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# The Effect of the COVID-19 Lockdown on Bilingual Singaporean Children's Leisure

## Reading

**(Accepted version)**

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## Abstract

Long-term school absences during pandemic lockdowns may result in learning gains and losses much like the summer reading loss, but little is known about the actual effects of such lockdowns. This mixed-methods study examined changes in reading enjoyment, amount and resources in three groups of bilingual children – English-Chinese, English-Malay and English-Tamil speaking children – during the COVID-19 lockdown in Singapore. Results reveal a lockdown reading gap between children’s stronger language (English) and weaker language (Chinese/Malay/Tamil). Within each language, results show differential reading gains and losses for children who enjoyed and did not enjoy reading in print and digital formats. Children’s reading enjoyment before the lockdown, changes in reading enjoyment and print reading amount during the lockdown in English and Chinese/Malay were significantly correlated. Children preferred print reading over reading digitally both before and during the lockdown, and devices were under-utilised for reading purposes.

**Keywords:** summer reading loss, reading habits, COVID-19, reading enjoyment, bilingualism

Research on summer reading loss, a well-documented phenomenon, has repeatedly affirmed the connection between lack of reading during summer breaks spent at home and reading achievement gap (Alexander et al., 2007; Allington & McGill-Franzen, 2017; Atteberry & McEachin, 2021). In a pandemic situation such as COVID-19, some researchers proposed that children’s prolonged absence from school would be akin to the summer break, with its related gains and losses (Borman, 2020; García & Weiss, 2020; Kuhfeld et al., 2020). The bulk of research on summer reading loss, however, has focused exclusively on English (Cooper et al., 1996) or on the schooling language of the research setting (Fälth et al., 2019). Little is known about how additional school closures may affect bilingual children’s leisure reading in their two languages. As more children worldwide grow up to become bi- or multilingual than monolingual (Baker, 2011; Bialystok, 2018), this represents an important research gap. Would children derive similar enjoyment from reading in their two languages? Would they read more, or less, during a lockdown, when they have more time to themselves? When access to their usual reading resources is interrupted, would today’s “digital natives” (Prensky, 2001) take to technology for reading? What factors may influence their bilingual leisure reading preferences and changes during a lockdown?

To address this gap in the research, this mixed-methods study examined changes in reading enjoyment, amount and resources in three groups of bilingual children – English-Chinese, English-Malay and English-Tamil speaking children – during the two-month COVID-19 lockdown in Singapore from April to June 2020. Understanding the impact of the lockdown on bilingual children’s leisure reading practices will help educators and parents support and sustain children’s reading in more than one language during school holidays or future home-based learning (HBL) and plan for potential related effects when school reopens.

## **Literature Review**

### **The Benefits of Leisure Reading**

Leisure reading refers to reading that children choose to undertake independently, by themselves, as opposed to reading that is mandated for school or homework tasks (Mellon, 1990). In this article, we focus on continuous linear fiction or nonfiction texts, as these are known to be more consistently associated with academic benefits than other forms such as email or text messages (Loh & Sun, 2019; Rutherford et al., 2018; Torppa et al., 2020).

Research on leisure reading has focused on three interrelated components – reading enjoyment, reading amount (i.e. frequency and duration) and access to reading resources (Clark 2012; Iyengar & Ball, 2008; Sun et al., 2020). Children may be motivated to read for many reasons. Among them, enjoyment has been consistently shown to be associated with engaged reading and sustainable reading habits (Guthrie et al, 2007). The Matthew effect (Stanovich, 2009) suggests that children who read more are more likely to improve their reading proficiency and achievement through wide and regular reading. Conversely, children who read less may fall behind. As children progress through the grades, leisure reading also helps them become strategic and critical readers who can effectively synthesise and evaluate information from various sources – essential skills for reaching higher levels of academic achievement and seizing more life opportunities (Moje et al., 2008; Organisation for Economic Co-operation and Development [OECD], 2011). Moreover, recent research confirmed that frequent leisure reading is linked to greater empathy (Bal & Veltkamp, 2013), social connection (Mumper & Gerrig, 2017), mental well-being (Clark & Teravainen-Goff, 2018) and digital literacy competencies (Notten & Becker, 2017).

To encourage children to read extensively and actively, it is vital that they have easy access to high-quality reading materials (Neuman & Celano, 2012; Rideout, 2014). Children who have a diversity of materials at their disposal tend to perform well in reading (OECD, 2011;

Park, 2008). differential access to reading resources may have negative consequences for children's leisure reading development and long-term success in school (Allington & McGill-Franzen, 2017; Buckingham et al., 2014).

### **Reading in Print and Digitally**

Reading in print refers to paper-based material while reading in digital formats refers to online material accessed on a smartphone, tablet, or computer (Loh & Sun, 2019). Technology has increased children's access to different reading devices and reading formats, which has raised interest in how reading using digital technology may impact children's leisure reading (Manuel & Carter, 2015; Merga & Roni, 2017). While some studies show that children are more interested in web surfing and online games than in reading books (Egmont, 2019; Ots, 2006), others have shown that preference for print reading remained strong, even in countries with high device ownership and internet penetration rates such as South Korea (Jeong, 2012), Singapore (Loh & Sun, 2018) and Australia (Merga & Roni, 2017).

The COVID-19 lockdown provided an unusual opportunity to study children's print and digital reading preferences in an out-of-school context. Confining most individuals to their homes meant that most children were forced to obtain reading resources either from their own homes, through online orders of physical books, online reading materials, and online loans and/or purchases of e-books. The situation allowed for study of how these children who grew up with technology, would utilise devices to read in their two languages during the lockdown.

### **Lessons from Summer Reading Loss**

Summer reading loss is a well-known concept. In the United States, there is an extensive summer break, when children spend about three months out of school. Unlike the learning of mathematics or other subjects, which are more restricted to school settings, leisure reading has more opportunities to be practiced at home and thus, is more likely to be affected by children home environment when schools are closed (Atteberry & McEachin, 2020; Quinn & Le, 2018). Earlier works on summer reading loss found that children lost about one month of reading over the summer months, with a widening reading gap between children from low- and high-income groups (Alexander et al., 2007; Cooper et al., 1996). Recent studies have extended this line of research by suggesting that much of the persistent reading gap is not caused directly by poverty (Atteberry & McEachin, 2021; Kuhfeld et al., 2020; von Hippel et al., 2018). von Hippel et al. (2018) reported that racial/ethnic and socioeconomic status (SES) only explained about 4% of the variance in

summer reading rates, and some children actually maintained their learning rate or showed learning gains (Atteberry & McEachin, 2021). Reading loss may result from children's varied reading resources at home, lack of access to literacy-rich activities, such as visiting libraries, and lack of opportunities to interact with engaging texts (Alexander et al., 2007; Buckingham et al., 2014; von Hippel et al., 2018).

During lockdowns resulting from the COVID-19 pandemic, an impact similar to that of summer reading loss may exist (García & Weiss, 2020; Sun et al., 2021). Several scholars have cautioned about possible adverse impacts of school closures on children's learning (Borman, 2020; Kuhfeld et al., 2020). Kuhfeld et al. (2020) projected that children could return to school in fall 2020 with approximately 63–68% of the learning gains in reading relative to a typical school year, while the top third of children could potentially make gains in reading. Moreover, a survey conducted by the National Literacy Trust in the first half of 2020 found that children and adolescents in the United Kingdom actually read more and enjoyed reading more during the lockdown. This pattern of increased reading and enjoyment, however, did not apply to children who typically had access to fewer books (Clark & Picton, 2020).

While these findings contributed to our understanding of children's leisure reading, most of the studies reviewed failed to take account of the potential heterogeneity of participants' language backgrounds, instead focusing exclusively on English or on the schooling language of the research setting. Given that more children worldwide grow up to become bi- or multi-lingual than monolingual (Baker, 2011; Bialystok, 2018), promoting children's leisure reading is likely to require an understanding of their reading habits and preferences in more than one language.

### **Bilingual Leisure Reading**

Children who grow up in different linguistic contexts may follow different routes in their literacy development (Bialystok, 2018). Linguistic context and language exposure may vary greatly across settings of first, second or foreign language acquisition. Thus, bilingual children's literacy acquisition processes may diverge from those of monolingual children. It is important to understand the challenges and opportunities children have when learning two languages. Although there is a notable lack of research on bilingual leisure reading among school-age children, extant research has suggested that there is a reading enjoyment gap between bilingual children's two languages. In a study of the reading motivation and reading comprehension in Chinese and English among fifth grade bilingual children in Hong Kong, Lin et al. (2012) found that children were

more motivated to read in their first language (Chinese) for enjoyment and in English as a foreign language for functional reasons such as getting good grades. In a survey study of the leisure reading of 109 10-year-old English-Malay bilingual children in Singapore, Norhaida (2009) found that the majority of children read English (their first language) books more frequently, despite rating themselves proficient in reading in both languages. In a more recent study, Sun et al. (2020) examined bilingual leisure reading in 866 Singaporean English-Chinese and 238 English-Malay bilingual children and found the children generally enjoyed reading in English more than reading in their other language and they read English books more often and for longer duration as well. Interestingly, children's reading duration and frequency in their two languages were significantly correlated, but their reading enjoyment in their two languages were not correlated. In another study investigating 58 students aged 10–18 who receive formal instruction only in English at school and enrolled in a weekend Chinese heritage school in the United States, Smith and Li (2020) found the children's English reading enjoyment was negatively related to their Chinese reading enjoyment.

Though limited in scope and quantity, existing studies provide a glimpse of how bilingual children in different learning contexts practise leisure reading in two languages. Bilingual research has consistently shown that children's biliteracy development is significantly influenced by the interaction of language exposure, language-specific features and formal schooling. More research is needed to further our understanding of how bilingual leisure reading interacts with these factors.

### **Singapore Context and the Present Study**

Singapore is a multilingual and multicultural country with four official languages (English, Chinese, Malay, Tamil) and three main ethnic groups: 74.4% Chinese, 13.4% Malay and 9.0% Indian (Singapore Department of Statistics, 2019). Under Singapore's bilingual education policy, children are required to learn English as their first language of schooling and their mother tongue (MT), determined by ethnicity, as their second language at school (Singaporean Ministry of Education [MOE], 2010). The predominant language used at home is not considered in the policy. Thus, bilingual education in Singapore is pluralistic with different combinations (English-Mandarin, English-Malay and English-Tamil) within the same educational setting.

The current curricula for all languages seek to foster a love of reading (Singaporean MOE, 2010, 2015). However, as English is seen to provide economic advantages for Singapore and remains the lingua franca across communities, it has become more dominant in society, and with

a decline in MT proficiency (O'Brien et al., 2014; Silver et al., 2013; Sun & Curdt-Christiansen, 2016). As such, Singapore provides a unique research site to examine how bilingual children practise leisure reading with different language combinations rather than, for example, studying only one language combination (e.g. English-Chinese) which might be impacted by language specific features.

As a digitally advanced and highly connected country (Yip, 2019), Singapore has continuously endeavoured to support and improve children's learning through online resources via a ministry-sponsored online learning portal. Prior to the lockdown, children who did not have sufficient devices for home-based learning were provided with Internet-enabled and digital devices for learning at home (Ang, 2020). In addition to school resources, the National Library Board (NLB) provides Singaporean children with free access to its vast e-collection (Lam, 2020). However, whether the digital resources would ameliorate reading loss during the lockdown remained an open question.

The purpose of this study is to examine the two-month lockdown effect on reading enjoyment, amount and resources in three groups of children - English-Chinese, English-Malay and English-Tamil Singaporean bilingual children. Specifically, the following research questions guided the study:

1. Within each language, do Singaporean primary school children report changes in reading enjoyment and amount of print versus digital reading before and during the lockdown?
2. Are there differences between English and MT in reading enjoyment and amount of print versus digital reading before and during the lockdown?
3. What are their sources of reading materials in the two languages during the lockdown?
4. What are the relationships between reading enjoyment, amount of print versus digital reading and time spent on devices within and across English and MT?
5. How do the children in the Focus Groups explain their English and MT leisure reading preferences and any changes that may have occurred during the lockdown?

### **Methods**

This study is part of a larger base-line study of Singaporean children's bilingual leisure reading. Data collection planned for the first half of 2020 was postponed as Singapore went into a two-month "Circuit Breaker", or lockdown, from 8 April to 1 June 2020. During the Circuit Breaker period, HBL was instituted in the first month and the second month was declared a school



holiday. During HBL, children utilised technology for learning and effort was taken to ensure all Singapore children had access to devices. Children returned to school in phases in June, with cohorts rotating between HBL and going to school. All children reported physically to school on 29 June 2020 and it was announced that regular HBL would be integrated into future learning (Davie, 2020). In light of these circumstances, the original study was adapted to include a section on children's leisure reading during the lockdown.

The study adopted an explanatory sequential mixed methods design (Creswell & Clark, 2017), in which quantitative data (a reading survey) was collected and analysed first and then expanded on and corroborated by qualitative data obtained from semi-structured Focus Group Discussions (FGDs). That is, survey results yielded some general patterns of the children's bilingual leisure reading before and during the lockdown. The FGD served as a follow-up to provide a deeper and richer understanding of how and why children read in English and MT during the lockdown. Figure 1 shows the sequence of data collection and analysis of the study.

In Singapore, most primary schools are fully government funded (i.e. "government schools") though a few rely on a mix of government funds and funds from other sources (i.e. "government-aided") (Singaporean MOE, 2020). For this study, participants in the quantitative strand of the study were 2,012 primary four and five children (aged 10 – 11) from six government primary schools in Singapore. The sample included 1420 Chinese (70.6%), 338 Malay (16.8%), 174 Indian (8.6%) and 80 children of other ethnic origins (4.0%), reflective of Singapore's multicultural population ratios. 48.4% of the children were girls.

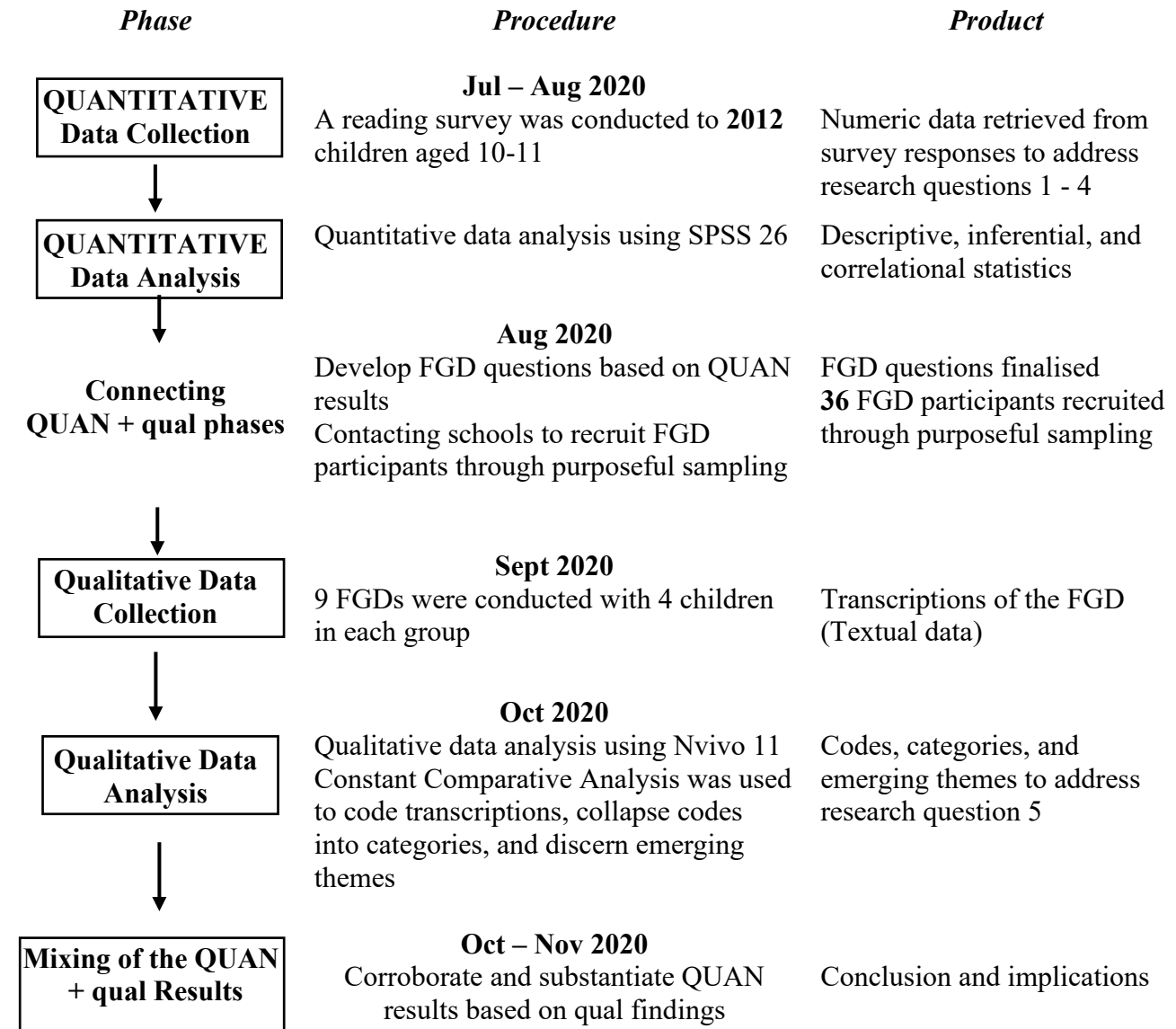
### ***Survey and Data Analysis***

A 68-item reading survey was adapted from Loh and Sun (2018) and Sun et al. (2020). For the purpose of the present article, responses to 24 questions were retrieved and grouped into three categories: (1) reading enjoyment before the lockdown and changes during the lockdown; (2) sources of reading materials and access to devices during the lockdown, (3) reading amount before the lockdown and changes during the lockdown. (Appendix A includes the questions and explains survey development). Survey data were submitted to descriptive, inferential (ANOVA and Wilcoxon signed-rank tests) and correlational analyses using SPSS 26.

**Figure 1**

*Sequence of Data Collection and Analysis*

**Quantitative Data Collection and Analysis**



***Participants***

***Procedures***

Schools resumed full face-to-face sessions for all children in July 2020. Due to continuing restrictions on visitors to schools and social distancing, the survey was administered between July and August 2020 through either the school’s online learning platform or paper-and-pen copies to groups of children in their classrooms by their class teachers. Thus, children’s reports on their leisure reading are retrospective. Detailed administration guidance and training were provided to

teachers via email or online meetings. The teachers informed the children about the research and clarified that their participation would not affect their academic grades.

## **Qualitative Data Collection and Analysis**

### ***Participants and Procedures***

After quantitative data were collected and analysed, a sub-set of students from one of the schools was invited to participate in FDGs in early September 2020 with full compliance of the school's COVID-19-related safety measures. School selection was based on willingness to participate and on restrictions for visitors to schools during this period. After careful discussion with the school and teachers, 36 primary grade four children were chosen, with a spread of varied reading proficiencies (i.e. 12 avid, 12 average, and 12 reluctant readers), based on their teachers' assessment. Gender and racial groups were evenly distributed. The FDGs were conducted in school and audio recorded, with each group consisting of four children and each session lasting around 30 minutes.

### ***Focus Group Discussion and Data Analysis***

The FDG questions focused on children's experiences and challenges of practising leisure reading in their two languages during the lockdown, how they utilised technology to read, and their access to reading materials during the lockdown. (See Appendix B for the FDG guiding questions.) In addition, responses from one open-ended question from the survey were analysed qualitatively. The question asked the children to describe their reading experience during the lockdown; 88.2% of the participants responded.

The transcribed FDG data and the responses to the open-ended question were analysed using Nvivo 12. Data were coded using constant comparative coding procedures (Glaser, 1992) and thematically analysed to allow patterns around bilingual leisure reading during lockdown to emerge. For reliability, two researchers coded 50% the transcriptions independently and then compared the coded results. Inter-coder reliability was 84.6%. Where marked discrepancies existed between the coders, the excerpts were discussed until a consensus was reached. The remaining 50% of the transcriptions were then split between the two researchers and coded.

## **Results**

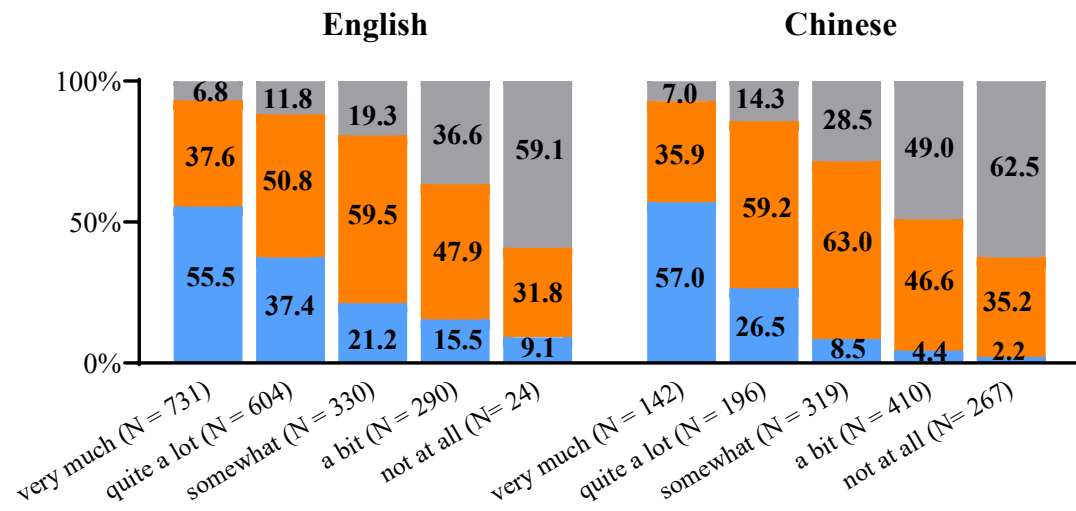
### **Quantitative Results**

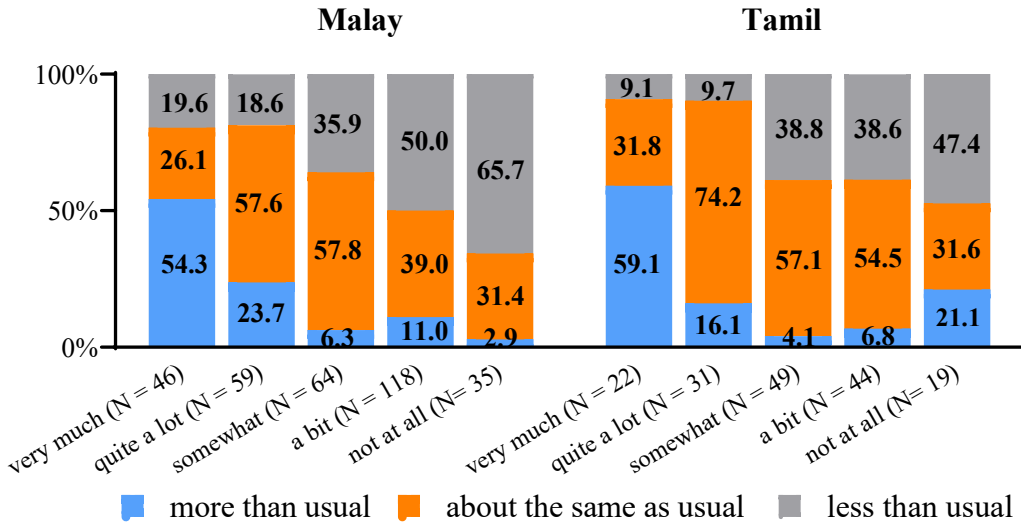
#### ***Changes in Children's Reading Enjoyment and Amount Within Each Language Before and During the Lockdown***

Reading enjoyment in each language before the lockdown was measured on a scale of 1-5, where 1 = “not at all” and 5 = “very much”. Change in reading enjoyment was measured on a self-reported scale of 1-3, where 1 = “less than usual”, 2 = “about the same as usual” and 3 = “more than usual”. Specifically, we were interested in whether children who enjoyed reading before the lockdown reported enjoying reading more during the lockdown. Thus, Figure 2 shows how children’s reading enjoyment level before the lockdown (X axis) was related to their changes in reading enjoyment during the lockdown (colour-coded bars). Using the Chinese data as an example, 57.0% of children who enjoyed reading in Chinese very much before the lockdown reported enjoying reading in Chinese more during the lockdown (blue bar); in contrast, 62.5% of them who did not enjoy reading in Chinese at all enjoyed reading less than usual during the lockdown (grey bar). Across all four languages, the results showed a clear pattern between children who enjoyed reading and who did not, i.e. children who enjoyed (did not enjoy) reading before the lockdown were likely to enjoy reading more (less) during the lockdown.

**Figure 2**

*Changes in Reading Enjoyment During the Lockdown by Language in Relation to Reading Enjoyment Before the Lockdown*

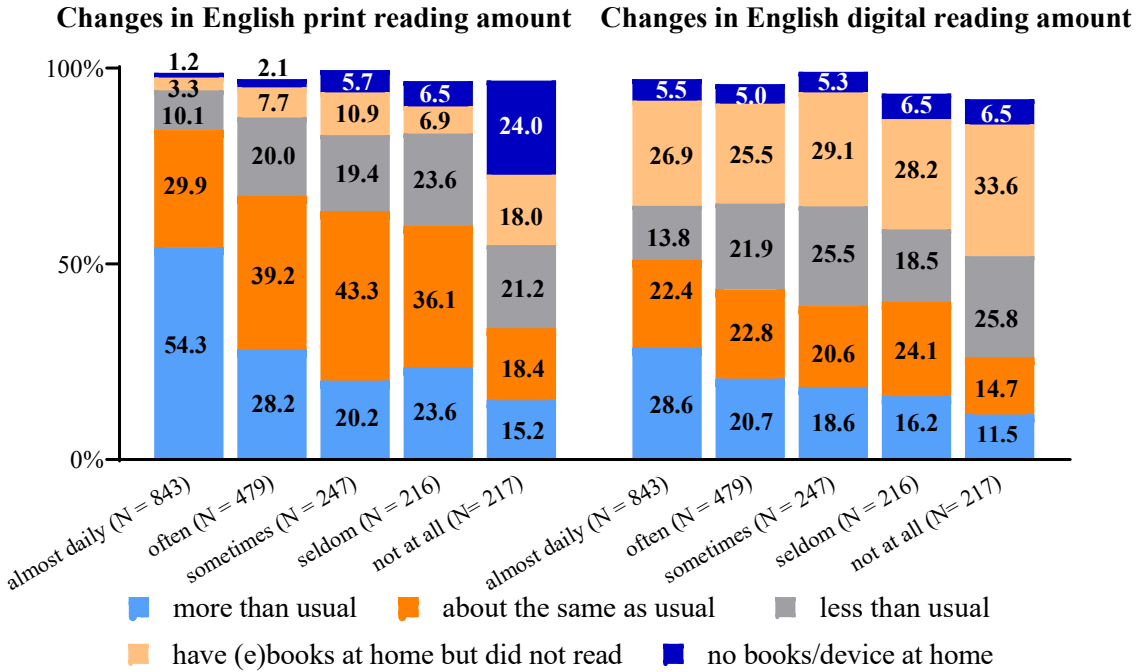




Children’s reading frequency and duration in print (books) and digital formats (e-books/online materials) before the lockdown were measured. Reading frequency was assessed on a scale of 1-5 (1 = almost daily and 5 = not at all) and reading duration was measured on a scale of 1-4 (1 = less than 15 minutes and 4 = more than an hour). Children were also asked to indicate if they read print or e-books/online materials in English and MT “more than usual” (coded as 3), “about the same as usual” (coded as 2) or “less than usual” (coded as 1) during the lockdown. As the results reveal similar patterns across all four languages and both formats, only English results are presented (results for the other languages appear in Appendixes C and D). Figures 3 and 4 present changes in children’s English print/digital reading amount during the lockdown (colour-coded bars) compared to their English print reading frequency and duration before the lockdown (X axis), respectively.

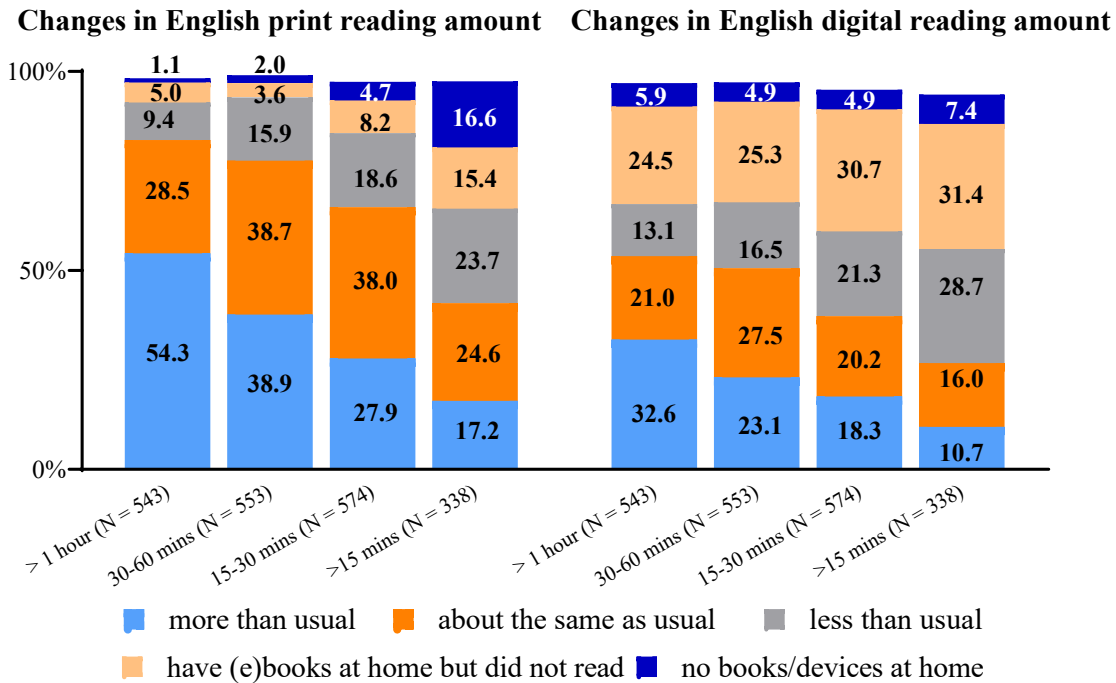
**Figure 3**

*Changes in English Print/Digital Reading Amount During the Lockdown in Relation to English Print Reading Frequency Before the Lockdown*



**Figure 4**

*Changes in English Print/Digital Reading Amount During the Lockdown in Relation to English Print/Digital Reading Duration Before the Lockdown*



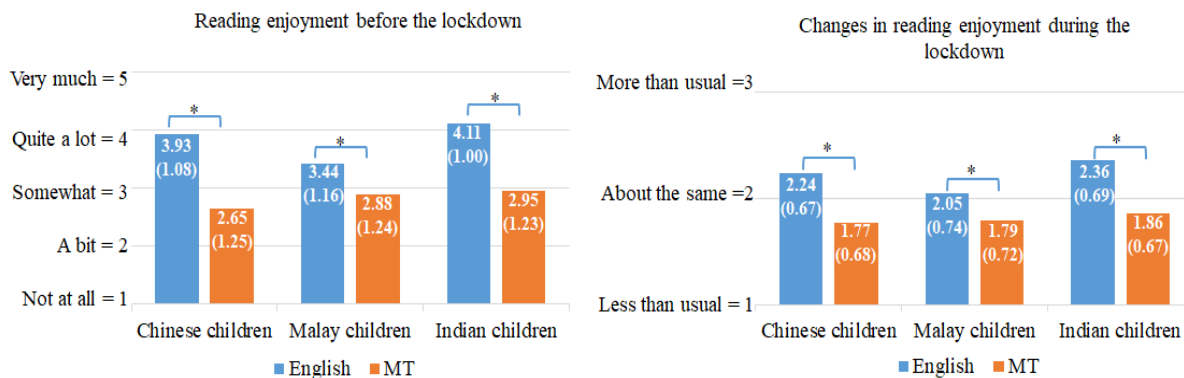
Children who read more often or for longer durations before the lockdown were more likely to report reading more than usual during the lockdown in both print and digital formats. Conversely, children who did not read at all before the lockdown tended to read less than usual in print and digitally. For instance, 54.3% the children who read in print daily before the lockdown reported reading more during the lockdown, whereas only 15.2% of the children who did not read at all reported so. More importantly, 18.0% of the children who reported they did not read at all had English print books at home but did not read them and 24.0% of them did not have books at home, suggesting challenges faced by the non-readers may not be the same. As shown in Figure 4, larger proportion of children (25.5 - 33.6%) chose not to read e-books, despite having them at home, compared to those who had print books at home but did not read them (3.3-18.0%). Together with the earlier results on changes in children’s reading enjoyment, these results suggest that the lockdown may not have affected all children in the same way but, instead, amplified some children’s reading enjoyment and reading amount before the lockdown.

***Differences in Reading Enjoyment and Amount Between Children’s Two Languages Before and During the Lockdown***

Figure 5 presents the descriptive results on reading enjoyment before lockdown and the change during the lockdown, along with a series of paired-samples *t*-tests at a Bonferroni-adjusted alpha level of .016 (0.05/3). These results revealed a clear reading enjoyment gap between English and MT for all three groups before the lockdown. Moreover, the English-MT reading enjoyment gap widened during the lockdown, as significantly more children reported enjoying reading more than usual in English than in MT.

**Figure 5**

*English/MT Reading Enjoyment Before and During the Lockdown*



\* *p* < .016

A series of two-way within-subjects ANOVAs were conducted within each group of children to evaluate the effects of language (English and MT) and reading format (print and digital) on reading frequency and duration before the lockdown. Table 1 shows the results. Across all three groups, there were significant main effects for language on reading frequency and duration, suggesting that children read significantly more frequently and for longer in English than in MT, regardless of reading format. Moreover, a main effect was obtained for reading format, indicating that children read more frequently and for longer in print than digitally, in both languages. No significant interaction effects were obtained.

**Table 1**

*Print and Digital Reading Frequency and Reading Duration by Language before Lockdown*

English-Chinese children								
Variables		English		MT		Language effect	Format effect	Language * Format
		Print	Digital	Print	Digital		<i>F</i>	
Reading frequency	<i>M</i> ( <i>SD</i> )	3.85 (1.34)	2.47 (1.44)	2.91 (1.34)	1.63 (0.96)	803.03***	1525.35***	3.02
Reading duration	<i>M</i> ( <i>SD</i> )	2.75 (1.04)	2.08 (1.09)	2.03 (1.02)	1.43 (0.71)	734.20***	850.61***	3.05
English-Malay children								
		Print	Digital	Print	Digital		<i>F</i>	
Reading frequency	<i>M</i> ( <i>SD</i> )	3.22 (1.47)	2.33 (1.35)	2.76 (1.37)	1.86 (1.18)	50.11***	156.79***	0.00
Reading duration	<i>M</i> ( <i>SD</i> )	2.21 (1.03)	1.85 (0.96)	1.83 (0.90)	1.46 (0.73)	65.28***	68.15***	0.01
English-Tamil Children								
		Print	Digital	Print	Digital		<i>F</i>	
Reading frequency	<i>M</i> ( <i>SD</i> )	3.98 (1.25)	2.68 (1.45)	2.93 (1.23)	1.81 (1.13)	158.39***	134.43***	1.66
Reading duration	<i>M</i> ( <i>SD</i> )	2.65 (0.98)	1.94 (1.03)	2.06 (0.86)	1.52 (0.78)	68.72***	91.50***	3.43

\*\*\*  $p < .001$

The gap between English and MT reading amounts continued during the lockdown. As Table 2 depicts, Chinese and Indian children read significantly more in English than in MT during the lockdown both in print and digitally. Although Malay children also read more in English than in MT, the difference was not statistically significant. Moreover, across all three groups, children's preference for print reading remained unchanged during the lockdown, as shown in the main effect of reading format obtained from the ANOVA.



**Table 2***Changes in Print and Digital Reading Amount during the Lockdown by Language*

English-Chinese children								
Variables	English		MT		Language effect	Format effect	Language * Format	
	Print	Digital	Print	Digital				<i>F</i>
Changes in reading amount	<i>M</i> ( <i>SD</i> )	2.25 (0.72)	2.07 (0.76)	1.92 (0.69)	1.80 (0.66)	106.99***	26.85***	3.34
English-Malay children								
Changes in reading amount	<i>M</i> ( <i>SD</i> )	1.99 (0.73)	1.81 (0.75)	1.95 (0.71)	1.83 (0.73)	0.02	6.92*	0.54
English-Tamil Children								
Changes in reading amount	<i>M</i> ( <i>SD</i> )	2.31 (0.74)	1.98 (0.81)	1.93 (0.65)	1.75 (0.77)	15.93***	6.99*	0.85

\*  $p < .05$ , \*\*\*  $p < .001$ ***Children's Sources of Reading Materials in Children's Two Languages During the Lockdown***

To measure children's ownership of print and e-books, children were asked to indicate if they owned fewer than 10 books, 11-20 books, 21 -50 books, 51-100 books, or more than 100 books. Table 3 presents the descriptive results. Non-parametric Wilcoxon signed-rank tests showed that across all three groups, children owned significantly more English than MT print books ( $Z_s = -23.22 - -8.62$ ,  $ps < .001$ ) and e-books ( $Z_s = -13.46 - -5.69$ ,  $ps < .001$ ). Within each language, children also possessed significantly more print books than e-books ( $Z_s = -22.70 - -7.53$ ,  $ps < .001$ ). (-26.04 - -5.19)

**Table 3***Descriptive Results of the Numbers of Print and e-Books Children Owned at Home*

Groups	English		MT	
	Print	Digital	Print	Digital
English-Chinese children	3.00	1.00	2.00	1.00
English-Malay children	2.00	1.00	1.00	1.00
English-Tamil children	3.00	1.00	1.00	1.00

To understand if children tapped on technology for reading resources during the lockdown, their access to devices was examined. The children were asked to indicate if they spent less, about the same, or more time on devices in their free time during the lockdown. Options of "my parents/guardian did not allow me to use any devices" and "I don't have any devices" were also

provided. See Table 4. Overall, very few children lacked access to devices and very few parents forbade them from using devices in their spare time during the lockdown. While one quarter of the children spent about the same time on devices, more than half of children (58.0%) spent more time on devices.

**Table 4**

*Children’s Access and Time Spent on Devices in Their Free Time during the Lockdown*

	All participants
No, I spent less time.	9.2%
No, I spent about the same time.	26.8%
Yes, I spent more time.	58.0%
My parents/guardian did not allow me to use any devices.	4.0%
I don’t have any devices.	1.8%

To understand their reading resources during the lockdown, the children were presented a list of reading material sources and asked to select resources they used for their two languages. See Table 5. Consistent with children’s preference for print reading reported earlier, across three groups, the top three most opted for sources are print-related, i.e. home, online bookstore, and public/school library. Online resources/e-books and NLB app were not well utilised, as only 11.2-22.2% of the children chose them as their English and MT reading resources. Teachers and friends were the two least chosen sources.

**Table 5**

*Sources of Reading Materials during the Lockdown*

	English	Chinese	Malay	Tamil
Home (I have reading materials at home)	73.7%	70.7%	63.4%	64.7%
Online bookstore (my family members bought for me)	27.0%	21.0%	23.3%	26.9%
Public or school library (borrowed before the lockdown)	26.8%	21.8%	26.4%	28.1%
Online resources/e-book	22.3%	14.8%	12.4%	16.8%
NLB app	19.1%	11.2%	11.5%	19.2%
Teachers/school	9.8%	10.3%	16.5%	10.8%
Friends	9.8%	7.2%	12.1%	12.6%

***Within and Cross-language Relationship Between Reading Enjoyment, Amount and Time Spent on Devices***

Pearson correlations were conducted and tested against a Bonferroni-adjusted alpha level of 0.0014 (0.05/36) and results are displayed in Table 9. Several noteworthy patterns emerged concerning the relationship between reading enjoyment and reading amount. First, the results

evinced a widening reading gap between children who enjoyed reading and those who did not. Across all three groups and within each language, children’s reading enjoyment before the lockdown, changes in their reading enjoyment and print reading amount during the lockdown are significantly correlated, with changes in reading enjoyment and changes in print reading amount during the lockdown being the highest ( $r_s = .17 - .72$ ). Children who enjoyed reading before the lockdown were more likely to enjoy reading more during the lockdown, which would lead to more print reading and vice versa (as detailed in Figures 2-4).

**Table 6**

*Within and Cross-Language Relationship between Reading Enjoyment and Reading Amount for all Three Groups*

English-Chinese Children	1	2	3	4	5	6	7	8
1. EL enjoyment								
2. EL enjoyment changes	.38*							
3. EL print amount changes	.33*	.56*						
4. EL digital amount changes	.29*	.28*	.20*					
5. Chinese enjoyment	.18*	.10*	.09	.10				
6. Chinese enjoyment changes	.13*	.21*	.18*	.19*	.50*			
7. Chinese print amount changes	.17*	.20*	.30*	.22*	.44*	.72*		
8. Chinese digital amount changes	.09	.16*	.14	.43*	.33*	.53*	.52*	
9. Time on device changes	-.10*	-.11*	-.06	.05	-.19*	-.14*	-.13*	-.07
English-Malay Children	1	2	3	4	5	6	7	8
1. EL enjoyment								
2. EL enjoyment changes	.31*							
3. EL print amount changes	.29*	.59*						
4. EL digital amount changes	.11	.22	.15					
5. Malay enjoyment	.23*	.20*	.08	-.06				
6. Malay enjoyment changes	.12	.34*	.27*	.10	.41*			
7. Malay print amount changes	.08	.25*	.28*	.14	.31*	.60*		
8. Malay digital amount changes	.03	.11	.09	.37*	.08	.39*	.49*	
9. Time on device changes	-.09	-.16	-.02	-.17	-.21*	-.13	-.15	-.03
English-Tamil Children	1	2	3	4	5	6	7	8
1. EL enjoyment								
2. EL enjoyment changes	.31*							
3. EL print amount changes	.17*	.40*						
4. EL digital amount changes	-.03	.17	.05					
5. Tamil enjoyment	.09	.01	.14	-.28*				
6. Tamil enjoyment changes	-.10	.29*	.28*	-.04	.35*			
7. Tamil print amount changes	-.08	.14	.31*	.16	.26*	.51*		
8. Tamil digital amount changes	-.07	-.01	.24	.33*	.16	.35*	.27*	
9. Time on device changes	-.13	-.20	-.02	.11	-.33*	-.27	-.23	-.04

\* $p < .0014$

Second, the results showed clear cross-language relationships between children's reading in their two languages. For both Chinese and Malay children, English reading enjoyment was significantly associated with MT reading enjoyment before the lockdown. Across all three subgroups, reading enjoyment changes and print reading amount changes in the two languages were significantly correlated. Moreover, both changes in print and digital reading amounts in English and MT were correlated across all three groups.

Importantly, change in time spent on devices was negatively and significantly correlated with children's MT reading enjoyment before the lockdown. For the Chinese subgroup, change in time spent on devices was negatively and significantly associated with reading enjoyment before the lockdown, changes in reading enjoyment in both languages during the lockdown, and change in Chinese print reading amount during the lockdown. For the Malay and Indian subgroups, change in time spent on devices was not correlated with changes in reading enjoyment, print reading amount or in digital reading amount in both English and MT during the lockdown. These results suggest that merely spending more time on devices did not necessarily lead to more digital reading in either language. In the case of Chinese children, more time on devices may even have impeded them from enjoying reading more in their two languages during the lockdown.

In the following section, we present the children's experiences and views on leisure reading in two languages during the lockdown, based on the results from FGD and the open-ended survey question.

### **Qualitative Results**

Themes that emerged from the qualitative analyses include reading as a relaxing leisure activity during the lockdown, reading gap between English and MT, transfer of reading enjoyment, uneven access to reading resources in English and MT, and under-utilisation of technology for bilingual reading during the lockdown. The results below are organised around the most prominent themes.

#### ***Reading as a Leisure Activity During the Lockdown***

When asked to share their thoughts on their reading experience during the lockdown, the top two sentiments concerned how they felt about reading during the lockdown and how they felt about the lockdown, summarised in Figures 6 and 7, respectively. Results indicate that overall children thought the lockdown was "boring". Some FGD participants shared "you are stuck at home and you get bored" and "it's boring and I did not get to talk to my friends". Reading, thus,

served as a source of enjoyment and relaxation because “reading help us cure our boredom”, “It calms you down, whenever we feel down” and “It was one of the source of entertainment when I was bored during HBL”.

**Figure 6**

*How Children Felt About the Lockdown (N = 250)*



**Figure 7**

*How Children Felt About Reading During the Lockdown (N = 918)*



Though reading was shown to be a preferred leisure activity by some survey participants during the lockdown, the FGD data depict a more varied picture, as some children acknowledged that they did not read or read less. One recurrent reason was distraction from devices: e.g. “it (reading) started to bore me, so I play on my phone”; “I read lesser as I spend more time on games”. Another common reason was the lack of reading materials, e.g. “I couldn’t do much reading because the library was closed”; “mostly we study at HBL because we do not have enough books

at home”; “I went to the school library and borrowed some English books but I finished in a few days. Then I have no books to read”.

### ***Leisure Reading in two Languages During the Lockdown***

**Gaps Between English and MT Leisure Reading.** Consistent with survey results showing a widening English–MT reading gap, most of the FGD children shared that they enjoyed reading in English more and read more in English both before and during the lockdown, with only six children reading in both languages equally often. Only four children stated that they preferred reading in their MT. The reasons for their reading preferences mostly related to language proficiency. To them, English is “easier to read”; “I understand English better”; “I literally devoured the books”, whereas MT is “For Chinese... let’s say the opposite of devour”; “we are not like pros in Tamil than like English”; “for Malay I don’t really understand all the words”.

**Transfer of Reading Enjoyment.** Despite the reading gap between their two languages, reading as an enjoyable experience was not restricted to any language, as the children recurrently described reading a good English or MT book as “enjoyable”, “get addicted”, “I feel like you’re inside the book and sometimes I can dream about it”, or “like once I read one book, it’s like five minutes, but it’s like one hour actually passed”. This shared enjoyable experience may have motivated some children to seek the same enjoyment in the language they preferred less, especially when reading resources were limited during the lockdown. In the following excerpts, Deepthi (an Indian girl) who preferred reading in English and Limei (a Chinese girl) who preferred reading in Chinese described their experiences of extending reading enjoyment from one language to the other.

[excerpt 1]

Interviewer: So it’s mainly because you don’t understand the words in your Tamil books?

Rajani: If we knew the words and the letters really well, we can read fast. It will be very interesting.

Deepthi: Because you know most of the Tamil books that we find, some look very interesting. But when we read the book, we read the first page and then we find it interesting, but when we go go go, there are many words we don’t know, then I feel boring.

Rajani: Yes it feels like it’s very long and never ends.

Deepthi: So I gave up.

[excerpt 2]

Interviewer: Since the Chinese books you bought online took very long to arrive, did you read any English books?

Limei: Oh, I have many English books at home, but usually I don't read. But this time it's so boring, (so) I went to the bookshelf, and there is the book. The pictures look very nice. So I was like, maybe English books are interesting too, so I read it.

Interviewer: I see. You like it?

Limei: It is very difficult. I don't like English, but I read more English books during Circuit Breaker, because my new Chinese books were delayed. But now I think I like reading English books a bit more than last time (chuckle). How to say, 爱屋及乌 [“love me, love my dog”]. [laugh]

The above excerpts provided qualitative evidence of the significant correlations between English reading enjoyment and MT reading enjoyment reported earlier by demonstrating how reading enjoyment in one language may influence children's reading enjoyment and reading behaviour in the other language. For both girls, experiencing leisure reading as an enjoyable activity was not an alien experience; therefore, they wanted to replicate the same joy in their other language upon seeing a book that interested them. However, their proficiency in the other language may not always have provided adequate support, given the uneven development of their two languages. Limei managed to “爱屋及乌” – discover and extend reading enjoyment in her less preferred language, English – despite feeling that reading the English books was “very difficult”. On the contrary, Deepthi's limited Tamil proficiency restricted her from enjoying reading in her MT as much as she enjoyed reading in English.

### ***Uneven Access to English and MT Reading Resources***

One factor that might have further compounded the English–MT reading gap and cross-language facilitation is uneven access to English and MT reading resources both online and offline. During the lockdown, when libraries and bookstores were closed, some FGD children sought reading resources online. However, the distribution of English and MT online resources was reflective of the offline resources. The children explained that “online books almost all of them are English”, or “it's really hard for me to find Malay books online”.

In addition to quantitative differences, there were qualitative differences in children's access to reading resources in their two languages. Regardless of their preferences for English or MT, the FGD participants showed more familiarity with English books. When asked to list book

titles they had recently read, 36 children mentioned 45 different English titles and 18 authors. By contrast, only five different popular Chinese children books were reported and Malay and Tamil children's books were restricted to collections of moral stories. Such quantitative and qualitative disparities in accessing reading materials may foster or impede children's leisure reading during a lockdown, as illustrated in the excerpt below.

Interviewer: Did you read more in English?

Idayat: Before Circuit Breaker, I didn't think the book was interesting but now I think it's interesting so like every day after school I will read.

Interviewer: What is the book?

Idayat: I just finished reading the *Harry Potter* series so now I'm at *Land of stories*.

Interviewer: So during Circuit Breaker period did you read a lot?

Idayat: Not that much, but more than last time.

According to Idayat, he knew about *Harry Potter* and *Land of Stories* and had them at home but had not read them before the lockdown. During the lockdown, this prior knowledge and the availability of books created the right conditions for him to take up reading as a new hobby. Similarly, lacking knowledge and access to high-quality MT books may impede children's reading, as none of the FGD children shared similar experiences of MT reading.

### ***Under-utilisation of Technology for Bilingual Leisure Reading During the Lockdown***

Despite the easy and increased access to technology during the lockdown, devices were under-utilised for reading purposes. Across all four languages, FGD children overwhelmingly preferred reading in print to reading digitally. This was mainly because printed materials provided a better and smoother reading experience and they had more access to print books. Children were more at ease in using their devices for entertainment purposes (e.g. games, videos) than for searching for reading materials, as the former are easier to navigate.

For English, the common challenge FGD children faced regarded the availability of books they liked online. Children complained that "the online library showed me books I don't want, what I want is always taken" and "some need to pay money to read their books". A different picture emerged regarding searching for MT digital reading materials. Children had a difficult time in obtaining suitable and age-appropriate MT reading materials. Children shared frequently that "online Tamil is like a bit more difficult than the print book I usually read" and "they use hard words in some books if I read online". In the following excerpt, one child lamented in detail.



If it is like a real book, we know the age but when its online, it's just all there. They never even say which age, sometimes when you want to read, it's all for primary 1, sometimes it can be for primary 6 or adult, so you will never find the book for your age. [Sarah]

Sarah appeared to be familiar with searching for print books by the targeted age group and she tried to use the same strategy to locate digital reading materials in her MT. However, unlike the graded readers and High/Low books that are easily available in English, equivalent reading materials for all three MT were severely lacking, especially online. Therefore, Sarah could “never find the book for your (her) age”.

### **Discussion**

Our study on Singaporean bilingual children's leisure reading during the COVID-19 lockdown contributes to the literature on education during the pandemic in several important ways. It adds to the current research base on summer reading loss, extends the understanding of leisure reading in two languages and adds new knowledge concerning children's print and digital leisure reading.

First, the study contributes to the research on summer reading loss by documenting a similar period of children's absence from school. In addition to the reading gap between children of different SES backgrounds reported in previous summer reading loss studies (Alexander et al., 2007; Allington & McGill-Franzen, 2017; Quinn & Le, 2018), our results extend existing research by demonstrating a clear Matthew effect between children who enjoyed reading and children who did not across all three bilingual groups, for both of their languages and in both print and digital formats. This lends credence to recent studies that predicted the lockdown may not affect all children equally and that some children may even have reading gains (Atteberry & McEachin, 2021; Kuhfeld et al., 2020). As shown in our study, the lockdown amplified children's pre-existing reading enjoyment and amount, resulting in reading gains for engaged readers and reading losses for disengaged readers. Such a gap, if unattended, could lead to a wider achievement gap when children return to physical school. Therefore, nurturing reading enjoyment and good reading habits during school days is crucial for sustaining good reading habits in both print and digital formats during prolonged time spent at home. The practice of integrating daily reading, common in Singapore primary schools, with its strong focus on extensive reading, was likely absent during the sudden lockdown as teachers grappled with other curricular and teaching concerns rather than how to encourage or maintain children's reading enjoyment. Moving forward, promotions of

online or blended learning practices should take into account how to integrate reading practices to facilitate and maintain children's leisure reading.

Second, the results underscore an important but sparsely researched benefit of leisure reading for mental well-being (Clark & Teravainen-Goff, 2018; Mumper & Gerrig, 2017) – that is, reading provided a viable source of enjoyment and relaxation for children during a pandemic lockdown. In addition to the well-documented academic and lifelong learning benefits, this finding provides educators with one more reason to nurture children's love of reading, as it benefits children in ways that last a lifetime.

A third important finding is that the lockdown effect was not equal across all languages. Our investigation revealed a widening reading gap between Singaporean bilingual children's stronger language (English) and weaker language (Chinese/Malay/Tamil). This highlights how the lockdown may interact with language policy in affecting bilingual children's leisure reading in their two languages, regardless of their MT. Language policy has been consistently shown to be instrumental in shaping children's bi/multi-literacy development (Baker, 2011; Silver, 2005). In Singapore, even though the current bilingual policy gives equal official status to English and MT, English has occupied a privileged position as it provides economic advantages for Singapore and is the lingua franca across communities. Consequently, Singaporean bilingual children receive more formal instruction in English than in MT and an increasing number of them live in homes where the most common home language is English (Lee, 2019). The greater exposure to English written and oral language in school and at home thus leads to a higher level of English proficiency, which in turn paves the way for these children to develop greater enjoyment toward reading in English and more reading amount before the lockdown. Furthermore, as our results showed, the quantitative and qualitative differences between English and MT reading resources both at home and online place MT leisure reading in an even more disadvantageous position during the lockdown. More importantly, research has suggested that factual and procedural knowledge may be more susceptible to memory decay than conceptual knowledge is during summer break (Cooper et al., 1996; Kuhfeld et al., 2020). Thus, children's MT decoding skills may have dissipated owing to the relative lack of reading practice during the lockdown, as the participating children were still undergoing the decoding stage of learning their MT and had yet to achieve the fluency required for proficient reading. Therefore, more consideration and support should be given to children's

MT leisure reading when promoting reading during school holidays or designing online reading curricula.

An unexpected finding of this study is the significant interconnection between English leisure reading and Chinese/Malay leisure reading. Children's reading enjoyment before the lockdown, changes in reading enjoyment and print reading amount during the lockdown in English and Chinese/Malay were significantly correlated, contradicting earlier studies conducted in the United States (Smith & Li, 2020) and in Singapore with a similar but smaller sample (N = 868, Sun et al., 2020). The discrepancy with Smith and Li (2020) may be due to its sample size and participants' language learning contexts. Unlike Singaporean bilingual children who receive formal instruction in both languages from kindergarten onwards, the 58 students involved in Smith and Li (2020) received formal instruction only in English at school and learned Chinese during weekends in heritage schools in the United States. Differences in language exposure and formal schooling may affect the extent of the interconnection between children's leisure reading in their two languages.

The discrepancy between the present study and Sun et al. (2020) may be attributed to different emphases of the MT curricula when the studies were conducted. In that study, children's reading duration and frequency in their two languages, but not reading enjoyment, were cross-linguistically correlated. In Singapore, language syllabus documents are updated every 10 years. The English syllabi have emphasized reading for enjoyment since 2001, however, a similar emphasis in MT syllabi only started in 2015. Hence, nurturing reading enjoyment in English was more emphasized than in MT languages. Sun et al. (2020) assessed participants under the previous MT syllabus in 2018, whereas participants in the present study had been under the new syllabus since primary one. It is possible that changes in syllabus focus positively impacted children's leisure reading in MT. Moreover, the results were analysed at the school level and the same patterns of correlations were found for each school, suggesting that, in general, the participating children who enjoy reading and who read often and for longer durations in one language are likely to do so in the other language. The FGD data substantiated this interconnection by showing that some children may extend their leisure reading from one language to the other, as the experience of enjoying a good book is similar across languages. These findings lend support to research on learning transfer, which posits that learners are likely to utilise explicit conscious formulation of abstraction in one situation that allows for making a connection to another situation (Salomon &

Perkin, 1989). That is, learners are likely to access and utilise their learning from one situation to another situation if their prior knowledge and key concepts of the two situations are connected (Bransford & Schwartz, 1999; Salomon & Perkin, 1989). Regarding leisure reading, when children read an interesting English or MT book, they tap into the same set of conceptual knowledge, suggesting that it is possible for bilingual children's leisure reading to be connected across languages. However, children's success in replicating an enjoyable reading experience from their preferred language to less-preferred language may be restricted by their proficiency in the less-preferred language and access to suitable books, as shown in the FGD data. More research needs to be done in this area to deepen our understanding of cross-language reading enjoyment and preferences and specific ways to encourage bilingual leisure reading.

Lastly, although Singapore has the most widespread Internet connectivity in the world, the participating children demonstrated a clear preference for print reading over reading digitally both before and during the lockdown and in both English and MT. This finding is similar to those reported earlier in the United States (Rideout, 2014), the United Kingdom (Scholastic, 2016), South Korea (Jeong, 2012) and Australia (Merga & Roni, 2017). Devices were under-utilised for reading purposes in English and MT, as changes in time spent on devices were not correlated with changes in reading enjoyment or amount in both languages during the lockdown. These results suggest that having access to technology does not naturally lead to more reading online in either language. Children need to be carefully socialised and guided in locating online materials and engaging with digital texts (Sun et al., 2021). From a policy perspective, this means that policymakers and educators implementing online or blended learning must account for children's reading preferences by providing them with print texts to support their reading engagement. Even when using e-resources, the provision of interesting reading materials, presence of social activities around books and vibrant programming are vital to encouraging student reading (Brueck et al., 2019; Jones & Brown, 2011).

### **Conclusion and Implications**

To conclude, the lockdown effect was not equal across all children and was especially detrimental to their weaker languages. Although reading is taught and promoted in school, children's uneven home practices may prepare some better than others for learning to read and acquiring leisure reading habits (Loh & Sun, 2020). To reap the full benefits of leisure reading and mitigate reading gaps due to school closures, it is important for educators and parents to consider

how to bridge the two cultural spaces (i.e. home and school) in children's linguistic ecology to support and sustain out-of-school reading. Furthermore, it is important to consider children's knowledge of and access to reading resources to provide more targeted support to less engaged readers. In addition, bilingual children's weaker language may be especially vulnerable during prolonged time spent at home. Reading programs should strike a balance between children's two languages. Moreover, our study suggests that nurturing reading enjoyment in either language may promote reading in both languages, since there is an interconnection in bilingual children's leisure reading in two languages.

Several limitations must be noted and addressed in future research. First, the cross-sectional design did not allow for mapping the developmental trajectories of leisure reading in children's two languages. Therefore, longitudinal studies are needed for future research. Second, due to space constraints, children's MT leisure reading was not examined in detail. The effects of their language-specific features, curriculum characteristics and available reading resources may be under-reported. Third, research has consistently shown that low-income children are adversely impacted by absence from school, but the scope of the present paper does not allow us to present the analysis on children from low-income families who are on financial assistance. Finally, COVID-19 restrictions prevented FGD with a larger group of children. Future qualitative studies should explore the impact of school absence and reading with a larger group of children.

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## **Appendix A**

### **Survey Development and Questions**

A set of lockdown-related questions was added to the main survey after the lockdown was in place. To ascertain that the new questions in the survey could be interpreted as intended, the questions were piloted with a small group of primary four (Grade 4 equivalent, 10-years-old)

children from another primary school. After they completed the questions, one-to-one interviews were conducted, during which the researchers asked the children to paraphrase the questions in the survey and interpret them. Items were then refined based on the results from the interviews. One of our concerns was that if children of this age have developed the concept of time well enough to distinguish before and during the lockdown, which may limit the accuracy of the results. During the interviews, the children showed no problem in distinguishing before and during the lockdown, as the lockdown affected their lives greatly and left a deep impression on them. Hence, although children's reports on leisure reading before the COVID-19 school closure and changes in leisure reading during the school closure are retrospective, the accuracy of the data can be trusted. This was confirmed in the FGDs conducted in September with children of the same age, about three months after the lockdown. The FGD children constantly compared their reading experiences before and during the lockdown.

The finalised survey contained a brief introduction to remind the children that the questions were about reading fiction and nonfiction books/materials in English and their MT, both online and offline, but not about school textbooks or assessment books. The children were also reminded that the first set of questions was about how they usually read out of school before the lockdown (i.e., before the pandemic), and the second set of questions was about reading during the lockdown. In consideration of English being the stronger language for the participants, the survey was in English (for details of survey development, see Sun et al, 2020). There are two sets of parallel questions, with the first set focusing on their English reading habits and preferences and the second set on their respective MT. Questions relevant to the present study are listed below.

1. How much did you enjoy English reading before Circuit Breaker?

Not at all  A bit  Somewhat  Quite a lot  Very much

2. Before Circuit Breaker, I read English print books \_\_\_\_\_ .

almost daily  often  sometimes  seldom  not at all

3. Before Circuit Breaker, I read English e-books/online materials \_\_\_\_\_ .

almost daily  often  sometimes  seldom  not at all

4. Before Circuit Breaker, when I read English print books, I could spend \_\_\_\_\_ on each reading session.

15 mins or less  16 to 30 mins  31 mins to 1 hour  more than 1 hour

5. Before Circuit Breaker, when I read English e-books/online materials, I could spend \_\_\_\_\_ on each reading session.  
 15 mins or less  16 to 30 mins  31 mins to 1 hour  more than 1 hour
6. During Circuit Breaker, I enjoyed reading English books \_\_\_\_\_.  
 more than usual  about the same as usual  less than usual
7. During Circuit Breaker, I read English print books \_\_\_\_\_.  
 more than usual  about the same as usual  less than usual  I don't have English print books at home  I have English print books at home but I didn't read them during Circuit Breaker
8. During Circuit Breaker, I read English e-books/online materials \_\_\_\_\_.  
 more than usual  about the same as usual  less than usual  
 I don't have a device (such as a computer/laptop/kindle /tablet/smartphone) to read English e-books/online materials.  
 I have a device but I didn't read any English e-books/ online materials.
9. During Circuit Breaker, did you spend more time on devices in your free time?  
 Yes, I spent more time.  No, I spent about the same time.  No, I spent less time.  
 I don't have any devices.  My parents/guardian did not allow me to use any devices.
10. How many English print books do you have at home?  
 0-10 books  11-20 books  21-50 books  51-100 books  More than 100 books
11. How many English e-books do you have at home?  
 0-10 books  11-20 books  21-50 books  51-100 books  More than 100 books
12. I got my English reading materials from \_\_\_\_\_ during Circuit Breaker period. (You may choose more than one)  
 Online bookstores (my family members bought for me)  Home  Public or school library (borrowed before Circuit Breaker)  NLB app  Teachers/school  Online resources/e-books  
 Friends  For other sources, please give examples \_\_\_\_\_
13. How much did you enjoy MT reading before Circuit Breaker?  
 Not at all  A bit  Somewhat  Quite a lot  Very much
14. Before Circuit Breaker, I read MT print books \_\_\_\_\_.  
 almost daily  often  sometimes  seldom  not at all
15. Before Circuit Breaker, I read MT e-books/online materials \_\_\_\_\_.

- almost daily  often  sometimes  seldom  not at all
16. Before Circuit Breaker, when I read MT print books, I could spend \_\_\_\_\_ on each reading session.
- 15 mins or less  16 to 30 mins  31 mins to 1 hour  more than 1 hour
17. Before Circuit Breaker, when I read MT e-books/online materials, I could spend \_\_\_\_\_ on each reading session.
- 15 mins or less  16 to 30 mins  31 mins to 1 hour  more than 1 hour
19. During Circuit Breaker, I enjoyed reading MT books \_\_\_\_.
- more than usual  about the same as usual  less than usual
20. During Circuit Breaker, I read MT print books \_\_\_\_\_.
- more than usual  about the same as usual  less than usual  I don't have MT print books at home  I have MT print books at home but I didn't read them during Circuit Breaker
21. During Circuit Breaker, I read MT e-books/online materials \_\_\_\_.
- more than usual  about the same as usual  less than usual
- I don't have a device (such as a computer/laptop/kindle /tablet/smartphone) to read MT e-books/online materials.
- I have a device but I didn't read any MT e-books/ online materials.
22. How many MT print books do you have at home?
- 0-10 books  11-20 books  21-50 books  51-100 books  More than 100 books
23. How many MT e-books do you have at home?
- 0-10 books  11-20 books  21-50 books  51-100 books  More than 100 books
24. I got my MT reading materials from \_\_\_\_\_ during Circuit Breaker period. (You may choose more than one)
- Online bookstores (my family members bought for me)  Home  Public or school library (borrowed before Circuit Breaker)  NLB app  Teachers/school  Online resources/e-books  Friends  For other sources, please give examples \_\_\_\_\_



## Appendix B

### Guiding Questions for Focus Group Discussion

- 1 How do you feel about the Circuit Breaker?
- 2 Did you like it? Why or why not?
- 3 Did you read more in English than usual during Circuit Breaker?
  - a. For yes, why did you read more? Did you also enjoy reading in English more?
  - b. For no, why didn't you read more?
- 4 What other things did you do during this period?
- 5 Since you were not able to go out, where did you get your English reading materials from?
- 6 How did your teachers help you read in English during Circuit Breaker?
- 7 How did your family help you read in English during Circuit Breaker?
- 8 For English, do you read both in print and online (i.e., read using your device, eg, phone, tablet, computer)? Are there any types of material you prefer to read online or in print?
- 9 Did you read more in MT than usual during Circuit Breaker?
  - a. For yes, why did you read more? Did you also enjoy reading in English more?
  - b. For no, why didn't you read more?
- 10 Where did you get your MT reading materials from?
- 11 How did your teachers help you read in MT during Circuit Breaker?
- 12 How did your family help you read in MT during Circuit Breaker?
- 13 For MT, do you read both in print and online (i.e., read using your device, eg, phone, tablet, computer)? Are there any types of material you prefer to read online or in print?
- 14 What devices do you have?
- 15 During Circuit Breaker, did you spend more time or less time on your devices?
- 16 What did you use the devices for?
- 17 Did you read more online using your devices? Why or why not?
- 18 Do you prefer to read using print or online? Why?

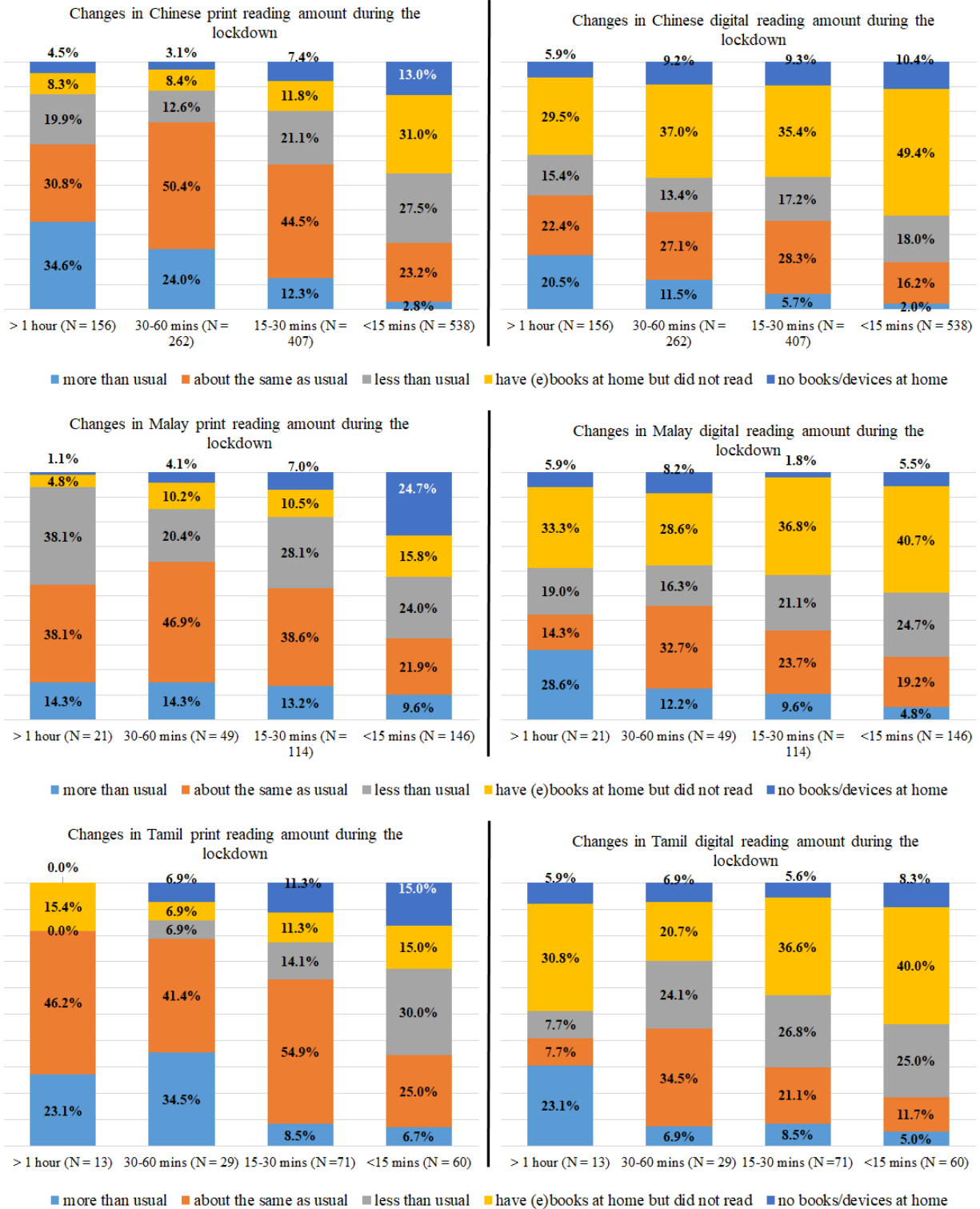
## Appendix C

### Changes in MT Print/Digital Reading Amount During the Lockdown in Relation to MT Print Reading Frequency Before the Lockdown



## Appendix D

### Changes in MT Print/Digital Reading Amount During the Lockdown in Relation to MT Print Reading Duration Before the Lockdown



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