the preschool and they were also reported to be ICT-ready, demonstrating that they were able to use ICT to enhance children’s learning (Field Notes, 13 December 2013). Thus, using a mixed method, i.e. studying quantitative data as well as qualitative data helped to provide a fuller picture of the case.

In the next illustration (a Venn diagram), three groups of teachers were studied i.e. those who "got to multi-task" (GTM), who professed to "enjoy ICT very much" (EIV), and who said "I can do wonders with ICT" (DWI), as illustrated in Figure 4-13.



**Figure 4-13. Teachers’ comments about their own ICT-readiness**

From the above Venn diagram (Figure 4-13), it could be seen that 5 teachers namely T2, T8, T20, T27 and T29 fell in the category of GTM, with one of them T29 who was also someone who could “do wonders with ICT" (DWI), and one teacher T20 who could

DWI as well as EIV. A total of 9 teachers namely T4, T10, T12, T16, T18, T20, T23, T26 and T31 “enjoyed ICT very much” (EIV) while 5 teachers namely T5, T16, T20, T29 and T31 said "I can do wonders with ICT" (DWI). For instance, mind-maps or simple semantic webs were used to help the children build more words or increase their vocabulary; ICT-based tools like Popplets and Mindmaps were also used by those categorised under DWI. However, such demonstration of ICT-readiness was largely absent in the classrooms or lessons of those in the categories of GLT and NCH (Field notes, 3 March 2014).

As pointed out by Anderson and Baskin (2002), teachers were not keeping up with ICT and not harnessing ICT to make their lessons engaging (p. 128). In this case study, it was found that 36 teachers did not have computers at home (NCH) and 19 teachers stated they had “very little time for ICT-based lessons as we have other things to finish” (GLT).

Twelve parents namely M4, M5, M10, M12, M16, M18, M22, M28, M29, M31, M41 and M45 said they had computers at home; they explained that they received free computers from grassroots organisations and non-profit organisations, through government subsidies. Data collected by the Infocomm Development Authority or iDA (which has been restructured and known as Infocomm Media Development Authority or IMDA) showed that 85% of households in Singapore had access to a computer, which means 15% of the households did not. Moreover, 84% of households had access to the Internet. Actual access rates today could be different because of the ease of getting onto the internet via mobile devices and very affordable mobile phone plans with internet access.

In any case, statistics from IMDA are lagging data so 2017 figures would not be ready until a year or 2 later. In this case study, the remaining 36 out of 48 parents or 75% said they did not have computers at home. These 36 parents must be among the 15% of the country’s population whom the then-iDA said did not have computers at home (iDA, 2014, n.p.) (Figure 4-14).



**Figure 4-14. Infocomm Statistics – Infocomm Usage (iDA, 2013)**

As I studied the findings from surveys and interviews, I also examined the literature review and the documentary analysis. We found that back in 2002, researchers had already highlighted that ICT or the on-line environment is “not a panacea for better teaching and learning outcomes” but they nevertheless expressed hope that ICT might serve as “a catalyst to other elements of school reform” (Anderson and Baskin, 2002, p. 126).

Anderson (2005) cautioned, however, that “school-based uses of new technologies might actually exacerbate the educational disadvantage of already disadvantaged social groups - particularly, learners from low SES populations” (p. 1). After all, minority, poor and urban students might not enjoy as much access to computers for higher-order learning than their economically and socially advantaged peers. Moreover, they might not “have teachers who have received professional development on technology use” (Anderson, 2005, p. 1).

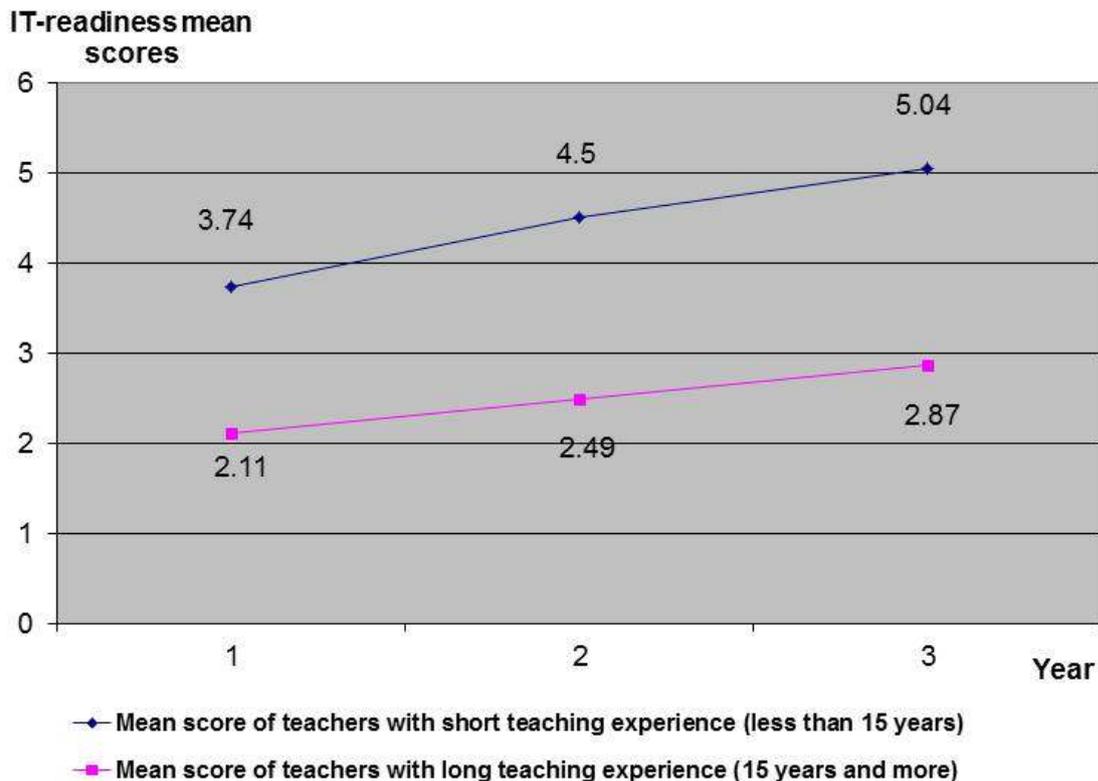
Today teachers had the choice of using computer tablets, the Apple iPads or computer laptops. Falba, Grove, Anderson and Putney (2001) asserted that “laptops are powerful instructional tools for student learning” (p. 2). Thus, it was quite fitting that Anderson (2009) reminded that “the potent use of ICT is the way that computers are used and the interaction of the participants through the available software and associated educational

activities” (p. 4). Hajhashemi, Anderson, Jackson, and Caltabiano (2014) summed it up quite well: “Internet and networked technologies have expanded delivery mode opportunities in education” (p. 1).

### **ICT-readiness of teachers**

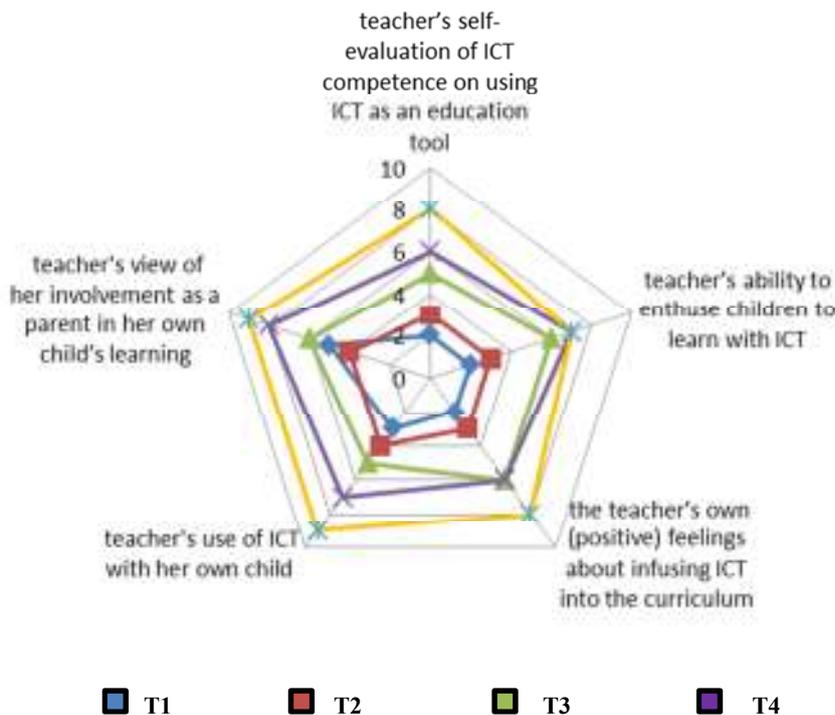
It was also found that younger teachers (with less than 15 years of teaching experience) were in the age range of 25-30 years and from the survey questionnaire, we established that they had given themselves a higher rating for ICT-readiness i.e. they were confident and competent in using ICT, more confident and competent than their colleagues who had served for more years. This is understandable since they would be aged 9-14 years in the late 1990s when MOE’s IT Master Plan was launched. This meant that they grew up with ICT, using ICT in primary school and secondary school. This supported the notion that in today’s digital age, younger teachers tended to be more confident and have greater familiarity with ICT as well as ICT-mediated tools than their older colleagues as well as parents (Richards, 2000).

In the first year of this case study, it was found that the ICT-readiness mean score of teachers with less than 15 years of teaching experience was 3.74 whereas the teachers with more than 15 years of teaching experience scored 2.11. In the second year of the study, the scores were 4.5 and 2.49, respectively. In the third year of the study, the former had a gain in ICT-readiness mean score to 5.04 whereas the latter had a lower score of 2.87 (see Figure 4-15).



**Figure 4-15. Change in IT-readiness of teachers according to the length of teaching experience**

In a modest attempt to delve deeper into the ICT-readiness of preschool teachers, the survey responses of 5 preschool teachers were selected for closer examination. The results of the survey were then plotted onto a radar chart showing each teacher's state of ICT-readiness, with 5 aspects or dimensions at a time. These 5 aspects are the teacher's self-evaluation of ICT competence on using ICT as an education tool (SEIC), the teacher's ability to enthuse children to learn with ICT (AECL); the teacher's own feelings about infusing ICT into the curriculum (FIIC); the teacher's use of ICT with their children (TUIC), and the parents' involvement in the child's learning (TICL), as shown in in the radar chart in Figure 4.16 below.



**Figure 4-16. Sample Radar Chart showing ICT-readiness of 5 different teachers**

From the above radar chart, it was possible to see how the 5 teachers (T1, T2, T3, T4 and T5) rated themselves in comparison with one another. An SEIC rating of 10 meant that the teacher had evaluated her own ICT competence on using ICT as an education tool as very high (10 is the highest score meaning extremely competent). An AECL rating of 10 meant that the teacher had evaluated her own ability to enthuse children to learn with ICT as very high (10 is after all the highest score meaning highest ability). An FIIC rating of 10 meant that the teacher had very positive feelings about infusing ICT into the curriculum. A TUIC rating of 10 meant that the teacher was able to use ICT with their children very well. On the other end of the scale, a TUCL rating of 0 meant that the teacher was totally uninvolved in the child's learning.

The 5 aspects of ICT-readiness formed a 5-sided shape, a pentagon. The larger the pentagon, the more ICT-ready that teacher was. It was found that in this instance of comparing ICT-readiness of teachers, the radar chart is preferred to other graphical tools like

the histogram, pie charts and line graphs because it is visually clearer in showing the ICT-readiness of teachers across 5 aspects of ICT-readiness. After all, the comparative ICT-readiness of the 5 teachers could be seen at a glance.

From the survey, it was found that thirteen teachers gave themselves a modest score of 4 or lower and only 4 teachers gave themselves a self-evaluated score of 7 or better in SEIC, as shown in Table 4-3 below. In fact, many did not think they were able to enthuse children to learn with ICT, resulting in 13 teachers giving themselves an AECL score of 4 or lower; understandably, the FIIC score is very similar. In terms of SEIC, AECL and FIIC, 14 out of 31 teachers, or 45%, selected a self-reported score of 5 or 6, clearly demonstrating the central tendency problem. It was quite similar for TUIC and TUCL in which 13 out of 31 teachers, or 42%, selected a self-reported score of 5 or 6.

The teachers, who were married with children, were asked to rate themselves as a parent. It was thus found that what happened in the classroom seemed to mirror what happened in their own lives as parents – which explained the low TUIC and TUCL score of 4 and below among 12 out of 31 teachers. Out of these 12 teachers, 6 namely T1, T13, T21, T23, T33 and T43 gave themselves a modest score of 4 for TUIC and 4 for TUCL while the other 6 teachers namely T22, T24, T26, T28, T32 and T34 gave themselves an even lower score of 3 for TUIC and 3 for TUCL (see Table 4-3 below).

**Table 4-3. ICT-readiness of teachers who are also parents**

| Code/Score | 1 | 2 | 3 | 4 | 5  | 6 | 7 | 8 | 9 | 10 | Total | Remarks  |
|------------|---|---|---|---|----|---|---|---|---|----|-------|--|
| SEIC       |   |   | 7 | 6 | 10 | 4 | 1 | 1 | 1 | 1  | 31    |  |
| AECL       |   |   | 6 | 7 | 9  | 5 | 1 |   | 1 | 2  | 31    |  |
| FIIC       |   |   | 7 | 6 | 6  | 8 | 1 | 1 | 1 | 1  | 31    |  |
| TUIC       |   |   | 6 | 6 | 6  | 7 |   |   |   |    | 25    | 6 teachers not married, or if married, had no child of their own |
| TUCL       |   |   | 6 | 6 | 7  | 6 |   |   |   |    | 25    |  |

The scores of the remaining 19 teachers were not reflected because they were not married or if married, did not have any children of their own – thus they did not fall into the category of ‘parents’ which is one of the focus areas in this case study.

Besides, quantitative data, the researcher also gathered and studied the qualitative data gleaned from the interviews. This was how the interviews helped to provide a fuller picture of the ICT-readiness of teachers. During the interview, the teachers with less than 15 years of experience (Gen Y) explained that they were somewhat IT-savvy because they were so exposed to using technology as a student. Teacher T5 explained that “it’s so recent that I used ICT tools in my studies so of course I am confident of using ICT in my life and my work as a teacher” while T4 added that “using ICT is so natural for me. Young people like me grew up with technology” (Field Notes, 3 March 2014).

The other group of teachers (with more than 15 years of teaching experience), however, did not grow up as digital natives and hence, had to learn such ICT skills; these teachers admitted, in separate interviews, that they needed enrichment classes and refresher courses (in ICT).

To sum up the important issues relating to ICT, arising from the findings and answers to the research questions of how parents and teachers could use ICT to engage the children to improve their literacy, the following were more closely examined:

- a) Use of ICT to improve children’s literacy development
- b) Teachers’ comments about their own ICT-readiness
- c) ICT-readiness of teachers
- d) Change in IT-readiness of teachers according to the length of teaching experience, and
- e) ICT-readiness of teachers who are also parents.

In the next chapter, we shall discuss how ICT, when used appropriately, could help children become more engaged in their learning and help them learn better. Meanwhile, we examine how children needing specialist help may be catered for.

### **Finding children who need specialist help**

From Primary One onwards, any child who was unable to spell common stationery items would be identified as needing the help of a learning specialist. Such children would then be grouped for extra coaching by specialist teachers in charge of LSP classes mentioned in the earlier chapters. Such a practice is common at the Primary One level across all primary schools run by the state.

Unfortunately, this practice is not common at the preschool level, much less the preschools in the heartlands which are mostly for the lower income families. Yet, it is children from such SES background who need the most learning support whilst in their preschool years, as suggested by the findings from the Survey Questionnaire (with teachers).

### **Findings based on Survey Questionnaire (with teachers and with parents)**

As stated in Chapter 2 earlier, a survey questionnaire was designed to capture aspects of pre-school teachers' readiness for ICT as well as the extent of parents' involvement with their children. As teachers completed the survey questionnaire on their ICT-readiness, they also wrote about the problem of heavy teaching workload which appeared 12 times across 48 interviews, or 9%. The problem of teachers' workload translated into less time for the teacher to prepare lessons which are ICT-based, and teachers tended to indulge in 'drill-and-kill' methods of teaching, instead because these required less preparation time as teachers did not have to set up the computer and LCD projector.

T1 explained that “when the teaching workload was heavy and we become so bogged down with ‘drilling students for tests’ and marking, we would have little time to use ICT in our lessons. You know that takes time to prepare, right?” During an interview, T2 lamented that “when my colleagues fall sick, the rest of us have to play relief teachers. So busy. No time to use ICT...want to *mati* already” (*mati* is the Malay word for die).

It was found that such challenges had left the teachers with very little time to ‘experiment’ with gadgets (mobile phones, digital cameras and laptop computers) as education tools. In fact, teachers T1 and T3 admitted they ‘made very basic uses of their iPhones like taking digital photos and videos of their students learning’ (Field Notes, 28 February 2014). From the interviews with teachers, it was found that 7 predominant issues had been raised by the teachers repeatedly. These issues had been summarised in Table 4-4 below.

**Table 4-4. Challenging predominant issues faced by teachers**

| No | Predominant Issues   | Number of Teachers |
|----|--|--------------------|
| 1  | Sheer volume of work and teaching workload (T1, T7, T13, T19, T22, T25, T27 and T29)   | 8                  |
| 2  | High staff turnover (T2, T3, T8, T12, T14, T15 and T18)  | 7                  |
| 3  | The ‘absent’ parent (T4, T10, T11 and T16)   | 4                  |
| 4  | Lack of career progression (T5 and T17)  | 2                  |
| 5  | Malnourished children, ‘Special Needs’ child, children who are disruptive, and children who don’t have an interest in learning (T6, T9, T20, T21, T22, T23, T30 and T31) | 8                  |
| 6  | Unappreciative parents (T26)   | 1                  |
| 7  | Dealing with children who are not toilet-trained (having to deal with soiled clothes) (T28)  | 1                  |
|    |  | <b>31</b>          |

Two teachers T2 and T3 also lamented the high turnover rate, resulting in more work for them as it took considerable time to find suitable replacements in a very tight labour market for preschool teachers. The advantage of an interview was that I could gather and record more information than what was written in a survey questionnaire, and I could also find out the reasons for a certain feedback or response. In the interviews with T2 and T3, it was learned that teachers also lament “a lack of career progression and growing demands from parents” (Field Notes, 22 December 2013).

Analysis of the documents revealed the following findings: The twin-problem of high staff turnover and lack of career progression had been an on-going issue. However, to the government’s credit, the efforts to address the issue of career progression received yet another leg-up when the Minister for MSF, Mr Tan Chuan-Jin handed out appointment letters to the first batch of 138 pre-school teachers on 4<sup>th</sup> May 2016, under ECDA’s Professional Development Program (The Straits Times, 2016, n.p.). The appointment came with cash awards of up to \$12,000 each, to “help them progress in their careers and take on larger roles”, as reported in a newspaper article dated 5<sup>th</sup> May 2016 with the headline “Pre-school teachers get leg-up on career ladder” (The Straits Times, 2016, n.p.).

Besides looking at the narratives from the interviews, other insights were also gleaned from the documentary analysis of media reports and Ministerial statements. It was thus found that pre-school teachers left the preschool sector “before they’ve even started... due to pay and other working conditions” (TODAY, 2013, n.p.). One particular teacher T19, however, confided she was going to “throw in the towel” as she never signed up for a kindergarten job “dealing with children who are not toilet-trained (and having to deal with soiled clothes)” (Field Notes, 28 February 2014). More about this would be discussed in Table 4-5.

From the survey questionnaire completed by 48 parents, 9 challenging issues were identified. Ten parents (namely M2, M4, M5, M20, M22, M32, M33, M40, M41 and M42) ranked the issue of single-parenthood as the second most challenging. Two of these parents (M4 and M5) went further and admitted they were at their wits end: M4 showed despair and said “*saya tak tahu apa yang boleh di-buat...*” meaning ‘I don’t know what can be done about this...’ while M5 acknowledged that her child was not doing so well but did not feel that it was urgent that the child knew so many words at such a young age (Field Notes, 22 December 2013).

M5 actually spoke in Malay and she said, “*dia masih kecil, baharu berusia lima tahun*” meaning ‘he is still so young, only 5 years old’ (Field Notes, 22 December 2013). When probed further, M5 explained that she was still trying to deal with the basics like putting food on the table (“*kan mesti cari makan, kan saya ni seorang sahaja yang memelihara anak*” meaning ‘I have to put food on the table, after all I’m the only one raising all the children, single-handedly’). This issue of single-parenthood came with other issues like financial problems, having to take on extra odd jobs to put food on the table, etc.

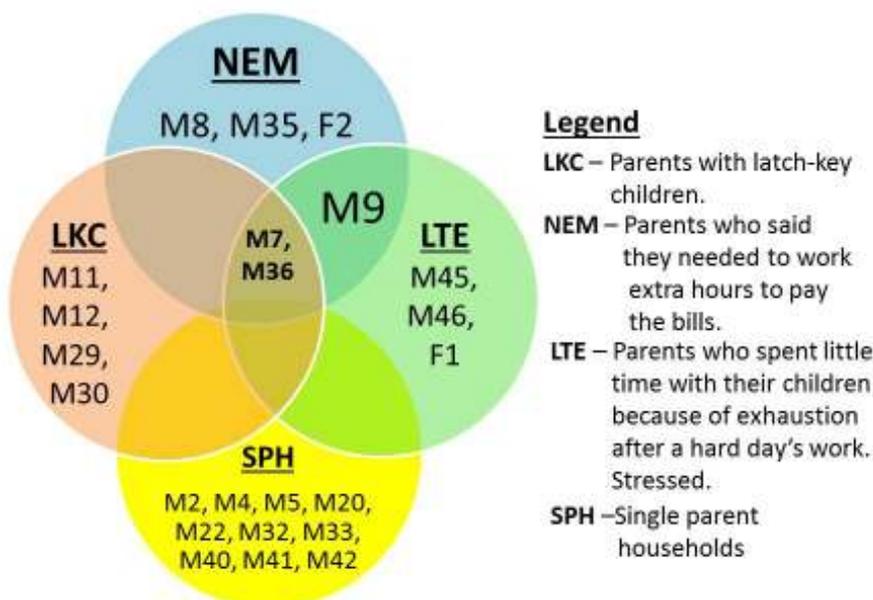
But there was a far more prominent issue that was more troubling than single-parenthood; in fact 15 parents namely M1, M3, M6, M10, M15, M21, M23, M25, M28, M31, M34, M37, M38, M43 and M44 spoke in a mixture of English and Malay, and confided they “did not feel equipped to teach the child” (or words to that effect) as the top challenge (Field Notes, 22 December 2013).

It was also found that 8 parents namely M13, M14, M16, M17, M18, M19, M24 and M26 gave higher priority to attendance at religious classes compared to completing spelling homework. M13 added that “*kan mengaji lebih mustahak daripada ejaan dari sekolah makan*” (isn’t religious classes more important than spelling lists from play school?)

while M17 as well as M18 reasoned that character development is far more important (Field Notes, 22 December 2013).

Six parents namely M7, M8, M9, M35, M36 and F2 lamented they had to “*terpaksa kerja kuat dan sepanjang hari. Kalau tidak, bagaimana nak bayar bil-bil semua ini?*” which is Malay for ‘forced to work hard and long hours. Otherwise how can I settle all these bills?’ If we had included the 10 single parents namely M2, M4, M5, M20, M22, M32, M33, M40, M41 and M42 who also felt the same way, then this challenge was cited by a total of 16 parents during the interviews (Field Notes, 22 December 2013).

Six parents namely M7, M11, M12, M29, M30 and M36 admitted their children would return to the house and be home alone. They were resigned to having latch-key children and said “*apa yang boleh di-buat?*” (‘What can be done? I have no choice’). Three parents admitted they spent little time with their children because of “exhaustion after a hard day’s work” (Field Notes, 28 February 2014). These findings have been summarised in the Figure 4-17 below.



**Figure 4-17. Distribution of parents who were NEM, LKC, LTE and SPH.**

There was yet another interesting finding: seven parents namely M4, M5, M13, M17, M18, M27 and P39 sincerely thought it was all right that their children are lagging behind their peers in the English language classes; they rationalised and comforted themselves that their children would catch up when they enter formal schooling at Primary One in 1-2 years' time.

With such findings, it was no wonder that “over the last 5 years, around 12% to 14% of the children who entered Primary 1 (first grade) have very weak oral English and literacy skills....they were not able to recognize simple English words (or) understand very simple oral instructions in English” (Singapore Parliament Report, 2009, para 42) and that the Minister for Muslim Affairs Dr Yaacob Ibrahim had suggested helping affected families with “parenting skills” (Yaacob, 2010, p. 3).

The above-mentioned issues were found in the survey questionnaire and they appeared again in the interviews and surfaced again in the documentary analysis of speeches made by Ministers and raised in Parliament by their parliamentary colleagues. Thus, when the data were triangulated across the survey questionnaire, narrative analysis (of interviews) and documentary analysis of media articles and Singapore Parliamentary Reports (Hansard), several common themes emerged. These themes threw some light on the literacy level of Singapore's Malay pre-schoolers. A pattern was seen and it also showed how Bronfenbrenner's ecological model of development (described in Figure 2-2 earlier) had been particularly relevant (Santrock, 2007, p. 45).

### **Repeated Themes forming a pattern**

Before going into the specific findings that emerged from the interviews with teachers and interviews with parents, it might be worth looking at the repeated themes that arose from the narrative analyses of these interviews namely the SES of the family, the heavy

workload of teachers, ICT usage, religious upbringing, little parental involvement, a shared responsibility among parents, school, teachers and society...and of course, the 2 particular focal themes in this case study namely ICT usage and parental involvement.

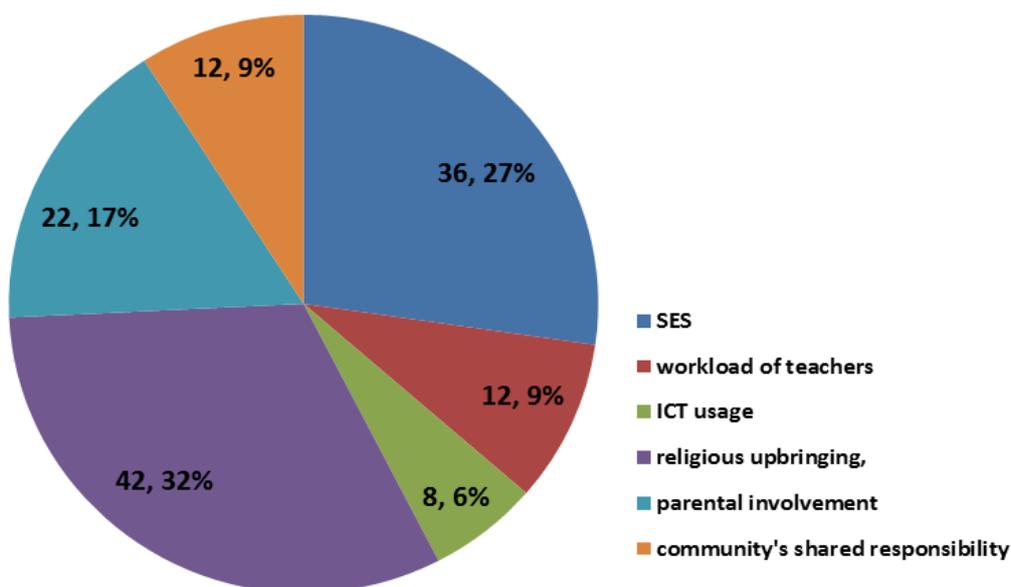
Each theme or topic had an impact on another for example the SES of the family may determine how much the parents have to work, and long hours at home translated to less or little parental involvement in the child's development, including literacy development as an exhausted parent has less time and energy to read with the child or attend school events or meet the teacher to have a better understanding of the child's progress in school. The use of ICT is also affected by public policy. Hence, there is an interplay among these themes or topics and may be illustrated in an arrangement of gears; Figure 4-18 summarised this interplay graphically.



**Figure 4-18. Repeated themes from different sources of data**

After addressing the research questions, the emerging themes were studied. These themes could not be ignored because parents who were interviewed mentioned them again and again: SES, workload of teachers, ICT usage, religious upbringing, parental involvement (or lack thereof) and shared responsibility among parents, school, teachers and society. These themes matched the factors which appeared in Bronfenbrenner's ecological model of development which was discussed in Chapter 2, reinforcing the appropriateness of the model (Santrock, 2007, p. 45).

The following pie chart illustrated the percentage in which each factor appeared in the narratives which arose from the interviews with 48 parents. It also showed how many times (frequency) each factor was mentioned by the 48 parents (Figure 4-19). Each parent had mentioned more than one factor during the course of his/her interview which explained why the combined frequencies (132) of all the 6 factors exceeded the total number of parents who were interviewed (48). But in terms of percentage, they all added up to 100%, hence the whole pie. Religious upbringing was cited the most number of times i.e. 42 times. Interestingly, parental involvement was mentioned 22 times whereas ICT usage only 8 times.



**Figure 4-19. Number of times a factor appeared in the 48 narratives**

There was also a theme that appeared occasionally in the narrative analysis, namely ‘culture and context’, particularly in the way the Malay preschool children spelled their vocabulary words. The topic of ‘culture and context’ had been reviewed in Chapter 2 and shall be discussed further in the subsequent chapters on ‘Discussion’ and ‘Conclusion’.

### **Workload of teachers**

Twenty out of 31 teachers lamented the heavy workload but almost immediately added that “it is the love for the children” that made them happy and stay in the job; besides, they liked the “helpfulness of colleagues” which made the heavy workload a little easier to bear and made them stay in their job, heavy workload notwithstanding (Field Notes, 13 December 2013). Teacher T27, however, confided how tired she was at the end of each day: “When I work, I think of deprived sleep and when I sleep, I think of work!” (Field Notes, 13 December 2013).

Certain findings were common across the 3 different sources i.e. the survey questionnaire, the narrative analyses based on the interviews with 48 parents, and the documentary analysis of Singapore Parliamentary Reports (Hansard), media releases and Ministerial announcements. To present these findings in an organized and readable manner, a data triangulation chart was produced. After all, the data triangulation chart captured the main points and allowed multiple sources of evidence to be classified according to key words so as to enable easy referencing and sorting. This also helped the researcher to uncover any possible patterns. The next data triangulation chart addressed the heavy teachers’ workload and stress levels, and related them to teacher shortage and retention issues. In this chart, the relevant documents (media articles or government press releases) were cited to shed more light on the issues of teachers’ workload, teacher shortage and retention of teachers in the profession (see Table 4-5 below).

**Table 4-5. Data triangulation chart – including interview with Teacher T1**

| Source 1   | Source 2   | Source 3  |
|--|--|---|
| Survey with Teacher T1   | Interview with T1                                  | Media article on teachers' woes in the 8 <sup>th</sup> November 2013 TODAY edition  |
| T1 indicated the sheer volume of admin tasks and work which took away time from lesson planning and actual teaching.   | The interview revealed how stressed teachers were. | The article entitled 'Pre-school teachers: Leaving before they've even started' highlighted that "teachers leave the field due to pay and other working conditions" (TODAY, 2012, n.p.). Moreover, there were "individuals who train as early childhood educators but never enter the field" (TODAY, 2012, n.p.). |
| <p><b>Interpretation</b></p> <p><b>Trigger:</b> The administration work had piled up what with various Ministries requiring different reports e.g. MOE on attendance, Ministry of Health on prevention of HFMD, MCYS on fee subsidies, etc.</p> <p><b>Consequence:</b> Teachers were too bogged down with non-teaching tasks, and left the service.</p> <p><b>Recommendation:</b> To provide teacher-aides, administrative assistants and to use technology to record children's attendance and temperatures. More of these recommendations shall be covered in the last 2 chapters.</p> |  |   |

Indeed, when it was uncovered during the interviews that teachers "feel so jaded", a closer examination of the issue was taken (Field Notes, 28 February 2014).

Teachers were unhappy about the growing amount of non-teaching tasks. In the literature review chapter, I reviewed the ICT implementations across 14 countries and highlighted that at the preschool level, ICT was implemented in only 5 of them namely Austria, Canada, Chile, Denmark and Korea (please see Table 2-4).

In Singapore, preschools operated by the PAP Community Foundation, Brighton, House of Kids, Kiddiwinkie, Little Footprints, Odyssey, and Pibos leveraged on ICT to assist in the completion of administrative work or non-teaching tasks such as marking attendance and recording of children's temperatures in case they were running a fever

(Business Times, 2015, n.p.). Across private preschool centres that charged far higher fees, teachers' administrative workload was being carried out by teacher-aides who were more readily available and thus more easily recruited. Despite such initiatives, the preschool industry still suffers from a high staff attrition rate, even today. Press releases from government agencies did not discuss teacher shortage at length but focused instead on scholarships and bursaries to attract talent into the profession (Heng, 2012).

### **Staff retention strategies that still fell short**

Attempts to attract more into the profession via scholarships had yielded dismal results, based on repeated newspaper advertisements (from the same groups of preschools seeking to fill immediate vacancies) which left tell-tale signs about the continued dire shortage of preschool teachers. The shortage had been so critical that even the admission criteria for polytechnic diploma course for early childhood education (ECE) in Year 2015 have been lowered from an average aggregate of 16 points to 28 points, for 5 subjects at the Singapore-Cambridge General Certificate in Education (GCE) 'O' level examinations at which students got 1 point for an A1 grade, 2 points for an A2 grade, and so on. A student who failed a subject would get an F9; thus the lower the aggregate points, the better it is. This means that a student who averaged a C5 grade per subject could gain admission to a Diploma course in ECE. In the year 2014, the admission criteria were 16 points or better. Therefore, accepting students with an aggregate of 28 points became a turn-off for students with better scores because the lowering of standards suggested the profession is 'less desirable' (Field Notes, 28 February 2014). More about this shall be discussed in the next chapter and recommendations proposed to sharpen public policy to attract suitable qualified human resources into the ECE field and to retain talent.

**Parental involvement affected by bread-and-butter issues**

Parents needed to be involved in order to maximize the children's potential for schooling. This view had also been validated by Anderson and Minke (2007) who asserted that parental involvement in children's education is a strong predictor of students' academic achievement and other positive school behaviours.

Similarly, Blatchford (2010) found that parents who were actively involved with their children provided a high quality home learning environment, which in turn enhanced the intellectual as well as social development of the children. Zou et al (2013) observed that "of family variables contributing to children's school achievement, parent expectation was singled out by researchers to be the most salient and powerful force".

Six parents namely M7, M8, M9, M36, M35 and F2 explained they wished they could spend more time with their children but had to be away at work most of the time just 'to pay the bills' (Field-notes, 22 February 2014). This was shown in Figure 4-8 earlier. Forty out of 48 parents or 83.3% said they did not read to their child.

Put another way, only 8 parents namely M13, M14, M16, M17, M18, M19, M24 and M26 read to their child. Figure 4-20 below, showed how the comments (in terms of FNE, LKC, LTE, CWC, SPH and CMI) from all 48 parents were captured and colour-coded for easy referencing.

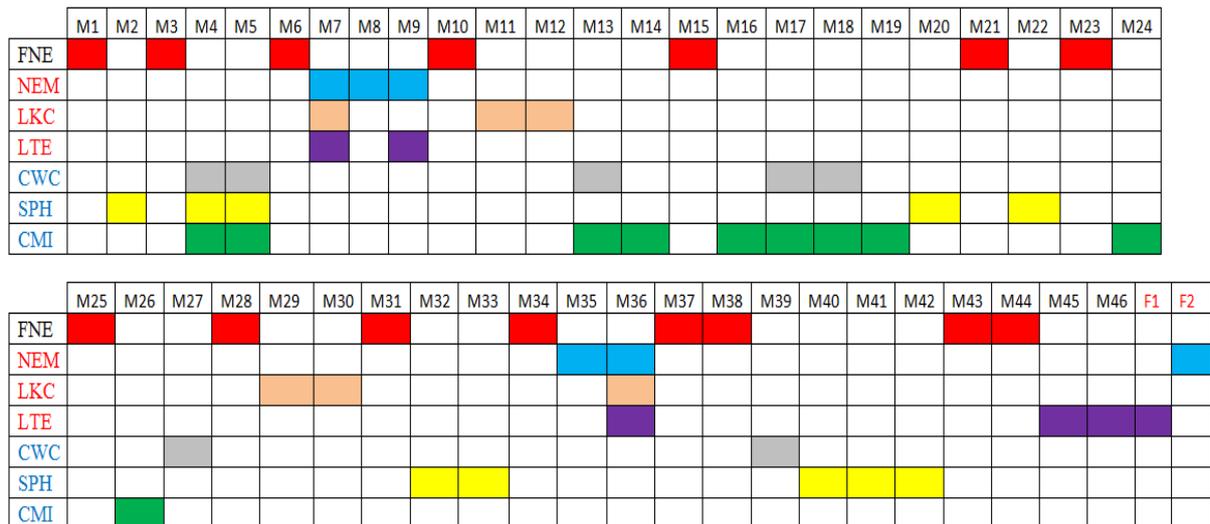


Figure 4-20. Issues raised by parents

For those who did not read to their child, their reasons varied but they pointed to the need to support the family financially e.g. “*kalau tak kerja bagaimana nak bayar bil*” which meant ‘got to work otherwise how to pay the bills’ (M8), “*sibuk lah, nak cari makan*” which meant ‘too busy trying to eke out a living’ (M35), “*tak ada masa sebab mesti kerja part-time*” which meant ‘too bogged down with part-time jobs’ (M12, M29 and F2) and “*sibuk di dapur dan banyak ni nak kemas kemas*” which meant ‘too busy with household chores’ (M11) (Field Notes, 13 December 2013).

**Shared responsibility among parents, school, teachers and society**

In calling for continual improvement to Singapore’s education system, PM Lee appealed, “...we need a much broader involvement – parents, alumni, the community, all coming together to support our schools” (Lee, 2011, n.p.). In his reply to questions at the COS 2012 Debate, SPS Mr Hawazi Daipi highlighted the importance of stakeholders working together to achieve common desired outcomes (Daipi, 2012, n. p.).

Such a call was consistent with the findings of other studies. In a study on aborigines in Queensland, Australia, McGinty (2002) had encouraged researchers to look at

(factors) “such as community development, at partnerships, and at the role of government and the role of the non-government sector in the development of learning communities”...and to seriously consider “a more collaborative approach to its policy production and implementation” instead of “a ‘top-down’ approach” (p. 65). Indeed, the preschools and the teachers in Singapore also did not have to go it alone. After all, there were many companies such as Ednovation who specialised in providing multi-media resources to enhance teaching and learning in the pre-schools (Ednovation, 2014). In fact, Ednovation had partnered preschools by supplying “a wealth of educational multimedia resources” (Chong, 2011, p. 36). Besides the 48 parents who were interviewed, there were also 9 grandmothers who were interviewed. These 9 grandmothers (GM1-GM9) admitted they did not read to the children simply because they did not know how to (“*tak tahu lah*”). These grandmothers, however, did not participate in the full survey and interview.

### **Dealing with stress and exhaustion**

In Chapter 2, parental involvement was referred to as a ‘catalyst’ as well as a ‘fixative’ (Bronfenbrenner, 1972) because it could quickly help to fix what was not going right for the child e.g. the child might not like to read or was not able to sight words. Yet, many parents were found to be involved very little with their preschool child, in his/her literacy development. The next data triangulation chart that captured findings from separate interviews with parents M46 and M47, a survey questionnaire completed by M45, and a documentary analysis of pertinent media articles and research findings on parental involvement could throw some light on the impact of a lack of parental involvement (Table 4-6).

**Table 4-6. Data triangulation chart – including interview with Parents P45, P46 and P47**

| Source 1   | Source 2  | Source 3   |
|--|---|--|
| Survey with parent, M45  | Interview with parents M46 and M47  | Media articles and research findings on parental involvement.  |
| Parent M45 wrote that she had to hold on to more than 2 part-time or odd jobs in order to feed her family because “ <i>suami di-dalam</i> ” (her husband was in jail)  | The interview with parents M46 and M47 revealed little parental involvement because she just didn’t have time (M46) and was just too exhausted (M47). | The Economist Intelligence Unit (2012) reported that “Singapore scores low in preschool education” (n.p.).<br><br>Blatchford (2010) opined that actively involved parents provided their children a higher quality home learning environment, which in turn enhanced the children’s intellectual and social development. |
| <p><b>Interpretation</b></p> <p><b>Trigger:</b> Parents (M45, M46 and F1) exhausted after a hard day at work. Stressed.</p> <p><b>Consequence:</b> Little time for the children who were already latch-key (in the afternoons).</p> <p><b>Recommendation:</b> Following the SWI Report on international ECCE ranking Singapore just 29th out of some 45 countries world-wide, gaps were identified and system-wide improvements were initiated. One particular gap was the lack of parental involvement in the literacy development of their preschool child (ECDA, 2015). More After-School Care (ASC) centres should be opened to meet the demand for such services. KidSTART which had already been launched should benefit the families who need it. Parents earning a small wage and juggling 2 or more odd jobs should be encouraged to enrol in apprenticeship programmes which included in-service training with salary that is more than salary from the 2 or more odd jobs. More of these recommendations shall be covered in the last 2 chapters.</p> |   |  |

Another example of a useful data triangulation chart in Table 4-7 illustrated how parents coped with the issue of their ‘latch-key’ child. Basically, these affected parents had seemed to resign to the fact that they had no choice but to leave the child at home, alone. Like the single-parents mentioned earlier, these parents of latch-key children appeared to be at their wit’s end (“*tak tahu apa yang boleh di-buat...*” meaning ‘don’t know what can be

done about this...'). They added, “*apa yang boleh di-buat?*” (Malay words which meant ‘what can be done?’ said with *a shrug of the shoulders*); with observation and qualitative research records even the *body language* could be documented (Field Notes, 14 December 2011).

**Table 4-7: Data triangulation chart – including survey and interview with Parent M11**

| Source 1  | Source 2  | Source 3  |
|---|---|---|
| Survey with Parent M11  | Interview with M11  | Media articles or Government press releases on the need for full-day child care services.   |
| M11 indicated how little time she and her husband spent with their child who returned to an empty house each weekday afternoon.   | The interview finding: leaving the child ‘home alone’ is the only option available to the parents who are both working. | Media may uncover the long hours (working) parents spent at the office (“to earn a little bit more”), and the lack of ASC facilities in certain parts of the country. |
| <p><b>Interpretation</b><br/> <b>Trigger:</b> No choice but to leave the child at home alone.</p> <p><b>Consequence:</b> Little supervision for the children who are latch-key (in the afternoons).</p> <p><b>Recommendation:</b> To have more centres offering ASC and ways for parents to still connect with the children in the afternoon (using technology e.g. Face-time on the iPhone or equivalents such as Skype and MSN). More of these recommendations shall be covered in the last 2 chapters.</p> |   |   |

The data triangulation chart was used as an aid to determine the trigger or issue that parents were struggling with. It also helped the researcher to examine the likely consequence and then make appropriate recommendations or point to the policies that had to be refined or sharpened in order to better address these issues.

### **Religious classes over enrichment classes**

These mothers confided that they did not send their children to enrichment classes or tuition “*terlalu mahal lah*” meaning ‘they are too expensive’ (Field notes, 20 December 2013). Interestingly, the 3-hour religious classes, costing \$20-\$30 a month, must be continued every week because “*klas agama tak harus dihentikan. Dosa tahu? Mesti ingat... kita kan Muslim*” which when translated into English was ‘religious class must not be discontinued. Sinful, you know? We must remember that we are Muslims’ (Field notes, 20 December 2013).

This high importance they placed on ‘religious upbringing’ was an interesting finding and one that was not expected or anticipated. In the subsequent chapter, we shall discuss how important religious upbringing is. It is so important that the founding PM of Singapore, the late Mr Lee Kuan Yew also spoke of religion being an anchorage and he used the metaphor of a ship at the stormy sea (Lee, 2014, p. 85). To these parents, religious classes are non-negotiable even if there is a \$20-\$30 monthly fee for religious classes, and their budget is tight.

### **Interesting topics that were found**

Yet another interesting and unexpected finding was how a Malay child repeatedly spelled common vocabulary words tested at the preschool level. For example, the word ‘pencil’ was spelled as ‘*pensil*’ which is the correct spelling, in Malay! This finding was discussed at length at the beginning of this chapter. This was informative and provided a rich enough empirical data base upon which to check interpretations (Xu et al, 2007) and can be another topic for further research, in a subsequent or related study. Many of these topics appeared in documentary analysis as the topics became important enough for policies to be crafted or re-written to address them. Hence, the following topics were also found in the

documentary analysis: ASC, ‘play’, ‘religious upbringing’ and challenging home circumstances such as ‘absent fathers’ suffering from drug abuse.

Indeed, the findings suggested a pattern woven around threads of themes such as SES, teachers’ growing workload, use of ICT, religious upbringing, parental involvement and a shared responsibility among parents, school, teachers and society. In this case study, the two themes, ‘use of ICT’ and ‘parental involvement’ are the areas of focus.

### **Findings based on Documentary analysis**

The documentary analysis was carried out on documents such as Singapore Parliamentary Reports, media releases (of Government policies and Government-funded programmes) and Ministerial announcements on policies. The Minister for MSF, Mr Tan Chuan-Jin announced in Parliament during the COS Debates on 1<sup>st</sup> April 2016 that MSF would launch KidSTART, a S\$20 million pilot scheme that “coordinates, strengthens and monitors support” for 1000 low income and vulnerable children (MSF, 2016). This involved the provision of ASC and childcare facilities and programmes for low-income families. This showed that while the Singapore Government executed broad schemes, it would also pilot a targeted scheme to address specific needs and problem areas. Another very recent programme announced on 2<sup>nd</sup> May 2016 during the Bukit Batok by-election campaign, is for “children from low-income, disadvantaged backgrounds” (ChannelNewsAsia, 2016b, n.p.).

It was found that quite often, policies were revised or introduced in response to changing needs, and that these high-impact and heavily-funded policies and programmes were debated first and then passed as a Bill, in Parliament. Where national programmes (e.g. KidSTART) are concerned, these had to be debated and passed in Parliament. Other programmes like pretend play, as stated in Chapter 2 (Blatchford & Siraj-Blatchford, 2006,

p.13) were implemented without having to be passed as a Bill in Parliament as they are operational in nature and are funded under the budget of preschools operating with or without government funding.

### **How themes were supported by a National Committee**

Minister Yaacob Ibrahim, the Minister in charge of Muslim Affairs, had announced in August 2012 the formation of *Suara Musyawarah* Committee, an independent committee that engaged members of the Malay/Muslim community to uncover the Malay/Muslim community's main areas of interest and concerns, as well as future hopes and aspirations. The Committee's Report was published on 7 July 2013. A documentary analysis of that Report showed that both the Report and this case study (which was started in 2011) had common themes or critical factors namely SES, religious upbringing (and the related topic of religious fervour), little parental involvement (and the related topics of absent fathers, lack of role-models and single parenthood), and a shared responsibility among parents, school, teachers and society.

### **PM Lee emphasized the fundamentals**

In his address to Singapore's Muslim professionals at their 3<sup>rd</sup> National Convention, PM Lee (2012b) highlighted the importance of the community "to continue to focus on improving the socio-economic performance of the community. The key to this is the fundamentals - education, strong families, and financial skills. You get those right, everything else will follow - in the job market, in terms of your socio-economic attainment, in terms your housing, in terms of your leadership" (para 12).

## Conclusion

The key finding from this study was eye-opening: low SES Malay parents did not have high expectations of their children's education, and did not actively involve themselves in associated parental involvement activities. This did not necessarily mean that they did not care. Rather, they shared in interviews and surveys that they had to grapple with day-to-day 'bread-and-butter' issues and making ends meet.

Besides, it was found that 15 parents namely M1, M3, M6, M10, M15, M21, M23, M25, M28, M31, M34, M37, M38, M43 and M44 reported that they felt inadequate in helping their children with their pre-school work whether it was reading to their child a story or even completing simple worksheets. This key finding did not translate into a piece of good news. While it is important not to react in an alarming way or be critical, it is also important not to sweep the issues under the proverbial carpet or pretend the issues are not present. Suffice it to state that this explains why Singapore Cabinet Ministers and parliamentarians have been concerned about the literacy level of Malay pre-school children. Unfortunately, not enough literature is out there to address this dilemma of the indigenous Malays. Indeed, like what Watts (1982), a researcher of Indigenous Studies ventured, "poor practices are rarely reported publicly" (p. 59).

What more has to be done to address the literacy level of the Malay preschool children? There has been no doubt that upstream investments are required in order to achieve measurable results in minding the (literacy) gap, as early as possible. After all, former Education Minister Dr Ng has already recommended that "for better results, we believe that we should be working upstream" i.e. at the pre-school level (Singapore Parliament Reports, 2009, para 42).

More recently at the NDR speech on 20<sup>th</sup> August 2017, PM Lee himself promised more investments into preschool education (ChannelNewsAsia, 2017b, n. p.). Such

investments would take the form of KidSTART, full-day child care subsidies for working as well as non-working mothers, financial assistance even for single parents (which is something new in Singapore), affordable housing for low-income families and also career progression as well as needs-based ICT training for pre-school teachers. It is hoped that when we act upon the findings, the results would be visible and significant: pre-school children not skipping pre-school, children arriving at pre-school ‘hungry to learn’ but not hungry so that teachers, parents and government agencies, working together, could close the gap in the children’s literacy development. More of these shall be discussed in the next chapter (Chapter 5). The final chapter (Chapter 6) shall provide the conclusion and scope for further research.

## Chapter 5

### DISCUSSION

#### Overview and re-visiting the research questions

This chapter described and discussed how ICT and parental involvement might influence the literacy development of pre-school children covered in this case study. The discussion in this chapter posited that parents' involvement and the use of ICT have an impact on the child's literacy development. The discussion has been based on the findings listed in the preceding chapter, gleaned from a documentary analysis, a survey and a narrative analysis, supported by field notes and descriptive statistics. The use of such multiple sources as evidence for this case study has been critical. As stated in the methods chapter earlier, the mix of quantitative and qualitative data allowed for converging lines of inquiry, a process of triangulation (Yin, 2009). After all, any finding or conclusion in a case study was made more convincing and accurate if it came from multiple sources of evidence and in an integrated manner instead of being presented separately.

This chapter then proceeded with the discussion of the methodology (case study method complete with documentary analysis, the survey and narrative analysis) and the findings to the list of research questions. This chapter also covered a discussion of the themes and factors that kept surfacing in the narrative and documentary analyses. Bearing in mind the research questions of this case study, the focus of this chapter remained the use of ICT that is developmentally-appropriate for children in their preschool age and how the literacy development of preschool children was influenced by their parents' involvement and such ICT use.

### **The case study method**

A paper on the case study method was presented at the 21<sup>st</sup> Century Academic Forum (21CAF) held at Harvard University in the United States of America in 2014.

Subsequently published in the Conference Proceedings of the 21CAF, this paper highlighted the case study method in examining how ICT and parental involvement might help narrow the literacy gap among Malay pre-schoolers in Singapore (Chong, Anderson & Anderson, 2014). The case study method has also been discussed in-depth in Chapter 3.

In the next few pages, a little more shall be discussed about the case study method, especially how triangulation charts illustrated the synergistic use of documentary analysis, narrative analysis and descriptive statistics from the survey. This was followed by a more detailed discussion on the influence of ICT and parental involvement on the literacy development of preschool children.

The case study included a documentary analysis involving documents such as Singapore Parliamentary Reports, media releases (of Government policies and Government-funded programmes) and Ministerial announcements on policies. The Starting Well Index (SWI) Report was also another good source of information (SWI, 2010). The Minister from the MSF, Mr Tan Chuan-Jin announced in Parliament during the COS Debates on 1<sup>st</sup> April 2016 that MSF would launch KidSTART, a S\$20 million pilot scheme that “coordinates, strengthens and monitors support” for 1000 low income and vulnerable children (MSF, 2016). This involved the provision of After-School Care (ASC) and childcare facilities and programmes for low-income families. This showed that while the Singapore Government executed broad schemes, it would also pilot a targeted scheme to address specific needs and problem areas.

According to the Singapore-based regional broadcasting company, ChannelNewsAsia, a similar programme was announced on 2<sup>nd</sup> May 2016 during the Bukit

Batok by-election campaign and it was developed to assist “children from low-income, disadvantaged backgrounds” (ChannelNewsAsia, 2016b). In Singapore, policies on childcare facilities and programmes for low-income families were revised and introduced in response to changing needs. These high-impact and heavily-funded policies and programmes (e.g. KidSTART) had been debated first and then passed as a Bill, in Parliament.

It was also useful that this case study included a narrative analysis which helped uncover issues deemed important to the interviewees. Moreover, the semi-structured interview allowed the researcher to get off the beaten track as it were, to explore any emerging topic in the interview conversations. One such topic was ‘play’, a strategy that has been given more recognition in Singapore pre-schools the past few years. In fact, play is becoming such an important approach in pre-school learning that the MOE (2013) announced “a curriculum with a Singaporean flavour — with an emphasis on the learning of languages and opportunities to learn through play — (shall be) provided in a heartlands setting where children from various socio-economic backgrounds get to learn and play together (n.p.)” Indeed, at the SPARK Certificate Presentation Ceremony held on 25 September 2015, SMS for Education Ms Indranee Rajah gave the assurance that “we will continue to support pre-schools to improve the quality of teaching and learning” (Rajah, 2015, n.p.). Earlier in 2011, in an article in the November edition of the *Young Families* magazine entitled ‘PCF pre-schoolers learn HOT skills’, Chong (2011) noted that play “is an under-optimised strategy for engaged learning” (p. 37).

In Chapter 2, we referred to Chong’s (2012a) observation of children involving themselves in a ‘pretend’ play situation of a make-believe supermarket in which the computer served as a point-of-sale, within the preschool classroom. Another example could be a make-believe travel agency where the computer might be used to show the clients (aspiring travellers played by their classmates) the tourist destinations around the world.

Later in this chapter, more shall be said about LEGO's use of ICT as an education tool incorporating elements from classic LEGO themes such as 'castle' and 'space', common themes in the preschool curriculum (LEGO, 2014).

More about 'play' shall be discussed later in this chapter. PCF, an abbreviation for the 'PAP Community Foundation', is the largest operator of preschools. It was founded by the ruling political party of Singapore, the People's Action Party or PAP.

SMS Indranee Rajah added that "over the last few years, MOE has shared the Nurturing Early Learners (NEL) curriculum to support you in enhancing the quality of teaching and learning in your centres" (Rajah, 2015, n.p.). The NEL Curriculum Toolkit is a comprehensive range of kindergarten curriculum resources that comprised components such as the NEL Framework, the NEL Educators' Guide and the NEL Framework for Mother Tongue Languages. These resources are currently under the purview of ECDA, a statutory board established in 2013.

### **Survey and narrative analyses provided a fuller picture**

While the survey identified general trends and highlighted evidence about the 'what' (e.g. the number of hours parents were involved in their children's literacy development in terms of the ten activities), the narrative analyses uncovered the reasons for such parental involvement and how the parents were involved. This clearly illustrated how narrative analyses of interviews added more depth to the answers for each of the research questions. These qualitative and quantitative methods served their purpose well and complemented each other.

By capturing insights that might not have otherwise surfaced in a survey, the narrative analysis of interviews provided more insights e.g. why it was only the mother who was bringing up the child (perhaps the father was serving time in prison, as was the case for

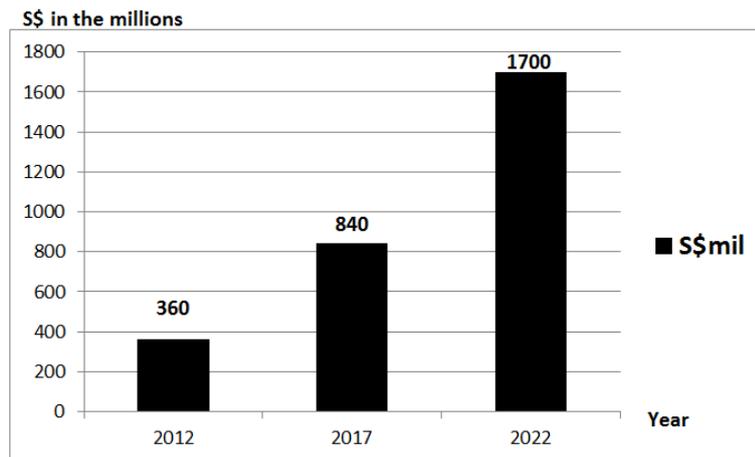
M7 and M36. This was a significant finding because it resulted in parental involvement being halved since one parent was absent. With such affected parental involvement (or lack of parental involvement), more needed to be done perhaps in the form of early childhood care and education (ECCE) so as to support the mother who became the sole breadwinner and had to work long hours to support the family.

In the preceding chapter, we read about the 6 issues that the 48 parents highlighted during the interviews. These 6 issues have been abbreviated and clearly listed in Table 4-1. For easy reference, these 6 issues have been reproduced below.

- single-parenthood (SPH) and the attendant challenges that came with it,
- lower importance attached to preschool reading, spelling or language class compared to religious classes because character development was considered more important (CMI),
- the need for parents to work extra hours to pay the bills (NEM),
- latch-key children (LKC),
- parents being too exhausted after a hard day's work to spend time with their children (LTE), and
- parents' mindset that it was all right if their children were not keeping up with preschool work because they would have time to catch up when they entered formal schooling at Primary One in 1-2 years' time (CWC).

The inability to spell and recognise words and sounds was not unique to Malay pre-school children. Their Chinese and Indian counterparts also struggled with spelling so much so that in his NDR speech on 20<sup>th</sup> August 2017, PM Lee himself promised more investments into preschool education (ChannelNewsAsia, 2017b, n. p.). In a 24<sup>th</sup>

August 2017 press article entitled “All MOE Kindergarten branches to be located within primary schools”, it was reported that “many first-year students at primary schools .... were mostly recognising words but were not able to spell them” (TODAY, 2017). Figure 5-1 shows how much money was, is and will be set aside for preschool education from 2012 to 2022.



**Figure 5-1. Singapore Government Spending in Pre-school Education**

The graph in Figure 5-1 showed that Singapore Government spending on preschool education had more than doubled from the year 2012 to 2017, and would probably double again from 2017 to 2022. But in absolute dollars, government spending on pre-school education increased by S\$480 million from the year 2012 to 2017, and would likely increase by S\$860 million from 2017 to 2022. Again, numbers and statistics (like these) alone would not provide us the details such as how much of the increase would go to building costs and how much to the quality of teaching and learning resources. This accentuated the need for a mix of quantitative and qualitative data triangulated for converging lines of inquiry (Yin, 2009).

### **Little involvement from parents struggling with bread-and-butter issues**

Six parents namely M7, M8, M9, M36, M35 and F2 explained they wished they could spend more time with their children but had to be away at work most of the time just ‘to pay the bills’ (Field-notes, 22 February 2014). In fact, forty out of 48 parents or 83.3% said they did not read to their child. Out of these 40 parents, 15 said they “felt they were not equipped to teach the child” (FNE). Put another way, only 8 parents namely M13, M14, M16, M17, M18, M19, M24 and M26 read to their child. The findings from the narrative analysis have been expressed in terms of FNE, LKC, LTE, CWC, SPH and CMI and described as issues that parents faced. The findings were illustrated in Figure 4-20 in the previous chapter.

In the narrative analysis of interviews with parents M7, M11, M12, M29, M30 and M36, it was found that these parents had latch-key children who needed ASC and would benefit from the KidSTART initiative.

For those who did not read to their child, their reasons varied but they pointed to the need to support the family financially e.g. “*kalau tak kerja bagaimana nak bayar bil*” which meant ‘got to work otherwise how to pay the bills’ (M8), “*sibuk lah, nak cari makan*” which meant ‘too busy trying to eke out a living’ (M35), “*tak ada masa sebab mesti kerja part-time*” which meant ‘too bogged down with part-time jobs’ (M12, M29 and F2) and “*sibuk di dapur dan banyak ni nak kemas kemas*” which meant ‘too busy with household chores’ (M11) (Field Notes, 13 December 2013).

This case study has been strengthened by triangulation which consisted of documentary analysis, the survey and narrative analysis. Such triangulation was illustrated in the following data triangulation charts in Table 5-1 and Table 5-2.

Table 5-1 captured findings from separate interviews with parents M46 and M47, a survey questionnaire completed by M45, and a documentary analysis of pertinent

media articles and research findings on parental involvement. The findings in Table 5-1 could throw some light on the impact of a lack of parental involvement.

**Table 5-1. Data triangulation chart, including interviews with Parents P45, P46 and P47**

| Source 1  | Source 2  | Source 3   |
|---|---|--|
| Survey with parent, M45   | Interview with parents M46 and M47  | Media articles and research findings on parental involvement.  |
| Parent M45 wrote that she had to hold on to more than 2 part-time or odd jobs in order to feed her family because “ <i>suami di-dalam</i> ” (her husband was in jail)   | The interview with parents M46 and M47 revealed little parental involvement because she just didn’t have time (M46) and was just too exhausted (M47). | The Economist Intelligence Unit (2012) reported that “Singapore scores low in preschool education” (n.p.).<br><br>Blatchford (2010) opined that actively involved parents provided their children a higher quality home learning environment, which in turn enhanced the children’s intellectual and social development. |
| <p><b>Interpretation</b></p> <p><b>Trigger:</b> Parents (M45, M46 and F1) were exhausted after a hard day at work. Stressed.</p> <p><b>Consequence:</b> Little time for the children who were already latch-key (in the afternoons).</p> <p><b>Recommendation:</b> Following the SWI Report on international ECCE ranking Singapore just 29th out of some 45 countries world-wide, gaps were identified and system-wide improvements were initiated. One particular gap was the lack of parental involvement in the literacy development of their preschool child (ECDA, 2015). More ASC centres should be opened to meet the demand for such services. KidSTART, which had already been launched, should benefit the families who needed it. Parents earning a small wage and juggling 2 or more odd jobs should be encouraged to enrol in apprenticeship programmes which included in-service training with salary that is more than salary from the 2 or more odd jobs. More of these recommendations shall be covered in the last 2 chapters.</p> |   |  |

The data triangulation chart was used as an aid to determine the issues that parents were struggling with (also known as ‘trigger’). It also helped the researcher to examine the likely consequences, glean more insights to the research questions, and produce the appropriate recommendations.

Another example of a useful data triangulation chart is in Table 5-2 which illustrated how parents coped with the issue of their ‘latch-key’ child. Basically, this particular affected parent, M11 appeared to have resigned to the fact that she had no choice but to leave the child at home, alone. Like the single-parents mentioned earlier, M11 appeared to be at her wit’s end when she admitted “*tak tahu apa yang boleh di-buat...*” which were Malay words meaning ‘don’t know what I can do...’, with *a shrug of the shoulders*; with observation and qualitative research records even the *body language* could be documented (Field Notes, 14 December 2011).

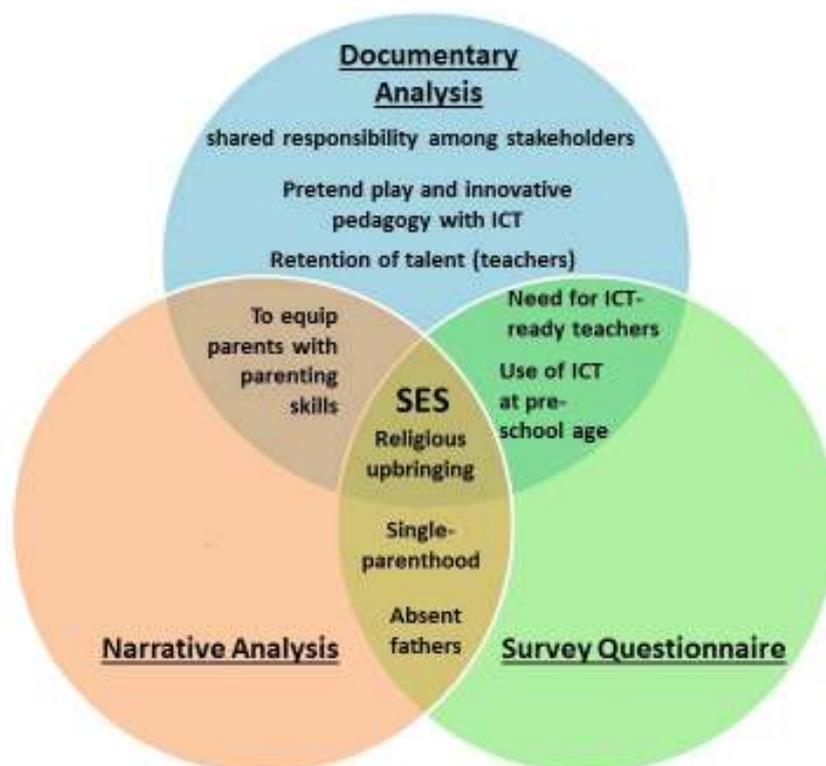
**Table 5-2: Data triangulation chart – including survey and interview with Parent M11**

| Source 1  | Source 2  | Source 3  |
|---|---|---|
| Survey with Parent M11  | Interview with M11  | Media articles or Government press releases on the need for full-day child care services.   |
| M11 indicated how little time she and her husband spent with their child who returned to an empty house each weekday afternoon.   | The interview finding: leaving the child ‘home alone’ was the only option available to the parents who were both working. | Media might uncover the long hours (working) parents spent at the office (“to earn a little bit more”), and the lack of ASC facilities in certain parts of the country. |
| <p><b>Interpretation</b></p> <p><b>Trigger:</b> No choice but to leave the child at home alone.</p> <p><b>Consequence:</b> Little supervision for the children who were latch-key (in the afternoons).</p> <p><b>Recommendation:</b> To have more centres offering high quality ASC and ways for parents to still connect with the children in the afternoon (using technology e.g. Face-time on the iPhone or equivalents such as Skype). More of these recommendations shall be covered in the last 2 chapters.</p> |   |   |

In short, the process of triangulation added credence to the findings. Common themes were found and these were SES, religious upbringing (and the related topic of

religious fervour), little parental involvement (and the related topics of absent fathers, lack of role-models and single parenthood), and a shared responsibility among stakeholders like parents, school, teachers and the community.

These themes or issues were found in the survey questionnaire and they appeared again in the interviews and also surfaced in the documentary analysis of speeches made by Ministers and raised in Parliament by their parliamentary colleagues. The following Venn diagram in Figure 5-2 illustrated these findings, at the same time, showing how Bronfenbrenner's ecological model of development (described in Figure 2-2 earlier) has been particularly relevant (Santrock, 2007, p. 45).



**Figure 5-2. Common themes found through triangulation**

**How literate were the preschool children?**

While the literature on the literacy level of Malay preschool children has been scant, what was telling was the parliamentary speeches; for example, (Singapore Parliament Report (2009) has on record the following statement: “over the last 5 years, around 12% to 14% of the children who entered Primary 1 (first grade) have very weak oral English and literacy skills....they were not able to recognize simple English words (or) understand very simple oral instructions in English” (para 42). Their literacy level has drawn enough attention for the Minister for Muslim Affairs Dr Yaacob Ibrahim to recommend that affected families be assisted with “parenting skills” (Yaacob, 2010, p. 3). More shall be said about this in the subsequent pages, after the research questions have been answered in turn.

The first research question focused on the literacy level of Malay preschool children in the preschools selected for this case study. How literate were the preschool children... if they could not even spell? After all, it has been reported after PM Lee’s NDR 2017 speech that “many first-year students at primary schools .... were mostly recognising words but were not able to spell them” (TODAY, 2017). In the preceding chapter, we found out through the interviews with 31 teachers that the children could not spell more than half the words in the spelling list shown in Annex 1.

It was explained in Chapter 2 as well as Chapter 4 that in consultation with education experts and policy-makers, Singapore’s MOE had relied on what it considered a cost-effective and simple way of gauging a child’s literacy with an easy-to-administer test for a cohort of 35,000 Primary 1 (First Grade) children in Singapore schools, every year (Annex 1). Mindful that literacy is more than spelling and word recognition, experts such as Darling-Hammond and Bransford (2012) argued that spelling is one of the early building blocks in the literacy development of the child. Besides, it has been considered the most obvious and easily observable factor among young children who were still at the pre-phonemic or early

phonemic stage (as explained earlier in Table 2-2). Because children at the pre-phonemic stage were not yet able to read, the spelling and oral comprehension test sufficed and was found to be appropriate by MOE-appointed education experts and policy-makers.

Moreover, Reed (2012) advocated "Why Spelling Instruction Matters" which is a checklist for evaluating a spelling programme; such a checklist "explains the importance of spelling and word recognition to students' reading abilities" (n.p.). This explained the continued use of the easy-to-administer test. Even today, little is known about the test as it has not been published or discussed by academics or public officials at education conferences or forums, much less in the public domain. Moreover, in the public service in Singapore, all public servants have to sign a non-disclosure agreement and refrain from discussing such confidential matters to avoid being found in breach of the Official Secrets Act (Chapter 213) which is an Act to prevent the disclosure of official documents and information (Attorney-General Chambers, 2017, n.p.).

However, public servants (like teachers) have been permitted to speak through *official* channels such as Schoolbag.sg, MOE's online publication which provided education news, school features and tips to parents, educators and the general public. Schoolbag interviewed a teacher named Mrs Tan who said, "one of my Primary One pupils could speak well for her age and the other teachers were surprised when they found out that she needed to be in the LSP. I double-checked and verified that the pupil was unable to read or identify words" (Schoolbag, 2013, n.p.).

As stated in Chapter 2, LSP is a 30-minute session held every day for Primary One pupils who did not meet the criteria according to the early literacy indicators such as ability to read or identify words. Through an LSP class which comprised 8-10 pupils, children would be provided more attention to be equipped with basic literacy skills so that they might be able to access learning in a regular classroom.

The findings of this case study relating to the literacy levels of Malay pre-school children in terms of “phonemic awareness” (Rowland, 2014, p. 21) described in detail in Chapter 2, were cross-checked with findings from the documentary analysis of a 2009 Singapore Parliament Report (SPR) which summed up that (Malay children) “.... have very weak oral English and literacy skills....they were not able to recognize simple English words (or) understand very simple oral instructions in English” (Singapore Parliament Report, 2009, para 42). This was supported by an official statement by a PCF spokesperson who said that “when entering P1, some children may not have acquired adequate basic speaking and reading skills” (AsiaOne, 2015, n.p.).

### **Spelling English words in Malay suggested the influence of ‘context and culture’**

It was found that Malay children spelled English words in Malay e.g. the English words ‘motorcycle’, ‘bus’ and ‘ball’ were spelled as ‘*motosikal*’, ‘*bas*’ and ‘*bola*’, respectively. This suggested the influence of ‘context and culture’ which could not be over-emphasised. It pointed us to the importance of “macro-system” (Bronfenbrenner, 2005, p. 2) mentioned in earlier chapters as well as the importance of *not* teaching words “by themselves or in isolation” (Cohen & Spenciner, 2011, p. 365). This also accentuated the need to help these Malay children to move from the known (Malay vocabulary words) to the unknown (English vocabulary words) – which was also suggested in Chapter 2, in the review of the literature. After all, Bruner (1996) advocated that “as a teacher, you do not wait for readiness to happen; you foster or ‘scaffold’ it by deepening the child's powers at the stage where you find him or her now” (p. 120).

It is interesting that children were ‘tested’ on words like ‘motorcycle’ which is a rather long word with 4 syllables! But if one is familiar with the local preschool Big Books, one would recall themes like ‘my family’, ‘my neighbourhood’, ‘the playground’,

‘transportation’, etc. Then, one would not be surprised to know that the preschool children in Singapore would have been exposed to words like ‘motorcycle’ numerous times. The Malay language textbooks and Big Books also followed the same thematic approach and covered topics like ‘*keluarga saya*’ (my family), ‘*kejiranan saya* (my neighbourhood)’, ‘*taman permainan*’ (the playground), and ‘*pengangkutan*’ (transportation).

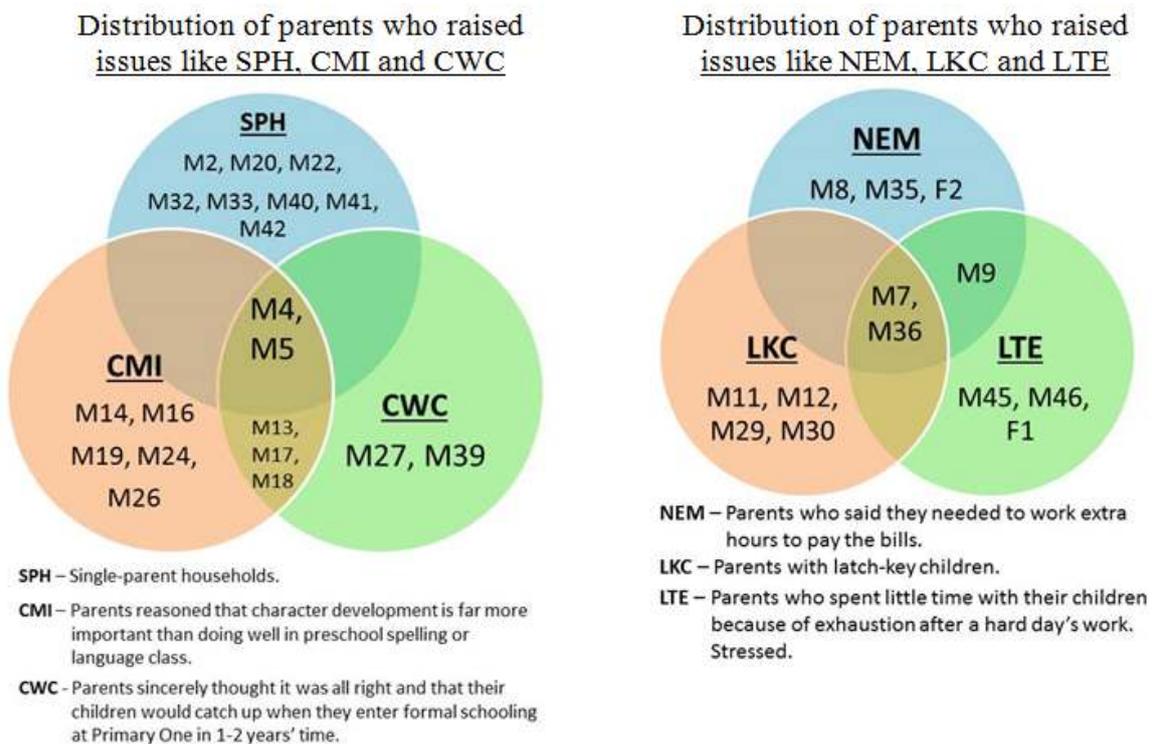
Moreover, if these same preschool children could memorise, recite and even write words in *Jawi* (in their religious classes) then it should not be surprising that they were able to spell such a long word, ‘*motosikal*’ which is Malay for ‘motorcycle’. Although English is the first language used and taught in Singapore preschools and schools, Malay remained the Malay children’s mother tongue or language spoken at home.

### **Influence of parental involvement on the child’s literacy development**

The second research question focused on the involvement of parents of Malay pre-schoolers especially in the latter’s literacy development which did not seem to enjoy as much priority as character development and religious instruction. Ten parents namely M4, M5, M13, M14, M16, M17, M18, M19, M24 and M26 reasoned that character development was far more important for their children than preschool spelling or language class (CMI). Moreover, 7 parents namely M4, M5, M13, M17, M18, M27 and P39 said they thought it was all right if their children were not reading at their age level because they believed their children would catch up (CWC) when they entered formal schooling at Primary One in 1-2 years’ time. There was after all the LSP class.

In this discussion, parents were grouped according to the issues they raised and this has been illustrated in the Venn diagrams in the preceding chapter (See Figure 4-7 and Figure 4-8). These two figures have now been combined into Figure 5-3 so as to help us

study the comparison. Figure 5-3 showed that any parent listed in the Venn diagram on the left did not appear in the Venn diagram on the right, and *vice versa*. Put in another way, from Figure 5-3, we could see at a glance that parents who raised issues like SPH, CMI and CWC did not raise predominant issues like NEM, LKC or LTE, and *vice versa*.



**Figure 5-3. Comparison of parent groups who raised different predominant issues**

It was also found that parents classified under NEM, LKC and LTE said they were struggling with bread-and-butter issues and were in dire financial positions. They were not comforting themselves with statements like “my child will catch up” (the way parents classified under CWC did) or “character development is more important” (the way parents classified under CMI did). They were in fact struggling with subsistence issues. Suffice it to state that while the interviewed parents had raised a certain issue as the predominant

challenge, it did not mean that they did not speak about the other challenging issues. What had been done here is the listing of the *predominant* challenging issue raised by each interviewed parent so as to avoid double counting and duplication. For example, the topic “stress at work” appeared in as many as 31 out of 48 interviews with parents but was listed as the predominant issue in only 3 interviews with Parents P45, P46 and P47.

### **The Malay psyche perceived by others**

Sukmawati (1995) spoke about the Malays’ general absence of desire to compete and how their religion seemed to make them accept their fate and to teach them to be contented with whatever fate handed to them. The renowned Malaysian academician, sociologist and politician Professor Syed Hussein Alatas wrote in his book, ‘The Myth of the Lazy Native’ that “...from the perception and portrayal of the (Malay) community by others, some policy decisions by the Government seem to have entrenched and propagated the myth further” (Alatas, 2013, p. 48). Professor Syed who had also served as Vice-Chancellor of the University of Malaya in the 1980s, claimed that one of those who propagated this myth was Sir Hugh Charles Clifford, a British colonial administrator in Malaya who having arrived in Malaya in 1883, began a close association of no less than 20 years with the indigenous people of Malaya i.e. Malays. Sir Hugh Clifford learned the Malay language during his time in Malaya.

Professor Syed criticised the characterisation of the Malay by Hugh Clifford (1927, p. 53) as “having no empirical basis whatsoever” and “brushed aside some earlier references to Malay laziness” (Syed, 2013, p. 48). Professor Syed further insisted that “...under proper treatment the Malay is as loyal and trustworthy as any of the subject races of

the Crown” and added that “those who are intimate with the Malays would ...recognize in him (the Malay man) one of Nature’s gentlemen” (Syed, 2013, p. 49). While the Malay psyche is not a focus area of this case study, it appeared fitting especially in this chapter that we included a brief discussion of the Malays, the perception of Malays by others and any baggage the Malays, as an indigenous people, might carry. Through a documentary analysis such as this and a narrative analysis of interviews, insights on such Malay psyche were obtained. In this way, when we read ministerial or parliamentary speeches, we would understand why Ministers and Members of Parliament trod carefully when they discussed the issues confronting the Malays.

The findings that emerged from the survey questionnaire provided the ‘what’, as it were, and these findings have been illustrated in the Venn diagrams. However, it was also critical to have an understanding of the ‘why’ or ‘how’. Hence, even if the survey revealed that the parents said it was all right that their children were not reading at their age level and rationalised that their children would catch up (CWC) when they entered formal schooling at Primary One in 1-2 years’ time, the survey did not capture for us the mood, the gestures, and the attitude in which those comments were made. This was where the interviews became especially useful because through the narrative analysis, we could see and then document “the gestures, pitch and tone of voice” and determine if they showed the parents’ exasperation, displeasure or other feelings (Cortazzi, 1993, p. 110).

From the interviews, we were able to experience first-hand how the parents thought through the issues and to gain a better understanding of their psyche. From the *ad verbatim* audio recordings, we captured the parents’ responses made in the Malay language:

M27 said “*tak mengapa. Ada masa lagi*” which is Malay for

‘Not a problem. There’s still time’, and

M39 said, “*Sudah tentu mereka tahu membaca kemudian*”

which is Malay for ‘I’m sure they would know how to read after a while’.

(Field Notes, 22 December 2013).

Indeed, the attitude was one that reflected a relaxed mood, a non-competitive spirit and a willingness to nurture their children at an unhurried pace. This was so different from what we read about ‘Tiger Moms’ in Chapter 2 (Chua, 2011, p.249; Chong, 2012, p.1). For those who did not understand or appreciate the Malay ‘culture and context’, they might consider such an attitude to be even lackadaisical or lazy. Myth or otherwise, the Malays have been perceived since British colonial times to be non-competitive and unhurried in their approach to learning. This lent support to the notion that the Malays could accept their fate even when it was one lacking in progress and they took comfort that their fortunes would improve in the near future (Sukmawati, 1995).

From the survey and interviews, it was found that SPH, CMI and CWC were not the only challenging issues cited by the parents. The parents also cited other issues which prevented them from being more involved with their children in the 10 activities listed earlier, namely LKC and LTE. Earlier in Figure 5-3, we illustrated how parents ranked their number 1 or predominant issue that troubled them.

However, in the survey questionnaire, all 48 parents were allowed to list more than one issue and altogether, they listed 9 challenging issues which have been tabled below (Table 5-3) and later on, illustrated in Figure 5-9:

**Table 5-3. Issues raised by parents, listed according to frequency**

| No. | Issues raised by parents, listed according to frequency                               | Source (Parents)   | Frequency |
|-----|---|--|-----------|
| 1   | Working hard and long hours to pay bills  | M2, M4, M5, M7, M8, M9, M20, M22, M32, M33, M35, M36, M40, M41, M42 and F2 | 16        |
| 2   | Feeling ill-equipped to teach the child   | M1, M3, M6, M10, M15, M21, M23, M25, M28, M31, M34, M37, M38, M43 and M44. | 15        |
| 3   | Single-parenthood   | M2, M4, M5, M20, M22, M32, M33, M40, M41 and M42                           | 10        |
| 4   | Higher priority to religious classes than completing homework                         | M13, M14, M16, M17, M18, M19, M24 and M26                                  | 8         |
| 5   | Showed a ‘lackadaisical approach’ to their child’s literacy development               | M4, M5, M13, M17, M18, M27 and M39   | 7         |
| 6   | Latch-key children  | M7, M11, M12, M29, M30 and M36   | 6         |
| 7   | Little time with their children because of “exhaustion after a hard day’s work”       | M45, M46 and F1  | 3         |
| 8   | Character development cited as far more important                                     | M13 and M14  | 2         |
| 9   | Did not feel that it was urgent that the child knew so many words at such a young age | M4 and M5  | 2         |

### Discussion of survey findings

From the survey questionnaire completed by 48 parents, 9 challenging issues were identified. The most prominent and challenging issue was ‘working hard and long hours to pay bills’ raised by 16 parents namely M2, M4, M5, M7, M8, M9, M20, M22, M32, M33, M35, M36, M40, M41, M42 and F2. The survey listed the ‘what’ but the interviews uncovered the ‘why’ i.e. the compelling reasons for parents to work such long hours. More would be discussed in the subsequent pages, when we examined findings from the narrative analysis.

### Parents feeling inadequate to coach their children

What also surfaced from the findings, and recorded in the preceding chapter, was how inadequate the parents said they felt when asked to help their child in his or her literacy development. This was the second most prominent issue as listed by 15 parents namely M1, M3, M6, M10, M15, M21, M23, M25, M28, M31, M34, M37, M38, M43 and M44. Nevertheless whenever they had the time, they would make up for it by “*bawa dia ke library, belajar sedikit*” (which is Malay for ‘take my child to the library to learn to read a bit’ (Field Notes, 22 December 2013). Three of them namely M7, M9 and M36 confided that they were “*berusaha memberi anak peluang mempelajari supaya senang hidupnya dimasa hadapan*” or roughly translated ‘determined to provide the child more educational opportunities so that he will have a better future’ (Field notes, 20 December 2013).

Ten single parents (namely M2, M4, M5, M20, M22, M32, M33, M40, M41 and M42) attributed their lack of parental involvement to their lack of confidence “.... in teaching the right thing or in the right way” (Field notes, 20 December 2013). Thus, it made sense that in a parliamentary speech, Minister for Muslim Affairs Dr Yaacob Ibrahim had suggested helping affected families with “parenting skills” (Yaacob, 2010, p. 3) – this was uncovered through a documentary analysis of the Hansard or Singapore Parliamentary Records.

### **Single-parenthood**

The third most prominent issue came from 10 parents namely M2, M4, M5, M20, M22, M32, M33, M40, M41 and M42 who raised the issue of single-parenthood. In more or less the same words, they accepted that “*ini semuanya nasib, harap masa depan tak begitu susah hati*” (Malay for ‘all this is fate, I can only hope for a better future’). Two of these parents (namely M4 and M5) went further and admitted they were at their wits’ end. M4 showed despair and said “*saya tak tahu apa yang boleh di-buat...*” meaning ‘I don’t

know what can be done about this...’. This issue of single-parenthood came with other issues like financial problems, having to take on extra odd jobs to put food on the table, etc.

M5 acknowledged that her child was not doing so well but did not feel that it was urgent that the child knew so many words at such a young age. M5 actually spoke in Malay and she said, “*dia masih kecil, baharu berusia lima tahun*” meaning ‘he is still so young, only 5 years old’ (Field Notes, 22 December 2013). When probed further, M5 explained that she was still trying to deal with the basics like putting food on the table (“*kan mesti cari makan, kan saya ni seorang sahaja yang memelihara anak*” meaning ‘I have to put food on the table; after all I’m the only one raising all the children, single-handedly’).

It was also found that 8 parents namely M13, M14, M16, M17, M18, M19, M24 and M26 gave higher priority to attendance at religious classes compared to completing spelling homework. M13 added that “*kan mengaji lebih mustahak daripada ejaan dari sekolah makan*” (aren’t religious classes more important than spelling lists from play school?”); moreover, M17 as well as M18 reasoned that character development is far more important (Field Notes, 22 December 2013).

Seven parents namely M4, M5, M13, M17, M18, M27 and P39 sincerely thought it was all right that their children were lagging behind their peers in the English language classes; they rationalised and comforted themselves that their children would catch up when they entered formal schooling at Primary One in 1-2 years’ time. From their body language, they seemed to adopt a ‘lackadaisical approach’ to the literacy development of the children.

Six parents namely M7, M11, M12, M29, M30 and M36 admitted their children would return to the house and be home alone. They were resigned to having latch-key children and said “*apa yang boleh di-buat?*” (‘What can be done? I have no choice’).

Three parents namely M45, M46 and F1 admitted they spent little time with their children because of “exhaustion after a hard day’s work” (Field Notes, 28 February 2014).

One parent, M14 even recited a proverb as she highlighted the comparative importance of character education through religious classes: “*seperti buah padi, makin berisi, makin rendah; jangan seperti lalang, makin lama, makin tinggi*” or in English, “aspire to be like the stalk of paddy, the fuller it gets, the lower it bows (remain humble); don’t be like the *lalang*, the older it gets, the taller or more arrogant it gets, swaying from right to left” (Field Notes, 22 December 2013).

### **How can parents involve themselves?**

Parents could equip themselves with basic skills to help their own children develop learning skills. At an earlier session of the COS 2014 Debates, in response to questions raised by Member of Parliament (MP) Mr Lim Biow Chuan and Nominated MP Ms Tan Su Shan, former Education Minister Heng (2014) acknowledged that “indeed, the future environment will be more volatile, unpredictable and complex. The terrain our children will have to navigate will be more unfamiliar, with more unknowns” (para 8).

Former Education Minister Heng (2014) proposed that “we need to equip our students - not with a map with well-marked paths - rather, we need to equip them with a compass and navigation skills....so that each child has a sense of direction, a sense of right and wrong” (paras 9-10). In this way, our children shall grow with the ability to “analyse situations, apply what they know to solve problems, imagine and invent new possibilities, and chart their own paths. This means a strong foundation (is required) in core subjects, in numeracy and in literacy, including bilingual literacy” (paras 12-13).

Indeed, when it came to problem-solving, while the individual family's effort was important, it was also paramount that public policy supported such an approach so that schools would also recognise the family's efforts in preparing its children for school. In an Australian study, Dr Robyn Anderson suggested "a 'difference theory' (which was an attempt) to move explanations for some children's low levels of readiness for school, and their consequent lack of success at school, away from the child and the child's family to an increasing emphasis on schools and the wider community to prepare children for school" (Anderson, 2013, p. 265). This is why it is worth repeating the advice from Former Education Minister Heng (2014): "*we need to equip our students...*" (paras 9-10); the various ministries, government agencies and schools should be doing more to help these Malay parents equip themselves. This accentuated the importance and relevance of the ecological model advocated by Bronfenbrenner (2005) and especially the "macro-system" (p. 2).

Based on the following findings on parental involvement already listed in Chapter 4, we shall elaborate on a few key points in this chapter:

- profile of the 48 parents who were interviewed, in terms of gender, SES,
- parental involvement across 10 activities,
- the involvement of fathers,
- parents who said they could not teach,
- how single parents were involved with their preschool child, and
- contributions made by other care-givers such as grandmothers.

It was found that all 48 parents i.e. 100% were of a low SES and their median income lagged behind their counterparts as well as the national median, as earlier illustrated in Figure 4-4, causing parents to “take on another job, leaving little time for the child” (Field notes, 22 December 2013). Thus, Darling-Hammond’s (2010) warning that “... socio-economic background most affects student outcomes” should be heeded (n.p.).

In many ways, the findings from this case study could serve as a useful reference for the Singapore Government who has already acted upon findings from documentary analyses provided by various groups including and not limited to the *Suara Masyarakat* Committee Report (2013) which recorded that “while the (Malay) community has made good progress in ... education, ... there remains pertinent concerns facing the community as shown by other socio-economic indicators: Cost of living was an important issue for the community, followed by employment concerns and housing affordability, as per findings from the AMP perception survey in 2011” (p. 59).

One definitive response of the MSF was the new S\$20 million KidSTART initiative announced by its Minister Mr Tan Chuan-Jin during the annual COS Debate on 1<sup>st</sup> April 2016. The KidSTART initiative was “aimed at supporting low income and vulnerable children to enable them to have a ‘good start’ in life” (ChannelNewsAsia, 2016a). Addressing SES was key because as long as parents struggled to make ends meet and have had to juggle more than one job and work long hours, the time spent with their children would be less and less, and of a lower quality simply because malaise and exhaustion would have set in. It was thus not surprising that such parents struggling with SES issues found it hard to be involved in their children’s literacy development.

### Parental involvement across 10 activities

As reported in the preceding chapter, none of the parents were fiercely competitive with their other ethnic counterparts in getting private tuition for their child, inundating the child with one spelling list after another, buying assessment books for the child, enrolling the child in courses e.g. drama, discussed stories, etc.... unlike their Chinese counterparts. The latter were sometimes known as ‘Tiger Moms’ which was briefly discussed in Chapter 2 (Chua, 2011, p.249; Chong, 2012, p.1). The narrative analyses from the semi-structured interviews were informative because they uncovered the ‘whys’ or reasons for parental involvement, or lack thereof:

- Fathers F1 and F2 confided i.e. “*baru berusia lima sahaja, kenapa mesti belajar sangat?*” which is Malay for “the child is only 5 years old so why pressure him to study so much?”
- F1 and F2 further added that they “could not afford tuition or enrichment classes for their child” (Field Notes, 20 December 2013).
- F1 and F2 also advocated character development and they saw it fit that character is development through religious instruction (and religious classes).
- F1, like M14, nevertheless cautioned “*jangan seperti lalang, makin lama, makin tinggi*” or in English, “don’t be like the *lalang*, the older it gets, the taller or more arrogant it gets, swaying from right to left” (Field Notes, 20 December 2013). [The *lalang* is a type of tall grass that grows in the wild]

- F2 rationalised “*asalkan jujur dan bersopan*” - translated “as long as our child is honest and well-mannered, it’s all right” (Field Notes, 22 December 2013).
- Two other parents, M14 and M17 also gave similar quotes about the *lalang* and the need to emphasise character development.
- Findings that emerged from the narrative analyses were also insightful because “the gestures, pitch and tone of voice” provided more insights than words alone possibly could (Cortazzi, 1993, p. 110) because they showed the parents’ exasperation, displeasure, vehement feelings or unwavering decision.

### **Parental involvement makes a difference**

Parents needed to be involved in order to maximize the children’s potential for schooling. This view had also been validated by Anderson and Minke (2007) who asserted that parental involvement in children’s education is a strong predictor of students’ academic achievement and other positive school behaviours. Similarly, Blatchford (2010) found that parents who were actively involved with their children provided a high quality home learning environment, which in turn enhanced the intellectual as well as social development of the children. It was not just parental involvement that made a difference; how parents showed confidence in their child’s abilities was important too. After all, Zou et al (2013) observed that “of family variables contributing to children's school achievement, parent expectation was singled out by researchers to be the most salient and powerful force”. When parents nurtured their children in an environment that was positive and impressed upon their children

that great things were expected of them, not just in academics but also in character development, children became more aware of what they could achieve. Put in another way, children's development was also influenced by their upbringing.

### **The value of the interviews with the Malay children's grandmothers**

Besides the 48 parents who were interviewed, there were also 9 grandmothers who were interviewed. These 9 grandmothers (GM1-GM9) admitted they did not read to the children simply because they did not know how to ("*tak tahu lah*"). These grandmothers, however, did not participate in the full survey and interview.

While the focus of this case study was on parental involvement and the use of ICT, the interviews with grandmothers brought significant value to the case study because it served to corroborate some of the findings from different sources, and actually strengthened the study. For example, GM2 and GM9 confided that the fathers (of their respective grandchildren whose mothers were M7 and M36) were either "*dalam penjara*" or "*pusat pemulihan dadah*" meaning 'in jail' or 'in drug rehabilitation centre', respectively (Field notes, 20 December 2013). This also corroborated with the findings from earlier parental interviews in which two mothers namely M7 and M36 spoke about their difficulties as single parents, supporting their children especially when their respective spouses were seldom around. Such polite probing helped to uncover more about a case which might not have surfaced in a survey. Hence, the findings from the narrative analysis of interviews with grandparents validated some of the findings uncovered from the survey questionnaire and interviews with parents, held on different occasions or days.

From the survey, the findings graphically shown in Figure 4-10 in the preceding chapter underlined the inadequacy of grandmothers in developing the literacy level

of their children. The narrative analysis of the interviews with 9 grandmothers (GMs) provided more insights as it uncovered the following admissions from the various GMs:

- “*mak cik tak tahu lah*” which is Malay for ‘Auntie doesn’t know how to teach’ (GM2, GM4 and GM8)
- “*sibuk di dapur dan banyak ni nak kemas kemas*” which is Malay for ‘too busy in the kitchen and with household chores’ (GM7),
- “*tak mampu hantar cucu ke klas enrichment*” which is Malay for “could not afford tuition or enrichment classes for the child” (GM3)
- “*mak cik sudah tua, penat lah*” which is Malay for ‘aunt is getting old, tire easily and find it hard to keep up’ or words to this effect (GM1, GM2, GM3, GM4, GM5 and GM8).

(Field Notes, 22 December 2013).

### Parenting styles

In Chapter 2, we discussed the different parenting styles which was the focus of the third research question in this case study. All mothers interviewed said their parenting style was more “permissive” except M14, M16 and M26 who admitted they were more “authoritarian”.

Interestingly, upon closer examination of the survey questionnaire, it was found that these same 3 mothers were among the 5 parents (namely M14, M16, M19, M24 and M26) who earlier indicated they were involved in all ten parental involvement activities such as reading to the child, helping the child with spelling and word recognition, buying

assessment books for the child, enrolling the child in courses e.g. drama, discussing stories, staying up with the child to study, hiring tutors to help the child, and emphasising happy childhood instead of study. These 5 parents M14, M16, M19, M24 and M26 used similar words in describing how their involvement did not extend to being so fiercely competitive like ‘Tiger Moms’ who got private tuition for their child who was only of pre-school age, occupied the pre-school child with one spelling list after another, or pressured the child with assessment books.

Only one parent namely M16 admitted that she could identify with the ‘Tiger Mom’ parenting style discussed in Chapter 2 but M16 joked that she was probably not a “*harimau*” which is Malay for ‘Tiger’ but a *kuching* which is Malay for ‘cat’ (Field Notes, 22 December 2013). If a parent was authoritarian then she would have been rated as highly demanding (or high in ‘demanding-ness’) and low in responsiveness. On the other hand, if a parent was permissive then that parent would have been rated as highly responsive (or high in responsiveness) and low in ‘demanding-ness’.

In summary, from the narrative analyses of the interviews with parents, it was found that out of the 48 parents of Malay pre-schoolers in the case study, 3 were ‘authoritarian’ and 45 were ‘permissive’ in their parenting style (see Figure 5-4) as described according to the model adapted from Baumrind (1967) as well as Maccoby and Martin (1983).

More importantly, a better picture could be captured in terms of how the parent’s distinct parenting style might influence the child’s literacy development. By having a relaxed mood, a non-competitive spirit and a willingness to nurture their children at an unhurried pace, the Malay pre-schooler was brought up in a way that was free from the “hot-housing” Tiger Moms might be known for.

But to be fair to Professor Amy Chua, the author of the global best-seller, ‘Battle Hymn of the Tiger Mother’, Professor Chua herself cautioned that “hot-housed Asian-American children often feel like miserable instruments of their parents’ ambition” (The Telegraph, 2016, n.p.).

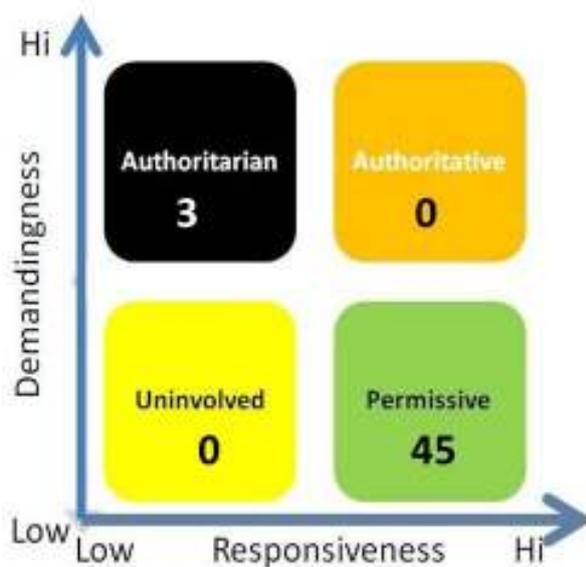


Figure 5-4. Parenting styles of 48 parents of Malay pre-schoolers in the case study

### Discussion of findings from interviews and narrative analyses

During the interviews, two parents namely M4 and M5 went further and admitted they were at their wits' end. M4 showed despair and said “*saya tak tahu apa yang boleh di-buat...*” meaning ‘I don’t know what can be done about this...’ while M5 acknowledged that her child was not doing so well but did not feel that it was urgent that the child knew so many words at such a young age (Field Notes, 22 December 2013).

M5 spoke in both English and Malay, but mostly in Malay: “*dia masih kecil, baharu berusia lima tahun*” meaning ‘he is still so young, only 5 years old’ (Field Notes, 22 December 2013). M5 explained that she was still trying to deal with the basics like putting food on the table (“*kan mesti cari makan, kan saya ni seorang sahaja yang memelihara anak*” meaning ‘I have to put food on the table, after all I’m the only one raising all the children, single-handedly’). This issue of single-parenthood came with other issues like financial problems, having to take on extra odd jobs to put food on the table, etc.

To sum up, the top two factors were parents’ feeling of inadequacy in coaching their pre-school children and single-parenthood; these were found in the survey findings as well as the findings from the narrative analyses. What emerged as a surprise finding was the importance parent placed on religious classes over and above pre-school (academic) work or literacy development in English.

### **Need to equip parents and enhance their parenting skills**

There was yet another interesting finding: seven parents namely M4, M5, M13, M17, M18, M27 and P39 sincerely thought it was all right that their children are lagging behind their peers in the English language classes. They rationalised and comforted themselves that their children would catch up upon entering formal schooling at Primary One in 1-2 years’ time. With such findings, it was no wonder that “over the last 5 years, around 12% to 14% of the children who entered Primary 1 (first grade) have very weak oral English and literacy skills....they were not able to recognize simple English words (or) understand very simple oral instructions in English” (Singapore Parliament Report, 2009, para 42). The following year, the Minister for Muslim Affairs Dr Yaacob Ibrahim suggested helping affected families with “parenting skills” (Yaacob, 2010, p. 3).

The above-mentioned issues were found in the survey questionnaire and they appeared again in the interviews and surfaced again in the documentary analysis of speeches made by Ministers and raised in Parliament by their parliamentary colleagues. Thus, when the data were triangulated across the survey questionnaire, narrative analysis (of interviews) and documentary analysis of media articles and Singapore Parliamentary Reports (Hansard), several common themes emerged. These themes threw some light on the literacy level of Singapore's Malay pre-schoolers. A pattern was seen and it also showed how Bronfenbrenner's ecological model of development (described in Figure 2-2 earlier) had been particularly relevant (Santrock, 2007, p. 45). This supported the findings from the documentary analysis of SPRs and Ministerial speeches that centred on the Singapore government's efforts to help Malay parents with parenting skills ..... through national programmes as pledged by PM Lee when he addressed AMP's Third National Convention in June 2012 (ChannelNewsAsia, 2012, p.1).

A documentary analysis also uncovered government measures to help affected families with "parenting skills" (Yaacob, 2010, p. 3). Dr Yaacob Ibrahim had also announced in August 2012 the formation of *Suara Musyawarah* Committee, an independent committee that engaged members of the Malay/Muslim community to uncover the Malay/Muslim community's main areas of interest and concerns, as well as future hopes and aspirations. The Committee's Report was published on 7 July 2013.

A documentary analysis of that report showed that both the report and this case study had common themes or critical factors namely SES, religious upbringing (and the related topic of religious fervour), little parental involvement (and the related topics of absent fathers, lack of role-models and single parenthood), and a shared responsibility among parents, school, teachers and society. These critical factors fall within the ecological model advocated by Bronfenbrenner (2005, p. 2)

### **Coaching skills and the challenges of parenting alone**

The second most prominent issue was raised by 15 parents (namely M1, M3, M6, M10, M15, M21, M23, M25, M28, M31, M34, M37, M38, M43 and M44) who spoke in a mixture of English and Malay, and confided they ‘did not feel equipped to teach the child’ or words to that effect (Field Notes, 22 December 2013).

The third most prominent issue came from 10 parents namely M2, M4, M5, M20, M22, M32, M33, M40, M41 and M42 who raised the issue of single-parenthood. Two of these parents (namely M4 and M5) went further and admitted they were at their wits’ end. M4 showed despair and said “*saya tak tahu apa yang boleh di-buat...*” meaning ‘I don’t know what can be done about this...’. This issue of single-parenthood came with other issues like financial problems, having to take on extra odd jobs to put food on the table, etc.

### **How parents viewed homework and character development**

It was also found that 8 parents namely M13, M14, M16, M17, M18, M19, M24 and M26 gave higher priority to attendance at religious classes compared to completing spelling homework. M13 added that “*kan mengaji lebih mustahak daripada ejaan dari sekolah makan*” (aren’t religious classes more important than spelling lists from play school?”); moreover, M17 and M18 also reasoned that character development is far more important (Field Notes, 22 December 2013).

Six parents namely M7, M11, M12, M29, M30 and M36 admitted their children would return to the house and be home alone. They were resigned to having latch-key children and said “*apa yang boleh di-buat?*” (‘What can be done? I have no choice’). Three parents namely M45, M46 and F1 admitted they spent little time with their children because of “exhaustion after a hard day’s work” (Field Notes, 28 February 2014).

### **Character development and religious upbringing**

Another topic, ‘religious upbringing’ had to be addressed in response to the fourth research question especially since parents who were interviewed had cited religion as a factor that was as important as academic study and enrichment programmes. However, at the national level, religion had been viewed as highly sensitive. After all, Lim (2014) cautioned that “if carried to extremes, this trend towards greater fervour in the propagation of religious beliefs can disrupt our traditional religious harmony and religious tolerance, which are prerequisites for life in Singapore” (p. 129). In fact, it was so sensitive that religious knowledge, implemented in secondary schools in 1984, was discontinued in 1989. Indeed, Mr Lim Siong Guan, the former Principal Private Secretary to Singapore’s founding PM and then retired Head of the Singapore Civil Service said that “the policy of compulsory religious education in upper secondary school, however, did not last” (Lim, 2014, p. 127).

Indeed, religion had been de-emphasised in the school curriculum as it had been evaluated to tend to divide students instead of to unify them. In a 12 February 2014 article entitled ‘Is religion a destructive and divisive force?’ which appeared in the local daily called The Straits Times, Musa (2012) pointed out the *tudung* (head-dress) issue that had resurfaced in Singapore, and how certain Muslim lobby groups were insisting on its use at the workplace and in mainstream schools. Musa (2012) further enquired if such practices could lead to “social fragmentation”, making religious rites and practices more pronounced and become a “possible threat to good inter-religious relations” (p. 42).

### **Religiosity or religious fervour**

As stated in Chapter 4, eight parents namely M13, M14, M16, M17, M18,

M19, M24 and M26 gave higher priority to attendance at religious classes compared to completing spelling homework. As captured in the Field Notes (22 December 2013), M13 vehemently added that “*kan mengaji lebih mustahak daripada ejaan dari sekolah makan*” (aren’t religious classes more important than spelling lists from play school?). The vehement way M13 stated her feelings came through clearly in the interview and this was what Cortazzi (1993) probably meant when he said that “the gestures, pitch and tone of voice” provided more insights than words alone possibly could (p. 110). Two other parents M17 and M18 also reasoned that character development was far more important (Field Notes, 22 December 2013).

### **Would religiosity promote harmony or hostility?**

According to Pew Research (2014), “one-third of the 198 countries studied had either a ‘very high’ or high’ score on Pew’s Social Hostilities Index (SHI), up from 20% in 2007”. To prevent such hostility from growing, the community must share the responsibility for social harmony and it was good to learn about living together in harmony from an early age.

Perhaps the words of the late Mr Lee Kuan Yew, Singapore’s first PM and known by many as Singapore’s founding father, were more enduring. He spoke of the danger of being “de-culturalised too quickly” (Lee, 2014, p. 85) and the need to have religion as an anchorage and used the metaphor of a ship at the stormy sea:

“I had a friend who was a Sikh. He threw his past away: he shaved his beard; he threw away his turban; he had a hair-cut. No harm at all. But something happened to him and in next to no time, he was doing foolish things. He lost his anchorage. You know, it gets very difficult for a ship without an anchor in a

harbour when it gets stormy. I want you therefore, to have your anchorage.” (Lee, 2014, p. 85)

It was evident that only time could tell whether religiosity would promote harmony or hostility. Meanwhile, such religiosity among Singaporean Muslims, who are mostly Malays, seemed set to grow. More importantly, what would be the repercussions, ramifications and results of such growing religiosity?

### **Growing religiosity in the region**

According to news.com.au (2014), Brunei “began phasing in a version of Sharia (Islamic criminal law) that allows for penalties such as amputation for theft and stoning for adultery” (n.p.). Citizens of Brunei could now “be fined or jailed by Islamic courts for offences like not performing Friday prayer” (news.com.au, 2014, n.p.). Brunei is a neighbouring country and both Singapore and Brunei have been maintaining close ties since Singapore’s independence in 1965.

The pressure to place a higher priority for religious classes among Muslims and especially children from a young age would appear to be more visible. The narratives from the interviews with parents supported this view. After all, the religion of Islam placed the onus on the Muslim parents to ensure that the children received religious instruction and adhere to the teachings of Islam. Would such growing religiosity serve as a help or hindrance to the literacy development of Malay pre-schoolers? Again, only time will tell.

### **Why Malay parents regard religious classes as more important than English literacy**

The late Mr Lee's point remained valid. After all, the teaching to have children educated in Islamic ways had been repeated many times in the Muslims' holy book and any non-compliance was not to be taken lightly. At this point it would be extremely important to highlight that Malay and Muslims are used interchangeably even though there are non-Malays who are also Muslims. Whatever their ethnic group (whether Indian or even Chinese), Muslim parents regarded themselves as responsible and accountable for the raising of their children as dedicated Muslims, according to the teachings of the Muslims' holy book known as the *Quran* and the Prophet's traditions. The Prophet (s) said:

*“Allah (SWT) will ask every caretaker about the people under his care, and the man will be asked about the people of his household” (Nasa’i, Abu Da’ud).*

Moreover, it was also taught that Muslim parents must conscientiously take an active role in the upbringing of their children. The Prophet Muhammad (s) said:

*“Every one of your (people) is responsible, and everyone is responsible for whatever falls under his responsibility. A man is like a shepherd of his own family, and he is responsible for them” (Bukhari and Muslim)*

The following Islamic teaching underlined the seriousness of any non-compliance:

*“Teach your children the prayer when they are seven, and beat them if they do not recite it when they are ten.”*

al-Albaani in *al-Irwa'* (247).

Indeed, the daily prayers remained the most important action in Islam, and it remained the duty of all parents to ensure that the children prayed properly and regularly.... so what more the weekly religious classes. To further elaborate on how serious these religious practices were considered, even today, the Singapore government (which is secular) allowed time off for weekly Friday prayers for its Muslim males studying in secondary schools, attending tertiary institutions or those working in the government service. They would be officially excused from the classrooms or office or meetings from about noon to 2.30 pm every Friday, giving them enough time to travel to the nearby mosque for an hour of prayer and have lunch before returning to school or the office.

### **De-emphasising religious knowledge as a school subject**

However, at the COS 2014 Debates in Parliament, Daipi (2014) highlighted that the currently-held MOE policy is that “it is not necessary to re-introduce Religious Knowledge as a separate subject” (para 16). This was in reply to a question raised by an Opposition MP, Mr Muhamad Faisal Abdul Manap who “spoke about re-introducing Religious Knowledge into our curriculum” (Daipi, 2014, para 16).

The 2 points must not be confused i.e. while religious upbringing has always been regarded as important (and it remained the responsibility of the child’s parents), religious knowledge as a school and examinable subject did not have to be re-introduced into the schools or introduced into the pre-schools as there had been enough exposure “to promote respect between people of different religious backgrounds” as we “leverage special occasions such as Deepavali, Good Friday and Racial Harmony Day to help students appreciate our multicultural and multi-religious Singapore” (Daipi, 2014, para 16).

**Religious classes and upbringing**

The completed questionnaire showed that parents had also indicated ‘religious classes’ as a parental involvement. This was a rather interesting finding and remained relevant; after all, the topic of religion was also related to two of the research questions, one on the parents’ distinct parenting styles and the other on the kind of impact that the child’s upbringing might have on his/her literacy development.

In this case study, it was found that parents had indicated their involvement with their children in religious classes for 3 hours per week but when probed further, it was found that these were outsourced to or taught by religious teachers i.e. the religious classes were not conducted by the parents. Should it therefore count as ‘parental involvement’ or more appropriately as parental influence? A case could be argued for the latter because the parents demonstrated an influence on how their children used their time e.g. in going to the library to participate in reading programmes or to attend religious classes. Nevertheless, based on interviews, it was found that religiosity figured frequently and highly in the interviews.

Findings from one of the books by the late Mr Lee Kuan Yew, ‘Lee Kuan Yew: Hard truths to keep Singapore going’ shall also be discussed. That book was not an ordinary book but more a document in which many public policies had been explained. One of these policies was on the growing religiosity of Muslims: “most of whom are Malay, (who) remained largely unchanged at 15%” of the population and how it has had an impact on the upbringing of the children (Lee, 2011, p. 219).

Through the documentary analysis of speeches of political leaders, it was also found that the late Mr Lee Kuan Yew had referred to Islam as a religion whose followers did

not integrate as well as their Chinese and Indian counterparts when he said:

“I have to speak candidly to be of value, but I do not want to offend the Muslim community... I would say, today, we can integrate all religions and races, except Islam.” (Lee, 2011, p. 228)

When asked what Muslims could do to integrate, the late Mr Lee offered:

“Be less strict on Islamic observances and say, ‘Okay, I’ll eat with you’.” (Lee, 2011, p. 229)

There was no doubt that the emphasis on religion had a bearing on the upbringing of the Malay preschool children because as much as 3 hours were spent on religious classes each week. Singapore’s first PM, the late Mr Lee Kuan Yew had “lamented the way some Muslims were moving towards a stricter observance of Islam” and he cautioned that “the change would inhibit social interaction between Muslims and non-Muslims” (Lee, 2011, p. 220).

A deeper study of the relevant documents including the book, ‘Lee Kuan Yew: Hard truths to keep Singapore going’ revealed another finding: Lee (2011) had been quick to add that “rising religiosity was a reality, not only among Muslims but also Christians and even Buddhists” (p. 224).

### **Religious upbringing and religious fervour**

While parents expressed the importance of school work and the Malay

preschool children's ability to read, it was found through the interviews that they made it clear that these must not be at the expense of religious classes and teachings. After all, 32 out of 48 parents or 75% insisted that attendance at religious classes was necessary. One parent M18 justified that "*kan klas agama satu petang seminggu sahaja*" which is Malay for 'religious class takes only one afternoon a week' and another parent, M17 insisted religion "is part of our lives" (Field Notes, 22 December 2013). This is consistent with the findings of a think-tank: "Islam is a very important and inseparable part of Muslims' lives" (Katehon, 2016, n.p.). These 42 parents or 87.5% of parents namely M1-M6, M8- M10, M13-M28, M31-M35, M37-M46, F1 and F2 gave a rating of '6' or '7' i.e. religious classes being very important.

The narrative analysis uncovered a factor that was repeatedly mentioned by the parents during the interviews. It had surfaced inconspicuously in the survey (in Question 11) in terms of how many hours the children attended religious classes each week but it was not glaring enough to arrest one's attention when examining the survey.

Uncovering religiosity as a factor might not be surprising, given that most Singaporean Malays, if not all, are also Muslims. What was surprising, however, was how so fervent they were about being Muslim that the late PM Mr Lee Kuan Yew remarked on a few occasions, "... today, we can integrate all religions and races, except Islam" (Lee, 2011, p. 228). Even for children of preschool age, this translated to more time set aside for religious classes than for learning their English words.

### **What teachers thought about religion and upbringing**

To illustrate how a statement was validated by other sources of data, triangulation was used. Triangulation made it possible for converging lines of inquiry based on quantitative as well as qualitative data from multiple sources of evidence (Yin, 2009).

The advantages of triangulation had been reviewed in Chapter 2 and seen in Chapter 4 when the findings were cross-checked and validated via the survey, narrative analysis (of interviews) and documentary analysis (of Reports and parliamentary speeches). To illustrate, the statements from interviews with three teachers (T13, T17 and T26) as well as data from the survey questionnaire had been captured in Table 4-2 earlier in Chapter 4, together with pertinent parts of a speech made by a political leader on the same topic of religiosity.

Teachers such as T13 emphasised character development and added that “religion must not be forgotten no matter what” and the late PM Mr Lee Kuan Yew highlighted that “We need to have religion as an anchorage” (Lee, 2014, p. 85).

### **What parents thought about religion and upbringing**

Malay/Muslim parents had insisted on their children spending more time on religious classes than spelling and related (pre)school-work. While the emphases on religious education and character development were expected among the Malay/Muslim community, what was somewhat surprising was how spontaneous and forthcoming the parents were in discussing religious education and how that should take precedence over the learning of the English language. Perhaps, more could be done to persuade parents that English was also important, and that their children could actually handle the learning of English too if given the encouragement. After all, these same children had demonstrated that they could read in *Jawi* which was also not their Mother Tongue.

To illustrate how parents felt about religion, it might be useful to discuss the testimony of a parent, M13: “Religion must not be forgotten no matter what; religion will keep my children on the straight path so they won’t be *crooked* (colloquial term for ‘becoming crooks’)” (Field Notes, 13 December 2013). Yet another parent, M14 seemed to

sum it up well: “it is not how tall the tree is but how straight it is” (Field Notes, 13 December 2013).

From the interviews, a general observation was that while these Malay parents considered education to be important, they felt that it was more important that their child also learned about *Allah* (God), showed respect to elders and demonstrated filial piety. This explained why they rated religious classes as very important, even more important than studying the spelling list each week.

Six (6) parents lamented that they were not able to be actively involved with their children’s (preschool) education because they had to hold more than one job in order to meet the expenses of raising their (latch-key) children. They rationalised that it was only pre-school and hence their children would have time to catch up when they entered formal schooling (i.e. primary school). In fact, they used a Malay term that showed how unimportant schooling was to them: “*sekolah makan*” which was Malay for ‘a school children attend to have snacks while passing time’ (Field Notes, 13 December 2013).

Interestingly, the remaining 13 of them or less than 30% gave a rating of ‘4’ out of 7, suggesting that they were somewhat sitting on the fence, not stating whether religious classes were very important or not important at all. On the other hand, there were also parents who demonstrated their strong feelings and beliefs about religion.

A British Broadcasting Corporation (BBC) report dated 11<sup>th</sup> February 2002 described how a few Muslim parents defied a Singapore government ban on their school-going children wearing the ‘*tudung*’ (the Muslim headscarf) to school; it also reported that “for devout Malay Muslims, the ‘*tudung*’, is obligatory once girls reached puberty, but some parents like to start the practice much earlier” as they deemed it fit to see that the religious upbringing was reflected in their attire and personal grooming (BBC News, 2002).

Singapore's PM in the 1990s, Mr Goh Chok Tong had announced the ban, cautioning that defying the ban would result in suspension for the students. Former PM Goh further explained that the observance of a certain dress code for schooling and the ban for non-compliance had been aimed at "promoting racial harmony in the city-state" (BBC News, 2002, n.p.).

It has been commonly understood that religious matters remained highly sensitive in multi-racial and multi-religious Singapore and that the authorities preferred to err on the side of caution when having to deal with the '*tudung*' issue. Suffice it to state that the suspension from school could be problematic especially for primary school children from 1<sup>st</sup> January 2003 because that was when the Compulsory Education Act (Chapter 51) came into effect. This Act provided "for compulsory primary education in Singapore and for matters connected therewith" and the relevant sections have been listed, as follows:

- (1) A child of compulsory school age who is -
  - (a) born after 1st January 1996;
  - (b) a citizen of Singapore; and
  - (c) residing in Singapore,
 shall attend regularly as a pupil at a national primary school.
- (2) Where a child of compulsory school age fails to attend regularly as a pupil at a national primary school as required under subsection (1), each parent of the child shall be guilty of an offence.

(Singapore Statutes Online, 2003, n.p.)

This chapter focused on religiosity because teachers and parents who were interviewed said that it has an impact in the way parents involved themselves in their child's development – whether moral development or literacy development. In fact, the documentary analysis also showed that it was so. By discussing the '*tudung*' issue, it could

be seen how religiosity was addressed and managed sensitively not just by the Malay/Muslim community but also by the government, heads of public service and the other ethnic groups.

### **Use of ICT to engage the children to improve their literacy**

The fifth and final research question focused on *how* the use of ICT by parents, teachers and children might engage the children to improve their literacy. Whereas a quantitative survey could suggest the possible effects of certain factors on the literacy gap of Malay pre-school children, the answers to the ‘why’ and ‘how’ questions could be less obvious. For example, how might policy be able to address the impact of critical success factors such as SES, teachers’ growing workload, use of ICT, religious upbringing, parental involvement and a shared responsibility among parents, school, teachers and society? How might we be able to address teachers’ growing workload such that teachers did not feel jaded and they would remain in the profession?

### **ICT should be harnessed, not avoided**

Since “ICT has shifted some amount of teaching and learning from ‘chalk and talk’ to ‘click and drop’”, we have not been able to avoid ICT in our day-to-day routines and the learning environment (Chong, 2012, p. 21). In fact, Parette, Quesenberry and Blum (2010) lamented a similar situation in America: “What is troubling about this is that we ... are still not focusing on the importance of teaching appropriate uses of technology in early childhood settings even though there are both national and international frameworks” (p.338). Parette et al (2010) argued that “truly what is needed is a change in attitude toward the use and application of technology in the classroom so that technology is seen as an integral component of developmentally appropriate practice for young children” (p. 339).

Siraj-Blatchford and Siraj-Blatchford (2006) suggested that instead of avoiding ICT, ICT could be harnessed to “support the development of positive dispositions towards learning” (p. 5). Indeed, the review of ICT implementations across various countries (briefly discussed in Chapter 2) reminded us how public policy could facilitate the use of ICT even in the early years. Indeed, the ICT implementations in Austria, Canada, Chile, China, Denmark, and South Korea served as good examples. While there were observed similarities among countries like Australia, Belgium, England, Hong Kong, Israel, Japan, New Zealand and Singapore where there were high rates of broadband connectivity in the primary as well as secondary schools, more could be done to promote the use of ICT as learning tools in the pre-schools in these countries.

In Chapter 2, there was also a discussion on Alberta’s ICT standards for teachers which actually formed a part of the Teaching Quality Standard (Alberta Education, 2010). We read that under these standards, teachers were required to use ICT to help meet student learning needs, and also meet teacher certification requirements, within the first 2 years of teaching (Andrews & Burdek, 2010). One might also recall how *Enlaces* (Chile’s ICT in education organization) had been implementing a national plan known as Technologies for a Quality Education or Plan Tec, since 2007. Plan Tec’s top objectives were closing the digital divide, increasing teachers’ ICT skills and developing new-generation digital resources, for children as young as in the preschool years. Then, in the city of Shanghai in China, in 2010, there were 1,252 kindergartens of which 396 or 32% were private ones, furnished with state-of-the-art ICT (Report Buyer, 2011).

While a case study like this allowed for a study of process indicators such as “quality of teacher-child interactions, kinds of learning experiences” (The Straits Times, 2013, p. D4), structural indicators such as supply of computers, learning resources and broadband connection must not be ignored. Hence, a computer-student ratio of 1:4 in Danish

kindergartens as observed and recorded by Højsholt-Poulsen (2010a), was significant. In 2007, this ratio for Denmark's grades K–9 made it a country with one of the highest computer-to-student ratios in Europe. Moreover, with Denmark's decentralized approach to education, programmes were more easily structured to encourage school-industry-community partnerships which brought about smooth development of ICT infrastructure. This was possibly why the Danish MOE (2010b) was able to report that in terms of Internet connectivity, 99% of schools enjoyed access to a wireless network.

The reality was funds were needed for infrastructure such as computers for pre-schools and where necessary, internet connectivity. Given that “Queensland teachers have identified a lack of professional development as a stumbling block to effective educational use of ICT,” Anderson and Baskin (2002) opined that it is unfortunate that “the lack of funds available made hardware acquisition a higher priority than professional development” (p. 128). Indeed, it was not just about infrastructure; it was also critical to provide teachers as much assistance as possible. In an earlier chapter, we raised the importance of the funding of ICT ambassadors, who could serve as teachers' mentors for the development of ICT competencies (Højsholt-Poulsen, 2010b).

### **Under-utilised mobile technologies**

What was also interesting was that ICT was never, not even once, mentioned by the parents during the interviews as a way to stay in touch with their preschool children, even though the technology was already prevalent and available in many parts of the world today as reviewed in Chapter 2. There are also many communication tools and applications today e.g. Viber, WhatsApp, Line and Skype, just to name a few; It was thus found that ICT was under-utilised as a communications tool or an education tool among parents of preschool children. Or was it because parents thought and felt their preschool child was too young to

use a phone? Indeed this has been a topic of hot debate – should ICT be introduced in the preschool years?

### **The hot debate about ICT in preschools**

There are many criticisms about the introduction and use of ICT in preschools, as stated in Chapter 2. In fact, it would be “entirely reasonable that many teachers should be sceptical in the absence of sound evidence that (ICT) is of proven value, or clear guidance as to what that value is” (McFarlane, 1997, p. 6). Moreover, any lack of pedagogical support for teachers could add to such scepticism (Beastall, 2008). After all, teachers made their feelings clearly known when they said that the very opportunities opened by ICT required more work in terms of individualizing lessons, matching software to curriculum, scheduling student computer time, monitoring use, providing assistance, troubleshooting (Chong, 2000a; Preston, Cox & Cox, 2000).

Silvernail and Lane (2004) recorded how teachers lamented the lack of time, opportunities, support and encouragement to become comfortable with ICT – and these were hygiene-motivation factors that were lacking (Herzberg, 1959). As stated earlier in the review of literature, in introducing ICT-literacy into preschools, we must be careful not to solve one problem and create another, especially given that “the sedentary nature of computer use is of public health concern” (Straker et al, 2006, p. 343). Indeed, the potentially damaging effects of poor ergonomics especially during prolonged sessions at the computer must not be under-estimated (Cordes & Miller, 2000).

Singapore’s MOE (2009) had also stressed that the use of ICT must not occur at the expense of the development of positive dispositions among preschool children e.g. “aesthetics and creative expression, the development of motor skills, environmental awareness, self and social awareness” (p. 16).

Academic and researchers might argue about the pluses and pitfalls associated with the use of ICT in the preschool classroom but in a 13<sup>th</sup> January 2017 Business Times article, a Singapore education group called Ednovation had been commended for providing quality preschool education by leveraging “pre-school education technology with an early childhood e-curriculum” (Cheok, 2017, p. 4). Ednovation, founded in 1991, has been operating more than 60 ICT-enabled pre-schools in Singapore, South-east Asia and China.

The NAEYC has provided the following principles to guide the use of technology and interactive media in early childhood programmes:

“Media should not harm children. The healthy cognitive, social, emotional, physical and linguistic development of the whole child is as important in the digital age as ever.”

NAEYC (2012b, n.p.)

In its ‘Technology and Young Children’ e-publication entitled “Effective Classroom Practice: Preschoolers and Kindergarteners”, the NAEYC (2012a) maintained that “during the preschool years, young children are developing a sense of initiative and creativity. They are curious about the world around them and about learning. They are exploring their ability to create and communicate using a variety of media (crayons, felt-tip markers, paints and other art materials, blocks, dramatic play materials, miniature life figures) and through creative movement, singing, dancing, and using their bodies to represent ideas and experiences. Digital technologies provide one more outlet for them to demonstrate their creativity and learning”. In short, NAEYC advocated the use of ICT as long as it was used as an education tool to bring about learning and to enhance creativity. NAEYC (2012b) went a few steps further by listing the following recommendations which could be found in its “Position Statement on the use of Technology and Interactive Media in preschools” published in January 2012 (n.p.)

- Allow children to freely explore touch screens loaded with a wide variety of developmentally appropriate interactive media experiences that are well designed and enhance feelings of success.
- Provide opportunities for children to begin to explore and feel comfortable using “traditional” mouse and keyboard computers to use websites or look up answers with a search engine.
- Capture photos of block buildings or artwork that children have created; videotape dramatic play to replay for children.
- Celebrate children’s accomplishments with digital media displayed on a digital projector or on a classroom Website.
- Incorporate assistive technologies as appropriate for children with special needs and/or developmental delays.
- Record children’s stories about their drawings or their play; make digital audio or video files to document their progress.
- Explore digital storytelling with children. Co-create digital books with photos of the children’s play or work; attach digital audio files with the child as the narrator

(NAEYC, 2012a, n.p.).

Moreover, “when used intentionally and appropriately, technology and interactive media are effective tools to support learning and development” (NAEYC, 2012, n.p.). However, a cautionary word was also necessary: “Limitations on the use of technology and media are important. . . .special considerations must be given to the use of technology with infants and toddlers” (NAEYC, 2012, n.p.).

According to NAEYC (2012), this implied that “ECCE teachers and administrators need to have “information and resources regarding the nature of these (ICT) tools and the implications of their use with children” (n.p.).

In a debate, we would have differing viewpoints and solid arguments from the skeptics and the advocates. Researchers should not be too quick to embrace one group’s view and dismiss the views of the other. After all, “often people who resist have something important to tell us...they may see alternatives we never dreamed of” (Maurer, 1996, p. 49). Thus, we should heed Maurer’s (1996) advice to go “beyond the wall of resistance” (p. 54). Moreover, Claxton (1997) reasoned that “recent scientific evidence shows convincingly that the more patient, less deliberate modes are particularly suited to making sense of situations that are intricate, shadowy, or ill-defined” (p. 3).

Sometimes the resistance might come from the parents instead. This could be because in an examination-oriented culture such as in Singapore, even pre-schoolers had not been spared the extra hours of ‘drill-and-kill’ tuition classes and enrichment classes to make them more school-ready. This phenomenon of ‘hot-housing’ prevailed despite the warning that “there is a cost to pushing children to spend the bulk of their time cramming for school” (Business Times Weekend, 2010, pp.20-21).

Indeed, it was possible that there were parents who rushed their children from one enrichment centre to another, “conjuring images of ‘Tiger Moms’.... in the light of the growing literature on parental involvement and its impact on child development” (Chong, 2012, p. 1). Interestingly, in this particular case study of Malay-pre-school children, there were no Tiger Moms among the Malay parents. There was only one case of a parent namely M16 who admitted she was at most, a *kuching* (Malay for ‘cat’)! (Field Notes, 22 December 2013).

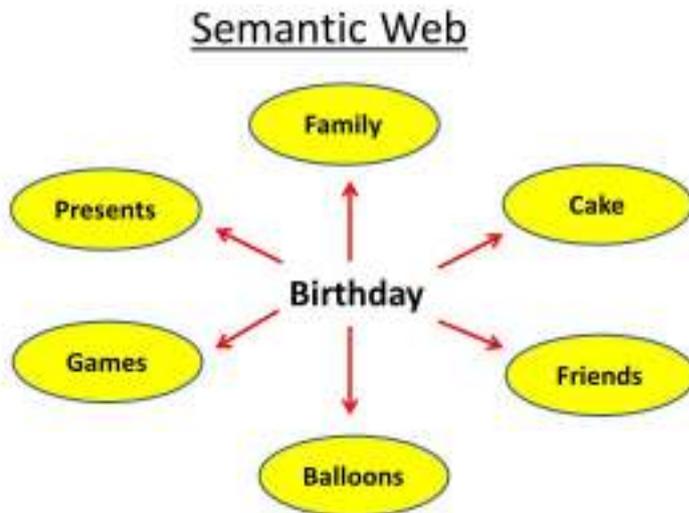
Even though the NAEYC has listed ways for ICT to be incorporated in the preschool curriculum and learning environment, policy-makers and teachers should nevertheless be very aware of the dangers and harmful effects as earlier discussed in the review of the literature. These cautionary notes should be worth repeating:

- In promoting the use of computers, we might solve one problem and create yet another, especially given that “the sedentary nature of computer use is of public health concern” (Straker et al, 2006, p. 343);
- Beware the potentially damaging effects of poor ergonomics especially during prolonged sessions at the computer must not be under-estimated (Cordes & Miller, 2000); and
- The use of ICT must not occur at the expense of the development of positive dispositions among preschool children e.g. “aesthetics and creative expression, the development of motor skills, environmental awareness, self and social awareness” (MOE, 2009, p. 16).

### **ICT-mediated scaffolds**

In a study with older students, Chung, Anderson, Leong and Choy (2014) encouraged the use of “ICT-mediated scaffold via collaborative mind maps” (p. 46). Similarly, pre-schoolers might be encouraged to form their semantic webs and mind-maps to engage the children better by inviting the children to talk about things they would have at a birthday party. The children would then even explain why they would have games and balloons (Figure 5-5). Such a teaching practice was supported by Cohen and Spenciner

(2011) who encouraged that “teachers should avoid teaching sight words by themselves or in isolation” (p. 365).



**Figure 5-5. A Semantic Web to help pre-schoolers build more words**

In this way, the children would not merely memorise a list of words but would communicate how each word was related to the next. They would present their words in the form of a dialogue, thereby practising the language. Such a classroom practice would reflect the learning of the English literacy in a sociocultural context instead of learning English through “a set of language mechanics with fixed ways of using the language; isolated from its communicative use” (Normazidah Che Musa, Koo, Y. L & Hazita Azman, 2012, n.p.).

### **Use of ICT to improve children’s literacy development**

In the preceding chapter, it was already reported that the survey findings revealed that 31 teachers who were asked about the way they used ICT to enhance the children’s literacy development, stated their appreciation for teaching resources such as

computers, smart-boards and a suite of learning videos and CD-ROMs. However, 19 teachers namely T1, T7, T13, T15, T21, T22, T23, T24, T25, T26, T28, T32, T33, T34, T36, T41, T42, T43 and T45 or 61% said they “have very little time for ICT-based lessons as we have other things to finish” (Field notes, 20 December 2013). Five teachers namely T2, T8, T20, T27 and T29 spoke about being extremely busy and having to multi-task. But the survey could not tell us why the teachers felt this way. This is where the interviews filled the gap and helped us gain a fuller understanding of the issue of how the use of ICT might be able to improve children’s literacy development.

Indeed, the interviews provided more insights as to the ‘why’ they were extremely busy – T2, T8, T20, T27 and T29 were the ones who were assessed to be very capable and thus were given more responsibilities at the preschool and they were also reported to be ICT-ready, demonstrating that they were able to use ICT to enhance children’s learning (Field Notes, 13 December 2013). Thus, using a mixed method, i.e. studying quantitative data as well as qualitative data helped to provide a fuller picture of the case. In short, parents were not keeping up with ICT and teachers need to be provided time to harness ICT to make their lessons engaging.

As stated in Chapter 2 as well as Chapter 4, ICT was “not a panacea for better teaching and learning outcomes” although it might still be able to serve as “a catalyst to other elements of school reform” (Anderson and Baskin, 2002, p. 126). Nevertheless, Anderson (2005) cautioned that “school-based uses of new technologies might actually exacerbate the educational disadvantage of already disadvantaged social groups - particularly, learners from low SES populations” (p. 1). After all, minority, poor and urban students might not enjoy as much access to computers for higher-order learning than their economically and socially advantaged peers. Furthermore, they might not “have teachers who have received professional development on technology use” (Anderson, 2005, p. 1).

Today teachers had the choice of using computer tablets, the Apple iPads or computer laptops. Falba, Grove, Anderson and Putney (2001) asserted that “laptops are powerful instructional tools for student learning” (p. 2). Thus, it was quite fitting that Anderson (2009) reminded that “the potent use of ICT is the way that computers are used and the interaction of the participants through the available software and associated educational activities” (p. 4).

Indeed, it was timely to take a fresh perspective of the issue of integrating ICT in preschool learning curriculum and learning environments. Chong, Anderson and Anderson (2015) strongly recommended getting “the ostrich’s head out of the sand”, as it were, so as to appropriately leverage ICT to engage both learners and teachers (p.3). Indeed, the need for fresh perspectives and good public policy could not be over-emphasised. Bronfenbrenner (1990) explained it rather well, as follows:

“The effective functioning of child-rearing processes in the family and other child settings requires public policies and practices that provide place, time, stability, status, recognition, belief systems, customs, and actions in support of child-rearing activities ...” (p. 37).

In the review of the literature in Chapter 2, we scanned the globe for ICT implementations and read how out of 14 countries, only 6 such as Austria, Canada, Chile, China, Denmark and South Korea had an ICT Plan that covered ECCE; this was because at the national level, their governments had made a deliberate effort to start ICT upstream, in the preschools.

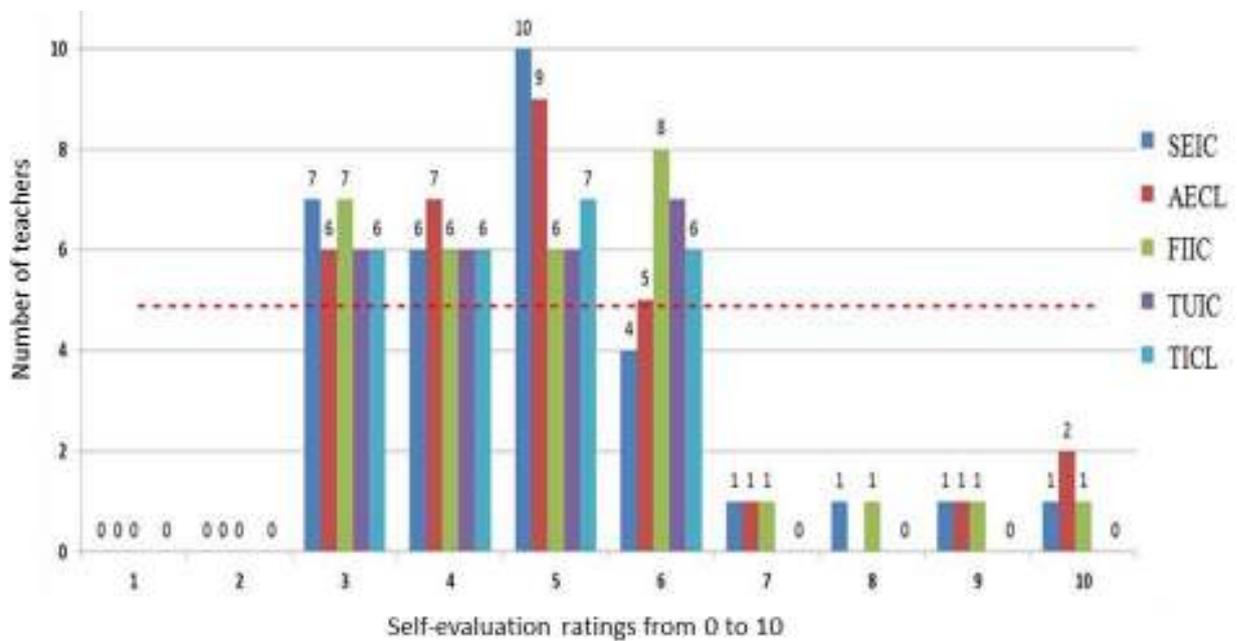
**ICT-readiness of teachers**

The findings recorded in the preceding chapter showed that younger teachers had given themselves a higher rating for ICT-readiness i.e. they were confident and competent in using ICT. It was also found that they self-reported that they were more confident and competent than their colleagues who had taught for more years. After all, they themselves had used ICT since they were in primary (elementary) school in the late 1990s when MOE's IT Master Plan was launched. Their ICT-readiness mean scores of 3.74, 4.5 and 5.04 over 3 years of this case study compared to older teachers' corresponding scores of 2.11, 2.49 and 2.87, had been recorded in Figure 4-15.

To gain a better understanding of the ICT-readiness of preschool teachers, the survey responses of 5 preschool teachers were plotted onto a radar chart for closer examination. These were illustrated in Chapter 4. The 5 aspects of ICT-readiness formed a 5-sided shape, a pentagon. These 5 aspects are the teacher's self-evaluation of ICT competence on using ICT as an education tool (SEIC), the teacher's ability to enthuse children to learn with ICT (AECL); the teacher's own feelings about infusing ICT into the curriculum (FIIC); the teacher's use of ICT with their children (TUIC), and the teachers' ability to influence their preschool children's parents to use ICT in their child's learning (TICL). The larger the pentagon, the more ICT-ready that teacher was.

Based on the findings shown in Table 4-3, Figure 5-5 is produced to show the self-evaluation ratings of teachers in terms of SEIC, AECL, FIIC, TUIC and TICL. Figure 5-6

showed that only 4 teachers gave themselves high rating of 10 – 1 for SEIC, 2 for AECL and 1 for FIIC. This meant that one teacher felt that she was competent in using ICT as an education tool (SEIC), 2 teachers were confident of their ability to enthuse children to learn with ICT (AECL), and 1 teacher felt that she could infuse ICT into the curriculum (FIIC).



**Figure 5-6. Teacher ratings in terms of SEIC, AECL, FIIC, TUIC and TICL.**

The red dotted line across the bar graph showed that most of the teachers gave low ICT-readiness ratings of 3, 4 and 5; 23 out of 31 teachers for SEIC, 22 out of 31 teachers for AECL, 19 out of 31 teachers for FIIC, 18 out of 25 teachers for TUIC and 19 out of 25 teachers for TUCL. This meant that out of 31 teachers, 74% said they rated low for SEIC, 71% said they rated low for AECL, 61% said they rated low for FIIC, 72% said they rated low for TUIC, and 76% said they rated low for TUCL.

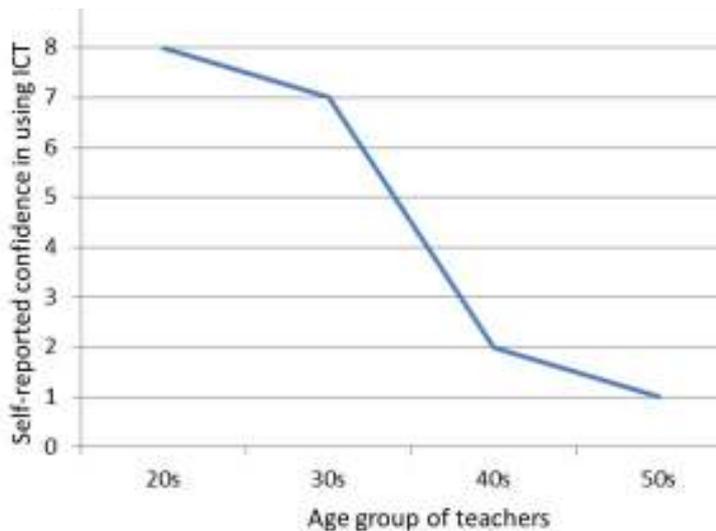
A key question was whether the pre-school children would be gravely disadvantaged if their preschool teacher was not ICT-ready. NAEYC's position might be

instructive: “the healthy cognitive, social, emotional, physical and linguistic development of the whole child is as important in the digital age as ever” (NAEYC, 2012, n.p.). Indeed, there were other aspects of a child’s development that were important, besides being and becoming adept at using ICT. Suffice it to reiterate that while ICT was not a panacea for a child’s literacy development, it remained an effective tool to support learning and development.

Anderson (2005) cited “how minority, poor and urban students may be less likely to receive exposure to computers for higher-order learning than their economically and socially advantaged peers” (p. 1). However, it could be argued that neither ICT-ready teachers nor access to ICT or the Internet was the only solution. This was why it was quite fitting that Anderson (2009) reminded and explained that “a key factor in the potent use of ICT is the way that computers are used and the interaction of the participants through the available software and associated educational activities” (p. 4).

In the book entitled “Teaching and Digital Technologies”, a contemporary resource for primary and secondary pre-service and in-service teachers as well as early childhood professionals, Henderson and Romeo (2015) called for a clearer understanding of why one “should (or should not) use digital technologies, when it is appropriate (or not), and the implications arising from these decisions”.

In trying to make the link between ICT use and children’s literacy development, the use of ICT was more deeply examined and the narratives by the teachers were analysed. Hence, teachers were also interviewed and the findings from the narrative analysis were listed in the preceding chapter. It was found that younger teachers self-reported more confidence in using ICT with the preschool children. This was found from the survey with teachers and the finding is simplified in Figure 5-7 below.



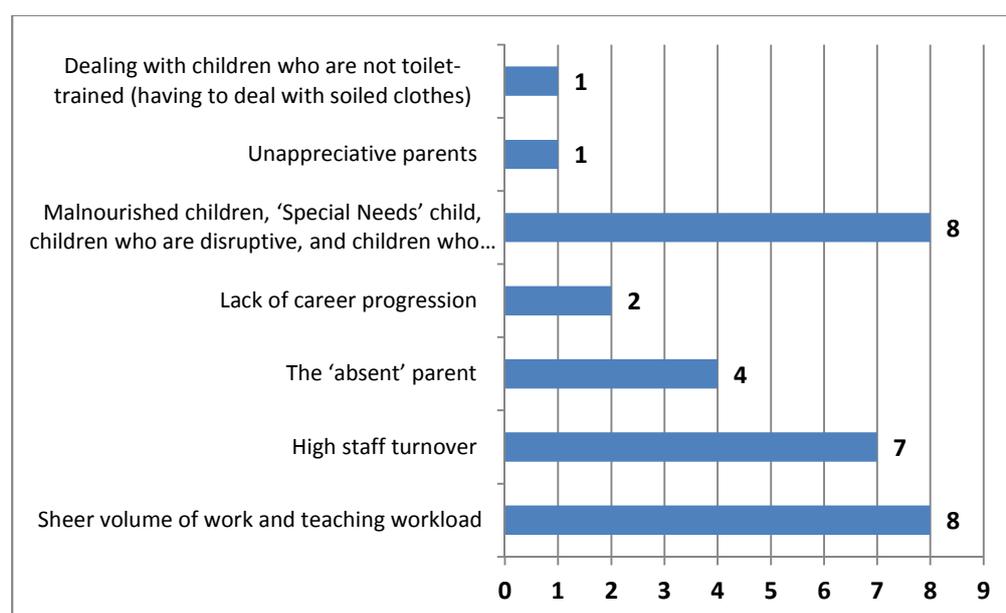
**Figure 5-7. ICT-readiness of teachers by age**

As pointed out by Anderson and Baskin (2002), “as online learning moves from the domain of distance education to encompass all modes of educational delivery, future research needs to be targeted towards a thorough examination of teacher readiness and the effectiveness of teacher professional development” (p. 136). Hajhashemi, Anderson, Jackson, and Caltabiano (2014) also observed that “Internet and networked technologies have expanded delivery mode opportunities in education” (p. 1).

But things were not that simple. So this was where a qualitative research method like a narrative analysis helped us uncover that such self-reported confidence in using ICT was not because of age, *per se*. In fact, growing older did not make the teachers lose confidence. Rather, it was because ICT literacy grew in a big way in Singapore in the late 1990s; hence, those in primary and secondary schools at that time grew up using ICT every week and later on, every day in their school routines. After all, the IT Master Plan was launched 19 years ago, in 1998 across all Singapore schools, as discussed in the review of the literature in Chapter 2. Hence, it should not be surprising that teachers in their 20s and 30s are more ICT-savvy since they grew up with ICT, throughout their schooling years.

The narrative analysis of interviews with teachers uncovered the following

testimonies: Teacher T5 explained that “it’s so recent that I used ICT tools in my studies so of course I am confident of using ICT in my life and my work as a teacher” while T4 added that “using ICT is so natural for me. Young people like me grew up with technology” (Field notes, 3 March 2014). From the teacher interviews, it was found that 7 predominant issues had been raised by the teachers repeatedly. These issues had been summarised in Table 4-4 in the preceding chapter, and presented in another way, illustrated below in Figure 5-8.



**Figure 5-8. Challenging predominant issues faced by teachers**

All 7 predominant issues related to “hygiene factors” (Herzberg, 1959) and not so much related to salaries. The top two issues were very related to each other namely ‘Sheer volume of work and teaching workload’ and ‘high turnover rate’; a total of 15 out of 31 teachers citing these as their predominant issues. These 15 teachers were T1, T2, T3, T7, T8, T12, T13, T14, T15, T18, T19, T22, T25, T27 and T29.

Consistent with the theories of Frederick Herzberg, “people are motivated, instead, by interesting work, challenge, and increasing responsibility.... intrinsic factors (which) answer people’s deep-seated need for growth and achievement” (Harvard Business

Review, 1987, pp. 109-110). Herzberg (1959) also coined the term 'job enrichment', a technique which grew out of the hygiene-motivation theory. In his famous Harvard Business Review article entitled 'One more time: how do you motivate employees?' which was published in 1968 and re-published in 1987, personnel practices were explained in terms of wage increases, fringe benefits and job participation and as short-term measures to instil motivation. "Hygiene factors" include supervision, working relationships, status, security, company policy and administration (Chartered Management Institute, 2012, n.p.).

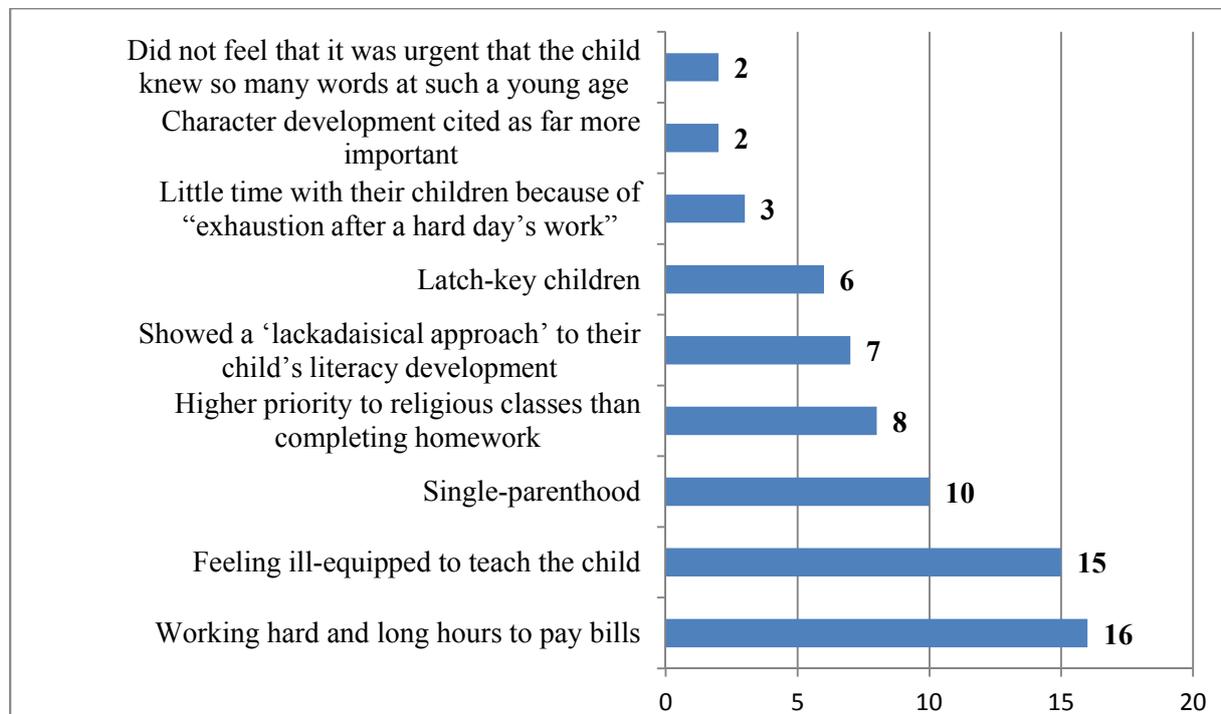
Based on interviews with teachers, these findings on hygiene-motivation factors were important in informing public policies which attempted to retain talent and keep competent and caring teachers in the preschools so that the best professionals were in the service of developing the children in their formative years. The advantage of an interview was that we could gather and record more information than what was written in a survey questionnaire, and we could also find out the reasons for a certain feedback or response. It was thus found that one particular teacher namely T19 wanted to "throw in the towel" as she never signed up for a kindergarten job "dealing with children who are not toilet-trained (and having to deal with soiled clothes)" (Field Notes, 28 February 2014).

As stated at the beginning of this chapter, the survey and narrative analyses provided a fuller picture. The analysis of the documents provided that third 'leg' of triangulation: It showed the Singapore government's quick response to the twin-problem of high staff turnover and lack of career progression. It took no less than the office of the (new)

Minister for MSF, Mr Tan Chuan-Jin to address this nagging problem. On 4<sup>th</sup> May 2016, Mr Tan handed out to the first batch of 138 pre-school teachers under ECDA's Professional Development Programme, appointment letters that came with cash awards of up to \$12,000 each, to "help them progress in their careers and take on larger roles" (The Straits Times, 2016). This was reported in a newspaper article dated 5<sup>th</sup> May 2016, with the headline "Pre-school teachers get leg-up on career ladder" (The Straits Times, 2016).

While the focus of this case study was on parental involvement and the use of ICT, the interviews with teachers were useful because they helped to corroborate the findings from different sources, and actually strengthened the study, besides providing insights to the literacy level of the preschool children as already illustrated in Figure 4-11.

From the survey questionnaire completed by 48 parents, 9 challenging issues were identified, and these were listed earlier in this chapter, in Table 5-3 and also in the following bar-chart in Figure 5-9.



**Figure 5-9. Nine challenging issues raised by parents**

Figure 5-9 showed that the most frequently cited issue raised by 16 parents (namely M2, M4, M5, M7, M8, M9, M20, M22, M32, M33, M35, M36, M40, M41, M42 and F2) was the issue of having to work hard and long hours in order to pay the bills.

### **The issue of parents having to work long hours**

One parent, F2 lamented, “*terpaksa kerja keras dan sepanjang hari. Kalau tidak, bagaimana nak bayar bil-bil semua ini?*” which is Malay for ‘forced to work very hard and for long hours. Otherwise how can I settle all these bills?’ M5 explained that she was still trying to deal with the basics like putting food on the table (“*kan mesti cari makan, kan saya ni seorang sahaja yang memelihara anak*” meaning ‘I have to put food on the table; after all I’m the only one raising all the children, single-handedly’). Five other parents namely M7, M8, M9, M35 and M36 made similar remarks. Ten single parents namely M2, M4, M5, M20, M22, M32, M33, M40, M41 and M42 also felt the same way, and confided during the interviews that they just had to earn enough money to make ends meet (Field Notes, 22 December 2013). Financial challenges and SES issues featured often enough for PM Lee (2012b) to urge the Malay community “to continue to focus on improving the socio-economic performance of the community” (para 12).

Dr Yaacob Ibrahim had also announced in August 2012 the formation of *Suara Musyawarah* Committee, an independent committee that engaged members of the Malay/Muslim community to uncover the Malay/Muslim community’s main areas of interest as well as “gather feedback on the community’s thoughts, concerns and aspirations” (*Suara Musyawarah*, 2013, p. 8). The Committee’s Report was published on 7 July 2013.

Besides the issue of subsistence, the documentary analysis of that Report showed that both the Report and this case study had the following common themes or critical factors:

- SES,
- religious upbringing (and the related topic of religious fervour),
- little parental involvement (and the related topics of absent fathers and single parenthood), and
- a shared responsibility among parents, school, teachers and the community.

The first three points have been discussed earlier so that would lead to the final point for discussion namely the importance of shared responsibility among stakeholders such as the parents, school, teachers and the community. By ‘community’, we mean more than just the Malay community but also the larger community comprising all races or ethnic groups.

### **A shared responsibility among parents, school, teachers and the community**

Daipi (2012) emphasised the role parents played “in providing a supportive environment for our children to learn”; he added that “communities can support and enrich learning in many ways” and that “partnerships augment the school efforts to meet the developmental needs of every student placed in their care” (n. p.). With the participation of leading education companies such as Ednovation, even parents without the requisite training might be able to work alongside their children on phonics and reading e-activities, and enjoy them together with their children (Ednovation, 2014).

At the recent COS 2014 Debates in Parliament, former Education Minister Heng (2014) highlighted that “we want to bring out the best in every child, in every domain, in every school, at every stage of the learning journey, whatever the starting point. To achieve this, we have to do it in partnership with the community” (para 164). Heng (2014) added that “as the old adage goes: it takes a village to raise a child” (para 165). Indeed, at the same COS 2014 Debates, SPS Mr Hawazi Daipi reiterated that “parents and the community have a huge role to play, whether in inculcating the right values in our children, teaching our children to embrace diversity in our multicultural, multi-religious Singapore, or helping our children learn beyond the classroom. To bring out the best in every child, we are committed to continue harnessing the energy of parents and the community” (Daipi, 2014, para 28).

Daipi (2014), as co-Chairman of the Community of Parents in Support of Schools or more popularly known as ‘COMPASS’, related what he observed at the COMPASS Forum Theatre, a platform that “MOE has put in place to engage a wide spectrum of parents deeply and meaningfully.... an interactive drama to spark off discussions on parenting styles through the role-playing of different parent-child scenarios... (where) parents reflect on their role and parenting style” (Daipi, 2014, para 3).

Mr Hawazi Daipi also urged stakeholders to work together to achieve common desired outcomes (Daipi, 2012, n. p.). Moreover, PM Lee appealed, “...we need a much broader involvement – parents, alumni, the community, all coming together to support our schools” (Lee, 2011, n.p.).

In a study on aborigines in Queensland, Australia, McGinty (2002) had encouraged researchers to look at (factors) “such as community development, at partnerships, and at the role of government and the role of the non-government sector in the development of learning communities”...and to seriously consider “a more collaborative approach to its policy production and implementation” instead of “a ‘top-down’ approach” (p. 65).

### **More play and less homework**

From the narrative analysis, ‘voices’ calling for more play and less homework were heard. In fact, the gestures, pitch and tone of voice provided more insights (Cortazzi, 1993, p. 110) as they showed parents’ exasperation and displeasure with the way their children were allegedly being hot-housed, meaning they were being “pushed into learning more quickly and earlier than is appropriate for their cognitive age” (Bainbridge, 2012, n.p.). Perhaps, more could be done in studying how Austria had implemented game-based learning as an increasingly important mode of educational ICT, as reviewed in the earlier chapters.

Moreover, LEGO had also introduced online game-based learning in the form of LEGO Minifigures Online, a massively multiplayer online game released in December 2014. The game allowed players to play as the various characters from a certain theme. It also incorporated elements from classic LEGO themes such as castle and space and also involves new themes like mythology (LEGO, 2014).

### **An under-optimised strategy called ‘play’**

Another interesting finding was on the topic of ‘play’ of which Chong (2011) noted “is an under-optimised strategy for engaged learning” (p. 37). In fact, play had become such an important approach in pre-school learning that the MOE (2013) announced “a curriculum with a Singaporean flavour — with an emphasis on the learning of languages and opportunities to learn through play” (n.p.).

In a 4<sup>th</sup> April 2016 article of The Straits Times (Annex 10), Dr Robyn Anderson, a lecturer in Early Childhood and Education at James Cook University in Singapore gave her views on the importance of play: “Play engages children’s attention in

authentic, hands-on tasks. It offers choice and a challenge that is within a child's capacity to master in a stress-free environment" (The Straits Times, 2016, p.B12). Dr Anderson added that "during play, ideas and skills become meaningful tools that are practised" (The Straits Times, 2016, p. B12).

In his NDR speech in 2012, PM Lee advocated play when he said that "It is good for young children to play and to learn through play." Much had been written about the merits of purposeful play in Chapter 2 (Chong, 2011; Siraj-Blatchford & Siraj-Blatchford, 2006).

Indeed the Singapore MOE has been promoting purposeful play where teachers intentionally plan the play experiences and organise the environment to enhance learning, aligned with MOE's curriculum framework for kindergartens. Moreover, research by Canadian researchers McCain, Mustard and Shanker (2007) has shown that between birth and the age of three, positive experiences, such as those gained through play, are crucial for "developing neural pathways in the young child's brain" (p. 1). Hence, it should not be surprising that "countries with successful long-term educational outcomes such as Finland and Canada have employed the play-based approach" (The Straits Times, 2016, n.p.).

In The Straits Times article dated 12<sup>th</sup> January 2017, play was again highlighted as an innovative teaching method such that "a classroom might be turned into a restaurant, so pupils can practise language and mathematics skills through designing the menu and role-playing" (Davie, 2017, page A3). In a more recent article dated 19<sup>th</sup> January,

The Straits Times (2017) reported the ground-breaking ceremony for a kindergarten within the Sengkang Riverside Park, in partnership with a statutory board, National Parks so as “to enhance learning and developmental opportunities for children (who) can easily participate in physical and outdoor activities. This enhances their well-being and development, and also nurtures their appreciation for nature from a young age” (ECDA, 2017, para 4).

There were also 'aha' moments that arose from the interviews, e.g. when at least 2 parents spoke of their children's new interests in reading primarily because their children's teacher had put in place a good practice of having 'lap-times' at the beginning and end of the day. These were times when the children in the pre-school took turns to sit on the teacher's lap to read a Big Book to the class. Children, inevitably, associated reading to something “nice, warm and full of love” (Field Notes, 3 March 2014). How much of such insights would surface in a quantitative survey was unclear but the case study with the narrative analysis helped to uncover such best practices happening in our pre-schools. Hence, the case study could offer a perspective of a situation and be supported by well-written field notes describing a phenomenon in a way that was more detailed and rich in insights – all of which might not have surfaced in a survey alone.

The findings from the analysis of documents such as parliamentary speeches and media articles on the innovative use of play attested to the importance of play in an effective pre-school curriculum e.g. how ICT enabled children to pretend their classroom was a supermarket or a travel agency, as described earlier in this chapter as well as in previous chapters, in line with MOE's iTeach Principles which encouraged children to learn in purposeful play (MOE, 2012).

### **Addressing inequality of income**

While it remained important to discuss play as a way to engage pre-school children and to promote their literacy development, it was also important to address SES and the ways to address the inequality of income that troubled the Malay families in this case study. We read how the findings in this case study on Malay pre-school children showed them lagging behind their peers of other ethnic groups, in terms of literacy development. In fact, the Singapore Parliament Report (2009) recorded that “they were not able to recognize simple English words (or) understand very simple oral instructions in English” (para 42). Nevertheless, in a speech on 27 June 2012, Minister Shanmugaratnam (2012) urged that we ensured “disadvantages must not be passed on to our children” (n.p.).

This was consistent with what Darling-Hammond (2010a) highlighted i.e. that “inequality has an enormous influence on US performance; in her study, White and Asian students score just above the average for the European OECD nations in each subject area, but African-American and Hispanic students score so much lower that the national average plummets to the bottom tier” (Darling-Hammond, 2010a, p. 1).

One significant organisation that has been diligently addressing inequality of income and providing preschool opportunities to preschool children from the bottom tier or low income families is the PCF. It has been catering to the poorest of the poor in spite of how hard that work has been. Indeed, PCF has been investing in the professional development of its teaching staff so as to have well-trained teachers to help develop the preschool children who enroll in its 250 kindergarten centres and 100 childcare centres located across the island city-state of Singapore.

A 14<sup>th</sup> February 2016 newspaper article entitled “More preschoolers diagnosed with developmental issues”, an early intervention programme called ‘Early Intervention Programme for Infants and Children’ or EIPIC’ was discussed. In that article, it was reported that “PCF said more than seven in 10 of its centres have the programme, with plans for expansion. It added that after PCF “hired 20 learning-support educators to detect children with at-risk or mild development needs, there has been an increase of over 20 per cent of K1 and K2 kids placed under its Development Support Programme (DSP) over the past year.” (TODAY, 2016, p.1). To those who might not know much about PCF, it would not be difficult to do the math: a typical PCF centre catered to an average of 120 kindergarten children. The kindergarten classes (i.e. K1 and K2) formed two-thirds of the centre i.e. 80 children as there is another level called the Nursery level. Thus, an increase of 20% of kindergarten children under DSP implied about 16 children enrolled in EIPIC per centre. Seven in 10 centres meant 175 centres because there are altogether 250 kindergarten centres under PCF. So a ball-park figure for the number of children under the EIPC programme would be 16 x 175 or 2,800 newly-enrolled EIPIC children over the past year alone. If 2,800 constitute 20% then its total EIPIC enrolment is about 14,000 which is 35% of the total population of infants, toddlers and kindergarten children attending PCF centres. Such numbers should not be surprising as PCF, a large charity established and operated by the ruling political party, has a social and meaningful mission of catering to the lowest income group for many years. How could PCF (or Singapore, for that matter) cater to so many children? This showed how ICT might be and must be leveraged to enhance learning, at the child’s own pace. This was also where we could learn from IBM’s KidSmart programme implemented in kindergartens in many countries including Italy, Spain, Germany, France and Portugal - where results (already posted in Table 2-1 earlier) had been impactful.

### **How parents rationalised**

M5 acknowledged that her child was not doing so well but did not feel that it was urgent that the child knew so many words at such a young age. M5 actually spoke in Malay and she said, “*dia masih kecil, baharu berusia lima tahun*” meaning ‘he is still so young, only 5 years old’ (Field Notes, 22 December 2013). When probed further, M5 explained that she was still trying to deal with the basics like putting food on the table (“*kan mesti cari makan, kan saya ni seorang sahaja yang memelihara anak*” meaning ‘I have to put food on the table; after all I’m the only one raising all the children, single-handedly’).

Seven parents namely M4, M5, M13, M17, M18, M27 and P39 sincerely thought it was all right that their children were lagging behind their peers in the English language classes; they rationalised and comforted themselves that their children would catch up when they entered formal schooling at Primary One in 1-2 years’ time.

### **Many factors influence the child’s literacy development**

The findings showed that there were many factors that influence the literacy development of the Malay pre-schooler. Bronfenbrenner’s “ecological model of development” which was discussed extensively in Chapters 2 and 4, is instructive (Santrock, 2007, p. 45). By focusing on parental involvement and the use of ICT, a more thorough investigation was launched and it uncovered that until and unless the basics like SES, engaging preschool curriculum, clever use of ICT as education tools, talent (teacher) retention and hygiene factors to motivate teachers were addressed, little in terms of enhancing a child’s level of literacy development would be achieved.

This accentuated the need to address these issues which had been highlighted by PM Mr Lee, Minister for Muslim Affairs Dr Yaacob Ibrahim and past as well as the current Education Ministers. As explained by SMS Rajah (2014), “that’s why we put in a lot

of effort and resources to uplift the quality of pre-school education, including the quality of pre-school teachers, the pre-school curriculum; and the pre-school pedagogy” (para 57).

A shared responsibility among parents, school, teachers and society should lead to “quality of teacher-child interactions, kinds of learning experiences, peer relations, and the nature of home-school partnerships” or what had been termed as “process indicators” which remained more difficult to measure than “structural indicators such as adult-child ratio, teacher qualifications, class size, physical space and availability of resources” (The Straits Times, 2013, p. D4). Suffice it to highlight that compared to quantitative research methods, the case study method lent itself better in measuring process indicators.

### **Motivating and retaining teachers in the pre-school sector**

More changes and improvements have been introduced: Minister Chan Chun Sing of MSF outlined the Singapore Government’s plan to enhance scholarships and training awards for the Early Childhood sector today. According to ECDA (2013a), “the changes will provide more support for new and existing early childhood educators and help operators better attract, develop and retain their staff”, with a total of US\$25 million (S\$30 million) to be spent over the next 3 years on these efforts (n.p.). Indeed, more have been done for teachers; after all, teaching remained a demanding profession. The late Mr Lee Kuan Yew described the teaching profession quite aptly:

“If I have to choose one profession in which you give the most for the least it is probably teaching – if you take it seriously.

You have to have the temperament for it to coax, to stimulate, to cajole, to discipline a young mind into good habits. You must have an aptitude”. (Lee, 2014, p. 150)

Unfortunately, teachers' salaries remained low. In fact, in a newspaper report dated 9<sup>th</sup> May, 2016, the President of the non-profit organisation called Association of Women for Action and Research or AWARE, lamented the brutal reality in income inequality: "If you look at pre-school teachers and nurses, they are paid much less than, say, a bank officer who shuffles paper. How did we arrive at this? Well, we have a system that values competition much more than caregiving" (The Straits Times, 2016c, n.p.).

### **The Curriculum**

ECDA (2013b) articulated the importance of reading with understanding and for enjoyment which meant that the children should be able to "have print and book awareness, recognise upper and lower case letters of the alphabet, recognise beginning and ending sounds in words, recognise familiar/sight/high frequency words, and show understanding of the story/rhyme/poem by responding to questions and talking about the characters and events". Yunkaporta and Lowe (2012) reported "while many teachers will continue as they have in the past, to provide students with these learning experiences, this should surely be supported by an explicit, high-quality curriculum" (p. 12).

Former Education Minister Heng (2014) assured Parliament during the recent COS 2014 Debates that "at each stage, a child learns what is appropriate for that age, and builds the basics for the next stage. To make learning meaningful, each stage needs to be rigorous, well-designed and appropriate for the development of the child. At pre-school, our children develop socio-emotional skills through play, and acquire the basics of numeracy and bilingual literacy" (paras 68-69).

At the same COS 2014 Debates, SMS Indranee explained that "the curriculum, teaching and learning resources in MOE kindergartens (MKs) are based on the belief and principles reflected in the refreshed Nurturing Early Learners (NEL) Framework

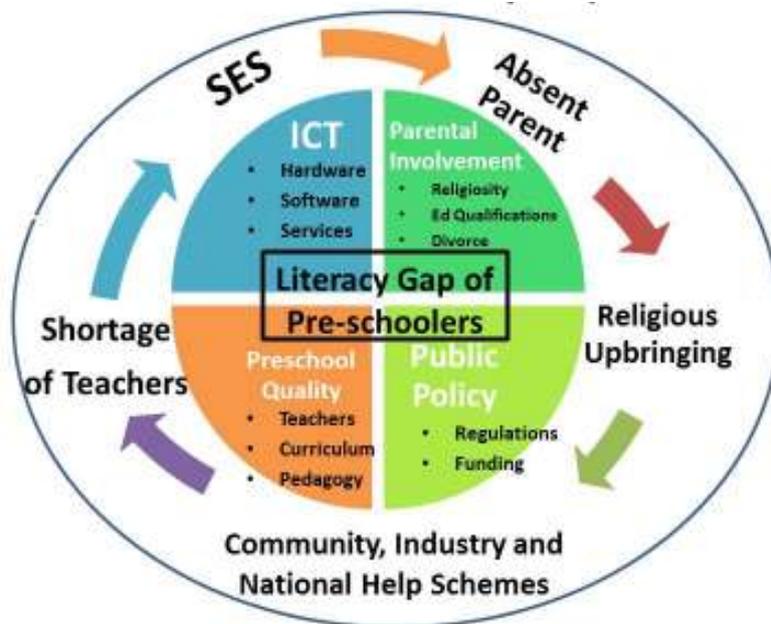
for a quality kindergarten curriculum” (para 64). SMS Indranee also highlighted that “MOE’s underlying philosophy is about teaching children to learn, and to discover the joy of learning. The MKs offer a curriculum with a distinct Singapore flavour to allow children to learn in an authentic context” (para 65). The curriculum focused on the “holistic development of children in six learning areas: Aesthetics and Creative Expression, Discovery of the World, Language and Literacy, Motor Skills Development, Numeracy, and Social and Emotional Development” (Rajah, 2014, para 66).

According to ECDA (2013b), the Refreshed Curriculum Framework is aimed at providing “guidelines for holistic pre-school education ... based on internationally-recognised ECE principles (and) strongly recommended for use by pre-school centres”. Based on iTeach principles illustrated in Figure 5-10 below, teachers had been listed as facilitators of learning and not dispensers of knowledge (ECDA, 2013b). In this way, they would be better positioned to “focus on the art of leading and nurturing the children in the development of higher-order thinking (HOT) skills, such as analysis and discussion” (Chong, 2012a, p. 21).



**Figure 5-10: iTeach Principles (MOE, 2012)**

Based on the above discussion of critical success factors in developing the literacy development of a pre-school child, a graphical representation had been hereby produced (Figure 5-11).



**Figure 5-11. Interplay of Critical Success Factors to address Literacy Gap**

### Tackling deficit logic

Another possible topic worth discussing was the influence of the media in highlighting how Malays perhaps “*tak boleh*” (Malay term for “cannot make it”). This was implied in a news report entitled ‘Malays *boleh*’ (Sunday Times, 6 March 2011, HOME p. 10). It was thus necessary for teachers to “set aside deficit logic” (Yunkaporta & McGinty, 2009, p. 55). Indeed, in studies involving Australian aborigines (and Malays are aborigines in this South-East Asian region), more could and should be done to “unpack and reject this deficit logic” and to remind stakeholders to be careful in how “low expectations were communicated informally through the curriculum, the school design and the organisational structure” (Yunkaporta & McGinty, 2009, p. 70).

**The Malay language as ‘Mother Tongue’ and the “national language”**

The Malay language belonged to the Malayo-Polynesian branch of the Austronesian language family. In Malaysia, Malay is the mother tongue of the Malay ethnic group and the second language of the Chinese and Tamil ethnic groups (Asmah 1976). In Singapore, however, Malay remained the second language or ‘Mother Tongue’ language in school for ethnic Malays but the “national language” for all Singaporeans, as stated in Chapter 153A(2) of the Constitution of Singapore (1965, n.p.).

One of the key benefits of using a data triangulation chart as illustrated in Table 5-1 and Table 5-2 above was that the researcher would be able to quickly examine the issues and provide appropriate analysis in order to answer the research questions. One such recommendation and policy change remained unchanged i.e. to have more ASC places. This is not new; in fact, it had been re-visited and now taken more seriously especially in the light of more data and parents asking for such services. The simple fact remained: there has been more demand for ASC places than there had been vacancies. The monthly fees for kindergarten classes (which lasted for 3 hours a week-day) was only \$110 compared to the monthly fees of \$856 for full-day child care (\$556 after a \$300 subsidy for working mothers; non-working mothers qualify for a monthly subsidy of only \$150). The difference of \$446 per child was significant especially when the combined household income was only \$1200 a month to support 2 or 3 children of preschool age. This explained how and why such families had no choice but to have latch-key children. The monthly fees of \$856 for full-day child care were still beyond the reach of these families even though it was reported that the median fee for full-day childcare had fallen – by \$44 (The Straits Times, 2016b). This was also how the Government had taken steps to support such families even more and the new S\$20 million KidSTART initiative was one such policy measure (ChannelNewsAsia, 2016a).

This KidSTART grant was above and beyond the child-care subsidy for working as well as non-working mothers (MCYS, 2011).

Although this case study focused on the influence of ICT and parental involvement on the literacy development of Malay preschoolers, when it was found that factors such as affordable child-care services and child-care subsidies were needed, it became necessary to discuss and consider a systems approach to solving the problems and bridging the literacy gap. This was why it became increasingly important to make on-going references to Bronfenbrenner's ecological model of development.

### **Conclusion**

In Chapter 2, we referred to parental involvement as a 'catalyst' as well as a 'fixative' (Bronfenbrenner, 1972) because it could remedy or fix a situation e.g. the child could not read or sight words. Yet, many parents were found to be involved very little with their preschool children, in their literacy development. As mentioned in the conclusion of the preceding chapter, the key finding from this study was eye-opening: low SES Malay parents did not have high expectations of their children's education, and did not actively involve themselves in associated activities. This did not necessarily mean that they did not care. Rather, from interviews, we found that these parents had to struggle with day-to-day issues like putting food on the table and making ends meet.

Besides, it was found that 15 parents reported that they felt inadequate in helping their children with their pre-school work whether it was reading to their child a story or even completing simple worksheets. We discussed how these explained Ministers and parliamentarians' concern about the literacy level of Malay pre-school children.

Unfortunately, not enough literature is out there to throw any light on the dilemmas confronting the indigenous Malays. Indeed, like what Watts (1982), a researcher of Indigenous Studies ventured, “poor practices are rarely reported publicly” (p. 59).

This also explained why parliamentarians in their desire to address the literacy level of the Malay preschool children voted for more investments upstream i.e. at the pre-school level to mind the (literacy) gap, as early as possible. Thus, former Education Minister Dr Ng had recommended that “for better results, we believe that we should be working upstream” i.e. at the pre-school level (Singapore Parliament Reports, 2009, para 42).

Such investments could take the form of KidSTART, full-day child care subsidies for working and non-working mothers, financial assistance even for single parents (which was something new in Singapore), talent retention programme to manage staff attrition, innovative pedagogy for Malay pre-school children, and the use of appropriate ICT training for pre-school children.

Chong, Anderson and Anderson (2015) suggested a re-look at “how to address the recruitment and retention of preschool teachers, the on-going professional development of teachers, the engagement with industry partners who may be able to facilitate the integration of computers in preschools, how the curriculum may be re-worked to exploit ICT use to bring about engaged learning, how public policy may help parents support their children in embracing emerging literacies, and how teachers may be supported as they enhance teaching and learning with computers” (pp. 30-31).

Another key point of discussion has to be the need to make good child-care service affordable and accessible. This remained an important topic for public policy and

implementation. Findings like the helplessness of parents in finding affordable childcare service and being left with no choice but to leave their young children home alone have to be addressed; a public policy could be sharpened or revised and implemented to address such a troubling issue. The new S\$20 million KidSTART initiative is one such policy (ChannelNewsAsia, 2016).

Moreover, McGinty (2002) reminded us that “while the demand for change emerges from civil society, it is also apparent that there are other drivers; information technology not being the least of these” (p. 70). We certainly could do more with ICT. Just because swords were double-edged should not mean we should avoid them altogether. Similarly, ICT was often viewed as double-edged. The NAEYC recommendations should be seriously considered as Singapore preschools considered how ICT could be a strong lever to promote the literacy development of Malay pre-school children.

In the next and final chapter, recommendations shall be discussed and these shall centre on the need to address the shortage of preschool teachers (recruitment), talent retention, how to tap on industry partners as part of a larger programme in community capacity building and how we might be able to help parents (especially single mothers who worked long hours) become more involved in their children’s reading and literacy development.

## Chapter 6

### CONCLUSION

“The shrewd guess, the fertile hypothesis,  
the courageous leap to a tentative conclusion –  
these are the most valuable coins of the thinker at work”  
(Jerome Bruner)

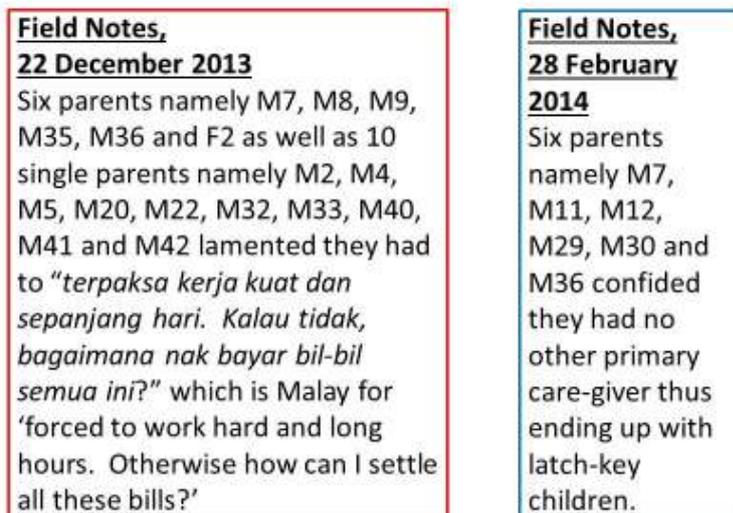
#### Fertile hypothesis

Throughout this doctoral thesis, I tried to remain focused on the twin core topics of parental involvement and ICT, and the fertile hypothesis that they have an influence on the literacy level of Singapore’s Malay pre-school children. It has already been discussed in the preceding chapters that there were *many other* factors that influenced the literacy level of Singapore’s Malay pre-schoolers, as illustrated in Figure 5-11.

As detailed in the earlier chapters, these factors included and were not limited to SES of the indigenous Malays, divorce rates among them, early marriages, pregnancies of young Malay women, the ‘absent’ father in the Malay family, their cultural and religious beliefs (Singapore Parliamentary Report, 2009, para 42; Yaacob, 2010, p. 3). For instance, the factor of divorce rates was important because single-parent families meant that only one parent remained involved in the child’s development including literacy development.

It has also already been reported in the daily newspapers in Singapore and then discussed in the earlier chapters that nationally, for Muslim marriages registered in 2003, 14% of Muslim marriages compared to 5.1% of non-Muslim marriages, were ending their marriages before their 5<sup>th</sup> anniversary; money woes and lack of interpersonal skills have been cited as the leading causes of break-ups among poorly educated couples (The Straits Times, 2015, p. A3). Out of the 48 parents interviewed, ten parents (namely M2, M4, M5, M20, M22, M32, M33, M40, M41 and M42) ranked the issue of single-parenthood as the second most challenging.

The most challenging issue, however, was parents' inadequacy to equip their children, as professed by 15 parents namely M1, M3, M6, M10, M15, M21, M23, M25, M28, M31, M34, M37, M38, M43 and M44 who also confided they "did not feel equipped to teach the child" or in words with similar meaning (Field Notes, 22 December 2013). The following Field Notes in Figure 6-1 showed that child-care arrangements are a necessity for these Malay families.



**Figure 6-1. Field Notes suggesting the necessity for child-care arrangements.**

It was also found that 8 parents namely M13, M14, M16, M17, M18, M19, M24 and M26 gave higher priority to attendance at religious classes compared to completing spelling homework. M13 added that "*kan mengaji lebih mustahak daripada ejaan dari sekolah makan*" (aren't religious classes more important than spelling lists from play school?").

Moreover, M17 as well as M18 reasoned that character development was far more important than learning to read at such an early age in preschool (Field Notes, 22 December 2013) despite the notion that character development and reading proficiency as early as in the preschool years were not necessarily mutually exclusive.

Due to the constraints of this doctoral thesis and for practical reasons, the main focus of this thesis has been confined to parental involvement and ICT. One shrewd guess was that all the above-mentioned factors were important.

### **The contrarian view**

Suffice it to state, however, it would take a courageous leap to be a contrarian and hypothesise that parental involvement did *not* help promote a child's literacy development. This, however, proved to be so when parliamentary documents and the narratives from the interviews under this case study showed that many Malay parents themselves needed help with parenting skills and other necessary skills to help their children learn to read and recognise words (Singapore Parliamentary Report, 2009, para 42). In other words, children's literacy development is not helped when their parents were involved because these parents were found to be ill-equipped.

Singapore's Minister for Muslim Affairs, Dr Yaacob Ibrahim had admitted in one of his parliamentary speeches that "the issue of low-income families trapped in multiple problems ... is not a new issue" (Ibrahim, 2010, p.2). In fact, in his opening address at the *MENDAKI* Congress on education on 29<sup>th</sup> May, 1982, then-PM Mr Lee Kuan Yew in highlighting how much more the Malay community had to do, announced "... the importance of performance in examinations has become part of the culture of Chinese. The Indians too are keenly aware of the importance of studies and examinations as the road to success ..." and these words suggested the Malays have yet to embrace such values (Lim, 2009, p. 187).

The fact that the Malays needed help was also reflected in the speech of PM Lee Hsien Loong to Singapore's Muslim professionals at their 3<sup>rd</sup> National Convention in 2012 or 30 years later, in which he encouraged the Malay community "to continue to focus on improving the socio-economic performance of the community. The key to this is the

fundamentals - education, strong families, and financial skills. You get those right, everything else will follow” (Lee, 2012b, para 12). Put simply (or bluntly), parental involvement would *not* help if the parents were not able to help their children in the first place, and unless parents themselves were equipped with employability, financial and parenting skills.

The following Field Notes in Figure 6-2 suggested that even when involved, Malay parents (mothers) felt inadequate in helping their children with their pre-school work. All 9 grandmothers (GM1-GM9) who were interviewed admitted they did not read to the children simply because they “*tak tahu lah*” (translated, ‘did not know how to’).

|  |  |
|--|--|
| <p><b>Field Notes,</b><br/><b>13 December 2013</b><br/>15 parents namely M1, M3, M6, M10, M15, M21, M23, M25, M28, M31, M34, M37, M38, M43 and M44 reported that they felt inadequate in helping their children with their pre-school work whether it was reading to their child a story or even completing simple worksheets.</p> | <p><b>Field Notes,</b><br/><b>13 December 2013</b><br/>Moreover, even primary care-givers like grandmother GM4 just did not know how to help the preschool child when she admitted that “<i>mak cik tak tahu lah</i>” which is Malay for ‘Auntie doesn’t know how to teach’.</p> |
|--|--|

**Figure 6-2. Field Notes suggesting Malay parents’ feeling of inadequacy in helping their children.**

In the rest of this chapter, before summarising the answers to the research questions, we shall examine the following points: the fertile hypothesis, the contrarian view, Bronfenbrenner’s theoretical framework, the role of teachers, training and curriculum resources in the micro-system, the importance of the exosystem, the importance of the macrosystem and religious beliefs, minding the literacy gap from as early as the preschool years, character development being ranked high in Malay parents’ priority list, the need to

address the literacy gap upstream, leveraging ICT even from as early as preschool, leveraging ICT in a purposeful play learning environment, support for parents to be more equipped, ICT and parental involvement as success factors, the usefulness of the case study method, religiosity as a lifestyle, whether religiosity divides or unites, indigenous issues, what the indigenous Malays are really like, the need to engage every stakeholder, and the importance of industry partnership.

### **Bronfenbrenner's theoretical framework**

Bronfenbrenner's theoretical framework and ecological model of development shown in Figure 2-1, effectively illustrated the critical success factors of the Malay preschool children's literacy development in terms of the microsystems (the immediate surroundings which affected the children e.g. family, school, peers, the classroom), the mesosystem (i.e. the inter-relationships between the microsystems comprising family, peers, neighbourhood, school ), the exosystem (settings in terms of the legal services, social welfare services and the mass media which the children and their families may have little control over), the macrosystem (culture and religious teachings), and the chronosystem e.g. socio-historical conditions over time (Santrock, 2007, p. 45).

The importance of industry participation and contribution emerged from the global scan of ICT implementations from which we learned that South Korea and Israel had private companies investing funds into the development of ICT-readiness of students, and for South Korea, the investment was in support of students from as early as their pre-school years.

**The role of teachers, training and curriculum resources in the micro-system**

The role of the teachers could not be over-emphasised; in fact, one Education Minister after another (of Singapore) had lauded teachers for their critical role in nurturing children in their sensitive years: Deputy PM (DPM) Teo Chee Hean who was formerly an Education Minister had highlighted that “good teachers are key to everything we do because education is a completely human enterprise” (MOE, 2001, p. 1)

To optimise learning, ICT should be harnessed to enhance learning especially in a preschool classroom where a teacher had to attend to as many as 25 kindergarten children with different learning styles and reading proficiency levels. Currently, there has been no specialist training for preschool teachers handling a preschool class of diverse learners. Such a preschool class comprised children who spoke English as a second language, as a foreign language, and/or are even speakers of ‘Singlish’, a colloquial form of the English language. The challenges have been real; after all, what would happen if the pre-school teacher did not know the mother tongue of the child? At the very least, shouldn’t there be a systematic series of just-in-time, bite-sized in-service training for the pre-school teachers to learn and apply ways of collaborating with other mother tongue teachers in the preschool and to involve parents? Many of such bite-sized training could be delivered online and were thus suitable for parents who were too busy to attend classes (Harvard University, 2016).

Another real challenge was funding, or the lack of it. When there was a lack of funds, Anderson and Baskin (2002) observed that professional development took a back-seat and it became “a stumbling block to effective educational use of ICT” and “hardware acquisition (became) a higher priority than professional development” (p. 128).

To leverage ICT, the pre-school teachers ought to be trained in using ICT as a teaching and learning tool. Unlike the training of primary and secondary school teachers

which was undertaken by the National Institute of Education, the training of pre-school teachers has been carried out mostly by private training agencies. Even though these private training agencies were supervised and accredited by a government body such as ECDA, their training quality was, at best, uneven. A central curriculum, however, would help to even out the quality of instruction. This explained why many welcomed PM Lee's announcement at the NDR 2017 speech on 20<sup>th</sup> August 2017 that the Singapore Government had decided to set up the National Institute of Early Childhood Development or the NIEC (Prime Minister's Office, 2017, n.p.). This idea of the NIEC was one of the recommendations submitted as long ago as July 2009 to the Singapore Cabinet of Ministers by the REACH Policy Study Group of which this researcher was a member (The Straits Times, 2009, n.p.). It is understandable that recommendations required time to implement; moreover, such recommendations required a sizeable budget and raising the funds took time. Furthermore, there were more pressing matters such as the dire shortage of preschool centres and qualified teachers to be addressed within a limited budget.

In a 30<sup>th</sup> September 2016 speech at the SPARK Certificate Presentation Ceremony, Parliamentary Secretary (PS) for Education Ms Low Yen Ling related how the MOE has since 2013 been "progressively sharing the Nurturing Early Learners or NEL Curriculum (which) ... encompasses a range of resources that comprises a Framework, an Educators' Guide and teaching and learning resources" (MOE, 2016, para 12). PS Ms Low added that from 2017, MOE "will make available NEL Teaching and Learning Resources in the form of the NEL Big Books (which) .... are tailored to support the children's development of language and literacy skills" (MOE, 2016, para 13).

Such curriculum resources have been especially helpful to children enrolled in the FLAiR class which was the pre-school equivalent of the very established LSP classes already entrenched in the primary schools system in Singapore.

But calls for more upstream efforts and earlier interventions specifically the FLAiR classes are slow in coming, due partly to the shortage of trained language specialists and costs. While there have been no official reports on the extensiveness of FLAiR classes in preschools, as a former HQ staff of a large preschool operator running 360 preschools, I had observed that less than 3% or 40 out of Singapore's 1500 preschools run the FLAiR programme in their preschool centres (Field Notes, 28<sup>th</sup> February 2014).

### **Importance of the exosystem**

Wrapping around the core of “microsystem” was the “exosystem” building blocks which represented employment of the parents, legal services, social welfare services, and the mass media (Bronfenbrenner, 2005, pp. 264-266). From the survey as well as the interviews, employment surfaced as critical. Without a steady job, those unemployed parents would have to seek odd-jobs to support their families. In their effort to make ends meet, it was recorded from the interviews with M5, M7, M8, M12, M29, M35 and F2 that they had to take on multiple poor paying jobs; this meant less time with their pre-school children and their development (including literacy development). Findings stated in chapter 4 were discussed and these findings revealed that such parents found themselves being little involved with their children.

Social welfare services have been found to be especially helpful to families of low SES. The targeted financial aid often helped the family to meet their basic needs of food, shelter and clothing. Different forms of aid through such services have also been supplemented by support from private sector companies and even churches (Marsiling Matters newsletter, 2017, p. 9).

### **Importance of the macrosystem and religious beliefs**

The “macrosystem” building blocks represented cultural beliefs, religious beliefs, value system of the Malay community and the common practices of the Malay community. One such belief has to do with the encouragement of the community for couples to have as many children as they could afford. Thus it should not be surprising to find that “the resident total fertility rate (TFR) is the highest for the Malays” ... at 1.79 which is far more than the average TFR rate of 1.24 for the Singaporean family, based on 2015 figures (ChannelNewsAsia, 2016e, n.p.).

Religiosity emerged repeatedly in the survey and the narrative analysis. With converging lines of inquiry and triangulation based on quantitative as well as qualitative data from multiple sources of evidence (Yin, 2009) such as a survey, the narrative analysis of interviews and documentary analysis, it was found that parents’ beliefs about religious upbringing was so strong that it competed with the child’s time on learning new English vocabulary words, reading or word recognition.

Thirty-two parents namely M1-M6, M8- M10, M13-M28, M31-M35, M37-M46, F1 and F2 gave a rating of ‘6’ or ‘7’ i.e. stating that religious classes were very important. They insisted that time reading the *Muslims’* holy book (*Koran*) was far more important and more valued than learning English. Moreover, attending weekly religious classes was a non-negotiable. Such is the Malays’ value system. For the Malay family, especially one that believed that *Allah* (the name Muslims used to refer to God) is all-knowing and in charge, whatever happened in life had been ordained by *Allah* hence the family would and should take comfort in whatever *Allah* has allowed to happen. They often called this ‘*nasib*’ (or fate) and they did not seem to mind if their children were behind in their reading level as they rationalised that their children would be able to catch up soon

enough or that character development was more important or it was simply '*nasib*' (Field Notes, 28<sup>th</sup> February 2014).

### **Minding the literacy gap from as early as the preschool years**

As explained in the preceding paragraphs, Bronfenbrenner's theoretical framework and ecological model of development illustrated the interplay of the critical success factors required to enhance children's literacy development. According to the Economist Intelligence Unit (EIU), "while stories abound of Singapore's success in primary education and up, the nation seems to be falling short when it comes to teaching its toddlers" (Tan, 2012, n.p.). The EIU (2012) gave an unflattering headline for this same Report – "Singapore scores low in preschool education" (n.p.). Indeed, while generally Singapore scored well at the primary school, secondary school and tertiary levels globally, all had *not* been well, upstream, at the pre-school level. This issue of preschool education has even been highlighted again in PM Lee's speech at the NDR held on 20<sup>th</sup> August 2017 which was televised nation-wide. Does this mean that the Singapore government will finally succeed in minding this literacy gap of the Malay pre-school children? What might be the challenges or competing priorities?

### **Character development ranked high in Malay parents' priority list**

As stated in the findings in Chapter 4 and subsequently discussed in greater detail in Chapter 5, character development remained a high priority for Malay families, more so than academic studies and reading enrichment classes. Hence, the Malay preschool children would be attending religious instruction classes instead of enrichment classes in reading. This has become a challenge because religious classes have become a competing

priority. It is worth repeating, however, that character development and reading proficiency as early as in the preschool years need not be mutually exclusive.

Indeed, character development was highlighted even in the recent COS Debates of 2017 which took place on 7<sup>th</sup> March 2017. Singapore Education Minister Mr Ng Chee Meng said that “At the core of our education are values and character. They anchor and guide our students in navigating the uncertainties and challenges of the future” (Singapore Parliamentary Records, 2017, para 4), adding that “we want to nurture individuals who are not only successful, but also committed to their family, to serving our communities, and to Singapore’s future” (Singapore Parliamentary Records, 2017, para 10d).

In short, character development, like literacy development, must start from young.

### **Need to address the literacy gap upstream**

The Singapore government acknowledged that more shall be done to address the literacy gap of our children (not limited to Malay children) from as early as the pre-school years. After all, former Education Minister Dr Ng had already recommended that “for better results, we believe that we should be working upstream” i.e. at the pre-school level (Singapore Parliament Reports, 2009, para 42).

At the recent COS Debates of 2017 on 7<sup>th</sup> March, MOS for Education Dr Janil Puthuchery explained that “every year, there are some young children who need more time to develop fluency in oral language skills, as a result of a number of problems with literacy .... Such children are actively identified. The focus at the pre-school years is then on providing high-quality language and early literacy instruction” (Singapore Parliamentary Records, 2017, para 12). MOS Dr Janil also repeated what he announced at the COS Debates in 2016 i.e. that “MOE has expanded the FLAiR programme ... to support more Kindergarten

2 children who have difficulty learning English” (Singapore Parliamentary Records, 2017, para 13).

Upstream efforts have been said to develop children who were more ready for formal schooling. Although the LSP mentioned in preceding chapters has its strengths, it was offered only in Primary 1 when the children were about 7 years old, which was too late. If appropriate intervention had taken place upstream i.e. at the pre-school stage, the number of children struggling with reading and word recognition at Primary 1 would logically be reduced. Singapore’s experience was not unique.

In fact, in an 18-year longitudinal study called the Effective Pre-School, Primary and Secondary (EPPSE) research project launched in 1997, Oxford University Professor and developmental psychologist, Dr Edward Melhuish examined the benefits of pre-school education in Britain and cautioned governments against putting their "eggs into the wrong basket" when they focused their efforts on children older than 7 years, further asserting that “pre-school education, especially one that is of high quality, is the way to give children the very best start in life” especially since “the race is already half run by the time a child enters formal schooling at Primary 1” (The Sunday Times, 2015, p. 39).

In the EPPSE project, Professor Melhuish, together with 4 other principal investigators, tracked more than 3,000 children from the age of 3 through primary and secondary school and when they entered post-secondary education or secured their first job (The Sunday Times, 2015, p. 39). With information on the children (e.g. their parents, their home environments, their pre-school settings and their General Certificate of Secondary Education or GCSE results), the EPPSE project studied pre-school’s long-term impact on the children's academic and social behavioural development. The study’s results released in September 2015 suggested that "children who attend *pre-school* end up with better GCSE results, which means they will go on to earn more money in later life" (The Sunday Times,

2015, p. 39). This accentuated the importance of children learning from their pre-school years and not wait till age five or worse, 7 years. A Malay proverb captured this quite well – “*Melentur buluh biarlah daripada rebungnya*” roughly translated “to bend a bamboo, start when it is a shoot”.

In the light of the Starting Well Index’ Report mentioned in Chapter 2, it appeared that Singapore “is on the right track in giving priority to children from disadvantaged homes in MOE-run kindergartens where one-third of its places are reserved for children from lower- income homes” (Rajah, 2015, n.p.).

### **Leveraging ICT, even from as early as preschool**

Besides music, children generally learned well with ICT so more could be done to leverage ICT to enhance learning for them. In response to a parliamentary question from a Nominated Member of Parliament (NMP), SMS Indranee explained that “there are many pedagogies that teachers can use in their teaching” and these could include ICT, drama, music and ‘pretend play’ (Rajah, 2014, para 74).

The debate on the use of ICT as early as in the pre-school years would not be complete until we discussed the possible harmful effects of ICT to preschool children. After all, it was possible that “the sedentary nature of computer use is of public health concern” (Straker et al, 2006, p. 343). Moreover, the potentially damaging effects of poor ergonomics associated with sedentary ICT work warranted serious consideration (Cordes & Miller, 2000). Henderson (2016) highlighted that “with young children now online, often independently of adult supervision, the need for early childhood cyber-safety education is becoming urgent”. Henderson and Romeo (2015) also highlighted the need to “understand why they (teachers and students) should use digital technologies, when it is appropriate (or not), and the implications arising from these decisions”. Chong (2009) cautioned that ICT

could be “a good servant but a bad master” (p. 22). Indeed, a balanced approach was required; thus, we needed strategies that “combine the provision of free play opportunities with more focused group work involving adult direct instruction” (Siraj-Blatchford & Siraj-Blatchford, 2006, p.11).

With such a balanced approach, we could reap the benefits of harnessing ICT to enhance learning and promote engaged learning. Suffice it to state that just because we acknowledged the possible harmful effects of ICT use in preschool years, did not mean that we must avoid ICT for pre-school children altogether.

The NAEYC recommendations listed in chapters 4 and 5 would be worth considering. Besides, if ICT is likened to the proverbial baby and ICT’s harmful effects likened to the bathwater, should we throw the baby out with the bath-water? There has been no doubt that the use of ICT must not occur at the expense of the development of positive dispositions of preschool children e.g. “aesthetics and creative expression, the development of motor skills, environmental awareness, self and social awareness” (MOE, 2009, p. 16). Nevertheless, NAEYC (2012) acknowledged that “computers could enhance young children's learning and collaborative experiences with peers” (n.p.).

### **Leveraging ICT in a purposeful play learning environment**

Siraj-Blatchford and Siraj-Blatchford (2006) advised that “if we are to use ICT to support early learning across the curriculum then the technology should be integrated to support the development of positive dispositions towards learning” (p. 5). In acknowledging the criticisms of ICT in pre-school years, Siraj-Blatchford and Siraj-Blatchford (2006) highlighted that “evidence from studies in the United Kingdom (UK) show that there is enormous scope for the integration of technology into young children’s play

environments” (p. 7) e.g. the preschool teacher could encourage the use of ‘pretend’ or functioning telephones, cash registers and computers in socio-dramatic role play.

Moreover, children who were supervised by a trained pre-school teacher, could learn to operate a cashier’s register in a ‘pretend’ play situation in a simulated supermarket, within the preschool classroom, and did not have to remain in a sedentary position for prolonged periods. Besides, as the children developed communication and literacy skills, they would use vocabulary words they had learned earlier e.g. vegetables, carrots, potatoes, etc.

Thus, ICT when integrated meaningfully promotes oracy as well as literacy and would not necessarily harm the development of the whole child. After all, in his COS Debate Speech on 7<sup>th</sup> March 2017, Education Minister Ng spoke about how Singapore schools would be changing their “teaching practices and methods to foster the Joy of Learning ....(by) encouraging learning through play at the start of every child’s education” (Singapore Parliamentary Reports, 2017, para 12).

In the same COS Debates, PS for Education, Associate Professor Muhammad Faishal Ibrahim affirmed parents when he said that “parents play an important role in partnering schools to support their children in developing their passions into strengths and reaching their fullest potential” (Singapore Parliamentary Reports, 2017, para 9). Suffice it to state that parents needed to be equipped too which explained why parliamentarians continued to discuss ways and resources to help parents with parenting skills (Singapore Parliamentary Reports, 2009, para 42).

### **Support for parents to be more equipped**

In his COS 2016 Debate speech, Mr Tan Chuan-Jin who was then the Minister in charge of the Ministry for Social and Family Development (MSF), pledged continued

support for parents from disadvantaged family circumstances as he reiterated the importance of the early years as “the time our children develop language competencies, habits and socio-emotional skills that provide the foundation for their future” (MSF, 2016b, n.p.).

Rose, Gallup and Elam (1997) pointed out the findings of a 1997 Gallup poll in which support from parents was cited as the most important way to improve the schools. Epstein (2001) revealed several ways for parents to be involved meaningfully: parenting, communicating, volunteering, learning at home, decision making, and collaborating with the community. Not to be involved might cost the parents more in the long run as “decades of research show that when parents are involved, students have higher grades, test scores and graduation rates ..... lower rates of suspension, decreased use of drugs and alcohol, fewer instances of violent behavior” (Michigan Department of Education, 2001, n.p.).

Another PS for Education, Ms Low Yen Ling in her COS 2017 Debate speech on 7<sup>th</sup> March in Parliament promised more resources to be made available to parents as she hailed parents’ vital “role in their children’s aspirations ..... We hope they can become actively involved as coaches and guides along their children’s journey” (Singapore Parliamentary Reports, 2017, para 7).

### **ICT and parental involvement as success factors**

This study’s preliminary findings supported the need for parents to be involved in the children’s literacy development as early as possible so as to achieve more powerful effects, and to leverage on available tools including and not limited to ICT. However, increased parental involvement might not help if the parents themselves are ill-equipped to help their children; this explained why Singapore’s Minister for Muslim Affairs Dr Yaacob Ibrahim asked that courses on parenting skills be made available to Malay families (Ibrahim, 2010, p. 3).

Apart from ICT and parental involvement, there must also be a concerted effort to synergise all critical success factors including SES, teachers' growing workload, use of ICT, religious upbringing, parental involvement and a shared responsibility among parents, school, teachers and society, for desired outcomes.

Another factor not mentioned by teachers or parents in the interviews was the curriculum, which had become a growing topic among policy-makers and ECDA officials, recently (ECDA, 2013b).

Indeed, it would be timely to take a fresh perspective of the issue of integrating ICT in preschool learning curriculum and learning environments. Chong, Anderson and Anderson (2015) strongly recommended getting "the ostrich's head out of the sand", as it were, so as to appropriately leverage ICT to engage both learners and teachers. Indeed, the need for fresh perspectives and good public policy could not be over-emphasised. Bronfenbrenner (1990) explained it rather well, as follows:

"The effective functioning of child-rearing processes in the family and other child settings requires public policies and practices that provide place, time, stability, status, recognition, belief systems, customs, and actions in support of child-rearing activities ..." (p. 37).

### **Usefulness of the Case Study method**

Case studies highlighted details in a context and inter-relationships which might not surface as easily from a quantitative method of research (e.g. survey). The case study (method) allowed the researcher "to retain the holistic and meaningful characteristics of real-life events" (Yin, 1989, p. 14). This underlined the usefulness of the case study method which enabled researchers to examine the 'why' and 'how' questions. Indeed, it was through

the case study method that more than just the 2 independent variables identified earlier, could be uncovered and discussed further e.g. critical success factors such as SES, the growing workload of pre-school teachers, a shared responsibility among parents, school, teachers and society, curriculum, and religious upbringing (or ‘religiosity’).

### **Religiosity has become more important as a lifestyle**

One particular detail or theme which might not have surfaced easily from a quantitative method of research (e.g. survey) was ‘religiosity’. When it surfaced in the survey, a 3-way check was made i.e. the matter of ‘religiosity’ was checked in the narrative analysis of the interviews as well as the documentary analysis of parliamentary speeches and media articles, too. That 3-way check (triangulation) verified that religiosity was growing in importance among Malay/Muslim parents. It was interesting to note that almost all Singapore Malays interviewed were professed Muslims (Field Notes, 22 December 2013) and that Malay parents placed a lot of emphasis on religious classes (in *Jawi*, an Arabian language) for their pre-school child, even more so than reading in English. Such religiosity, as discussed in detail in the preceding 2 chapters, kept appearing again and again in multiple interviews and documents.

Indeed, the role of religion must not be under-estimated. If anything, policy-makers, education professionals and parents should leverage religion as a way to keep the children on the straight and narrow, and motivate them to grow as respectful, responsible, resourceful and resilient members of the community. If we ignored the powerful positive effect religion could have on families and children, we would do so at our own peril. After all, one parent remarked, “*berani kah menentang Allah? Jangan bodoh sangat.*” loosely translated, “would anyone be so daring as to go against God? Better not be stupid.” (Field notes, 20 December 2013)

A wise statesman, the late PM Lee Kuan Yew cautioned against being “de-culturalised too quickly” and warned that “it gets very difficult for a ship without an anchor in a harbour when it gets stormy” (Lee, 2014, p. 85). In short, religion could serve as a strong and necessary anchorage. Unfortunately, religion if brought to the extreme could also be used for less noble and even terrorist acts.

From this modest case study, it would appear that the lives of the indigenous Malays were closely intertwined with the religion they embraced. While their counterparts (non-Muslim families) like the Chinese and Indians enrolled their children in enrichment classes and tuition centres so as to bump up their academic scores and intelligence quotient of their children, these Malay families who participated in this case study told us that “*itu nasib, apa boleh buat? Asalkan jujur and bersopan*” (translated “it’s fate, what can we do about it? As long as our children are honest and well-mannered, it’s all right”). While the non-Muslim children were poring over assessment books, Malay children were seen playing football or reading the *Koran*, the holy book of the Muslims.

### **Does religiosity divide or unite?**

Is the term ‘religion’ such a bad term? Should its use be discontinued? Why is the term ‘religion’ allegedly so divisive? Is it because people of religion tended to accentuate differences instead of similarities? If so, this would support the notion that religion was indeed divisive. Smith (2012), instead, recommended the use of more unifying terms such as ‘tradition’, ‘community of faith’ or ‘the believing community’. Whatever idea we might have about religious upbringing (or ‘religiosity’) and whatever more unifying term we might be able to use for it, the findings in this study suggested the relative importance Malay parents accorded to religious upbringing (or ‘religiosity’), over and above preschool work and literacy development including spelling and word recognition.

We had reflected on how religious rites and practices had become more pronounced and posed a “possible threat to good inter-religious relations” (Musa, 2012). This accentuated the role of the inter-religion confidence circles (IRCCs) which served as “local-level inter-faith platforms in every constituency, formed to promote racial and religious harmony” (IRCC, 2014). After all, Singapore is geographically-located between countries with ‘Very High’ and ‘High’ Social Hostilities Index rating, namely Indonesia and Malaysia, respectively (Pew Research, 2014b). In short, the issue of religion must not be under-estimated or mismanaged.

A ChannelNewsAsia publication dated 1<sup>st</sup> February 2017 reported the Singapore government’s current views and sustained policies on minority rights; this was made clear by Home Affairs and Law Minister Shanmugam in a 1<sup>st</sup> February 2017 media post entitled “Singapore must guarantee equality to minorities” (ChannelNewsAsia, 2017a, n.p.). Cautioning that “it cannot be assumed that Singapore would be immune to the wave of populism sweeping the west”, Minister Shanmugam added that “the country must ensure the safety, security and freedom of religion to all, including the Muslim community” (ChannelNewsAsia, 2017, n.p.).

Minister Shanmugam also cautioned that Singapore whose Muslim population constituted about 15% must continue to “adopt an approach centred on equality, accepting differences and managing considerable ethnic and religious diversity” or face “sharp cleavages” (ChannelNewsAsia, 2017a, n.p.). In short, Singapore has to keep abreast with the times, given the current populism sweeping even the UK and the USA as reflected in Brexit and the presidential election of Donald Trump, respectively. Minister Shanmugam further urged the community to continue to “champion the cause of integration and interaction, rather than create greater differences”; he also explained that “the Government can only do this if the community supports it ... Obviously, the majority will have to support it. The minority

must also play their part - and not be increasingly exclusive. Both have to work together, to increase the common space” (ChannelNewsAsia, 2017, n.p.). In other words, for integration and interaction to take place, stakeholders must be engaged with one another. Again, Bronfenbrenner’s theoretical framework and ecological model of development would be particularly relevant and instructive as it helps to identify the critical success factors in promoting the development of the whole child as well as its challenges (Santrock, 2007, p. 45). There are several challenges that the indigenous Malays encountered and these had been discussed in the earlier chapters and shall be summarised in the following pages.

### **Indigenous issues**

Unfortunately, the indigenous Malays had been found to be “over-represented in national statistics in drug abuse, divorces, teenage pregnancies” - as detailed in Chapter 2 (Sulaiman & Nadarajah, 2014, n.p.). Malays in such economic difficulties might fall as easy prey to “exclusivist, divisive teachings that preachers in many other countries propagate, calling these a ‘poison’ that feeds extremism”; after all, Singapore Law and Home Affairs Minister Shanmugam reminded that “apart from relying on the law, the way to foster a moderate, tolerant society is by keeping unemployment low and giving people economic and educational opportunities” (Singapore Government, 2107, n.p.). Minister Shanmugam, added that it was “critical that conditions allowing people to become radicalised be ‘nipped’ in the bud” and such conditions certainly could include economic and financial difficulties (Singapore Government, 2107, n.p.).

Indeed, the Malay community had demonstrated that it was tolerant and even forgiving; this was evidenced by the calm reactions of Malay families whose pre-school children had been wronged by a political party member who uploaded onto his Facebook page “a religiously and racially offensive caption to a photograph (of a busload of Malay

children whom he labelled as ‘young terrorist trainees’) (Sim, 2011, n.p.). This spoke very well of the Malay community in Singapore.

### **What were the indigenous Malays really like?**

In a chapter entitled ‘Hanging out with Britney and Raihan: The colourful musical lives of Malay/Muslim children in Singapore’ written by Lum Chee-Hoo in the book edited by Lum and Whiteman (2012), it was observed that “most Malays in Singapore are descendants of immigrants who came from peninsula Malaya, Sumatra, Java and the other islands of the Indonesian Archipelago” (p. 58). A university researcher Ms Suriani Suratman (2010) had written that Malays were “friendly but they tend to keep to themselves” and that they were “easy going, easily satisfied and therefore not motivated to work hard”.

As far back as the early 1960s, it was reported that “... redress of social imbalances between the various racial groups would take a long time to complete”, and that it would be “a long and continuous process” (The Straits Times, 1964, n.p.). Then in 1976, the then-Minister for Social Affairs Mr Othman Wok called those Malay parents who did not encourage or assist their children’s education as having “*sikap kolot*” i.e. an old-fashioned attitude (Berita Harian, 1976). Why had the Malays been portrayed as slow at making changes? Did the following statements published in a media article suggest that the Malays would take a long time to overcome the above problems?

Fast forward to the year 2011 and one would read again how the founding PM, the late Lee Kuan Yew continued to hold such strong beliefs, stating in one of his books that “the other communities have easier integration friends, inter-marriages and so on – than Muslims” (Lee, 2011, p. 228).

Interestingly, these were words spoken and published more than 50 years ago yet the thinking (that the Malays were not integrating well with other ethnic groups) still

prevailed today. In fact, Minister Shanmugam “warned that internal government surveys have found that while people might be ‘politically correct’ in public... “anti-Muslim sentiments are growing in Singapore, and this is a trend the country needs to guard against in its fight against terrorism” (Singapore Government, 2017, n.p.).

### **Indigenous Malays in this case study spoke Malay and not English, at home**

According to documentary analysis of the SPRs, media articles and Ministerial speeches, school achievement has been a concern for the Malays, the indigenous people in Singapore and the Malay Archipelago (which includes Malaysia, Indonesia and Brunei). This was no different for the Indigenous students of Australia (Australian Institute of Health and Welfare, 2011). As a group, these indigenous students were regarded as disadvantaged in education (Department of Education Aboriginal and Torres Strait Islander Education Branch, Queensland, 1996; Banks, 2005; APN Educational Media, 2011).

Dockett, Mason and Perry (2006) noted that the Aboriginal families in their study understood the need for the family’s involvement in the child’s schooling and that this involvement was linked to positive educational outcomes for their child. Anderson (2012) suggested that “teachers’ perceptions of Indigenous students’ low literacy levels might also stem from Indigenous children’s use of their own dialects or kriols rather than Standard Australian English” (p. 17). From the findings of this case study, it was found that English was not spoken at home and that the children spoke their mother tongue i.e. Malay (Field Notes, 22 December 2013).

### **Every stakeholder must be engaged**

This case study urged all stakeholders to be involved in the children's literacy development as early as possible so as to achieve more powerful effects. The Singapore Government welcomed the engagement of universities as stakeholders and especially since they have the expertise to help with the development of children through community service.

Such stakeholder-universities were recognised with a People's Association and Community Spirit or PACS Award; the spokesperson of one such university recipient said that "over the years, we have established excellent synergy with grassroots organisations in the immediate vicinity of our campus and we have been working with the community leaders to not only partake in community events but also identify areas where our teaching and research expertise can be harnessed for the benefit of the local populace" (James Cook University, 2017, n.p.). This same university was again honoured in 2014 with a community award called "the Distinguished Commendation in Community Partnership by the Kebun Baru Citizens' Consultative Committee" (Australian High Commission, 2017, p.8), and in 2016, with the PACS Award – Community Partnership Excellence Award (James Cook University, 2017). In his reply to questions at the COS 2012 Debate, SPS Mr Hawazi Daipi highlighted the importance of stakeholders working together to achieve common desired outcomes (Daipi, 2012, n. p.).

### **The importance of industry partnership**

The key factor that impeded the parents from involving themselves more seemed to be SES, and the Singapore government had responded quickly to address this with KIDSTART initiatives and continued investment in the slew of not just financial support but also social as well as emotional support. Nevertheless, more ought to be done to promote the young preschool children's social and emotional development even as the entire 'village'

endeavoured to work together to develop the children's literacy. By 'village', we also included the industry referred to as "microsystem" (Bronfenbrenner, 2005, p. 2; Santrock, 2007, p. 45)

On 7<sup>th</sup> March 2017, in Parliament, PS for Education, Associate Professor Muhammad Faishal Ibrahim highlighted that "besides parents, the community also has a role in enriching our children's educational experiences" (Singapore Parliamentary Reports, 2009, para 11). Agreeing with fellow parliamentarians Mr Zainal Sapari and Mr Gan Thiam Poh, PS for Education Associate Professor Muhammad Faishal Ibrahim stressed that "strong school-home-community partnerships lead to better student outcomes. (and that) we are committed to foster such strong partnerships, and our Parent Support Groups play a very crucial role in this" (Singapore Parliamentary Reports, 2017, para 10).

### **Areas for improvement**

In many ways, the Singapore MOE has a few more areas for improvement. While best practices such as small group size has been practised in the LSP programme in Primary School levels 1 and 2, this was not yet practised in pre-school classes. A particular consultant to the Singapore MOE, Professor Melhuish persuaded that longitudinal studies in the USA and the UK "make a clear case for governments to invest in early childhood education" and he appealed to number-crunching policy-makers by highlighting "a cost-benefit analysis of the Perry Pre-school Programme (that) found a rate of return of 7 to 10 per cent" (which is) "well above the return on any private equity fund" (The Sunday Times, 2015, p. 39). This suggested that investments in ECCE yielded high returns all the way to adulthood – if only we would tackle the problems, upstream.

Professor Melhuish also admitted that "life is unfair. There will always be kids born into households that have much less. Nevertheless, we have a duty to ensure that every child has a chance to reach his fullest potential" (The Sunday Times, 2015, p. 39).

### **Different strokes for different folks (learners)**

As recorded in Field notes (20 December 2013), teachers admitted that the Malay children were taught new vocabulary words "by themselves or in isolation" which was precisely what Cohen and Spenciner (2011) cautioned teachers against doing (p. 365). There seemed to have been no or very little differentiated instruction. This brought to mind a Malay proverb, "*lain hulu, lain parang, lain dulu, lain sekarang*", roughly translated "different handles for different knives; similarly, different solutions for different times and target audience".

This highlighted the importance of engaging Malay children from their point of reference, and helping them move from the simple to the complex, from the known to the unknown, so that they might be able to approach language learning according to their preferred learning style.

As early as the 1960s, Sly and the Family Stone (1968) advocated the use of "different strokes for different folks" (n.p.). Hence, if Malay pre-schoolers learned better through singing, why did we insist on "drill-and-practice", making them read word for word, one word at a time? Moreover, as suggested by Razianna Abdul Rahman (2005), "unless teachers understand the social and cultural nature of learning, it is not possible for teachers to provide the kind of English learning experiences that can help learners to develop their overall language proficiency" (p. 22).

**Re-visiting the research questions**

In summing up, it would be important to now re-visit the answers to each of the research questions:

- (a) Unfortunately, many Malay children in Singapore are *still* not able to read and write before they enter primary school. Many are not able to read and it is significant enough for parliamentarians to discuss this issue as highlighted in the preceding chapters (Singapore Parliamentary Reports, 2009, para 42). In his Parliamentary reply during the COS Debate 2017, MOS Dr Janil Puthucheary updated that “MOE has expanded the FLAiR programme ... to support more Kindergarten 2 children who have difficulty learning English” and added that “since 2007, FLAiR has benefitted more than 21,000 children” (MOE, 2017b). This suggested that on average, about 2,000 children received help with reading each year for the past 10 years. If a cohort has 40,000 children, this works out to only 5% of each cohort receiving help through an early reading programme such as FLAIR. This means that FLAiR has not reached every child who needs it. We are able to infer this because the former Education Minister Dr Ng highlighted that “12%-14% of preschool graduates have weak oral English and literacy skills” (Singapore Parliament Reports, 2009, para 42). Based on the reported 32,423 births registered for the year 2009 (Strategy Group, 2017, n.p.), this 12%-14% works out to 3,890-4,540 children. This also means that a lot more has to be done upstream even in terms of extending FLAiR to preschool children needing help in literacy development. Based on documentary evidence in the form of parliamentary speeches, we know that we need to create more places in the FLAiR programme urgently to cater to the pre-school children who need it.

- (b) Parents of Malay pre-schoolers could be more involved in their children's literacy development (beyond spelling and word recognition) and they need to be guided on how to jointly work with teachers to promote their children's literacy development. This is why the government had started courses on parenting skills (ChannelNewsAsia, 2012, p.1; Ibrahim, 2010, p. 3) and continued to invest in such 'upstream' measures as early as in the children's early years instead of waiting to do so after these children entered formal schooling at age 7.
- (c) Besides parents' distinct parenting styles, their attitude towards their children's learning and the higher priority given to religious classes over literacy development in English have a bearing on the child's proficiency in English which is the medium of instruction in primary school.
- (d) Based on the survey results as well as the narrative analysis of interviews, the religious upbringing of these Malay children appeared to have a strong impact on their literacy development of the Malay children because religious classes competed with English classes for the children's time and attention.
- (e) Parents can certainly use ICT (e.g. iPad or any easily accessible mobile device) as education tools to engage their children to improve their literacy. According to the NAEYC, "computers could enhance young children's learning and collaborative experiences with peers", while it issued guidelines for selecting software and using computers in the classroom (NAEYC, 2012). Teachers can also adopt other tools to engage the children (e.g. 'pretend play' and teaching and learning with computers) (NAEYC, 2012; Siraj-Blatchford & Siraj-Blatchford, 2006).
- (f) The lessons may not be new but they are worth highlighting and reiterating: ICT is a double-edged sword – it can be helpful or harmful, or both at the same time. We should use ICT for desired outcomes and remain mindful of its harmful effects;

nevertheless, “media should not harm children. The healthy cognitive, social, emotional, physical and linguistic development of the whole child is as important in the digital age as ever.” (NAEYC, 2012, n.p.). The importance of parental involvement cannot be over-emphasised and the way parents, suitably skilled and trained in parenting skills, become and remain involved have an impact on children’s motivation and learning.

It is also highly recommended that teachers be required to update themselves with the latest ICT-enabled learning and teaching tools and even be certified or licensed in order to continue to practise their professional craft. After all, the use of technology is critical not only as a means for disseminating information, but also as a tool for creating and maintaining administrative systems for accountability, evaluation and continuous improvement.

More investments should be pumped into the ICT-readiness of teachers under whose charge and care are pre-school children who have little choice but to survive (and hopefully thrive) in a digital world. Investments in ICT to improve education could be a global priority. Given the current level of national investments, there is a critical need and opportunity for the international community to leverage local knowledge that has been accumulated on effective ICT policies, programmes and practices to support teaching and learning. The common goal is to improve understanding of how best to implement ICT in education and of how best to support teachers and students in acquiring the skills necessary to teach and learn with ICT, effectively. As cautioned by Richards (2005), ICT should not be just “an add-on” (n.p.).

### **That quotation from Jerome Bruner**

This chapter started with a quotation from Jerome Bruner: “The shrewd guess, the fertile hypothesis, the courageous leap to a tentative conclusion – these are the most valuable coins of the thinker at work”. Perhaps the shrewd guess would be that parental involvement promoted the child’s literacy development. However, this may not be automatically the case as the parents have to be equipped first in order to be of any help to their children. In this case study’s findings, we read how the parents and especially the other care-givers like the grandmothers were not able to help the child to read at all, saying “*saya tidak tahu, lah*”. Hence, the quality of parental involvement is very critical, too.

The fertile hypothesis may be the teacher and/or the parent needing skills to use ICT as a lever to promote literacy. It is worth reiterating that the usefulness of ICT is limited if it is just “an add-on” (Richards, 2005, n.p.). The tentative conclusion then will be that parental involvement and ICT influence the literacy levels of the Malay pre-school children. However, it is not that straight-forward because there are also other priorities that competed for the parents’ time (e.g. bread-and-butter issues) and the child’s attention (e.g. religious classes).

The above-mentioned recommendations might *best* be summarised as follows:

- (a) **B**egin by meeting the needs of the Malay community and equip Malay families with skills so that they may be meaningfully involved in their children’s development in an impactful way. Indeed, “children feel a sense of pride when they see their parents at their school events” (Today, 2016, p.24). But such parent-teacher rapport must go beyond attendances at school events.

- (b) **Exploit ICT and integrate ICT to enhance learning for pre-schoolers, and to develop the whole child i.e. physically, emotionally, socially, intellectually as well as in the aesthetics and technology.**
- (c) **Support and equip parents and teachers by investing more in pre-school resources.**
- (d) **Tap on the community and industry partners to facilitate educational investments upstream (i.e. from the pre-school years onwards)**

Moreover, we should start with the Malay community's frame of reference and needs. This might include the development of an 8-Factor Model that considers the Malay families' desire for religious education for their children and that recognises the role of religious education. After all, from this case study and the narrative analyses, Malay families generally rated values education and spiritual upbringing as a top priority which were unfortunately, not addressed in the other seven Factor models.

### **Asset perspective instead of deficit logic**

According to Yunkaporta and McGinty (2009), we need to take on an asset perspective and resolutely "set aside deficit logic" (p. 55), and be mindful of how "low expectations were communicated informally through the curriculum, the school design and the organisational structure" (p. 70). Thus, instead of faulting Malay pre-schoolers for not being able to spell (and read in English), more efforts should be undertaken to affirm them for what they do well, whether it is in sports or in music and singing. Indeed, despite English not being a Malay person's first language, Malays have shown that they are able to learn and perform very well through music.

Ranker (2017) highlighted that all 4 winners of the reality TV series called 'Singapore Idol' had been Malays, alluding to the high musical intelligence of these Malays and the potential to enhance their linguistic intelligence through music (Gardner, 1983). In

illustrating what can be learned when we focus on the positives, Rahman (2002) recorded for us how talented the Malays in Singapore are in music; he said “the Malays are gifted in the arts. We have Pak Zubir Said, Haji Ahmad Jaafar, P. Ramlee, Anita Sarawak, Najip Ali...” (p. 187). Hilarian (2006) explained that the Malay people identify with one another “both socially and culturally by their religion, customary rites, language and in their music” (p. 284). These support the suggestion that curriculum design and development work could leverage on music by putting spelling words into a song as Malay pre-schoolers and all pre-schoolers (for that matter) might be able to learn better with music. In short, an effective pedagogy is one that engages the Malay pre-school learners and leverages on their learning styles and strengths such as musical intelligence.

### **Moving from achievement gap to opportunity gap**

Do we focus on minding the gap in the literacy development of Malay pre-schoolers? Without sounding too audacious, one key goal of this study must be to go *beyond* minding the gap. Never mind that Malay pre-schoolers consistently tested at levels significantly below their Chinese and Indian counterparts. Never mind that “all is not well” (Economist Intelligence Unit, 2012)...as long as we do something about it e.g. re-focus our attention as well as energies not so much on achievement gaps but on opportunity gaps so as to better engage the Malay pre-schoolers.

We have not made much progress regarding achievement gaps of the Malay pre-schoolers. Is it possible that we had been focusing on the wrong targets? After all, why should we focus on the achievement gap of the Malay pre-schoolers, which is an after-the-fact measure? Shouldn't we need be more pro-active and instead focus on opportunity gaps? We must seize or even create the opportunities to use more education tools such as ICT. We must create learning moments and make sure parents may be well-equipped and can be

meaningfully involved. It cannot be over-emphasised that we must equip and enthuse parents to be more involved. It can be argued that when policy-makers address achievement gaps and opportunity gaps, they are one and the same thing. However, there is a *subtle and significant* difference – not least of all is whether we want to be reactive to address a gap “after-the-fact” or to be proactive and work upstream.

More opportunities must be deliberately and thoughtfully created. By opportunity, we refer to the harsh realities experienced by many Malay pre-schoolers with respect to their exposure and experiences – SES, qualification of teachers, learning resources, qualification of teachers, expectations of teachers, access to education tools (including ICT) and parental involvement. In fact, Minister Lawrence Wong had cautioned that “it is not good that children should be stratified at such a young age” (Oral communications with then-MOS for Education and Defence, Mr Lawrence Wong, 14 October 2011).

We must also debunk popular notions and common misperceptions that teachers and their Malay pre-schoolers cannot succeed. It does not help that a high-ranking parliamentarian had alluded to such pre-schools as “*sekolah makan*” or “*sekolah main*” (literally translated ‘a school which you go to ... to eat biscuits’ or ‘a school which you go to ... to play’, respectively). Instead, we must do whatever it takes to demonstrate how teachers and the pre-schoolers’ parents can work together to enhance the pre-schoolers’ learning even as they transcend familial, social, academic and systemic challenges. These are the kind of challenges Bronfenbrenner (1979) articulated in his ecological theory.

As parents become more involved in their preschool children’s learning, they would see that inequitable structural realities and such challenges are actually surmountable. In fact, the many success stories after the release of the Primary School Leaving Examinations (PSLE) attested to this. These PSLE stories tell of years of determination and tenacity of Malay children who grew up in very challenging family circumstance for example

Muhammad Zulkarnaen Abdul Razak who scored against the odds; The newspaper reported how much Muhammad Zulkarnaen loves his mother and how he determined in his heart to study hard and pass the PSLE “so that I would be able to take care of her when she's released” from jail (The New Paper, 2011). Moreover, parents should give themselves the chance to be involved because such involvement can make the impactful difference in how their pre-school child will achieve, when given the opportunity.

### **What if the literacy gap could *not* be bridged?**

For a country like Singapore, one which developed from Third World to First World with no natural resources apart from its diligent workforce (Ghosh, 2015), failure was unthinkable – it was never an option. It might take longer to bridge the literacy gap but the work must continue relentlessly.

### **Possible benefits of this case study**

It is hoped that this case study may pave the way for more (honest) discussion about the literacy gap and help to illuminate the issues in greater detail so as to enable us to nip the problem at the bud. After all, DPM Mr Tharman Shanmugaratnam had already cautioned that “disadvantages must *not* be passed on to our children” (Shanmugaratnam, 2012, n.p.).

### **What next? Suggestions for further research**

In the book, ‘Alice’s Adventures in Wonderland’ by Lewis Carroll, Alice was unsure of the road to take. She then enquired of the cat on a nearby tree, “Cheshire-Puss, would you tell me please, which way I ought to go from here?” (SparkNotes, 2014, n.p.). The cat’s reply was rather common-sensical: “That depends a good deal on where you want

to get to” (SparkNotes, 2014, n.p.). Similarly, what one would like to do with the findings of this case study would depend largely on our objectives.

Through this case study, more than 2 factors critical in the literacy development of Malay pre-schoolers had been identified. They were SES, teachers’ growing workload, use of ICT, religious upbringing, parental involvement and a shared responsibility among parents, school, teachers and society. To be fair, the call for more parental involvement is not confined to the Malay community; after all, a similar call was made to the Indian community by the Singapore Indian Development Association (or SINDA), the self-help non-profit organisation for the Indians (The Straits Times, 2013). The Indians form a minority group but unlike the Malays, they are not considered an indigenous people of Singapore.

To consider all possible factors influencing the development of Malay pre-schoolers could reach encyclopaedic proportions and might go beyond the requirements of this doctoral degree thesis. It is nevertheless suggested that more resources be set aside for such a worthwhile study... depending on “...a good deal on where you want to get to”.

While this case study provided a unique snapshot of how parental involvement, ICT and other factors influence the literacy level of Singapore’s Malay pre-schoolers, future research could also focus on that one factor that emerged as distinctively influential on the Malay community i.e. the religiosity of the Malay family. After all, it is not just ICT, or parental involvement or parenting style that determines what else occupied the Malay pre-schooler’s time but increasingly, we began to see, through interviews with Malay parents, that religious education is an unnegotiable priority.

It is hoped that such an approach would help us gain a better understanding of how the Malay preschooler’s development (including and not limited to literacy development) is shaped. After all, the revered late Mr Lee Kuan Yew had also advised

against being “de-culturalised too quickly”, persuading that we need to have religion as an anchorage (Lee, 2014, p. 85).

Finally, could I be sure that when the desired conditions of parental involvement and ICT use are in place, the literacy development of Malay preschool children would be enhanced? The honest and simple answer is that I could not be sure. After all, each child is unique and his or her circumstances affected by multiple factors. This, however, should not stop us from developing and applying best practices and robust theoretical frameworks established by researchers and practitioners who had lighted up the way for us. In research as in many pursuits, we should stand on the shoulders of giants as we endeavour to solve issues even as we add to the knowledge of our subject of study.

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## **Annexes**

## Annex 1

**Sample test**

Instructions to Teacher/Interviewer: Tell the students that for each question, they are to circle the word that matches the picture on the right.

The first one has been done for them

a) Cheetah

b) Lion

c) Tiger

d) Panther



1) a) Cat

b) Cow

c) Goat

d) Buffalo



2) a) Motorcycle

b) Car

c) Trishaw

d) Tricycle

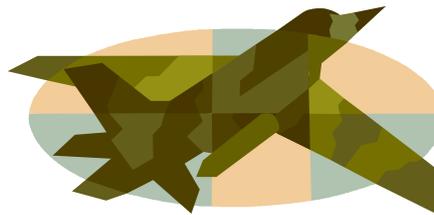


3) a) Helicopter

b) Aeroplane

c) Space-ship

d) Rocket



4) a) Train

b) Car

c) Bus

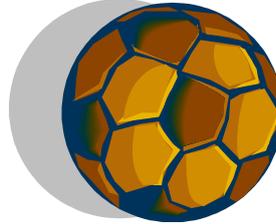
d) Van



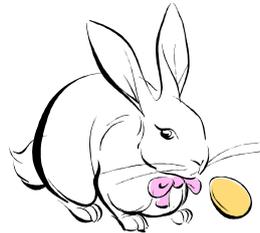
- 
- 5) a) Clock  
b) Watch  
c) Bell  
d) Timer



- 
- 6) a) Ping Pong ball  
b) Ball  
c) Catch  
d) Rugby ball



- 
- 7) a) Hamster  
b) Rat  
c) Squirrel  
d) Rabbit



- 
- 8) a) Hammer  
b) Spanner  
c) Pliers  
d) Screw-driver



- 
- 9) a) Crowd  
b) Cloud  
c) Crown  
d) Clown



- 
- 10) a) Blender  
b) Mixer  
c) Toaster  
d) Hot plate



## Survey Questionnaire for Preschool Teachers



### INFORMATION SHEET

#### PROJECT TITLE:

A case study on the influence of parental involvement and Information and Communications (Infocomm) Technology on the literacy level of Singapore's Malay pre-schoolers.

You are invited to take part in a research project about the literacy development of Malay preschool children, and how parental involvement and Infocomm Technology may influence such development.

The case study is being conducted by Thomas Chong and (if appropriate) will contribute to the doctoral thesis in his PhD degree at James Cook University.

If you agree to be involved in the study, you will be invited to be interviewed. The interview, with your consent, will be audio-taped, and should only take approximately 20 minutes of your time. The interview will be conducted at the preschool at which you teach (PCF Marsiling), with the prior written consent of the Chairman of your pre-school. There is also a questionnaire that you may complete, which asks you about your use of Infocomm Technology in your teaching, if applicable. The questionnaire should only take 10 minutes to complete.

Taking part in this study is completely voluntary and you can stop taking part in the study at any time without explanation or prejudice. If you know of others that might be interested in this study, can you please pass on this information sheet to them so they may contact me to volunteer for this study.

Your responses and contact details will be strictly confidential. The data from the study will be used in research publications and reports, however, you will not be identified in any way in these publications.

If you have any questions about the study, please contact – **Thomas Chong at [Thomas.Chong@my.jcu.edu.au](mailto:Thomas.Chong@my.jcu.edu.au)** and/or **Professor Dr Neil Anderson at [Neil.Anderson@jcu.edu.au](mailto:Neil.Anderson@jcu.edu.au)**.

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*If you have any concerns regarding the ethical conduct of the study, please contact:*  
**Human Ethics, Research Office**  
**James Cook University, Townsville, Qld, 4811**  
**Phone:** (07) 4781 5011 ([ethics@jcu.edu.au](mailto:ethics@jcu.edu.au))

## Questionnaire for preschool teachers

Completing this questionnaire is **voluntary**.

Please answer the following questions by filling in the blanks or **circling** the appropriate answers.

- 1) In which year were you born? 19 \_\_\_\_
- 2) Do you have a computer at home? Yes / No  
Do you have internet access with your home computer? Yes / No
- 3) Circle the educational qualifications you have and specify if you have others
  - a. GCE 'O' Levels
  - b. GCE 'A' Levels
  - c. Diploma from the polytechnic
  - d. Diploma in ECE
  - e. Degree
  - f. Master's degree
  - g. Others (please specify) : \_\_\_\_\_
- 4) If you are working on your computer and it suddenly stops working, do you know how to make it work again, on your own? Yes / No  
Do you know what the likely problem is? Yes / No  
How well do you think you can solve the problem? Not at all / Average / Very well
- 5) Are you able to select and run a desired programme on your computer, without any help from others? Yes / No  
Are you able to switch between open windows? Yes / No  
Are you able to maximise, minimise and close windows? Yes / No
- 6) Are you able to organise files by moving, copying or deleting them? Yes / No  
Are you able to create directories or folders for them? Yes / No
- 7) Are you able to show a friend how to share information between programmes? Yes / No  
Are you able to cut and paste information between programmes? Yes / No  
Are you able to create dynamic links between programmes? Yes / No

- 8) Are you able to put together a basic computer system? Yes / No  
 How well are you able to connect additional input/output devices to a computer system? Not at all / Average / Very well  
 Are you able to load related software onto a computer system? Yes / No
- 9) Are you able to find information in a CD- or DVD-ROM? Yes / No  
 Are you able to use information a CD- or DVD-ROM? Yes / No
- 10) Are you able to use an Internet browser? Yes / No  
 How well are you able to use a search engine and refine the search so as to find the required information? Not at all / Average / Very well
- 11) How well are you able to use a spreadsheet? Not at all / Average / Very well  
 How well are you able to create and explore mathematically-based models? Not at all / Average / Very well  
 Are you able to enter numerical data? Yes / No  
 How well are you able to perform simple calculations and create charts? Not at all / Average / Very well
- 12) Are you able to use the computer for word processing? Yes / No  
 How well are you able to format text in various ways as well as use additional tools within the software? Not at all / Average / Very well
- 13) How well are you able to use graphic packages? Not at all / Average / Very well
- 14) Do you use email? Yes / No  
 Are you able to send and receive email? Yes / No  
 Are you able to print your emails, without any help? Yes / No  
 How well are you able to send and view email attachments? Not at all / Average / Very well  
 How well are you able to organise contact information using an address book? Not at all / Average / Very well
- 15) How much experience do you have with interactive whiteboards?  
 None at all / less than 1 day a week / 3 days a week / A lot of experience
- 16) How much experience do you have with programmable toys such as Bee-Bot, Roamer or Pixie? None at all / less than 1 day a week / 3 days a week / A lot of experience
- 17) How much experience do you have in using a digital camera?  
 Not at all / Little / Average / Good / Very well  
 How well are you able to work the features of a digital camera? Not at all / Little / Average / Good / Very well

- 18) Are you able to transfer photographs from a digital camera to a computer? Yes / No  
How well are you able to edit and organise the photos once on the computer?  
Not at all / Average / Very well  
How well are you able to download pictures to a computer?  
Not at all / Average / Very well
- 19) Are you able to use a video camera to record footage? Yes / No  
How well are you able to use the basic features of a video camera (e.g. record, stop, play back footage)? Not at all / Average / Very well  
How well are you able to use additional features on the camera?  
Not at all / Average / Very well
- 20) How well are you able to download a video? Not at all / Average / Very well  
How well are you able to edit video footage using a computer?  
Not at all / Average / Very well  
How well are you able to actually edit and create new video files (to make into a DVD)? Not at all / Average / Very well
- 21) How well are you able to use a Digital Audio Player (DAP) such as an iPod or an mp3 player? Not at all / Average / Very well  
How well are you able to organise and search through the music/files on the DAP as they needed/wished? Not at all / Average / Very well
- 22) Do you use a mobile phone? Yes / No  
How well do you use the additional features on the mobile phone (e.g. contacts, text messaging, changing settings)? Not at all / Average / Very well
- 23) How well do you use the CD and cassette player? Not at all / Average / Very well
- 24) How well do you use the DVD? Not at all / Average / Very well  
How well do you use the video player? Not at all / Average / Very well

**Thank you for voluntarily completing this questionnaire.**

## Annex 3

A Straits Time 7<sup>th</sup> July 2013 article reported ill-treatment that took place on 5<sup>th</sup> July 2013 and one that was captured on video. Parents of the ill-treated child lodged a police report resulting in MSF and the police investigating the alleged abuse case at the childcare centre.

PUBLISHED JUL 7, 2013, 11:07 AM SGT



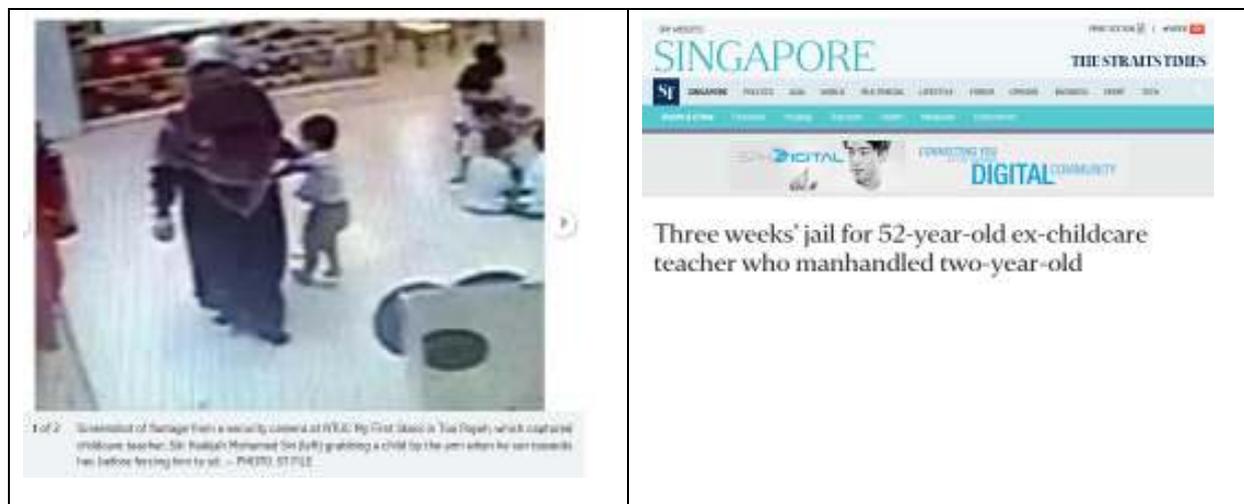
Lim Yi Han

The Ministry of Social and Family Development is investigating an alleged abuse case at the NTUC My First Skool childcare centre in Toa Payoh.

A spokesman for MSF added that "child safety remains our paramount concern".

A video of the incident has gone viral on social media and forum page since the video was posted on Saturday (July 6). In the two-minute video, a woman believed to be the teacher was seen dragging the boy with force across the floor and pushing him onto the ground. The date of the recording was on Friday (July 5). The Straits Times understands that the three-year-old boy suffered a fractured shin.

Retrieved on 13<sup>th</sup> Feb 2016 from <http://www.straitstimes.com/singapore/msf-police-investigate-alleged-abuse-case-at-childcare-centre>



Retrieved on 13<sup>th</sup> February 2016 from <http://www.straitstimes.com/singapore/courts-crime/three-weeks-jail-for-52-year-old-ex-childcare-teacher-who-manhandled-two-year>

**Annex 4**

**Same test for everybody**

(Office of First Minister and Deputy First Minister, 2014).

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About the Singapore Idol

Source: [https://en.wikipedia.org/wiki/Singapore\\_Idol](https://en.wikipedia.org/wiki/Singapore_Idol)

*Singapore Idol* is a reality television singing competition created by [Simon Fuller](#) and produced by [MediaCorp Studios](#) and [FremantleMedia Operations BV](#). It began airing on [MediaCorp Channel 5](#) on August 9, 2004, as an addition to the Idol franchise based on the UK show [Pop Idol](#), and became one of the most popular shows in the history of Singaporean television.

The concept of the series is to find new solo recording artists where the winner is determined by the viewers. Through telephone and SMS text voting, viewers have chosen as winners [Taufik Batisah](#), [Hady Mirza](#) and [Sezairi Sezali](#) – all 3 are Malay.

### About the Final 1

Source: [https://en.wikipedia.org/wiki/The\\_Final\\_1\\_\(season\\_1\)](https://en.wikipedia.org/wiki/The_Final_1_(season_1))

The first season of *The Final 1* premiered on MediaCorp Channel 5 on 24 April 2013. It is a Singaporean reality-singing competition programme created by the director of Hype Records Ken Lim. The first winner of the competition was Ms Farisha Ishak, a beautiful Malay who set aside her university studies to pursue her singing career.

From <http://www.lollipop.sg/content/final-1-winner-farisha-ishak-puts-nus-studies-hold-pursue-singing-career>

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#### THE NEWSROOM

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### *The Final 1 winner Farisha Ishak puts NUS studies on hold to pursue singing career*

15 February 2014 / 1 year 7 months ago



2,647 Views



Farisha Ishak has started a new course in life. The winner of The Final 1 singing contest is putting her political science studies on hold to make it as a singer.

The 19-year-old, who launched her debut album last week, has deferred her studies at the National University of Singapore indefinitely to focus on her singing, reported The Straits Times.

**Suara Musyawarah Committee Report 2013**

**– Excerpt on recommendations for preschool**

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due to copyright restrictions

## Survey Questionnaire for Parents of Preschool Children



### INFORMATION SHEET

#### PROJECT TITLE:

A case study on the influence of parental involvement and Infocomm Technology on the literacy level of Singapore's Malay pre-schoolers.

You are invited to take part in a research project about the literacy development of Malay preschool children, and how parental involvement and Infocomm Technology may influence such development.

The case study is being conducted by Thomas Chong and will contribute to the doctoral thesis in his PhD degree at James Cook University.

If you agree to be involved in the study, you will be invited to be interviewed. The interview, with your consent, will be audio-taped, and should only take approximately 20 minutes of your time. The interview will be conducted at the preschool which your child attends (PCF Marsiling), or a venue of your choice. There is also a questionnaire that you may complete, which asks you about your involvement with your child e.g. reading time with your child, going through his/her schoolwork, your child's use of the computer or mobile devices, etc. The questionnaire should only take 10 minutes to complete.

Taking part in this study is completely voluntary and you can stop taking part in the study at any time without explanation or prejudice, that is, participation/non-participation in the study will not affect the care and teaching of your child.

Your responses and contact details will be strictly confidential. The data from the study will be used in research publications and reports, however, you will not be identified in any way in these publications.

If you have any questions about the study, please contact – Thomas Chong at [Thomas.Chong@my.jcu.edu.au](mailto:Thomas.Chong@my.jcu.edu.au) and/or Professor Dr Neil Anderson at [Neil.Anderson@jcu.edu.au](mailto:Neil.Anderson@jcu.edu.au).

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*If you have any concerns regarding the ethical conduct of the study, please contact:*  
Human Ethics, Research Office  
James Cook University, Townsville, Qld, 4811  
Phone: (07) 4781 5011 ([ethics@jcu.edu.au](mailto:ethics@jcu.edu.au))



**Thank you for voluntarily completing this Survey Questionnaire (For the Parent)**

Please provide me with your email address if you wish to have a copy of the collated Survey results (A Summary), and I shall email it to you, when ready.

1. Name \_\_\_\_\_ Email: \_\_\_\_\_
2. Age range      20-25 years       26-30 years       31-35 years   
                          36-40 years       41-50 years       Above 50 years
3. Monthly Income range      Below \$2000       \$2001-\$2500       \$2501-\$3000   
    \$3001-\$3500       \$3501-\$4000       Above \$4000
4. I have been a parent for \_\_\_\_\_ years.
5. Gender / Sex      Male       Female
6. Number of children       Ages of children \_\_\_\_\_
7. **Please tick the boxes showing the educational and professional qualifications you have (you may tick as many applicable boxes)**  
                          GCE 'O' Level       GCE 'A' Level       Polytechnic Diploma   
                          University degree       Master's degree       Doctoral degree

Other qualifications, please specify \_\_\_\_\_

**On a rating scale of 1 through 7 (1 being 'Least important' and 7 being 'Most important'), please rate the following (by circling the selected number):**

- |  | Least Important |         | Most Important |
|--|-----------------|---------|----------------|
|  | ←               | ↔       | →              |
|  | 1               | 2 3 4 5 | 6 7            |
| 8. Tuition in 2 <sup>nd</sup> Language (Specify: Chinese/Malay /Tamil)               | 1               | 2 3 4 5 | 6 7            |
| 9. School homework to be completed on time   | 1               | 2 3 4 5 | 6 7            |
| 10. 80% to 100% correct on Spelling tests  | 1               | 2 3 4 5 | 6 7            |
| 11. <b>Weekly</b> religious classes  | 1               | 2 3 4 5 | 6 7            |
| 12. <b>Non-academic</b> enrichment classes e.g. music, drama                         | 1               | 2 3 4 5 | 6 7            |
| 13. An hour a day on computers, mobile phone game                                    | 1               | 2 3 4 5 | 6 7            |
| 14. I feel helping my child with (pre)school work is <b>stressful for me</b> because |                 |         |                |

\_\_\_\_\_

15. I recommend the following improvements in preschool: \_\_\_\_\_

\_\_\_\_\_

16. I like what is already being done in (pre)school work for example, \_\_\_\_\_

\_\_\_\_\_



**If you are a mother or were to become a mother, how would you answer these questions?**

- 17. I think my child needs to spend at least \_\_\_\_ hours a week **completing homework**.
- 18. I think my child needs to spend at least \_\_\_\_ hours a week in **Chinese tuition**.
- 19. I think my child needs to spend at least \_\_\_\_ hours a week in **enrichment classes**.
- 20. I think my child needs to spend at least \_\_\_\_ hours a week in **religious classes**.
- 21. I think my child needs to **sleep at least \_\_\_\_ hours a night**.
- 22. I spend at least \_\_\_\_ hours a week **reading with my child**.
- 23. I spend at least \_\_\_\_ hours a week **coaching my child in school-work myself**.
- 24. I spend at least \_\_\_\_ hours a week **playing with my child**.
- 25. I think I need to be more involved in my child's (pre)school work because

\_\_\_\_\_

26. I feel (pre)school work is stressful for my child because \_\_\_\_\_

27. **Describe your parenting involvement (you may tick as many applicable boxes)**

- |   |  |   |
|---|--|---|
| Read to my child <input type="checkbox"/>   | Help child with spelling <input type="checkbox"/>                                | Buy assessment books for child <input type="checkbox"/> |
| Enrol child in courses e.g. drama <input type="checkbox"/>                        | Discuss stories <input type="checkbox"/>   | Stay up with child to study <input type="checkbox"/>    |
| Accompany child's class to excursions <input type="checkbox"/>                    | Hire tutors to help child <input type="checkbox"/>                               |   |
| Emphasise happy childhood instead of study, study, study <input type="checkbox"/> | Write to the teacher to find out about child's progress <input type="checkbox"/> |   |

To contact the researcher, Mr Thomas Chong, please email him at [Thomas.Chong@my.jcu.edu.au](mailto:Thomas.Chong@my.jcu.edu.au)

Once again, thank you for volunteering to take part in this survey questionnaire.



Questions for interview **with (Malay) Parents**

1. **How do you get involved in the literacy development of your preschool children?**

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2. **Why do you get involved in the literacy development of your preschool children?**

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3. **How do you use ICT tools with your children in their literacy development?**

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4. **Why do you use ICT tools with your children in their literacy development?**

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**Annex 9**

**Official permission to conduct the interview**  
**with parents and teachers of the preschool in Marsiling**

This administrative form  
has been removed

**Annex 10**

## Early childhood education: Importance of learning through play



Early childhood educators must comprehend and know how to implement current theories of learning and teaching to optimise children's development, says Dr Anderson. PHOTO: CHONG JUN LIANG

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In the first of a five-part series, Douglas Chew learns from an early childhood and education lecturer at JCU Singapore that child's play is a serious matter for childhood educators.

Brought to you by



Leave a child alone or with a couple of others and almost inevitably, they will start to play. "Stop playing" must be one of the most common phrases used by parents to divert their children to what they believe to be more important or meaningful activities such as studying.

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