BUILDING AN INCLUSIVE AND EQUITABLE EARLY CHILDHOOD EDUCATION FOR REFUGEE CHILDREN: FRAMEWORK FOR ACTION

Final Report

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Abbreviations

BEECERC	Building an inclusive and Equitable Early Childhood Education for Refugee Children
COVID-19	Corona Virus Disease 2019
CRC	Convention in the Rights of the Child
DAC	Development Assistance Committee
GCR	Global Compact on Refugees
GMR	Global Monitoring Report
GNI	Gross National Income
ECD	Early Childhood Development
ECE	Early Childhood Education
EF	Executive Functioning
ECEC	Early Childhood Education and Care
GCRF	Global Challenges Research Fund
GPD	Gross Domestic Product
IDELA	International Development and Early Learning Assessment
KL	Kuala Lumpur
LC	Learning Centre
LMICs	Low- and Middle-Income Countries
MOE	Ministry of Education (in Malaysia)
NGO	Non-Governmental Organisation
ODA	Official Development Assistance
PMNCH	Partnership for Maternal, New-born & Child Health
PTSD	Post-Traumatic Stress Disorder
PICUM	Platform for International Cooperation on Undocumented Migrants
RCT	Randomised Controlled Trial
RTI	Research Triangle Institute
SDGs	Sustainable Development Goals
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNHCR	United Nations High Commissioner for Refugees
USM	Universiti Sains Malaysia
VSO	Voluntary Service Overseas
WASH	Water, Sanitation, and Hygiene
WHO	World Health Organisation

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Executive Summary

All children, but vulnerable children at young age in particular need responsive care and opportunities for learning in order to thrive. Early childhood education (ECE) has an important role to play in providing young children with essential early learning and caregiving experiences. International research on the impact of ECE provision over the last decades drew attention to the benefits of high quality ECE for children's development, with some of the strongest effects found for the most disadvantaged children. Much of the research on ECE benefits has been carried out in high income countries. Nevertheless, positive impacts of early learning programmes on child outcomes have also been found across a range of low and middle impact contexts. Findings support international calls to invest in early childhood education and care, particularly for vulnerable children, to benefit their development and wellbeing, to tackle inequality, and to improve social cohesion and integration.

In low-resource contexts and in situations of crisis, many circumstances can prevent young children from experiencing the nurturing environment they need to thrive and develop. Refugee children are some of the most vulnerable populations in the world, the majority of them living in low resource contexts, and burdened with experiences of past traumatic events, and post-migration deprivation and stressors. Adding to those risk factors, past experiences of deprivation and stress also affect their family members and caregivers, who can in response struggle to provide their children with nurturing and supportive care needed for their health and development, including responsive stimulation and opportunities for learning. For refugee children, the potential of ECE to offer physical, psychosocial and cognitive protection to young children has been highlighted (UNESCO, 2010).

Yet the provision of ECE in humanitarian contexts is often extremely limited, and the regions with the vast majority of refugee families can face huge difficulties in providing ECE services for the most vulnerable children. An analysis of financing early childhood development and education programmes in LMICs concluded that there is an enormous financing gap between what is currently spent on early years interventions, and what is needed (International Commission on Financing Global Education Opportunity, 2016). Despite the SDGs clearly targeting early child development, and despite the fact that the international debate widely recognises education and schooling as priority needs even during severe crisis, there is criticism that a commitment to support education and learning in early childhood is too often overlooked in humanitarian response plans (Bouchane et al., 2018; Commission of the European Communities, 2008). It has been reported that for many years, less than three per cent of humanitarian funds available for refugees have gone to education UNESCO, 2017), resulting in a need to prioritise. Usually primary education is prioritised, followed by secondary education, with early years education commonly neglected. Too often, there is a total lack of ECE provision for refugees.

Until today almost everything that we know about providing early education for refugee children is based on research studies in the resettlement context, carried out in high income countries, which are united by the fact that they have common cultural and historical ties to Western Europe. The 'Building an equitable early childhood education for refugee children' (BEECERC) research project is a humanitarian response to address the current educational inequalities faced by refugee children. The project was undertaken in Malaysia, with the goal of enhancing our understanding of the provision of refugee ECE and its impacts on child development. Malaysia hosts one of the largest urban refugee populations in the world. While categorised as an Upper-Middle-Income Country, there are significant inequality issues in Malaysia, which have been exasperated through the consequences of the COVID-19 (coronavirus) pandemic. The lack of legal recognition of refugees in Malaysia, and the fact that Malaysia does not commit to providing education for children of refugees who are unable to access the formal education system, mean that refugee families in Malaysia belong to the most vulnerable groups. Since the start of the pandemic, risks of deportation have increased for refugees in Malaysia; this

threat means that refugee families may avoid applying for UNHCR refugee status or seek help of services for refugees.

As part of the BEECERC research project, three empirical studies on refugee ECE in Malaysia were carried out with the aim to explore:

- the impact of refugee ECE participation on child outcomes and the benefits to their school readiness
- the barriers and facilitators to ECE participation
- the key quality characteristics of ECE provision

The three separate studies were designed to link comprehensive data from children, families and educators in Malaysia, using both quantitative and qualitative approaches. Data was collected from children, families, and teachers in early learning centres in four areas, namely Kuala Lumpur, Selangor, Johor, and Kedah.

In Study One, 1,051 refugee children with different levels of access to ECE were assessed on their early learning and development outcomes, using the International Development and Early Learning Assessment (IDELA) tool (Pisani, 2018). Direct impacts of ECE on child outcomes were explored by testing associations between levels of ECE access and child outcomes in different domains. Information on family characteristics was collected through parent interviews, to capture information on family background and to explore those factors that were associated with ECE access. Logistic regression results showed that predictors of ECE access related to cultural norms, parental background and the age of the child. Group comparisons between children with different levels of access, and multiple regression analysis that tested associations between levels of ECE access and child developmental outcomes, clearly indicated benefits of ECE participation for child outcomes. Consistent with literature from high-income contexts, findings suggested that effects were most pronounced for cognitive outcomes (literacy, numeracy).

In Study Two, semi-structured interviews were carried out with 28 primary school teachers; questions focused on teachers' perceived differences in school readiness between refugee children who had and had not attended ECE prior to school entry. Between-group differences were tested quantitatively, and qualitative thematic analysis explored how teachers described differences in child behaviour and which strategies they used help to children catch up with their peers. The findings from Study Two supported the results from Study One. Teachers perceived that those children with preschool education benefited, with the differences most pronounced in their academic skills such as language, literacy and numeracy.

In Study Three, 79 ECE teachers completed questionnaires to report on structural quality characteristics, learning activities, engagement with parents, and curriculum. Descriptive analysis explored the key characteristics of ECE provision, and associations between different quality aspects were tested. Based on the data from the teacher survey, there are several barriers to early education for refugee children, including waiting lists, fees, and lack of transport. Additionally, providing early education is challenging due to the diverse backgrounds of the children in terms of age, ethnicity, and language. The teachers receive little training and support to implement holistic learning experiences, and there is a need to focus on partnership working and multilingual classroom practices. Although regression analysis found associations between teacher and center characteristics and levels of classroom resources for teaching and learning, none of these factors predicted the frequency and diversity of classroom learning activities. Future research should focus on measures that capture the quality of learning experiences to better understand the factors that promote the development and resilience of young refugee children in low-resource contexts. This information will be valuable in

informing the development of early education for refugee children in Malaysia and other similar contexts.

By collecting data in a lower-resource context, this study contributes to generating insights that are more relevant to similar settings, and may inform the development of more equitable and effective education interventions for refugee children. The evidence brought together by this project helps to highlight the importance of policies that address problems in the provision of early education for refugees in low-resource contexts. Education for refugee children and youth has become an important policy priority, yet until today challenges and barriers to access exist, as countries hosting the majority of refugees face enormous challenges in delivering inclusive and equitable quality education to their own populations, and even more so to their refugee populations. Without special measures, SDG4 will be unattainable. This is particularly true in the field of early education. Evidence collected by the current project is essential to strengthen the call for such measures and inform policies that help to address this issue.

1 Introduction

Refugee children are some of the most vulnerable populations in the world. Over 50% of refugees are under the age of 18. 72 percent of refugees live in countries neighbouring their countries of origin, and 83 percent of refugees are hosted in lower- and middle-income countries (LMICs) (UNHCR, 2022a). Around 80 percent of all refugees live in protracted situations such as unstable and insecure locations, most commonly dense urban areas, but also often overcrowded refugee camps, which have poor living conditions, and which can house families for generations (UNHCR, 2019b). Exposure to pre-migration traumatic events and post-migration deprivation and stressors can lead to prolonged negative effects for both child and adult refugees (Beiser, 2009; Bogic et al., 2012; Tam et al., 2017).

Due to the rights agreed upon in the 1951 refugee convention, a person who has been granted refugee status is protected by international law. However, access to services, including health and education for refugees depends on many factors, with one of them being whether a refugee has received official status. Not all displaced persons who might be legally entitled, feel able to apply for refugee status, and not all countries around the world have signed and ratified the 1951 refugee convention which guarantees refugees' human rights. This leaves some of those who have been forced to leave their countries in, particularly vulnerable positions. Many refugees face a lack of access to healthcare and education (Cerna, 2019; Cheng et al., 2018; Moinolnolki & Han, 2017). Refugee children have been reported to be five times more likely to be out of school compared to their non-refugee peers (Global Education Monitoring Report Team, 2016). Even those children of refugees born in their host country often face barriers to accessing education due to their immigration and citizen status, and many educations systems struggle to cope with issues related to increased migration (Commission of the European Communities, 2008; Moinolnolki & Han, 2017). To add to these risks, during resettlement refugee children often face many stressors that put them at greater risk of dropping out of school challenging acculturation processes, and the lack of a common language for communication (Betancourt, et al., 2015; Coll & Magnuson, 2014; Reed et al., 2012).

In 2015, all countries in the United Nations adopted the 2030 Agenda for Sustainable Development, which sets out 17 Goals that aim to address poverty, inequality and climate change, and call for action to ensure that all people enjoy health, justice and prosperity. The 17 SDGs are wide-ranging, ambitious and interconnected. Targets on child development and wellbeing are an important element of the Sustainable Development Goals (SDGs), firstly because protecting and supporting young children's development is an important human rights principle, and secondly because they are seen as key to achieving changes needed to address the world's biggest problems. Scientific evidence clearly shows the importance of early childhood as a critical period for children's development and their later wellbeing, with implications well into their adult lives. Neuroscientific findings on brain development were particularly important in demonstrating the significance of early experiences and supportive environments (Britto, 2017; Shonkoff et al., 2012). It is now clear that early childhood interventions can address threats to young children's development, and supporting families and communities can provide what young children need for their development and wellbeing, and increasing evidence also coming from LMICs (Khatib et al., 2020).

Early childhood education (ECE)[1], with its focus on early learning and responsive caregiving, is a key element in early childhood programming. Based on a human rights perspective and research evidence, the debate on the importance of investing in ECE for vulnerable children related to benefits to child development and wellbeing, the tackling of inequality, and improvements in social cohesion and

[1] While referred to as 'Early Childhood Education and Care' (ECEC) in many key documents and frameworks, 'Early Childhood Education' (ECE) as a term is more appropriate in the international context that considers the provision or early education around the globe.

integration. Increasingly, the debate about investments in the early years also relates to the reduction of social costs and economic growth for society (Garcia et al., 2016; Heckman & Masterov, 2007). Much of the research on ECE benefits has been carried out in high-income countries. Nevertheless, positive impacts of early learning programmes on early language, cognition, numeracy, and socioemotional outcomes have also been found across a range of low and middle impact contexts (Rao et al., 2017), with benefits identified for school readiness and school achievement in primary school (Aboud & Akhter, 2011; Yoshikawa & Kabay, 2015). A review of studies conducted in developing countries in Asia, Africa and Latin America has concluded that early childhood interventions which are holistic, intensive, long-lasting, and high quality are effective in promoting child development (Engle et al., 2007).

Benefits of ECE participation on child development do not derive solely from the provision of, and access to, ECE. Rather, high-quality ECE also needs to be provided. Research evidence shows that several quality characteristics of early years' provision are vital for enhancing children's development and wellbeing. There is a general consensus that ECE services must both be holistic and address child learning in all areas — socially, emotionally, physically and cognitively. The adults involved in ECE need to provide positive and warm relationships, and to facilitate language- and cognitive learning through rich, reciprocal, responsive interactions and content-based teaching. The right conditions also need to be provided to ensure staff can interact appropriately with children: these include ratios and group sizes, staff training and support, and facilities which are safe and stimulating (e.g., Melhuish et al., 2014).

However, providing high-quality ECE in low-resource contexts can be highly challenging. It has been reported that those childcare and education facilities set up specifically for refugee families in LMICs can be improvised and under-resourced and can face challenges regarding structural features (Busch et al., 2018; Jalbout & Bullard, 2021). A focus on improving access can come at the expense of quality (Yoshikawa & Kabay, 2015). Additional challenges occur in contexts of conflict, instability or trauma, and cultural and linguistic diversity. It has been suggested that in response to the particular needs of refugee children and their families, strategies to support children's development and wellbeing need to consider the potential of ECE to provide protective factors, including physical, psycho-social, and cognitive protection (UNESCO, 2010).

In recent years, there have seen increased efforts to develop recommendations and guidelines for ECE practice with refugee children. These recommendations are based on the knowledge and experiences of those working in the refugee contexts, including LMICs, and research evidence, predominantly coming from studies which have been conducted in resettlement contexts in high-income countries with cultural and historical ties to Western Europe, and with British English as the primary language. However, the vast majority of refugees live in low-resource contexts, and in countries bordering their country of origin. Only less than one percent of refugees are resettled annually (UNHCR, 2022a). Therefore, what can be learned about the benefits of refugee ECE and effective strategies cannot rely on research evidence from contexts so different from those where the majority of refugees worldwide live. Education is a critical mechanism for achieving many international development goals, including those relating to school readiness. A lack of data on refugee ECE programmes and early learning outcomes in LMICs hinders efforts to understand the problem and assess progress toward quality and learning goals. Thus, more research evidence, and dissemination of evidence on refugee ECE in LMICs are needed to achieve sustainable development goals.

The 'Building an equitable early childhood education for refugee children' (BEECERC) research project is a humanitarian response to address the current educational inequalities faced by refugee children. ECE can create the conditions in which longer-term rebuilding can occur by potentially mitigating the violence that exacerbates generational cycles of poverty. This study was conducted in Malaysia, to enhance our understanding of how community-based learning centres (abbreviated as

LC in this report) work within the current low-resource contexts to provide early childhood education that impacts young refugee children's outcomes. The findings of the study are intended to contribute towards the knowledge of and future work towards the quality of, and access to, high-quality ECE programmes for out-of-school refugee preschool children and improve retention by supporting innovative approaches to education, infrastructure, teacher training and development, as well as better provision of teaching and learning materials and engagement with parents.

1.1 Existing evidence on the quality and benefits of refugee ECE in LMICs

As part of the research project 'Building and equitable early childhood education for refugee children' (BEECERC), the research team carried out a focused and systematic literature search which was performed to collect evidence about ECE programmes for refugee children in LMICs (Ereky-Stevens, et al 2023). Its aim was to evaluate what is known about the quality of ECE programmes for refugee children in LMICs, and to determine how ECE in these contexts can support young children's development and wellbeing. The review showed that in a humanitarian context, resources for providing ECE can be extremely limited. Nevertheless, the findings indicate that ECE can provide safe and engaging spaces and opportunities for recovery and learning. In line with the broad ECE curriculum offered, most studies reported positive changes in child outcomes across a range of areas. Perhaps the strongest and most conclusive finding across studies is the reported benefits for children's social- and emotional learning and emotional recovery. Findings about the benefits for children's hygiene practices, motor development and self-care further supported the potential for ECE to provide physical and psychological protection to refugee children. Most studies included in this review also identified the benefits of ECE for children's cognitive development, literacy and numeracy skills, and language development.

Studies in our review also identified and described successful approaches and strategies that were found to support the development and wellbeing of refugee children. Play-based opportunities for learning were identified as strengths of provision in many of the studies, and a wider focus on basic needs, as well as a focus on learning literacy and numeracy skills were identified as characteristics of good practice. The importance of providing stability, safety, normality and support for social and emotional learning was emphasised. Studies described the implementation of practices to support community and family engagement and cultural practices. Finally, studies have highlighted the importance of staff preparation, and training in play-based approaches and described the success of educator training efforts. Many of those promising approaches align well with indicators that are mostly derived from work in higher income and resettlement contexts and describe what is important for providing good quality ECE for refugee children.

However, whilst providing new insights into the challenges and benefits of refugee ECE in LMICs, this literature review has also highlighted significant gaps and limitations in the existing evidence on refugee ECE in LMICs. In total, only 20 publications (reporting on 17 different studies) were identified to meet the specified inclusion criteria, and many studies had methodological issues including small sample sizes, non-standardised measures, high attrition and lack of follow-up periods to assess longer-term benefits of ECE. Results from this review suggest that there is a need for robust and culturally appropriate child assessment procedures and quality observation tools which focus on the process quality of ECE in low-resource refugee contexts. Across the studies included in our review, there was huge variation between context in different regions and target groups, expectations for childhood, and the range of ECE programmes available to children in LMICs. This makes it difficult to provide guidelines for high-quality programmes, and to assess quality.

1.2 ECE for refugee children in Malaysia

Malaysia hosts one of the largest urban refugee populations in the world (Myanmar Times, 2019). According to the World Bank, Malaysia is categorised as an Upper Middle-Income Country and Territory, making it a viable destination for those escaping discrimination and conflict. However, the World Bank reports that there are significant inequality issues in Malaysia, and calls for development that advances education, health, nutrition and social protection outcomes, with key education identified as one of the key priority areas. The COVID-19 (coronavirus) pandemic has had a major economic impact on Malaysia, particularly its vulnerable households, making the issue of inequality more relevant than ever. Refugee families in Malaysia belong to the most vulnerable groups, and the challenges they face remain immense. Malaysia's domestic laws extend few rights or protections to refugees. Malaysia has not ratified the 1951 Convention relating to the Status of Refugees or the 1967 Protocol. The lack of legal recognition of refugees in Malaysia restricts the ability of refugees to access legal employment, healthcare and mainstream education and exposes them to potential human rights violations (Ahmad et al., 2012). While there was some promise of increased recognition of refugees in Malaysia in the past, the COVID-19 crisis, political instability, thin resources and high unemployment have reversed these developments since 2020 (Kim, 2020; APHR 2022).

Refugee families in Malaysia often have been living in the country for many years, and refugee children in Malaysia are often born in the country. These families usually live in urban areas where they can find some form of informal paid work (Ahmad et al., 2012). They mostly live in low-cost, affordable flats, often overcrowded with several families sharing one living space, (Abdullah et al., 2018; IRC, 2012; Palik, 2020). Families can struggle to meet basic economic needs, and mental health and social adaptation challenges are common (Abdullah et al., 2018; IRC, 2012; Shaw et al., 2019). Additionally, families can face substantial threats of abuse, exploitation and detention (IRC, 2012; Yusob, 2015).

Malaysia has reserved Article 28 of the Conventions of the Rights of the Child, which requires states to offer all children and young people the right to education, regardless of race, gender, disability. Hence, Malaysia is not committed to providing education for children of refugees who are unable to access the formal education system. To enable refugee children to access education, some refugee communities have established community-based early learning centres and schools for refugee children, and NGOs are running informal education classes (UNHCR, 2019a). It has been reported that an informal parallel system of community-based learning centres exists which caters for children across age ranges, and can also include preschool-aged children (Palik, 2020). While the government permits refugee schools, there are security and safety issues faced by the students and teachers (UNHCR, 2021). To avoid attention and to increase a sense of safety, centres are often set up in hidden, low-income and isolated neighbourhoods, and bear no school identification on the outside of buildings (O'Neal et al., 2018).

The UNHCR supports five partner NGOs and works with 25 other operational partners, as well as refugee communities, to sustain an informal, community-based education system comprising 143 refugee learning centres across Peninsular Malaysia (UNHCR 2022b). The learning centres require additional resources to acquire learning materials and equipment, despite the limited support provided by UNHCR and other organisations. There is a lack of access to education for children at all ages. Numbers suggest that only 13% of refugee children aged 3-5 are enrolled in some form of early education, and only 44% of refugee children are enrolled in primary education (UNHCR 2022b). For most refugees, secondary education is not an option; only 27% of 14–17-year-olds are accessing education (Bemma, 2018; UNHCR 2022b). Little is known about the quality of education provided to children of refugees in Malaysia. Lack of qualified teachers, adequate teaching materials, and classroom facilities have been reported (Equal Rights Trust, 2014; Palik, 2020). Most of the out-of-school children live at a considerable distance from learning centres or lack the financial means to pay for transportation, while older children may be dissuaded from pursuing their education due to the absence of secondary

education opportunities and the inability to obtain certification for their primary or secondary education (UNHCR 2022b). Furthermore, some are required to work, while girls, in particular, may be expected to remain at home. In terms of curriculum, there is no single model adopted across learning centres run by different organisations.

Most of the centres (70%) that provide pre-primary education also offer primary education. However, fewer than 10% of the LCs focus exclusively on children aged six and below. According to UNHCR Malaysia, pre-primary education is targeting children aged 3-6 years (UNHCR 2022b). In 2021, data on education indicated that there were 4,272 children enrolled in pre-primary education. Of these, only 64% were within the age range of 3-6 years, with those aged 5-6 making up the majority (50%) of the total enrolment. LCs that provide exclusive preschool education mainly enroll children aged 5-6. Due to the shortage of preschool places, priority for enrollment is given to those who are 5 years old so that they can have at least one year of pre-primary education. Around one third (35%) of the pre-primary pupils are overaged children, ranging between 7-14 years, who had never attended school before. Since the reopening of schools in March 2022 following the Covid19 pandemic, the shortage of places for ECE has increased. Most LCs are oversubscribed with children from all levels of education. Schools now prioritise access for young children at school age whose early education has been disrupted. As a result, the intake of children under the age of six has drastically reduced.

While 55% of refugee children aged 3-5 in Malaysia are Myanmar-Rohingyas, they make up only 18% of the total number of preschool children. Therefore, differences in access to early education appear to be related to factors such as age, nationality, and ethnic group affiliation, with significant disparities for refugees from Myanmar (Datasheet from UNHCR 2020).

Little is known about the quality of early education provided to children of refugees in Malaysia, and how it compares to the quality of public preschools in Malaysia. Although the Ministry of Education is responsible for enforcing quality standards, including curriculum, teacher qualifications, parent teacher interaction, health and safety environment in Malaysian (non-refugee) preschools, none of these stipulations apply to the refugee LCs. Furthermore, since there is no mandatory requirement for learning centres to register, not all of them are registered, making monitoring and accountability difficult.

Different types of refugee ECE provisions exist in Malaysia. NGO-supported LCs are typically managed by Malaysians or Malaysia-based expatriates, while community-based LCs are mostly managed by members of the refugee communities themselves. UNHCR partner organisations provide a range of services that address protection and basic needs, and offer health services, skills training, as well as education to refugees and asylum seekers.

The capacity of schools ranges from 20 to over 1000 children in a single location. Pupil to teacher ratio is recommended to be no more than 30. Typically, preschool hours operate half-days for 3-4 hours, 4-5 days a week. The medium of instruction at each LC depends on whether it is an NGO-run or community LC. Most NGO-supported LCs use either 100% English or Malay. The use of English or Malay in community LCs is more variable; in most community-based schools, the official medium of instruction is English, although ethnic languages are often used for the purpose of communication. Community-based LCs that serve children below four tend to use only ethnic languages. Few LCs offer Burmese Language as a subject.

1.3 Research aims and research design

As part of the BEECERC research project, three empirical studies on refugee ECE in Malaysia were carried out with the aim to explore:

- the impact of refugee ECE participation on child outcomes and the benefits to their school readiness
- the barriers and facilitators to ECE participation
- the key quality characteristics of ECE provision

The three separate studies were designed to link comprehensive data from children, families and educators in Malaysia, using both quantitative and qualitative approaches (see Table 1). Prior to data collection, research ethics approvals were obtained from both research institutions involved in the current study.

In Study One, 1,051 refugee children with different levels of access to ECE were assessed on their early learning and development outcomes, using the International Development and Early Learning Assessment (IDELA) tool (Pisani, 2018). Direct impacts of ECE on child outcomes were explored by testing associations between levels of ECE access and child outcomes in different domains. Information on family characteristics was collected through parent interviews, to capture information on family background and to explore those factors that were associated with ECE access. In Study Two, semi-structured interviews were carried out with 28 primary school teachers to determine their perceptions of differences in school readiness between refugee children who had or had not attended ECE prior to school entry. Between group differences were tested quantitatively, and qualitative thematic analysis explored how teachers described differences in child behaviour and which strategies they used help children catch up with their peers. In Study Three, 79 ECE teachers completed questionnaires on structural quality characteristics, learning activities, engagement with parents, and curriculum. Descriptive analysis explored the key characteristics of ECE provision, and associations between different quality aspects were tested. The multi-method research approach and the use of culturally and developmentally sensitive tools across the three studies are designed to unpack the complex developmental processes of child refugees who have been exposed to high levels of trauma and adversity.

Table 1. Overview of the Three Empirical Studies

Study	Participants	Methods	Research Questions
STUDY ONE	Refugee children aged 4-6 years Parent/Caregiver of child participant	Child Assessments Parent Interviews	How do child outcomes associate with ECE experience? What are the enablers and facilitators for access to ECE for refugee families?
STUDY TWO	Teachers who have taught Primary 1 refugee children under the age of nine for at least two years	Primary 1 Teacher Interview	What are the differences in school-readiness between children with and without preschool experience?

STUDY THREE	Teachers who have taught preschool refugee children under the age of seven for at least two years	ECE Teacher Questionnaire	What are characteristics of the provision of ECE for refugee children? What are the challenges faced in providing ECE for refugee children?

The recruitment of participants for this entire project relied on data provided by UNHCR Malaysia. To ensure data captured the varying contexts of refugee ECE provision in Malaysia, locations and schools were selected based on the national distribution of refugee population, ethnicity, location, and centre type. The study involved four of the five UNHCR partner organisations in Malaysia; located in four states with the highest number of refugees.

Participant recruitment started in early 2020. However, due to the multiple Covid19-related lockdowns in Malaysia from March 2020-March 2022, the study was significantly impacted by school closures. During the first year of the pandemic, schools were mostly closed for physical classes, and remote learning using online platforms such as Google Classroom, Zoom, Facebook were common. During this period, data collection was carried out online through teacher interviews and questionnaires. Face-to-face child assessments and parent interviews only started in April 2021when physical school resumed, after more than a year of on-and-off school closures.

2 Study One

2.1 Recruitment of participants and sample

Participating learning centres

To select centres, an initial list of eligible ECE centres in Malaysia provided by UNHCR (n=123) was examined for potential inclusion. The criteria for inclusion of centres were: (1) must be registered with UNHCR; (2) age of enrolled children in ECE includes those between 4-6 years; (3) total enrolment of children in the pre-primary centre must be at least 20. This yielded a list of 68 eligible centres for initial recruitment. The remaining centres were placed on a backup list to supplement recruitment where the initial approach was unsuccessful 32 ECE centres responded and were recruited from five states in West Malaysia. These centres are mostly located around the cities; most of these centres (n=28) also provide primary education in addition to ECE. Most of the recruited LCs cater to refugee children from Myanmar. The acceptance rate was 47%.

Table 2. School Characteristics

Total school recruited	32
Type of Learning Centres	Community-based (n=11) NGO-supported (n=18) UNHCR partner school (n=3)
Location	Kuala Lumpur (15), Selangor (6), Penang (9), Johor (1), Kedah (1)
Origin of pupils	Myanmar- 85.7% Middle East – 6.3% South Asia – 4.6% Africa – 3.3%

Participating children and their parents/caregivers

The study recruited children between the ages of four and six, who were enrolled or not enrolled in ECE. Recruitment of enrolled children began in April 2021 after the pandemic-related school closures, and 764 children were eligible for participation. Of those, 734 children participated in the study, with 192 children having had no or insignificant ECE access due to school closures. Separate recruitment efforts were conducted to identify out-of-school children, with 317 children recruited for the study. The total number of children recruited was 1,051, with an average age of 5.46 years and an equal ratio of boys to girls. Children were categorised as having no ECE access (n=509) if they were either not enrolled in ECE (n=317) or had no access to remote or physical classes during the pandemic-related school closures (n=192). 51.6% of children (n=542) had been enrolled in ECE for more than six months, and therefore had full access to ECE before the pandemic-related school closures.

All parents/caregivers of participating children were invited to take part in an interview, to obtain family socio-demographic data. A total of 21 languages (nine of which were Chin languages) were used to communicate with parents and children for the purpose of data collection. The response rate from parents/caregivers was 97%, though some questions had lower rates of response (e.g. age of father). Available data indicated that most children had Myanmar origins (90.7%) though the majority were born in Malaysia. Four major Myanmar ethnic groups formed 75.5 % of the samples, comprising: Rohingya (31.6%), Chin (23.3%), Kachin (6%), Zomi (14.6%). Parental education varied widely depending on the ethnicity of the parent. Rohingya parents had the lowest education level among all. Less than 17% of the Rohingya parents completed secondary education, compared to 30-70% of the parents in the other groups.

Table 3. Child Participant Characteristics by Level of ECE Access

	Total No.	No ECE access	6-24 months	More than 2yrs
Number of Children	1051	509 (48.4%)	315 (30.0%)	227 (21.6%)
Child's Age (years)	5.46 (0.69)	5.38 (0.70)	5.54 (0.69)	5.51 (0.65)
Child's Age range	4-7	4-7	4-7	4-7
Gender	50.7% boys	51.3% boys	49.2% boys	51.5% boys
Ethnicity	Rohingya (28.8%)	Rohingya (46.8%)	Rohingya (12.4%)	Rohingya (11.5%)
Maternal education	36.2% 25.5%	48.6%	25.4%	24.2%
None	24.3%	27.8%	23.8%	22.7%
Primary	14.1%	18.6%	27.7%	31.8%
Secondary		4.9%	23.1%	21.3%
Tertiary				
Paternal education	Secondary	Secondary	Secondary 18%	Secondary
None	29.6%)	44.1%	32.5%	13.7%
Primary	31.2%	32.5%	32.2%	26.3%
Secondary	25.9%	18.7%	17.3%	22.3%
Tertiary	13.3%	4.7%		26.8%
Mother's age (years)	31.47 (5.48)	30.06 (5.54)	32.69 (5.30)	32.97 (4.76)
Mother's age range	19-50	19-49	22-49	23-50
Father's age (years)	35.9 (6.4)	35.3 (7.0)	36.18 (5.7)	36.92 (5.8)
Father's age range	23 - 81	23 - 81	25 - 54	23 - 50

2.2 Instruments: Child assessments and parent questionnaire

Child assessments

The BEECERC study evaluated the effect of ECE on children's learning and development using the IDELA tool. IDELA is a direct child assessment that contains 22 tasks in four domains: motor development, emergent literacy, emergent numeracy, and social-emotional development. IDELA data from these four domains inform the total IDELA score (which we call the school-readiness score). Two additional items were added to the assessment by IDELA to capture executive functioning (short-term memory and inhibitory control) (Pisani et al., 2018; for more details, see Appendix A).

Table 4. Measures of Child Outcomes in the IDELA tool

Child Outcomes	No. of items	Assessment Tasks
Emergent Literacy	6	Print Awareness, Oral Comprehension Letter Identification, Sounds of the letter Vocabulary, Emergent Writing
Emergent Numeracy	7	Size Comparison, Sorting, Identification of Shapes, Number identification, One-on-one correspondence, Simple Math Operation, Puzzle-making
Socioemotional Skills	5	Self Awareness, Emotional Awareness, Conflict resolution, Empathy, Friends
Motor Skills	4	Hopping, Copying a Shape, Drawing A Person, Folding Paper
Executive Function	2	Inhibition Control, Short term memory

Parent questionnaire

In order to control for child and family background characteristics, additional information was collected through the IDELA caregiver questionnaire, used with parents/caregivers. The tool included questions about parent characteristics (parental age, education), family resources (household possessions), and home learning environment (learning activities involving caregiver and child at home). For every child assessed, the enumerator would also contact a parent or caregiver of the child. Enumerators interviewed the parents/caregiver either in-person or by phone to obtain their responses to the questionnaire (for more details, see Appendix A).

2.3 Procedures: Child assessments and parent interviews

Child assessments

For centre-based children, assessments were conducted at the LC where the recruitment took place. For children who were not enrolled in ECE, assessments were carried out at local community halls or in the homes of the families.

The IDELA tool was translated from English into Malay and Burmese (the common language of people from Myanmar) with the help of UNHCR translators. Audio recordings of the translation were made into Google playlists for the enumerators for reference, if needed. Each enumerator was equipped with a portable flipchart, stimulation (visual cue) cards and an administration guide. On average, each assessment took between 25-35 minutes.

Observers underwent three days of intensive training, including in-field practice ratings with a highly experienced trainer, followed by rigorous inter-rater reliability checks. Enumerator training involved learning the assessment procedures, field testing data collection tools, practising techniques in interviewing young children and requesting assent and consent from children and adults, and lessons on ethical considerations and the USM's Child Safeguarding Policy. The training was supported through a

detailed introduction to the tools and instruments, role playing, practice using the tool with children and with each other, and discussions moderated on Google Classroom. A total of 14 enumerators who spoke a combination of 16 languages were employed. The research team from Universiti Sains Malaysia (USM) facilitated the training and oversaw the data collection.

Parent interviews

For every child who was recruited, a parent or caregiver was also invited to participate in an interview. The language needs of the interviewee were determined beforehand by community organisation and LCs, and interviewers were assigned to families based on their language skills. Most interviews for ECE-enrolled children were conducted in the school premise itself. Interviews for caregivers of children who were not enrolled in ECE were conducted at their homes or community gathering places. The interviewers were advised to work in pairs when visiting homes due to the issue of culturally sensitivity where it is less appropriate for unmarried individuals of the opposite sex to be alone together. Some interviews were also conducted over the phone to accommodate working parents who could not be available for an in-person interview. Every child-parent dyad was compensated with MYR50 for their participation.

2.4 Analytic plan

Child development and learning

To examine the impact of ECE on child development outcomes, child outcomes were compared between those children with and without ECE experience. The reference group were those children without ECE access (n=509), consisting of children not enrolled in ECE (n=317) and those children who were enrolled, but had not yet had access to remote learning or physical classes in ECE at the time of data collection (n=192). The 'no ECE access' group was compared with the group of children who had been enrolled for 6-24 months (n=315), and the group of children who had been enrolled in ECE for more than two years (n=277). Outcomes included were children's scores on their numeracy-, literacy-, socioemotional-, motor-skills and their executive functioning, and a total school readiness score (composite of numeracy-, literacy-, socioemotional-, and motor-skills).

Descriptive analyses were first carried out to examine the differences in child developmental outcomes based on level of ECE access. One-way analysis of variance was carried out to compare the mean scores between children with no access to ECE to two groups of children with different levels of ECE access. The performance of children by individual tasks in each school readiness skill was analysed using a 3-level profile consisting of mastery (76-100%), emerging (26-74%) and struggling (0-25%). Subsequent follow-up correlational and multi-variate analyses were conducted, using simultaneous linear regression models.

Multilevel modelling was initially considered, but as the calculated intraclass correlation (ICC) was very small, single-level models were considered instead for the analyses

Hierarchical multiple regression (also known as sequential multiple regression) Three blocks of predictors were entered sequentially so that the unique contribution of each predictor block to the prediction of each child development outcomes can be examined... A block of child characteristics (gender, ethnicity, age) was entered first, followed by family characteristics (age and education of parents, SES, home learning environment). The third and last block to be entered is access to preschool education. By entering child and family blocks first, the unique contribution of preschool education can be assessed while controlling for child and family characteristics. The preschool effect was dummy coded for 6-24 months of ECE experience and over two years. Children without ECE access were assigned as the reference category (0=no ECE access). Hierarchical regression models were run using total school readiness and each of the individual child outcomes (early numeracy, early literacy, motor skills, socio-emotional skills, executive function) as dependent variables. (for more details, see Appendix B, Study One).

Access to ECE

A binomial logistic regression analysis was used to examine the association of several independent variables with the probability of children having access to early childhood education. Several factors identified in literature were included in the model, such as child characteristics (gender, ethnicity, age) and family factors (age of parents, parental education, household wealth, home learning environment). The categorical variables were gender, ethnicity and parental education while the continuous variables were age, household wealth, home learning environment. For ease of interpretation, all the continuous variables had been mean-centred prior to being entered into the model. The dependent variable is access to ECE, measured on a dichotomous scale – 'access' or 'no access'. Prior to running the analysis, several assumptions were tested to ensure compliance with the data using binomial logistic regression.

2.5 Results

2.5.1 Child development and learning

Descriptive analysis

Table 5 presents the mean scores of individual school readiness skills by level of ECE access. In general, children with greater access to ECE have higher school readiness scores. A comparison of the mean differences between the groups using ANOVA was presented in Figure 1.

Table 5. Descriptive Statistics of IDELA Assessment Results by Level of ECE Access

Child Assessments	Total No. Range	No ECE access M(SD)	6-24 months M(SD)	More than 2yrs M(SD)
Total School Readiness	13-97	64.64 (17.5)	77.58 (13.34)	69.74 (15.18)
Early Numeracy	7-100	56.88 (19.83)	68.55 (15.34)	79.74 (15.60)
Early Literacy	0-100	72.92 (22.12)	78.63 (18.39)	70.69 (20.61)
Motor Skills	0-100	45.76 (18.79)	44.62 (15.34)	80.09 (15.26)
Socioemotional Skills	3-100	76.55 (25.18)	78.86 (21.61)	44.08 (23.50)
Executive Function	0-100	64.64 (20.26)	77.58 (19.21)	80.58 (17.91)

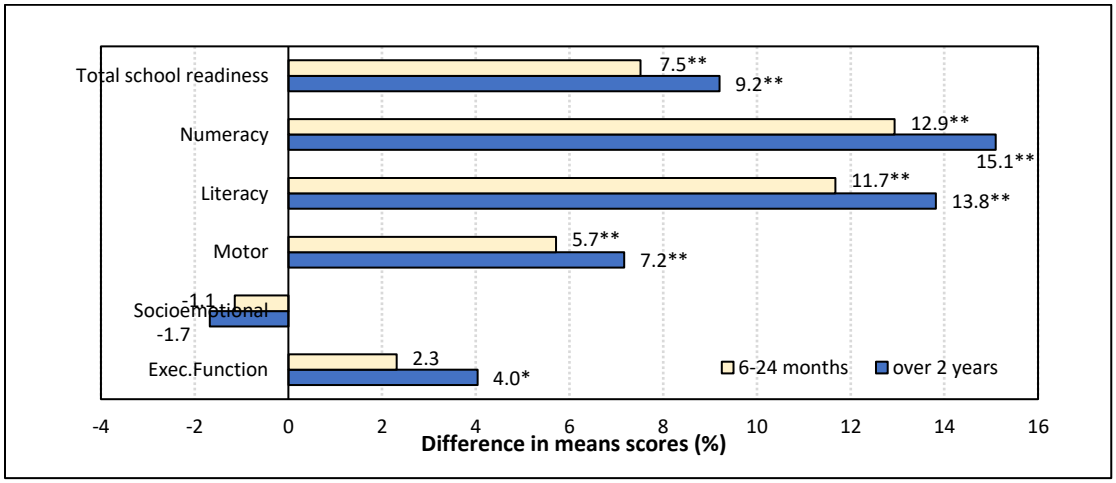

Figure 1. Difference in Unadjusted Means Between Children without and with ECE Experience

** p<0.05, ** p<0.01

Using the IDELA benchmark levels (Figure 2), each child developmental outcome was examined at the skill level by categorizing the mean scores into struggling (<25%), emerging (25-74%) and mastering (>75%) (see Figure below. In terms of overall school readiness skills, children with more than 2 years of

ECE access had the largest proportion of children who gained mastery levels while children with no access struggled the most.

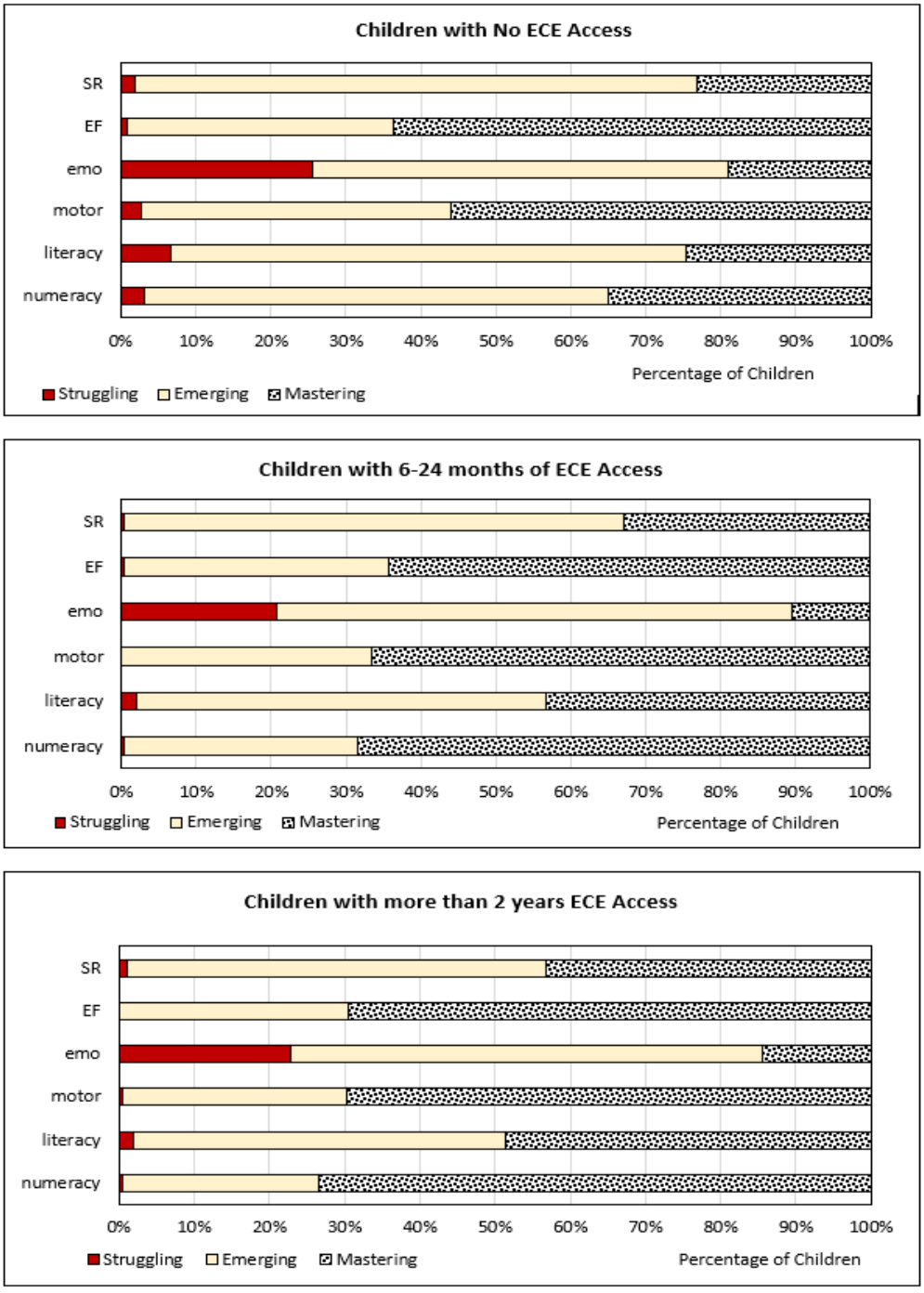

Figure 2. IDELA Benchmark Levels on Mastery by ECE Access

Figure 2 showed that fewer than 35% of the children without access to ECE gained mastery level for early literacy and numeracy skills, compared to almost 50% of the children with access. Relative to other developmental outcomes, motor skills and executive function recorded the highest proportion of children gaining mastery levels, irrespective of the level of ECE access. In the meantime, a larger proportion of children struggled with socioemotional skills, relative to the other child outcomes.

The charts displayed below in Figure 3 provides an overview on the distribution of scores for children with different levels of ECE access across individual child developmental outcomes. The findings are consistent with the benchmark analysis which suggested that children with greater ECE access fared significantly better in academic outcomes compared to those without. The differences between the groups are less obvious in non-academic outcomes such as motor, socioemotional and executive function skills.

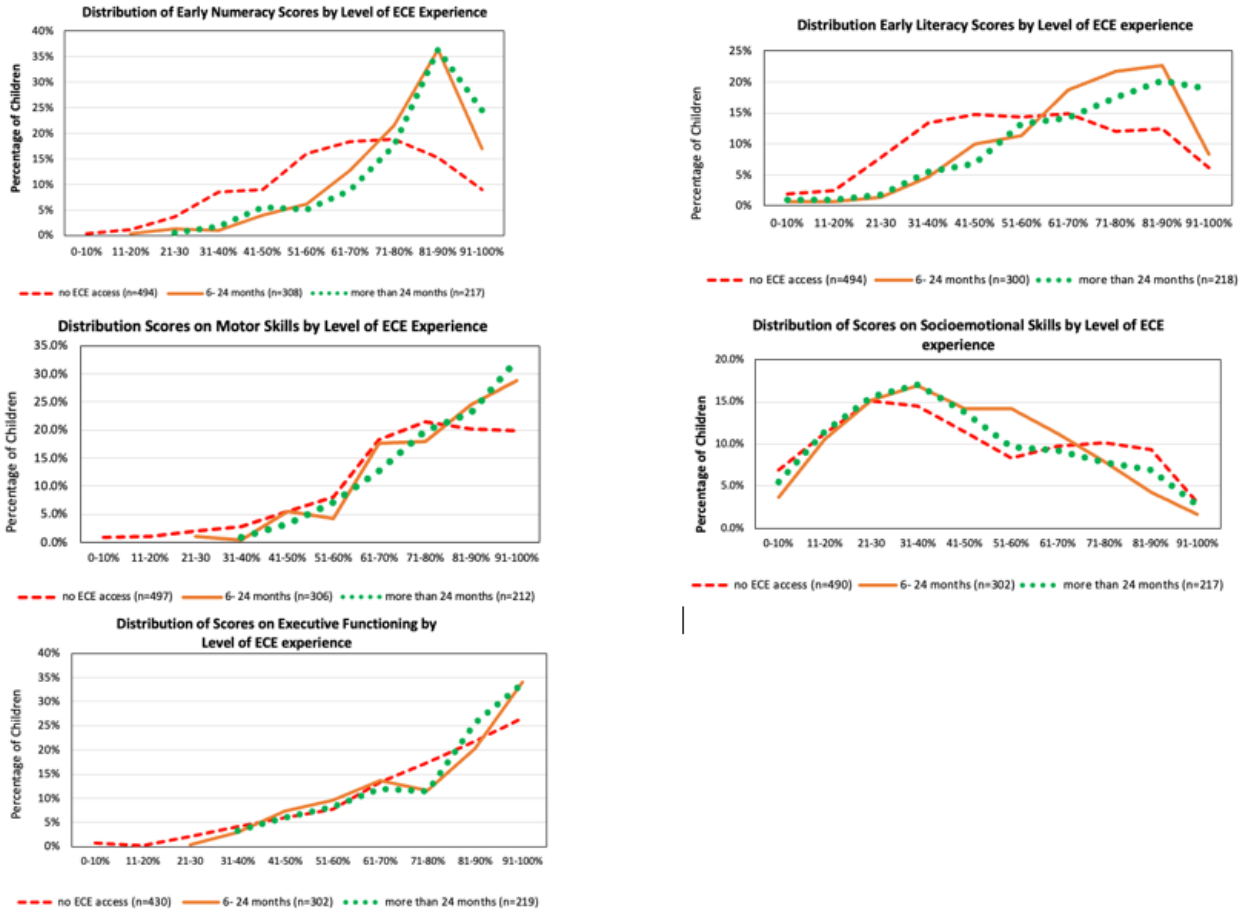

Figure 3. Distribution of School Readiness Scores by Levels of ECE experience

Hierarchical multiple regression analysis

A hierarchical multiple regression was run to determine if access to preschool improved the prediction of child developmental outcomes over and above child and family characteristics ally, p=.005, $\eta 2$=.015]. The full model of gender, age, ethnicity, age and education of parents, household wealth and home learning environment to predict total school readiness (Model 3) was statistically significant, R^2 = .30, F(11, 789) = 30.38, p < .0005; adjusted R^2 = .29. The addition of child characteristics to the prediction of total school readiness (Model 1) led to a statistically significant increase in R^2 of .25, F(3,

797) = 88.90, p < .0005. The addition of family characteristics to the prediction of total school readiness (Model 2) also led to a statistically significant increase in R^2 of .28, F(9, 791) = 35.59, p < .0005.

The age of the child, ethnicity of the child, and home learning environment were also significant independent predictors of school readiness (Table 6). Older children, girls, children with non-Rohingya ethnic-cultural backgrounds, older mothers, and those with more supportive home learning environment performed better on overall school readiness. Compared with children with no ECE access, only those with more than 2 years of ECE significantly predicted increase in total school readiness skills, over and above child and family covariates.

Table 6. Hierarchical Multiple Regression Analysis Predicting Total School Readiness

Predictors	Model 1		Model 2		Model 3	
	B	β	B	β	B	β
Constant	7.51	4.10	-8.25		-7.19	
Gender *(ref: boy)*	3.15**	1.01**	2.80**	0.09	2.82**	0.09**
Ethnicity (ref: Rohingya)	12.35**	1.14**	9.45**	0.26	8.72**	0.24**
Age of Child	8.58**	0.72**	8.70**	0.37	8.55**	0.36**
Age of mother			0.16	0.05	0.13	0.04
Age of father			0.03	0.01	0.03	0.01
Maternal education			1.36	0.04	1.22	0.04
Paternal education			1.04	0.03	0.45	0.01
Household wealth			0.07	0.01	0.15	0.01
Home learning environment			1.40**	0.17	1.34	0.17
ECE experience *(ref: No ECE)*						
6-24 months					1.61	0.05
More than 2 years					4.54**	0.11**
R^2	0.25		.29		.30	
F	88.9**		35.59**		30.38**	
Change of R^2	0.25		.04		.01	
Change of F	88.9**		6.94**		5.24*	

*Note: N=801, *p<.05, **p<.001*

When examined at the specific child developmental domain, ECE effect was most evident on cognitive outcomes. Using the enter method, it was found that ECE access alone explained 4% amount of the variance in emergent numeracy for the final model (Table 7), R^2 = .33, $F(11, 868) = 39.15$, $p < .0005$; adjusted R^2 = .32.The analysis shows that ECE access between 6-24 months (compared to no ECE access) significantly predict emergent literacy (β = .18, t(868)=5.54, p<.001). ECE access of over 2 years produced an even larger significant effect on emergent literacy (β = .22, t(868)=6.75, p<.001

Table 7. Hierarchical Multiple Regression Analysis Predicting Emergent Numeracy

Predictors for Numeracy	Model 1		Model 2		Model 3	
	B	β	B	β	B	β
Constant	5.16	4.60	-11.75		-7.53	
Gender *(ref: boy)*	0.55	1.12	0.15	0.00	0.22	0.01
Ethnicity (ref: Rohingya)	16.11**	1.26**	11.87**	0.27**	9.58**	0.22**
Age of Child	9.97**	0.81**	10.11**	0.36**	9.38**	0.34**
Age of mother			0.32*	0.09*	0.22*	0.06*
Age of father			0.05	0.02	0.06	0.02
Maternal education			1.94	0.05	1.24	0.03
Paternal education			2.70	0.07	1.43	0.04
Household wealth			-0.06	0.00	0.10	0.01
Home learning environment			0.87**	0.09**	0.77**	0.08**
6-24 mos (ref: No ECE)					7.43**	0.18**
More than 2 yrs (ref: No ECE)					10.17**	0.22**
R^2	0.26		.29		.33	
F	103.71**		39.54**		39.15**	
Change of R^2	0.26		.03		.04	
Change of F	103.71**		39.54**		26.83**	

*Note: N=880 *p<.05, **p<.001*

The next analysis was performed for the model predicting for emergent literacy Table 8). The findings showed that ECE access explained 2% amount of the variance in emergent literacy for the final model, R^2 = .26, F(11, 845= 27.07, p < .001; adjusted R^2 = .25. The analysis shows that ECE access between 6-24 months (compared to no ECE access) significantly predict emergent literacy (β = .10, t(845)=2.92, p<.001). ECE access of over 2 years produced an even larger significant effect on emergent literacy (β = .16, t(845)=4.66, p<.001. The full results of the regression analyses are presented in Table xxxx

Table 8. Hierarchical Multiple Regression Analysis Predicting Emergent Literacy

Predictors	Model 1		Model 2		Model 3	
	B	β	B	β	B	β
Constant	-1.16	5.41	-20.76		-7.53	
Gender *(ref: boy)*	3.05*	1.31	2.56*	0.06	0.22*	0.06*
Ethnicity (ref: Rohingya)	16.71**	1.49	12.82**	0.26	9.58**	0.23**
Age of Child	9.35**	0.95	9.48**	0.30	9.38**	0.29**
Age of mother			0.26	0.06	0.22	0.04
Age of father			0.04	0.01	0.06	0.02
Maternal education			2.91	0.07	1.24	0.06
Paternal education			0.46	0.01	1.43	-0.02
Household wealth			0.04	0.00	0.10	0.02
Home learning environment			1.55**	0.15	0.77**	0.14**
6-24 mos (ref: No ECE)					7.43**	0.10**
More than 2 yrs (ref: No ECE)					10.17**	0.16**
R^2	0.21		.24		.26	
F	75.54**		29.85**		27.07**	
Change of R^2	0.21		.24		.02	
Change of F	75.54**		29.85**		11.27**	

*Note: N=857*p<.05, **p<.001*

For motor skills (Table below), ECE access explained 1% of the total variance in motor skills for the final model, $R^2 = .17$, $F(11, 863) = 16.79$, $p < .001$; adjusted $R^2 = .17$. The analysis shows that only ECE access for more than 2 years had a significant effect on emergent literacy, ($\beta = .10$, $t(863)=2.81$ $p< .05$). ECE access between 6-24 months did not show any significant effect on motor skills in children, ($\beta = .05$, $t(863)=1.46$, $p>0.05$). Details of the regression analyses can be found in below.

Table 9. Hierarchical Multiple Regression Analysis Predicting Motor Skills

Predictors for Motor Skills	Model 1		Model 2		Model 3	
	B	β	B	β	B	β
Constant	24.70	4.47	15.37		16.69	
Gender *(ref: boy)*	5.69**	1.08**	5.57**	0.00**	5.62**	0.01**
Ethnicity (ref: Rohingya)	7.76**	1.21**	6.46**	0.27**	5.74**	0.22**
Age of Child	7.90**	0.79**	7.89**	0.36**	7.68**	0.34**
Age of mother			0.13	0.09	0.09	0.06
Age of father			0.09	0.02	0.09	0.02
Maternal education			0.18	0.05	-0.01	0.03
Paternal education			0.94	0.07	0.34	0.04
Household wealth			0.09	0.00	0.17	0.01
Home learning environment			0.32	0.09	0.28	0.08
6-24 mos (ref: No ECE)					1.98	0.18
More than 2 yrs (ref: No ECE)					4.30*	0.22*
R^2	0.16		.17		.18	
F	56.17**		19.50**		16.79**	
Change of R^2	0.16		.17		.01	
Change of F	56.17**		1.14		3.98*	

*Note: N=875*p<.05, **p<.001*

The last analysis was conducted for a model predicting socioemotional skills. Table xxx (below). ECE access explained 1% of the total variance in socioemotional skills for the final model, R^2 = .13, F(11, 852)= 12.02, p < .001; adjusted R^2 = .12. The analysis shows that ECE access, ECE access of 6-24 months significantly predict emergent literacy in negative direction, (β = -.12 t(852)= -3.31, p<.001, implying that children who were had ECE access had lower socioemotional skills compared to those without ECE access. ECE excess over 2 years also showed a significant negative relationship with socioemotional skills, (β = -.11, t(852)= -2.89 p< .001)

Table 10. Hierarchical Multiple Regression Analysis Predicting Emergent Literacy

Predictors for Socioemotional Skills	Model 1		Model 2		Model 3	
	B	β	B	β	B	β
Constant	-3.70	6.49	-19.70		-22.99	
Gender *(ref: boy)*	3.85*	1.58*	3.71**	0.08**	3.67**	0.08**
Ethnicity (ref: Rohingya)	8.20**	1.77**	7.60**	0.14**	9.38**	0.17**
Age of Child	7.59**	1.15**	7.75**	0.22**	8.37**	0.24**
Age of mother			-0.12	-0.03	-0.05	-0.01
Age of father			-0.04	-0.01	-0.05	-0.02
Maternal education			0.15	0.00	0.69	0.01
Paternal education			-0.98	-0.02	-0.24	0.00
Household wealth			0.70	0.04	0.57	0.03
Home learning environment			2.40**	0.20**	2.47**	0.21**
6-24 mos (ref: No ECE)					-6.42**	-0.12**
More than 2 yrs (ref: No ECE)					-6.26*	-0.11*
R^2	0.08		.12		.13	
F	23.54		13.02**		12.02**	
Change of R^2	0.08		.12		.01	
Change of F	23.54		13.02**		6.73*	

*Note: N=875*p<.05, **p<.001*

In summary, regression analyses showed that ECE access did contribute to the explained variance in child school readiness outcomes, with values ranging from 1-4%. ECE access, especially with duration of more than 2 years has the largest effect on cognitive outcomes, with numeracy skills benefitting the most, and motor skills the least. There was a negative relationship between ECE access and socioemotional skills, which could be due to the social distancing or remote learning enforced during the pandemic or recovery period.

2.5.2 Access to refugee ECE

A logistic regression was performed to ascertain the effects of child (age, gender, ethnicity) and family background (age of parents, education, household wealth, home learning environment) on the likelihood that children have access to ECE. The logistic regression model was statistically significant, $\chi2(9)=201.36$, $p < .001$. The model explained 27% (Nagelkerke R^2) of the variance in ECE access and correctly classified 71.0% of cases. Sensitivity was 80.3%, specificity was 60.1%, positive predictive value was 69.0% and negative predictive value was 73.5%.

Of the nine predictor variables, five were statistically significant (Table below). Results suggest that non-Rohingya children such as the (Chins, Zomis, Kachins, etc.) have 3.30 times higher odds to have access to ECE than Rohingya children.

Increasing child's and mother's age was associated with an increased likelihood of gaining access to ECE, implying that older children and children with older mothers are more likely to be attending preschool. However, there is no association between father's age and child's access to ECE. In terms of parental education, children from families with higher parental education are more likely to have access. The findings show that mothers who have completed secondary education have 1.56 times higher odds to have children with ECE access. Meanwhile, fathers with secondary education are 1.84 times more likely to have children access to ECE. The home learning environment and socioeconomic status of the family were not found to be predictive of children's access to ECE.

Table 11. Logistic Regression Predicting the Likelihood of Children Having ECE Access

Predictors	B	SE	p	Odds Ratio	95% CI for Odds Ratio	
					Lower	Upper
Gender (ref: boy)	-.03	.15	.84	.97	0.72	1.30
Child's age	.46	.11	.00	1.58	1.28	1.97
Ethnicity (ref: Rohingya)	1.19	.21	.00	3.30	2.19	4.97
Mother's age	.06	.02	.00	1.06	1.03	1.10
Father's age	-.01	.01	.31	.99	0.96	1.01
Maternal education	.45	.20	.03	1.56	1.06	2.31
Paternal education	.61	.20	.00	1.84	1.24	2.71
Household wealth	-.08	.05	.14	.92	.83	1.03
Home learning environment	.03	.04	.36	1.03	.96	1.11
constant	-1.19	.19	.00	.30		

Note: child ethnicity compares children with non-Rohingya ethnic-cultural backgrounds with those with Rohingya background. Parental education compares parents with secondary education to those without.

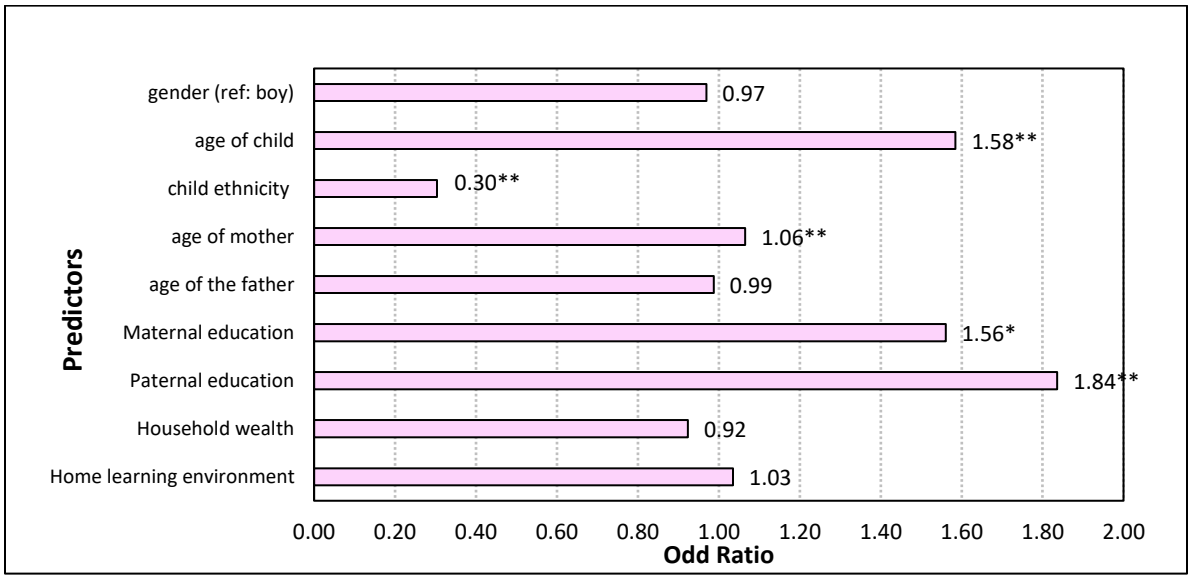

Figure 4. Likelihood of Children Having Access

*** p<0.01, *p<0.05;*

2.6 Discussion

The findings from Study One clearly indicate the benefits of ECE participation for child outcomes, consistent with literature from high-income contexts. The effects were most pronounced for cognitive outcomes (literacy, numeracy). However, the benefits in the other non-academic outcomes such as motor and socioemotional skills may have been obscured by the disruption in schooling caused by Covid19 related school closures. During the data collection period, schools had switched from physical learning to remote learning for most of the school year due to numerous nationwide lockdowns between March 2020 and March 2022. Access was limited and uneven, especially for refugee preschool children. Even before the pandemic, ECE was never a priority in refugee schools. With the pandemic, when resources were scarce for online learning, many schools suspended preschool classes. Hence the current findings must be interpreted within a context where preschool education of refugee children was characterized by a hybrid of disrupted physical lessons and online learning.

Given the disruption to education caused by the pandemic, it is not surprising that the benefits of preschool attendance on literacy skills were more pronounced for children who had been enrolled on ECE for two year or more. Emergent literacy includes language components such as vocabulary and oral language skills. For minority-language[2] learners such as refugee children, oral language proficiency is particularly important for the acquisition of literacy skills (Lesaux et al., 2008). Oral language involves both receptive and expressive skills, as well as knowledge or use of particular aspects of oral language, such as the ability to recognise and produce the sounds and sound sequences that make up language. Unfortunately, remote learning which constituted the majority of preschool education during the study period, might not have been the most effective environment for developing oral language skills. During online lessons, oral exchanges between teachers and pupils are very limited and have been reported to be challenging (Diode et al 2022). Moreover, the school languages are non-native languages to most refugee children, which may limit the ability of parents to assist their children at home, especially in literacy

The limited gains in socioemotional and motor skills were not surprising, given the disruptions caused by the pandemic. Even when children returned to physical classrooms, social distancing and reduced school hours limited opportunities for play and activities that promote socioemotional and motor development. The importance of play in young children's learning, including developing motor and socioemotional skills cannot be overstated. The differences in children's socioemotional scores were mainly due to the fact that, compared with those without ECE access, very few children enrolled in ECE were able to name their friends. It is possible explanation that children without ECE access had more opportunities to physically interact with neighbourhood friends, while those who attended preschools remotely had little opportunity to interact for social interaction and play.

The predictors of ECE access included cultural norms, parental background and the age of the child. The study found that Rohingya children, compared to non-Rohingyas, were 70% less likely to have access to preschool education. Given that Rohingya children account for 55% of the total refugee preschool children in the country, this finding should be of grave concern when viewed through the lens of SDG 4.2 that stipulates that all girls and boys should have access to ECE so that they are ready for primary education. Although the reasons for this phenomenon were not explored in the study, previous research suggests cultural beliefs and early marriage and childbirth among Rohingya girls may act as a barrier to education (Aspire 2020). As Rohingyas are the largest refugee group in Malaysia, failure to provide education to young children may have disastrous long-term

[2] Student whose first language is not the main language used in the classroom.

impacts on both the children and Malaysian society. The other predictors of access to ECE were age and level of education of parents. Children with mothers of higher age, and higher levels of parental education were more likely to have access to ECE. The age of the child was also a predicting factor, as limited places for ECE and long waiting lists often give priority to children who aged 5 years and above.

The study also found a wide difference in ECE participation rates between ethnic groups in this study. While the sample of refugee children in the current study is not representative of the population, it included participation from refugee learning centres across regions, and targeted families with a wide range of cultural ethnic-backgrounds. Only 25% of children with ECE access had Rohingya backgrounds, whereas UNHCR reports that 55% of 3-6-year-old refugee children in Malaysia are from Myanmar and have Rohingya backgrounds. On the other hand, 56% of children with a ECE access in the study had Chin-, Zomi-, or Kachin backgrounds; yet these groups make up less than 25% of the population of refugee children in Malaysia.

3 Study Two

3.1 Recruitment of participants and sample

The main aim of study Two was to investigate the issue of school readiness from the perspectives of teachers in primary school teaching Year 1. Invitation letters were issued to 40 LCs registered under UNHCR that provided for a minimum of 60 primary pupils. The LCs were targeted to get a good representation of the teachers' views across all types of refugee schools, including UNHCR partner schools and NGO-supported and community schools. UNHCR partner schools typically have better resources, and therefore, are able to provide wider access for education. Most UNHCR partner schools and NGO-supported schools also tend to have a more ethnically diverse student population compared to community-based schools, which are typically more homogenous along ethnic or country of origin.

The criteria for teacher participation were a minimum of two years of teaching experience in a refugee LC. Participation rate was 42.5%. 28 teachers from 17 LCs located in the five regions of data collection (Kuala Lumpur, Selangor, Penang, Johor, and Kedah) consented to participate (five community schools, eight NGO-supported schools, and four UNHCR partner schools). The total enrolment for primary pupils served by refugee schools involved in this study constituted 31% of the total national enrolment for primary school refugee children (UNHCR 2021).

Table 11. Characteristics Of Primary School Teachers Who Participated In The Interview

Type of LC	Community-based	NGO-supported	UNHCR partner	Overall
Number of LC	5 (29.4%)	8 (47.1%)	4 (23.5%)	17
No. of teachers	6 (21.4%)	7 (25.0%)	15 (53.6%)	28
Highest Qualification				
Secondary School	2 (33.3%)	2 (28.6%)	2 (13.3%)	6 (21.4%)
Diploma	1 (16.7%)	1 (14.3%)	5 (33.3%)	7 (25.0%)
Degree	1 (16.7%)	3 (42.9%)	8 (53.3%)	12 (42.9%)
Postgraduate	2 (33.3%)	1 (14.3%)	-	3 (10.7%)
Gender	40.0% females	85.7% females	100% females	82.1% females
Citizenship of teacher	100% refugees	14.3% refugees	6.7% refugees	28.6% refugees
Teaching experience (yrs)	6.2 (2.1) Range (3-25)	11.7 (4.3) Range (4-36)	6.1 (2.9) Range (2-10)	8.2 (7.1) Range (2-36)

3.2 Instruments: Primary school teacher interview

A semi-structured interview schedule was developed to gather information from teachers regarding their views on the school readiness of children with and without ECE experience. The schedule consisted of 10 sections that included questions on teaching experience and educational background, and observed learning and developmental differences observed between the two groups of children with and without ECE access prior to primary school. Using a three-point Likert scale, teachers were asked to rate the levels of skills in these two groups of children across six areas: practical life skills, socioemotional skills, language-, literacy-, numeracy- and physical skills (on the strong side – unsure/somewhere in the middle – on the low side). Open-ended questions were also included to obtain information about observed differences between the groups, and the strategies that teachers employed to help children to catch up with their peers. The interview was designed for 45 minutes. For more details on the interview schedule, see Appendix A.

3.3 Procedures: Primary school teacher interview

Prior to conducting the interviews, the research team provided two online training sessions for the hired interviewers. The interviewers were briefed on the interview guide, interview procedure, and measures to ensure data confidentiality during transcription, transfer, and storage. There were three teams of interviewers, each specializing in English, Malay, Myanmar ethnic languages. Each interviewer was assigned to participants based on their preferred language. Participants were contacted to arrange for an online 45-min Zoom interview. Consent to participate was obtained at the start of the interview and sessions were only recorded for those who consented (93%). Participants received MYR50 compensation for their time.

3.4 Analytic plan

First, teachers' ratings on practical life skills, socioemotional skills, language-, literacy, numeracy- and physical skills across the two groups of children were compared descriptively. Differences in results patterns between the three types of participating schools were explored (UNHCR, NGO, community school). Paired sample t-tests were carried out to compare mean differences in teacher ratings of school readiness skills between children with and without preschool education.

Qualitative analysis was conducted using teacher responses to open-ended interviews to explore observed differences between the two groups of children in each of the five domains of school readiness, and the strategies teachers used to help children to catch up with their peers. A combined technique of inductive and deductive analysis was used, including a step-by-step process to identify themes based on a literature review (Miles, et al 2014), generate sub-themes and codes from the interview data. . Reliability and validity were ensured through a cross-checking process using a subset of illustrative quotes to ensure that each quote had been coded appropriately, and by carefully re-examining all participant responses to apply agreed codes Uniformly.

3.5 Results

3.5.1 Quantitative analysis on differences between children with and without preschool experience

Descriptive analyses showed that children with preschool experience had high mean scores across all school readiness domains, ranging from 2.59 – 2.88: on a possible range from 1-3. In contrast, Mean scores for children without preschool experience were lower, ranging from 1.30-2.15, indicating that teachers experienced those children without preschool experience as less ready for school across all captured domains.

Table 12. Teacher Rating of Children's School Readiness Skills with and without preschool education

School Readiness Skills	Mean Rating by Teacher (N=28)			
	With Preschool	(SD)	without Preschool	(SD)
Language	2.81	0.48	1.33	0.48
Literacy	2.63	0.56	1.30	0.54
Mathematics	2.78	0.42	1.48	0.58
Socioemotional	2.59	0.50	1.59	0.50
Practical life skills	2.74	0.53	1.81	0.68
Motor skills	2.88	0.33	2.15	0.73

Note: Data are mean ± standard deviation, unless otherwise stated. N=28, Likert scale 1-3

The magnitude of perceived differences between the two groups of children varied between the domains of development, with larger differences observed in academic skills (language, literacy and mathematics). Smaller between-group differences were observed in non-academic skills (socioemotional- and practical life skills, motor skills).

Mean difference scores were computed and compared between the three different types of refugee schools (Figure 6). All mean difference scores were positive, indicating higher scores for the group with preschool experience across all domains and all types of schools. Descriptive results however show that on average, teachers in community-based schools had higher difference scores than teachers in NGO- or UNHCR partner schools, indicating that they perceived the biggest differences between the two groups of children.

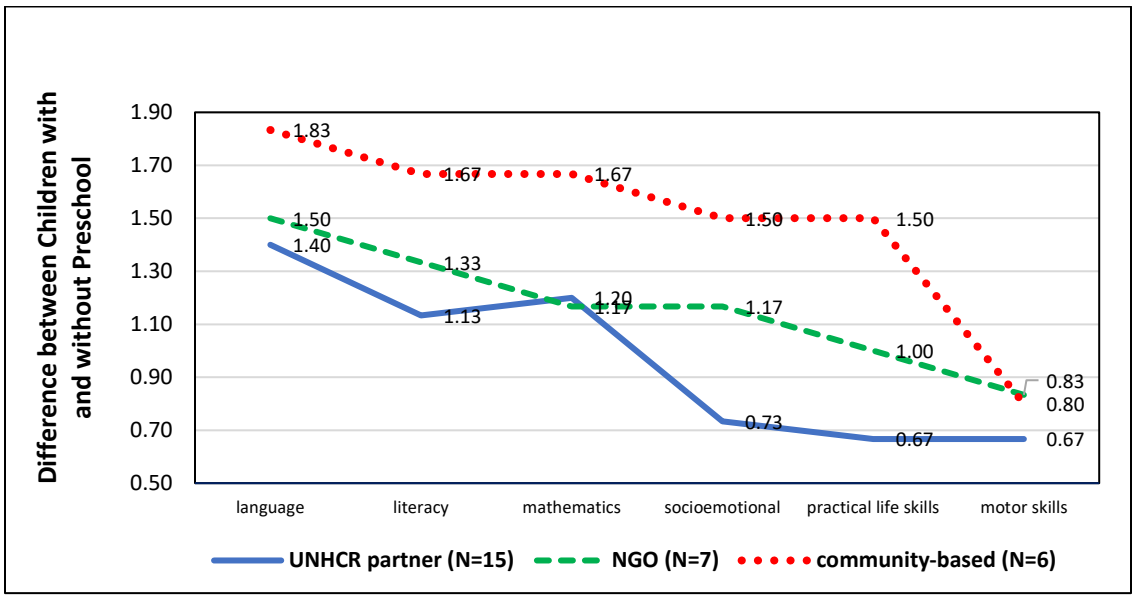

Figure 5. Teacher Rating of School Readiness Skills between Children with and without Preschool

In the final analyses, paired-samples t-tests were used to determine whether there were statistically significant mean differences in school readiness skills between children who had preschool education compared to those without.[3]

[3] Assumption testing did not find any outliers T-tests were carried out even though the assumption of normality was not met (Shapiro-Wilk's test, p=0.000), since paired sample t-tests are fairly robust to deviations from normality (Laerd, 2023).

Between-group differences in teacher ratings were significant across all domains of school readiness, with large effect sizes (d=0.94). The largest difference was observed for the language domain where children with preschool education were rated 1.48 points higher than those without [95% CI (95% CI, 1.23 – 1.74), t(26)=11.98, p < .000, d=2.30]. The smallest difference was observed in motor skills where children with preschool education were rated 0.73 higher than those without [95% CI (95% CI, 0.42 – 1.04), t(25)=4.79, p < .000, d=0.94].

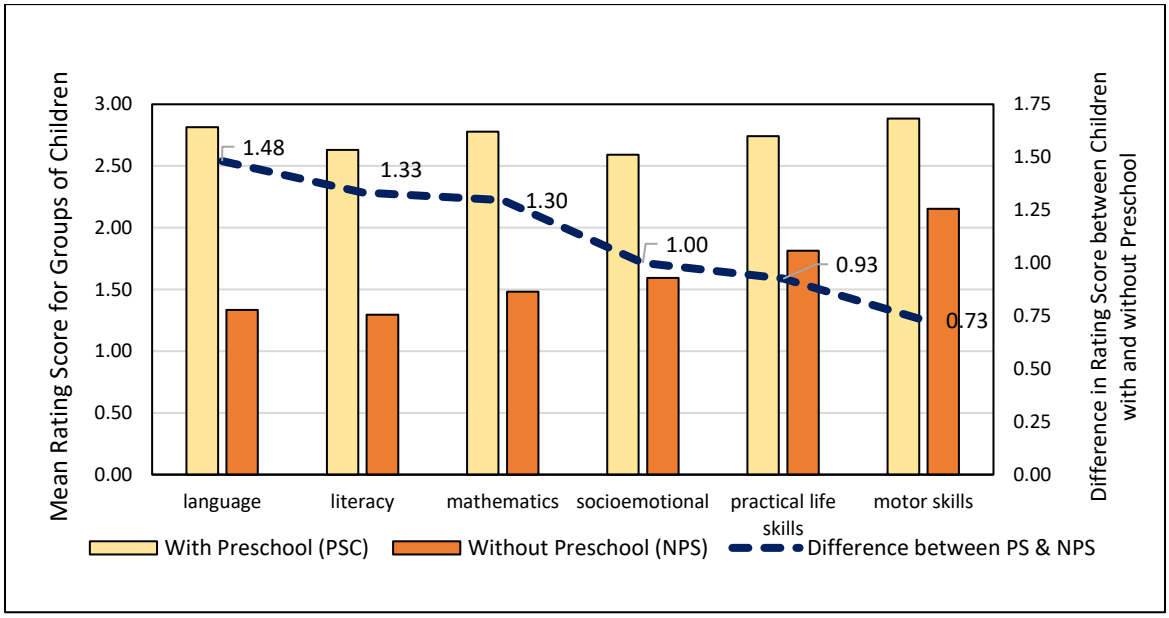

Figure 6. Teacher Rated Scores of School Readiness Skills in Children with and without Preschool Experience (N=28)

Note: all differences in mean rating score were significant at p<0.001.

3.5.2 Qualitative analysis: Key overarching themes on impact of ECE

The next section discusses the main themes derived from qualitative analyses of the teacher interviews. Using axial codes generated from the interview scripts, and combining them with quantitative teacher ratings of observed differences between children with and without preschool experiences, a summary of the key themes relating to benefits of those who had preschool education is captured in Figure 18. The thickness of the arrows indicates the importance that teachers place on these effects that are attributable to prior preschool education. The lighter dashed lines reflect how the skills gained from preschool experience in one area cascade into another area. The thickness of the lines is based on the magnitude of teachers' perceived differences in a particular skill of school readiness.

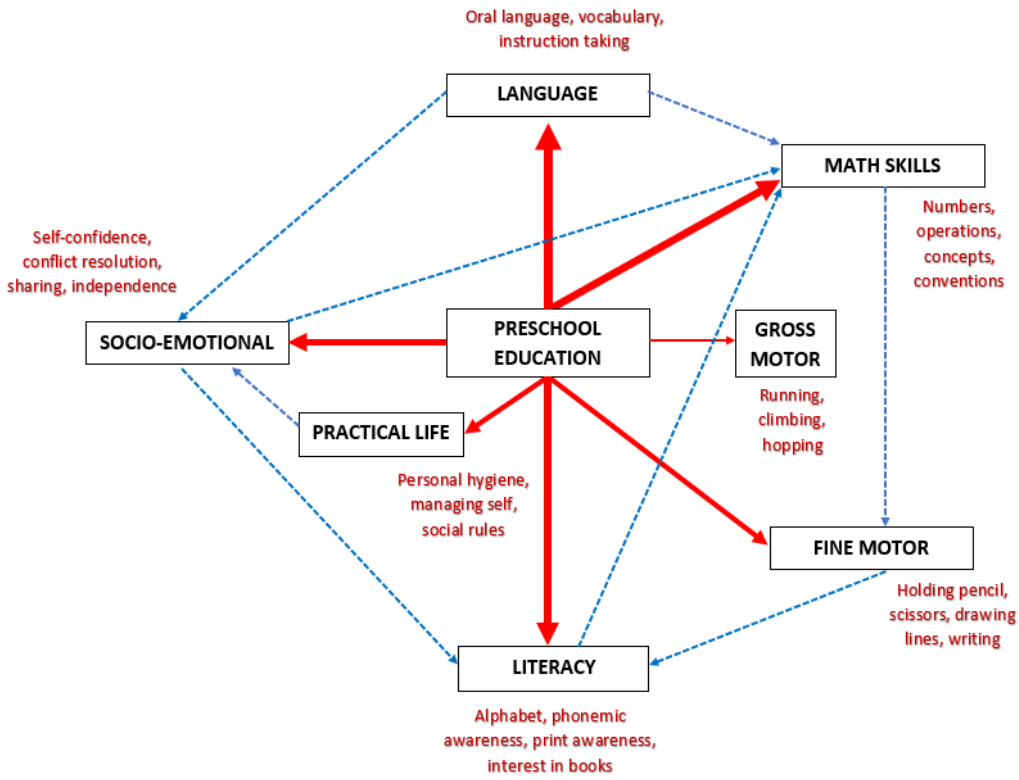

Figure 7. Overarching Themes On The Impact of ECE on Different Domains of School Readiness

The main benefits of attending preschool are primarily observed in children acquiring basic academic skills that facilitate their transition to primary school. Preschool experience provides opportunities for refugee children to learn a language that enables them to connect them with people outside their families. Children with ECE are generally more fluent in school languages (English or Malay) than those without. They are able to speak in longer and more complex sentences, tell stories, and have a broader vocabulary. These children can express themselves, tell imaginative stories, and narrate what happened at home and how they feel, thus building a social bridge between school and home.

> "Those with preschool experience child can communicate their own ideas and their own experiences. They are able to tell stories about what they did at home, where they went during the weekends".
> *(Male refugee teacher, community school, 8 years experience)*

> "if the student had attended preschool before, they know how to talk with the teachers, and even know to complain as well"
> *(female Lead Teacher, UNHCR partner school, 2 years teaching experience)*

They participate in class and socialize with other children, and better understand instructions and common patterns of formal language found in worksheets, e.g. 'underline", 'match', 'circle'. They have also learned their alphabets and numbers in preschool, preparing them for more advanced learning in primary 1.

"Children can understand the instructions given by the teachers because they (with preschool experience) were exposed to the language for two years (from attending preschool).
Female Malaysian teacher from a UNHCR partner school, 5 years teaching experience)
"They know phonics, classroom behavior, forming words ... writing out the sounds they hear".
(Female class teacher, UNHCR partner school in Klang Valley, 2 years teaching experience)

"If they have attended preschool before, children are likely to play with everyone because they would have a common language"
(Female, NGO-run school, 5 years teaching experience)

However, according to UNHCR partner LCs which typically enroll a more diverse range of primary 1 pupils from different preschools, the quality of ECE and standards for school readiness varies widely among preschools. Teachers also reported individual differences in children that are irrespective of whether children's enrolment in preschool prior to primary.

"Most of the children from our own preschool are able to read after they have been here for two years. But this may not be the case for children who came from other preschools".
(Female, UNHCR-parner school in Klang Valley, 3 years work experience)

"Some children are just not as good as the others. Not because they have or have not preschool. Some kids are just faster; some are just slower (in picking up things)".
(Female, NGO-run school in North Malaysia, 9 years work experience)

Many children without ECE have limited vocabulary in the school language, and tend to use inappropriate language or language, containing gender bias or racism. They tend to mix only with those who speak their native language, hindering their integration with peers from different language backgrounds. Their inability to speak Malay or English impedes their communication with teachers and peers, causing difficulties in conflict resolution and perspective taking. For example, there are more than 20-30 languages in the Chin community alone. Majority of the primary school-age Myanmar refugee children were born in Malaysia; hence they have little exposure to the Burmese language, the national language of Myanmar. The predominant school language, often English, is the lingua franca for children to communicate with each other and with teachers.

"Children who have attended preschool before are likely to play with everyone because they would have a common language"
(Female, NGO-run school, 5 years teaching experience)

The language barrier of children without ECE has knock on effects in other aspects of their schooling. Children who lack language skills tend to be quieter and less confident, require a longer time to settle in class and display more temper tantrums such as crying, hiding, refusing to enter classrooms.

"They are very confident and whatever (thoughts/ideas) they have, they raise their hands and they speak up and participate actively in class
(Male refugee teacher, community school, 8 years teaching experience)

They also struggle with hygiene and toileting habits, following instructions or managing themselves.

> "Washing hands after using the toilet is not a natural thing for them. Coughing and closing your mouth ..... Wiping snot on your shirt is common (for those without preschool experience)
> *(Female, NGO-run school, 7 years teaching experience)*

While the benefits of learning language and literacy appeared to be primarily attributable to preschool education, the effects of ECE on math skills are less reported. Children without ECE are still able to develop simple Math concepts through exposure to money and time in their everyday lives, but they will struggle with word problems in Primary 1 due to poor language skills.

> In their own dialect, they can do counting, but when we do it in English, the children (without preschool) struggle
> *(female, UNHCR partner school, 2 years teaching experience)*

> Usually, math is not really too much of problem. The problem comes when they are required to read the questions.
> *(female, UNHCR partner school, 3 years teaching experience)*

> In their daily lives, they are exposed to math concepts such time or money. So, they (PS and NPS) will be more knowledgeable about numbers
> *(female, UNHCR partner school, 5 years teaching experience)*

Teachers observed the least difference between the two groups in gross motor skills. Fine motor skills such as holding a pencil, and forming letters are poorly developed in those without ECE. However, children with parents who work with them at home do not display similar school difficulties, although parental involvement varies by ethnicity and education level.

> "Children with preschool have better control with their pencil and eye coordination. They can hold their pencils well"
> (*Female, NGO-run school, 5 years teaching experience)*

> in terms of running, jumping, skipping, it has got nothing to do with preschool. They jump, they skip, they roll, they fight, they punch.
> (*Female, NGO-run school, 5 years teaching work experience)*

Teachers use a number of remediation strategies for children without ECE, including individualized instruction using a one-on-one approach.

"Main focus will be getting them to read first. So they will start from very beginning, like very basic learning all the alphabets, then all the phonics
(Female, UNHCR-partner school, 2 years teaching experience)

"We focus more on their independence. We will have a lot of activities that foster independence in children. We have a lot of materials for them to use, and then they will have to put back after use and then clean up the table by themselves"
(Female, UNHCR-partner school, 3 years teaching experience)

"We work on their motor skills. We work on their concentration skills. So that is learning and playing at the same time"
(Female, NGO-run, 5 years teaching experience)

However, due to the lack of manpower resources in school, this task of providing targeted help is often assigned to volunteers whose commitment may be highly variable and beyond the school's control. Many of the volunteers are expatriates or retirees. Long-term and consistent commitment from volunteers is tricky due to visa and immigration approvals, (for expatriates), job reassignment, health concerns (owing to pandemic and others infectious disease outbreak), often derailing the best efforts for sustainable remedial intervention. As a result, many children are unable to advance due to the shortage of teachers to provide individualised academic attention.

Other strategies for catching up include working with parents to assist children at home or to monitor their progress, providing extra homework to reinforce learning or requiring parents to bring their child to school for after-school classes. Unfortunately, these strategies seldom work for most refugee parents. Some parents are disinterested in education, while others do not have the time or ability to help their children at home. Some schools make digital devices available, pre- installed with software for children to learn their alphabets and numbers.

"I have 36 students in my class. I can't teach them all one-on-one. So I decided to only allow pupils who had had prior preschool to enroll for Primary 1 to make it easier for me to handle the students.
(Female, NGO-run school, 5 years teaching experience)

Parents are very hard to reach. They are very busy with their work"
(Female, community school, 10 years of working experience)

We are very clear about not pulling the parents into the picture because we get a lot of very unreasonable demands from parents. ... they expect child to read Al Quran daily as part of the syllabus
(Female, NGO-run schoo, 5 years of teaching experiencel)

Most primary schools require incoming primary 1 children to sit for a basic literacy and numeracy entry assessment test. Due to limited places available at primary school, the results of the assessment test are used a screening criterion to prioritise enrolment for those with better school readiness skills. Better resourced schools such as UNHCR partner schools will place incoming Primary 1 children, irrespective of having had ECE or not, according to their level of school readiness. These schools will also restrict the age range of children in Primary 1 classroom to be between 6-8 years. It is very common for refugee children above the age of 8 to enroll in school for the first time, and these overaged pupils will be placed at the lowest level and share a classroom with the youngest pupils age 4-6. Mixed-age grouping is common in refugee schools, especially at the lowest levels.

The intervention programme for children without ECE to catch up is reported to last between 3-12 months, but many struggle to cope even after 1 year of intervention. The definition of what constitutes school readiness for Primary 1 varies greatly between the schools. At Dignity, a Montessori-based UNHCR partner school, the intervention focuses on teaching children the alphabet and basic reading skills (sounds of letters, three-letter words), while in other schools, children ought to have mastered the name of the alphabet, and numbers from 1-20 before progressing to the mainstream Primary 1 class. One school that accepts mostly newly arrived Rohingya children, focuses on creating a safe space for them upon enrolment, and academic learning is delayed for at least six months. Instead, children have plenty of opportunities to play, interact with adults, and learn practical life skills and basic health and hygiene knowledge. Teachers reported that Rohingya children have a far greater need to develop in these areas before they are ready to take on more structured academic tasks.

> "For the first six months of school, we have no writing, no coloring. In that sense, it's just play. We only concentrate on literacy towards the last six months of school".
> (*Female, NGO-run school, 7 years of teaching experience)*

> "Children are trained to behave in a classroom, how to sit at a table, how to hold a pencil, how to play with friends without causing any harm to each other"
> (*Female, NGO-run school, 5 years of teaching experience)*

More Sample responses and excerpts of the interviews are available in the Appendix B, Study Two.

3.6 Discussion

The present study provides evidence that early childhood education (ECE) plays an important role in the school readiness of refugee children in Malaysia. Our findings show that children who had access to ECE had significantly higher levels of school readiness skills compared to those without ECE. This difference was observed across all domains of school readiness, with the largest differences observed in the areas of language, literacy, and numeracy.

Moreover, our study highlights the challenges faced by refugee children who lack ECE experience. They were found to have limited vocabulary and poor language skills in school languages, which can hinder their ability to integrate with peers from different language backgrounds. Children without ECE also had difficulties with academic tasks and poor grooming and toileting habits, as well as lacking in social and conflict resolution skills.

Teachers have adopted a range of remediation strategies, such as individualized instruction, after-school classes, and providing digital devices with pre-installed software, but these were often inadequate and

unsustainable due to the lack of resources, such as manpower, and parental support. Furthermore, schools varied in their definition of school readiness, which further highlights the need for clear guidelines and standards for school readiness.

The findings of this study also suggest that the quality of ECE and standards for school readiness varies widely between preschools. It is important to ensure that all preschools provide quality ECE and align with a set of standards for school readiness.

Overall, our study emphasises the importance of providing ECE for refugee children as it can significantly improve their school readiness and integration into primary school. It also highlights the need for more resources and support for remediation strategies for children without ECE. By addressing these challenges, we can better support refugee children in achieving their full potential in education and beyond.

4 Study Three

4.1 Recruitment of participants and sample

One of the aims of the study was to examine the quality of ECE delivery and learning engagement at the learning centre. Invitation letters were sent out to 68 purposefully selected learning centres. 79 teachers from 41 learning centers that provide education and care for refugee children responded to the invitation to participate in the study (60% acceptance rate). Participating LCs were located in Kuala Lumpur, Selangor, Johor, and Kedah.

Table 6. Characteristics of ECE teachers who participated in the questionnaire.

Type of LC	Community-based LCs	NGO-supported LCs	UNHCR partner schools	Overall
Number of LC	16	17	8	41
No. of teachers	26 (32.9%)	34 (43.0%)	16 (20.3%)	79 (100%)
Highest Qualification Primary School Secondary School Degree	 1 (3.3%) 13 (43.3%) 16 (53.3%)	 - 17 (63.0%) 10 (37.0%)	 - 9 (40.9%) 13 (59.1%)	 1 (1.3%) 39 (49.4%) 39 (49.4%)
% refugee teachers	90%	51.9%	40.9%	63.3%
Gender (female)	76.7%	92.6%	95.5%	87.3%
ECE Teaching experience (yrs)	3.86 (2.46) Range (0-9)	3.30 (3.72) Range (0-14)	4.00 (2.93) Range (0-9)	3.71 (3.05) (0-10)

4.2 Instruments: ECE teacher survey questionnaire

Due the Covid-19 restricted access into schools, the original plan for classroom observation had to be dropped. Feedback from refugee communities suggested that data collection through a survey would be preferred to individual interviews, and this was linked to refugee communities' negative experiences of mandatory interviews that are part of their application for refugee status. As most of the teachers have access to internet, an online questionnaire was created using Google Form. The aim of the questionnaire was to collect information on the structural characteristics and the quality of refugee ECE provision. The questionnaire consisted of multiple sections that covered questions on teacher background, classroom characteristics, curriculum, physical environment, resources, learning activities, health and sanitation facilities, engagement with parents and learning during lockdown. To allow more

teachers with lower educational qualifications to participate, the questionnaire was highly structured, and responses to the questions were mostly recorded using multiple choices and checkboxes. The draft of the questionnaire was reviewed by three different community groups to ensure the appropriateness of both the content and the language.

Three different versions of the questionnaire were made available to the participants – English, Malay and Burmese. For more details on the questionnaire, see Appendix A.

4.3 Procedures: ECE teacher survey

An online invitation was sent out to the schools for teachers to sign up for the survey. The invitation link for participation, along with the link for survey itself were kept open for three months to allow as many ECE teachers as possible to participate. Heads of UNHCR partner schools and community leaders facilitated the recruitment process. Those teachers who were interested in participating completed a google form to provide contact information and consent to be contacted. Eligibility criteria were checked to ensure that the teachers were working in refugee schools and were teaching or had taught preschool classes. Once the conditions for participation were met, researchers contacted the teachers and provided a link for them to submit their responses to the survey. Participants were also further given the option to be contacted for an interview or a short chat if clarification was needed for their responses. Each participant received RM50 as a token of appreciation.

4.4 Analytic plan

To be included in the analysis, teachers had to report that they were currently teaching children at preschool or pre-primary school age (under the age of seven; n=69; 87.3%). Results are presented at the teacher level, reflecting teacher reported information, rather than information at the centre level.

Descriptive analysis was carried out to describe key characteristics of refugee ECE provision in Malaysia. In a second step, and through multiple regression analysis, associations between teacher, classroom and centre characteristics and three ECE quality outcome variables were tested: diversity of learning resources in the classroom, frequency and diversity of learning activities in the classroom, and diversity of resources for remote teaching. Due to the small sample size, only a small number of independent variables could be included in each regression model. Bivariate correlations were explored (see Appendix 2, Study Three), including indicators of teacher experience, qualification, staff support, the composition of the classroom, type of centre, and centre size. Only variables showing significant correlations with at least one of the three dependent variables were included in the subsequent multiple regression analysis. See Appendix B/Study Three for more detailed information on the variables computed for analysis, and for table showing the bivariate correlations between predictor variables.

Simultaneous multiple regression analyses (using pairwise deletion) were carried out for each of the three outcome variables, to test the predictive power of each independent variable. Preliminary analysis revealed no violations of the relevant assumptions. Six predictor variables were included in each model: teacher education and experience, classroom composition (age and ethnicity), and school size and type.

4.5 Results

4.5.1 Describing key characteristics of refugee provision in Malaysia

Data from the ECE teacher questionnaire provided information to describe key characteristics of ECE provision in Malaysian learning centres (LCs) for refugee children (see also Figures in Appendix B/Study Three). This included the following:

Accessibility of LCs. Approximately half of the teachers (50.7%) reported that every child who applies

for a preschool will get a place. Waiting lists were reported commonly (58%) and priority was given to children mainly on the basis of age, sibling relationship, and membership/ethnicity of a community. Nearly all LCs charge fees to parents (92.8%), and public transport or organized transport to the LC was reported to be available by less than half of the teachers (43.5%).

Training and teaching experience. Teaching experience varied hugely between teachers (1-30 years, M=6.67, SD=6.13). While levels of education for teachers were high (tertiary education for 40.6%), most teachers did not have a diploma in early childhood education (79.8%). Weekly or monthly staff meetings were relatively common (34.8% and 43.5% respectively).

Multi-ethnic and multi-lingual classrooms. Most classes were attended by children with a mix of different ethnic backgrounds (78.3%), and about a third of teachers reported to have 4 or more ethnic groups in their classroom (29%). Yet, nearly all teachers spoke English (95.7%) and used English in class to communicate (88.4%). Many teachers were also able to speak Bahasa Malaysian (40.6%), or more than one language (46.4% two languages, 44.9% three languages). However, only about a third of teachers reported to use another language than English to communicate in their classroom (30.6%) – these languages were mainly Bahasa Malaysian and Burmese.

Curriculum and teaching. Teachers reported to use a variety of materials to guide the content of their teaching, including different book series (50.7%), a commercial curriculum (36.2%), and online curriculum by subscription (17.4%).

Resources for learning and space. Availability of books and toys in classrooms varied. Teachers reported that between 0-6 types of books and between 0-10 types of toys were available in their classrooms (M=3.36, SD=1.89 and M=4.58, SD=2.95 respectively). The most common types of books were workbooks, picture books, and board books. Teachers reported that the most common types of toys in classrooms were puzzles, building toys, animals and creative toys. 53.6% of teachers reported that they did not have space to use for physical activities with their children under the age seven.

Activities. The frequency of different activities teachers reported to do with children in their classroom was reported on a four-point scale; for results, see Figure 9.

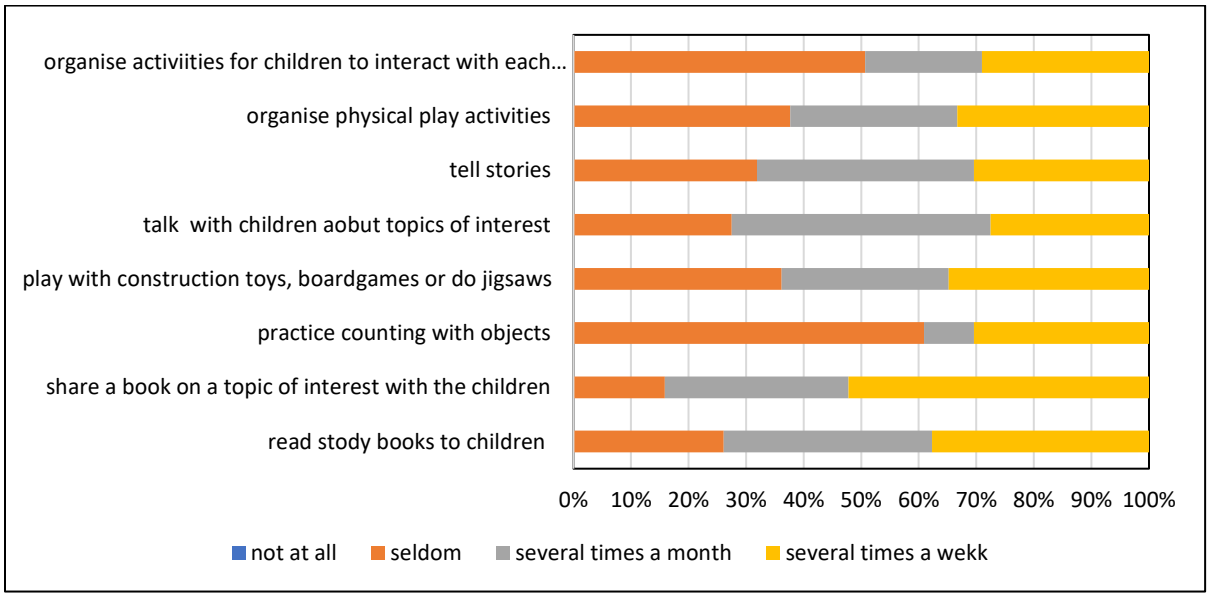

Figure 1. Frequency of different types of activities organized in the classroom

Hygiene and sanitation. Hygiene and sanitation were reported to be good – on three questions related to the availability of drinking water, the cleanliness of toilets, the supply of water and soap to wash hands, only one teacher reported a lack on one aspect (cleanliness of toilets).

Parent partnerships. Many teachers reported they were in touch with parents all the time or weekly (44.9% and 8.7% respectively) and met with parents at least several times per year (81.2%). 42% of teachers reported that they visited pupils' homes (at least before the pandemic).

Remote teaching. Only six teachers reported that little or no learning activities were carried out during lockdown, and many teachers reported to carry out various types of activities, using different digital tools (with Zoom, Google Meet and video-recording mentioned most commonly). The majority of teachers had access to a laptop or computer and a smart phone (72.5% and 81.2% respectively), and some had access to a tablet (33.3%), but 37.7% reported that they did not have access to the WIFI at home or have unlimited internet data.

4.5.2 Predicting quality characteristics of refugee provision in Malaysia

The aim of the analysis of the ECE teacher data was to explore, through multiple regression analysis, associations between teacher, classroom and school characteristics and outcomes on three aspects of ECE quality: learning resources in the classroom (i.e. books and toys), learning activities in the classroom, and remote teaching during lockdown. Results of bi-variate correlations guided the choice of variables to include as co-variates in regression models. Variables included were more than three years of teaching (n=42), education beyond secondary school (n=34), all children in the classroom at preschool age (n=19), more than two ethnic groups in the classroom (n=37), NGO-run LC (n=46), and more than two classrooms with preschool children in the LC (n=29). For tables on bi-variate correlations and regression results, see Appendix B/Study Three.

Diversity of learning resources in the classroom

The overall regression was statistically significant [R^2=.265, F(6, 58)=3.481, p=005]. It was found that two variables, predicted learning resources in the classroom: 'teacher has more than three years of teaching experience' (β=.343, p=.006) and 'more than two classes with preschool children in the centre' (β=.301, p=.014).

Frequency and diversity of learning activities in the classroom

The overall regression result was not statistically significant [R^2=.139, F(6, 58)=1.557, p=.176].

Diversity of resources for remote teaching

The overall regression was statistically significant [R^2=.316, F(6, 58)=4.476, p<001]. It was found that two variables, predicted learning resources in the classroom: teacher has education beyond secondary school' (β=.288, p=.012) and the school is an NGO-run centre (β=.444, p<.001).

4.6 Discussion

This study included teachers from a wide range of learning centres, in different locations, providing for refugee families with varying backgrounds. While not a representative sample, a diverse group of learning centres was included, providing a first broad picture of the characteristics of early childhood education and care for refugee children in Malaysia. Survey results from teachers who work with preschool-aged children in learning centres for refugee children in Malaysia showed that more needs to be done to make early education accessible to families with refugee backgrounds. Currently, waiting list, fees for parents and lack of transport to the learning centre hinder equal access to early education for all refugee children.

Data from the teacher survey showed that the provision of early education is challenging with very diverse groups of children in classrooms in terms of age, ethnicity and language backgrounds. More work remains to be done to explore multi-lingual classroom practices in these contexts. Our study results suggest that while many teachers were able to speak more than one language, the language to communicate in classrooms with children was most commonly English, and the use of children's heritage languages for communication was reported rarely. Home visits, and regular contact with parents were reported by nearly a half of the teachers, but – given the findings of the literature review in the importance of community and family engagement, further research needs to explore partnership working, and the implementation of culturally responsive practices.

While the educational levels of teachers were relatively high, less than a quarter of teachers had formal training in early childhood education. There is no common curriculum, and learning centres rely on choosing from a wide range of documents to guide the content of their teaching. More attention needs to be paid to training opportunities for teachers in early years education, and the content of curricula or other guidance documents teachers use for working with this diverse group of children at this age group. Findings of our literature review support the importance of staff preparation and emphasise the need for training on play-based approaches.

Results of multiple regression models suggest that if teachers have more experience and a higher level of education, if learning centres have more classrooms attended by preschool-aged children, and if they are run by NGOs (rather than organised by the communities), teachers have more resources for teaching children in their centre. In terms of activities, reading to and with children and oral language activities were those reported to take place most frequently, with less frequent efforts to organise opportunities of children to practice counting or interact with their peers. About a third of teachers reported to seldomly organise physical activities, and there was a lack of spaces in learning centres to do these. When exploring factors that are associated with the frequency and diversity of learning activities in the classroom, none of the variables used for multiple regression analysis predicted this outcome, providing no answer to the question which factors facilitate teachers to offer holistic learning experiences to children. Our study findings however indicate that teachers need more support for the implementation of holistic learning experiences for the youngest children in their centres, particularly given the fact that they often work in mixed-age classrooms.

7 Conclusions

Responsive care and opportunities for learning are essential for the healthy development of all young children, particularly those who are vulnerable. Refugee children, who often live in low- and middle-income countries (LMICs) facing resource scarcity and crisis situations, are among the most vulnerable populations in the world. These children face significant barriers to experiencing the nurturing environments they need to thrive, and the COVID-19 pandemic has only worsened their living conditions. Early Childhood Education (ECE) can play a vital role in providing physical, psychosocial, and cognitive protection for refugee children in these contexts. The provision of ECE in humanitarian contexts however is often extremely limited, and the regions with the vast majority of refugee families can face huge difficulties in providing ECE services for the most vulnerable children.

The findings of this project, carried out in Malaysia, help to shed light on the challenging context for refugee families and the provision of refugee ECE. Study findings demonstrated challenges of access to ECE for refugee children, with sufficiency of supply and costs being some of the main issues. Nearly all learning centres charge some fees to parents, and public transport or organized transport to the learning centre is often not available. Waiting lists were reported commonly, and the top priority is

given to children higher in age. Due to the limited resources to offer education to refugee children, many leaning centres give priority enrolment to children who are at least five years old. The context of the pandemic, with many periods of school closures and the resulting need for young children to catch-up, means that an increasing number of learning centres now focus on providing support for the transition to primary school, with access only to those who are about to enter primary school or are those already at primary school age. The study also revealed that access to preschool education is particularly limited for families from Myanmar with Rohingya backgrounds, who form the majority of the refugee preschool population in the country. These findings underscore the need for more concerted efforts to identify and address barriers to ECE provision for refugees in Malaysia.

It has been noted that a focus on access to ECE in low-resource contexts can come at the expense of quality. Data from this study's teacher survey show that resources accessible to teachers and centres are low, and the provision of early education is challenging, with very diverse groups of children in classrooms in terms of their ages, ethnicity and language backgrounds. The majority of teachers to not have training specific to early childhood education, and there is no central guidance on curriculum for early years; to guide their planning and practice, learning centres pick and choose between varying curriculum and guidance documents. This indicates that many leaders and teachers are not specifically supported and prepared to work with the preschool age-group. Future research should explore if and how teachers in refugee ECE in Malaysia implement a curriculum and practices that respond to how preschool-aged children learn effectively (e.g. holistic learning experiences, playful approaches, active learning). Similarly, we know very little about the kind of support teachers and centres receive to meet the socio-emotional needs of their refugee children, and to respond to the complex multi-lingual and multi-cultural classroom contexts. Findings on the teacher reported language use in classroom suggests that there might be more opportunities for teachers to help children learn through making more of the multiple languages available to them.

During the pandemic, learning centres commonly focused on the provision of remote teaching, and it will be important to understand more about the possibilities and challenges of remote teaching with such a young and diverse group of children in such low-resource contexts. Study findings show associations between teacher- and center-characteristics and levels of classroom resources for teaching and learning. None of the aspects captured through the survey however predicted the 'learning environment' (measured by the reported frequency and diversity of types of learning activities in classrooms). Unfortunately, due to the pandemic, this study had to go ahead without carrying out classroom observations that capture how adults facilitate language-, cognitive- and socio-emotional learning through responsive and stimulating interactions. Future research should focus on measures that capture the quality of learning experiences to better understand the factors that promote the development and resilience of young refugee children in low-resource contexts. This information will be valuable in informing the development of early education for refugee children in Malaysia and other similar contexts. The critical review of the existing evidence on refugee ECE in LMICs, carried out as part of the current study, highlighted that there is a need for systematic observations of quality, with observation tools that focus on the process quality of ECE in refugee low-resource contexts. Some tools have been developed for use in LMICs, including the IDELA classroom environment tool (Save the Children, 2021), and the Teacher Instructional Practices and Process System (TIPPS) (Wolf et al., 2018), and the rigorous Early Childhood Environment Rating Scale (ECERS-R; Harms, et al 2005) has been adapted and used in LIMCs. Further research needs to assess the validity and need for adaptation of such instruments for refugee contexts.

Research in low-resource refugee settings can face significant challenges (Ereky-Stevens, Siraj, Kong, 2023), and this was also found for this project. One of the main obstacles faced by this project was the COVID-19 pandemic, which led to numerous lockdowns and closures of learning centres. Additionally,

the situation for refugee families became increasingly challenging during the pandemic, with an increase in detentions and deportations that further discouraged families' use of refugee services. Considering the immense strains that research participants already face, and the difficulties of face-to-face contact during the pandemic, a particular strength of this project is the collection of data from a large group of children and their parents. Much of the success of this study in reaching out to a large number of participants is due to the efforts invested into creating good relations with refugee communities, and the involvement of stakeholders from refugee communities in data collection.

A limitation relates to the fact that, due to the many closures of learning centres during the pandemic, enrolment of children in ECE did not necessarily lead to their access of ECE. For many months, children could be enrolled but have virtually no actual ECE experience and participation. This led to the decision to create a 'no ECE access' group for this study by including children who are not enrolled in ECE as well as those who enrolled more recently – early in the pandemic. It has to be recognised that this study does not differentiate between those two groups of children without access. However, combining these two groups enabled the inclusion of a significant comparison group of children not accessing ECE. A real achievement is that this study managed to not only include a comparison group of 'no access' children, but that the number of children included in this study is exceptionally high given its context. Further strengthening this study is that fact that – rather than relying on teacher- or parent-reported information to capture child outcomes – children were directly assessed through the IDELA assessment tool (Pisani et al., 2018). Because of its sample size and research design, this study's findings on the benefits of ECE participation for children's early academic outcomes (early numeracy and literacy) are therefore extremely important in highlighting the potential of ECE to address threats to refugee children's development. Considering existing barriers to ECE participation in Malaysia, limited resources for the provision ECE, and the challenges of providing good quality, these findings are particularly remarkable. The findings add to what we know about the benefits of ECE for young refugee children in lower-resource contexts.

Finally, and against our original hypothesis, study findings on children's socio-emotional development point towards possible advantages for the group of children *not* accessing ECE. This will need further explorations, particularly since the context of the pandemic may have played into these associations. All children had their daily routines interrupted, but for children with access to ECE prior to the pandemic, lockdowns and school closures meant that they did not access their usual network of peers and caregivers outside their immediate families. Even when they returned to ECE outside the lockdown periods, opportunities for play were limited due to social distancing rules and a focus on catch-up in their academic learning. During the context of the pandemic, those not accessing ECE might have been more able to continue with their normal daily routines in their home environments, and even to play with their existing friends in their immediate neighbourhood. Associations between ECE access and refugee children's socio-emotional development will need to be re-investigated outside the context of the pandemic.

We hope that findings from the current study on the benefits of refugee ECE in Malaysia will help to encourage non-government organisations, government agencies and international agencies working with refugee children in low-resource contexts to strengthen their support for early childhood education in refugee settings, and to do so in coordination with municipalities, and local stakeholders in schools and community organisations. Efforts should include increased commitment by government to provide funding for pre-primary education. The evidence brought together by this project helps to highlight the importance of policies that address problems in the provision of early education for refugees on low-resource contexts. Education for refugee children and youth has become an important policy priority, yet until today challenges and barriers to access exist due to the fact, that those countries hosting the majority of refugees face enormous challenges in delivering inclusive and equitable quality education to

their own populations, and even more so to their refugee populations. Without special measures, SDG4 will be unattainable. This is particularly true in the field of early education. Evidence collected by the current project is essential to strengthen the call for such measures and inform policies that help to address this issue.

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Appendices

Appendix A: Instruments

Table 7. IDELA Child Assessment Tasks

School Readiness	Description of Sample tasks
Emergent Literacy	
Print Awareness	Able to point to the text on a printed page
Oral Comprehension	Able to respond orally to questions based on an oral story
Letter Identification	Able to name 20 letters of the alphabet
Sounds of the letter	Able to identify similar beginning sounds of a word
Vocabulary	Able to name 10 items in the house
Emergent Writing	Able to write his name
Emergent Numeracy	
Size Comparison	*Able to identify biggest or smallest object*
Sorting	Able to sort according to criteria
Identification of Shapes	Able to identify basic shapes
Number identification	Able to identify number 1-20
One-to-one correspondence	Able to count on from 1-15
Simple Math Operation	Able to do simple addition and subtraction
Puzzle-making	Able to do a 4-piece puzzle
Socioemotional Skills	
Self-Awareness	Able to tell his name, age, gender, etc.
Emotional Awareness	Able to recognise and manage feelings
Conflict resolution	Able to solve conflict with peers
Empathy	Able to empathise or take perspective of others
Friends	Able to name friends
Motor Skills	
Hopping	Child is able to hop on one foot without stopping
Copying a Shape	Able to copy a shape
Drawing A Person	Able to draw a person
Folding Paper	Able to fold a piece of paper with instruction
Executive Function	
Inhibition Control	Able to control impulse
Short term memory	Able to recall series of numbers

Table 8. Parent Questionnaire

Section	Description of Question
Child background	Age, gender, ethnicity of the child
Parent background	Age, education level of the father and mother
Home Learning Environment	Activities that adults older than 15 years engage in with the child Read books or look at picture books with child? Tell stories to the child? Sing songs to or with the child, including bedtime songs? Take the child outside the home? market, park, etc. Play with the child any simple games? Name objects or draw things with the child? Show or teach your child something new such as new words Teach alphabet or encourage to learn letters to the child? Play a counting game or teach numbers to the child?
Household wealth	Composite of 12 household owned items: Computer, internet access, mobile phone, washing machine, TV, Fridge, bicycle, motorcycle, car, electricity, piped water

Table 9. Semi-Structured Primary Teacher Interview

Section 1: Teaching experience and educational background	
1a	For how many years have you been working as a primary school teacher?
1b	For how many years have you taught children in Standard 1?
1c	What is the age range of children in your classroom?
1d	What is your highest level of education (e.g. high school, further education, graduate, masters)
Section 2: Information about the children in the classroom	
2a	What is the percentage of children with preschool experience in your classroom?
2b	How many years of preschool experience does this group on average have?
2c	Do children without preschool experience at your school attend intervention classrooms?
2d	If yes, what does this look like?
Section 3: General differences observed in Standard 1 pupils who did and did not attend preschool	
3a	Based on what you have observed, are there areas in development where children in one group are ahead or behind of the children in the other group?
3b	Can you give me some examples of behaviour differences between the groups in these skills?
Section 4: Observed different in practical life skills	
4a	How would you rate the practical life skills of Std 1 pupils who have been to preschool?
4b	How would you rate the practical life skills of Std 1 pupils who have not been to preschool?
4c	Can you give me some examples of behaviour differences between the groups in these skills?
Section 5: Observed differences in socioemotional skills	
5a	How would you rate the socioemotional skills of Std 1 pupils who have been to preschool?
5b	How would you rate the socioemotional skills of Std 1 pupils who have not been to preschool?
5c	Can you give me some examples of behaviour differences between the groups in these skills?
Section 6: Observed differences in language skills	
6a	How would you rate the language skills of Std 1 pupils who have been to preschool?
6b	How would you rate the language skills of Std 1 pupils who have not been to preschool?
6c	Can you give me some examples of behaviour differences between the groups in these skills?
Section 7: Observed differences in literacy skills	
7a	How would you rate the mathematical skills of Std 1 pupils who have been to preschool?
7b	How would you rate the mathematical skills of Std 1 pupils who have not been to preschool?
7c	Can you give me some examples of behaviour differences you observe between children with and without preschool experience in the mathematical skills they have?
Section 8: Observed differences in mathematical skills	
8a	How would you rate the mathematical skills of Std 1 pupils who have been to preschool?
8b	How would you rate the mathematical skills of Std 1 pupils who have not been to preschool?
8c	Can you give me some examples of behaviour differences between the groups in these skills?
Section 9: Observed differences in physical skills	
9a	How would you rate the physical skills of Std 1 pupils who have been to preschool?
9b	How would you rate the physical skills of Std 1 pupils who have not been to preschool?
9c	Can you give me some examples of behaviour differences between the groups in these skills?
Section 10: Plans/Measure to help Primary 1 children catch up	
10a	How many children manage to catch up in their first year in school?
10b	Can you tell us what you do/your school does to support children who need to catch-up?
10c	If you had more resources, what would you offer to children who need to catch-up?

Table 10. ECE Teacher Questionnaire

Section	Description of Question
Teacher background	Age group of the class taught Job scope & responsibility (home room, subject teacher, etc.) Education history Teacher training and development Language competencies
Learning Centre	Levels of education offered Fees charged ECE enrolment policy Highest level of paternal education Uniform for pupils School days for ECE School hours for ECE Age range of pupils in preschool class Ethnicities of children Languages used for communication
Curriculum & Planning	Type of resources used for lesson planning Languages taught in school *Preschool focused Learning areas* *Frequency of staff meeting*
Physical Environment & resources	Availability of books, toys, space *Classroom learning activities* *Health & sanitation facilities*
Engagement with parents	*Frequency of meeting* *Type of homework*
Learning during lockdown	Teaching & learning activities Access to online learning tools & devices Types of apps used

Appendix B: Data Analysis and Results

Study One

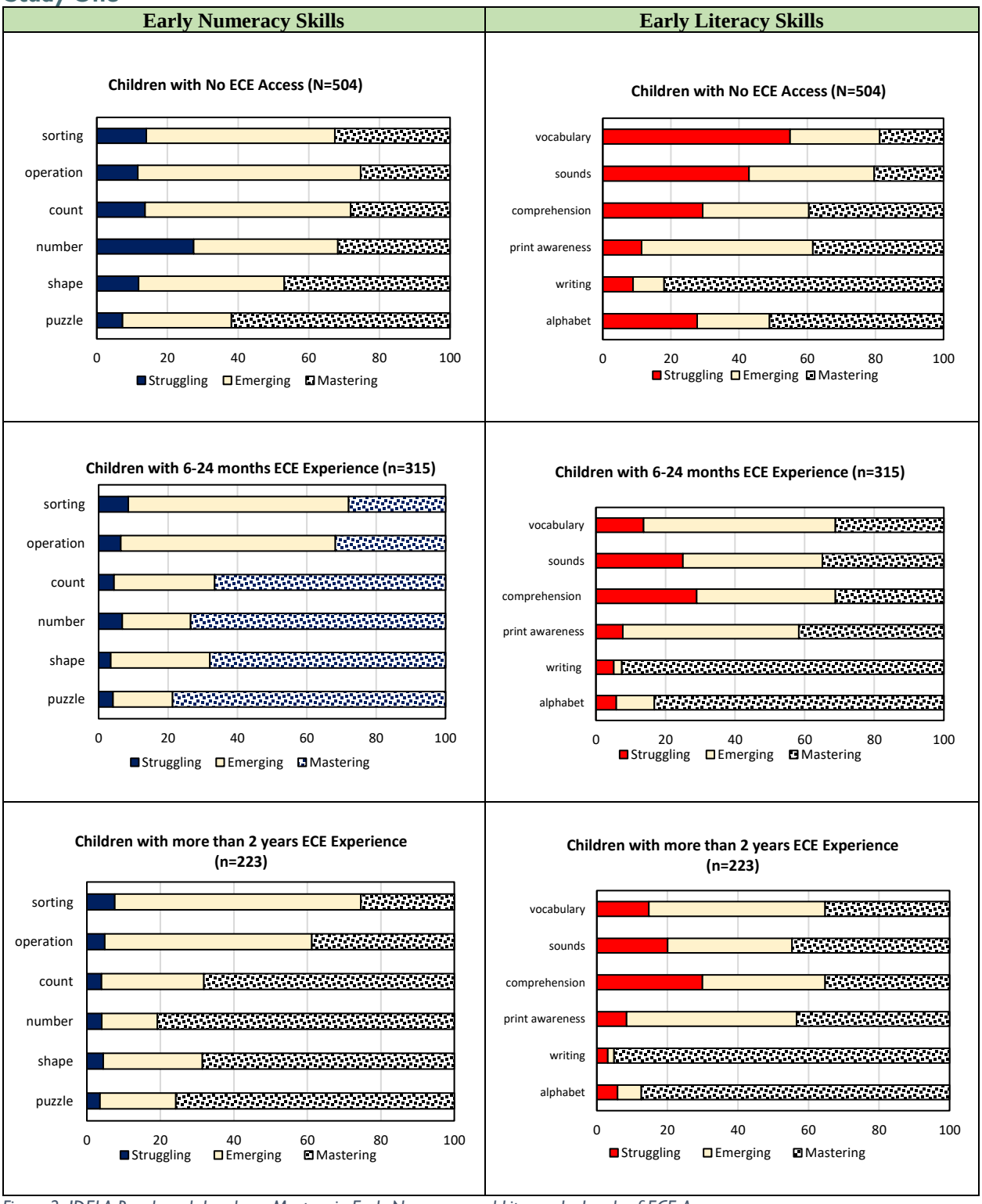


Figure 2. IDELA Benchmark Levels on Mastery in Early Numeracy and Literacy by Levels of ECE Access

Struggling (scoring 24% and below), Emerging (scoring 25-74%), Mastering (scoring 75% or above)

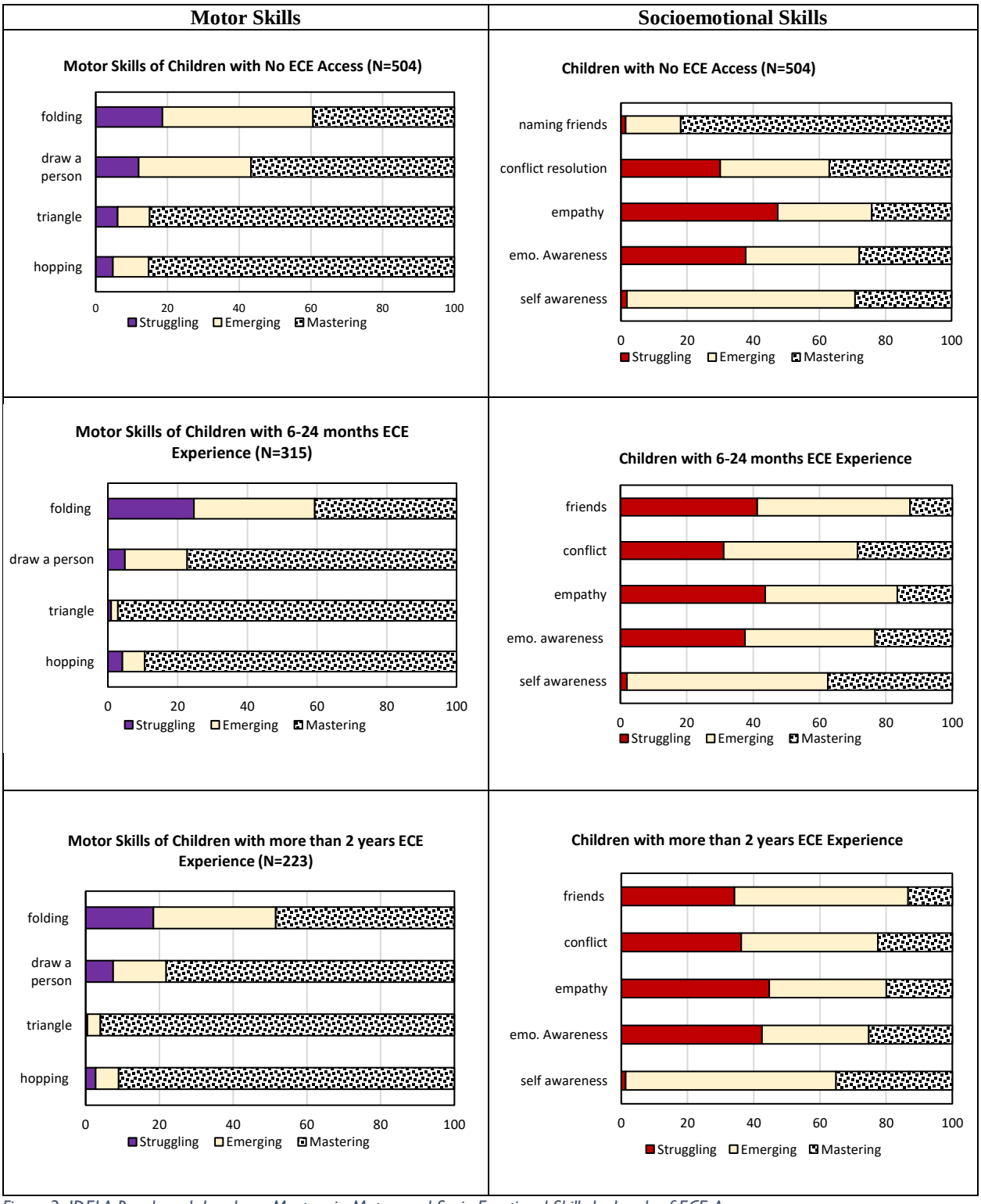


Figure 3. IDELA Benchmark Levels on Mastery in Motor- and Socio-Emotional Skills by Levels of ECE Access

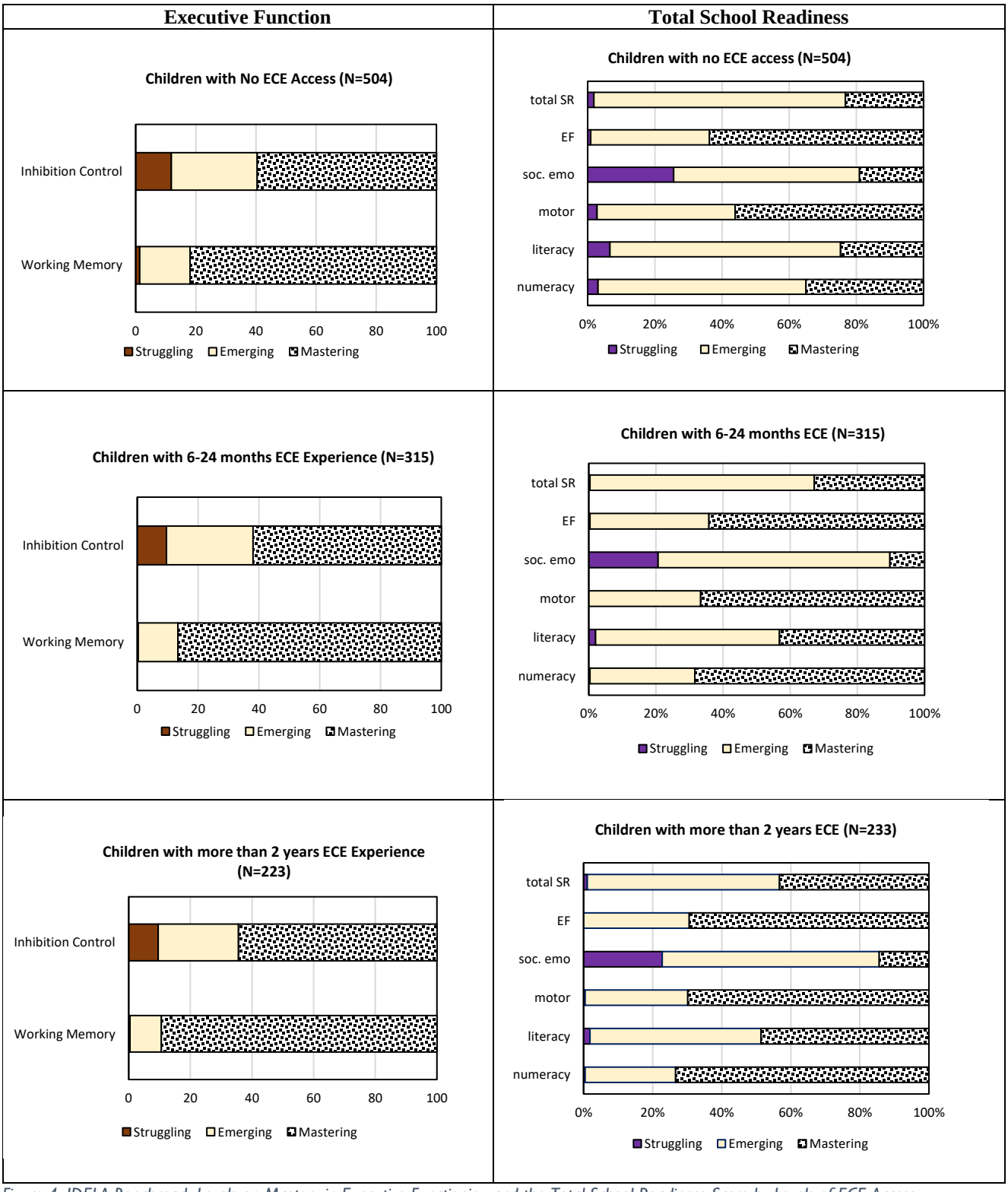


Figure 4. IDELA Benchmark Levels on Mastery in Executive Functioning and the Total School Readiness Score by Levels of ECE Access

Table 11. Bi-variate Correlations between Variables Included in Regression Analysis Predicting Child Outcomes

Variables	gender	ethnicity	child age	maternal age	paternal age	maternal education	paternal education	home learning	SES	6-24 months	>24 months
gender											
ethnicity	.05										
child age	-.02	-.02									
maternal age	.05	.37**	.02								
paternal age	.00	-.01	.03	.48**							
maternal educ.	.07*	.41**	-.07	.22**	.02						
paternal educ.	.03	.42**	-.06	.19**	.04	.65**					
home learning	.04	.18**	-.02	.05	-.02	.10**	.14**	1.00			
SES	-.03	.17**	.02	.02	.06	.00	.02	.09**			
6-24 months	.02	.24**	.11**	.14**	-.02	.17**	.12**	.03	-.02		
>24months	.00	.20**	.01	.14**	.07	.16**	.23**	.09**	-.07*	-.35**	

** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed).
Listwise deletion N=902

Study Two

Table 12. Sample Responses about Differences between Preschool (PS) and Non-Preschool (NPS)

Theme	Source	Examples
Language		
Oral language	CSK6	PS child can communicate their own ideas and their own experiences. They are able to tell stories about what they've done at home, where they have gone during the weekends
	CSP1	If the child who stays at home, they will have only one language – the one spoken with their parents
Receptive language	UNK4	PS children can understand whatever instructions given by the teachers because they (PS children) were exposed to the language after two years (of attending preschool)
Expressive language	NGF10	They can even narrate what their parents or their siblings say
Emergent Literacy		
Knowledge of alphabets & sounds of the letter	UND6	they know how to make out the sounds of the letter (phonics). Able to write ABC and they know how to spell a simple word
	UND3	They know phonics, classroom behavior, forming words ... writing out the sounds they hear
	UNK4	They (NPS) memorise the alphabets. When the letter are jumbled up, they have diffficulty in naming the letters individually.
Phonemic awareness	UNR1	They already know the sounds and the sukukata (malay equivalent of phonics)
Interested in print	CSK6	When PS children enter the class, they will just go to the library corner and take the books
Goal-directed	CSK3	children know that they are moving up the level. Like for Peter & Jane book series... it is exciting for them. They want to go for the next level
Transitioning	CSK6	Those who have experience in preschool, they have not difficult to go forward in their study.
Math skills		
Less language dependent	UND1	In their own dialect they can do it (counting), but when we do it in English, they struggle
	UND2	Usually math is not really too much of problem. The problem comes when they are able to read the questions.
	UNT3	In their daily lives, they are exposed to math concepts such time or money. So, they (PS and NPS) will be more knowledgeable about numbers
Practical Life Skills		
Self-help	NGK1	They learn to feed themselves, put on their clothes. Even if parents do not train them, children can figure it out very quickly because they do it every day, whether they like it or not. So, they learn to dress and clean themselves
Social norms	CMS1	don't really know how to ask for permission to do things, like leave the classroom or borrow something
	UNJ8	They know what is expected out of them. They know the rules. It's easier for them to adapt and to adjust to the school environment
Health and Hygiene Practices	CSK6	When he (NPS) goes to the toilet, he does not know how to clean himself up properly.
	NGK1	washing hands after using the toilet is not a natural thing for them. Coughing and closing your mouth ..... Wiping snot on your shirt is common (for NPS)

Socioemotional		
Active learning	CSK6	they are very confident and whatever (thoughts/ideas) they have, they raise their hands and they speak up and participate actively in class
Confident	UND1	if the student had attended preschool before, they really know how to talk with the teachers even know how to complain as well. They know how to socialize with the friends and make friends.
Integration	NGK1	If they have attended preschool before, children will play with everyone.
Conflict resolution	CSP1	They (NPS) push when they try to get ahead of others. They start fighting with them.
Self-regulation	CSA3	they (NPS) don't know how to control their anger. They don't wait for their turns. They burst out (when angry) and keep shouting.
Physical		
No difference in gross motor	NGK1	in terms of running, jumping, skipping, it has got nothing to do with preschool. They jump, they skip, they roll, they fight, they punch.
fine motor skills	NGK1	they (PS) have better control with their pencil and eye coordination. They can hold their pencils well
	NGP7	Writing skills really bad. They can't draw or even do the colouring properly.
Individual Differences		
	NGP7	reading is hard for those who attended the preschool and without the preschool.
	NGK1	Some not as good as the others, not because they have no preschool or got preschool. Some kids are just faster. Some kids are just slower
Home Environment		
Parents help with non-academic skills	UND1	Parents teach their child at home. So, their motor skills will be alright, regardless of preschool or non-preschool
	UND4	Their social emotional (skills) do not depend on the school alone, but also sometimes depend on their family background.
Life hassle	CSP1	Parents are struggling... By the time they (parents) get home, they are tired and they don't want the children coming around them and then making noise.
Ability of parents	UNP1	Most of our parents (Rohingyas) don't know how to teach and they don't know ABC even.
	NGK1	Some come from families with very gender-biased views. Boys are not expected to do certain jobs ... consider themselves more superior. There are boys who refuse to pick up a broom because their parents told them that is not something a boy should do.
Priority and Focus to catch up		
Social Conditioning	NGP7	I don't think that the preschool (previously) has taught them how to use toilet. I spend 1-2 months to teach them (in primary 1) how to use toilet and basic hygiene.
Academic	UND2	Our main focus will be getting them to read first. So, they will start from very beginning, like very basic learning all the alphabets, then all the phonics.
Language immersion	UND1	by middle of the year, three quarters of them can finally understand English. When they know how to speak in the language, they will be able to do basic math, and reading as well.
Independent learning	UNK3	Our preschool focuses more on their independence. We will have a lot of activities that foster independence in children. We have a lot of materials for them to use, and then they will have to put back after use and then clean up the table by themselves
Psychosocial	NGK1	For the first six months of school, we have no writing, no coloring. In that sense, it's just play. We only concentrate on literacy towards the last six

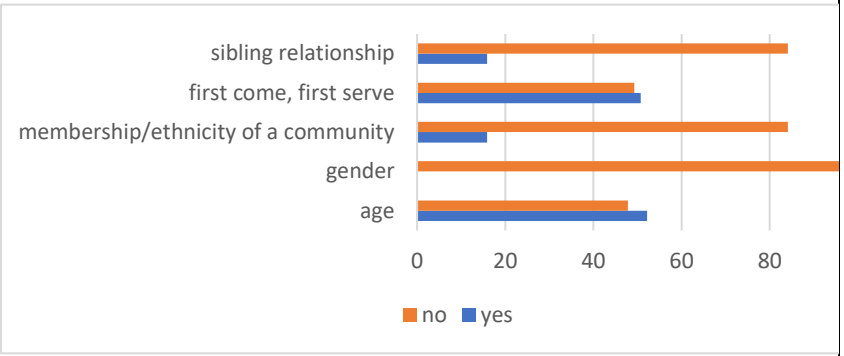
		months of school.
Motor skills	NGK1	We work on their gross motor skills. We work on their concentration skills and stuff like that. So that is learning and playing at the same time.
Social behaviour	NGK1	By the time they finish preschool, they know how to behave in a classroom, how to sit at a table, how to hold a pencil, how to play with friends without causing any harm to each other
Challenges in Providing Access		
Big class	NGP7	I have 36 students in my class. I can't teach them one-on-one. So that's why I decided to allow only pupils who had had preschool to enroll (for Std 1) so that it makes it easier for me to handle.
Medium of instruction		The English is very new to them. Soo the child has to start from scratch. But math is not problem.
Little parental involvement	CSA3	Parents are very hard to reach. They are very busy with their work
Life hassles	UNP1	By the time they (parents) get home, they are tired and they don't want the children coming around them and then making noise
Can't depend on parents to teach	CSP1	Most of our parents don't know how to teach and they don't know ABC even.
Lack of parental supervision	NGP7	we don't give them workbook because the next day the work will become rubbish (got destroyed, missing) already
Lack of space	CSM1	we don't have enough space for them to run and do exercise. our space is very tight.
Lack of reinforcement	CSP1	homework doesn't work as parents are too bothered about their children doing homework
Little home-school collaboration	NGK2	We are very clear about not pulling the parents into the picture because we get a lot of very unreasonable demands from parents. ... they expect child to read Al Quran daily as part of the syllabus.
Lack of appreciation	NGK2	Because they don't pay a single cent, they take things for granted. They don't take care of things.
Mixed Needs		
Safe space	NGK1	Half of our children are new arrivals (note: school is in northern Peninsular Malaysia); they come by boat. We let these children play because they are coming from an environment where play is not an option. Sometimes play is not safe. So, when they come to school, they want to play with Teddy bears and they want to play with toy. A lot of our classroom material for the preschoolers are very Montessori.
superiority	NGK1	If the kids come from Myanmar Muslim background, they tend to look down on their classmates who are mostly Rohingya.
Gender-bias	NGK1	There are boys who refuse to pick up a broom because their parents told them that is not something a boy should do. we have no choice but to make them unlearn
Over aged children	NGK1	Those who come in without preschool may be older. They have this impression that they are better in many ways. The also tend to be bigger, tend to look down and pick on the younger ones.
Age-based priority	NGK1	for children aged 4-5-year old's, we didn't want to take them on because children at that age requires an extreme amount of attention. We have to deal with children passing motion, passing urine in class because they don't know how to use the toilet
Harsh punishment	CSP1	If you use bad language again, I'm going to use chili. I'm going to drop the chili in your mouth and then I won't let you take any water.
Dependence on volunteers	UNJ1	whenever we get volunteers, or helpers We immediately channel the ones that need more attention to them.

Scarcity of ECE access	NGK1	They can opt for a local fee-paying private kindy. But in most cases, parents don't have the money. So, they have to depend on preschool that will take them on for free. And they are not that many around.
Remedial measures		
Segregate by ability	UND2	We do evaluation first. We assess their reading skills are. If the child is not even able to write ABCD or not even able to read like simple three letter words, we will categorize them as intervention.
	UNK5	I provide them with something that isn't too challenging or too easy. I will gather the weakest pupils to tackle. Those who totally are unable to write or do anything else
Involve the parents	CSK6	We discuss with the parents to pay more attention to their child. We give homework and ask the parents to follow up with the homework and get child to complete the task on time.
Extra learning time	CSK12	When they are slow to catch up, the teacher will off them extra learning time. Some teachers give the extra time before school hours while others after 3.30pm.
Individual attention	UNP1	Students who are very slow, we pass them to the volunteers. One volunteer will teach two children. They will sit down and go over what we (teachers) have been teaching
Close monitoring	NGP7	Those children who got problems, I'll update the parents when child is not doing homework. I will ask parents to check his book and get him to do the homework
Special class	NGK1	We have something called a literacy class for those who are not in primary one yet. If children need literacy (learning alphabets, letter formation) then they do literacy. Then we move them on to primary one and then if they are fast, they jump in with their friends very quickly.
Remote support	UND3	Even after school hours, we still like guiding them (the children) by calling, messaging them to check them whether they are okay or not. We work 24 hours even after school if they don't understand the lessons, we are open to help them.
Enrichment class	UNJ8	We have a small classroom which we call the enrichment class. Children without preschool education are placed in this class to learn preschool level content that they have missed out.
After school support	NGF10	Our closing time is always 12:00. For children who have not had preschool experience, I will inform the parents to come and pick them around 12.30 to give them extra time to learn
Recruiting older students	UNJ8	Whenever our secondary students are in school and have free time, we try to have them do something with the younger children, either through play or through direct teaching.
Buddy system	NGD1	We have buddy system. We will pair a good student, A with a struggling student, B. Student A will read to student B. And then they will read together and then this will help to support the struggling child
Outside of school	CSM1	if parents really worried about the children's progress, the parent will send them for extra class at the teacher's house or the principal's. The principal will open the house for the students.
Tablets	UNJ8	with the help of the tablets, now we are using the tablets more with the kids who need more support
Language help	UNJ8	We set up ELP (language) classes to help them additionally with their language
After school	UNJ9	if they need to have one, then we will have it after school, like probably 45 minutes

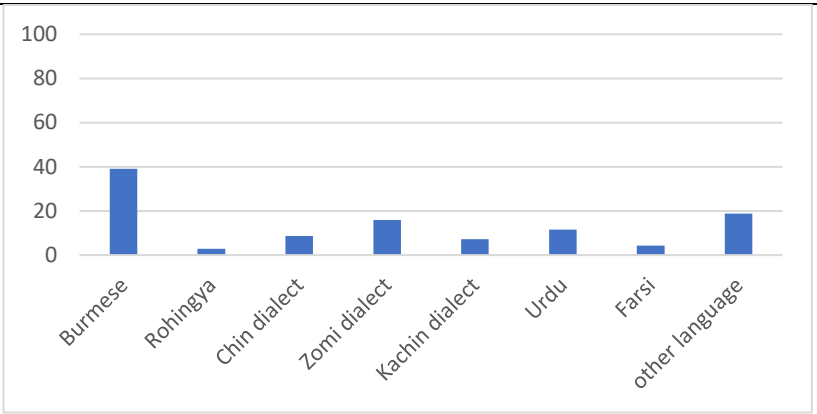
Online resources	NGA8	I opened them accounts under Khan Academy. I ask them to work on their math at home. The kids just work through it from whatever level they are at.
Retain the child	NGH9	the children who cannot pass the year end exam, they stay back in year one

Note: prefix NG denotes NGO-supported LC, UN=UNHCR partner, CS=community school

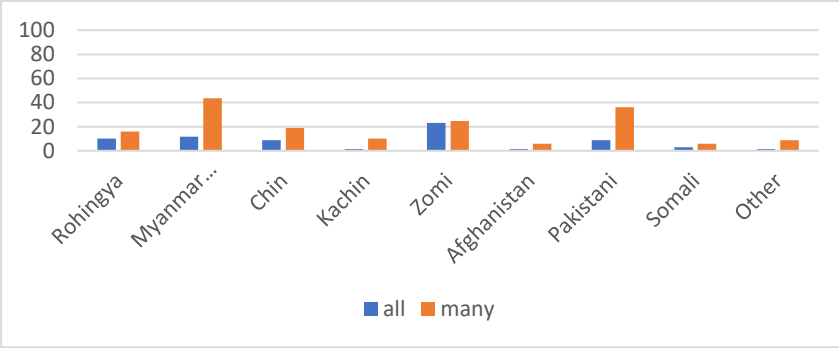
Study Three



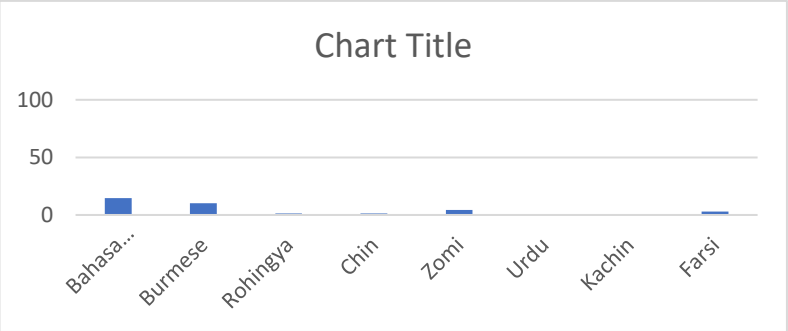
% of teachers naming the following factors as those used to prioritise access



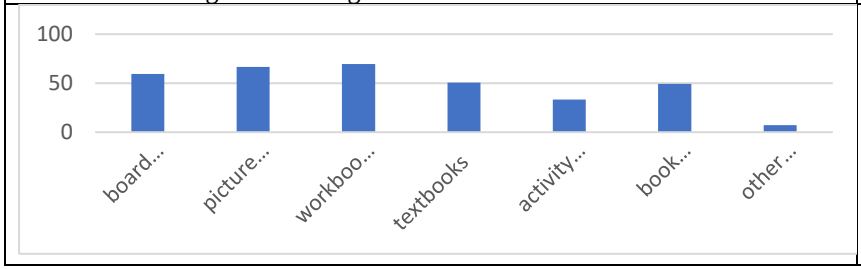
% of teachers speaking languages other than English or Bahasa Malaysian



% of teachers reporting that all or many of the children in their classroom have the following ethnic backgrounds



% of teachers reporting that they are using languages other than English or Bahasa Malaysian for communication in the classroom



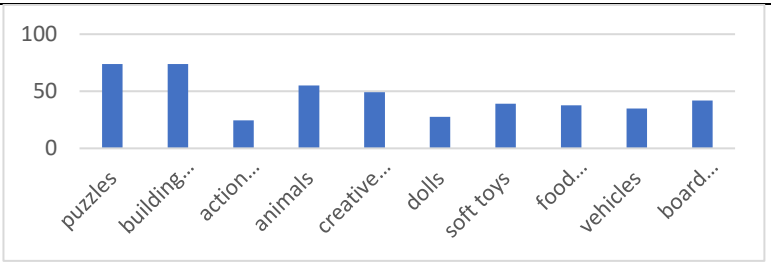


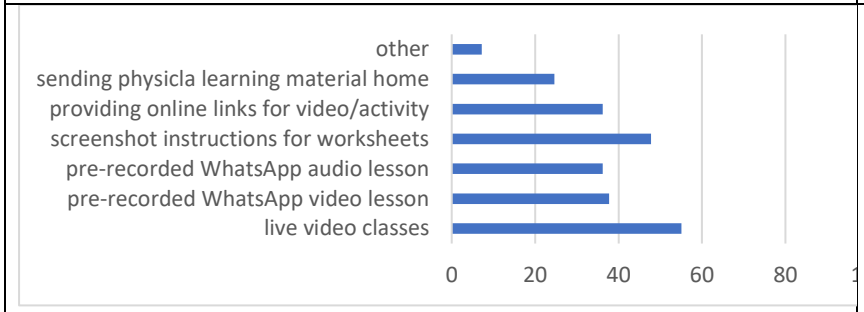
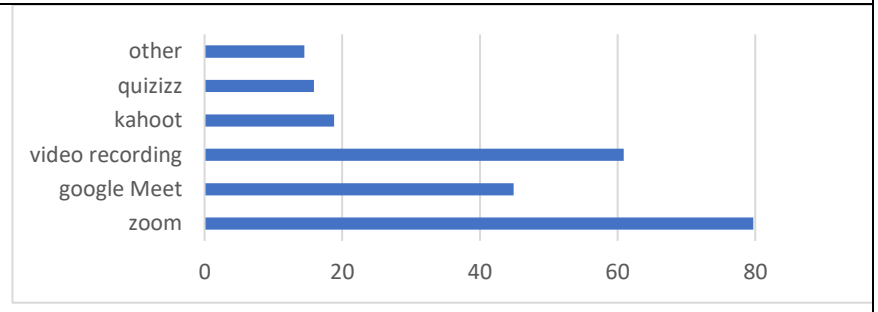
Figure 5e: % of teachers reporting the availability of different types of books in their classroom	% of teachers reporting the availability of different types of toys in their classroom
	
Types of remote learning activities during lockdown	Use of digital tools for remote teaching

Figure 5. Characteristics of participating refugee LCs

Measures: Variables included in regression analysis

Diversity of learning resources in the classroom. Teachers were asked to report on the availability of different types of books (see Figure 6; 7 items) and toys (see Figure 7; 10 items) in their classrooms. Yes/no scores were created for every item (0=not available; 1=available) and summed up to create one outcome measure of diversity of learning resources in the classroom (M=7.94; *SD*=4.08; Cronbach's alpha=0.82). Results from the Shapiro-Walk test indicate normal distribution of this variable (.974; >.05).

Frequency and diversity of learning activities in the classroom. Teachers were asked to report on the frequency of different types of learning activities they carried out with children under the age of seven in their classroom per week (see figure 8; 8 items). Answer options ranged from not at all to and several times per week and were scored on a scale from 0-3 (Mean=1.99; *SD*=0.48; Cronbach's alpha = 0.72). Results from the Shapiro-Walk test indicate normal distribution of this variable (.982; >.05).

Diversity of resources for remote teaching. Teachers were asked to report on the types of remote learning activities carried out during lockdown (see figure 9, 7 items); the digital tools that were used (see figure 10; 6 items), and about their access to different digital devices and the internet (tablet, computer, phone, WIFI, unlimited data; 5 items). Yes/no scores were created for every item (0=not available; 1=available) and summed up to create one measure of the level of resources available for remote teaching (m=7.46; *SD*=3.37; Cronbach's alpha = 0.74). Results from the Shapiro-Walk test indicate normal distribution of this variable (.972; >.05).

Years of teaching. Teachers were asked to report how many years of teaching experience they had; answers ranged from 1-13 (M=6.67; SD=6.13). The variable was recoded into 'more than three years of teaching experience' (0=no, n=24; 1=yes, n=42; missing=3).

Higher levels of education. Teachers were asked to report whether they attended (full or part) of primary (n=1) or secondary education (n=29), attained a SPM/IGCSE certification (n=6), or a diploma or degree (n=34). The variable was recoded into 'has received education beyond secondary school' (0=no, n=35; 1=yes, n=34).

Training frequency. Teachers were asked to report how many times they had attended a teacher training session since they started work in their school. Answer options were none (n=11), 1-2 times (n=17), 3-4 times (n=7), and more than 5 times (n=34). The variable was recoded onto 'has attended more than 5 teacher training events' (0=no, n=35; 1=yes, n=34).

Frequency of staff meetings. Teachers were asked to report on the frequency of staff meetings (weekly, n=24; monthly, n=30; few times per year, n=8; other, n=7). The variable was recoded into 'weekly staff meetings (0=no; 45; 1=yes, n=24).
Age groups composition in the classroom. Teachers were asked to report whether all/many/some/none of the children in their classroom were within defined age ranges (under three, three to four, five to six, seven to nine, ten to twelve, 13 and older). The majority of classrooms was attended by children from different age groups. Information was recoded to create a dichotomous variable 'all children in the classroom are at pre-school age' (0=no, n=50; 1=yes, n=19).
Majority of children with Rohingya background. Teachers were asked to report on the ethnic composition of their classrooms (see Figure 3). One question asked about the proportion of children with Rohingya background (none/some/many/all). A dichotomous variable was created indicating if the majority of children in the classroom had Rohingya background (0=no, n=56; 1=yes, n=13).
Number of classrooms with children in ECE. Teachers were asked to report how many classrooms in their school taught pre-school-aged children; answers ranged from five to 21. The variable was recoded into 'more than two classes with pre-school children in the centre' (0=no, n=39; 1=yes, n=29).
Type of school. Information on type of centre (community school, n=23 versus NGO- or UNHCR-run, n=46) was collected.

Table 13. Bivariate Correlations between Variables Included in Regression Analysis Predicting Aspects of ECE Quality

	1		2	3		4		7	8		9		10
1. sum of types of books and toys available													
2. mean frequency of learning activities	0.01												
3. sum of resources for remote teaching	-0.04		-0.20										
4. teacher has more than 3 years of teaching experience	0.37	**	0.19	0.01									
5. education beyond secondary	0.02		-0.12	0.24		0.04							
6. all children in classroom are at pre-school age	-0.22		0.18	-0.08		-0.01		0.03					
7. more than two ethnic groups in classroom	0.19		0.01	0.27	*	0.30	*	-0.15	-0.32	**			
8. type of school	-0.11		-0.04	-0.48	**	-0.13		.04	0.46		-0.43	**	
9. more than two classes with pre-school children in the centre	0.34	**	0.22	0.05		0.12		-0.15	-0.14		0.28	*	-0.02

** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed).

Table 14. Multiple Regression Results - Diversity of Learning Resources in the Classroom

Predictors	B	Std Error	β	95% Confidence Interval	
(Constant)	6.02	1.26		3.50	8.53
teacher: >3yrs teaching experience	2.89	1.00	.34**	.88	4.90
teacher: education beyond secondary	.40	.93	.05	-1.47	2.27
all children in classroom at preschool age	-1.81	1.09	-.20	-3.99	.38
more than two ethnic groups in the classroom	-.76	1.17	-.09	-3.09	1.57
type of school = community school	-.79	1.08	-.09	-2.96	1.38
more than two classes with preschool children in the centre	2.46	.97	.30**	.51	4.41
Adjusted R^2	0.19				

** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed).

Table 15. Multiple Regression Results - Frequency and Diversity of Learning Activities in the Classroom

Predictors	B	Std Error	β	95% Confidence Interval	
(Constant)	1.84	.16		1.52	2.2
teacher: >3yrs teaching experience	.19	.13	.19	-.07	.45
teacher: education beyond secondary	-.11	.12	-.12	-.35	.13
all children in classroom at preschool age	.20	.14	.19	-.08	.48
more than two ethnic groups in the classroom	-.10	.15	-.11	-.40	.20
type of school = community school	-.06	.14	-.06	-.39	.22
more than two classes with preschool children in the centre	.22	.12	.23	-.03	.47
Adjusted R^2	0.05				

** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed).

Table 16. Multiple Regression Results - Diversity of Resources for Remote Teaching

Predictors	B	Std Error	β	95% Confidence Interval	
(Constant)	7.48	1.00		5.48	9.49
teacher: >3yrs teaching experience	-.77	.80	-.11	-2.37	.83
teacher: education beyond secondary	1.93	.74	.29**	.44	3.42
all children in classroom at preschool age	-.14	.87	-.02	-1.88	1.59
more than two ethnic groups in the classroom	.87	.93	.13	-.99	2.72
type of school = community school	-3.15	.86	-.44**	-4.87	-1.42
more than two classes with preschool children in the centre	.37	.77	.05	-1.18	1.92
Adjusted R^2	0.25				

** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed).