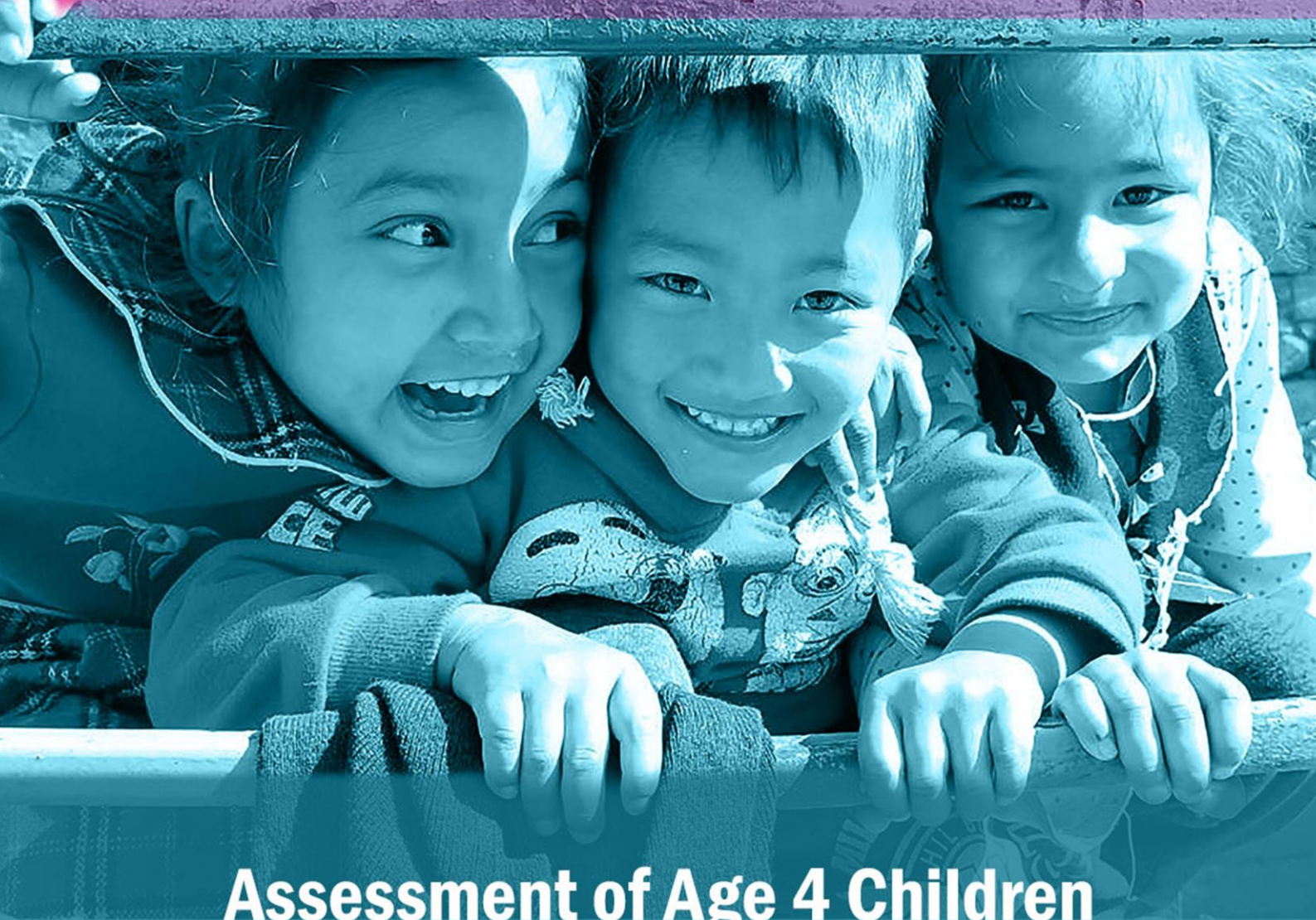


# Are Children Developmentally on Track?



**Assessment of Age 4 Children  
in Lalitpur Metropolitan City**



# Preface

Early Childhood Development (ECD), which covers children aged 0-8 years, is scientifically proven as a very sensitive period for brain development. The whole child development framework is mindful that optimal development results from interventions in many stages of life. Yet in many settings, this period is not usually addressed in the programs for ECD. During age 3, children move into more formal preschool settings where the education sector plays a dominant role. Proper learning and development environment at this age provides a solid foundation for holistic development and wellbeing of a child throughout life. Considering this, the government of Nepal has developed and implemented the early learning and development standards (ELDS) for the children of age 4 to 5 years (48-60 months). The objective of ELDS is to support children to reach age appropriate development by providing with developmentally appropriate practices and learning environments.

Sarthak Shiksha has conducted a research aiming to explore the quality of early childhood education programs in Lalitpur Metropolitan City with reference to ELDS. In the process, data was collected from the preschool's children, their parents and the teachers. It was analyzed to find out the child's development status and the key factors influencing on their development and learning.

I am grateful to all the stakeholders who have supported us throughout the process of tool development, enumerator's training, tool test and administration, data analysis and report writing. I specially would like to thank Mr. Shota Hatakeyama (Michigan State University) and Kenji Kitamura (Teachers College, Columbia University) from Sarthak Japan for their support throughout the research process from designing to report writing. Without them this research would not have been possible. I would also like to thank all the children, parents, teachers, resource persons and enumerators who have contributed in this process. I am very grateful to report writer, data analyzer, language and content editors and coordinators who brought this report in this form. Similarly, I would like to acknowledge the collaboration and participation of Education Review Office (ERO), Ministry of Education, Science and Technology and Lalitpur Metropolitan City and thank them for their guidance and support.

I highly appreciate Mr. Bikki Shrestha, Program officer, Sarthak Shiksha for continuous efforts to make this happen. Finally, I would also like to extend my sincere gratitude to all the board members, general members, advisors and Sarthak Sathis (volunteers) for their support.

I hope this research will be utilized for further improvement of early childhood education system in Lalitpur Metropolitan City.

Meenakshi Dahal, PhD  
Chairperson- Sarthak Shiksha



## List of Abbreviations

<b>Bikram Sambat</b>	<b>BS</b>
<b>Demographic and Health Surveys</b>	<b>DHS</b>
<b>Early Childhood Development</b>	<b>ECD</b>
<b>Early Childhood Education</b>	<b>ECE</b>
<b>Early Learning Development Standards</b>	<b>ELDS</b>
<b>Education Review Office</b>	<b>ERO</b>
<b>Geographic Information System</b>	<b>GIS</b>
<b>Inter-Rater Reliability</b>	<b>IRR</b>
<b>Learning Corner</b>	<b>LC</b>
<b>Multiple Indicator Cluster Survey</b>	<b>MICS</b>
<b>School Leaving Certificate</b>	<b>SLC</b>
<b>Standard Deviation</b>	<b>SD</b>
<b>Socio-Economic Status</b>	<b>SES</b>
<b>Socio-Emotional</b>	<b>SE</b>



## Summary of Key findings

### Characteristics of ECE facilities in Lalitpur Metropolitan City

- The number of community school ECE is less than the number of private school based ECE and private non-school based ECE.
- In general, community school ECE were established earlier than private ECE. Community school ECE tend to exist in old towns whereas private ECE tend to exist in new towns and suburbs.
- Compared to private ECE, community school ECE are poorly resourced (e.g., fewer learning corners), and their learning environments tend to be worse (e.g., larger class size).
- Compared to private ECE, facilitators in community school ECE are relatively more experienced but less educated.
- Socio-Economic Status (SES) of children in community schools is lower than that in private ECE.
- Significant social stratification is observed in ECE: Household wealth stipulates the type and quality of ECE.

### Child Development

- Children from better SES households show a significantly higher degree of development in language and cognitive skills, moderately better in social-emotional skills, but little advantage in physical skills.



- Even after accounting for some observable characteristics of households and children, children in private facilities show better cognitive skills but not language, physical, and socio-emotional skills.
- Neither in-service training nor pre-service training has a positive association with child development. The contents of training for facilitators should be reconsidered.
- While the educational background of facilitators is positively associated with child development, the experience of facilitators is not. It is necessary to attract highly educated facilitators.
- Smaller class sizes are effective for child development, but the class-size must be sufficiently small.
- Learning environment matters. Usage of textbooks and availability of learning resources positively associate with child development.



# Table of Contents

<b>1</b>	<b>Introduction</b>	<b>7</b>
<b>2</b>	<b>Methodology</b>	<b>9</b>
2.1	Sample	9
2.2	Questionnaire and Measurement	11
2.3	Enumerator recruitment and training	13
2.4	Data Collection	15
<b>3</b>	<b>Distribution and Characteristics of ECE Facilities in Lalitpur Metropolitan City</b>	<b>17</b>
3.1	Distribution and establishment of ECE facilities	17
3.2	Characteristics and quality of ECE facilities	19
3.3	Characteristics and quality of facilitators	21
3.4	Family characteristics by ECE facility type	22
3.5	Summary of the chapter	23
<b>4</b>	<b>The Status of Children in ECE in the Lalitpur Metropolitan City</b>	<b>24</b>
4.1	Child development status based on development standard	24
4.2	Child development and household characteristics	25
4.3	Child development and ECE type	29
4.4	What characteristics of the ECE facility associate with child development?	31
4.4.1	Methodology	31
4.4.2	Results	32
<b>5</b>	<b>Conclusion</b>	<b>37</b>
<b>6</b>	<b>Appendix</b>	<b>38</b>
6.1	Appendix 1. Performance Level Description of ELDS development standards	38
6.2	Appendix 2. ELDS Cut scores for development standards	39
6.3	Appendix 3. Research Team	39
<b>7</b>	<b>Reference</b>	<b>40</b>

## List of tables

Table 1 Characteristics of ECE facilities	19
Table 2 Characteristics of facilitators	21
Table 3 Family characteristics	22
Table 4 Children's development and household characteristics	26
Table 5 Children's development outcomes in a different type of ECE	29
Table 6 Regression of children's development on ECE facility type and household characteristics	30
Table 7 Regression of children's development on ECE facility structural quality	34

## List of figures

Figure 1 Sample of ECE facilities	10
Figure 2 The distribution of ECE centers by type	18
Figure 3 Proportion of children in each developmental standard	25
Figure 4 HH wealth and ELDS language	27
Figure 5 HH wealth and ELDS cognitive	27
Figure 6 HH wealth and ELDS physical	28
Figure 7 HH wealth and ELDS SE	28
Figure 8 The association between class size and children's social-emotional development	35
Figure 9 The association between child- to- teacher ratio and children's social-emotional development	35





# 1 Introduction

Investment in high-quality Early Childhood Education (ECE) for disadvantaged children is indispensable to realize a prosperous and equitable society. Cases established in the United States identified three mechanisms that enable ECE to reduce poverty and inequity in society. First, successfully implemented high-quality ECE to disadvantaged children yields a high rate of return (Heckman, 2006). Second, the positive impacts of successfully implemented high-quality ECE on learning achievements are more significant among low-income children than children with a wealthier background (Cascio & Schanzenbach, 2013). Third, successfully implemented high-quality ECE has dynamic complementarity and increases the rate of return to interventions in subsequent education levels, such as primary and secondary education (Johnson & Jackson, 2017).

As such, successfully implemented high-quality ECE can reduce poverty and inequity in society. In fact, other low- and middle-income countries also received such benefits from ECE expansion, and rigorous causal inference research verified it. Those countries are Jamaica (Gertler et al., 2014; Grantham-McGregor & Smith, 2016; Walker et al., 2011), Uruguay (Berlinski et al., 2008; Aguilar & Tansini, 2012), and Argentine (Berlinski et al., 2009).

However, the crucial points are "successful" and "high-quality" programs. In fact, when the expansion of ECE is unsuccessful, even negative impacts can be observed. For instance, in Brazil, the expansion of the ECE program brought positive impacts, but the size of the impact was larger among children from wealthier households than those from poor households (Costa & Carnoy, 2015). In South Africa, the expansion of ECE does not impact children from the bottom 60 percent of households but has a positive impact on children



from the top 40 percent of households. Thus, in these countries, the expansion of ECE only exacerbates existing inequity in their society.

There are some plausible reasons, but authors of the papers point out that, due to failure in implementation, children from wealthier backgrounds receive high-quality ECE, while children from poor households can only receive poorly managed low-quality ECE. In fact, cases in Bangladesh (Aboud, 2006; Moore et al., 2008) and three Eastern African countries (Malmberg et al., 2011) imply that high-quality ECE can bring much larger positive impacts than normal-quality ECE.

There is not sufficient evidence concerning ECE in the case of Nepal. Thus, this study investigates 1) what the ECE coverage is in Lalitpur metropolitan city, 2) how the quality of ECE is in Lalitpur, and 3) how does the quality of ECE varies across children from various backgrounds, to realize a prosperous and equitable society.

In terms of uncovering quality and equity in ECE provision, this study also pays special attention to types of ECE. The 21<sup>st</sup> century has observed the expansion of private education providers, and the percentage of enrollment in private institutions in pre-primary (early childhood education) and primary have almost doubled in the last two decades (World Bank, 2019). Nepal, particularly Lalitpur metropolitan city, is not an exception. However, unlike primary education, very little is known about the privatization of ECE in the world, except for one study in Ghana (Pesando et al., 2020)<sup>1</sup>. Thus, this study also aims to 4) understand what implications the privatization of ECE has with regard to ECE quality and equity.

---

<sup>1</sup> The case of Ghana indicates that private ECEs cater to children with wealthier backgrounds. Due to this inequitable selection, children in private ECE show better development. However, once the impact of the selection is controlled, both private school based ECE and private non-school based ECE only support children's development as public ECE does. Thus, while privatization does not improve the quality of ECE, it stratifies children based on their background and, probably, worsens social integration.

## 2 Methodology

This report focuses on Lalitpur Metropolitan City. Sarthak Shiksha coordinated with the metropolitan city office and obtained the approval of the project.

### 2.1 Sample

All the ECE facilities in the metropolitan city were targeted to understand the larger picture of the Lalitpur metropolitan city (census method). The school and ECE facilities list provided by the municipality included 177 schools as of May 2019 counting both government and private schools. However, nine ECE facilities on the list were not found because they were no longer operating or had moved to different locations. Furthermore, 11 out of the remaining 168 schools that were on the list did not have ECE facilities to serve target-aged children from 48 to 60 months.

Many ECE facilities that were not on the list (unrecognized or business registered facilities) were found through an informal interview with stakeholders. Thus, this study followed Tooley and Dixon's (2007) methodology and asked enumerators to visit every street in the metropolitan city to find unrecognized facilities. Through this process, enumerators found 137 unrecognized ECE facilities.

Therefore, this study aimed to include all 137 unrecognized and 157 recognized ECE facilities in our project. 66 percent of these 294 target facilities agreed to participate in the study. This resulted in 195 facilities, including 76 unrecognized facilities (see figure 1).

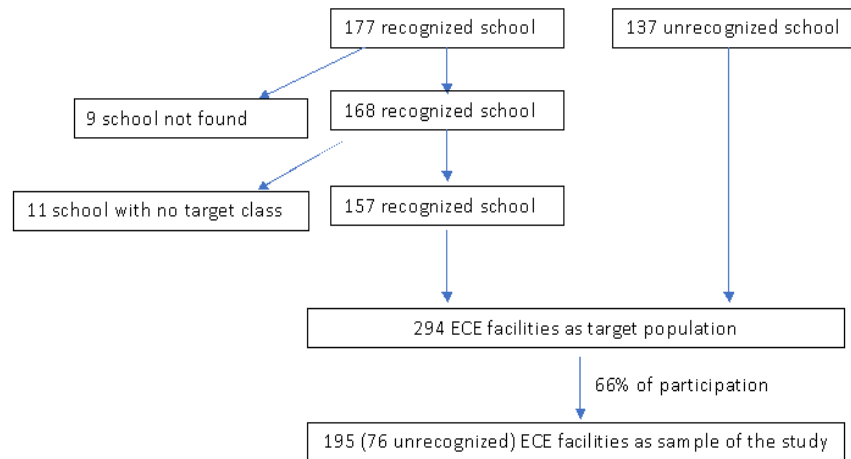
From the 195 ECE facilities that agreed to participate in the study, this study randomly selected one target class that served target-age children, who were four-years-old (48 to 60 months) with no disabilities<sup>2</sup>. Then, four eligible children were randomly selected from the

---

<sup>2</sup> There is no standardized module for measuring child development of children with disabilities.

target class upon the parent's agreement of participation. When there were less than four eligible children, all the eligible children in the class were automatically selected. This procedure resulted in 655 children.

Figure 1 Sample of ECE facilities



The selection of children from the facility was random, and thus, these children represent all the children in the studied 195 ECE facilities. On the other hand, the representativeness of the facility may be limited. In particular, facilities that agreed to participate in the study may meaningfully differ from other facilities that did not agree to participate. Also, it may not be reasonable to assume that enumerators successfully found all the unrecognized facilitators in the metropolitan city while they visited almost every street and asked around to local stakeholders. To the extent that facilities that were not found or did not agree to participate were meaningfully different from the studied facilities, the generalizability of the results will be limited. However, there is no available data that allows us to assess any differences in facility characteristics between the studied and non-studied group.



## 2.2 Questionnaire and Measurement

This study employed four modules for data collection: Early Learning Development Standards (ELDS) assessment tool, ECE facility principal/coordinator survey, facilitator survey, and household survey. Each module collected information on the status of child development in five domains, facility and classroom situation, a background of facilitators, and a status of households, respectively.

This study developed a household survey based on the Demographic and Health Survey (DHS) and the Multiple Indicator Cluster Survey (MICS) used in Nepal. Thus, our survey instruments are valid in the context of our project. The household survey covers a wide variety of information regarding the target child, other household members, and the family's social and economic situations. Questions for household wealth information were based on DHS for Urban Nepal in 2016. The child functioning domain is based on questions on the MICS 6, which was developed by the Washington Group on Disability Statistics to record types and degree of disabilities of a child.

Principal and facilitator surveys were constructed based partially on the National Minimum Standards for ECD (DoE, 2011). The Standard covers various domains, including physical infrastructure, health, sanitation, nutrition, security, operation, and facilitator's qualification. From this standard, we included questions regarding the classroom's structural quality and resources that may underlie a supportive learning environment for young children. To get more insights into classroom situations, we added questions regarding the number of children and facilitators, facilitator's training, and compensation to the facilitator survey. Also, to glean information on the overall facilitator or school, we included questions on school structure, finance, operation, and children with disabilities in the principal survey.

Lastly, Sarthak Shiksha obtained approval for the use of the ELDS assessment tool from the Education Review Office (ERO). This assessment was developed by a team of national experts based on the Early Learning and Development Standard (DoE, 2013). Since its development, the tool has been revised, and we used the most up-to-date version. The tool is play-based and consists of 26 tasks with 58 subtasks to be performed by children, covering five development domains: physical, language, cognitive, socio-emotional (SE), and cultural. For analysis, this study combined the SE domain and cultural domain as they can be conceptualized as the same construct and in order to improve upon the reliability issue derived from the insufficient items and subtasks for the cultural domain.

Children's performance on tasks were scored by enumerators based on observations with standardized administration and scoring procedures. Enumerators scored '2' if children performed a task correctly, '1' if they performed partially correctly, and '0' if they performed incorrectly or did not respond. Domain scores were obtained by averaging over subtask scores. When this study constructed scales (i.e., domain scores), we recorded scores from '2', '1', '0' to '1', '.5', '0' and divide the sum of task scores by the number of tasks so that the domain scores correspond to the percentage of subtasks that the child performed correctly, while still taking into account the partially correct performance. Our analysis revealed that while domain scores for language and cognitive domains are found to be sufficiently reliable, physical and SE domains did not reach an acceptable level of reliability (i.e., Cronbach's Alpha is below .70), one should not overly rely on the results of our analysis related to these two domains as they were affected by somewhat large random measurement errors.

To ensure efficiency in data collection and management, Sarthak Shiksha digitalized all the questionnaires using the Kobo toolbox. To check the validity of surveys and assessment, this study conducted pilots. As for the ELDS assessment tool, this study paid particular

attention to children's understanding of expected tasks and feasibility and standardization of assessment administration. This study conducted a pilot assessment with ten children who were slightly over-aged (i.e., five years old) and thus not eligible for our project. While there was no clear evidence that suggested the necessity to revise the tool itself, this study refined some administrative and scoring guidelines to assist enumerators in standardizing their administration. As for the other three surveys, we conducted pilots in two facilities with two parents, two facilitators, and one principal from each facility. There, this study tested whether questions were clear enough for respondents to answer without confusion and feasibility of survey administration. Again, this study did not find any evidence on the validity problems, but Sarthak Shiksha added some administrative and proving guidelines so that they would be more standardized with fewer errors.

### **2.3 Enumerator recruitment and training**

To ensure a high-quality data collection procedure, we conducted several trainings and assessments of enumerators. The training was mainly conducted by a program officer from Sarthak Shiksha and another independent ECD specialist. While they were equipped with all the assessments and surveys through their previous training, including the ELDS training held by UNICEF in April 2019, they additionally practiced administration of all the questionnaires. Furthermore, to ensure their ability to administrate the ELDS assessment in a standardized way, they conducted inter-rater reliability (IRR) tests. In the test, one of the trainers administered the assessment while the other observed right behind, and both of them scored children's performance based on their observation. They changed their roles and conducted assessments multiple times. Through multiple IRR tests, the average agreement between the trainers was 88 percent, with Cohen's kappa being .82.



Then, Sarthak Shiksha coordinated with the Home Science department of Padmakanya Campus and several Social Work departments to recruit enumerators. For eligible applicants who had completed their bachelor's degree, Sarthak Shiksha conducted an interview to assess their ability. In the interview, we asked about their motivation, willingness, and experience of working with young children, their parents, and facilitators, as well as their experience with digital devices. For 33 candidates who passed the interview, Sarthak Shiksha created three groups and provided six-day intensive training to each group separately. In the first five days, Sarthak Shiksha trained them on all surveys and assessments. In addition to the understanding of modules, they were trained on how to administer them using digitized questionnaires and how to coordinate with facilities and participants. On the last day, Sarthak Shiksha conducted three types of evaluations to test their ability as a reliable enumerator. First, Sarthak Shiksha conducted a case study-based evaluation, where candidates recorded information on questionnaires based on scripts. Second, they took the fidelity test for the administration of the ELDS assessment. One candidate administered ELDS assessment with a slightly overaged child while two or three other candidates and one trainer checked his/her fidelity on administrative and scoring procedures. Lastly, they took the IRR test for the ELDS assessment, where a few candidates observed and scored a child's performance while the trainer administered the assessment, and their scores were compared with that of the trainer. Among 33 candidates, 28 passed all the evaluations.

All of these trained enumerators showed a deep understanding of the modules, the ability to communicate with children as well as adults, and followed all the standardized administrative and scoring procedures. They had quite a high agreement in the ELDS assessment in the IRR test. The average agreement among 28 enumerators was 93 percent, ranging from 86 percent to 98 percent. Also, the average Cohen's kappa is .87 with a range of

.75 and 1.00. These results of the IRR test indicate that the data collected by the enumerators are reliable.

## 2.4 Data Collection

The first round of enumerators started data collection from the fourth week of July, shortly joined by the second and third round of enumerators. A pair of enumerators visited a facility to coordinate with principals and facilitators for data collection. They explained the purpose of the project and obtained a written form of consent from a principal. Upon the approval of data collection from a principal, enumerators randomly selected one classroom serving target children. They then obtained the list of eligible children in the class or created by themselves based on information from facilitators or a principal when there was no available list. Using a randomization procedure with dice, enumerators randomly changed the order of eligible children on the list and then asked a facilitator to contact the parents of those children to record their willingness to participate. A facilitator continued to contact parents until they either found four participants or reached the end of the list.

Then, a facilitator or principal contacted enumerators and set a date for data collection when all participating parents came to the facility. On the day of data collection, enumerators explained the project purpose and obtained a written form of consent from parents, which indicated that they and their children were willing to participate in the project. In the situation in which the parents were willing to participate but not able to come to the facility, enumerators conducted a household survey upon oral consent through call.

The data collection took place for approximately two months through the end of September. During this period, Sarthak Shiksha's staff went to the field to monitor enumerators' activities. Enumerators worked in one of three groups in assigned areas (i.e., the western, central, and eastern areas of the metropolitan city). The leaders of the groups

reported the situation of coordination with facilities and data collection on a daily basis to Sarthak Shiksha's staff. According to this report, Sarthak Shiksha's staff checked the collected data daily to promptly address errors. The staff had frequent meetings with group leaders to check the progress of data collection activity and hear the situation in the fields.



### **3 Distribution and Characteristics of ECE Facilities in Lalitpur Metropolitan City**

This chapter describes the distribution and characteristics of ECE facilities in Lalitpur Metropolitan City.

#### **3.1 Distribution and establishment of ECE facilities**

Figure 2 below shows the location of ECE facilities in Lalitpur metropolitan city by type. Yellow, Red, and Blue points indicate community school-based ECE centers, private school-based ECE centers, and private non-school based ECE centers, respectively.

The locations of each type of ECE facilities have several characteristics. Regarding community school based ECE centers, they mainly exist in old towns. Accordingly, they tend to locate near ward offices in the Lalitpur metropolitan city. Locations of private school based ECE centers have two tendencies. Some surround community school based ECE centers and others are in the suburbs. Locations of private non-school based ECE centers are more or less similar to those of private school-based, but they tend to locate further away from an urban center.

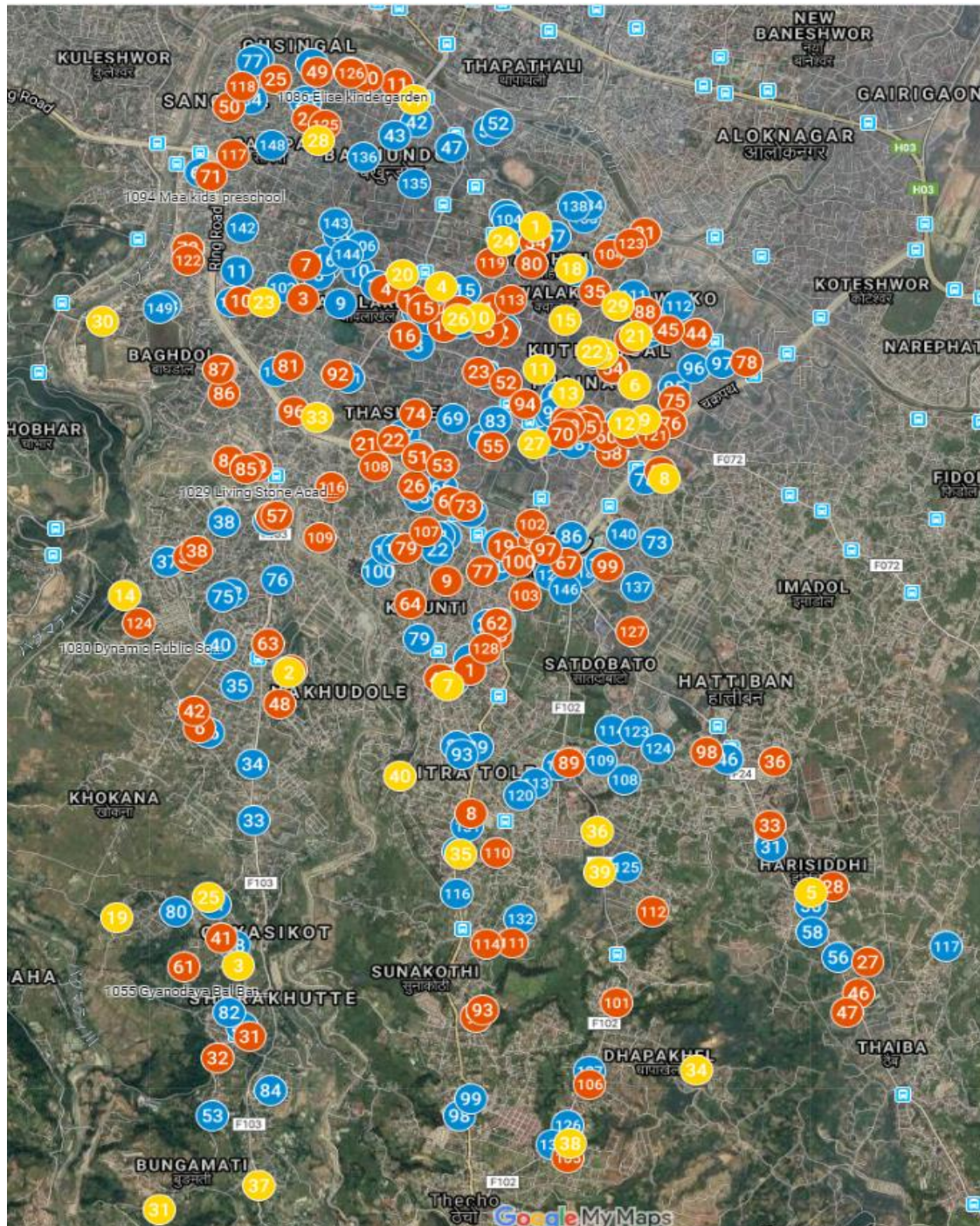
Their locations imply that as city areas expanded, private school based ECE centers catered to the ECE demand of residents of newly urbanized areas. This proposition is also supported by their average year of establishment. Community schools have the longest history among the three types, and their average establishment year is 2033 Bikram Sambat (BS)<sup>3</sup>. Also, those of private schools and private non-schools are 2049 BS and 2068 BS, respectively. Thus, community schools were established to cater to residents of old towns, and as city areas expanded, private schools responded to the ECE demand of residents there.

---

<sup>3</sup> This year reflects the establishment year. Thus, the year should be different from the year school began ECE operation.

After the civil war, the economic growth rate has stabilized, and more domestic migrants flew into the city area. Private non-schools absorb the demands of these new residents of Lalitpur.

Figure 2 The distribution of ECE centers by type



Note: Yellow marks indicate community school-based facilities, red is private school-based facilities, and blue is private non-school based facilities. The mapping is based on GIS coordinates collected by enumerators.

## 3.2 Characteristics and quality of ECE facilities

Table 1 below displays the characteristics of ECE facilities by type.

*Table 1 Characteristics of ECE facilities*

	Community (N=38)	Private School-Based (N=100)	Private Non- School Based (N=50)
Class Size	21.3 (11.5)	19.1 (9.6)	13.8 (12.1)
Number of Facilitator (per class)	1.1 (.31)	1.3 (.58)	1.3 (.57)
Child to Facilitator Ratio	19.4 (9.6)	15.5 (6.6)	10.8 (8.0)
<b>Availability of</b>			
Caretaker	76%	98%	100%
Playground (Outside)	79%	93%	92%
Play Hall (Inside)	53%	63%	84%
Enough Play Space in Classroom	58%	60%	74%
<b>Use of</b>			
Textbook	68%	92%	78%
Curriculum	66%	79%	80%
Standard (ELDS)	79%	79%	82%
<b>Learning Corner (LC)</b>			
Reading	58%	58%	70%
Math	74%	81%	88%
Science	50%	69%	92%
Role Play	55%	68%	80%
Creativity	58%	67%	90%
Block	68%	76%	86%
Number of Subject Area LCs (SLCs)	1.82 (1.3)	2.08 (1.1)	2.50 (.79)
Number of Non-Subject Area LCs (NSLC)	1.82 (1.2)	2.11 (1.1)	2.56 (.81)
Subject Focus in LC (SLC>NSLC)	13%	19%	6%

*Note:* Standard deviations in parentheses.

Overall, private non-school based ECE facilities are the most resourceful, community ECE facilities are the least resourceful, and private school based ECE facilities are in-between these two types of facilities. For instance, community facilities have a larger number of children (21.3) with fewer facilitators (1.1) per class than private non-school based facilities (13.8 children and 1.3 facilitators), which subsequently lead to substantial differences in child to facilitator ratio (19.4 vs. 10.8). Private school-based facilities are in between them.

Furthermore, with a few exceptions, private non-school based facilities have more resources than other facilities in terms of availability of caretaker, play facilities, curriculum,

standard, and learning corners. Although most facilities have well-balanced learning resources, or in other words, a good balance between availability of subject area learning corners (i.e., reading, math, science) and non-subject area learning corners (i.e., role play, creativity, and block), a larger proportion of school-based facilities (i.e., community and private school-based) are relatively more focused on the subject area over the non-subject area. In particular, while only 6 percent of private non-school based facilities have more subject areas than non-subject areas, this proportion for community and private school-based facilities are 13 and 19 percent, respectively.

Also, the vast majority of private school-based facilities (92%) used textbooks, though textbooks are not recommended (actually discouraged) for ECE. A high proportion of facilities use textbooks for community and private non-school based ECE facilities as well (68% and 78% respectively). Approximately 80 percent of private school-based and private non-school based facilities have a curriculum, while only 66 percent of community facilities have one<sup>4</sup>. There are no differences in the proportion of facilities with the Standard (i.e., Early Learning and Development Standards) across facility types, and approximately 80 percent of facilities have the Standard. However, one needs to be cautious of the interpretation of these statistics on resources. For instance, as for learning corners, curriculum, and the Standard, the survey questions merely ask if the facility has each of them; they do not capture how much and how often they are utilized in practice. Also, this study finds that the types of textbooks vary among facilities. Some of them may be more subject or academic-focused, while others may be similar to storybooks that are recommended for use in ECE. Thus, further research is necessary to clarify the focus of different facilities.

---

<sup>4</sup> This study did not distinguish whether curriculum is government prescribed or the institution's original one.



### 3.3 Characteristics and quality of facilitators

Table 2 below displays characteristics of ECE facilities by type.

*Table 2 Characteristics of facilitators*

	Community (N=38)	Private School- Based (N=100)	Private Non- School Based (N=50)
<b>Facilitator's</b>			
Age	38.4 (8.1)	32.7 (8.5)	30.9 (7.9)
Working Experience (in years)	11.5 (6.9)	4.4 (4.0)	3.6 (3.2)
% of University or Above Education	39%	43%	76%
<b>Facilitator's training</b>			
% of ECD related bachelor or master's degree	13%	4%	12%
% of long-term non-government pre-service (>30 days)	3%	23%	30%
% of short-term non-government pre-service (<=30 days)	18%	27%	28%
% of complete government in-service (>=30 days)	37%	3%	2%
% of incomplete government in-service (<30 days)	26%	3%	0%
% of long-term non-government in-service (>30 days)	8%	16%	18%
% of short-term non-government in-service (<=30 days)	74%	45%	42%

*Note:* Standard deviations in parentheses.

The characteristics of facilitators in community and Private ECE differ significantly. Community facilities tended to recruit relatively less educated facilitators who remained relatively longer. In contrast, private non-school based facilities employ relatively less experienced but well-educated facilitators. Private school-based facilities have relatively less experienced and relatively less educated facilitators.

Regarding training, while facilitators in community facilities tend to receive training provided by the government, facilitators in private facilities are likely to receive training provided by non-government entities. For instance, regarding pre-service training, one-fourth to one-third of facilitators in private school-based and private non-school based facilities have non-government training (either short-term or long-term). This proportion is lower for facilitators in community facilities. Particularly, only three percent of community ECE facilitators received long-term nongovernment pre-service training. In terms of government in-service training, one-fourth to one-third of facilitators in community facilities received it.



while few facilitators in private facilities took it. In terms of long-term non-government in-service training, few facilitators received it in general, but more facilitators in private facilities received it than facilitators in public facilities. When it comes to short-term nongovernment in-service training, about half of total facilitators take it, and a much larger proportion of facilitators in community facilities received it than that of those in private facilities.

### 3.4 Family characteristics by ECE facility type

Table 3 below shows the characteristics of the households of children across three types of ECE facilities.

*Table 3 Family characteristics*

Household Characteristics	Community (N=132)	Private School-Based (N=351)	Private Non- School Based (N=169)
Household Wealth (in SD)	-1.1 (.94)	.05 (.84)	.73 (.54)
Father's Education (in Grade)	5.0 (4.3)	9.8 (5.0)	13.1 (4.0)
Mother's Education (in Grade)	4.3 (4.4)	8.7 (5.2)	12.6 (4.2)
Father Age	32.8 (6.7)	34.2 (6.0)	36.0 (4.9)
Mother's Age	28.5 (5.6)	30.2 (4.9)	32.3 (4.6)
Number of Books at Home	.64 (1.4)	2.5 (6.0)	7.2 (22)
Parent's School Involvement			
None	6.2%	5.0%	1.2%
Minimal (once a year)	6.2%	3.2%	1.8%
Occasional (more than once a year)	11.5%	6.7%	4.1%
Frequent (as often as required)	76.2%	85.1%	92.9%
Number of Household members	3.2 (1.2)	3.1 (1.3)	3.5 (1.6)
Number of Siblings	1.0 (.93)	.58 (.73)	.50 (.66)
Average per year tuition fee of the targeted child	2642	25084	55098

*Note:* Standard deviations in parentheses.

Children in private non-school based ECE facilities are more likely to be from wealthier households than private school-based and community ECE facilities. The difference is especially significant between private non-school based ECE facilities and community ECE facilities. On average, households of children in private non-school based ECE facilities have substantially higher household wealth<sup>5</sup>, higher parental education, older parents, a larger

<sup>5</sup> The calculation for household wealth was based on the Demographic and Health Survey 2016 (Urban), which consists of over 40 questions regarding possessions and assets. Based on these variables, this study constructed one composite variable of family wealth using principal component analysis.

number of household members, and a smaller number of siblings. Furthermore, households of children in private non-school based ECE facilities have more books at home (7.2), compared to those in private school-based facilities (2.5) and community ECE facilities (0.6). In addition, parents of children in private non-school based facilities tended to be slightly more involved<sup>6</sup> with school than parents of children in the other two types of facilities.

The average tuition fee of a targeted child also significantly differs. Households that send their child to private non-school based facilities paid more than 20 times the tuition fees compared to households that send their child to community facilities<sup>7</sup>.

### 3.5 Summary of the chapter

Lalitpur metropolitan city has expanded its urban areas for the last few decades. While poor-resourced community ECE facilities serve disadvantaged children in old town areas, well-resourced private non-school based ECE facilities absorb the ECE demand of wealthier new-town residents. The privatization of ECE is creating a different ECE system from the government ones and creating stratification and segregation among children based on their residence and wealth.

However, this stratification and segregation do not necessarily expand inequity in Lalitpur metropolitan city because well-resourced and poorly resourced do not necessarily mean that the quality of ECE is better or worse. In the next chapter, this report displays child development status to gain insight about whether stratification and segregation expand inequity through inequitable human capital accumulation.

---

<sup>6</sup> The survey asked a question on parents' school involvement (i.e., how frequent the parent participated in parent-teacher meetings), based on which this study built an index ranging from 0 to 3 for parental involvement in school.

<sup>7</sup> Tuition fee does not include other costs, such as food, AC, and transportation.

## 4 The Status of Children in ECE in the Lalitpur Metropolitan City

This chapter analyzes the status of children in Lalitpur metropolitan city in terms of their development outcomes in multiple domains. First, this study conducts a descriptive analysis of the children's development status based on three development standards: Developmentally on track, Progressing, and Struggling. Then, this study performs another descriptive analysis of children's development outcome by household characteristics and types of ECE facilities. Lastly, this study analyzes the relationship between ECE facilities' structural quality and children's development outcomes.

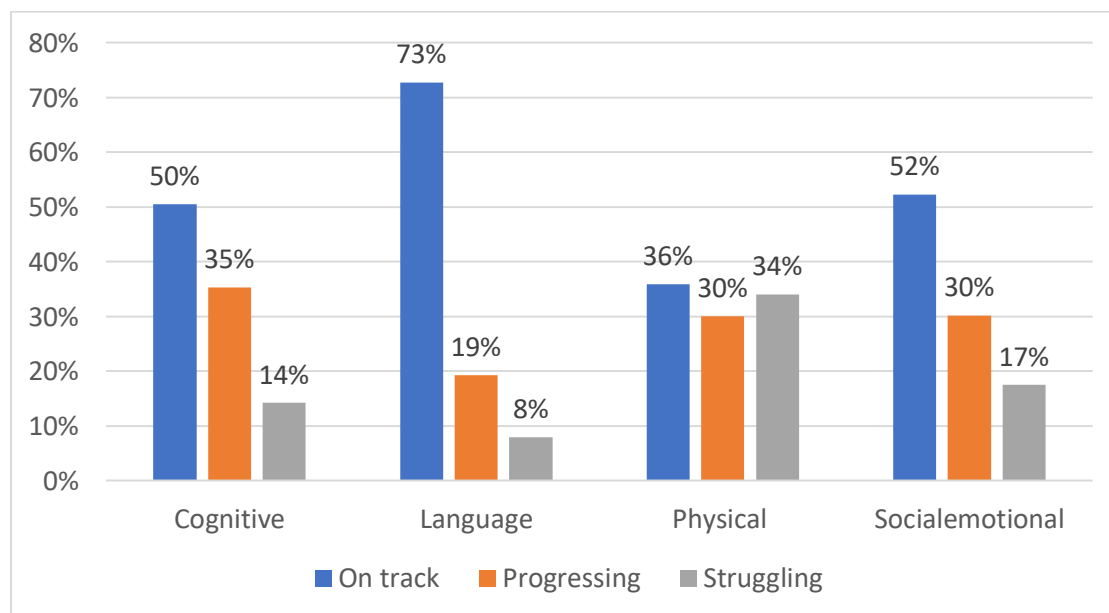
### 4.1 Child development status based on development standard

Based on children's ELDS assessment scores, children were classified into three development standards: Developmentally on track, Progressing, and Struggling. Children in the 'on track' category have achieved skills and knowledge as expected in the ELDS and are expected to be ready for schooling without additional assistance. Progressing children fall behind but are close to the ELDS and with support they should be able to achieve it. Lastly, the Struggling category indicates that children fall well below the ELDS and need significant assistance to come up to the standard.

The conceptual definition of these development standards in each domain, which is called the performance level descriptor (PLD), was established by ERO with support from UNICEF. The PLD consists of statements about the knowledge, skills, and abilities of children who would be in each standard (see Appendix. 1). Based on this conceptual definition, children were classified into three categories using cut scores on the ELDS assessment scale, which were developed by 20 national ECD stakeholders in a virtual workshop held by ERO and UNICEF in 2020. See Appendix 2 for the established cut scores for each domain.

Figure 3 shows the proportions of children in each development standard across development domains. It reveals that three-quarters of the children are developmentally on track in the language domain while half of them are on track in the cognitive and social-emotional domains. The largest developmental challenge among the studied children is the physical domain, as only one-third of them are in the 'On track' category in this domain. This information indicates that although there is a substantial proportion of children who are not developmentally on track, it is possible to assist most of them in achieving expected skills and knowledge with adequate support in the cognitive, language, and social-emotional domains because more than 80% of them are in either 'On track' or 'Progressing' categories. However, significant effort is needed to support them in the physical domain.

Figure 3 Proportion of children in each development standard



## 4.2 Child development and household characteristics

Table 4 shows the relationship between child development and some important household characteristics. The mother's education level has an especially strong correlation with children's development ( $r = .13$  to  $.44$ ) compared to other factors. Furthermore, parent's

educational motivation and engagement, which are measured by their extent of school involvement and the number of children's books at home, are also associated with most of the developmental domains of children. Among the four domains of development, the cognitive domain was more likely to be influenced by these household characteristics, while it seems that these factors were somewhat less influential on the physical domain.

*Table 4 Children's development and household characteristics*

	Language	Cognitive	Physical	Social-Emotional
Household Wealth	.24	.37	.02	.22
Father's Education (in Grade)	.23	.37	.07	.21
Mother's Education (in Grade)	.30	.44	.13	.32
Degree of Parent's School Involvement	.16	.20	.12	.15
Number of Books at Home*	.21	.27	.16	.21

*Note:* Numbers in cells indicate correlation coefficients. \*A few cases (9) with particularly large value of BOOK (>20) were truncated since they seemed to be outliers.

Figures 3 through 6 visualizes the relationship between household wealth and four domains of children's development. They show the domain score (i.e., the % of subtasks that the child performed correctly) across quantiles of household wealth. They indicate that cognitive and SE domains had a strong relationship with household wealth. In particular, children from households with the lowest 25 percent of household wealth performed 58 percent of tasks in the cognitive domain correctly, while children from households with the highest 25 percent of household wealth performed 73 percent of such tasks correctly.



Figure 4 HH wealth and ELDS language

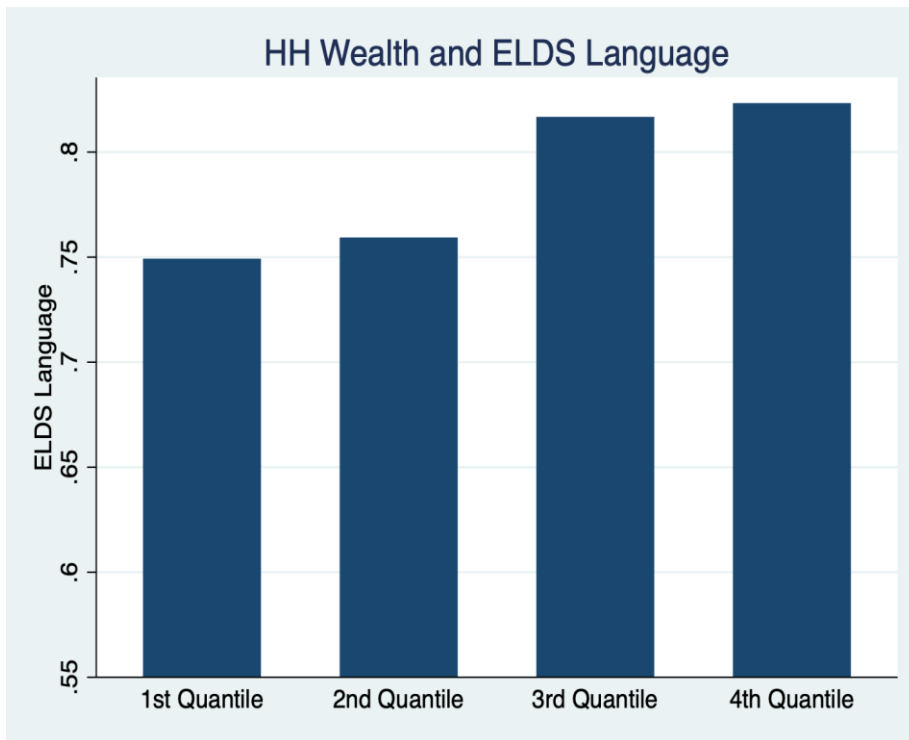


Figure 5 HH wealth and ELDS cognitive

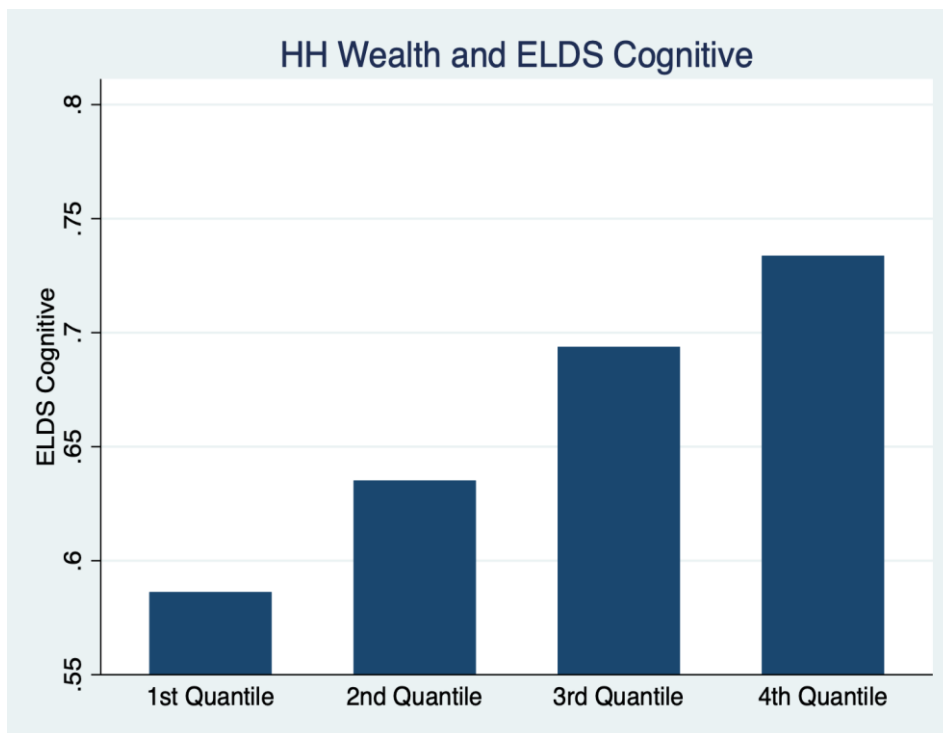


Figure 6 HH wealth and ELDS physical

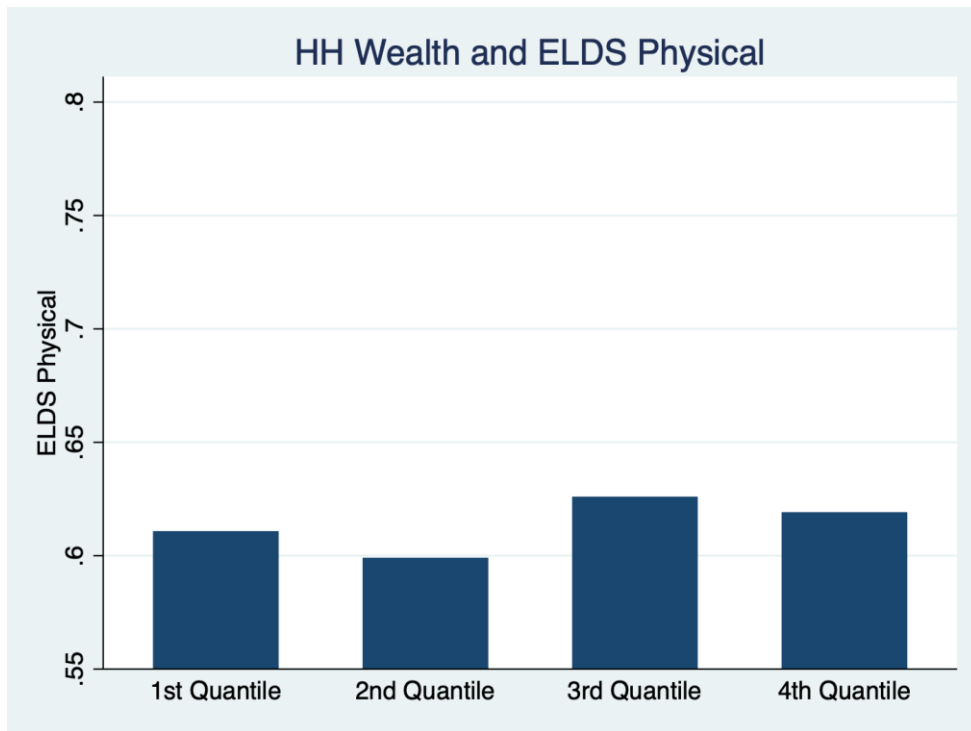
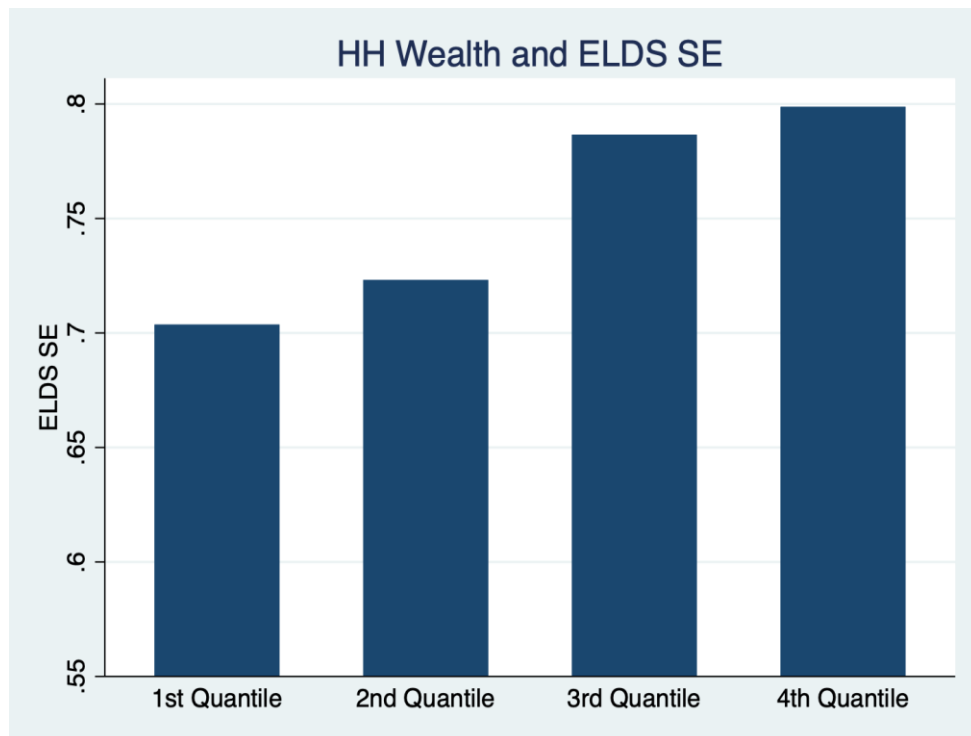


Figure 7 HH wealth and ELDS SE



### 4.3 Child development and ECE type

Table 5 Children's development outcomes in a different type of ECE

Children's Development Domain	Community (N=132)	Private School- Based (N=351)	Private Non- School Based (N=169)
Language	.73 (61%)	.79 (72%)	.83 (84%)
Cognitive	.56 (29%)	.66 (50%)	.74 (69%)
Physical	.58 (38%)	.62 (38%)	.62 (31%)
Social-Emotional	.69 (38%)	.75 (51%)	.81 (67%)

*Note:* While top values in each cell is raw ELDS assessment score, bottom values in parenthesis in each cell indicate the proportion of children who are developmentally on track in respective domains.

Table 5 shows that there are differences in children's development outcomes between different types of ECE facilities. In particular, children in private non-school based facilities tended to have higher scores on the ELDS assessment than those in other types of facilities. Such gaps are especially large between children in the community and private non-school based facilities. Among the four development domains, a relatively large gap in score is observed in the cognitive domain, followed by the SE domain and language domain. There is no substantial difference in the physical domain across all ECE facility types.

In terms of the proportion of children who are developmentally on track, private non-school based facilities have the largest proportion among the three types of ECE facilities in the language, cognitive and SE domains. The largest difference is observed in the cognitive domain: that is, the difference in the proportion of children who are developmentally on track in the cognitive domain between community ECE facilities and private non-school based facilities is 40 percentage points. Less than one-third (29%) of children are developmentally on track in the cognitive domain in community ECE facilities, suggesting the need for particular attention in the design of appropriate interventions. Contrary, the proportion of

children who are developmentally on track in the physical domain is smaller in private non-school based facilities than the other two types of ECE facilities. The proportion of children who are developmentally on track in the physical domain is very small across all types of ECE facilities, and it suggests the necessity to pay more attention to the support for the physical domain of development.

*Table 6 Regression of children's development on ECE facility type and household characteristics*

VARIABLES	LNG	COG	PHY	SE
<b>ECE facility type (relative to Community School-Based)</b>				
Private School Based	.040*	.020	.050**	.045
	(.021)	(.021)	(.023)	(.033)
Private Non-School Based	.062**	.032	.088***	.034
	(.026)	(.026)	(.029)	(.040)
<b>Household Characteristics</b>				
Family wealth	.005	.010	.022**	-.015
	(.007)	(.008)	(.009)	(.012)
Father's education	.004	-.001	.005	.010
	(.008)	(.009)	(.010)	(.013)
Mother's education	.020**	.027***	.030***	.010
	(.008)	(.009)	(.010)	(.013)
Number of child books	.000	.000	.000	.001
	(.000)	(.000)	(.000)	(.001)
<b>Parents' school involvement (relative to none)</b>				
Minimal (once a year)	-.039	-.005	-.016	-.095*
	(.033)	(.040)	(.042)	(.054)
Occasional (more than once a year)	.008	-.007	.042	.002
	(.029)	(.035)	(.037)	(.048)
Frequent (as often as required)	.038	.039	.065**	.028
	(.024)	(.028)	(.029)	(.038)
Family size	-.000	-.001	.000	.002
	(.004)	(.005)	(.005)	(.007)
Number of siblings	-.004	-.003	-.008	.004
	(.007)	(.009)	(.009)	(.012)
<b>Child Characteristics</b>				
Child is female	-.005	-.002	.022**	-.024
	(.009)	(.011)	(.011)	(.015)
Child age	.003**	.002*	.002	.004**
	(.001)	(.001)	(.001)	(.002)
Constant	.462***	.555***	.497***	.278**
	(.067)	(.079)	(.083)	(.109)

*Note:* Standard errors in parentheses. \*\*\* p<.01, \*\* p<.05, \* p<.10

The differences in child development among different types of ECE facilities might reflect differences in the socio-economic background of enrolled children. However, as described in Table 6, even after accounting for some important observable characteristics of households and children, children in private school-based facilities have significantly higher cognitive domain scores than those in community facilities. Besides, children in private non-school based facilities have significantly higher cognitive and SE domain scores, compared to those in community facilities. Although further study<sup>8</sup> is required to have a reliable conclusion, private facilities might contribute more to better child development than community facilities can do.

#### 4.4 What characteristics of the ECE facility associate with child development?

The findings in the previous sub-chapter raise a question regarding what factors account for differences in children's development across different types of facilities after controlling for household characteristics. Therefore, further investigation is necessary for a potential mechanism in which different types of ECE facilities affect children's development. To address this question, we analyze the association between characteristics of ECE facilities and child development with further regression analysis.

##### 4.4.1 Methodology

Based on the results from the previous sub-chapter and theoretical considerations, we selected important ECE facility factors: facilitator's training (with the seven categories), facilitator's education, class size, child to facilitator ratio, facilitator's experience, use of textbook, and learning resources (i.e., learning corners). We constructed three variables for the learning corners. The first two are the number of available learning corners in the subject

---

<sup>8</sup> This study just accounted for observable characteristics in households and children. However, it is plausible that some unobservable characteristics, including the quality of parenting, lead these results.



area and non-subject area. We also included another variable on the subject focus, which is a binary variable that takes 1 if there were more subject area learning corners than non-subject area learning corners, and 0 if the number of non-subject area learning corners were greater than or equal to the number of subject area learning corners. We also included the same family and child's characteristics as in table 5 to account for their influences on children's development.

Furthermore, we included class size and child-to-facilitator ratio, and we specified two modes based on the following consideration. If the child-to-facilitator ratio matters because facilitators engage more sensitively with children in classes with small ratios, it is likely that up to a certain ratio, the demands of classroom management limit their ability to engage well with children. Thus, only with very small ratios can facilitators attend to children individually. Similarly, if the effect of class size is due to improved children's engagement in the classroom, it is possible that children feel more connected only in particularly small classes. Understanding whether class size and child-to-facilitator ratio are associated with children's development, and whether such an association is uniform over the range of class sizes and child-to-facilitator ratios is important because changes in these factors are expensive to implement.

#### 4.4.2 Results

The results find that there are no significant positive associations for any kind of training with all the development domains. Although most of these associations are insignificant, the directions these associations are negative. Furthermore, incomplete government in-service training is significantly negatively correlated with the cognitive domain. In other words, if facilitators have taken less than 30 days of government in-service training (i.e., incomplete package), then on average, children performed 6 percent fewer

tasks correctly. However, our observational data cannot address a selection bias issue<sup>9</sup>. Thus, further study with experimental data is strongly demanded.

Regarding human resource management for the ECE sector, the facilitator's experience is not significantly associated with any development domain. Thus, just having more experience does not necessarily improve the quality of care and education that facilitators provide. At the same time, this relationship might be caused by selection bias<sup>10</sup>. Thus, further study is demanded to uncover the true relationship between the experience of facilitators and their ability. Meanwhile, their educational background is significantly positively associated with all four domains of development. Thus, attracting an educated labor force to this sector can be an effective HR policy.

As for class size and child-to-facilitator ratio, the results show that there is no significant linear association between class size and child-to-facilitator ratio and children's development. However, both class size and child-to-facilitator ratio have larger negative associations with children's development (especially for the SE domain) in the lower end of the distribution. This means that the effectiveness of the reduction of class size and child-to-facilitator ratio may only emerge after a certain point at which class size becomes small enough so that facilitators can engage in responsive and sensitive interactions with children.

---

<sup>9</sup> Unskilled facilitators might take more training to compensate for their weakness. If this is the case, observational data wrongly indicates that trainings are not associated with child development.

<sup>10</sup> For instance, skilled facilitators might be able to change their occupation for higher wage, while the unskilled cannot. If this is the case, only unskilled facilitators become experienced facilitators.

Table 7 Regression of children's development on ECE facility structural quality

VARIABLES	LNG	COG	PHY	SE
<b>Facilitator's Training</b>				
ECD related degree	-.015 (.028)	-.044 (.030)	-.063 (.045)	-.041 (.031)
Long term nongovernment PRESENT	-.002 (.018)	-.025 (.019)	-.009 (.029)	-.007 (.020)
Short term nongovernment PRESENT	-.009 (.017)	-.010 (.018)	-.018 (.027)	-.017 (.019)
Complete government INSERT	.027 (.028)	.004 (.030)	-.018 (.045)	-.007 (.031)
Incomplete government INSERT	-.003 (.030)	-.060* (.032)	-.040 (.048)	-.042 (.032)
Long term nongovernment INSERT	-.004 (.021)	.011 (.023)	.054 (.034)	.027 (.023)
Short term nongovernment INSERT	-.003 (.016)	.014 (.017)	.022 (.025)	.015 (.017)
<b>Facilitator's Education</b>				
University or above	.036** (.016)	.065*** (.017)	.064** (.025)	.033* (.017)
<b>Classroom Structure</b>				
slope for class size < 25	-.001 (.002)	-.001 (.003)	-.004 (.004)	-.004* (.003)
slope for CFR < 9	-.001 (.009)	-.006 (.010)	-.012 (.015)	-.012 (.010)
slope for class size >= 25	-.000 (.003)	-.000 (.003)	.001 (.004)	.003 (.003)
slope for CFR >= 9	.000 (.009)	.007 (.010)	.012 (.015)	.014 (.010)
Facilitator's experience	.001 (.002)	.001 (.002)	.003 (.003)	.002 (.002)
Use of textbook	.038* (.020)	.039* (.021)	.059* (.032)	-.002 (.022)
<b>Learning Corners (LC)</b>				
Number of an available subject area LC	.014 (.014)	.046*** (.015)	.014 (.023)	.019 (.015)
Number of available non-subject area LC	.009 (.016)	-.013 (.017)	.021 (.025)	.014 (.017)
Subject focus	.037 (.030)	-.024 (.033)	.025 (.049)	.004 (.033)
<b>Household/Child Characteristics</b>				
Family wealth	.010 (.008)	.026*** (.008)	-.017 (.011)	.005 (.008)
Father's education	-.001 (.009)	.004 (.010)	.010 (.013)	-.001 (.010)
Mother's education	.028*** (.009)	.031*** (.010)	.007 (.013)	.026*** (.010)
Number of child books	.000 (.000)	.000 (.000)	.000 (.001)	-.000 (.000)
Parents' school involvement (relative to none)				
Minimal	.002 (.040)	-.000 (.042)	-.083 (.054)	-.001 (.042)
Occasional	-.013 (.035)	.039 (.037)	.005 (.048)	.034 (.038)
Frequent	.042 (.028)	.072** (.029)	.031 (.039)	.062** (.030)
Family size	.000 (.005)	.002 (.005)	.003 (.007)	.001 (.005)
Number of siblings	-.002 (.009)	-.009 (.009)	.005 (.012)	-.011 (.009)
Child is female	-.003 (.011)	.022* (.011)	-.026* (.015)	-.018 (.012)
Child age	.002 (.001)	.001 (.001)	.003* (.002)	.002 (.001)

Note: Standard errors in parentheses. \*\*\* p<.01, \*\* p<.05, \* p<.10

Above a class size of 25 and a child-to-facilitator ratio of 9:1, the slopes for the association with the SE domain were estimated to be close to zero, whereas the slopes below those points were negative and significant (see figures 7 and 8 below).

Figure 8 The association between class size and children's social-emotional development

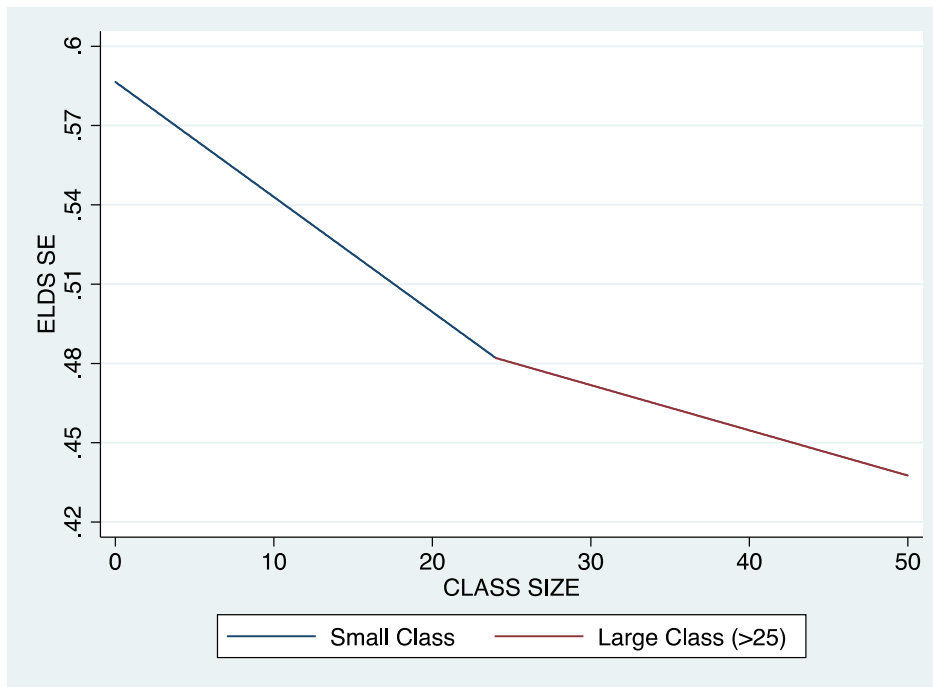
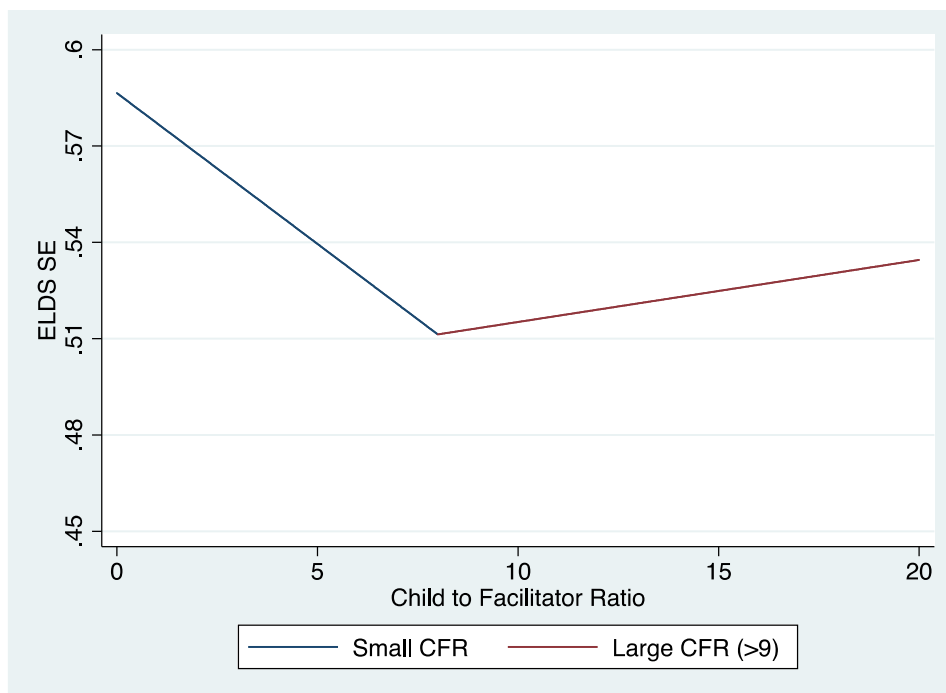


Figure 9 The association between child-to-teacher ratio and children's social-emotional development



Other characteristics that show significant associations with children's development are the use of textbooks and the number of available subject area learning corners. It is interesting that the use of textbooks is positively correlated with language, cognitive, and physical domains but not with the SE domain. Experimental data is required to confirm if the use of textbook does contribute to child development. It is highly likely that the usage of textbooks just reflects unobservable characteristics that cause positive impacts on child development, including the quality of school management. Theoretically, it can enhance cognitive skills. At the same time, it might accelerate the schoolification of ECE that results in negative long-term impact. Thus, experimental data is required to conclude if education stakeholders should promote the usage of textbooks or not. The number of available subject area learning corners is only positively associated with the cognitive domain of development, which is somewhat expected based on the consideration regarding the learning experiences children have with such learning resources. On the other hand, the number of available non-subject area learning corners and subject focus over non-subject in learning corners are not significantly associated with any of the development domains.

These results of regression analysis (tables 6 and 7) imply that potential factors underlying the difference in children's development across different types of facilities, after controlling for household characteristics, are the facilitators' education, class sizes and child-to-facilitator ratios (especially in the lower end of the distribution), and availability of learning resources (especially in subject area).

## 5 Conclusion

In Lalitpur Metropolitan City, while community schools serve children with disadvantaged backgrounds and poor learning environments, private ECE facilities, particularly non-school based ECE facilities, are well resourced and serve children from wealthier households. Thus, the stratification of society starts from the ECE level. Without a robust redistribution mechanism in the ECE sector, inequity in this society will be further exacerbated. One of our recommendations is to strengthen the ECE registration and monitoring system, charge taxes for private ECE facilities that serve children from wealthier households and use the tax for community-schools. Although this policy can mitigate inequity, segregation remains. Thus, education stakeholders may implement an affirmative action policy to well-resourced private ECE facilities.

Even at the age of four, children from better SES households are more developed than children with a disadvantaged background. Thus, parental support for the underprivileged families before ECE is demanded.

For better HR policy for facilitators, it is worth reconsidering the contents of in-service and pre-service government training. Further, the government may consider an introduction to quality assurance mechanisms for non-government training. Although there is a complementary relationship between attraction and retention, priority should be given to attracting a more educated labor force to this sector rather than retaining facilitators.

Learning environment does matter for better child development, such as making class-size small enough and ensuring a learning corner for all ECE facilities. Thus, more resources for this sector is demanded to implement those ECE interventions.

Our study finds that education stakeholders can strive to provide equitable, quality early childhood education and care for children. However, as discussed in various parts of this report, our study has some limitations<sup>11</sup>. Thus, further research is demanded to construct evidence informed ECE policies and interventions.

---

<sup>11</sup> We appreciate the support we received from Lalitpur Metropolitan Municipality office, ERO, ECE facility staffs, ECE experts, and enumerators. Responsibility for all errors and limitations of this study is with us.



## 6 Appendix

### 6.1 Appendix 1. Performance Level Description of ELDS development standards

Development Category	Performance Level Description
<b>Cognitive domain</b>	
On track	Children can demonstrate basic life and science knowledge, imagination and creativity. They can recognize and classify shapes and colors, recognize and write basic numbers, differentiate and compare length and size of objects.
Progressing	Children can demonstrate limited life and science knowledge, imagination and creativity. They can recognize and classify shapes and colors, recognize and write basic numbers, differentiate and compare length and size of objects with a few mistakes.
Struggling	Children have difficulties in demonstrating life and science knowledge, imagination and creativity, recognizing and classifying shapes and colors, recognizing and writing basic numbers, differentiating and comparing length and size of objects.
<b>Language domain</b>	
On track	Children can listen to and respond properly to familiar language, speak simple short sentences and communicate with others, and demonstrate pre-reading and pre-writing skills.
Progressing	Children can listen to and respond to familiar language with a few mistakes, speak very short sentences and communicate with others, and demonstrate limited pre-reading and pre-writing skills.
Struggling	Children have difficulties in listening to and responding to familiar language, speaking simple sentences and communicating with others, and demonstrating pre-reading and pre-writing skills.
<b>Physical domain</b>	
On track	Children can demonstrate coordination of large muscles for whole body movement and small muscles including hand-eye coordination. They can demonstrate health and hygiene practices.
Progressing	Children can demonstrate limited coordination of large muscles for whole body movement and small muscles including hand-eye coordination. They can demonstrate limited health and hygiene practices.
Struggling	Children have difficulties in demonstrating coordination of large muscles and small muscles including hand-eye coordination and demonstrating health and hygiene practices.
<b>Social emotional domain</b>	
On track	Children can interact with peers and adults to build and maintain relationships, demonstrate sense of self, recognize and express emotions of self and others, respect and follow values of family, community, and nation.
Progressing	Children can occasionally interact with peers and adults to build and maintain relationships, demonstrate limited sense of self, recognize and express emotions of self and others with an occasional difficulty, and show limited respect to values of family, community, and nation.
Struggling	Children have difficulties in interacting with peers and adults to build and maintain relationships, demonstrating sense of self, and recognizing and expressing emotions of self and others. They show minimal respect to values of family, community, and nation.

## 6.2 Appendix 2. ELDS Cut scores for development standards

	Minimally On track	Minimally progressing
Cognitive	0.780	0.593
Language	0.757	0.577
Physical	0.729	0.543
Socio-emotional/Cultural	0.784	0.606

*Note:* Based on the Performance Level Descriptor (see appendix 1) of each category of the four domains, participants of the workshop conceptualized how children at the borderline of these categories (i.e., one between On track and Progressing (minimally on track) and another between Progressing and Struggling (minimally progressing)) would look like. Keeping such images of borderline children in mind, participants judged the difficulty of ELDS assessment tasks for them. This task-wise judgment was utilized to compute domain cut scores for two borderlines: children whose ELDS domain score is above minimally on track cut-off scores are classified as On track group; those with ELDS domain scores below minimally on track cut scores and above minimally progressing cut scores are categorized as Progressing group; and children with ELDS domain scores below minimally progressing cut score is classified as Struggling group.

## 6.3 Appendix 3. Research Team

### 6.3.1 Lead Researchers

1. Shota Hatakeyama
2. Kenji Kitamura
3. Bikki Shrestha
5. Gazal Shrestha
6. Grishma Paneru
7. Kanchan Khatakho
8. Lali Rana

### 6.3.2. Resource Person/ Trainer

1. Sachita Suwal
9. Maiya Basnet
10. Manju Shrestha
11. Narayani Pun

### 6.3.3 Enumerator Leaders

1. Laxmi Thapa Chhetri
2. Rushma Adhikari
3. Sapna Poudel
4. Surekha Lawati
5. Vivek Dongol
12. Nirmala Tamang
13. Poonam Byanjankar
14. Pushpa Thapa
15. Rakshya Adhikari
16. Rubina Chhusyabaga
17. Sabita Purkuti
18. Samjhana Basnet

### 6.3.4 Enumerators

1. Aruna Khulal
2. Babin Gurung
3. Bhawana Uprety
4. Elizabeth Gurung
19. Shova Bhandari
20. Shreeya Amatya
21. Shweta Bhandari
22. Sona Shahi
23. Sweta Rana

## 7 Reference

- Aboud, F. E. (2006). Evaluation of an early childhood preschool program in rural Bangladesh. *Early Childhood Research Quarterly*, 21(1), 46-60.
- Aguilar, R., & Tansini, R. (2012). Joint analysis of preschool attendance and school performance in the short and long-run. *International Journal of Educational Development*, 32(2), 224-231.
- Berlinski, S., Galiani, S., & Manacorda, M. (2008). Giving children a better start: Preschool attendance and school-age profiles. *Journal of public Economics*, 92(5-6), 1416-1440.
- Cascio, E. U., & Schanzenbach, D. W. (2013). *The impacts of expanding access to high-quality preschool education* (No. w19735). National Bureau of Economic Research.
- Costa, L. O., & Carnoy, M. (2015). The effectiveness of an early-grade literacy intervention on the cognitive achievement of Brazilian students. *Educational Evaluation and Policy Analysis*, 37(4), 567-590.
- Gertler P., J. Heckman, R. Pinto, A. Zanolini, et al. 2014. Labor market returns to an early childhood stimulation intervention in Jamaica. *Science*, 344(6187), 998-1001.
- Grantham-McGregor, S., & Smith, J, A. (2016). Extending the Jamaican Early Childhood Development Intervention. *Journal of Applied Research on Children: Informing Policy for Children at Risk*, 7(2), 4.

- Heckman, J. J. (2006). Skill formation and the economics of investing in disadvantaged children. *Science*, 312(5782), 1900-1902.
- Johnson, R. C., & Jackson, C. K. (2017). *Reducing inequality through dynamic complementarity: Evidence from Head Start and public school spending* (No. w23489). National Bureau of Economic
- Malmberg, L. E., Mwaura, P., & Sylva, K. (2011). Effects of a preschool intervention on cognitive development among East-African preschool children: A flexibly time-coded growth model. *Early Childhood Research Quarterly*, 26(1), 124-133.
- Moore, A. C., Akhter, S., & Aboud, F. E. (2008). Evaluating an improved quality preschool program in rural Bangladesh. *International Journal of Educational Development*, 28(2), 118-131.
- Pesando, L. M., Wolf, S., Behrman, J. R., & Tsinigo, E. (2020). Are Private Kindergartens Really Better? Examining Preschool Choices, Parental Resources, and Children's School Readiness in Ghana. *Comparative Education Review*, 64(1), 107-136.
- Tooley, J., & Dixon, P. (2007). Private schooling for low-income families: A census and comparative survey in East Delhi, India. *International Journal of Educational Development*, 27(2), 205-219.
- Walker, S. P., Chang, S. M., Vera-Hernández, M., & Grantham-McGregor, S. (2011). Early childhood stimulation benefits adult competence and reduces violent behavior. *Pediatrics*, 127(5), 849-857.
- World Bank, World Development Indicators (2019). *Gross Enrollment Ratio Pre-Primary*

# Executive Board



Dr. Meenakshi Dahal  
(Chairperson)



Mr. Nabin Dangol  
(Vice Chairperson)



Mr. Kiran Thapa  
(Secretary)



Ms. Ramuna Shakya  
(Treasurer)



Ms. Anima Shrestha  
(Board Member)



Ms. Roshani Maharjan  
(Board Member)



Mr. Dipendra Bhatta  
(Board Member)



Mr. Ram Sharan Rimal  
(Board Member)



Mr. Nabin Khatiwada  
(Board Member)





## Sarthak Shiksha

Quality Learning for All

📍 Pulchowk, Lalitpur

🌐 [www.sarthakshiksha.org](http://www.sarthakshiksha.org)

✉ [info.nepal@sarthakshiksha.org](mailto:info.nepal@sarthakshiksha.org)

☎ +977-1 5555678