Early Learning Partnership Systems Research

Liberia Diagnostic Report

In association with:

About Oxford Policy Management

Oxford Policy Management is committed to helping low-and middle-income countries achieve growth and reduce poverty and disadvantage through public policy reform.

We seek to bring about lasting positive change using analytical and practical policy expertise. Through our global network of offices, we work in partnership with national decision makers to research, design, implement, and evaluate impactful public policy.

We work in all areas of social and economic policy and governance, including health, finance, education, climate change, and public sector management. We draw on our local and international sector experts to provide the very best evidence-based support.

Acknowledgements

Executive summary

Quality Early Childhood Education (ECE) relies on a complex, and consequently delicate, alignment of the actions of government, schools, and families. This is the first report to extensively document the state of early childhood education in Liberia, with a focus on several of the poorest provinces.

The Ministry of Education of the Republic of Liberia (MoE), in partnership with the World Bank, is engaged in range of research activities focused on improving the ECE system. The assignment, 'Early Learning Systems Research', is being implemented by Oxford Policy Management (OPM), and supported by the UK Department for International Development (DFID).

The key objective of the Early Learning Systems Research is to provide evidence that can help guide the MoE and its partners to formulate, test, and scale strategies and interventions to improve the quality of early childhood education in Liberia, and to promote age-appropriate enrolment.

OPM is implementing the research in two phases. Phase One, which is the subject of this report, involved extensive fieldwork to understand the state of ECE in Liberia, and to investigate the alignment of key stakeholders. This study investigated how the ECE system in Liberia was aligned to promote (i) quality, and (ii) age-appropriate enrolment. The fieldwork was conducted in schools in eight counties in Liberia, including five of the most disadvantaged: Bomi, Grand Kru, Maryland, Montserrado, Nimba, Rivercess, River Gee, and Sinoe. It consisted of 490 student assessments, 478 parent interviews (of sampled children), 50 classroom observations, 53 principal interviews, 50 teacher interviews, five interviews with MoE officials, three interviews with District Education Officers (DEOs), and one interview with representatives from the President's office.

Phase Two will build on these findings to pilot two interventions: the first aimed at improving ECE through teacher training and support, as well as age-appropriate enrolment, and the second aimed at helping overage children catch-up through an accelerated learning programme. Phase Two will also involve a rigorous evaluation of the ECE intervention through a randomised controlled trial and qualitative data collection.

Overall findings

We used the 'accountability triangle' framework, adapted from Pritchett (2015) and the World Development Report (2004). This considers the alignment of a system, and assigns one of four colours (red, orange, yellow, green) based on the status of each element in the system.

Quality

We found that the system was partially aligned to promote quality ECE in Liberia, with insufficient resources being the severest constraint. Although most of children enrolled in ECE were over the age of six, most children could only do the easiest assessment tasks on a test aimed at children between three and five years old. Moreover, teachers engaged in predominately rote-teaching, with little time spent on child-centred activities.

There are aspects of the ECE system that have the potential to contribute to quality ECE. National government is nominally supportive of ECE and has developed a national curriculum, and there are at least basic formal processes for gathering data on ECE and monitoring the performance of schools. Many parents engage with their children's schools, and most principals have a teaching qualification and support their teaching staff.

However, the impact of these features is undermined by underperformance elsewhere. Most significantly, schools are under-resourced and the vast majority of ECE teachers have no qualifications. Additionally, the MoE is reportedly disconnected from county and district

governments, which in turn have limited resources and staff capacity. Principals appear to have limited ability to sanction underperforming staff.

A 10-point summary of the key findings regarding quality is available at the start of Section 4.

Figure 1: System alignment to promote quality ECE
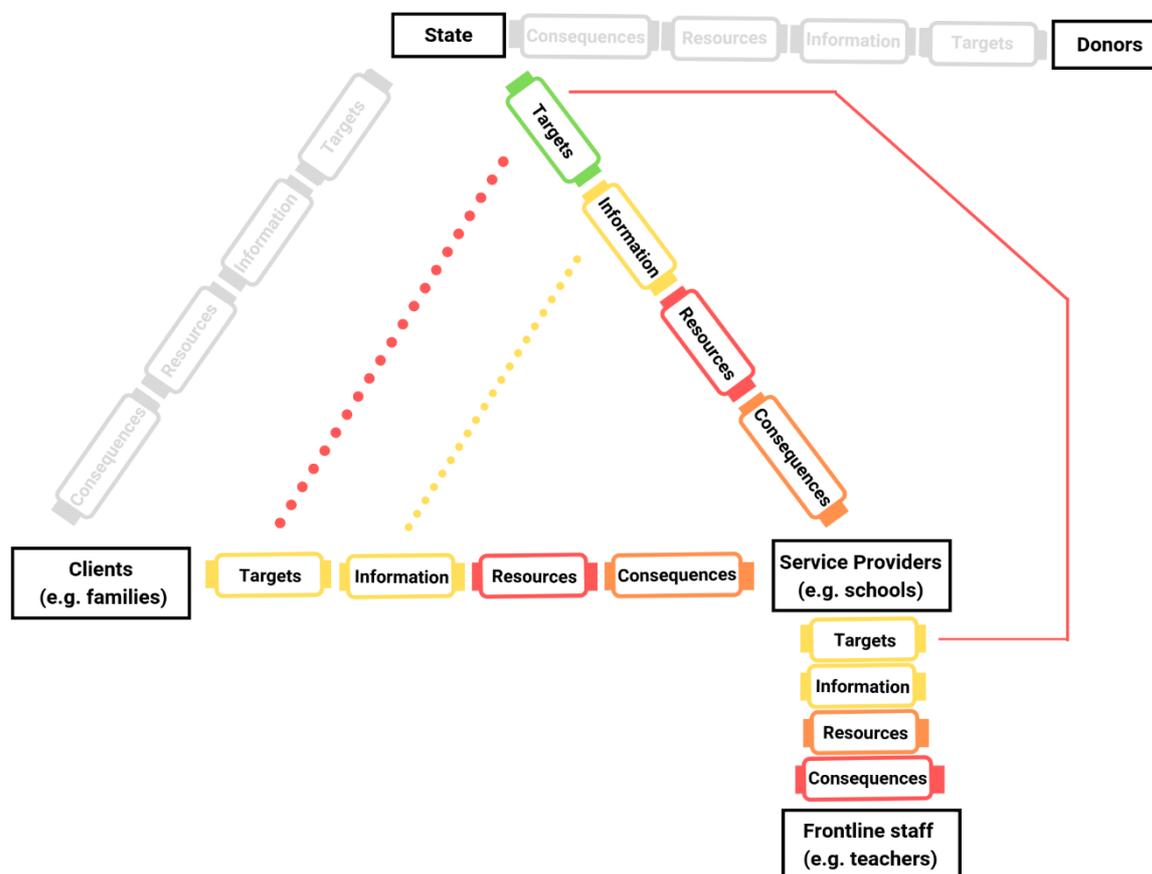
Overage enrolment

There is little alignment in the system to promote age-appropriate enrolment. Although there is a national policy governing age-appropriate enrolment, it is unclear to what extent it is prioritised by government over competing concerns, and it is followed by only a minority of schools, and it is not used by parents. Although rudimentary data is collected, government, schools, or families do not use it. Consequently, resources are not specifically allocated, and rewards and sanctions are not linked to addressing the issue.

Figure 2:   System alignment to promote age-appropriate enrolment
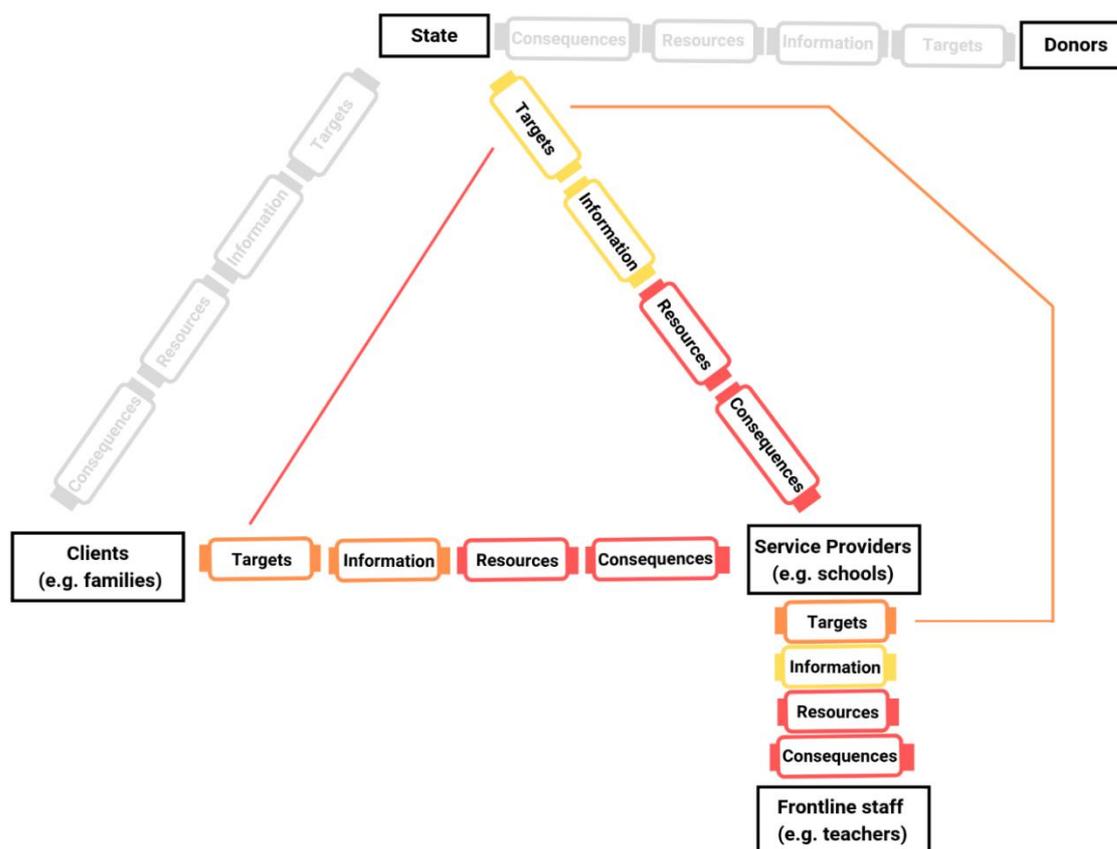
We note that given both the severity of the under-resourcing of ECE and the unlikelihood that this will be addressed in full in the near future, ECE is likely to rely on low-cost innovations to improve quality, and in promoting age-appropriate enrolment.

A five-point summary of the key findings regarding overage enrolment is available at the beginning of Section 5.

Recommendations

Based on these findings, we offer 18 recommendations to improve the capacity of the system to promote quality ECE and age-appropriate enrolment, by aligning targets, information, resources, and consequences within and across relationships. However, there is a need for low-cost innovations to address these recommendations, given the severe shortfall in funding for ECE.

Quality

Improving how targets are set:

1. Provide principals and teachers with support to use the national ECE curriculum, through relevant training programmes and regular oversight from the Country Education officers (CEOs) and District Education officers (DEOs).

Improving how information is collected:

2. Provide parents with information about teaching and learning quality at each school, such as through school report cards (which may report on learning outcomes and/or inputs such as teacher qualifications).

3. Include more data on ECE in the EMIS, such as on learning outcomes, classroom resources, and teacher qualifications, and collect EMIS data on an annual basis.

Addressing the shortage of resources:

4. Provide classrooms with the resources needed to deliver the curriculum, such as children's books and craft materials.

5. Increase access to relevant ECE-specific training programmes for teachers.

6. Improve the affordability of ECE. Since ECE classrooms are already underfunded, it is unlikely that lowering the fees charged by schools will be a viable solution. Instead, efforts to increase the funding of ECE through either government or international aid should be explored to empower parents. This may be through the provision of school vouchers, for example.

Improving clarity around consequences:

7. Investigate the principal's reasons for their limited sanction of underperforming teachers. Invest in principal training, which includes school management and accountability, including setting appropriate targets, allocating financial resources efficiently, and rewarding or sanctioning performance.

8. Invest in DEO and CEO training on school management and accountability and create functional mechanisms for these individuals to monitor and then reward or sanction schools.

9. Provide schools with the support to set up functional parent-teacher associations which meet regularly and engage with parents surrounding their child's learning.

Age-appropriate enrolment

Improving how targets are set:

10. Investigate, through a cost-benefit analysis, the relative priority of addressing overage enrolment, and provide government with sufficient evidence to make a decision.
11. Sensitise parents to the policy on age-appropriate enrolment, specifically that schools are prohibited from enrolling a child of primary-school age into ECE.

Improving how information is collected:

12. Frequently collect data on the prevalence of overage enrolment at each school, such as through regular reports to the CEOs and DEOs

13. Include statistics on the prevalence of overage enrolment in the information provided to parents about each school.

Addressing the shortage of resources:

14. Provide schools with funding, specifically to support overage learners, and promote age-appropriate enrolment.

15. Provide overage children, promoted from ECE into primary school, with the necessary support for them to 'catch up', such as through Accelerated Learning or teaching at the right level.
16. Improve the affordability of ECE, as 57% of parents who enrol their children into ECE late cite being unable to afford the fees as the primary reason.

Improving clarity around consequences:

17. Empower CEOs and DEOs to investigate the prevalence of over-age enrolment during their oversight visits and enable them to sanction schools that do not enrol children older than 6-years into primary school.

18. Provide parents with avenues to report grievances if their children are denied access to primary school.

Table of contents

List of figures and tables

List of abbreviations

CEO	County Education Officer
CSA	Civil Service Agency
CSB	County School Board
DEO	District Education Officer
DSB	District School Board
DFID	UK Department for International Development
DMI	Deputy Minister for Instruction
ECD	Early Childhood Development
ECE	Early Childhood Education
EMIS	Education Management Information System
ERL	Education Reform Law
ESA	Education Sector Analysis
GPE	Global Partnership for Education
KII	Key Informant Interview
LEAP	Liberian Education Advancement Programme
MELE	Measuring Early Learning Environment
MELQO	Measuring Early Learning Quality and Outcomes
MoE	Ministry of Education
MoF	Ministry of Finance
NGO	Non-Governmental Organisation
NIPECD	National Inter-Sectoral Policy on Early Childhood
OPM	Oxford Policy Management
OSIWA	Open Society Initiative for West Africa
PPS	Probability Proportional to Size
PTA	Parent–Teacher Association
PTR	Pupil–Teacher Ratio
UNICEF	United Nations International Children's Emergency Fund

1   Introduction

Quality Early Childhood Education (ECE) relies on a complex, and consequently delicate, alignment of the actions of government, schools, and families. If the actions and incentives of these stakeholders are not aligned, then even well-functioning initiatives have limited impact if they are isolated within an otherwise dysfunctional system.

The MoE, in partnership with the World Bank, is engaged in a diagnostic study of the ECE system in Liberia. The research is being implemented by OPM and supported by DFID.

The key objectives of the Early Learning Systems Research (ELSR) are to provide evidence that can help guide the MoE and its partners to formulate, test, and scale strategies and interventions to improve the quality of early childhood education in Liberia, and promote age-appropriate enrolment. These goals have been selected due to their prominence in the MoE's 'Getting to the Best Education Sector Plan'[1], and in close consultation with the Ministry, and other national and international stakeholders involved in ECE in Liberia.

The research questions investigated the current levels of quality and overage enrolment in the ECE system in Liberia, as well as how different stakeholders (such as the government, schools, and families) act to produce these outcomes. Our analysis focused on the alignment of these stakeholders, and to what extent their actions cohered[2,3] as a system in setting targets, collecting information, allocating resources, and rewarding or sanctioning performance.

The study relied on four methods –

- Administering the **Measuring Early Learning Quality and Outcomes (MELQO)** assessment, which had been adapted to the Liberian context, to investigate children's educational attainment and the quality of their learning environments across government, community, and private ECE schools;
- Collecting extensive data from principals, regarding their budgets as well as monetary and in-kind expenditure, and from parents on how much they spend on their children's education, to better understand the current costs involved in providing ECE, and to **cost alternative models of ECE provision;**
- Conducting interviews with government officials (at national, country, and district levels), principals, teachers, and parents, to investigate the **alignment of these stakeholders** in providing quality ECE and ensuring age-appropriate enrolment; and,
- **Working closely with the MoE and other stakeholders** to reach a consensus on the research priorities, adapt the research instruments, validate our findings, and to thoroughly understand the political economy of the Liberian education system.

The research was conducted in schools in eight counties in Liberia, including five of the most disadvantaged: Bomi, Grand Kru, Maryland, Montserrado, Nimba, Rivercess, River Gee, and Sinoe. It consisted of 490 student assessments, 478 parent interviews (of sampled children), 50 classroom observations, 53 principal interviews, 50 teacher interviews, five interviews with MoE officials, three interviews with District Education Officers, and one interview with representatives from the President's office.

Report Structure

This report begins with an explanation of the analytical framework and research questions (Section 2), before explaining the methodology of the study (Section 3). Sections 4 and 5

---

[1] Liberia MOE (2016) 'Getting to Best Education Sector Plan 2017–21'.

[2] Pritchett, L. (2015) 'Creating Education Systems Coherent for Learning Outcomes: Making the Transition from Schooling to Learning', Research on Improving Systems of Education Working Paper, Preliminary draft.

[3] World Bank (2003) 'World development report 2004: making services work for poor people', World Bank Publications.

presents our diagnostic findings on the quality of ECE in Liberia and the prevalence of overage enrolment, respectively. Sections 6 and 7 summarise our conclusions and offers recommendations for action. A detailed appendix accompanies this report, which includes further information on the organisations involved in the study, the research questions, sampling methodology, and research tools.

2 Research Questions, Analytical Framework, and Background

2.1 Research questions

Our research focused on two objectives – the quality of learning, and the age-appropriateness of enrolment. For each objective we investigated two questions.

What is the quality of ECE provision in Liberia?	What is the prevalence of age-appropriate enrolment?
Is the ECE system aligned to promote quality learning?	Is the ECE system aligned to promote age-appropriate enrolment?

The key objectives of the Early Learning Systems Research are to provide evidence that can help guide the MoE and its partners to formulate, test, and scale strategies and interventions to improve the quality of early childhood education in Liberia and to promote age-appropriate enrolment. These goals have been selected due to their prominence in MoE's 'Getting to the Best Education Sector Plan'[4], and in close consultation with the MoE and other national and international stakeholders involved in ECE in Liberia. The research questions are detailed in Annex B.

2.2 Analytical Framework

Our analysis of the early education system in Liberia is based on the 'accountability triangle' framework, originally developed in the World Development Report and then adapted to education systems by Pritchett (World Bank, 2004; Pritchett, 2015).

The framework is built around five sets of principals–agent accountability relationships within a service delivery chain that consists of citizens, policymakers, and service providers. Between each actor is a particular 'accountability relationship', describing whether they are accountable by agreement ('compact'), managerial authority ('management'), the ability to pay or withdraw fees ('client power'), social action ('voice'), or political power ('politics').

The functioning of each relationship relies on four further elements[5] of:

- **'Targets'** refer to the objectives and norms set between each actor that define 'satisfactory performance' in the system. For example, the ECE curriculum objectives define what constitutes quality education provisions, as communicated from the ministries to the schools.

- **'Information'** refers to the ability to collect data on whether there is progress made towards these targets. For example, classroom observations enable the ministry and school principals to gauge whether the curriculum is being delivered as prescribed.

- **'Resources'** refer to the expertise, finance, and materials required to achieve the targets. For example, ECE teachers need adequate training in how to use the curriculum, as well as access to the learning materials it requires.

- **'Consequences'** refer to the rewards or sanctions that an actor will receive based on their performance. For example, persistently absent teachers might be dismissed, or high-performing schools might receive a public accolade.

The accountability triangle identifies three sources of misalignment:

1. Misalignment **within a relationship of accountability:** for example, a principal wants teachers to come to school regularly, but no teachers are sanctioned (e.g. through

---

[4] Liberia MOE (2016) 'Getting to Best Education Sector Plan 2017–21'.
[5] We have adapted the ordering of these elements from the original framework, in which 'resources' had preceded 'information'.

reduced pay or redundancy) for repeated and unjustified absence. In this case, the targets set by schools do not match the consequences for not acting on targets by teachers. Even if all other elements in this relationship work well, the system will malfunction with respect to the goal of delivering good learning outcomes because teachers face no consequences for being absent from school and not teaching.

2. Misalignment **across relationships of accountability**: for example, schools act on information about the official policy on the age of enrolment, but parents do not make decisions about when to send their child to school based on what the official government policy says. This suggests that the information element is incoherent across the accountability relationship between parents and schools. The system is unlikely to result in children being enrolled on time because the parents and schools do not act on the same information about what 'on time' means.

3. Misalignment **across all elements of two different accountability relationships**: development partners might set the MoE a target that teachers must follow the ECE curriculum, which is linked to learning. Development partners might fund teacher training and salaries, regularly collect information about performance, and use it to inform rewards and sanctions. At the same time, the ministry might set a different target for teachers—e.g., delivering parent votes in an election. All other elements will be set up to deliver to this goal. Since agents in a system have limited time, serving two masters will be difficult and might mean that neither goal is suitably delivered.

This study focuses on the alignment of these four elements **within a relationship of accountability** and **across relationships of accountability** to understand how well systems are aligned to enable learning and promote age-appropriate enrolment. We also focus on the relationships between the state and the school, between families and the school, and between the school and its teachers. It was beyond the scope of this study to investigate the accountability relationship between families (i.e. citizens) and the state. The Liberian context warranted the inclusion of an additional relationship ('influence') between the state and donors, however an in-depth analysis of all its elements was also beyond the scope of this study.

This framework is represented in the figure below.

Figure 3:   Key relationships in education systems (adapted from Pritchett, 2015)
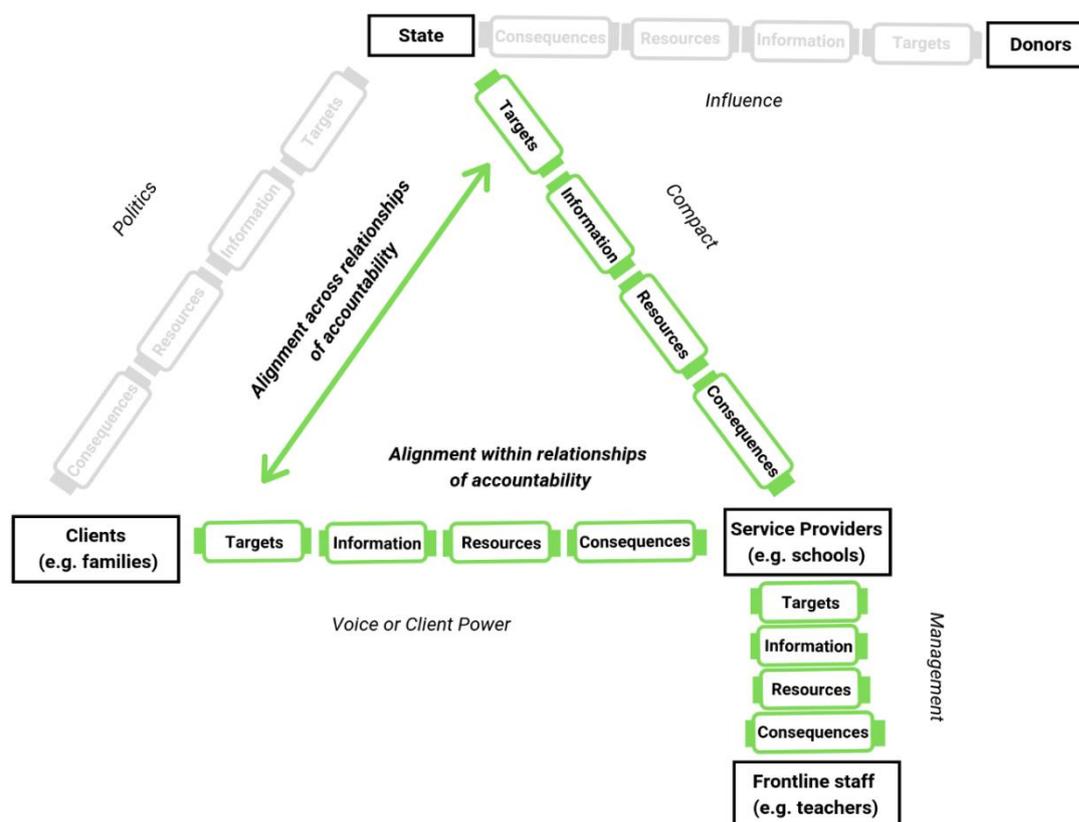
'Alignment' requires that adequate processes support each of these four elements, and that these processes are mutually supportive. In a well-aligned system, targets are clearly set and endorsed by all stakeholders, information is gathered to measure progress against these targets, sufficient resources are allocated to achieve these targets, and actors face consequences if those targets are not met.

In our diagnostic, we use four colours to indicate the approximate degree of alignment:

- Green is assigned to an element when there is evidence of a well-defined process and it is well-aligned with other elements (such as a classroom equipped with the materials required by the curriculum).

- Yellow is assigned to an element when there is evidence of a process in place, but it is incomplete, warrants substantial improvement and/or is misaligned with other elements (such as a classroom equipped with some of the materials required by the curriculum).

- Orange is assigned to an element when there is a rudimentary presence of an element, but it is significantly compromised (such as a classroom equipped with almost none of the materials required by the curriculum but still equipped with some teaching materials).

- Red is assigned when a specific element is non-existent or severely inadequate (such as a classroom without teaching materials).

2.3   Background

The MoE has recently undertaken a comprehensive Education Sector Analysis (Ministry of Education - Republic of Liberia, 2016), to which readers should refer to for a detailed analysis of some of the key features of the education system (including at the ECE level) based on secondary and administrative data. In this section, we summarise some of the key features of the system related to the two problems addressed directly by the diagnostic: quality and access as it relates to overage enrolment.

2.3.1   Quality

Whilst there is currently no primary information about quality at the ECE level, some other features of the system predict that these are likely to be low. According to the Demographic Health Survey data, 12% of adult men and 33% of adult women had not completed any form of education in 2013. There is a high proportion of unqualified teachers (around 50% for ECE). The pupil–teacher ratio (PTR) at public ECE schools stands at 53 students to one teacher, whilst private and faith-based schools have a lower ratio of 27 students to one teacher. As can be seen from the figure below, some of the southern counties, on which this diagnostic report focuses, have the lowest percentage of qualified teachers: Sinoe, Grand Kru, River Cess, River Gee, and Maryland. To ensure an appropriate spread of languages and educational realities, Bomi, Nimba, and Montserrado were also included in our sample.

Figure 4:   Percentage of qualified teachers by county
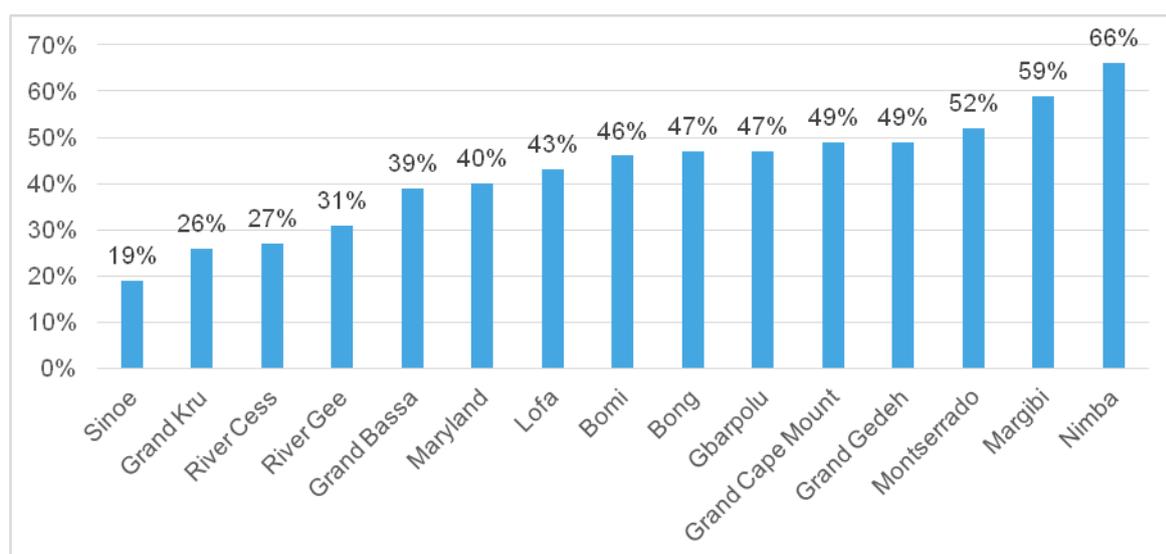
Source: Education Sector Analysis—Ministry of Education, Republic of Liberia (2016)

These counties were also amongst the lowest net enrolment rates. Net ECE Enrolment in River Cess and River Gee is amongst the lowest in the country—11% and 16% respectively, compared to a national average of 29%.

Figure 5:   ECE Net enrolment rates per county
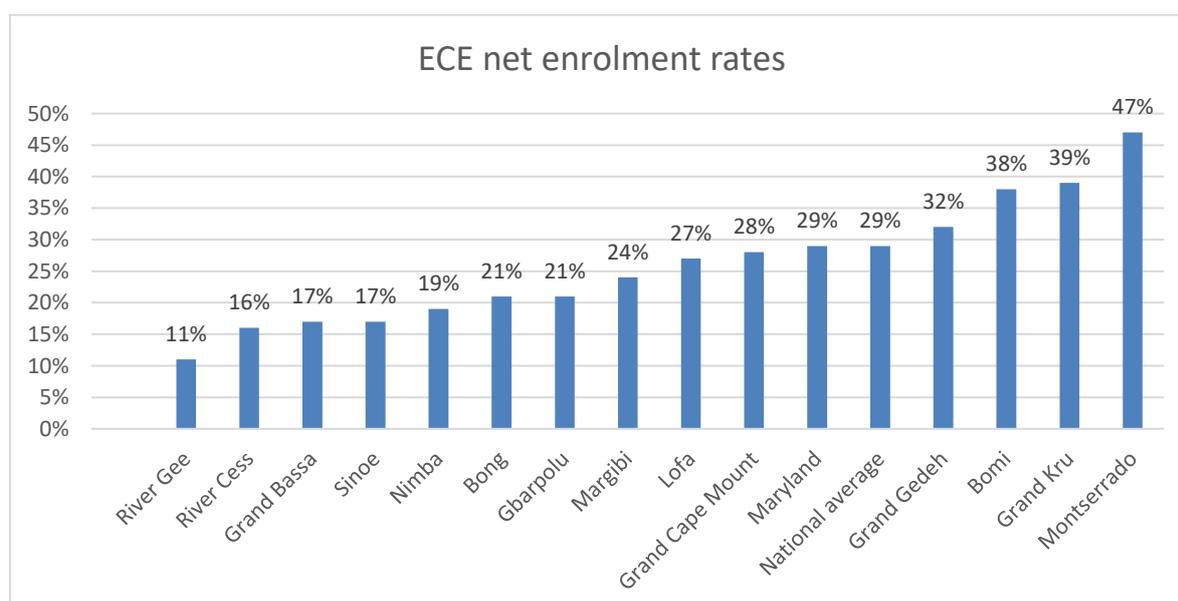
Source: EMIS (2015)

The government has dedicated limited budgetary resources for the ECE level. Since 80% of the education budget is spent on teachers' salaries, an estimate based on the number of civil service teachers deployed to the pre-primary level suggests that approximately 11% of the total education budget is spent on ECE. Civil service teachers are deployed to primary schools (to teach primary classes), but when it was stipulated that these schools should also serve the pre-primary level, primary teachers had to be diverted to pre-primary classes. This redirecting (and over-stretching) of government primary school resources in favour of the pre-primary level has clear implications for the staffing of primary grades, as well as impacting on the pre-primary classes, which these teachers are not trained to teach. Some teachers in government schools are volunteers, or unofficial and locally hired people paid out of the income from small fees which the schools gather.

With no budget assigned to the pre-primary level, but with a desire to get children into school before Class 1, it was determined by the Ministry of Finance (MoF) and the MoE that pre-primary classes would be provided, but on the basis of cost-recovery. Government schools were recently allowed to charge 3,500 Liberian dollars (US $27) per child per year (Ministry of Education - Republic of Liberia, 2016), with this revenue turned over to DEOs for onward transfer to the MoE. By contrast, by law, primary education is free of such fees. The purpose of the fees was to allow the government to purchase necessary items such as instructional materials, mattresses, and food for daily lunch provision; in practice, however, schools found it impossible to collect even close to the full amount, and where fees were more stringently imposed, many children were never enrolled, or dropped out due to the cost. When schools relaxed the fee policy, children returned to school, which strongly indicates that cost is a significant issue at this level of schooling. It was reported that whatever amount was collected now remains with the schools and is intended for instructional supplies; although no school was found to have more than chalk and a blackboard. Some schools also use the funds to hire teachers unofficially on lower salaries to supervise pre-primary classes.[6]

2.1.1 Overage enrolment

A high proportion of students in the Liberia education system are overage: around 40% are 3–6 years older than the official appropriate age for their grade (EMIS 2015–16). Age ranges in classrooms are broad; no age group makes up more than 20% of enrolment in any given grade. For ECE, the problem is compounded: nearly 50% of students enrolled in ECE programmes are aged 6–11, and 75% of ECE students are overage for their level (2015–16 School Census). Overage enrolment is a key pathway to exclusion because overage children are less likely to: attend school regularly; attend school on time (because of work and household chores); participate in learning activities; achieve literacy; yet more likely to face academic, social, and disciplinary challenges, thus liable to drop out of school (Ministry of Education - Republic of Liberia, 2016). Furthermore, overage children do not benefit from having ECE education at an appropriate stage in their development and starting school late results in significant inefficiencies in the system.

No study to date explores the issue in as much depth as the current report, and we explore the probable causes of this long-standing issue.

2.3.2 Map of the ECE System

The diagram below illustrates the key actors in the ECE system in Liberia and the relationships between them. The following sections describe each relationship.

---

[6] This information was gathered through key informant interviews (KIIs), including with the Assistant Minister for ECE, County Education Officers (CEOs), DEOs, and principals of schools

Figure 6: **A map of the ECE system in Liberia**
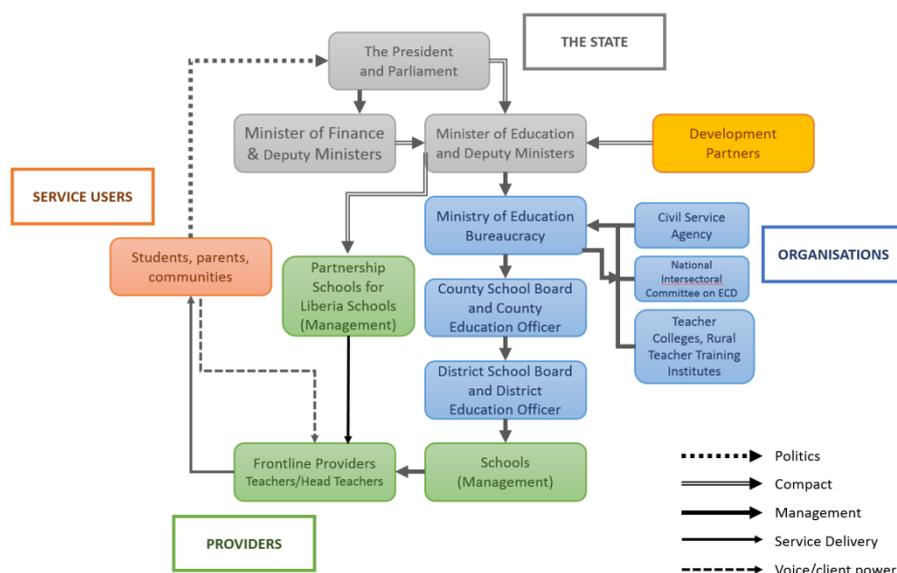
2.3.2.1 Compact relationships

Compact relationships are agreements (not always legally enforceable) that connect politicians or policymakers (i.e. the highest non-elected officials) and agencies (i.e. implementing agencies such as the ministry bureaucracy or school management boards). Crucially, the difference between policymakers and agencies is the fact that the former have a higher degree of power to act on behalf of the 'state'.

The key representatives of the state in the Liberian ECE system are the president and members of Parliament, the Minister of Education and Deputy Ministers in the MOE, and the Minister of Finance and Deputy Ministers in the MoF. Donors, (although not explicitly acknowledged in Pritchett (2015)), are important stakeholders with an interest in ECE policymaking in Liberia. Note that compact relationships can also occur between politicians and bureaucracies, and even between schools.

The president appoints the Ministers and Deputy Ministers with the consent of the Senate. The Minister of Education is the highest-ranking official deciding on education policy, but the strategic direction is set by the president and members of Parliament, and the budget of the MoE is allocated by the Minister of Finance on behalf of the president.

Moreover, non-governmental development partners play a significant role in the education sector: external resources account for between 30% - 50% of expenditure on education between 2011/12 and 2013/14 (MoE, 2016). Liberian Education Advancement programme (LEAP) is a public–private partnership where the government allocates existing primary schools to private operators to manage whilst continuing to pay teacher salaries. The MoE sets the vision for LEAP and negotiates directly with development partners regarding required the budget.

2.3.2.2 Managerial relationships

The Minister of Education sets policy and relies on the the MoE to implement it. Three divisions within the ministry are important in understanding the ECE bureaucracy (Education Reform Act (ERA), 2011). The ECE Bureau, established in 2011, is led by an Assistant Minister who reports to the Deputy Minister for Instruction (DMI). The responsibilities of the bureau are new and evolving, including within the development of the curriculum, the establishment of teacher training programmes, and ECE financing and oversight. The Center for Curriculum Development and Research (ERA Section 3.5.2), also reporting to the DMI, is tasked with 'developing a National Curriculum for all levels of schools and the educational

strata of Liberia', including ECE, and with 'assisting in the development of curricula for all teacher education programmes'. The Bureau for Teacher Education is tasked with 'developing, designing, and executing all policies, guidelines, plans, and programmes of the pre- and in-service training of teachers for all levels of education under the jurisdiction of the Ministry' (ERA Section 3.3.8).

The National Inter-Sectoral Committee on ECD is a key committee for ECD policymaking. It was established 'to enable the Government to discuss and decide ECD related issues at the Government level'. The committee is comprised of representatives from MoE (as chair) and MoF, and representatives from the Ministries of Health and Social Welfare, Gender and Development, Justice, and Internal Affairs.

The Civil Service Agency (CSA) is the central government agency responsible for managing the civil service, and is soley accountable for paying teachers' salaries. It is further accountable for improving human resources, service delivery, effectiveness, and efficiency of the service, which entails planning human capacity needs, recruitment and selection, training and development, performance management, and the career development of civil servants. Additionally, the CSA provides policy advice to the Government of Liberia in key areas of the civil service, including organisation, staffing, pay and benefits, pension, conditions of service, and human resources development. The relationship between MoE bureaucracy and the CSA is crucial for the ministry's effective management of teachers.

Rural teacher training institutes, colleges, and universities are responsible for rolling out ECE certification and training for teachers according to the most recent Education Sector Plan. There are three rural teacher training institutes located at Kakata, Webbo, and Zorzor. These institutes offer certificate programmes comprised of a six-week site-based training (during the school holiday) followed by eight months of field-based training where teachers meet once a month for classes and mentoring on a Saturday (Ministry of Education - Republic of Liberia, 2016).

County School Boards (CSBs) are appointed by the Minister to facilitate, monitor, and oversee the operation of all schools in the local county school system in accordance with ministry policy. CSBs also employ personnel for the system and prepare and submit the budget and annual report of the operations of the schools to the MoE. In practice, the terms of the board members appointed in 2015 expired, and many CSBs do not appear to be operating at the capacity envisioned by the Act (MoE, 2016).

Each CSB contracts a CEO, who is responsible for the management of the daily operations of the school system. CSBs also oversee District School Boards, who share the same responsibilities at a district (rather than county) level, appoint DEOs and supervise all schools.

Finally, the school principal is personally responsible for the oversight of teachers and in supporting staff. This includes providing teacher annual performance reviews, supporting staff professional development, and helping teachers address issues in the classroom.

2.3.2.3 Voice and client power relationships

The framework identifies parents, students, and communities as the key stakeholders engaged in a voice/client power relationship with frontline providers. However, particularly in the case of ECE-age children, parents act on their children's behalf.

Fees are commonly charged at the ECE level. Recent policies have permitted public ECE centres to charge a fee of 3,500 Liberian dollars per semester (approximately US $41) to cover costs. In theory, the ability to withdraw payment and switch schools should allow parents to hold schools directly accountable rather than needing to exert pressure through a political relationship. Parents also have the option to complain to school management and to seek school improvement through the voice relationship.

2.3.2.4 Political relationships

Elections in Liberia occur solely at the national level. The head of state, the President of Liberia, is elected to a six-year term in a two-round system. The legislature has two elected chambers—the House of Representatives and the Senate.

Ellen John Sirleaf served as President from 2006 to 2018. In 2007, she issued an Executive Order making education free and compulsory for all elementary school aged children.[7] In 2013, she contributed to raising awareness about the importance of ECE.[8] In 2016–17, the LEAP initiative[9] drew significant attention (and additional funds) to the education sector in Liberia.[10]

General elections were held in Liberia on 10 October 2017 to elect the president and House of Representatives. George Weah was subsequently elected as President.

---

[7] https://answersafrica.com/everything-you-must-know-about-liberias-iron-lady-ellen-johnson-sirleaf.html.

[8] https://www.opensocietyfoundations.org/voices/president-johnson-sirleaf-backs-early-childhood-development-liberia.

[9] https://www.economist.com/news/middle-east-and-africa/21717379-war-scorched-state-where-almost-nothing-works-tries-charter-schools-liberias.

[10] https://www.economist.com/news/middle-east-and-africa/21717379-war-scorched-state-where-almost-nothing-works-tries-charter-schools-liberias.

3   Methodology

3.1   Sampling frame and EMIS spot check

The MoE of Liberia manages the sampling frame for the proposed sampling design, which based on EMIS, is centred around the annual nationwide school census. In recent years, the MoE has endeavoured to capture within the census those schools which are not officially registered with the ministry. Currently available EMIS data is based on the school census of 2015–16. Data from the school census of 2017 was being processed, however, the most recent data was not available in time for the sampling to be based on the 2017 EMIS revision.

The EMIS database forms a comprehensive list of all schools in Liberia, with a number of characteristics monitored and updated annually. According to official sources, the coverage of the school census and EMIS is of high quality. The target of this research is at all organisations providing ECE, and it is expected that the vast majority of the schools would be included in EMIS, thus available for selection.

ECE is also provided by an increasing number of non-state centres, either community-based (i.e. run by churches or community-based organisations) or private (i.e. run by companies or entrepreneurs), and the project team expected that these types of establishment were more prone to being missed during the school census. To verify the comprehensiveness of EMIS as a sampling frame for this survey, spot checks of school listings were performed in four clusters to assess the achieved coverage of the ECE centres within EMIS. If the spot checks revealed large under-coverage problems of EMIS data, we would have recommended creating a new area sampling frame based on administrative units. Operationally, this would have required a full listing of schools to be conducted at the cluster level in all primary sampling units selected.

Fortunately, the spot checks did not reveal major or systemic gaps in EMIS data. We found a difference of 37 schools between EMIS data and the schools identified in our spot check, and at least 18 of these were due to the fact that they were established after the census. Therefore, our spot check suggests that 19 out of 107 schools (17% of the schools in the selected countries) are not captured by EMIS data.

Given the absence of systematic bias by school type, the project team decided to use EMIS as a sampling frame for the survey. However, we also included community schools identified in the school mapping (and not EMIS) as a separate stratum in our sample design. This procedure is explained in the next section, but the objective was to allow for an understanding regarding these missing schools.

Further details on the results of the spot check are provided in Section C.3 of Annex C.

3.2   Sampling strategy

We sampled 50 schools in Bomi, Grand Kru, Maryland, Montserrado, Nimba, Rivercess, River Gee, and Sinoe. Except Bomi and Montserrado, the counties in the sample are among the most deprived in Liberia and form the focus of the Global Partnership for Education (GPE) grant. Our final sample consisted of 490 student assessments, 478 parent interviews (of sampled children), 50 principal interviews, 50 teacher interviews, 50 classroom observations using a structured tool, and 50 classroom observations using an unstructured classroom observation tool. It is therefore not a representative sample, and the findings in this report should be interpreted with that in mind.

3.2.1 Sampling schools

The schools were selected from the sampling frame according to probability proportional to size (PPS) and implicitly stratified across the following categories : county; district; urban/rural location; school types: private, public, community, and faith-based; newly identified community schools from Montserrado County; and newly identified community schools from Nimba County. We adopted an implicit stratification sampling strategy for the county; district; urban/rural location; and school type. For the remaining strata we employed an explicit stratification as follows:

- three schools from EMIS in Montserrado;

- three schools from EMIS in Nimba;

- two additional community schools from listing in Montserrado; and,

- two additional community schools from listing in Nimba.

3.2.2 Sampling survey respondents

At each school, the principal was interviewed. A teacher in each sampled school was randomly sampled from a list of all the teachers who taught pre-primary classes (Nursery I, Nursery II, Kindergarten I, Kindergarten II). The teacher's classroom was observed by two enumerators—one trained to administer a timed, minute-by-minute classroom observation tool, and the second trained to administer a qualitative classroom observation tool designed by the global MELQO team. Ten pupils were selected at random for assessment from the teacher's classroom, and their parents were visited or called for interviews based on contact information obtained from the principal.

More detail on our sampling approach can be found in Sampling.

3.3 Methods by component

Each component in our analysis is underpinned by a set of analytical methods. For the components for which data is analysed in this report, the analytical methods are detailed below.

3.3.1 Component 1: MELQO

3.3.1.1 Assessing levels of learning achievement

To assess levels of learning achievement amongst preschool children, the research team adapted the MELQO direct child assessment instrument, called MODEL (short for measuring child development and learning). The MELQO was developed in partnership between the World Bank, UNICEF, and Brookings, and is derived from widely validated international measures of early learning outcomes.

Emphasis was placed on assessing learning achievement in the domains that relate specifically to primary school readiness: literacy and language, mathematics, executive function, and socioemotional skills. The process of defining the constructs and contextualising the instruments was guided by the following documents:

- A review of available curriculum documents (e.g. the national ECE curriculum textbook, the P1–P3 curriculum, and teacher planners);

- A review of existing national tools (e.g. the Textbook and School Utilisation Questionnaire, EGRA/EGMA, and the ECD Programme Students Assessment Tool);

- A review of classroom recordings of early learning environments and interactions between children and their teachers, as well as photographs and web-based materials about schooling in Liberia;

- Visits to schools to pre-test the instruments in July 2017 and September 2017; and,

- discussions with key stakeholders in Liberia's ECE sector.

The assessments were conducted in English, as it is the official language of instruction. We allowed enumerators to translate instructions for the mathematics assessments into whatever language the children felt most comfortable using.

Before analysis, the research team assessed the reliability and validity of the data. The purpose of this component of the analysis was to identify test items that are not as effective in measuring learning outcomes, and to improve the scale for the full sample survey. This analysis has been excluded from this chapter for the sake of brevity and is covered in depth in a separate methodological note.

The data obtained from the student assessment was analysed by the research team whereas the data on children's socioemotional wellbeing was analysed by the World Bank's MELQO team. More details about the fit of each model is available in separate technical documents.

The following constructs were approved by the government in July 2017.

3.3.1.2 Literacy

The MoE defines literacy as 'the knowledge and skills that lay the foundation for reading and writing.' The literacy test, therefore, uses 20 items to cover a range of literacy skills across pre-literacy, emerging literacy, and basic literacy levels: letter recognition, letter sounds, expressive vocabulary, listening comprehension, copying, reading, and writing familiar words.

3.3.1.3 Mathematics

Early mathematics skills are defined as 'the ability to think using mathematical concepts' (Nunes and Bryant, 1996), 'which provide powerful tools for describing and understanding the world around us' (Butterworth, 1996; NRC, 2009). The mathematics test also uses 20 items to test various mathematics skills across the pre-emerging, and basic mathematics levels: number recognition, verbal counting, number comparison, addition and subtraction, simple word problems, set production, shape knowledge, measurement vocabulary, spatial vocabulary, and spatial awareness.

3.3.1.4 Executive function

Executive function refers to cognitive skills (such as working memory) that supports children's ability to learn, and coordinates goal-directed behaviour and activities. Two items are used to assess executive function: forwards digit span and backwards digit span. In forwards digit span, children are asked to repeat a sequence of numbers spoken by the examiner whereas in backwards digit span, children are asked to repeat the numbers in reverse order.

3.3.1.5 Socio-emotional development

The Liberian ECD Curriculum Textbook (Ministry of Education - Republic of Liberia, 2014) states that 'Social & Emotional Development refers to the skills necessary to foster secure attachment with adults, maintain healthy relationships, regulate one's behaviour and emotions, and develop a healthy concept of personal identity.' Socioemotional skills consist of several interrelated elements of children's functioning, including self-regulation, social cognition (or understanding) and its impact on prosocial behaviour, social competence, emotional health and wellbeing, and approaches to learning. At its core, socioemotional development is the process of learning what is culturally and socially appropriate, and then behaving in a manner that allows one to develop strong relationships with others and handle emotions in positive ways.

To measure children's socioemotional development, the team administered the same set of questions about children's behaviours to parents and teachers with a total of 19 items used to assess children's social and emotional wellbeing. Whereas literacy, mathematics and

executive function were assessed directly, information on socioemotional wellbeing was collected indirectly by asking teachers and parents questions about children's attitudes and behaviours. The data on children's socioemotional wellbeing were analysed by the World Bank's MELQO team.

3.3.1.6   Measuring classroom quality

To systematically understand the pedagogic approaches and knowledge of ECE teachers in Liberia, the research team implemented a tailored classroom observation instrument, henceforth referred to as the structured classroom observation instrument and an unstructured, more qualitative instrument developed by the World Bank's MELQO team— Measuring Early Learning Environment (MELE).

3.3.1.7   The structured classroom observation instrument

This instrument is unique as it combines (i) a qualitative approach based on themes in the World Bank's MELE questionnaire, (ii) the early learning quality constructs from the national ECE framework in Liberia, and (iii) the quantitative approach of the Stallings' method of repeated interval observations within the classroom. The instrument allowed researchers to collect information on a range of themes, including teacher activity, pupil activity, class structure and age profile, language(s) of instruction, and the use and presence of materials. For each theme, the instrument contained a pre-populated list of possible response categories to improve the reliability of the data collected by reducing the amount of real-time judging required by the classroom observers ('enumerators'). This methodology allowed the research team to systematically collect detailed, relevant, and robust information on ECE classroom activity in Liberia across the sampled schools. This data has been analysed and is discussed in the following sections.

3.3.1.8   The MELE instrument

Within each selected ECE classroom, a trained enumerator administered the full MELE classroom observation instrument, which seeks to collect nuanced information regarding teaching and learning activities, and the quality of such, in the classroom. The MELE covers additional themes of free choice and play, the nature of pupil-teacher interactions, and the types of discipline strategies used by the teacher during the observation, and requires enumerators to rank each theme or activity on a scale of 1–4, with 1 being the lowest quality ranking. Inter-rater reliability was tested through a four-day training workshop using videos of classrooms, as well as in-school piloting, to ensure that the same criteria was consistently applied.

The main objective of administering the MELE was to pilot an instrument with the potential that it could be used globally. This pilot exercise highlights the need for further localisation of the MELE before it can be used in Liberia. Some of the findings from the MELE will be discussed in subsequent sections of this report.

3.3.1.9   The household asset index

The household asset index is an estimate of socioeconomic background. At the end of the parent interview, each parent was asked a series of questions about their assets (e.g. radio, television, mobile phones, livestock) and living conditions (e.g. access to electricity and drinking water). The questions in the household asset index were adapted from the Liberia Demographic and Health Survey 2013. We used principal component analysis (Kolenikov, 2009) to determine the contribution of each asset to socioeconomic background.[11] An index was constructed using the resulting coefficients, which ranked households by wealth. Using the index constructed, we divided the data into socioeconomic quintiles.

---

[11] Technically, Principal Component Analysis identifies the eigenvectors corresponding the first three eigenvalues of the correlation matrix. We used the first eigenvalue, which explained the majority of the variation in the data, and assumed that it corresponds to wealth.

3.3.2   Component 2: Costing alternative models of ECE provision

The approach to costing pre-primary schooling in Liberia involves two main elements: first, the costs involved in providing pre-primary schooling currently, as found by our research teams' empirical work; and second, a normative costing for better-equipped pre-primary schools with trained teachers. Full details of the costing methodology can be found in Annex F.

3.3.2.1   Empirical costing

For our empirical costing, we collected detailed information from the principal on all expenditures at the school, and all monetary or in-kind support to schools (including salaries paid by the government to civil service teachers) to build a picture of funding and expenditure. We also gathered full information on all expenditures from parents, whether spent in or outside of the school.

3.3.2.2   Normative costing

Irrespective of the ownership status, most schools were inadequately resourced and there was little variation observed in terms of teaching and learning, or in terms of the physical environment and materials available. For this reason, we provide a normative costing as well as the current actual (empirical) costing, so the budgetary implications of scaling up a better quality of learning environment with trained teachers could be considered and, in due course, planned and budgeted for.

3.3.2.3   Limitations in costing ECE in Liberia

The primary aim of our costing exercise is to arrive at unit costs at schools, rather than taking into account organisation-level costs. In this version of the report, therefore, salaries of DEOs, CEOs, and staff in the ECE Bureau are not included. In addition, no home-based ECE provision has been costed, and certain cost factors, such as non-government salary levels, need to be discussed with local stakeholders,.

3.3.3   Component 3: Investigating alignment within the ECE system

We contextualised the data gathered through MELQO and MELE through structured interviews with parents, teachers, principals, and semi-structured interviews government officials. In addition, we conducted in-depth, semi-structured interviews with three principals to understand the functioning of the school in more detail.

Interviews with school staff investigate policy—what is understood regarding official government policy; what the school does in practice; and whether staff have tried to tackle the issue of overage enrolment (and if so, how). Parent interviews investigate the reasons for children being enrolled late; parents' views on schools with many overage children; parents' views on quality ECE; and whether they have taken any action to tackle these issues with schools. Associations with socioeconomic status, school type, and the sex of the child are investigated. Information was gathered on the ages of children enrolled in the sample schools through the principal questionnaire; through the classroom observation exercise; and from parents. The age of first enrolment was recorded in the parent interviews.

3.3.4   Component 4: Working closely with the MoE and other stakeholders

Aside from the strategic considerations involved in thinking and working politically, which were already outlined on page 3 of this report, this approach also involved some methodological choices. These are outlined below.

Based on field visits, and key stakeholder interviews in the inception mission, a large number of questions aimed at providing additional information on the determinants of quality, and overage enrolment, were included in the parent, principal, and teacher questionnaires. Often, the same question was asked of different respondents to get a better sense of

competing perspectives on the same issue. For example, overage enrolment information was gathered by determining the age of children enrolled in the sample schools through classroom observation exercises, and from parents. The age of first enrolment was recorded in the parent interviews. Interviews with school staff investigate policy—what is understood regarding official government policy; what the school does in practice; and, whether staff have tried to tackle the issue of overage enrolment and if so, how. Associations with socioeconomic status, school type, and the sex of the child are investigated.

A comprehensive overview of the topics explored is included in Annex D.

4 Quality of ECE in Liberia

In this chapter, we present our findings on the quality of ECE in Liberia.

Figure 7: **Framework of findings on ECE quality**
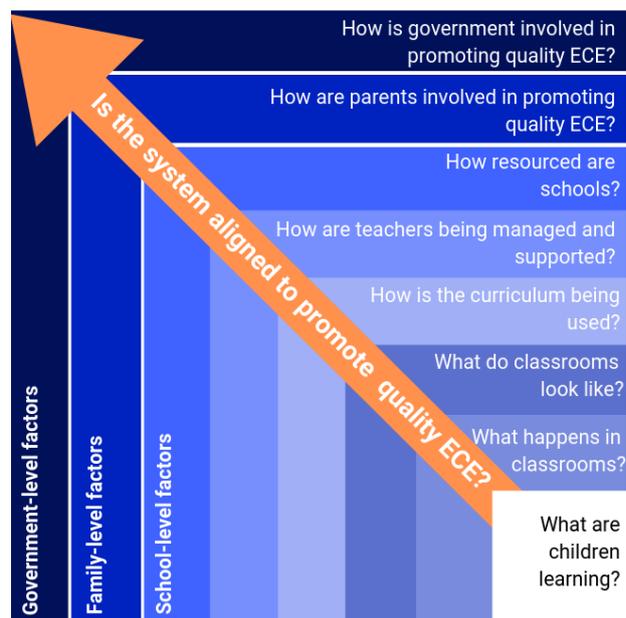
We follow the structure represented in Figure 7 We start with an analysis of children's educational attainment, and move 'outwards' through the activities that support it – the nature of activities and resources in the classroom, the training of the teachers, the management of the school, the resourcing of the school, the involvement of the parents, and the views of government.

Finally, we ask of the system as a whole: are the targets, information, resources, and consequences aligned (within and across relationships of accountability) to promote quality ECE?

Box 1: **Key findings regarding quality**

1. Learning outcomes were not correlated with family income or school type, and only marginally by gender. Overall, learning levels were concerning given that most children were above preschool age.

2. Only 17% of teachers reported using a curriculum. Children and teachers were predominately engaged in rote-learning activities. Only 17% of teaching time was child-centred and no storybook reading or free play was observed. Rote-learning accounted for 67% of teaching time. Only 9% of teachers were in possession of the national ECE curriculum.

3. Most ECE teachers did not have any qualification in ECE. In government, community, and private schools, this was true of 54%, 88% and 91% of ECE teachers, respectively. Overall, 63% of principals had qualifications: 80% in public schools, 58% in community schools and 55% in private schools.

4. Approximately half of principals provided substantial support to teachers. Principals had limited ability to sanction underperformance. 47% of principals overall (and 68% in private schools) reviewed lesson plans once a week and observed at least half of a lesson in the past 6 weeks. Although 49% of principals reported that teacher absenteeism was a problem, 74% of these principals said the only action they had taken to address the problem was to speak to teachers.

5. ECE classrooms do not have sufficient funding to offer a desirable standard of learning. On average, schools spend $25 per pupil per year. Quality ECE is expected to cost between $74 and $124 depending on whether lunch is provided for the pupils.

6. Parents were generally very satisfied with the quality of learning in their preschools, and ~40% engaged with the class teacher. 95% of parents were either 'satisfied' or 'very satisfied'. 41% of parents attended parent-teacher meetings, and 44% met with the teacher to discuss their child's progress.

7. Most parents struggled to afford the fees for ECE. 18% of parents were able to pay their fees in full and on time. 25% of schools sanctioned parents for non-payment by sending their child home for a day, 16% sent the child home for a few days, 39% sent the child home until the fees were paid, and 14% excluded families for non-payment.

8. Parents chose pre-schools based on proximity to their home, quality, and fees. However, most parents considered an average of 1.4 schools and visited an average of 0.6 schools before enrolling their child. The median number of schools parents considered, and the median numbers of schools a parent visited before enrolling a child was 1.

9. The government collects very limited information on ECE indicators. Although data on ECE is collected through the Education Information Management System (EMIS), this is undertaken only once a year. However, there is an intention to develop a system for grading school-quality, overall.

10. Government formally prioritises ECE. However, spending on education is short of the government's target. ECE has been prioritised in the 'Getting the Best in Education' Sector Plan (2017 - 2021), and there is a national ECE policy and curriculum. However, total expenditure on education has varied between 10.6% and 13.5% since 2010, short of the government's target of 20%.

4.1   What are children learning?

This section provides a description of the relative prevalence of various mathematics, executive function, and English literacy competencies, as well as an analysis of the relationship between educational attainment and gender, income, school type, age, and social behaviour.

As discussed in the methodological notes accompanying this report, it was neither the purpose nor within the scope of the study to evaluate students against a benchmark. Rather, the purpose of this research was (i) to assess children's learning outcomes and the contexts which shape it, and (ii) to test how well-suited the World Bank MELQO suite of tools is for measuring ECE learning in the Liberian context. As a next step, we propose using the results from this initial assessment to develop pupil proficiency bands in consultation with national stakeholders, and in line with national ECE standards and expectations, and aligned with national and international standards.

Although most (72%) of children enrolled in ECE were over the age of six, most could only do the easiest assessment tasks on a test aimed at children between three and five years old. They mostly struggled with working memory, followed by numeracy, and then English literacy.

4.1.1   Mathematics

The figure below presents the difficulty estimate of each mathematics item on the same scale as the ability estimate of each student. The map presents the rank ordering of items in terms of difficulty level, and places easiest items and lowest ability pupils at the bottom, and the hardest items along with the highest ability pupils at the top of the scale.

At any point on this map, the population distribution represents pupils who have a 50% chance of answering an item at the same point on the map correctly, and a greater than 50% chance of answering easier items (items below that point) correctly. Therefore, the prevalence of associated skills within the population increases starting from the bottom to the top of the scale.

Figure 8:   **Item map, mathematics test**

Item map: mathematics test
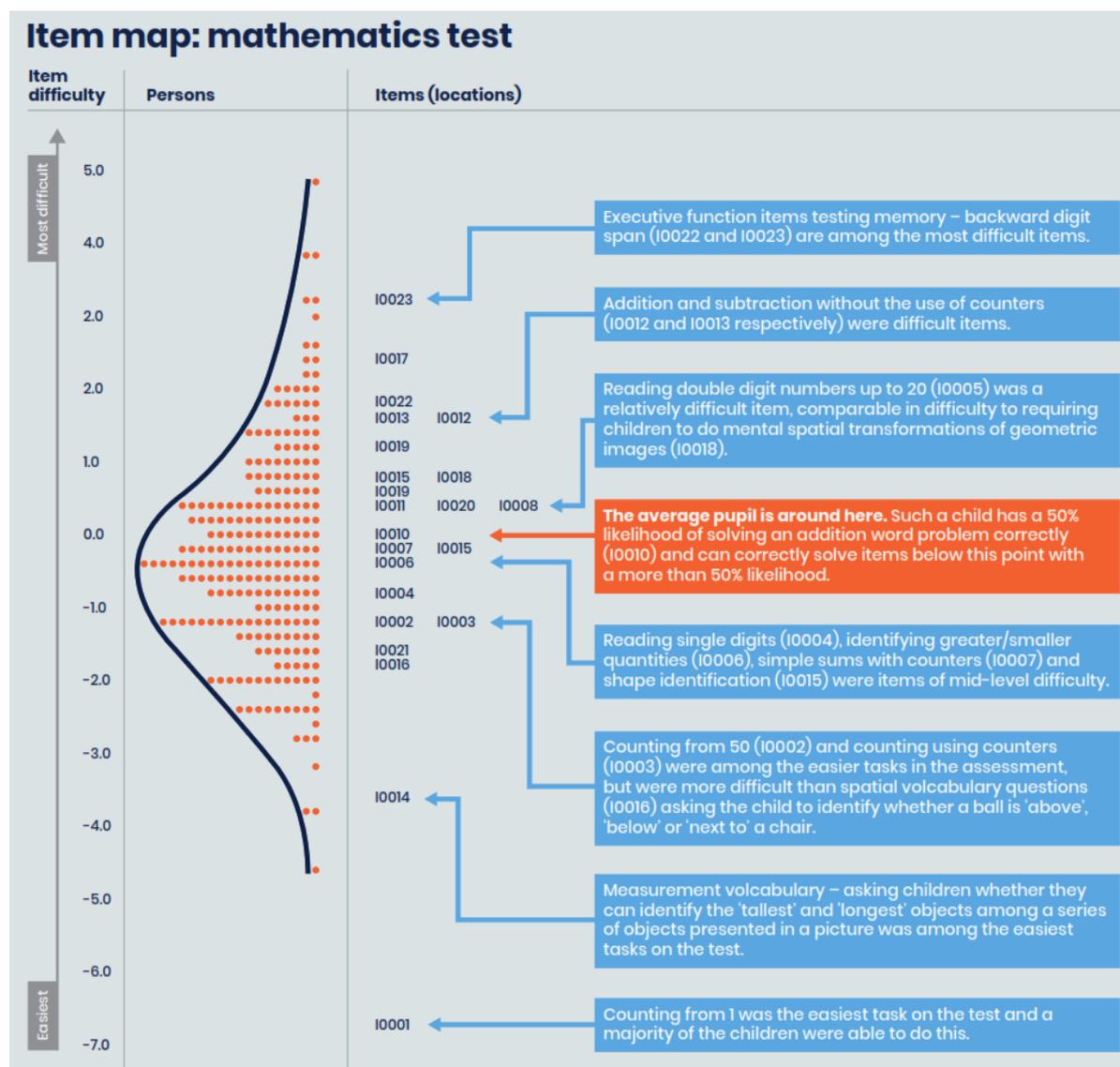
The mathematics item map indicates that, on average, children in ECE classes in Liberia can count upwards from one, apply measurement and spatial vocabulary, count with the help of counters, read single digits, identify shapes, and solve simple addition sums. Higher order skills such as subtraction, reading double-digit numbers, harder addition sums, and spatial transformations were far less prevalent.

4.1.2   Executive function

The pupil assessment included a small selection of items designed to measure 'working memory', an aspect of executive function. The associated data, therefore, present information on pupil working memory and not executive function as a larger domain.

As shown in the figure above, forwards digit span (I0021) is much easier for the children than backwards digit span (I0022 and I0023), which are among the most difficult items on the test. Overall, children found working memory items to be much more challenging than mathematics assessments.

4.1.3   English literacy

The figure below presents the difficulty estimate of each literacy item on the same scale as the ability estimate of each student.

Figure 9:   Item map, English literacy test
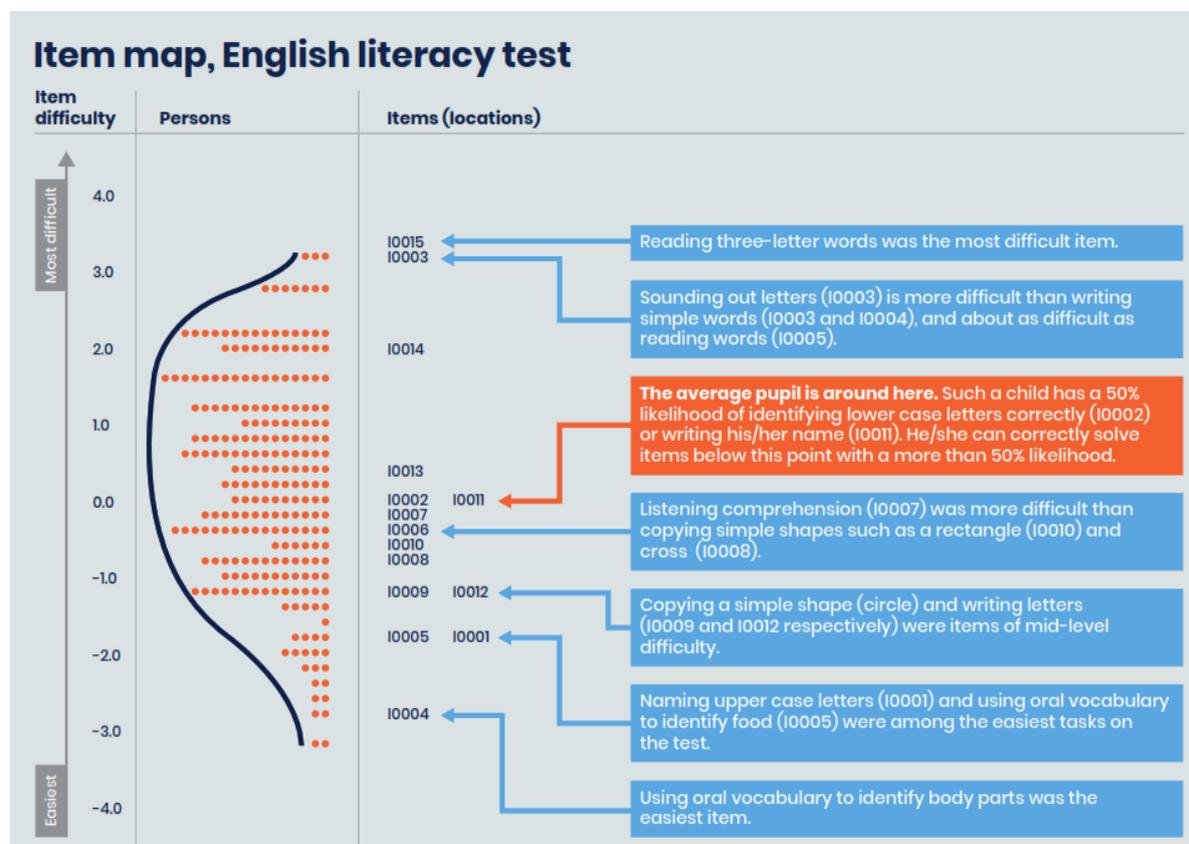
The figure indicates that, on average, children in ECE classes in Liberia can use oral vocabulary, identify upper-case letters, copy simple shapes, identify lower-case letters, and write their name. Conversely, children in ECE classes are largely unable to read or write simple words, or to sound out letters.

4.2   Variations in learning outcomes

This subsection explores variations in learning outcomes by school type, socioeconomic background, student age, gender, and social behaviour.

4.2.1   Learning outcomes and socioeconomic background

We find no statistically significant differences in learning outcomes by wealth quintile. The trend is illustrated in the figure below.

We are not yet able to comment on the extent to which this finding is surprising, given that measurement of early learning outcomes is a nascent field. We can, however, draw on MELQO findings from other contexts to check the extent to which this finding is Liberia-specific, or indicative of a more general trend in early learning outcomes. At the primary level, the evidence appears mixed. On one hand, studies from Nigeria find a strong correlation between socioeconomic background and learning outcomes (EDOREN, 2016a; EDOREN, 2016b). On the other, a study summarising evidence from the Young Lives cohort studies in Ethiopia, India, Peru, and Vietnam finds only a weak correlation between socioeconomic background and mathematical achievement and concludes that child nutritional status and parental education are more important (Himaz, 2009).

Figure 10: Literacy and numeracy scale scores, by socioeconomic background
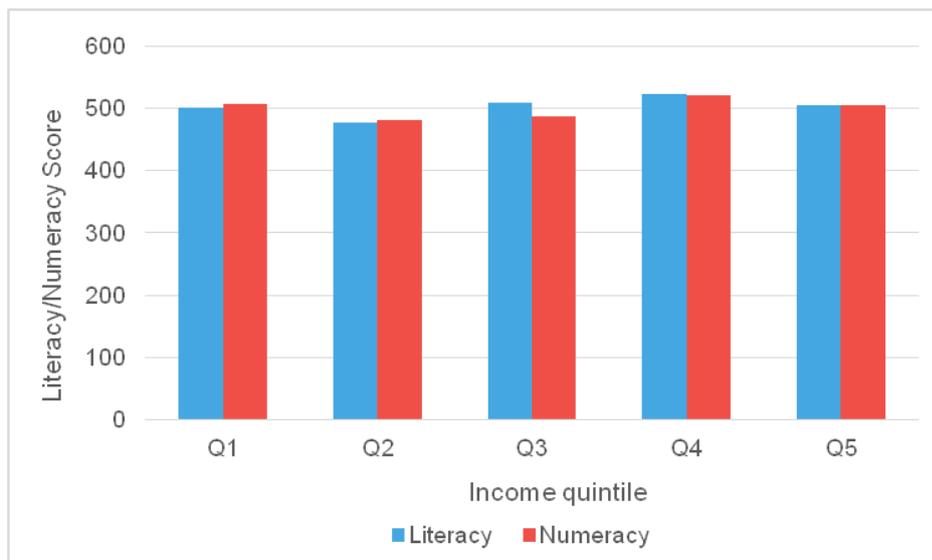
4.2.2 Learning outcomes and school type

Our evidence suggests that literacy and numeracy scores are slightly higher in private schools compared to community schools.[12] This is despite the fact that wealth does not appear to be correlated with learning in our sample (as above). However, no other statistically significant differences between school types were observed. In other words, public schools have similar learning outcomes to private and community schools.

Figure 11: Literacy and numeracy scale scores, by school type
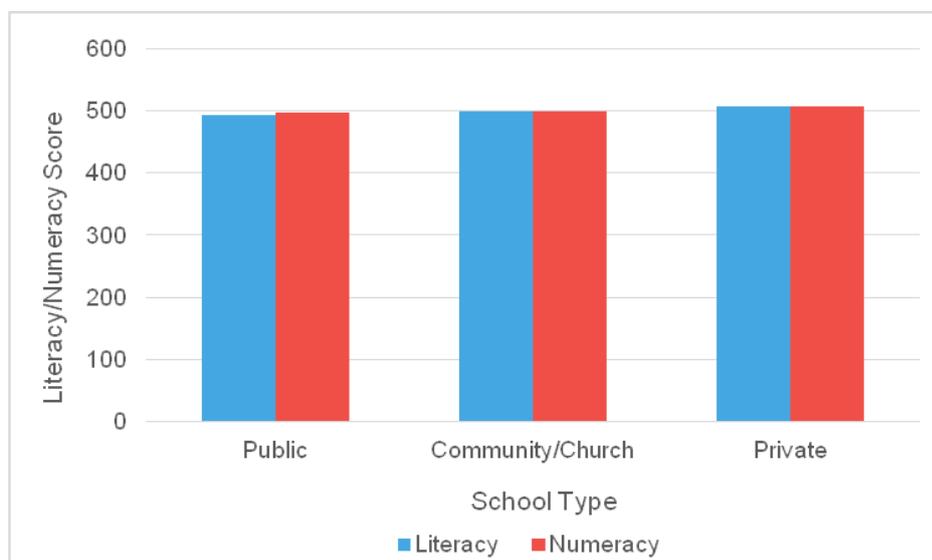
4.2.3 Learning outcomes and gender

As illustrated in the figure below, there is a small difference in performance between boys and girls. The mean level difference in performance is significant for maths[13] but not for literacy. On average, boys outperform girls on the maths items by approximately 16 points (0.15 of a standard deviation).

---

[12] Here and throughout the analysis, community schools and church schools were grouped together, as (after asking principals about who owns the building and who pays teacher salaries) we ascertained that the salaries were paid by the community in the case of both community schools and church schools,. We did not consider the differentiation based on ownership of the school building as sufficient to distinguish between school types.
[13] p-value < 0.05.

Figure 12:   Literacy and numeracy scale scores, by gender
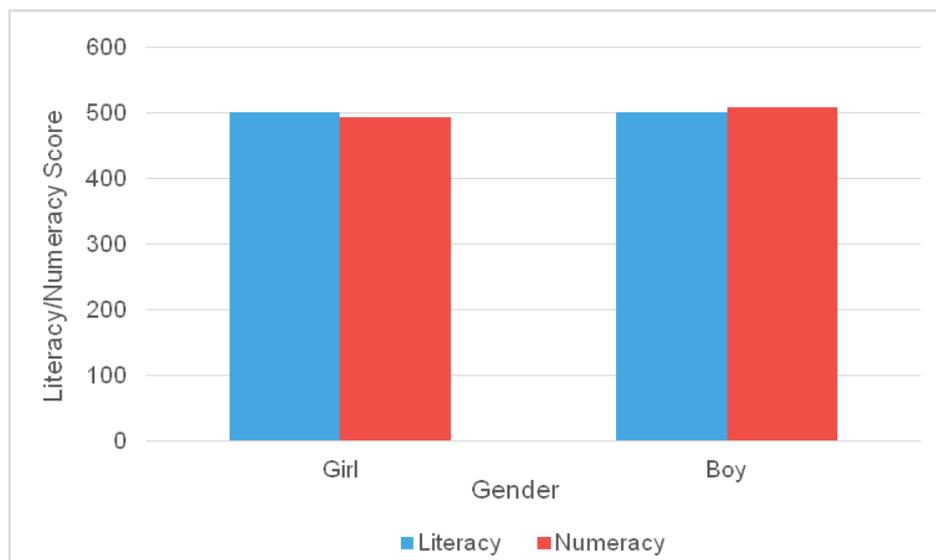
4.2.4   Learning outcomes and student age

The average age of students across the pilot sample is 6.89, which varies slightly by county. Compared to the sample average, a higher average age is reported in River Cess, at 9.84.

The figures below show a wide spread of scores at each age level, particularly among 7 to 10-year-olds. A simple linear regression indicates a positive linear association between the test scores and age.[14] However, when disaggregated, the difference in the mean scores between students aged 7–10 and those who are 11 or older is not statistically significant for literacy or maths. In other words, the older children that are enrolled in ECE are not performing better than their younger peers.

Figure 13:   Range of literacy achievement, scores by age

---
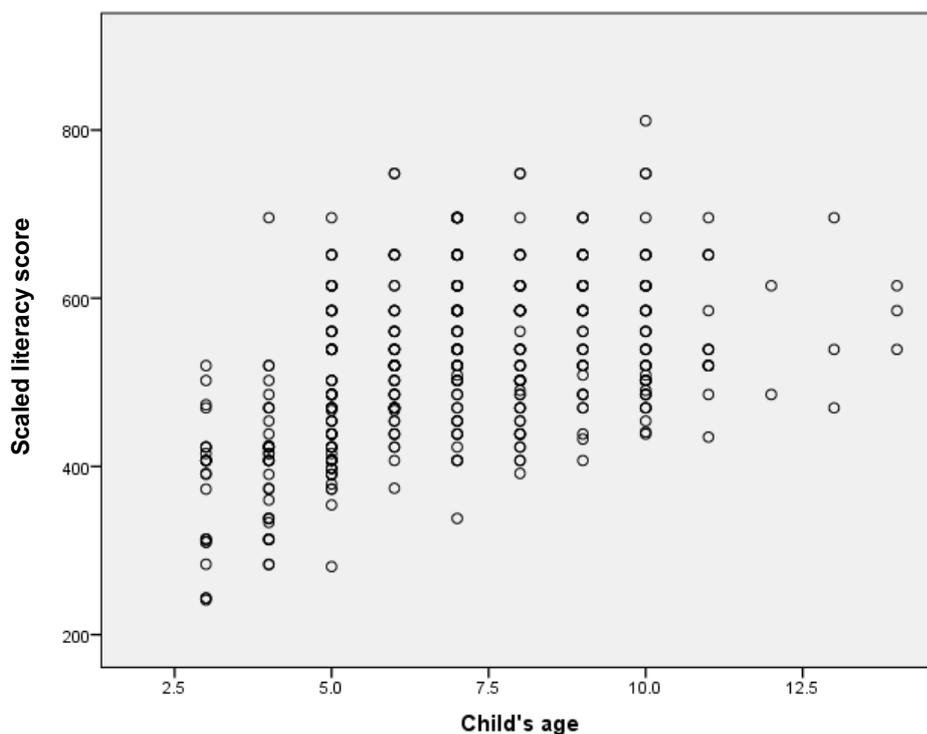
[14] b_m= 20.33, p-value < 0.001; b_{lit} = 19.94, p-value < 0.001.

Figure 14: Range of mathematics achievement scores, by age
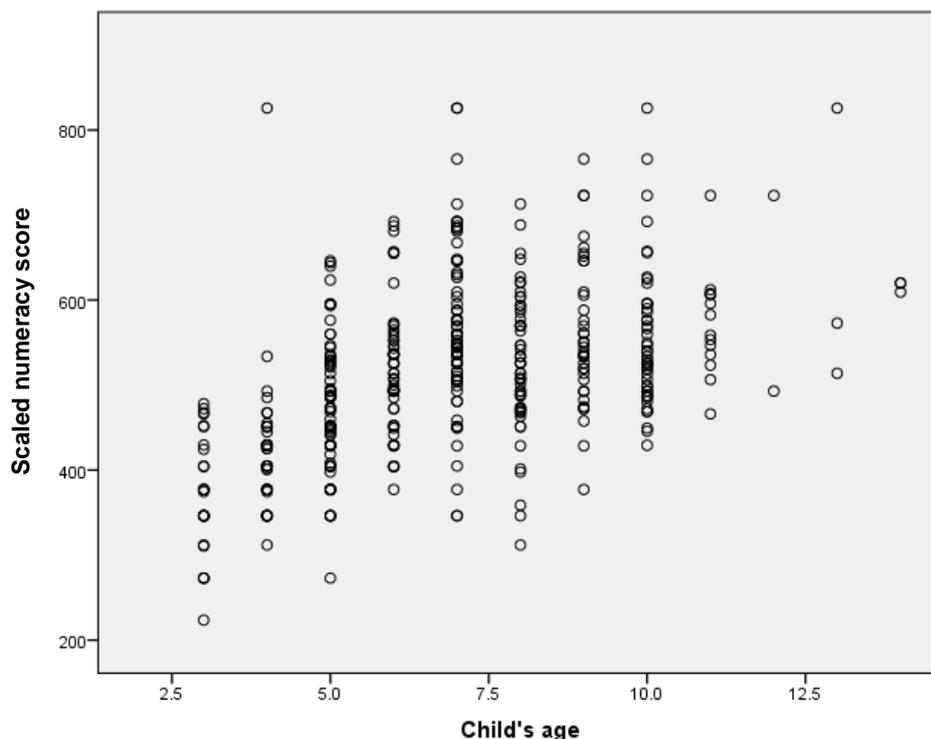
4.2.5 Correlations with social behaviour

Learning outcomes and social behaviour

Our evidence suggests a positive association between socioemotional skills as reported by the teachers and learning outcomes. Children's social skills, problem behaviours, and approaches to learning were positively associated with learning outcomes as measured by a single composite variable including mathematics, language/literacy, and executive functioning skills.[15] The same was not true of the full set of socioemotional skills as reported by parents, which did not correlate with learning outcomes, and showed a small but significant correlation[16] with socioemotional items as reported by teachers, with the exception of problem behaviours.

The lack of agreement between parents' and teachers' reports of social behaviour, as well as the general difficulties of assessing socio-emotional development in young children, should caution any interpretation of the relationship between social behaviour and learning. Two possible hypotheses, which will need to be explored with further research, are that (i) students' academic performance shape their teachers' perceptions of their behaviour or that (ii) teachers provide additional academic support to students they perceive as better behaved.

Teachers' negative interactions and social behaviour

Teachers' negative interactions with children, as measured through negative verbal or physical interactions captured during classroom observation, were significantly and negatively associated with children's teacher-reported socioemotional skills.[17] This could suggest either that children with lower socioemotional skills are more likely to be at the receiving end of negative interactions from teachers, or—alternatively—that teachers' negative interactions contribute to poorer socioemotional skills.

---

[15] r = Pearson correlation; *=p-value<0.01; r = .22* (social skills); r = -.15* (problem behaviours); r = .32* (approaches to learning).

[16] r = Pearson correlation; *=p-value<0.01; r = .14* (social skills); r = .14* (approaches to learning).

[17] X^2 = Pearson's chi-squared test; *=p-value<0.01; $\chi^2(3) = 9.69$*o $\chi^2(3) = 8.80$* $\chi^2(3) = 10.41$*.

Age and social behaviour

We observe a positive association between age and all teacher-reported socioemotional skills.[18] Teachers reported that older children have fewer problem behaviours, stronger approaches to learning, and greater social skills. However, the same was not true of parent reports. We find no significant associations between children's age and the full range of socioemotional outcomes as reported by parents. These findings could suggest that different approaches to instruction might be necessary to cater to the needs of younger children as compared to older children. This is potentially significant, given the prevalence of overage enrolment in Liberia, which is explored at length in Chapter 6.

Health and social behaviour

The analysis of the socioemotional data also suggests that children's health was significantly correlated to their socioemotional skills. Specifically, both parents and teachers reported that children with better health outcomes were also more likely to exhibit stronger approaches to learning[19] and better social skills. Healthier children also exhibited fewer problem behaviours, as measured from teacher reports.[20] However, the same is not true of problem behaviours, according to parent reports.[21]

4.3   What is happening inside the classroom?

The research team measured aspects of the educational environment within classrooms, such as investigating teacher activity, pupil activity, class structure and age profile, language(s) of instruction, and the use and presence of materials.

Traditional models of pedagogy distinguish between three types of knowledge, i.e. curriculum knowledge, pedagogic knowledge, and subject or content knowledge as contributing to teacher classroom practice.[22] The focus of this study is on pedagogic knowledge, better referred to as pedagogic practice. Pedagogic practice refers to an understanding of 'how particular topics, problems, or issues are organised, presented, and adapted to the diverse interests and abilities of learners' and the ways of 'representing and formulating the subject that makes it comprehensible to others'.[23] In short, it is the method and practice of teaching that includes teacher knowledge of the learners, knowledge of how to provide the conditions that enable pupils to learn, and the selection of learning and teaching materials.

In this section, we investigate the quality of classroom environments through examining class structure, attendance, and teaching staff (Section 4.3.1), teacher activity (Section 4.3.2), and pupil activity (Section 4.3.3).

4.3.1   Class structure, attendance, and teaching staff

Across all the schools included in the research, only ECE classes were selected for the observation and pupil assessment, as already discussed. Schools varied greatly in the organisation and structuring of the ECE services being offered. This section presents an

---

[18] r = Pearson correlation; *=p-value<0.01; r = .25* (social skills); r = -.20* (problem behaviours); r = .34* (approaches to learning).

[19] SMD=standardised mean difference; *=p-value<0.01; SMD (social skills, teacher reports)= .66*; SMD (approaches to learning, teacher reports) = .62*; SMD (social skills, parent reports) = .30* SMD (approaches to learning, parent reports)= .27*.

[20] SMD=standardised mean difference; *=p-value<0.01 SMD (problem behaviours, teacher reports)= -.44*.

[21] SMD=standardised mean difference; SMD (problem behaviours, parent reports) = -.14.

[22] Leach (2002) and Cogill (2008). Curriculum knowledge refers to knowledge of what should be taught to a group of students, knowledge of the national syllabus, and understanding of the school and grade-level planning documents. Subject knowledge refers to knowledge of the essential questions of the subject, the networks of concepts, the theoretical framework, and methods of inquiry.

[23] Shulman (1987), pp. 8–9.

overview of the types of ECE classes observed, ranging from the class structure and the subjects observed to enrolment and infrastructure.

Class structure

The national ECE framework stipulates two years of ECE for children aged 3–5 (Section 4.3.4 of NIPECD). In practice, schools offer between one to three years of ECE classes.

In schools with more than one ECE class being offered, the research team randomly selected one class for the observation. The figure below illustrates the different types of ECE classes observed. The 'type' of ECE class is taken as reported by the principal at the school and does not necessarily imply a hierarchical ordering. For example, it is possible that the 'kindergarten' class in a school was teaching at the same level as the 'Nursery I' class in another school.

Figure 15: Types of ECE classes observed, based on principal classification
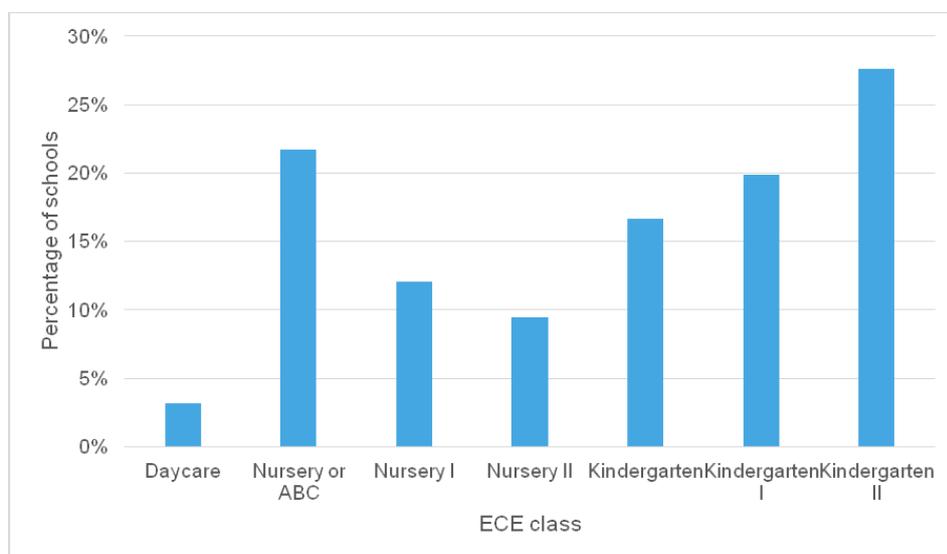
Of the 50 classes observed, only four had multi-grade teaching, such as instances where more than one 'type' of class was being taught in the same room by a single teacher. Among multi-grade classes, Nursery I and Nursery II were most frequently grouped together.

Pupil attendance

Class size was 26.5 pupils on average, ranging from as few as eight pupils to as many as 90. A large share (35%) had a class size of more than 30 pupils, while 30% of the classes had fewer than 15 pupils. This indicates that overcrowding in classrooms, while prevalent, is not a problem all schools are facing.

Disaggregating by school ownership type reveals that public schools are almost twice as likely to be overcrowded compared to private schools, as shown in the figure below. Public schools have a class size that is higher than the average—at 28.8 pupils per class, public schools have greater enrolment than community-owned schools (class size of 26) and private schools (class size of 25.4).

Figure 16: **Proportion of classrooms with fewer than 15 pupils or more than 30 pupils, by school ownership type**
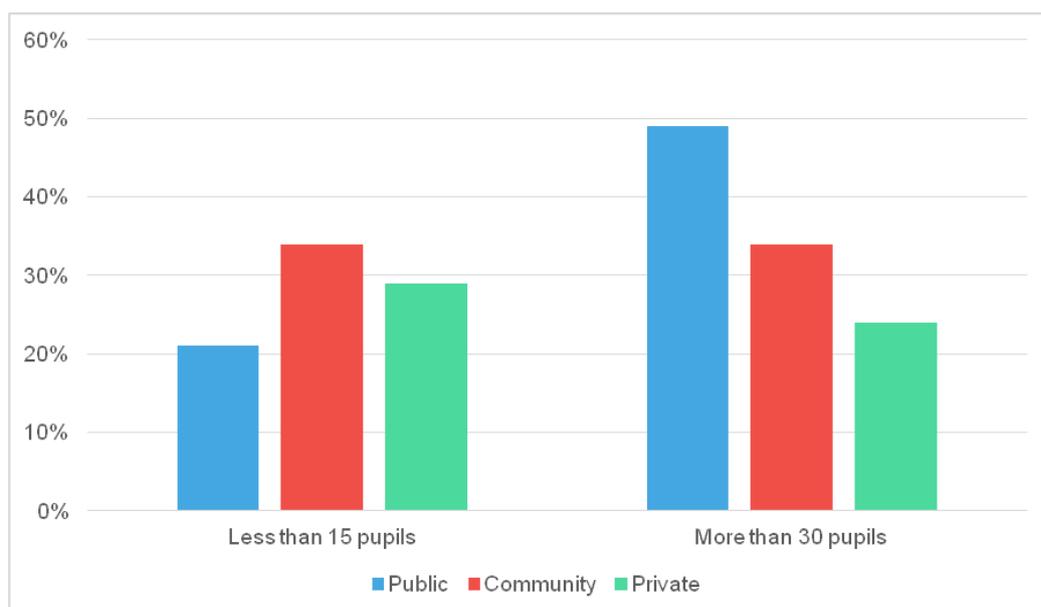
Number of teaching staff

The pupil-teacher ratio (PTR) in class was 25.7, close to the total number of pupils given the limited instances of multiple teachers. As the scope of support provided by the teaching assistant varied across classrooms, the PTR only considers the number of professional teachers. If teaching assistants are included, the average PTR falls slightly to 25.03.

In line with larger class sizes within public schools, the PTR in public schools is also higher than the average PTR, as indicated below.

Figure 17: **Ratio of pupils to teacher, by school ownership type**
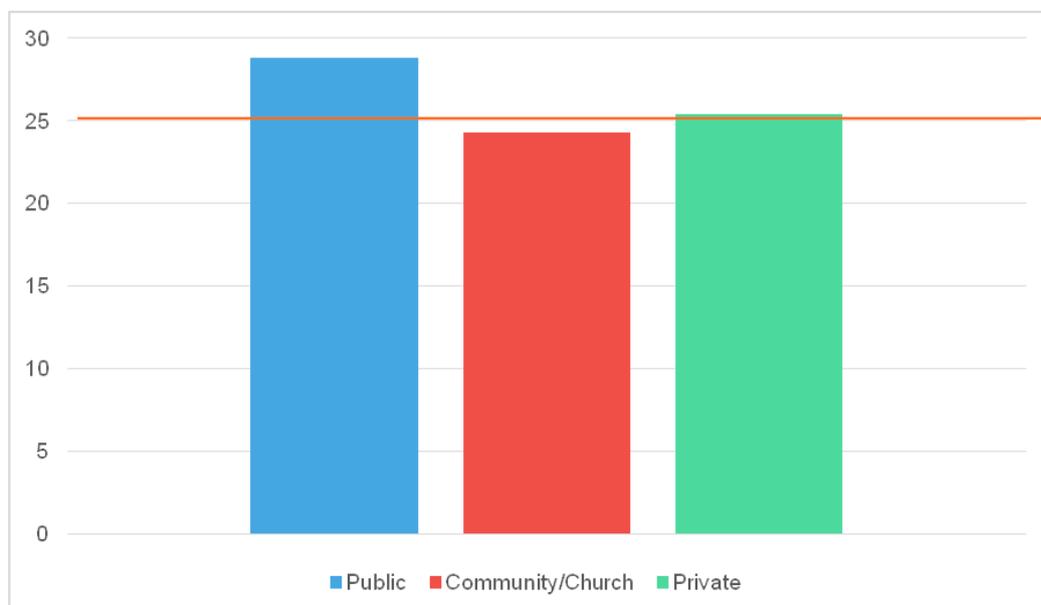
4.3.2 Teacher activity

During the structured observation, enumerators recorded what the teacher was doing every fifth minute against a list of teacher activities. The table below indicates how these activities correspond to both the national ECE framework domains and the classroom quality domains as part of the MELE framework. Teacher activities have been further grouped into four sub-

domains: pupil-centred active teaching, rote-based teaching, classroom management, and off task.

Table 1:   Types of teacher activity

Type of teacher activity	Examples
Pupil-centred, active teaching	• Discussing with children • Asking/answering open questions • Demonstrating with learning materials/objects • Reading stories • Telling stories • Singing or telling rhymes
Rote-based teaching	• Instructing/explaining • Drill and practice • Asking closed questions
Classroom management	• Observing or inspecting • Classroom management • Disciplining
Teacher off task (unproductive)	• Interacting with adults • Out of classroom • No interaction

The national ECE framework highlights the importance of a child-centred classroom, built around two core principles[24] of choice and interactive 'active' teaching and learning:

- Children create their own knowledge from their experiences and interactions with the world around them; and,

- Teachers foster and support children's growth and development best by building on the interests, strengths, and needs of the children.

An understanding of the extent to which teachers use a pupil-centred teaching approach is crucial for improving the delivery of ECE programmes in Liberia, and an important contribution of this study.

Teachers are more likely to use rote-based teaching approaches than pupil-centred approaches, although there is some use of the latter. The figure below indicates that, on average, teachers spent the largest share of observation time (approximately 45%) on rote-based teaching activities, such as instructing or explaining to children, drilling, and asking them closed questions. Classroom management activities account for the second largest share of teacher time (roughly 27 %), whilst pupil-centred teaching approaches, such as discussions, asking open-ended questions, using materials, reading stories, and singing constituted only 14% of total observation time.

---

[24] Liberia ECD Curriculum Textbook, p. 5.

Figure 18: Percentage of lesson time allocated to each teacher activity
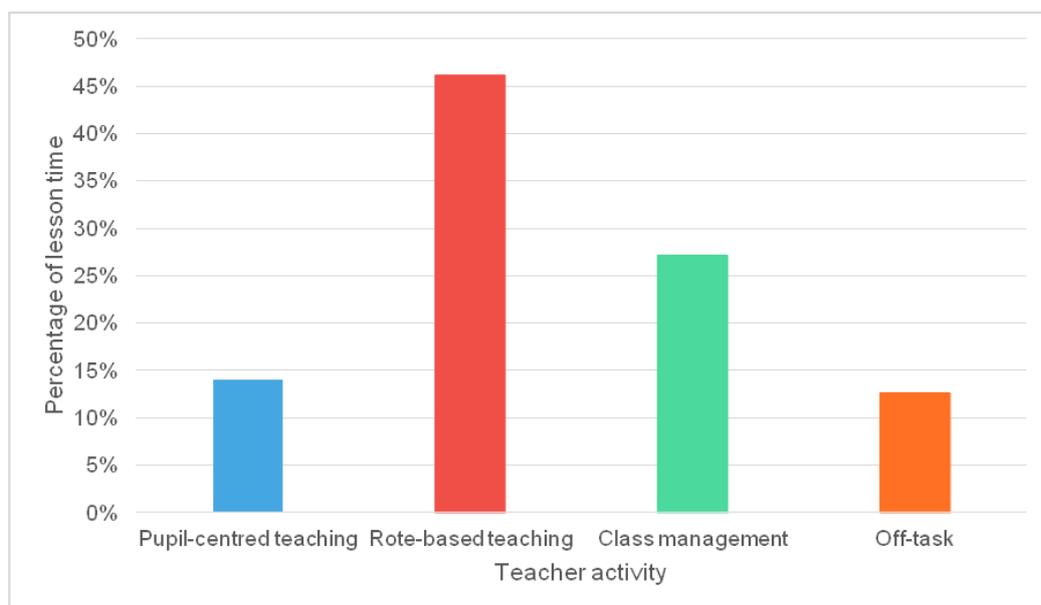
Teachers were observed to be off task (interacting with adults, out of the classroom, or not engaging with children at all) for approximately 13% of the lesson time. Whilst this means that teachers were unproductive for only around eight minutes during the one-hour long observation, it is likely that this time 'off task' measure is an underestimate as the presence of an observer might have influenced teacher behaviour. Nonetheless, if taken at face value, teachers in the lessons observed were teaching for 60% of the time, or about 36 minutes in an hour.

Disaggregating by school ownership type reveals that teachers in public and private schools were quite similar in terms of the share of time allocated to various activities. Conversely, teachers in community schools used a larger share of classroom time on classroom management. Overall, whilst teachers in private schools were teaching for an average of 41 minutes in an hour, teachers in public schools taught for an average of 40 minutes, and teachers in community schools were only observed teaching for 31 minutes (or about half of the observation time).

Figure 19: Percentage of lesson time allocated to each teacher activity, by school ownership type
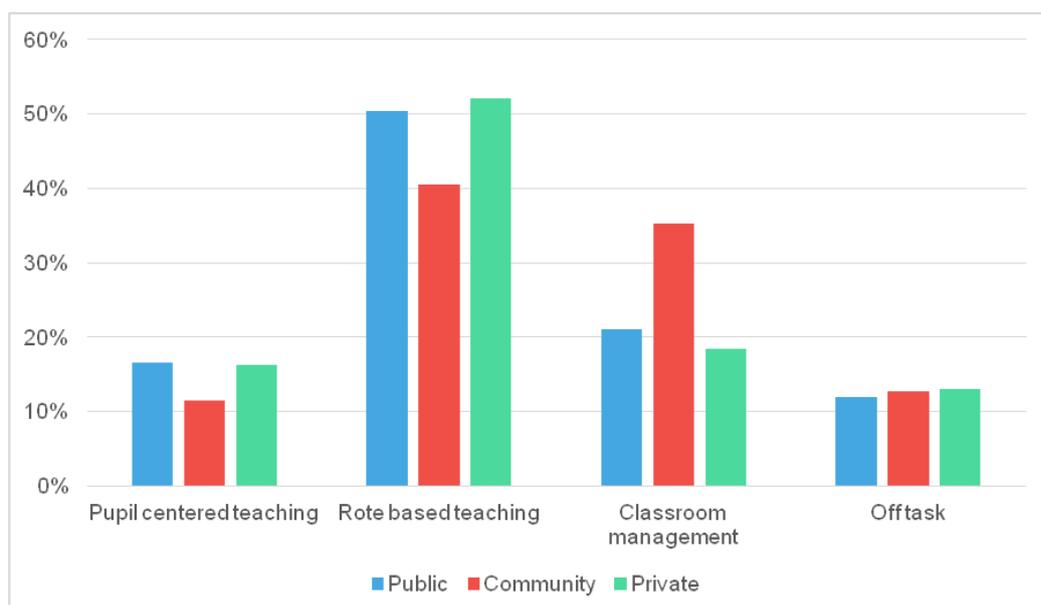
Of the different types of teacher activity falling within each of the four broad categories discussed above, some activities were more prevalent than others. The figure above presents the percentage of classrooms where teachers engaged in each type of teacher activity.

Whilst teachers engaged in some non-rote activities (blue bars in the figure below), the use of most of these approaches was limited. The most common teacher activities were instructing, drilling, and observing pupil work. These activities were observed at least once in approximately 98% of all classes. In contrast, asking or answering open questions, and reading or telling stories, were strategies employed by far fewer teachers. In total, pupil-centred teaching activities were observed at least once in only 70% of all classes, with 50% of all teachers employing only one of these techniques.

Figure 20: Percentage of classrooms where teachers engaged in different forms of activity
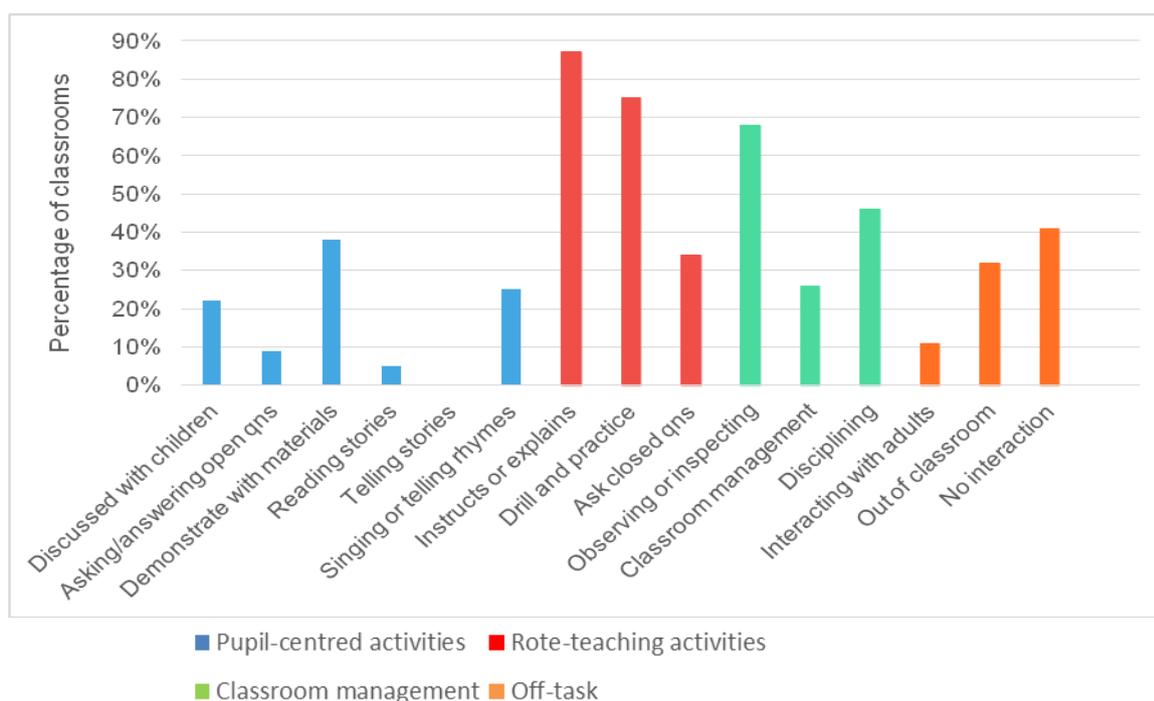
These findings suggest that most teachers are not employing pupil-centric or play-based teaching techniques. The findings of the MELE classroom observation instrument also support the notion that most classroom teaching is based on repetition, with teachers rarely using elements of play-based learning. Play-based learning refers to a process where children are active, involved and learn through exploring and playing with concrete objects to learn more about the target concept, and how it relates to their everyday experiences.

The figure below graphs the average assigned against eight categories of classroom activity. The extremely small share of classrooms receiving a score of 3 or 4 indicates that either these activities were not observed at all, or that, when they were observed, the teacher largely relied on rote-based teaching activities. Free play itself was never observed in any lesson.

Figure 21:   Quality of teaching activities
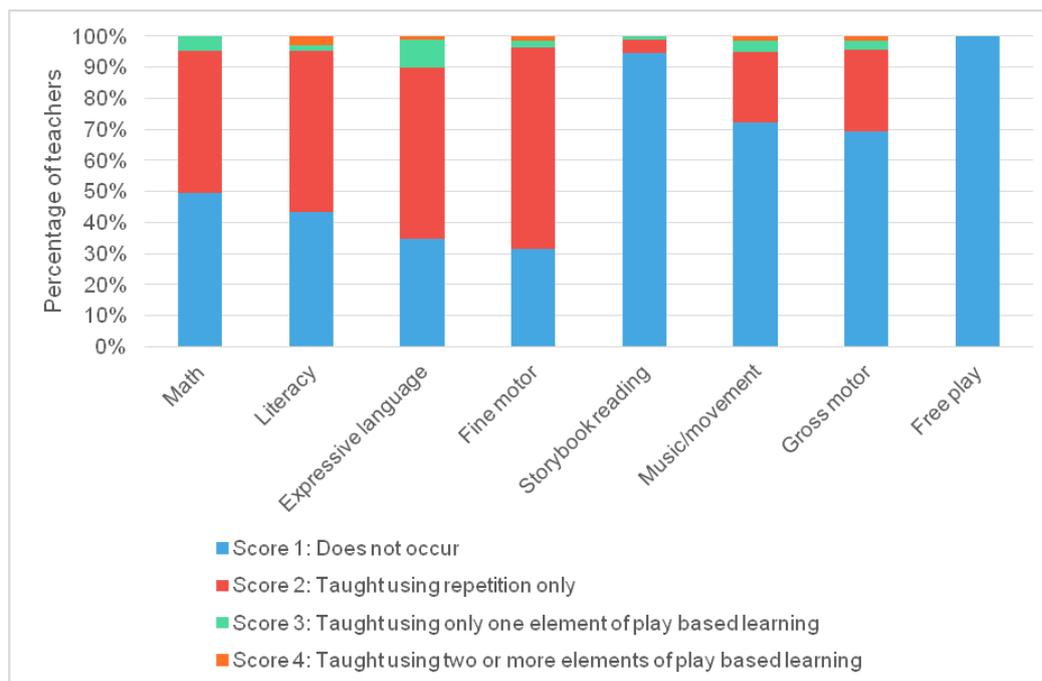
Another indicator of the quality of teaching activities is the extent to which the teacher encourages equal participation of boys and girls within the lesson. In most lessons (87%), the teacher was observed interacting with both genders equally and encouraging all children to participate. In the remaining lessons, the teacher was observed encouraging stereotypic activities or interacting more with one gender.

Teacher language

The Liberia ECD Curriculum Textbook notes that 'programmes need to ensure that children who are dual language learners can demonstrate their abilities, skills, and knowledge in any language, including their home language.' The table below indicates the number of classrooms (or teachers) within each county where a particular language was used. In practice, English was observed being used in every classroom, while the use of Colloquai and Kru was less common. Kru, for example, was used in only one lesson by a single teacher, while the use of Colloquia varied by county.

Table 2:   Number of teachers in each county using Colloquia, English, and Kru

Languages used by the teacher	Bomi	Grand Kru	Maryland	Montserrado	Nimba	River Cess	River Gee	Sinoe
Colloquai	3	2	9	2	4	1	3	3
English	11	2	15	5	5	2	5	5
Kru	0	1	0	0	0	0	0	0
Sample size	11	2	15	5	5	2	5	5

The use of the local language did not obviously vary by the level observed. Colloquai was used in 53% of the nursery classes and 49% of the kindergarten classes. Instances of using multiple languages did not vary by school level. Overall, the use of multiple languages during the lesson was fairly common, and approximately half of all teachers observed used two or more languages during the lesson.

Whilst teachers in public schools were just as likely to be using English during the lesson as teachers in private and community-owned schools, the use of local language was far greater in public schools. 80% of all observed public-school teachers used Colloquai at least once

during the lesson, whilst this was the case for only 40% of the teachers in private or community schools.

Pupil groupings

Pupil groupings refers to how the teacher groups children during the observation. Pupils may be grouped in any (or several) of the following ways during a lesson:

- Whole group: when the entire class was focused on the teacher and conducting the same activity;
- Small group: when three or more children were working together;
- Pairs: when two children were working together; or,
- individual work: when children were working on their own.

Whole group teaching includes instances when the focus is on the teacher and all children are working on the same thing, such as when the teacher is explaining something on the board or dictating to the whole class. Individual work, on the other hand, includes instances where pupils are working alone, such as when composing a piece of writing or copying from the board into their own books.

The figure below graphs the proportion of class time pupils were grouped in one of the four ways discussed above: in the lessons observed, whole group teaching took place for approximately 78% of the total lesson duration, whilst individual work comprised of about 20% of class time. Pupils rarely worked in small groups or pairs.

The red dots in the figure below indicate the share of teachers who employed each of the four pupil grouping options during their lesson. Whilst all the teachers used whole group teaching and about 63% assigned pupils individual work, small groups were used in 8% of the lessons while pair work was used in only 3% (in other words, in only one of the classes observed). In a little over one-third of the lessons observed, only one form of pupil grouping was used throughout the hour of observation.

Figure 22:   Share of lesson time pupils were organised in different groups, and percentage of teachers using each group type
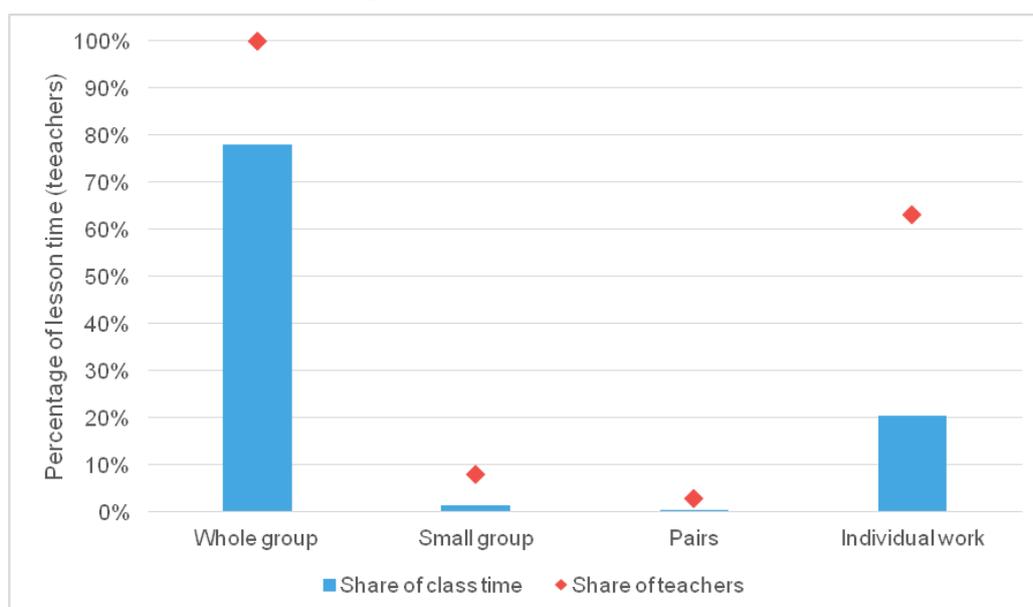
Since a majority of lesson time was spent on whole group teaching, pupils engaged in individualised instruction with the teacher. In 65% of the lessons, teachers were never observed providing individualised instruction.

In private schools, most of the lesson time was dedicated to whole group teaching, whilst in public and community schools, other forms of pupil grouping were more frequently observed, as illustrated in the figure below. Together with the findings on types of teacher activity within the classroom, this suggests that public school teachers are at least as likely (or more likely) than teachers in private schools to use diverse teaching techniques.

Figure 23: Pupil grouping types observed, by school ownership type
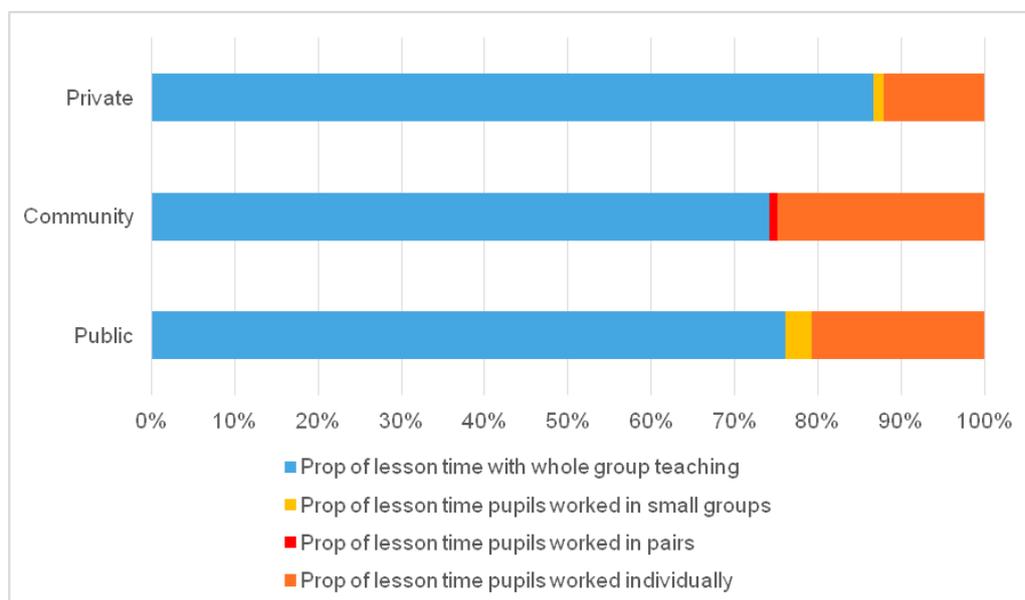
4.3.3 Pupil activity

Pupil activity within the classroom is a useful indicator of the pedagogical approach being undertaken by the teacher, as the lesson is characterised by pupil-teacher interactions. Like teacher activity, types of pupil activity have also been categorised into four sub-domains, presented in the table below.

Table 3: Types of pupil activity

Type of teacher activity	Examples
Pupil-centred, active learning	• Discussing with teacher • Asking/answering open questions • Using or playing learning materials/objects • Playing/learning outside • Listening to stories • Singing or telling rhymes
Rote-based learning	• Listening to instructions/explanations • Copying • Drill and practice • Answering closed questions
Other activities	• Classroom management • Having lunch/snacks
Child off task (unproductive)	• Being disciplined • Disengaged

The level of pupil-centred learning activity is indicative of the degree of pupil-centred teaching taking place. The figure below illustrates that rote-based learning, like rote-based teaching, constitutes the largest share of classroom time. Pupils were engaged in rote-based learning activities, like listening to instructions, copying, and answering closed questions for a majority (about 67%) of classroom time whilst they were engaged in pupil-centric learning

activities for about 17% of the lesson time. In addition, pupils were off task, being disciplined, or disengaged for approximately 14% of classroom time.

Figure 24:   Percentage of lesson time allocated to each pupil activity
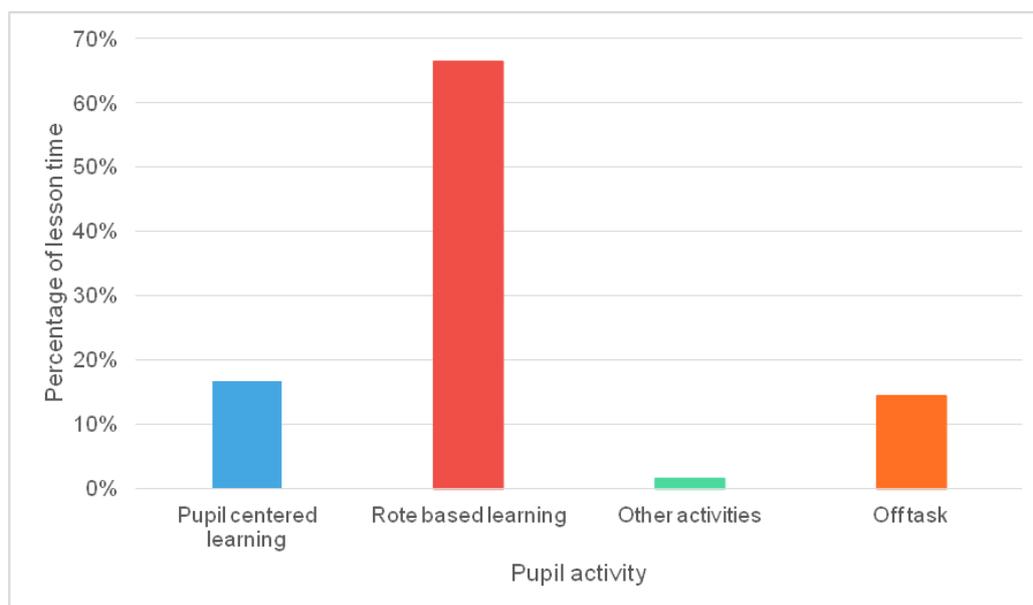
Pupil time on task can be taken as the percentage of time pupils were engaged in any type of learning activity during the lesson observation. In 33% of all lessons, pupils were on task for the entire duration of the lesson. On average, however, pupils were on task (engaged in pupil-centred learning, rote learning, or other activities) for about 84% of the total lesson, or 50 minutes in an hour. This is an unusually high-level of engagement and may be the result of having an observer present in the classroom.

In contrast to the findings on teacher activity during the lessons, pupil activity did not vary starkly by school ownership type. For example, pupil-centred learning activities made up 17.3% of classroom time in community schools, and this was only marginally higher than the 16% of classroom time dedicated to such activities in public and private school classrooms. Consistent with the findings on teacher activity, pupils were on task for a larger share of the total lesson time in private schools and public schools (83–84%) compared to community schools (82%), although (again) the differences are not very marked.

Within the four broad categories of pupil activity, the types of pupil activity observed varied from one classroom to another, as represented in the figure below. In line with the most commonly occurring teacher activities, pupils were observed listening to instructions or explanations, and drilling and practising at least once during the observation in a majority of classrooms. In 40% of the lessons observed, pupils were disciplined by the teacher at some point.

Figure 25: Percentage of classrooms where pupils were engaged in different forms of activity
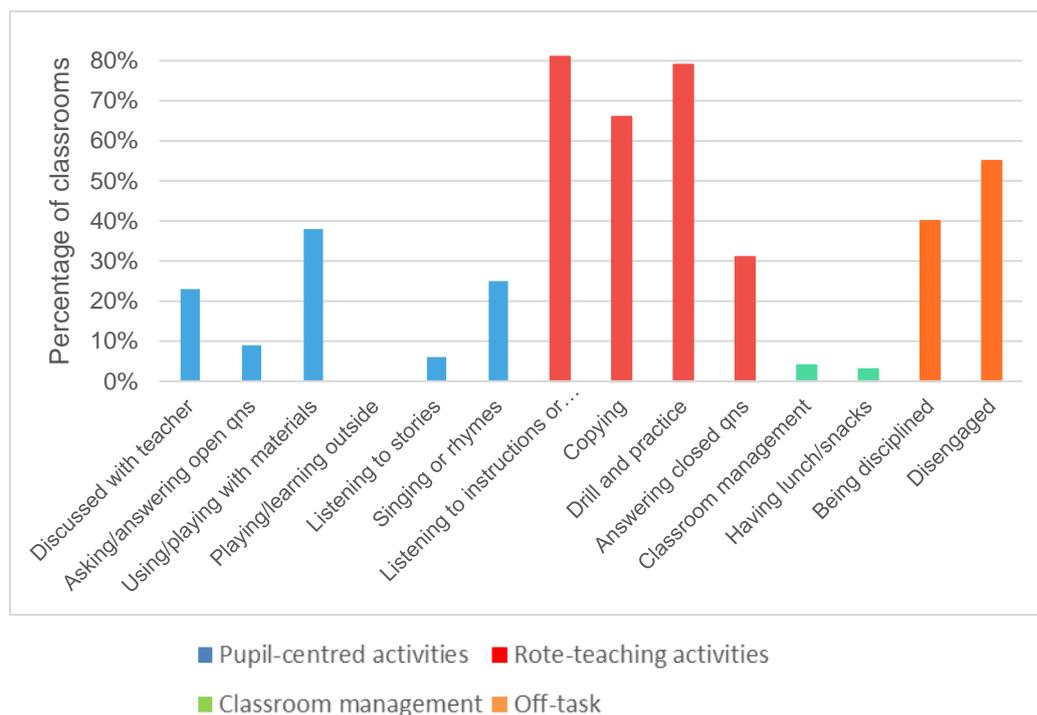
Overall, pupil-centred learning activities were rarely observed. Other than pupils using materials, all other forms of pupil-centred learning activity were observed in less than a quarter of the classrooms. Even the use of materials, observed in 38% of the lessons, was often prescriptive and repetitive.

A noteworthy finding is that children were not observed playing or learning outside any classroom. This is also validated by results of the MELE observation discussed in the previous section, where free play activities were not observed by the enumerator in any lesson. This highlights an important area for improvement within the delivery of ECE programmes in Liberia, given the central focus on using play to learn.

In addition to variations in the share of lesson time when pupils were engaged (and variations in how they were engaged), differences were observed across lessons in the share of engaged pupils. The figure below, based on the structured classroom observation instrument, indicates that most, or all children, were engaged in fewer than 50% of the classes observed; in about one-third of all classrooms, few children were engaged at all during the lesson. Encouragingly, however, the engagement of overage children within the classroom appears to follow a similar trend, which suggests that overage children are not being systematically excluded or side-lined during lessons.

Figure 26: Depth of pupil engagement
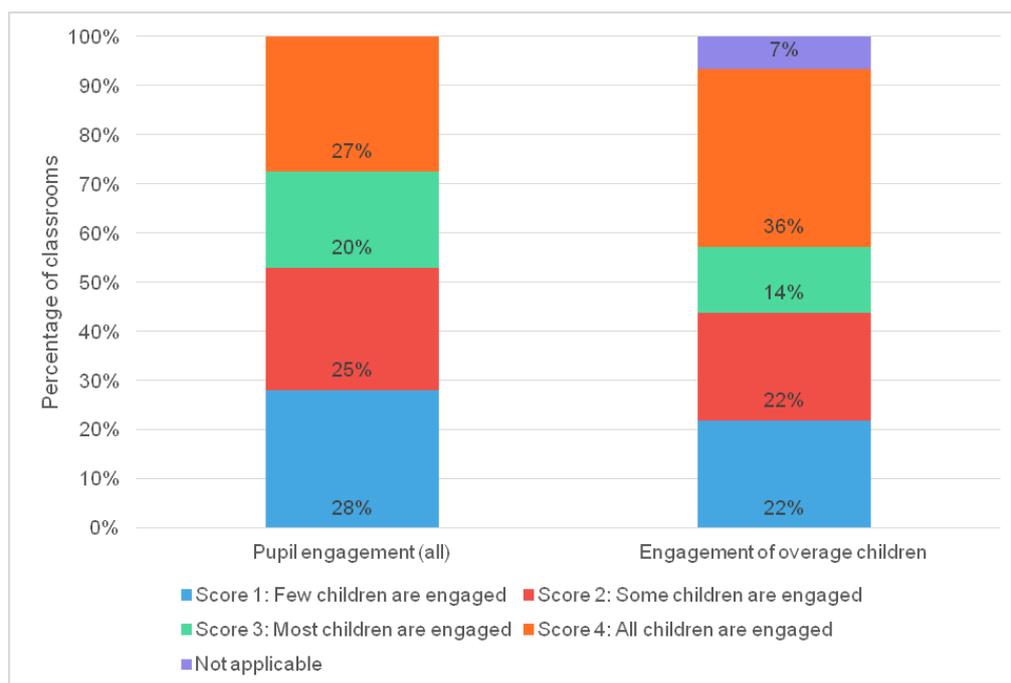
4.4 What do classrooms look like?

According to the national ECE quality constructs, the classroom learning environment is a function of the classroom infrastructure (size and set up of room; furniture), as well as of the outdoor activities (existence of a play area; the opportunity for outdoor activities) and of the materials available to children. The learning environment must be such that children feel excited about learning, can explore materials, and can discover new information, especially through play (Liberia ECD Curriculum Textbook). This section discusses the extent to which the learning environments observed within the sampled schools fulfil these policy priorities.

Infrastructure

All classrooms were indoors, and pupils did not play or learn outdoors during the observation (enumerators where told to observe activities, whether they happened inside or outside).

In fewer than one-third of the cases, the classroom space was noted as being sufficient for all children to do indoor activities. This indicates that, in a majority of the cases, the classroom was too small for the number of pupils to comfortably undertake a variety of indoor activities, including group work or play-based activities. Whilst this is a subjective evaluation of infrastructure quality, it does indicate an overall inadequacy of classroom infrastructure.

In half of all cases, the furniture was deemed adequate for use, measured as all children having a seat and access to an appropriately sized writing surface. In 10% of the classrooms (five cases), some children were observed seated on the floor. In two of these five classrooms, more than half or all the pupils were seated on the floor. Although the presence of furniture itself does not guarantee quality learning, a vibrant and comfortable learning environment does influence the interest of pupils in school and learning is stated as a priority area for ECE provision in Liberia.

Material used by teachers

Some sort of teaching material was present and used by the teacher in each observation. Material used by teachers ranged from a board and chalk, to lesson plans, the ECE curriculum document, art supplies, and story books. The figure below illustrates the different types of materials used by teachers, as well as whether a certain type of material was

present in the class, in order from the materials used in most classes to the materials used in the fewest classes.

Blackboards, or whiteboards, and associated writing utensils (such as chalk or markers) were present in almost every classroom. Basic classroom material such as pens, pencils, workbooks, and copybooks were also present in a majority of the observed classrooms. This indicates that, at the very least, teachers and pupils in ECE classrooms have access to the basic materials required for teaching and learning, although not for more creative forms of learning.

Resources more specific to teaching ECE classes were less commonly available. For example, the new ECE curriculum document was only present in one classroom, and the old nursery curriculum document was rarely available to teachers (observed in only 16%, or eight, classrooms). Teachers were not found to be using lesson plans very often either, whether printed or handwritten. This raises questions about how lessons are developed and structured during the academic year.

Children's books were present in only about one-fifth of all observed classes and used in even fewer classes. Interactive materials like art supplies, puzzles, and games were hardly present or used by teachers. The trend in the presence and use of materials suggests that, whilst teachers do have access to some basic materials within the classroom, the presence (and, therefore, the use) of ECE-specific materials, such as the curriculum document and interactive materials for pupils, is far less common.

Figure 27: Presence of, and use of, materials by teachers
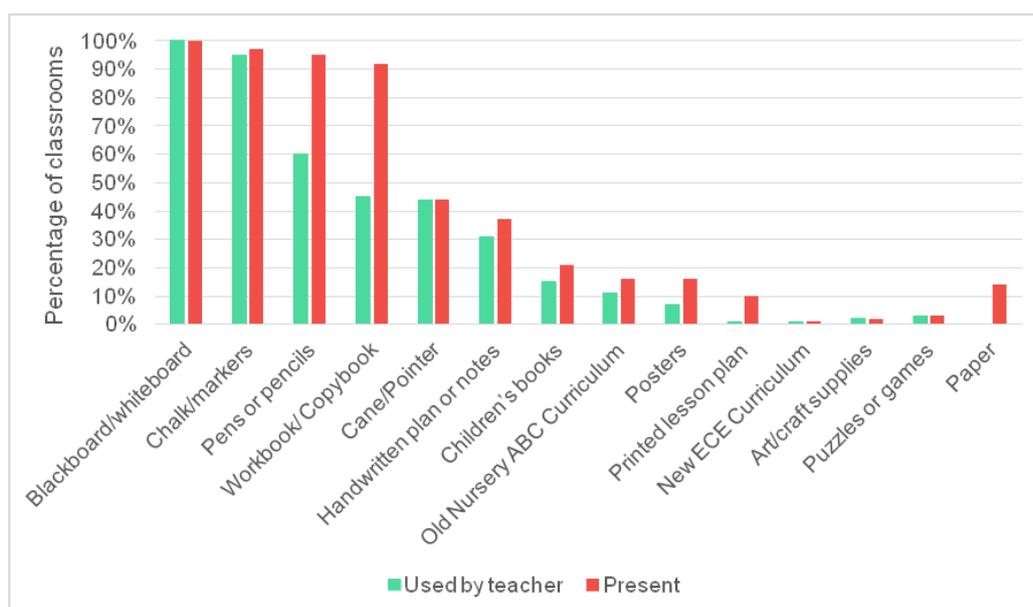
The fact that some materials, whilst present, were not used during the observation could simply suggest that some of the resources available were not appropriate for that particular lesson. However, another potential interpretation (and arguably much more likely given that most teachers have no ECE training) is that teachers are not always aware of how to make the best possible use of available resources and may benefit from support in this area.

Material used by pupils

Learning material was present in almost all (97%) of the classes and used in about 90% of the classes by pupils. Pupils largely used workbooks or copybooks, and a pen or pencil. This is in line with the trend observed in pupil activities, described in the figure below, where pupil activity largely consists of copying or practising. Pupils also used the blackboard in 90% of the cases, indicating that much of the teaching and learning happening in ECE classes relies on the blackboard.

Notably, the presence and use of ECE-specific pupil material like puzzles, games, arts and crafts supplies, and children's storybooks, is very limited.

Figure 28: Presence of, and use of, materials by pupils
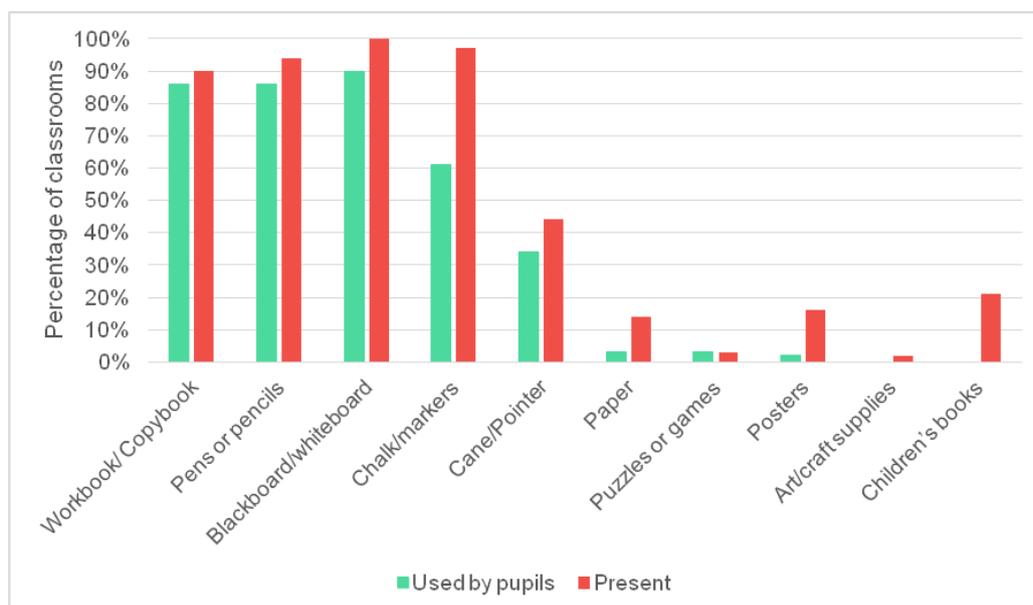
Since there are no stark trends in the availability and use of materials within classrooms by teachers or pupils depending on school ownership type, this has not been discussed separately here.

The Liberia ECD framework talks about the establishment of learning centres for art, literacy, and mathematics, where materials like toys, blocks/building material, or counters are made available to enhance pupil learning through play. This is also an important policy priority for the government, but learning centres, or related material did not exist in any of the ECE classes observed, highlighting the gap between planned policies and the reality on the ground.

Overall, the findings suggest that the teaching and learning materials present and in use within classrooms fall short of the guidelines in Liberia's Early Learning Framework, highlighting an important gap in the provision of quality ECE programmes. ECE classrooms in Liberia look very similar to primary grade classrooms: primary teachers are teaching primary-aged students with very little free play and active learning occurring.

4.5   What curriculum is being used?

Only a minority of teachers were using any ECE curriculum, although there is a wide discrepancy between principal and teacher reports. Only a small proportion of principals who reported that their school used an ECE curriculum also reported that they were using the national curriculum.

Figure 29:   Percentage of schools where the ECE curriculum is used
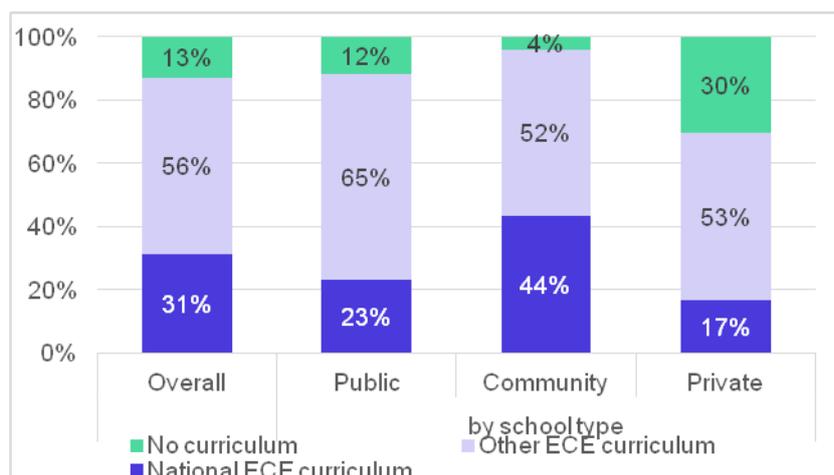
87% of the principals interviewed reported that their school uses an ECE curriculum. Community and church schools were more likely to use a curriculum than other types of school.[25] Only 31% of principals reported that their school uses the national curriculum.

Through teacher interviews, we sought to understand whether the curriculum is used. As shown in the figure below, only 9% of the teachers interviewed were in possession of a physical copy of the ECD curriculum document.

Figure 30:   Percentage of schools where the sampled teacher is in possession of an ECD curriculum document
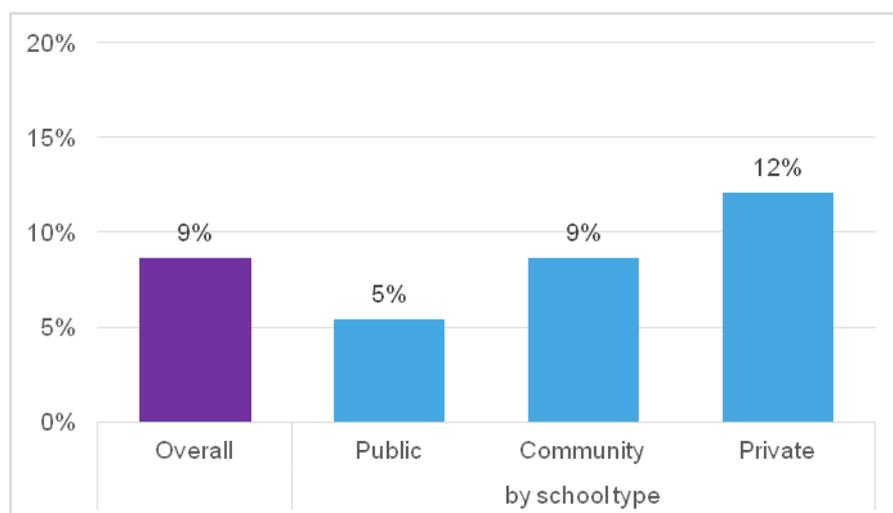
A slightly higher percentage of the sampled teachers (17%) said they used a syllabus/curriculum as a teaching material; 14% were able to show the enumerators the syllabus/curriculum used. This suggests that, even though very few teachers use an ECE-specific curriculum, some other curriculum (most likely that for primary grades) is sometimes used to guide instruction.

---

[25] P-value: 0.073.

Figure 31:   Percentage of schools where sample teacher mentioned a syllabus/curriculum as a teaching material (left); percentage of schools where enumerator was shown a syllabus/curriculum (right)
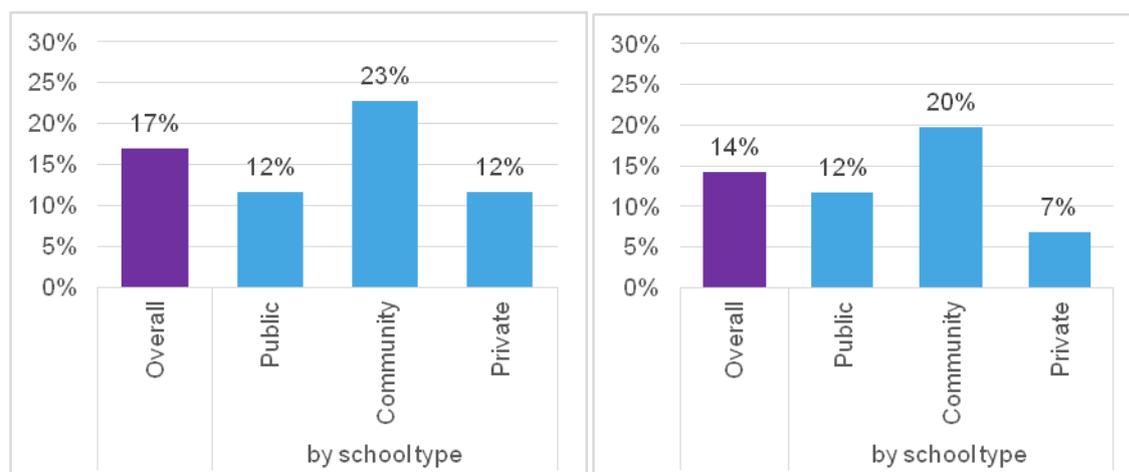
4.6   What training do teachers and principals have?

Most principals reported that they had a teaching qualification. However, most teachers reported they had no qualifications, and that they had not received ECE-specific training in the last three years.

Principals

Out of the principals interviewed, 63% reported having a teaching qualification. Although more of the principals in public schools appear to have these qualifications, we did not observe any statistically significant differences between school types. Because these principals also oversee primary classes, we would not expect this training to be ECE-specific; rather, we expect it to be training for teaching at the primary level.

Figure 32:   Percentage of schools with trained and qualified principals
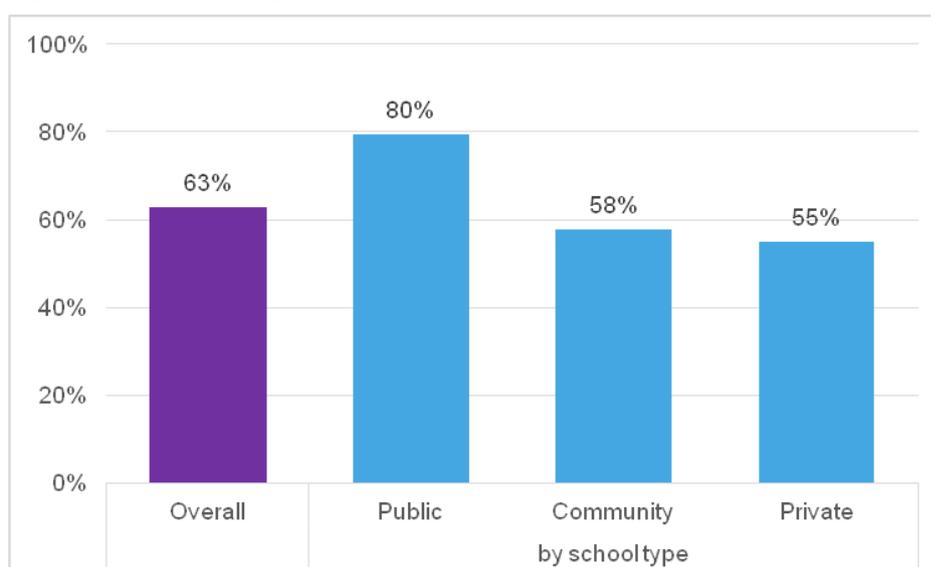
Teachers

80% of pre-primary teachers have no certificates, and 17% have C-certificates—the minimum requirement for teaching in primary school (Grades 1–6), requiring one year of post-secondary training (two semesters).

Figure 33: **Type of certificates teachers have (mean percentage of teachers in sampled schools)**
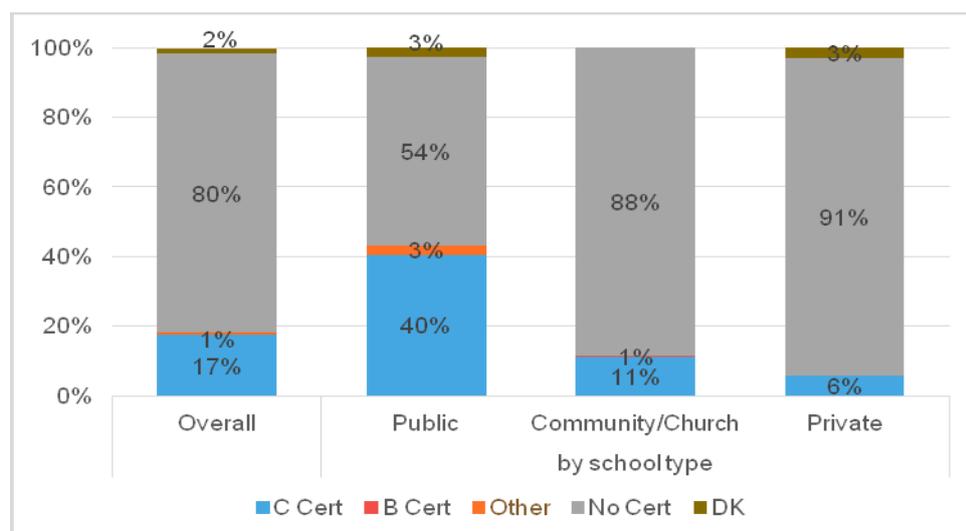
In addition, only 30% of ECE teachers reported receiving ECE-specific in-service training in the past three years.

Figure 34: **Mean percentage of teachers (out of the full number of teachers at the ECE level) who have received ECE-specific in-service training in the past three years**
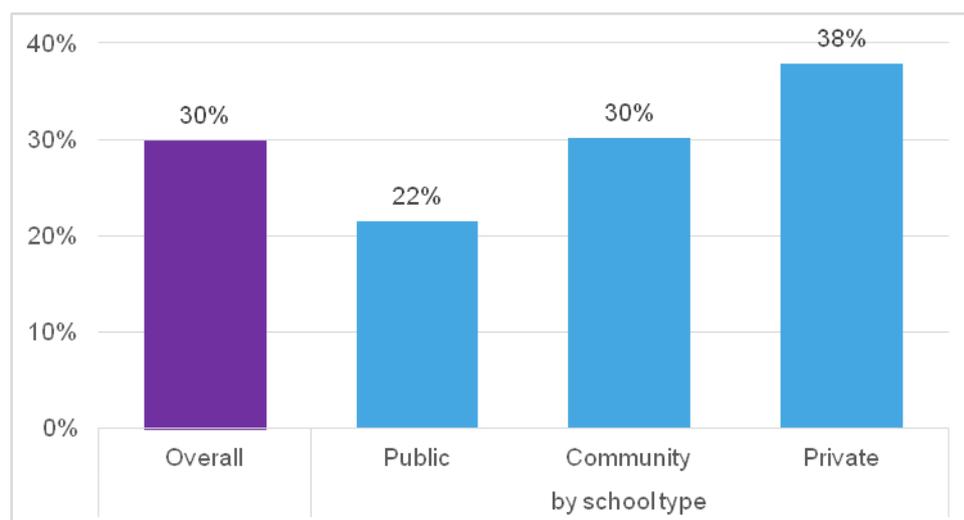
4.7   How are teachers being managed and supported?

We explored three mechanisms for managing and supporting teachers; supervision from the principal, staff meetings, and disciplinary measures. In short, there is substantial supervision from approximately half of the principals surveyed, and staff meetings frequently discuss issues relevant to quality, but principals appear to have limited ability to sanction underperforming teachers.

Supervision

As illustrated in the figure below, 80% of principals and 55% of the sampled teachers reported that either the principal, or one of their deputies, had observed a lesson at the school in the last six weeks of the previous academic year. Fewer principals than sampled teachers reported that lesson observations were carried out in public schools, and fewer sampled teachers than principals reported this happening in community and private schools (possibly because the principal conducted lesson observations of a different teacher, and not of the one sampled).

Figure 35: Percentage of schools where the principal or one of their deputies observed a lesson in the last six weeks of the previous academic year, according to the principal (left) and to the sampled teacher (right)
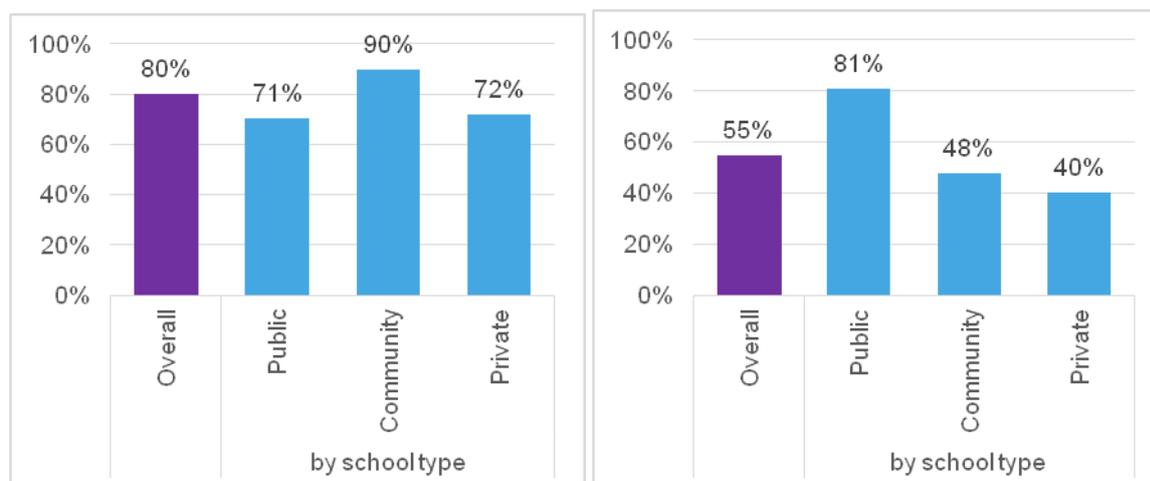
In approximately half of the schools, principals reported spending a substantial proportion of time on teacher management and support. Principals were coded as spending a substantial amount of time on teacher management and support, if they reviewed teacher lesson plans more than once a week, and if they were present for a least half of a lesson when observing classes in the past six weeks. Teachers at community schools were significantly less likely than teachers at other types of schools to report spending a significant proportion of their time on teacher management and support.[26]

Figure 36: Percentage of schools where principal spends a substantial proportion of time on teacher management and support
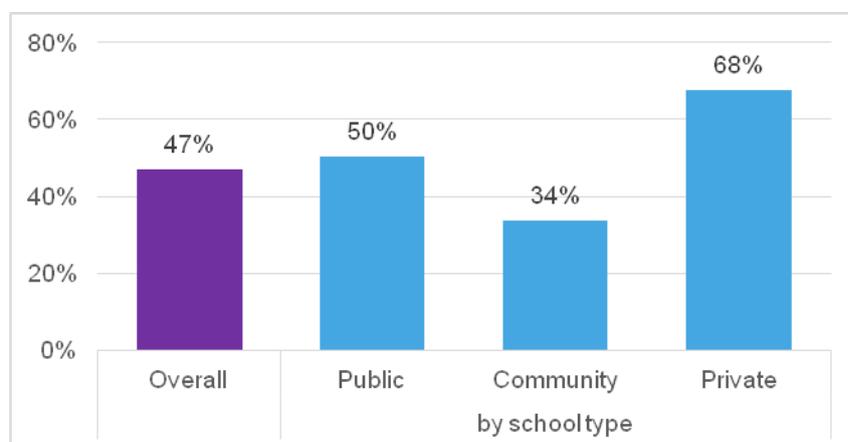
Staff meetings

Although all school principals and 78% of teachers reported that staff meetings were held, principals reported that in only 42% of cases topics related to ECE quality were discussed, and teachers reported this happening in 49% of cases.

---

[26] P-value<0.1.

Figure 37: Percentage of schools where the qualities of good nurseries/kindergartens were discussed in staff meeting, by school type—according to principal and teacher
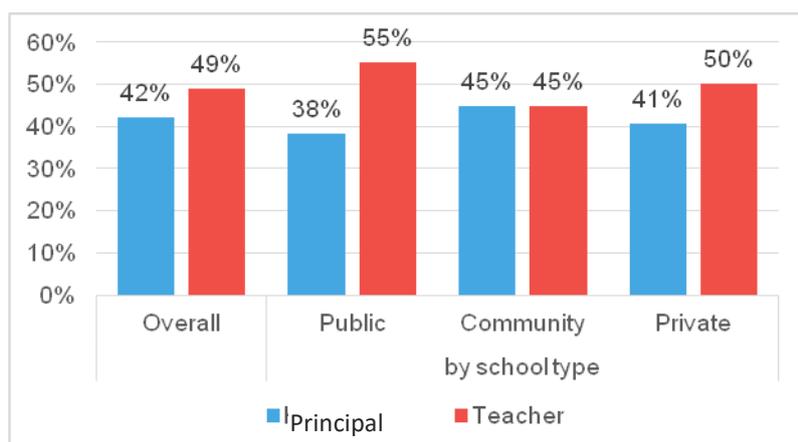
Topics related to making nursery/kindergarten good include: (i) syllabus/curriculum/coverage, (ii) teaching and learning materials, (iii) school building conditions, and (iv) individual students' needs.

A large proportion of teachers (61%) and principals (75%) also reported that staff absenteeism, teaching practice/pedagogy, training, and professional development were discussed in the staff meetings.

Figure 38: Percentage of schools that discuss teacher-related issues (i.e., staff absenteeism, teaching practice/pedagogy, training and professional development)—according to teacher
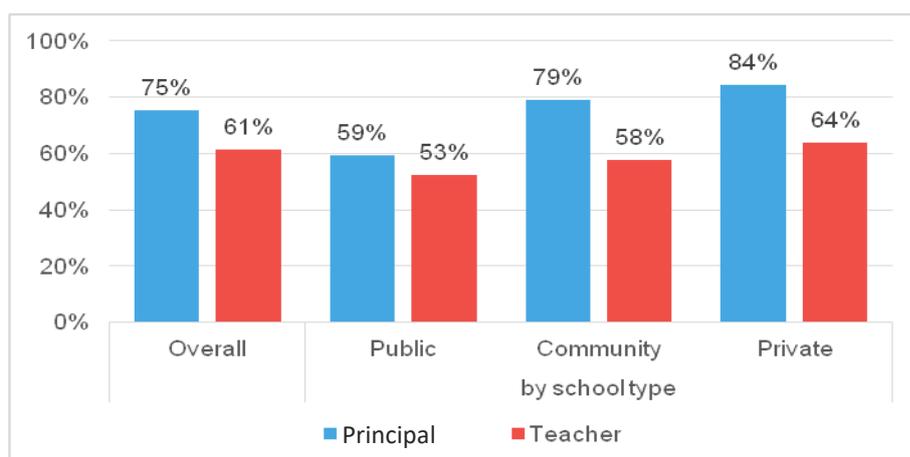
Disciplinary measures

As anticipated from the ESA, 49% of principals reported that teacher absenteeism was a problem at their school. Of the principals who reported that the school had a problem with teacher attendance, 74% said the actions taken to address the issue were to discuss attendance issues with teachers. No principals mentioned adopting harsher, or more formal disciplining methods.

The reasons why principals thought that teachers were not attending school regularly were varied. Although illness was most commonly mentioned (34%), followed by 'laziness' (22%), training, (19%), and issues with transport (10%). The frequent mention of 'laziness' as a reason should not necessarily be taken at face value — what appears as laziness could mask a whole host of issues. However, it does point to the fact that there are insufficient incentives in place to encourage teachers to come to school as regularly as they should.

Overall, our findings confirm the problem of teacher absenteeism, which undoubtedly contributes to the poor learning quality in the system.

4.8   How resourced are schools?

We investigated the cost of providing the current levels of quality, using cost data reported by the principal and parents, and considered this against the learning outcomes of each school type. We then estimated the costs of a better-resourced level of provision. The detailed data on costs that we have collected (in line with the methodology outlined in Section 3.3.2) allows us to draw conclusions about whether existing school resources are sufficient to provide good quality ECE.

Costs of current ECE provision

The table below reports the total 'intended' school income and total expenditure by school ownership type, and by rural or urban locations. Breakdowns by main expenditure areas are also included in the table.

'Tuition income' is what the school's gross income per academic year would be if all parents pay 100% of the fees that they either explicitly, or tacitly agree to pay in enrolling their children in the school. Schools also receive other types of income. For example, some government pre-primary schools receive government funding in the form of civil service primary school teachers, which are diverted to the pre-primary section. The salaries of these teachers are classed as a form of income to the school, even if they are paid directly by the government to the teacher. Other schools may also receive salaries from an outside source, such as a church mission or non-governmental organisation (NGO). Schools may also receive other types of support such as donations of teaching materials, building materials, labour for building, or skills in terms of teacher training. All forms of income for the school are documented.

We expect that none of the schools in our sample will receive 100% of their intended fee income. For this reason, the profit implied in the table below is likely to be significantly reduced.[27] This is particularly the case for government schools where there may be less incentive to exclude children for non-payment of fees because these schools tend to rely on civil service teachers. For non-government schools, the issue of fee payment is more pressing, as teacher salaries must be paid out of this income. In the table below we provide total school expenditure as well as the schools' total income at 60% fee collection.

The schools' expenditures are also documented in as much detail as possible, including all teacher salaries (whether paid by the government or not), expenditures on maintenance, water and the like (most schools did not have any electricity to pay for), new construction, materials, and any other school needs. At times where there were issues with apportioning expenditure for the pre-primary level because these expenditures were shared within an entire school (with all of our surveyed pre-primary classes attached to primary schools), we divide the expenditure for the whole school by the total number of students and include it in the per capita cost. If there is any inaccuracy, however, it errs towards a slightly higher expenditure than the reality for pre-primary schools alone. As all our sample schools serve higher classes, the complete pay and other compensation for the principal has been divided by three (as the pre-primary section tends to account for around one-third of the classes at a school), with one-third included in our school expenditure calculations.

---

[27] This refers to the difference between total intended school income and total school expenditure. Profit is not reported in the table below.

Table 4: **School income and expenditure, by school ownership type**

	All schools	Government	Private	Community	Rural	Urban
Total intended school income per academic year (US $, reported by principal)	7,233	4,028	8,057	5,442	5,351	10,436
Tuition income per academic year (US $)	1,689	240	3,190	1,682	1,211	2,369
Other fee income per academic year (US $)	3,349	1,328	4,819	3,676	1,912	5,396
Other school income per academic year (US $)	166	431	48	84	252	44
Government teacher salaries per academic year (US $)	2,029	2,029			1,976	2,627
Total income at 60% fee collection per academic year (US $)	3,023	941	4,805	3,215	1,874	4,659
Total school expenditure per academic year (US $, reported by principal)	2,253	2,274	2,174	2,277	1,928	2,713
Principal salary per academic year (one-third of total salary, US $)	241	480	205	120	296	160
All teacher salaries per academic year (US $)	1,079	1,448	1,367	720	1,250	836
All non-salary costs per academic year (US $)	931	341	600	1,435	379	1,715
Total number of children enrolled		1,076	1,382	2,014		
Average number of children enrolled		83	106	84		
Cost per pupil, per year	25.15	27.47	20.45	27.13		

We rely on the expenditure figure to establish the actual cost of ECE provision at the present time. This includes any spending on in-service teacher training (if applicable) but does not include the cost of initial teacher preparation, through study at certificate level. This is justified given the little availability of certificate programmes for the pre-primary level and the low percentage of ECE-trained teachers previously discussed.

There is no substantial difference in the cost of running schools across the three ownership types. The number of children served does differ, meaning that the unit costs vary, with government schools costing US $27.47 per child, whilst private schools cost US $20.45 and community schools are comparable with government schools at US $27.13. It should be noted that these unit costs do not include the cost of any items that parents should buy and provide for their children, such as writing materials and books. In 19 of our study schools (38%), lunch is provided, and students must pay extra for this service in four cases.

To put these costs in context, the Education Sector Analysis (ESA) of 2016 reported a unit cost of US $24 per child in ECE classes with an average PTR of 53:1, which implies more funding to ECE than our unit cost of US $27.47 per child with a PTR of 29:1. For every government ECE centre, the ESA's figures indicate more funding, as the numbers of children are substantially higher, meaning US $2,784 per school (at an average of 116 children per school) and US $2,274 in our costing (Table 5).

However, the calculations are likely to be based on different cost factors. In our empirical costing, we costed what was happening in the classroom, which was often not in line with the intended use of teacher resources (i.e., primary school teachers should be teaching primary grades). Our costing includes the cost of primary school teachers diverted from their intended duties to teach ECE classes, and we do not include the costs of running the ECE Bureau or anything that happens for ECE outside the school. It is, on the other hand, likely that the ESA's stated unit cost does the opposite, by not accounting for the teachers taking ECE classes, but accounting for the administrative costs of the ECE system. For this reason, it is not possible to meaningfully compare the unit cost reported in the ESA with our empirically calculated unit cost, and the similarity in numbers may be coincidental. If the ESA's cost per class were converted to unit costs with our survey's average class size, the unit cost would be US $43.86.

Normative costs of better quality ECE provision

We estimated the cost of running a well-resourced pre-primary school for a year, with trained teachers and the necessary teaching-learning materials. The calculations are provided per school, based on an assumption of three classes, one class for each grade level (nursery, Kindergarten 1, and Kindergarten 2) and three teachers, as well as a principal shared with the primary school section. The start-up costs include provision of furniture and materials for 90 children, and the unit costs included at the end of the section are based on these assumptions.

The table below provides the summary of all capital start-up costs[28] and the first year of running costs for rural and urban schools (as well as the annual unit costs) for the different school types. The methods used to calculate the costs are detailed in Topics covered by the questionnaires. The yearly recurrent costs thereafter are also provided,[29] which includes all salaries, materials, and the budget for the maintenance and eventual replacement of items.

Table 5: Normative costing: summary table, capital, and recurrent costs (all inclusive), by school ownership type

Start-up and yearly costs	Government	Private, solid building	Community-based
Start-up and Year 1 costs—rural (US $)*	34,339	29,837	22,820
Start-up and Year 1 costs—urban (US $)*	34,839	30,337	
Year 2 (and onwards) costs (US $)	22,381	18,083	17,708
Annual cost per pupil, assuming 90 children enrolled (US $)**	249	201	197
Estimated gap per pupil between normative and empirical cost (US $)	221	180	170

*These costs may be reduced if it is determined that lunch will not be provided (see text above).
**Note: this is the unit cost for Year 1 onwards and does not include any capital and start-up costs.

These costs have been calculated based on provision for 90 children, meaning that the unit cost (per child) is lowest when the full capacity of 90 children is reached, and higher when

---

[28] Start-up costs include construction of three classrooms, a kitchen, three toilets, and a borehole. It includes the purchase of a plot of land in urban areas. Classroom fittings include furniture, blackboards, floor mats, and storage cupboards. Kitchen fittings include the basic utensils and equipment needed for school meals. Teaching-learning materials include a range of educational toys and storybooks. Initial teacher training includes pre-service training for three teachers using OSIWA or We-Care's training plan. The ESA 2016 includes the cost for training a teacher for one year (longer than the training included here) of US $5,709, as opposed to our US $2,500 per teacher.

[29] Annual recurrent cost are made up of all staff salaries, including teachers; one-third of the principal's salary; at least one cook/cleaner; in-service refresher training for at least one teacher per year; the regular supply of food ingredients and cooking fuel for making school lunches; all consumables for the classroom (chalk, drawing and writing materials, paper, etc.); cleaning; savings for maintenance; and savings for eventual replacement of all classroom furniture and fittings and elements of buildings, such as the roof (maintenance and amortised costs). Costs associated with the ECE Bureau and District or County officials and their duties are not included.

there are fewer pupils. If demand is significantly lower in particular locations (such as remote, rural villages), then administrators should plan according to need and could possibly reduce the size of the building, the number of staff, and the amount of teaching-learning materials procured. However, not every cost reduces as the number of children enrolled decreases; but items like the writing materials and books for individual children will reduce. If there are as few as 60 pupils, two teachers might be employed rather than three (although ideally there should be a teacher and a teaching assistant in a class of 30 pupils, these have not been budgeted for, to reduce costs). The amount of food bought for lunches will reduce with pupil numbers, but the equipment and the staff requirement will remain the same. In addition, many classroom items will last longer with fewer children using them.

The cost per pupil of US $197–249 may appear high, but this includes lunch and all books and writing materials for children, providing all the inputs needed to provide a good quality, well-equipped pre-primary education. This assumes that parents will provide clothing, shoes, and bags. It is possible that schools could seek cost-recovery from parents for writing materials (US $14.40 per child, per year) and lunch (US $124.44), but it is clear that any cost at this level is likely to prove a deterrent, as indicated by the experience of schools in relation to charging fees.

The table below provides a reduced cost scenario, eliminating the cost of food and children's writing materials. This brings down the unit cost significantly. There are minimal savings gained by excluding writing materials, and so it may be beneficial to maintain that schools are responsible for this expensive. Conversely, the cost of meals is considerable, and arguably, parents are better equipped to provide this for their children. However,

Excluding lunch brings the unit cost of private schooling to a level close to what parents

already report being expected to pay. This does not account for profit margins that many private school owners may expect, however, and parents are likely not to pay the complete fees. Our costing for community schools is over US $11 higher per child, per year. Excluding the cost of lunch made the biggest difference in per pupil costs to government schools. The difference in cost between government schools and other school types is primarily due to higher teacher salaries. Government schools spend on average US $4,257 per year more on staffing costs than other school types, explaining nearly all the difference in per pupil costs.

Table 6: **Normative costing: summary table, capital, and recurrent costs (lunch not included), by school ownership type**

Start-up and yearly costs	Government	Private, solid building	Community-based
Year 2 (and onwards) costs (US $)	22,381	18,083	17,708
Cost of lunch provision (US $)	11,200	11,200	11,200
Cost of children's writing materials (US $)	1,296	1,296	1,296
Year 2 costs, no lunch (US $)	10,969	6,671	6,296
Annual cost per pupil, assuming 90 children enrolled (US $)	122	74	70
Estimated gap per pupil between normative and empirical cost (US $)	95	54	43

Taken together, the findings in this section suggest a significant gap in funding at the school level—an extra US $95 per child would be necessary to deliver better quality ECE in public schools, an extra US $54 per child in private schools, and an extra US $43 in community schools.

4.9   How are parents involved in promoting quality ECE?

In this section, we investigate parents' fee-paying practices, their expectations about what children should learn in ECE, how often quality considerations play a role in parents' school

decision-making, and how they collect information about the school to gauge quality. We also explore how they engage with the school regarding quality.

Parents' fee-paying

Not all schools expect fees from parents. According to parents' reports, only seven of the 13 sampled government schools charge tuition fees. Regarding private schools, all but one (which had been set up by a company for the children of their employees) charge fees, and 21 of the 24 community schools charge fees.

In addition to the tuition fees, parents usually must pay for other things, such as registration fees and sports fees. Only 14% of parents reported not having to pay anything to the school. The majority of 'mandatory' costs are paid directly to the school, with many schools not expecting parents to buy and provide anything from the market (e.g. books, copybooks, and pencils). Two-thirds of parents reported incurring no outside expenditure. The table below provides information on what parents are expected to pay, as reported by parents and principals. Notably, the average amount that parents reported being expected to pay in addition to school fees was considerably less than the average amount that principals reported expecting parents to pay in addition to school fees.

Table 7:   Fees per child, by principal and parent reports, and by school ownership type

Total fee expected to pay to school	Overall	By school type		
		Public	Private	Community
Total fees parents expected to pay to school, parents reports (US $)	35	8	52	40
Total costs parents expected to pay outside of the school, parents' report (US $)	5	3	6	4
Total fees and costs parents expected to pay, parents' reports (US $)	40	11	58	44
Total costs parents expected to pay to school, principal reports (US $)	53	19	76	64

Government school fees appear to be lower than the officially stated 3,500 Liberian dollars per year (US $27). Principals reported parents having to pay, on average, US $19 to the school per year, while parents reported that they were meant to pay just US $8 to the school. Parents were also asked what they had paid so far in the school year, so there was no confusion over whether the research teams were asking about what they were meant to pay as opposed to what had been paid. Across the board parents had, so far in the school year, paid only 58% of the fees reported owing.

As expected, private schools are the most expensive to attend, according to both principals' and parents' reports, while they spend the least in terms of unit costs as shown above. While non-government schools would be expected to charge a range of different fees according to perceived quality level or location of a given school, we would expect to see some uniformity across government schools. However, fees are not uniform, and there is no obvious trend by location or quality. This is presumably because, as already noted, schools have had to make their own decisions based on local circumstances considering the impossibility of charging parents the stipulated US $27 due to the unaffordability of this sum for parents.

Frequency of fee payment and consequences of non-payment

We also investigated the issue of school fees and their payment. Most parents struggle to pay their fees in full and on time. Significantly more parents struggle with fee payment in private and community schools than in public schools.[30] A similar proportion of parents from the wealthiest and poorest quintiles pay their fees in full and on time.

Figure 39: Percentage of parents who pay their fees in full and on time
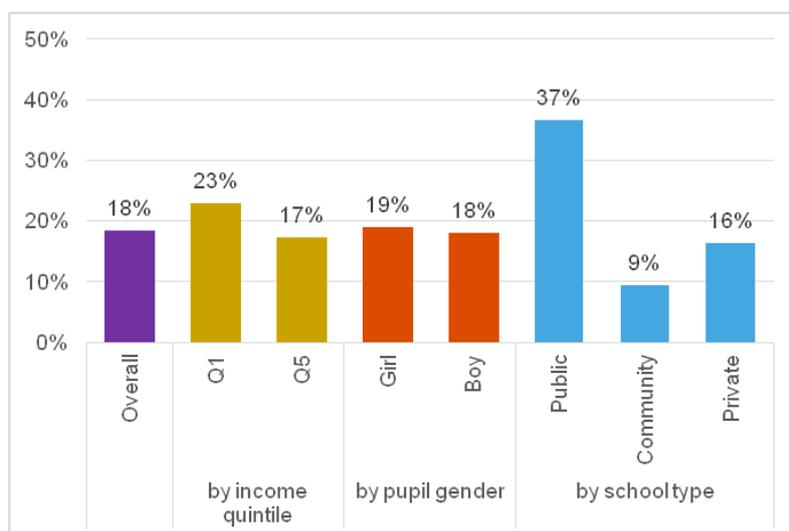
Parents were also asked what actions they take when they anticipate being unable to pay fees on time. Across school types, parents reported that they ask for more time to pay, whilst the next most common response was to make small payments of whatever amount possible.

Only 18% of parents reported being able to pay their fees in full and on time. Whilst it appears that only 14% of parents reported that their child has been excluded due to the non-payment of fees, as shown in the figure below, there seems to be a high rate of temporary exclusion relating to fees: 39% of parents reported that their children were sent home until fees were paid, and 16% reported that their child was sent home for a few days, which ultimately had an impact on a child's education. Parents whose children attend private and community schools were significantly more likely than public schools to send children home until they paid their fees in full.[31] The difficulty of paying fees undermines parents' client power, and (correspondingly) their ability to hold providers accountable for providing better quality.

---

[30] P-value of difference between public and private schools is 0.07; p-value of difference between public and community schools is 0.01

[31] P-value<0.01 for both the difference between public schools and private schools and the difference between community schools and private schools

Figure 40: Consequences of not paying fees at all
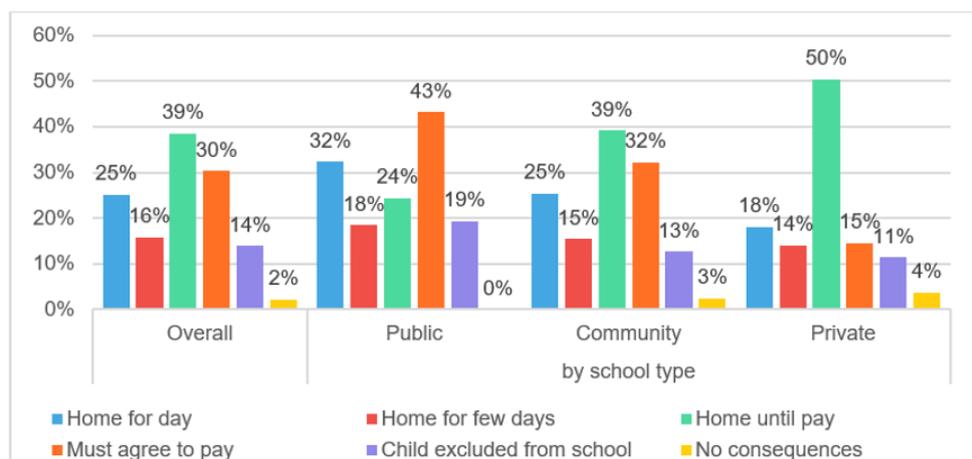
Parents' expectations

We asked parents about what they expect their children to have learned by the time they have completed their pre-primary education. This, in part, reflects their perceptions about what is normally taught in ECE programmes.

Many of them mentioned aspects that are well reflected in the ECE curriculum, such as reading/recognising/writing letters (95%) and recognising/writing numbers (86%). Few parents expected children to be able to write their names (19%), potentially reflecting a distinction between pre-literacy skills appropriate for the ECE level and more advanced literacy. Few parents prioritised discipline (19%), and fewer than 10% mentioned manners/greetings. Expectations were similar in both the wealthiest and poorest quintiles.

Figure 41: Percentage of parents mentioning the top five expectations of what they would like their child to learn by the time they have finished kindergarten
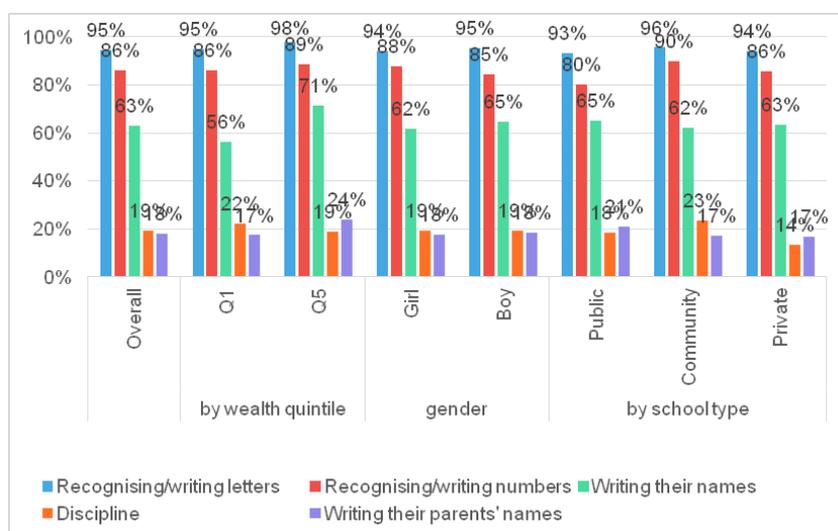
Most parents (65%) reported being very satisfied with current ECE quality. Parents in the top socioeconomic quintiles were significantly more likely than parents in the bottom socioeconomic quintiles to report being somewhat dissatisfied[32] with quality at their school.

---

[32] P-value<0.1.

Figure 42: **Levels of satisfaction with current ECE quality (according to parents), by wealth quintile and school type**
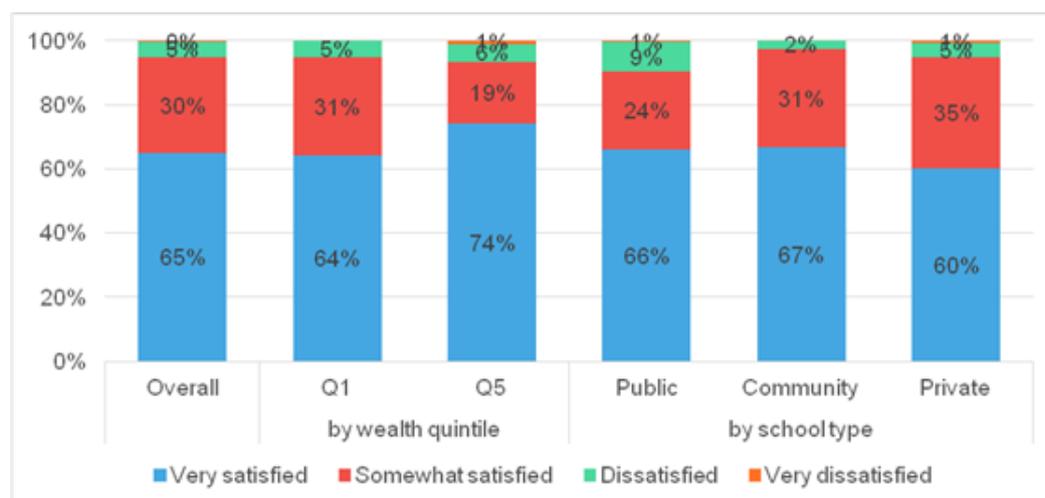
Of parents satisfied with learning at their school, most mentioned teaching quality, and the fact that children were learning reading and writing, as the top reasons for their satisfaction.

Figure 43: **Top areas that parents think are working well at school (if parent is satisfied, N=455), by wealth quintile and school type**
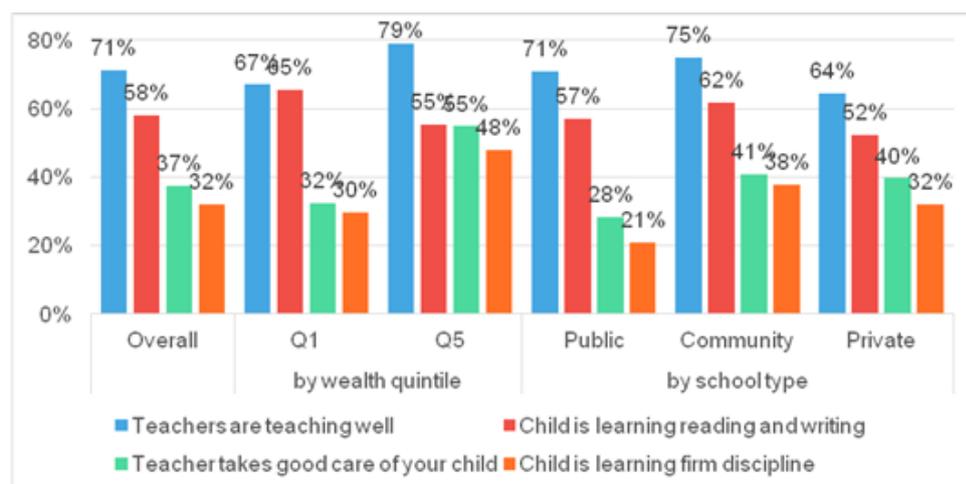
The role of quality in parents' choice of school

As indicated in the figure below, 59% of parents mentioned quality as a reason for choosing a specific ECE centre (enumerators were instructed to ask parents without prompting for their main reasons for deciding on a specific centre). Significantly more parents in the highest socioeconomic quintile mentioned that quality played an important role compared to parents in the lowest socioeconomic quintile.[33] Parents of girls were more likely than parents of boys to mention quality as a key consideration in choosing a specific school. Similarly, parents whose children attended private schools, or community schools, were significantly more likely than parents whose children attended public schools to mention quality as an important reason for choosing a specific ECE centre.[34]

---

[33] P-value<0.0000.

[34] P-value=0.02 for the difference between public schools and community schools; P-value=0.06 for the difference between public schools and community schools.

Figure 44: Percentage of parents who mention quality as a reason for choosing a specific ECE centre
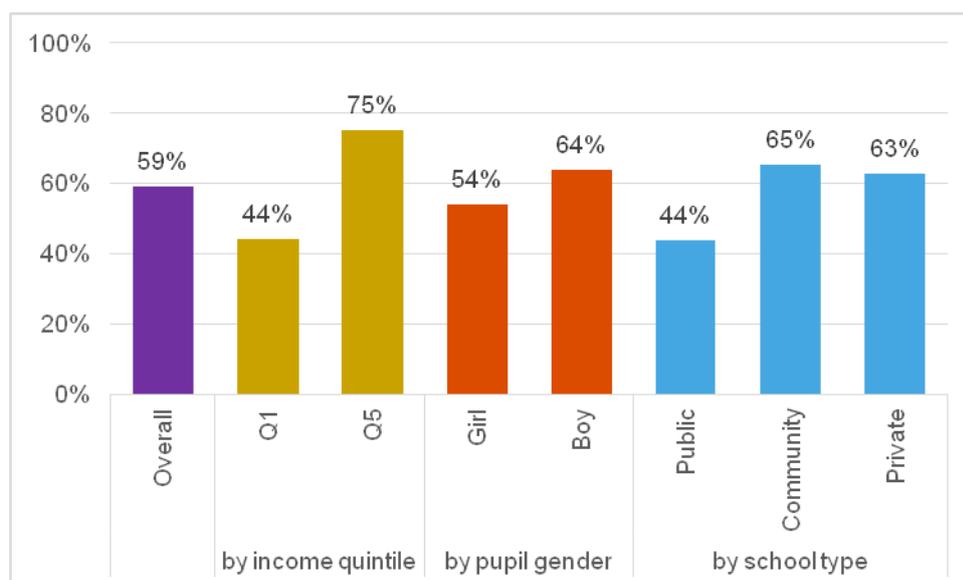
Note: Reasons relating to quality include: (i) good teachers, (ii) good facilities, and (iii) good discipline. These are considered to relate to quality as opposed to relating to other reasons, including being affordable, being close to home, the number of teachers, and class sizes.

The main reason parents chose a specific school were good quality/good teachers (mentioned by 50% of parents) and proximity to home (mentioned by 48% of parents).

Parents in the top socioeconomic quintiles were significantly more likely[35] to mention quality and small class sizes as the main reason why a specific school was selected than parents in the bottom socioeconomic quintiles. For parents in the bottom socioeconomic quintiles, proximity to home was the most commonly cited reason for selecting a specific school. The same percentage of parents (61%) in the bottom socioeconomic quintiles mentioned this aspect, whereas the percentage of parents in the top socioeconomic quintiles mentioned quality. Parents in the bottom socioeconomic quintiles were significantly more likely to mention proximity as a key reason for selecting a specific school than parents in the top socioeconomic quintiles.[36]

Parents of children attending public schools were significantly less likely[37] than parents of children attending private or community schools to mention proximity as a driving reason and were significantly more likely to mention quality.[38]

---

[35] P-value<0.1.
[36] P-value<0.05.
[37] P-value of differences between public and private schools and public and community schools is <0.05.
[38] P-value of differences between public and private schools and public and community schools is <0.05.

Figure 45:   Reasons for selecting a specific school mentioned by parents
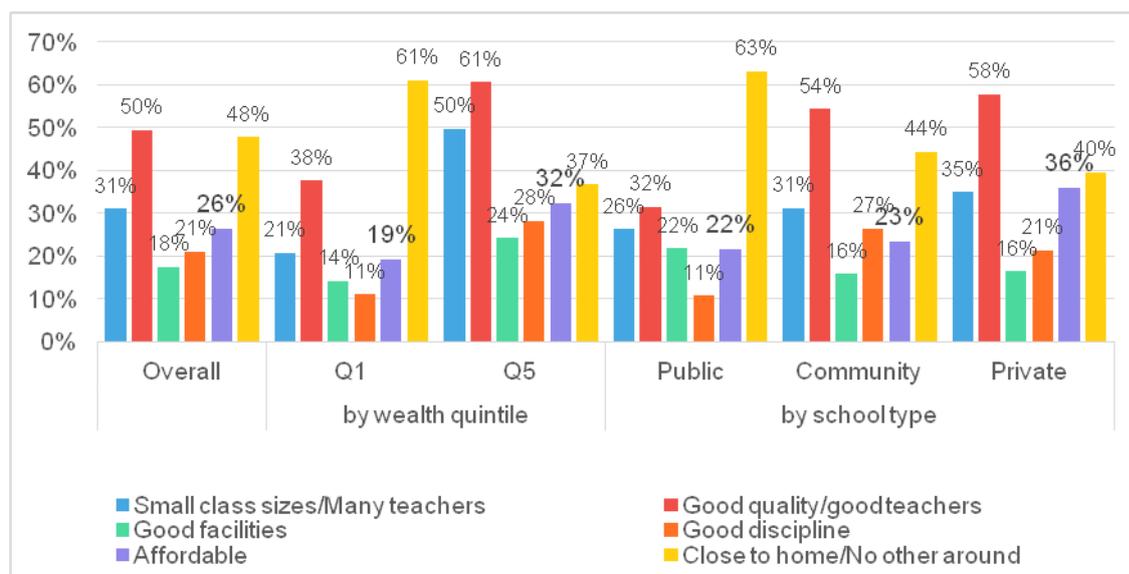
Parents' information about schools

We investigated the type of information that parents obtain from visiting the school, their reasons for selecting a specific school, the number of schools visited before making the school choice decision, and information about school performance and progress provided by schools to parents.

We found that parents do not tend to collect information about learning outcomes specifically; only 43% of parents visit schools before enrolling their child, and of those, only 23% inquire about exam results or learning outcomes. Instead, 77% of the parents visiting schools collect information about school fees, and 39% focus on information about school facilities. Parents from the wealthiest quintile appear to value small classes and good quality teachers more than parents from the poorest quintile, who seem to especially value proximity to the home.

Figure 46:   Information obtained from visiting school (if parent visited school, N=209)
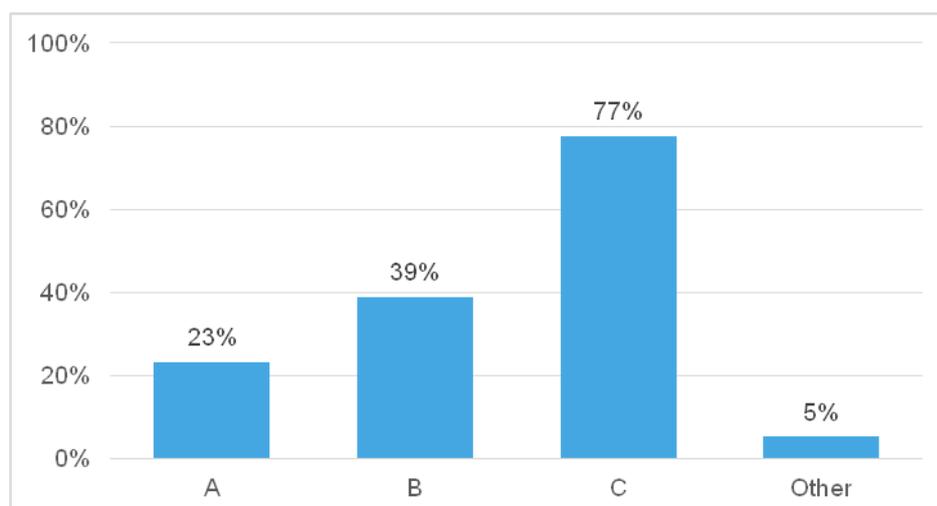
(A) Information about exam results or learning outcomes; (B) visual information about school facilities; (C) information about school fees.

Across school types and socioeconomic quintiles, parents reported gathering information about schools mainly from informal sources, such as through talking to other parents with children in the same school (40% mentioned this was the main route through which they obtained information about the school).

Figure 47: Percentage of parents who gather information about school quality mainly from informal sources
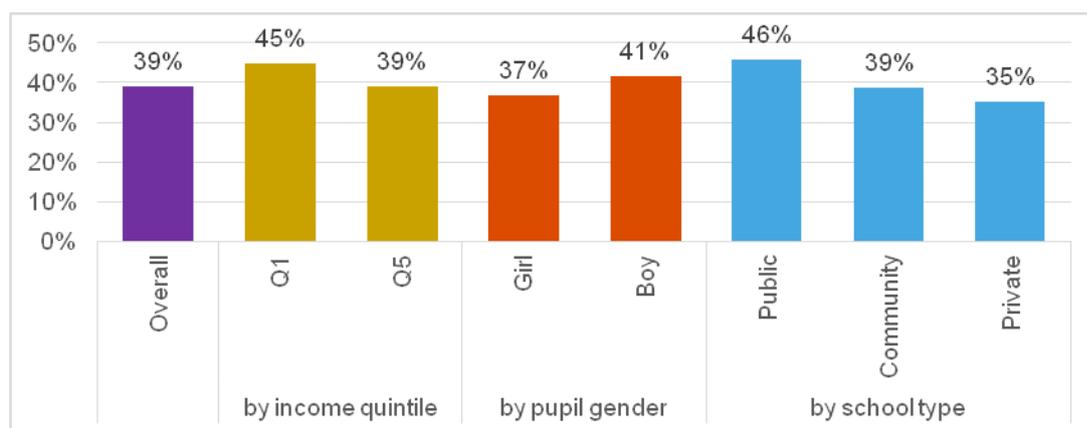
Parents did not appear to consider a large number of schools before enrolling their child in ECE—most only considered and visited approximately one school, with slight but statistically significant variations according to wealth and school type.

Figure 48: Number of schools considered before enrolling the child and number of schools visited before enrolling the child, by household wealth and school type
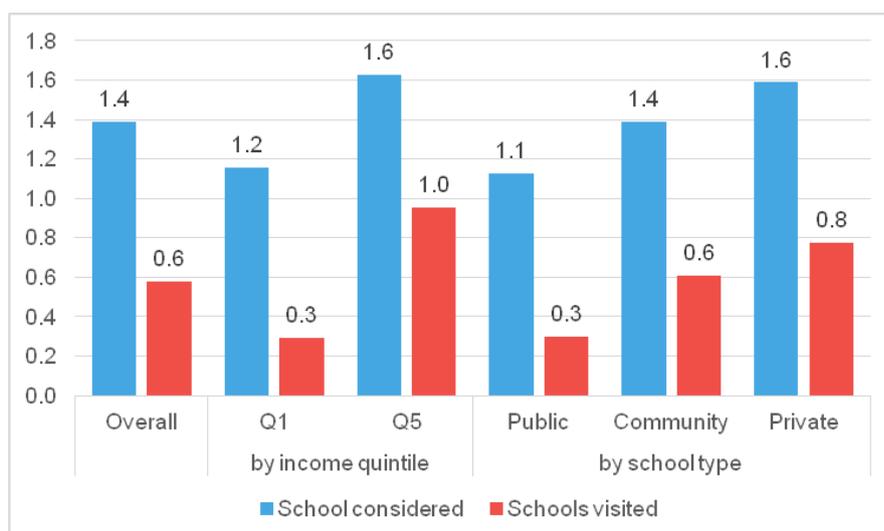
All principals said they reported aspects of school performance to parents. Most said they mainly reported about literacy and numeracy, and only 12% highlighted physical development and health (primarily driven by principals in community and private schools).

Figure 49: Aspects of school performance and progress on which schools report to parents, by school type
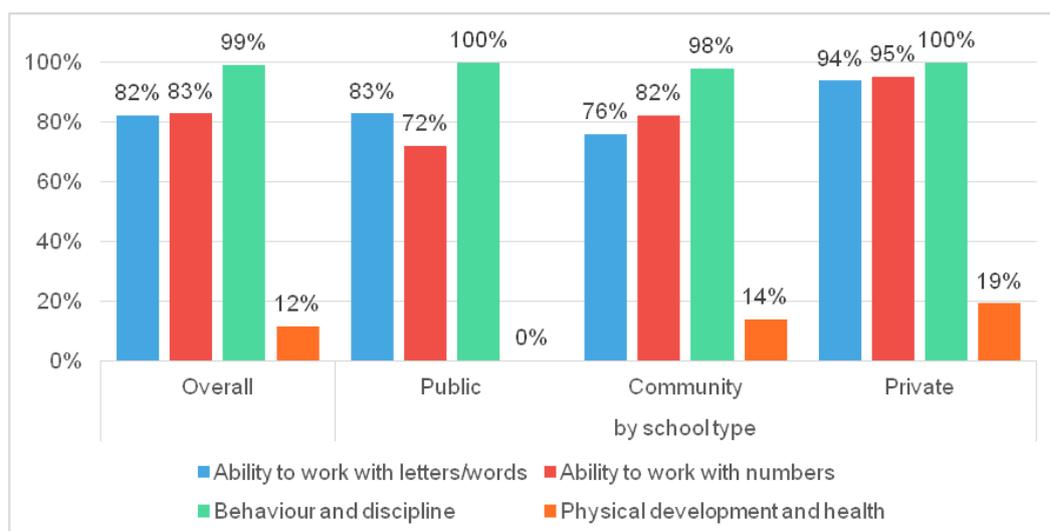
Parents' engagement with the school about quality

41% of parents reported taking action to improve or change school performance by attending parent-teacher association (PTA) meetings, and 44% reported meeting with teachers to discuss performance.

Figure 50: Percentage of parents who take action to improve/change school performance (by attending PTA meetings), by school type and household wealth
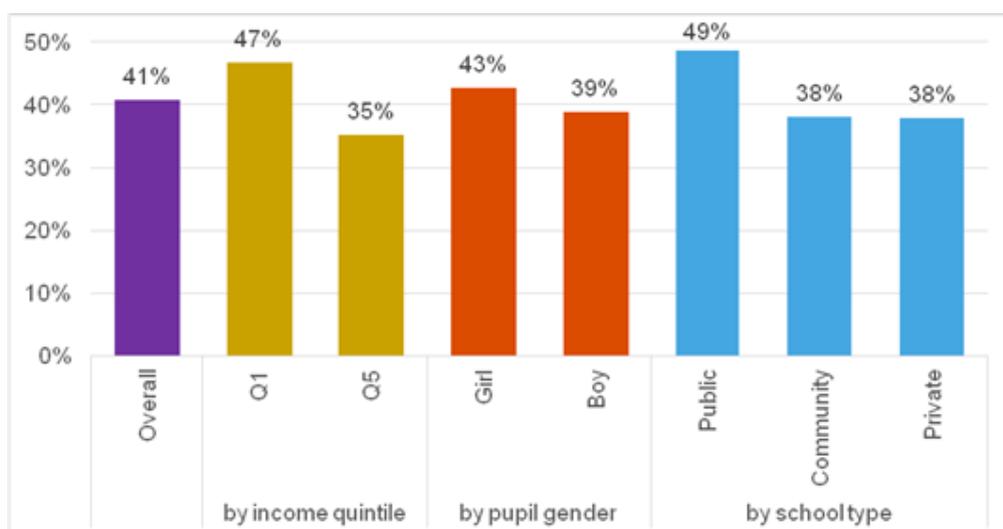
Figure 51:   Percentage of parents who meet with teachers to discuss performance
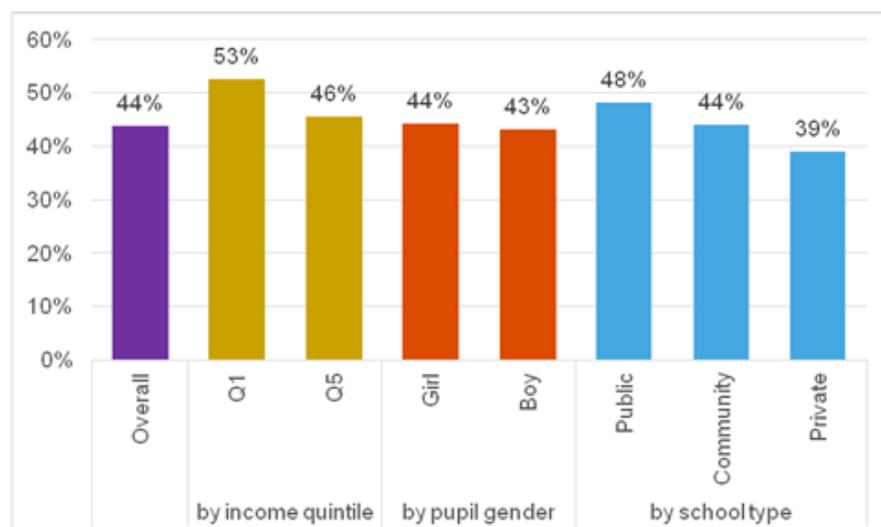
4.10   How is government involved in promoting quality ECE?

We investigated whether targets had been set for promoting quality ECE at a national level, and whether there were sufficient resources and capacity to meet these targets across district, county, and national governments. We also explored whether there were mechanisms for collecting data against these targets and means of ensuring accountability.

Targets

Interviews with senior officials within government supported the position that education, and specifically early childhood education, was nominally a priority for government. The president's "Pro-Poor Agenda" includes a specific focus on education, and a senior official interpreted the top priority within education as being ECE. In addition, respondents mentioned that the formation of the ECE Bureau evidences the government's commitment to the issue. The government has also approved a national ECE curriculum, which offers details about the desired activities and outcomes of ECE.

Resources

The ESP sets the objective that 20% should be spent on education. However, from 2010/11 to 2015/16 education, as a share of the total budget, varied from 10.6% to 13.5%. ECE has a proportion of this budget and has remained constant from 2012/13 to 2014/15 at 11%. Although officials believed that there is considerable expertise within the MoE, they were concerned that small teams were stretched across competing priorities. Most respondents were concerned that the technical and financial resources available to DEOs and CEOs was limited, as 42 DEOs and 2 CEOs had recently been replaced. County and district levels also appeared to be substantially underfunded, with limited access to equipment and vehicles. Consequently, the implementation of ECE relied substantially on donors and implementing partners.

Information

Data on the education system is gathered through the EMIS on an annual basis, which includes questions specific to ECE. In addition, as illustrated in the figure below, principals reported being visited by a CEO on average 2.7 times in the last six weeks. Approximately half of principals reported being visited by a DEO in the last six weeks. Although the sampled teachers reported substantially fewer visits, it is plausible that many teachers were unaware of the visits.

Figure 52:   Mean number of external monitoring visits in the last six weeks, by school type, according to the principal and the sampled teacher
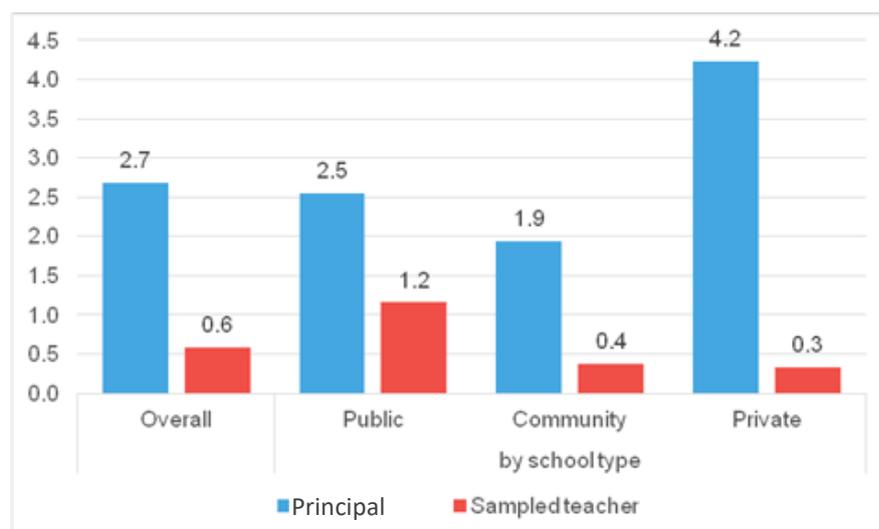
Figure 53:   Schools visited by the DEO in the last period (six weeks) of the previous academic year, by school type, according to the principal and sampled teacher
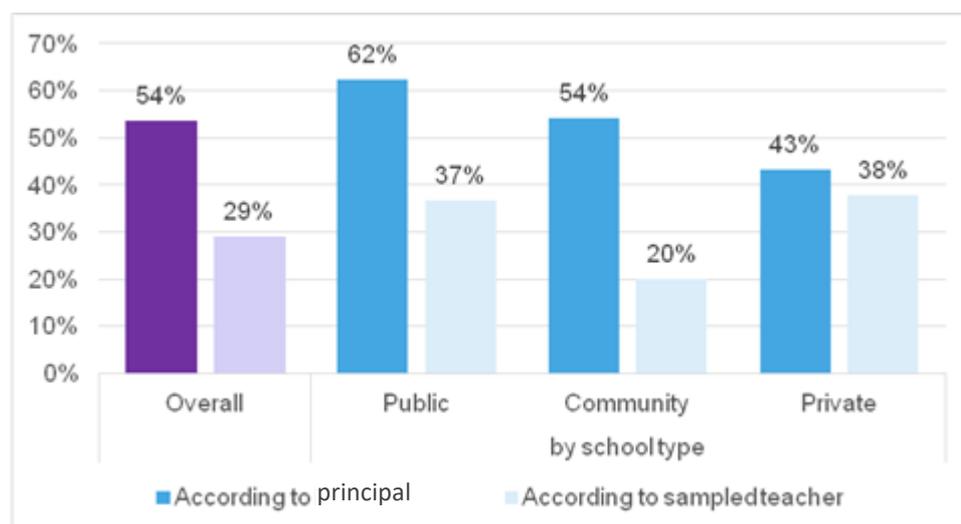
Accountability

There is a discrepancy in the number of times principals and the sampled teacher report being visited by the DEO. However, the somewhat regular number of external monitoring visits suggest that there is considerable potential for oversight of the schools. The few interviews with CEOs and principals conducted suggest that school visits are not frequent, and in some cases CEOs/DEOs do not reside in the counties or districts that they are responsible for. One of the principals interviewed mentioned that during a school visit, the DEO did not get out of their car to undertake the visit. DEOs/CEOs mentioned severe financial constraints to visiting schools. The apparent disconnect between national government and county and district levels, described previously, is critical, as this is likely to further undermine the ability of national government to influence the practices of schools.

4.11   How well is the ECE system aligned to promote quality ECE?

As a whole, the system is partially aligned to promote quality ECE.

To recap, although most (72%) of children enrolled in ECE were over the age of six, most children could only do the easiest assessment tasks on a test aimed at children between three and five years old. Moreover, teachers engaged in predominately rote-teaching, with very little time spend on child-centred activities.

There are aspects of the ECE system that have the potential to contribute to quality ECE. National government is nominally supportive of ECE and has developed a national curriculum, and there are at least basic formal processes for gathering data on ECE and monitoring the performance of schools. Many parents engage with their schools. Most principals have a teaching qualification, and many are engaged with supporting their teaching staff.

However, the impact of these features is undermined by underperformance elsewhere. Most significantly, schools are under-resourced and the vast majority of ECE teachers have no qualifications. Additionally, the MoE is reportedly disconnected from county and district governments, which in turn have limited resources and staff capacity. Principals appear to have limited ability to sanction underperforming staff.

It is intriguing that there is such a substantial difference between parents' high-regard for the quality of ECE provision, and the predominance of rote-teaching methods rather than the child-centred learning expected by the national curriculum. However, without further research it is unclear what to infer from this: either parents do not share the norms of the national curriculum, or, are otherwise unable to gauge the discrepancy. Nonetheless, most parents report considering few, if any, alternative schools.

Figure 54:   System alignment to promote quality ECE
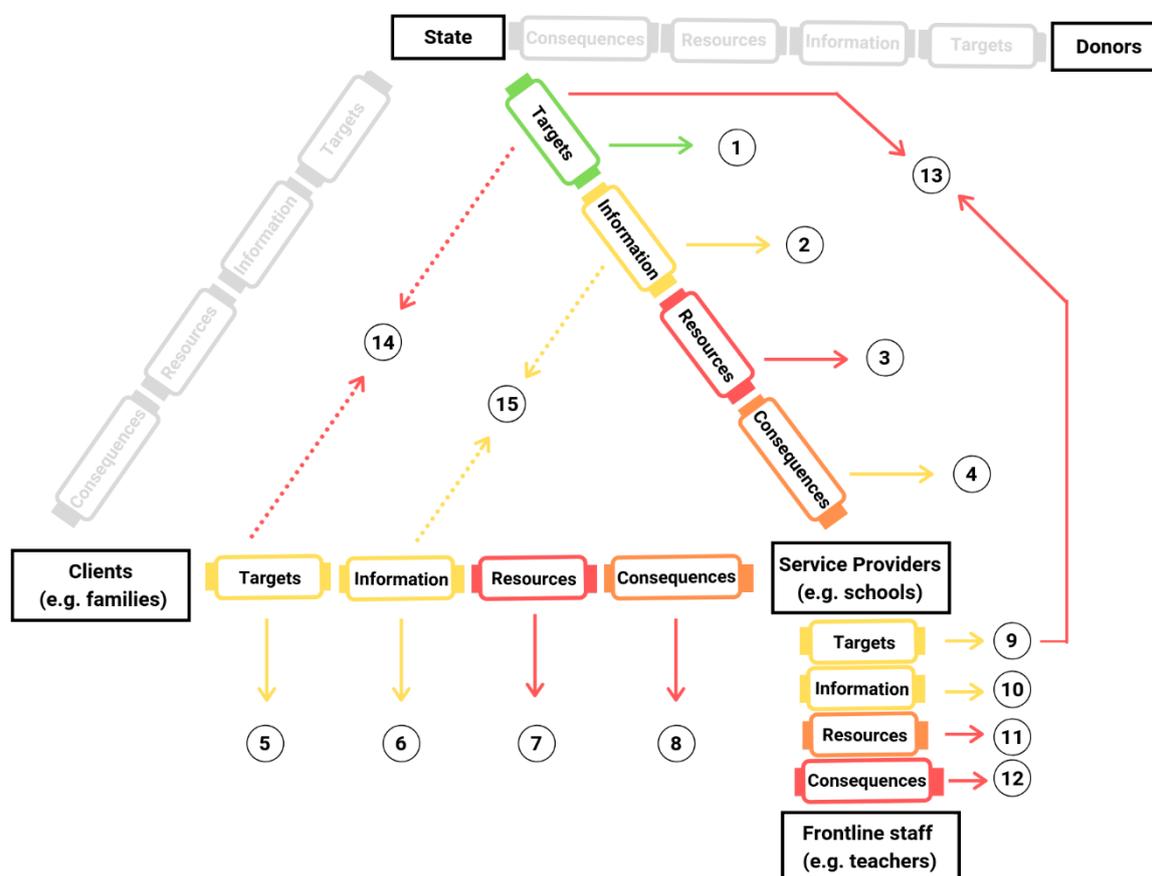
Accountability between the State and Schools

1. ECE is formally prioritised by national government. A suite of policies, including a national ECE curriculum, outlines the objectives for quality provision.

2. Although there is an EMIS, data is collected infrequently (i.e. every 2 years) and there is limited information about ECE. Conversely, CEOs/DEOs seem to visit schools relatively regularly.

3. The funding for education as a proportion of the public budget (10.6% - 13.5%) has been lower than the targets set by national government (20%). Distinct and county governments also have limited technical and financial capacity, and specifically lack equipment and vehicles.

   ECE appears to be substantially underfunded at a school-level, as expenditure per pupil will have to be increased from $25 to $95 per annum to provide quality provision.

   Most (80%) of teachers do not have any qualifications, and most (70%) have not received ECE-specific training in the last three years. Conversely, a substantial proportion (63%) of principals have teaching qualifications.

4. There appears to be a substantial disconnect between national and district and county government, which limits the ability of national government to hold district and county administrations to account. Conversely, CEOs/DEOs appear to visit schools relatively frequently, but it is unclear whether they can impose any consequences relating to performance.

Accountability between Families and Schools

5. A small majority (59%) of parents cited quality as a primary criterion in their decision of school, and 95% and 86% of parents expected their children to learn skills relating to literacy and numeracy, respectively.

6. A sizable proportion (41% - 44%) of parents engage with teachers on issues of school quality. However, parents rarely visit or consider other schools.

7. Families struggle to pay existing fee rates, as 82% of parents are unable to pay in full and on-time.

8. Parents' inability to pay fees timeously limits their client power over schools. Additionally, as they rarely visit or consider other schools, it is unclear to what extent parents can compare their observations and experiences to alternatives.

Accountability between Schools and Teachers

9. 87% of schools use some kind of ECE curriculum. However, only 42% of schools report discussing issues of quality in staff meetings.

10. Approximately half of principals' review lesson plans and observe classes frequently. Between 70% - 95% of schools test children's learning outcomes (discussed in the next section), but this seems to be used to decide whether a child should be promoted rather than as a diagnostic of quality learning. Whilst there is some means to monitor quality within the classroom this can be substantially expanded.

11. Almost all classrooms are equipped with a blackboard, markers, pens/pencils, and workbooks. However, a minority of classrooms had children's books, and almost no classrooms had craft supplies or puzzles and games. The pupil-teacher ratio was high (25.7), and classrooms were too small for indoor activities.

12. Principals have limited ability to sanction under-performing teachers beyond merely discussing the issue with them.

Accountability across relationships

13. Although there is a national ECE curriculum, it is used in only a small minority (31%) of schools. Moreover, the norms of the national ECE curriculum, such as child-centred and play-based learning, also do not seem to be endorsed by teachers who spend 45% of classroom time using rote-teaching methods and only 14% of classroom time on pup-centred learning.

14. There is an apparent disjuncture between government's norms for quality ECE (being predominately child-centre), the standard teaching practices in schools (being predominately rote), and parents' high-regard for the quality of ECE provision. However, it is unclear why this is the case. It may be the case that parents do not share the norms promoted by government and have a preference for rote-teaching. Alternatively, parents might share these norms but be unable to gauge whether they are being met in their schools. Further research is required, and we have indicated this with a dotted line.

15. Whereas the government uses information from the EMIS or school visits to assess quality against curriculum expectations, parents rely on word-of-mouth and school visits. This may occasionally result in different assessments of overall quality levels in the ECE system.

5 Overage enrolment in ECE in Liberia

In this chapter, we present our findings on age-appropriate enrolment in Liberia. We follow a similar structure to the previous section. We start with an analysis of the prevalence of overage enrolment, before considering the school-level factors that shape this. We then consider the role of parents, and the influence of government at a district, county, and national level.

Finally, we ask of the system as a whole: are the targets, information, resources, and consequences aligned to promote quality ECE?

Figure 55: Framework of findings on overage enrolment
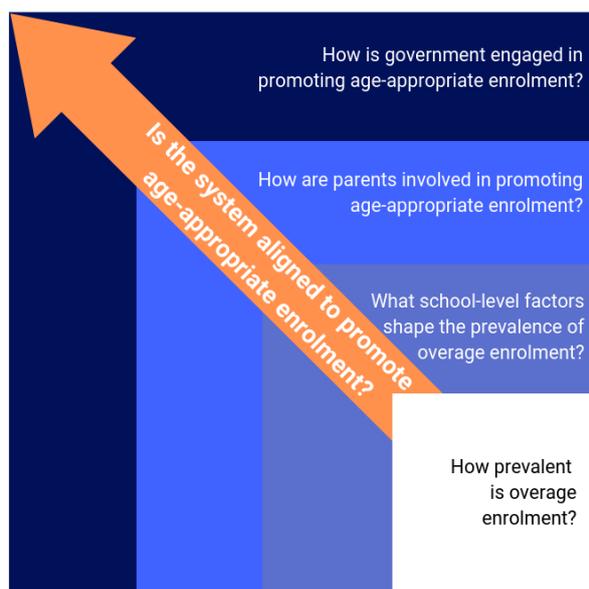
Box 2: Key findings on age-appropriate enrolment

1. The majority (67%) of children enrolled in ECE are six-years or older, whilst 5% are older than 11-years. This is despite government policy being that children between the ages of three and five should be enrolled in ECE, and that there should be no barriers to children progressing to primary school when they are six-years old.

2. For the most part, overage children do not receive additional support through their schools due to a shortage of resources. 52% of principals and 24% of teachers reported offering additional support through either additional teachers or remedial classes. The primary reason cited by principals for not offering support was a lack of resources.

3. Almost all principals and teachers were aware of the current age of enrolment. However, fewer than half reported following the government's policy on enrolment.

4. The majority (64%) of parents enrol their children in ECE when they are 5-years or younger. However, most parents expect that their children will not progress to primary school even after they are six-years old.

5. Overage enrolment does not seem to be a particular priority for principals, families, or government officials. Despite the large proportion of children who are overage, many respondents from families, schools, and government did not identify over-age enrolment as a priority. Although there is a national policy on age appropriate enrolment, government has not specifically allocated resources to this issue.

5.1 How prevalent is overage enrolment?

Policy indicates that children should be between three and five years old on enrolment in ECE (Ministry of Education - Republic of Liberia, 2011); children older than three and younger than six are therefore considered to be of ECE going-age. Out of the students sampled for assessment, 66% were six years old or older, suggesting that two thirds of students should be studying in primary school rather than ECE. Strikingly, 5% of students were 11 years old or older. This is represented in the Figure below.

Figure 56: Age distribution of sampled children in ECE (according to parent, at time of surveying)
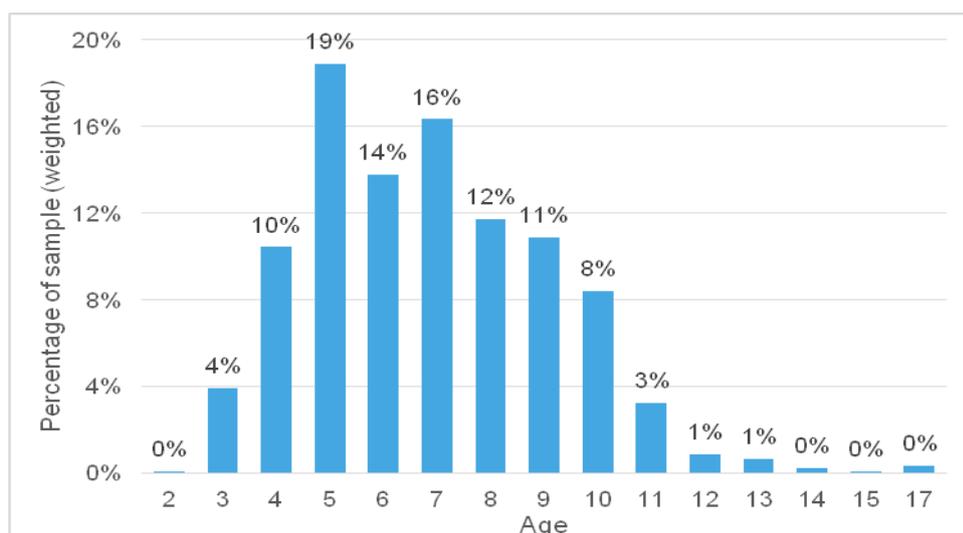
Data are from the parent dataset and supplemented by child's response if parent did not know or if no parent survey was completed (N=490). Figures are weighted.

We also asked for the ages of all the students in the observed classroom through a show of hands. The Figure below presents the weighted average of the mean number of students of a certain age across the 50 schools surveyed. Whilst, for the most part, the distribution of ages in the classroom mirrors the distribution of the ages of children sampled for assessment from those classrooms, it appears that, in the classrooms observed, 72% of students were aged six or older.

Figure 57: Age distribution of children in ECE (all students from classroom observations, at time of surveying)
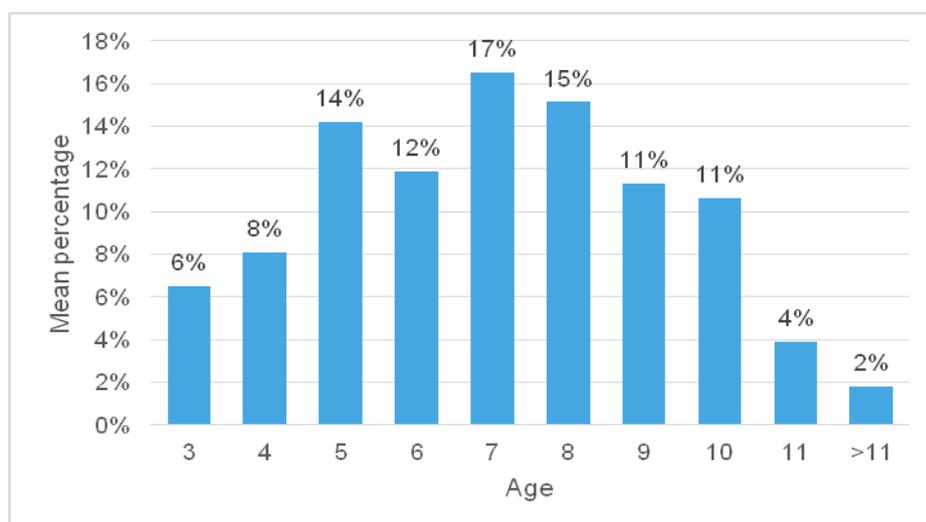
Note: Estimates show the average percentage of students in the classrooms observed falling in a particular age group (N=50).

The Figure below considers the age distribution by gender, using classroom observation data. According to the Figure below, 13% of children aged three to five are girls, and 16% are boys. 35% of children between six and ten are girls, and 30% of boys. Finally, 1% of children are girls aged eleven or more, whilst 4% of the sample are boys in this age group. There does not appear to be a clear trend in the classrooms observed to suggest whether boys or girls are more likely to be overage.

Figure 58: Distribution of girls and boys by single age (from classroom observation data, at time of surveying)
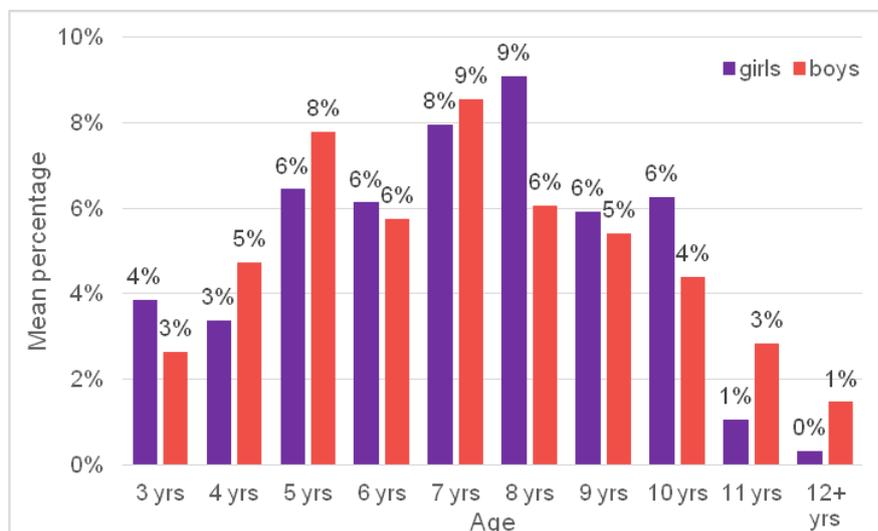
Note: Estimates show the mean proportion of children in a particular age and gender out of the total number of students (N=50)

Children in the lowest wealth quintile are much more likely to be to be overage and still in ECE. This is consistent with the suggestion in the 2016 Liberia ESA that overage enrolment is associated with persistent inequality within education (Ministry of Education - Republic of Liberia, 2016).

Figure 59: Percentage overage enrolment (over six years old) in ECE, by wealth quintile (using ages given by parent at time of survey), N=490
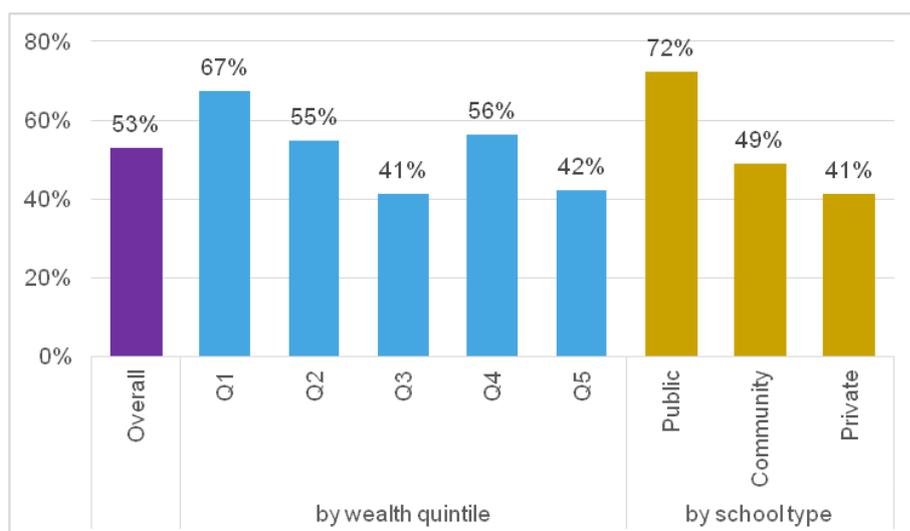
Fewer overage children attend private schools and community/church schools compared to public schools.[39] Note that this is likely to be the case partly because the top quintile is over-represented in private schools and under-represented in public schools. The five wealth quintiles are represented equally in community schools.

Figure 60: **Mean percentage overage enrolment (over six years old) in ECE, by school type (using classroom observation dataset, N=50)**
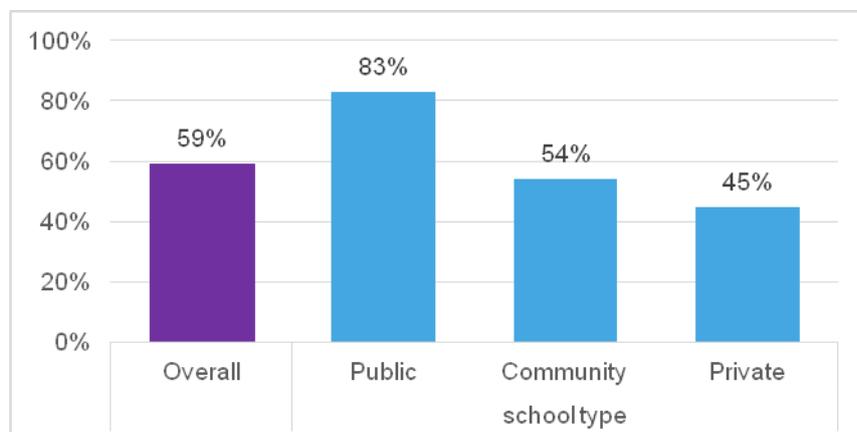
Overall, this section finds that the issue of overage enrolment is prevalent at the ECE level in the south-eastern counties, which formed the focus of this study. Children in public schools, and the poorest children, are most likely to be overage, but there are no significant differences between the percentages of overage students by gender, suggesting that other reasons are likely to be responsible for girls being more likely to drop out of school later in life.

5.2 What school-level factors shape the prevalence of overage enrolment?

In this section, we explore the attitudes, knowledge, and behaviours of teachers and principals that are relevant to overage enrolment. Specifically, we investigate teachers and principals understanding of the official policy, their use of testing to determine whether a child should be enrolled in ECE, the extent to which addressing overage enrolment is prioritised within the school, and the support provided to children who are overage.

5.2.1 Understanding of official policy

Approximately half of the principals in the visited schools reported that their schools follow an official government-mandated policy about the age of enrolment at both nursery and kindergarten. This is represented in the Figure below, which shows that overall, 48% of principals reported that they followed the government policy, 43% reported following some other policy, and 9% reported that no policy is followed.

We do not observe any particular indications of trends to suggest that certain school types are more likely to say they follow official government policy than others.

---

[39] The difference between public and private and public and community/church was statistically significant at 1% significance level.

Figure 61:   Policies about the age of enrolment followed by schools (as reported by the principal)
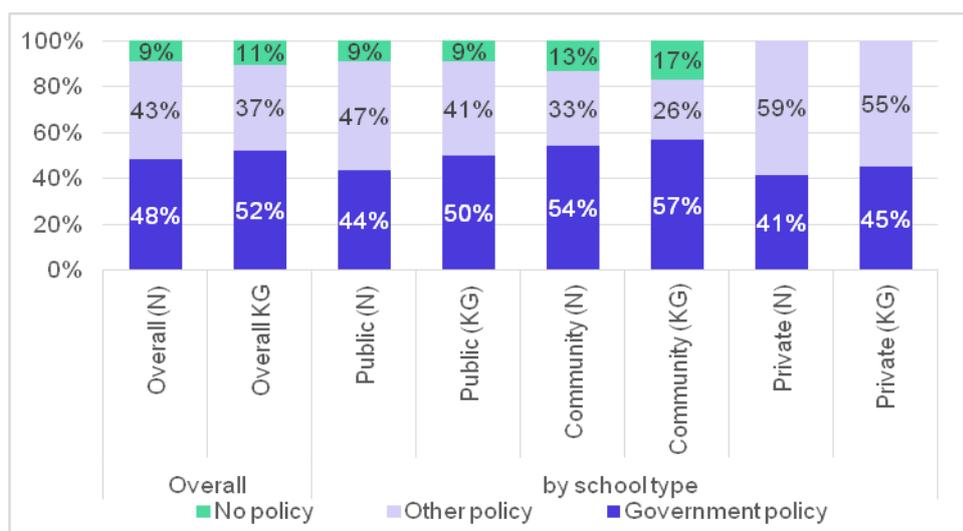
Amongst the principals who reported their schools follow a different policy or no policy at all, 9% said there is no government policy, and 14% reported not knowing about the policy. Of the remaining principals who did know a government policy existed but who do not follow it, 96% correctly claimed that the official policy prescribed that children who are six years or older should not be enrolled in ECE.

Figure 62:   Perceptions of the official age of enrolment by principals who report not following government policy, but are aware of it
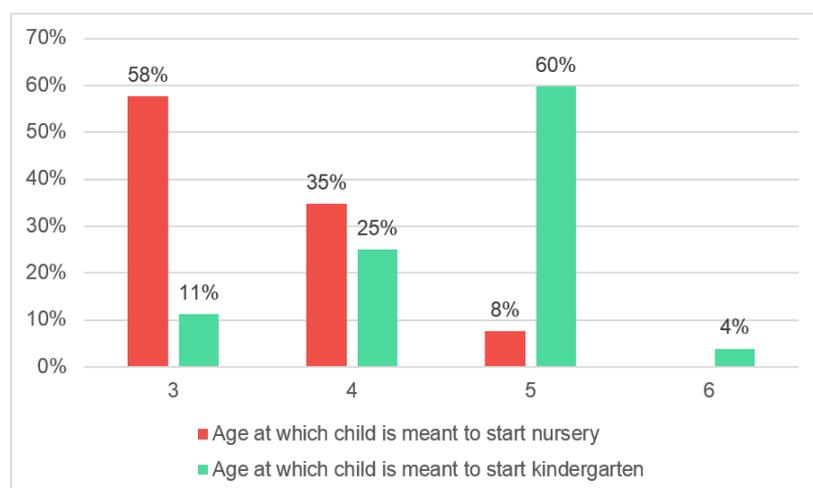
To better understand the schools' practices on overage enrolment, we asked teachers how old children are meant to be when starting ECE. Of those teachers who taught kindergarten (typically the final stage of ECE), 69% of teachers correctly claimed that the official policy prescribed that children who are six years or older should not be enrolled in ECE.

Figure 63: Teachers' perceptions of the official age of enrolment
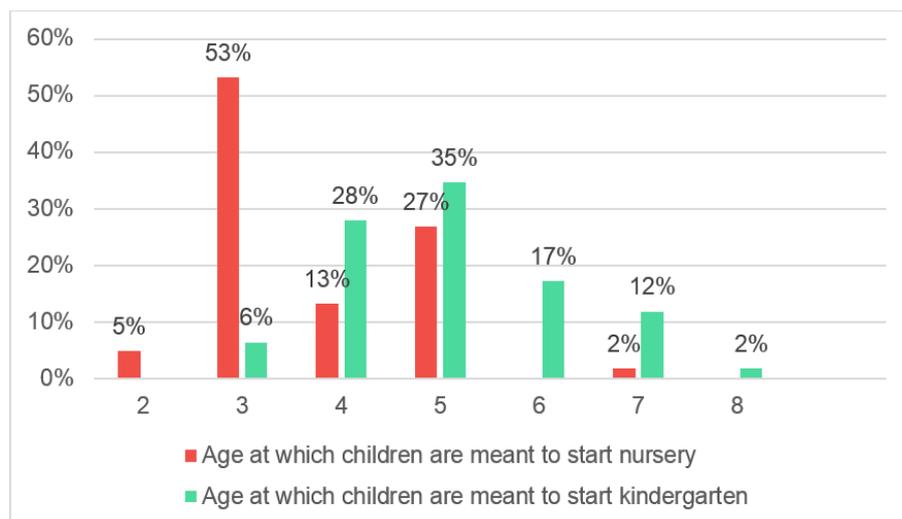
In schools where principals reported that they follow the official policy on the age of enrolment, 50% of pupils in the observed ECE classrooms were aged between three and six. In schools where the principals reported not following the official policy on the age of enrolment, this share was 33%. The difference is not statistically significant,[40] which may well reflect the small sample size. Taken with the findings above, however, this does suggest that, even though principals and teachers have reasonable expectations about the appropriate age of enrolment, these expectations do not translate into very high shares of children enrolled being of the appropriate ages, even where principals reported following the official policy.

Figure 64: Mean percentage of students aged between three and six years old in the observed classroom, by whether school followed the official policy on the age of enrolment (in either nursery or kindergarten)
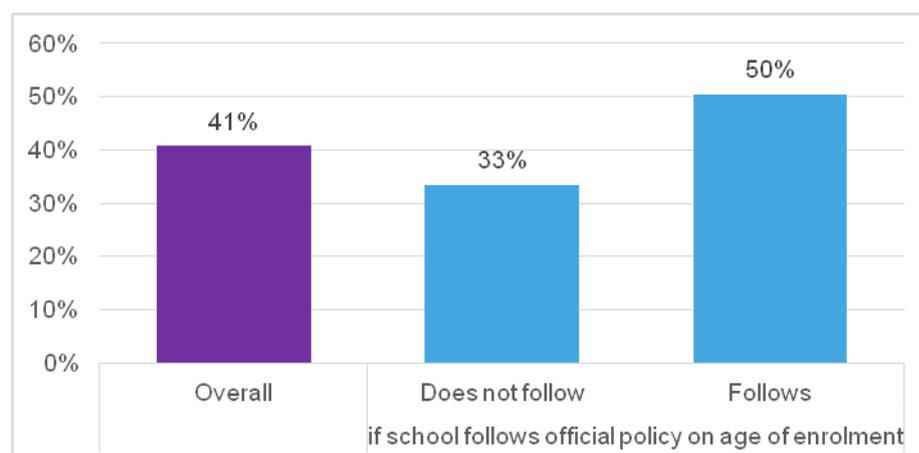
5.2.2   Using tests to determine enrolment grade

We found that tests are widespread with 65% of schools using them to decide the initial level at which a child is enrolled. Between 70% (according to teacher reports) and 93% (according to principal reports) use them to decide whether a child should progress *within* ECE grades. Between 78% (according to teacher reports) and 95% (according to principal reports) use them to decide whether a student should progress from ECE to Primary 1.

The Figure below shows that schools with high fees are significantly more likely to use tests (focused on literacy and numeracy) to decide the level at which a student should be enrolled;

---

[40] The p-value of a one-way ANOVA test of difference between two groups is 0.15.

88% of the schools in the top tercile by fees were using tests compared to 46% in the bottom tercile of schools by fee level.[41] At the same time, schools with high fees have the lowest proportion of overage children enrolled in ECE. Schools with high fees thus appear more likely to use tests as a barrier to entry, and they also have a lower mean age at first enrolment. This may be correlation and not indicative of causation, but this surprising finding warrants further research. There are no statistically significant differences in the percentages of principals using tests among public, community, and private schools.

Figure 65: Percentage of schools using tests to decide on child's initial level, by school type and school fee level (where 'low' is the bottom third, 'high' is the top third)
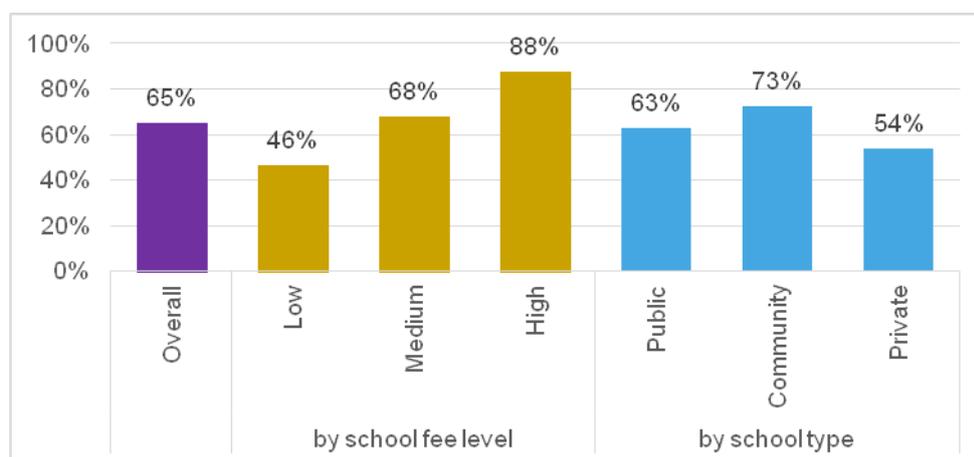
No such statistically significant trends could be observed for *progress within ECE* or from pre-primary to Primary 1. On the contrary, schools with high fees appear less likely than schools with lower fees to use tests to decide whether a child should progress according to the sampled teacher, although not according to the principal.

Figure 66: Percentage of schools using tests to progress a grade within ECE (bottom) and from ECE to Primary 1 (top), by school type and school fee level

---
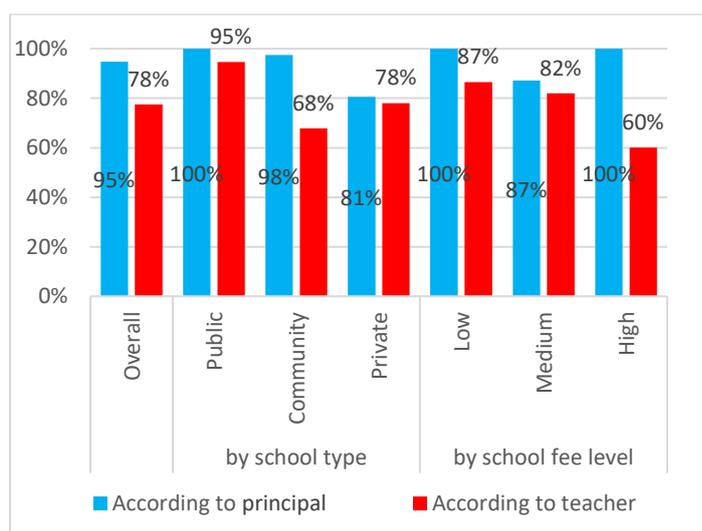
[41] The p-value of the difference in percentage using tests between the highest fee tercile and the lowest fee tercile is 0.013.
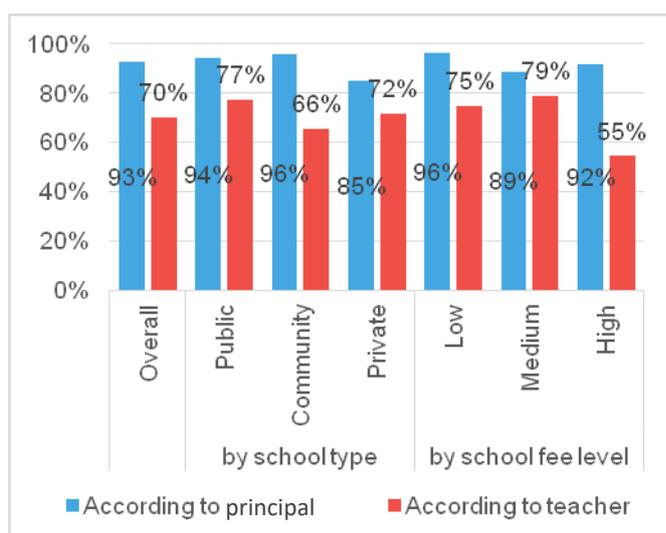
5.2.3 Prioritising age-appropriate enrolment

To gauge priorities at the school level, we asked teachers and principals whether they met regularly to discuss school matters; 78% of teachers and 100% of the principals reported having regularly held staff meetings in the last six weeks of the previous academic year. As shown in the Figure below, staff meetings were held on average nearly three times during the last six weeks of the previous academic year according to the principal, and closer to two times according to the teacher. However, overage enrolment was never discussed.

Similarly, 42% of schools reported having a school management team, or a group of teachers, principals, and district administrators working together to manage how the school is run and to address problems. However, the age of enrolment did not constitute the main topic of discussion at any of the meetings this team had held in the last six weeks of the previous academic year.

Figure 67:   Mean number of staff meetings (during the last period of the previous academic year), according to the principal and (sampled) teacher
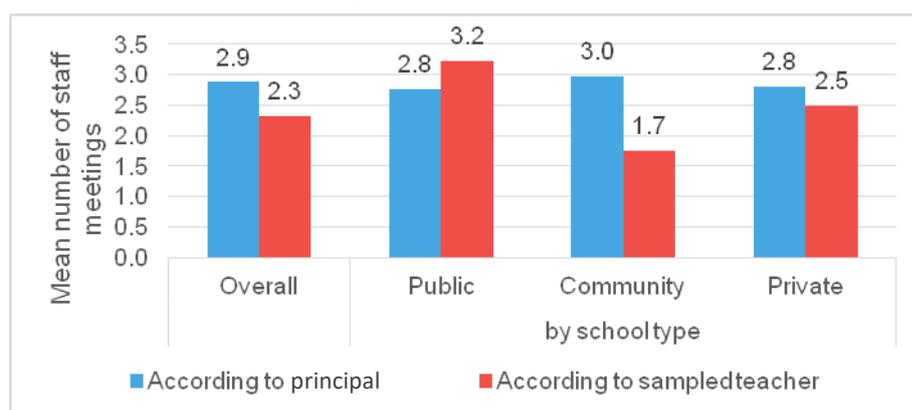
We further probed the role that age-appropriate enrolment plays in teachers' and principals' perceptions about ECE quality. When asked to name the three key ingredients in good quality ECE, none of the teachers and the principals interviewed made any mention of age-appropriate enrolment or overage children. Similarly, when asked to name the three main challenges to providing good quality ECE, none of the teachers surveyed mentioned the topic of age-appropriate enrolment.

5.2.4 Supporting overage pupils

Nonetheless, as illustrated in the Figure below, 76% of principals and 38% of teachers reported acting to address the issue of overage enrolment.

Figure 68: **Percentage of schools that have acted to get children to enrol on time, according to the principal and sampled teacher**
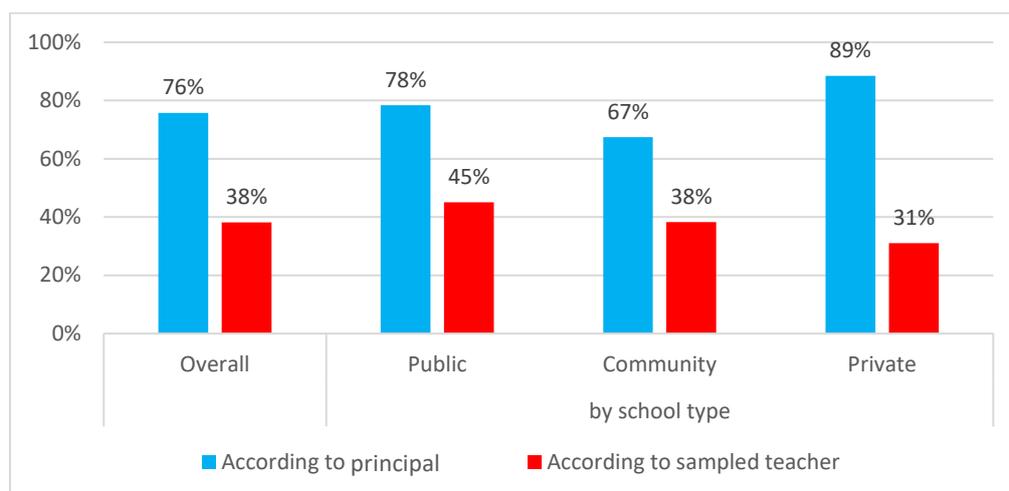
The top actions undertaken by principals to ensure that children are enrolled on time were community sensitisations, direct contact to parents, and enrolment drives, as indicated in the Figure below. Teachers also mentioned community sensitisation and direct contact with parents, although less frequently than principals, potentially because they were less likely than principals to be involved in these actions. Teachers were significantly more likely to mention scholarships as a key action than were principals.

Figure 69: **Top actions taken by school to get children to enrol on time (if action was taken), according to principal and sampled teacher**
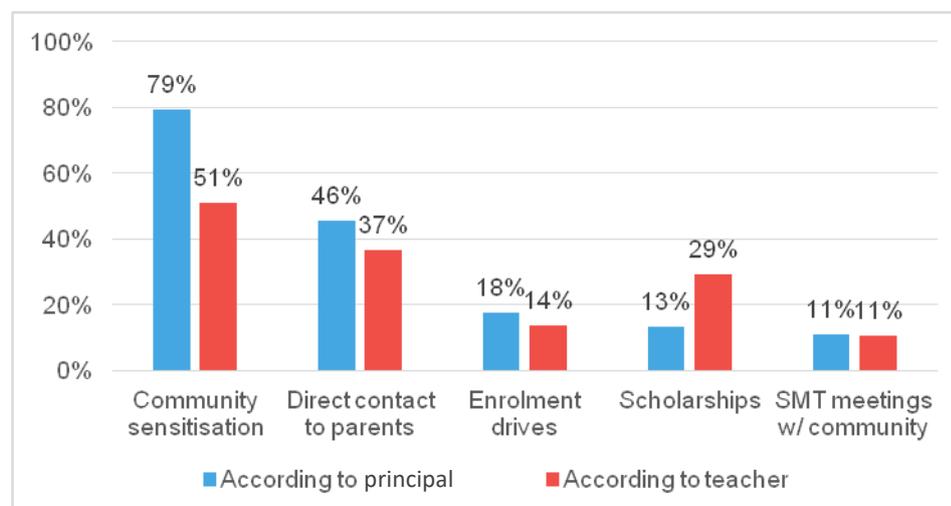
Only 50% of principals and 24% of teachers reported their school had offered help to the overage students already enrolled. According to both teacher and principal reports, community schools were more likely than private or public schools to have offered extra help to overage children.[42]

Amongst private schools, there is a substantial disparity between principals' reports and teacher reports of extra help being offered. It is possible that principals report more often taking action regarding overage enrolment because they are able to do so without involving teachers. It is, however, highly unlikely that such extra help would take place without the involvement or the knowledge of teachers, so the discrepancies on this two related issues may be explained by respondents providing what they believe to be the 'right' or expected answer. It may be that, in such cases, teachers' reports are more accurate.

---

[42] P<0.01 according to both teacher and principal reports.

Figure 70: Percentage of schools that give extra help to overage pupils, according to the principal and sampled teacher
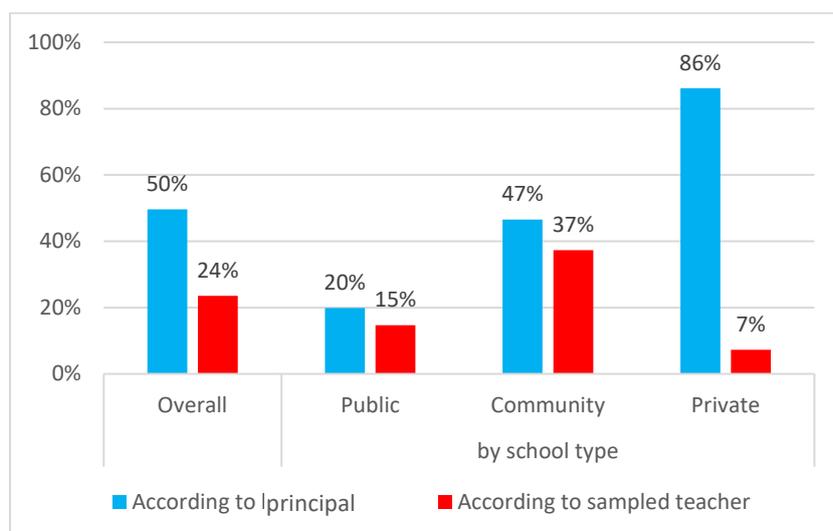
Only 52% of the principals in our sample reported their school offered extra help to enable overage children catch up. The most common type of help offered was teacher support and remedial classes. Amongst principals who reported their school did not offer extra help to overage children, the most common reasons for such a lack were an absence of teachers and resources (reported by 80% of principals), or not knowing how to deal with the issue (reported by 43% of principals). Only 6% of principals reported not seeing overage enrolment as an issue.

Figure 71: What extra help was given to overage pupils? Why was no extra help was given to overage pupils? (according to the principal)
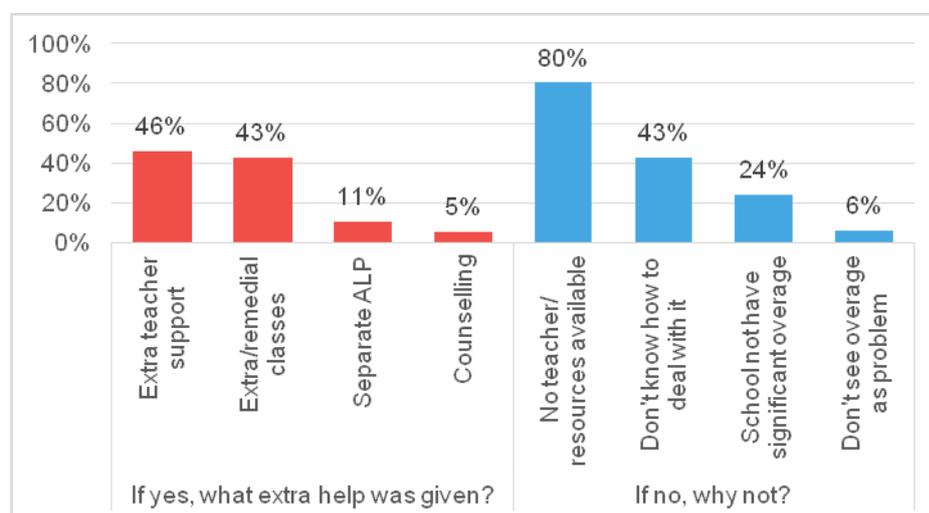
An important likely source of incoherence in the finance element of the management relationship, with respect to overage enrolment, is the absence of financial resources at the school level to address the issue. One solution that has previously been explored in Liberia is to help children enrol in Accelerated Learning Programmes. These programmes would be aimed at children who are too old to be in pre-primary, but at the same time do not have the learning levels required to be in the correct grade for their age. Based on the cost data collected, we here compare the approximate costs of running an Accelerated Learning Programme with the current costs per child in schools.

An Accelerated Learning Programme would entail setting up a separate accelerated learning class for these children. It is also likely that teachers in Accelerated Learning Programmes would have greater training needs. To be effective, these teachers are likely to require a

different type of training to equip them to deal with children of different ages with different needs, all of whom are in the same group at the same time. Whilst all teachers need these skills to a degree (as children are not the same in any class), this is not typically covered in regular primary school teacher training, as school systems and teacher training are typically set up according to the 'traditional' monograde model.

Based on our normative costing estimates, we estimate the start-up costs (including a separate classroom) for an accelerated learning classroom to be $3,117. However, it would be anticipated that an accelerated programme, in conjunction with a sensitisation campaign to get children to enrol at the correct time, would not be required permanently; it is possible that a less expensive structure designed to last for five years or so would be equally appropriate and less costly. In terms of recurrent expenditure, the cost of a civil service teacher is approximately $1,236 per year, and the cost of lunch (if provided) for 30 children is $3,733. The cost of maintaining this classroom is estimated at approximately $308. The materials needed are not likely to be the same as for classes of children aged between three and five, so this costing does not include the provision of age and task-appropriate teaching-learning materials for these older children. This translates into a unit cost of US $69 excluding lunch, and US$124 including lunch. The costs included here should be treated as a minimum to build on, allowing for the books and other materials necessary to support accelerated learning.

5.3   How are parents involved in age-appropriate enrolment?

In this section, we consider how parents contribute to either age-appropriate or overage enrolment. Specifically, we consider when they reported enrolling their children and their expectations about when their child will progress to primary school, as well as their participation in the decision as the grade into which their child should be enrolled.

5.3.1   When do parents enrol their children, and when do they expect them to progress to primary school?

Parental beliefs about the appropriate age of enrolment have been hypothesised as an important reason why Liberian children come to be enrolled late in school (Ministry of Education - Republic of Liberia, 2016). If parents believe children who are older than five when they enter school are of the appropriate age, they will not meaningfully delegate determining age-appropriate enrolment to schools. There will not be any incentives for parents to 'exit' from schools with high proportions of overage students, in other words to find an alternative school where the ages of the children are more appropriate.

However, as indicated in the Figure below, 64.3% of parents reported their child was enrolled into school when they were five years old or younger, which would have been in line with ECE policy.

Figure 72:   Age of children at first enrolment, as reported by parents
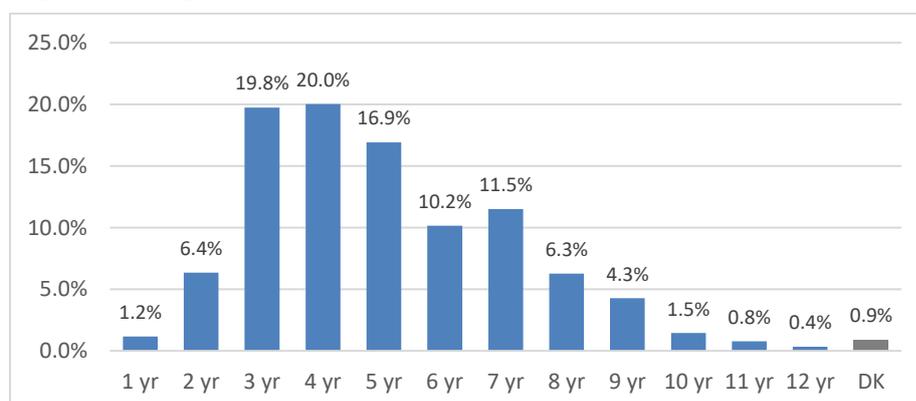
As shown in the Figure below, parents in the top socioeconomic quintile enrolled their child in pre-primary on average 1.5 years earlier than parents in the bottom socioeconomic quintile.[43] We found no statistically significant differences between the age at first enrolment for boys and the age at first enrolment for girls. Children in private schools are on average one year and two months younger at first enrolment than children in public schools, with school choice being related to the wealth of the family. Children in community schools are on average 10 months younger at first enrolment than children in public schools.

Figure 73:   Mean age at first enrolment, as reported by parents
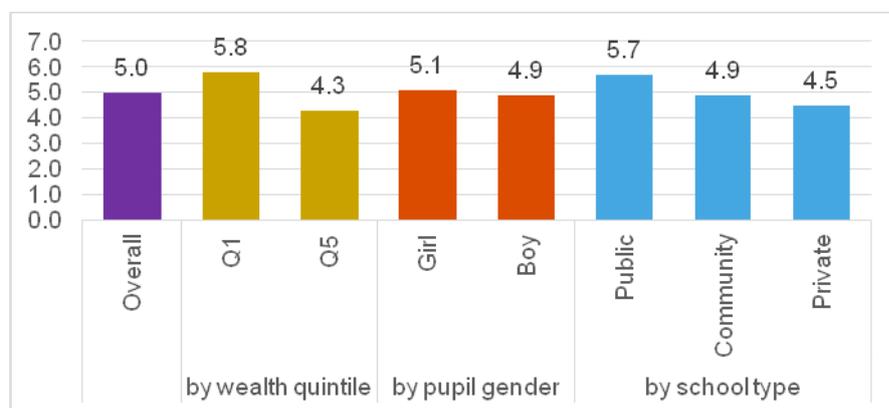
We asked parents, who had enrolled children in ECE later than the age of five, why they had done so. By far the most important reported reason for not enrolling their child in ECE earlier was not being able to afford the fees (57%). The school being too far away was mentioned as an issue by 13% of parents, and the absence of an ECE centre by 8% if parents. Only 11% of parents who enrolled their child late thought that the age they had enrolled their child was the correct age.

Figure 74:   Reason why the child not enrolled earlier in ECE (if enrolled after five years)
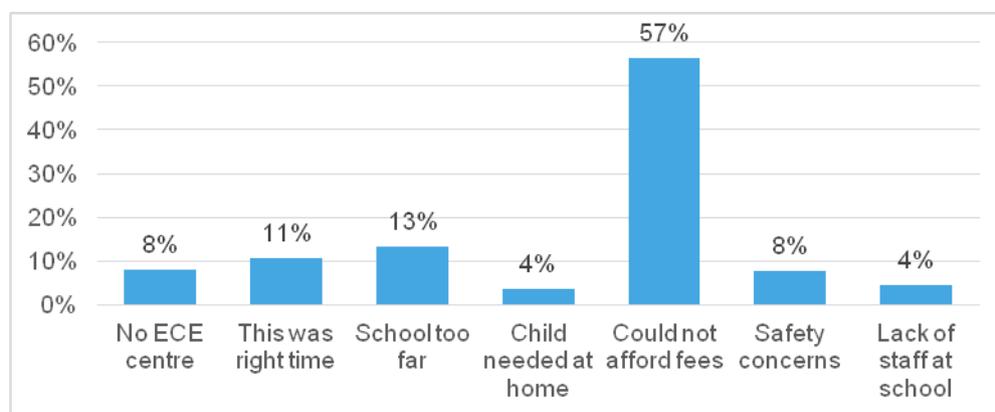
Finally, we investigated parental expectations about the age at which children should transition to Primary 1. Amongst parents with children in the last year of kindergarten, a third (33%) did not anticipate that their child would progress to Primary 1 the following year. This offers some preliminary evidence that parents either anticipate hurdles to their child progressing to the next level, or do not hold accurate beliefs about the speed at which progression should happen.

---

[43] P-value<0.01

Figure 75:   Parents with children in the final year of ECE who expect their child to progress to Primary 1 the following year
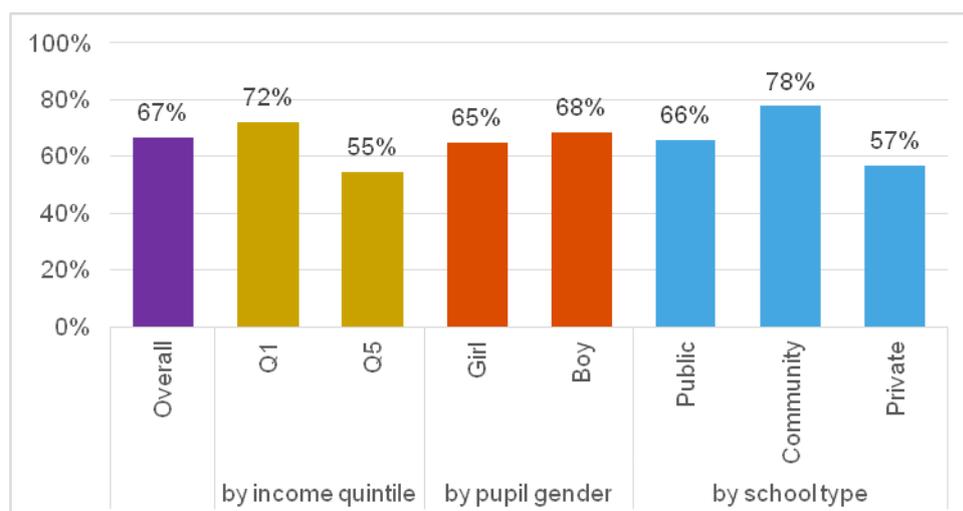
As the Figure below suggests, for children under the age of six, age appears to be inversely related to the mean number of years their parents expect to elapse before their child transitions to Primary 1. However, expectations about transitioning to Primary 1 are still not completely accurate: for children aged seven or older, the expectation seems to be that a child needs to spend between 1.7 and 2 years at the pre-primary level, even though they are already of primary school age. On average parents expect that their child will progress to Primary 1 in two years.

Figure 76:   Mean number of years in which child is expected to progress to P1, by current age of child
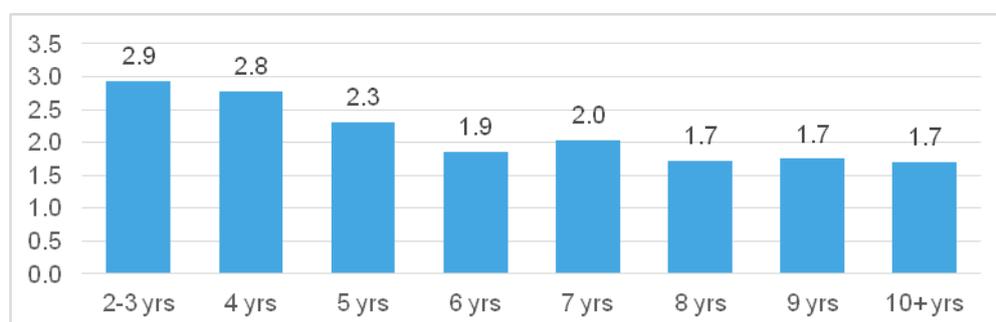
Whilst there are no significant differences between school types or gender, parents in the top quintile expect their child to progress approximately five months later than children from the bottom quintiles. This is illustrated in the Figure below.

Figure 77:   Mean number of years in which child is expected to progress to P1, by socioeconomic background, gender, and school type

5.3.2   How do parents participate in the decision about into which grade their child should be enrolled?

We investigated whether the age of enrolment was mentioned as a reason for choosing a specific ECE centre, and whether children's ages played an important part in parents' positive/negative opinions about the school. Of the 478 parents interviewed, only one specifically mentioned age as a key reason for choosing a specific ECE centre, and only three said age played an important role in their opinion about the school.

Nonetheless, in most cases, the decision about the level at which to enrol the child is made at least in part with the involvement of the parent. This fact holds regardless of socioeconomic background, the child's gender, or school type. In 77% of cases, parents mentioned being involved in the decision about the class in which the child should start at first enrolment. This suggests that parents do not in fact fully delegate this decision to schools, but instead participate in it.

Figure 78:   Schools where the child's class was decided at least in part by the parent
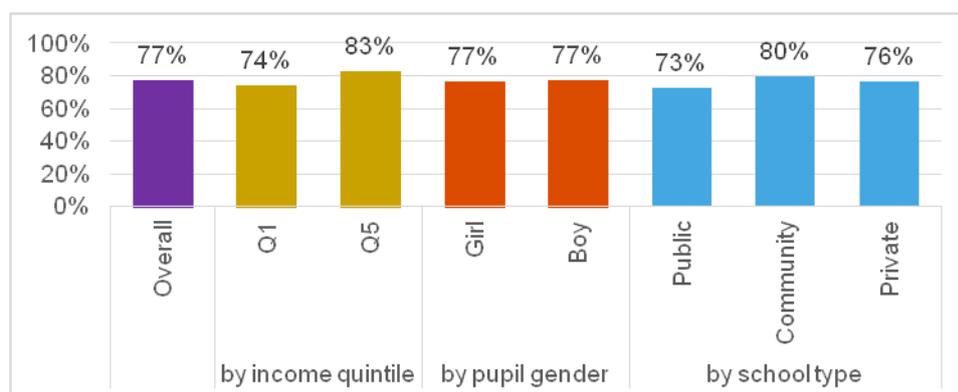
Of the parents who do attend PTA meetings, only 7% reported discussing age-appropriate enrolment. Parents belonging to the top socioeconomic quintile were significantly more likely to exercise their voice through discussing age-appropriate enrolment than parents belonging to the bottom socioeconomic quintile.[44]

---

[44] P-value<0.05.

Figure 79: Percentage of parents who discuss age-appropriate enrolment at PTA meetings
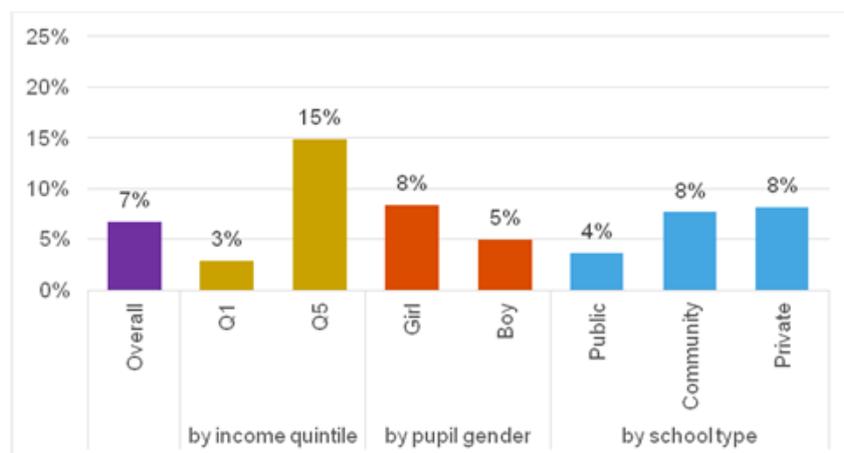
5.4 How is government engaged in promoting age-appropriate enrolment?

In this section, we consider government's engagement in addressing overage enrolment. Specifically, we explore senior official's perspectives, as well as systems of accountability, resource allocation, and data collection.

Overage enrolment has been prioritised in the ESP. However, for the most part, respondents within government reported feeling that overage enrolment was not prioritised within government, and that the concern about overage enrolment was mainly led by donors. Although respondents recognised that overage enrolment was a problem, it was not clear to what extent it should be prioritised over other issues in the education system. As one senior official reported, 'the issue of wasting resources due to prevalent overage enrolment is significant, but there is not enough attention to the cost-benefit analysis of addressing this issue now.' Another official questioned to what extent overage enrolment could be addressed by government, considering that 'you cannot compel children to go to age-appropriate learning.' Nonetheless, other officials were supportive of addressing overage enrolment through targeted learning interventions.

Some respondents within government were also concerned that an entity within government had not been designated as accountability for overage enrolment. Although overage children are enrolled in ECE classrooms, they are often not the responsibility for the ECE Bureau as they should be enrolled in primary school, and yet their needs are also not addressed by the basic education department. It was reported that no resources had been specifically allocated to addressed overage enrolment, and that neither teachers, CEOs, nor DEOs received specific training to deal with overage enrolment.

Although EMIS collects data on the number of children in each grade and their ages, this is only collected every two years. Collecting accurate data on overage enrolment is also compounded by the frequent absence of birth registration certifications, which poses a challenging in determining the age of a child.

5.5 How well is the ECE system aligned to promote age-appropriate enrolment?

There is very little alignment in the system to promote age-appropriate enrolment. Although there is a national policy governing age-appropriate enrolment, it is unclear to what extent it is prioritised by government over competing concerns, and it is followed by only a minority of schools and it is not used by parents. Although rudimentary data is collected, government, schools, or families do not use it. Consequently, resources are not specifically allocated, and rewards and sanctions are not linked to addressing the issue.

Figure 80: System alignment to promote age-appropriate enrolment
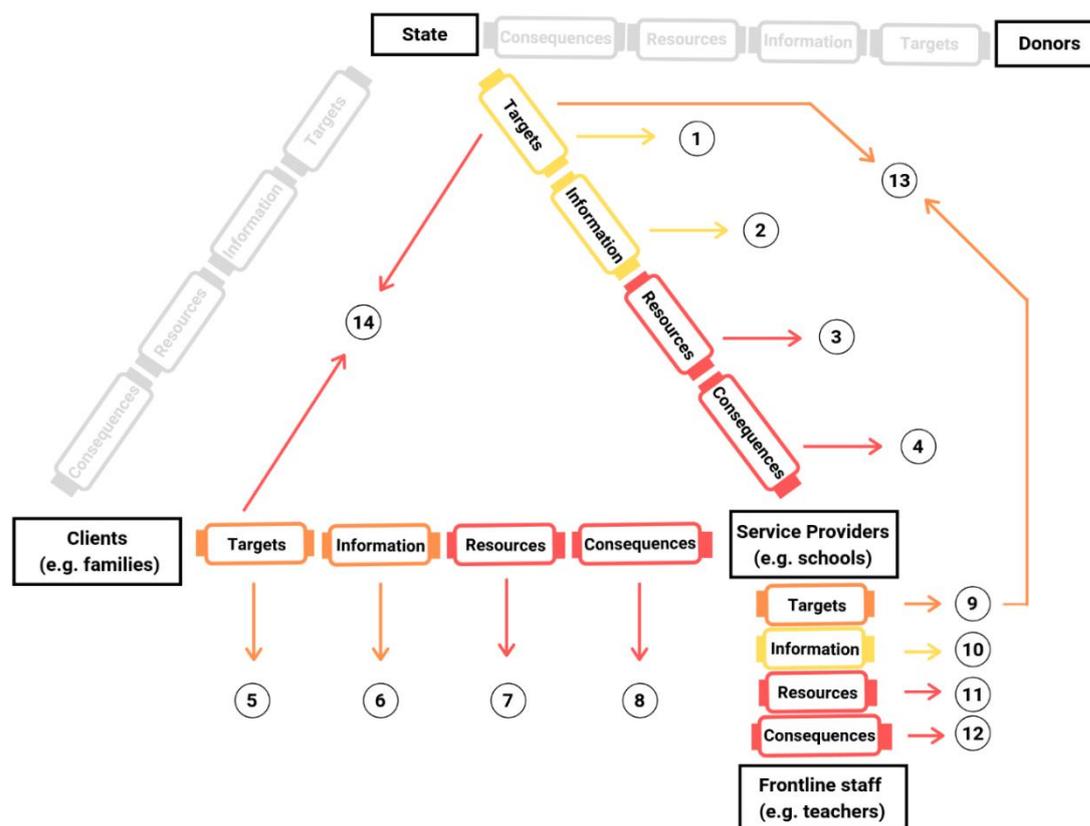
Accountability between the State and Schools

1. There is an official policy set by national government that specifies the appropriate age for children to be enrolled in ECE, and that children above the age of should be enrolled in primary school. The issue of overage enrolment is identified as a key priority in the ESP, which was a developed through a participatory process within the MoE and with donors.

   However, respondents in government reported that although age-appropriate enrolment was important, it was a relatively low priority compared to other challenges in the education system. Some respondents also reported that it was unclear who precisely was responsible for addressing over-age enrolment in government.

2. EMIS collects data on overage enrolment, but this is only once every two years. Moreover, the data is not consistently analysed.

3. Government has not allocated a budget specifically to address over-age enrolment. CEOs and DEOs are not provided with training to promote age-appropriate enrolment.

4. No sanctions or rewards are set at a government-level for promoting age-appropriate enrolment.

Accountability between Families and Schools

5. Most (64.3%) parents enrolled their child into school when they were below the age of six, and 56.7% enrolled their child when they were between the ages of three and six as per official policy. Nonetheless, parents did not expect their child to progress into primary school even when they turned six-years old.

6. Parents do not collect information about overage enrolment when visiting schools or meeting with teachers. Nonetheless, the nature of overage enrolment is such that it can be observed relatively easily.

7. 57% of parents report enrolling their children late because they could not afford the school fees. It is also concerning that schools may have a financial incentive to enrol children in ECE rather than primary school, since they can charge fees for the former but not for the latter.

8. Parents do not use information about overage enrolment when deciding into which school they should enrol their child, and so do not financially penalise/reward schools based on their progress addressing overage enrolment. Moreover, only 7% of parents who attended PTAs discussed overage enrolment during these meetings.

Accountability between Schools and Teachers

9. Almost all principals and teachers correctly identified the correct age range for ECE. Most (78%) principals but a substantial minority (38%) of teachers reported that their school undertakes specific activities to promote age-appropriate enrolment, and half of principals and a quarter of teachers reported taking specific action to support over-age learners. However, age-appropriate enrolment identified as an important factor in quality ECE.

10. Schools collect data on students' ages, although it is difficult to collect accurate information due to the frequent absence of birth registration documents. However, over-age enrolment was never discussed in staff or school management meetings.

11. Teachers and principals are not provided with training to promote age-appropriate enrolment either. Principals reported that the primary obstacle to providing support for over-age learners is a lack resources and available teachers.

12. No sanctions or rewards are set at a school-level for promoting age-appropriate enrolment.

Accountability across relationships

13. Only half of principals reported following the national policy on overage enrolment. 65% of schools used tests to determine at which level a child should be enrolled, despite this contravening the policy.

14. Parents do not seem to be aware of the national policy of overage enrolment, and do not use this policy when deliberating with schools about which grade their child should be enrolled into.

6 Conclusions

This report has provided additional and much-needed detail on two key problems in the ECE system in Liberia: poor quality and over-age enrolment. We investigated the alignment of the system to promote quality and age-appropriate enrolment in ECE. Our findings on each are summarised below.

6.1 Quality

We conducted assessments to determine the competencies of children enrolled in ECE. This provided a detailed insight into the distribution of literacy, numeracy, and executive function competencies. Although most (72%) of children enrolled in ECE were over the age of six, and so should have comfortably performed well on the test, most could only do the easiest assessment tasks. They mostly struggled with working memory, followed by numeracy, and then English literacy. It is concerning that there was no significant difference in learning outcomes between children who were five-years old and those that were overage for ECE.

These learning outcomes were not correlated with family income or whether the school was state, private, and community-run. There was a statistically significant, but small correlation between gender and numeracy (but not literacy), with boys outperforming girls.

The average classroom had 26.5 children, and almost all classrooms had only one teacher. Teachers and children predominately engaged in rote-learning, and no storybook-reading or free play was observed. Whilst almost all classrooms were equipped with a blackboard and chalk, less than 20% had children's books and almost no classrooms had craft materials, puzzles, or games. To provide an adequate level of quality, we estimated expenditure per pupil would need to increase from $25 to between $70 and $122 per child per year, depending on school type.

Although there is a national ECE curriculum, only 31% of principals reported using it whilst 56% reported using some other curriculum (and 13% reported using no curriculum at all). Most (63%) principals had a teaching qualification and 47% provided substantial support to their teaching staff. However, 80% of teachers had no qualification at all, and only 30% had received ECE-specific training in the past three years.

Parents reported they were expected to pay $40 in fees per year, although only 18% were able to pay in full and on time. 41% of schools sanctioned families who had not paid their fees by sending their child home for either one day or a few days, whilst 39% sent the child home until the fees were paid in full and 14% excluded families who were not paying fees. Almost all (94%) of parents were satisfied with the quality of education provided in their pre-school, but very few had considered alternative schools.

There appears to be substantial support for ECE at a government-level, and a national ECE policy and curriculum has been developed. However, the total expenditure on education was below the government's targets, and the civil service was reported to be under-resourced and stretched across multiple priorities. There also appeared to be a significant disconnect between national and district and county government. Whilst some information on education was collected at a national level, it did not include much detail on ECE. However, principals reported that district and county officials frequently visited.

Based on these findings, we concluded that the system is partially aligned to promote quality ECE. It is promising that national government has prioritised ECE, that there are some systems for collecting data, that parents are engaged with their schools, and that most principals have teaching qualifications and are supporting their staff substantively. However, the impact of these features are severely undermined by insufficient funding, the disuse of the national curriculum in schools, and the vast majority of ECE being unqualified. In addition, principals appear to have limited ability to sanction underperforming teachers, and

there is a concerning disconnect between the low-quality of education provided in the classroom (against the standard of the national curriculum) and parents' high levels of satisfaction.

Figure 81: System alignment to promote quality ECE
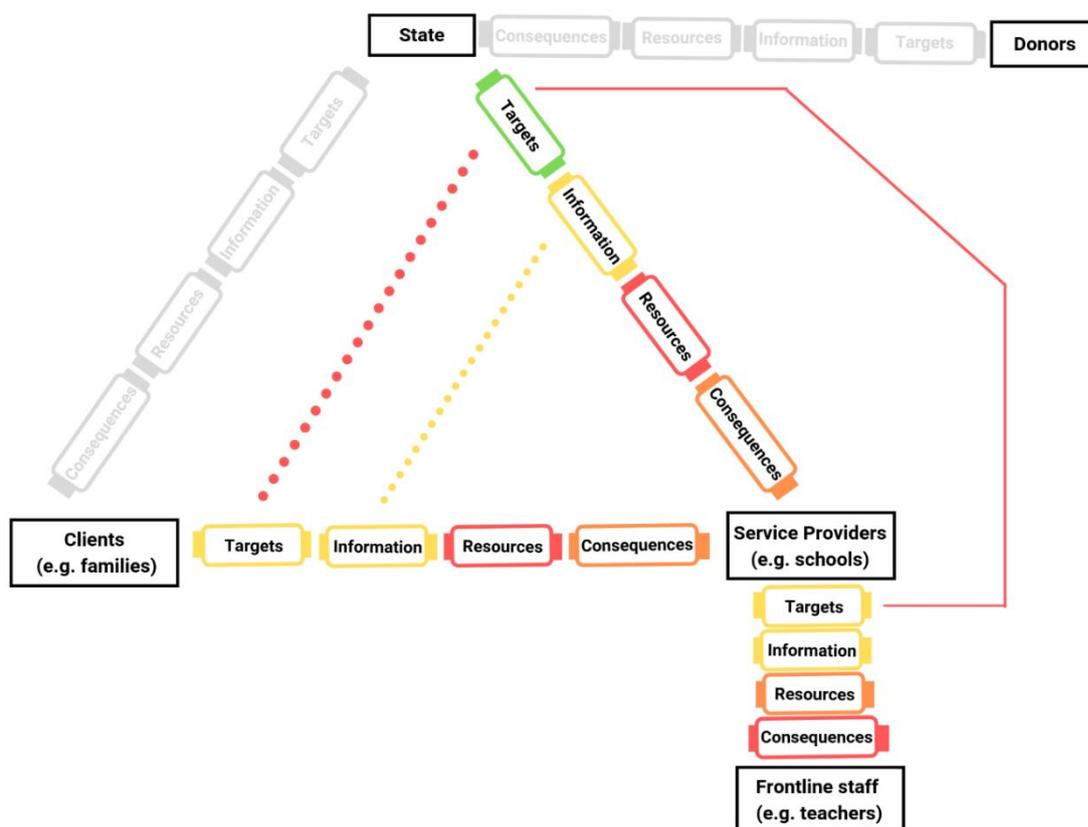
6.2 Age-appropriate enrolment

We found that, out of the students sampled for assessment, 66% were aged six or older, suggesting that two thirds of the students should be studying in primary school rather than in ECE. Overage enrolment is prevalent at the ECE level in the south-eastern counties that formed the focus of this study. Children who are in public schools, and children who are poorest, are most likely to be overage; there are, however, no significant differences between the percentages of overage students by gender, suggesting that other reasons are likely to be responsible for girls being more likely to drop out of school later in life.

Whilst there is a national policy on the correct age of enrolment in ECE, only 48% of principals reported using this policy to determine enrolments. Although the policy prohibits determining a child's entry grade using a test, 65% still use tests during admissions for this purpose. Nonetheless, almost all teachers and principals interviewed reported that children between the ages of three and five should be in ECE, which is the age range stipulated in the national policy.

For the most part, schools did not seem to prioritise age-appropriate enrolment, and between 24% (reported by teachers) and 50% (reported by principals) offered additional support for overage students. The schools who did not offer support to overage children offered insufficient resources or teachers as their primary reason for not doing so. Principals and teachers did not receive any training specific to teaching overage children.

Since 64.3% of parents enrolled their children into school before the age of six, most children were not overage at the time they were enrolled. High fees were cited as the most common (57%) reason for late enrolment. However, parents did not expect their child to

transition to primary school even after their child turned six, suggesting either a lack of awareness of the official policy, or a lack of expectation that the policy would be followed. Most (77%) parents participated in the decision as to the level into which their child should be enrolled.

Age-appropriate enrolment also did not seem to be prioritised at a government level, as respondents reported that it was unclear which department was responsible for it and that no specific budget had been allocated to it. CEOs and DEOs did not receive any specific training for addressing overage enrolment. Although data on overage children is collected for primary and secondary school, it is not collected systematically for ECE. It may be that overage enrolment, although seen as a problem by government, is considered secondary to other challenges in providing quality ECE.

Based on these findings, we concluded that the system was not aligned to promote age appropriate enrolment. Overage enrolment was not prioritised across government, schools, and parents, and consequently no information is systematically collected, no resources specifically allocated, and no rewards or sanctions linked to addressing the issue.

Figure 82: System alignment to promote age-appropriate enrolment
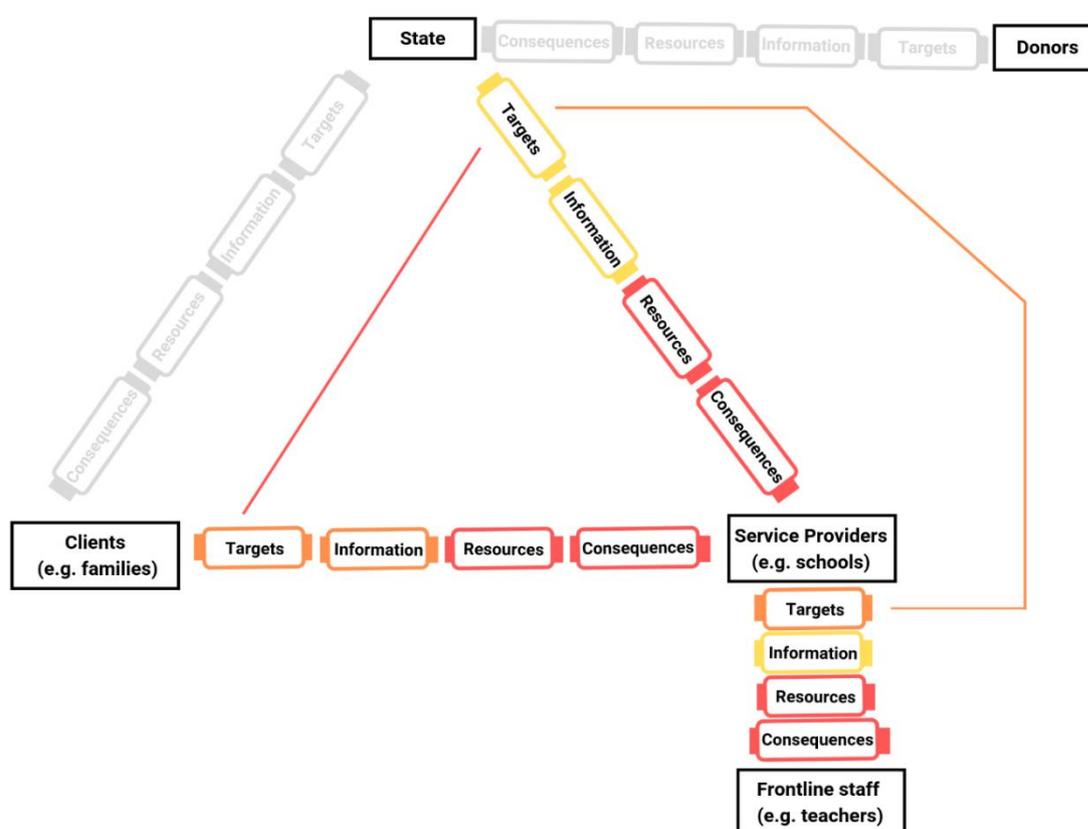
7   Recommendations

Based on these findings, we offer a preliminary list of suggestions for further develop the ECE systems capacity to promote quality ECE and age-appropriate enrolment. We divide these recommendations into three sections: those specific to improving quality, those specific to promote age-appropriate enrolment, and deeper systemic changes applicable to both.

Many, but not all, of these will entail additional expenses. We have reported the need to increase the current expenditure per pupil per year from $25 to $70 (in community schools), $74 (in private schools) and $95 (in government schools). This is inclusive of teacher salaries, some in-service teaching training, and materials, but excludes relying on parents to provide lunch for their children. This is substantial, and if funded by government would require an additional annual cost of $36 million, or four times the estimated government expenditure on ECE in 2015/16. If schools were to provide lunch themselves, which is arguably necessary for children from financially insecure households to access ECE, the additional annual cost would be a further $84 million, which was the entire education budget for 2015/16.

Until it is possible to maintain this level of expenditure, either through government or international aid, ECE in Liberia will rely on low-cost innovations to address the need for better trained teachers and principals, and better resourced classrooms, both to improve the quality of learning and to address overage enrolment.

7.1   Quality

We offer nine recommendations to improve the capacity of the system to promote quality ECE, to align targets, information, resources, and consequences within and across relationships.

Improving how targets are set:

1. Provide principals and teachers with support to use the national ECE curriculum, through relevant training programmes and regular oversight from the CEOs and DEOs.

Improving how information is collected:

2. Provide parents with information about teaching and learning quality at each school, such as through school report cards (which may report on learning outcomes and/or inputs such as teacher qualifications).

3. Include more data on ECE in the EMIS, such as on learning outcomes, classroom resources, and teacher qualifications, and collect EMIS data on an annual basis.

Addressing the shortage of resources:

4. Provide classrooms with the resources needed to deliver the curriculum, such as children's books and craft materials.

5. Increase access to relevant ECE-specific training programmes for teachers.

6. Improve the affordability of ECE. Since ECE classrooms are already underfunded, it is unlikely that lowering the fees charged by schools will be a viable solution. Instead, efforts to increase the funding of ECE, through either government or international aid, should be explored in order to empower parents. This may be through the provision of school vouchers, for example.

Improving clarity around consequences:

7. Investigate principal's reasons for their limited sanction of underperforming teachers. Invest in principal training, which includes school management and accountability, including setting appropriate targets, allocating financial resources efficiently, and rewarding or sanctioning performance.

8. Invest in DEO and CEO training on school management and accountability and create functional mechanisms for these individuals to monitor and then reward and sanction schools.

9. Provide schools with the support to set up functional parent-teacher associations, which meet regularly and appropriately engage parents surrounding their child's learning.

7.2   Age-appropriate enrolment

We offer nine recommendations to improve the capacity of the system to promote age-appropriate enrolment, to align targets, information, resources, and consequences within and across relationships.

Improving how targets are set:

1. Investigate through a cost-benefit analysis the relative priority of addressing overage enrolment, and provide government with sufficient evidence to make a decision.

2. Sensitise parents to the policy on age-appropriate enrolment, and specifically that schools are prohibited from enrolling a child of primary-school age into ECE.

Improving how information is collected:

3. Collect data on the prevalence of overage enrolment at each school frequently, such as through regular reports to the CEOs and DEOs.

4. Include statistics on the prevalence of overage enrolment in the information provided to parents about each school.

Addressing the shortage of resources:

5. Provide schools with funding specifically to support overage learners and promote age-appropriate enrolment.

6. Provide overage children promoted from ECE into primary school with the supported needed for them to 'catch up', such as through Accelerated Learning or teaching at the right level.

7. Improve the affordability of ECE, as 57% of parents who enrol their children into ECE late cite being unable to afford the fees as the primary reason.

Improving clarity around consequences:

8. Empower CEOs and DEOs to investigate the prevalence of over-age enrolment during their oversight visits, and enable them to sanction schools that do not enrol children older than six-years into primary school;

9. Provide parents with avenues to report grievances to if their children are denied access to primary school.

References

EDOREN (2016a) *Evaluation of UNICEF Girls' Education Project Phase 3 (GEP3).*

EDOREN (2016b) *Developing Effective Private Education Nigeria.*

Himaz, R. (2009) *What Drives Cognitive Achievement? An Analysis Based on the Young Lives Older Cohort Data.*

Kolenikov, S. *et al.* (2009) 'Socioeconomic status measurement with discrete proxy variables: Is principal component analysis a reliable answer?', *Review of Income and Wealth*, pp. 128–165.

Ministry of Education—Republic of Liberia (2011) *Education Reform Act.*

Ministry of Education—Republic of Liberia (2011) *Liberia National Inter-Sectoral Policy on Early Childhood Development.*

Ministry of Education—Republic of Liberia (2014) *Liberia National Early Child Development (ECD) Curriculum: Textbook for 2 to 6 Year Olds.*

Ministry of Education—Republic of Liberia (2016) 'Education Sector Analysis'*.*

Ministry of Education—Republic of Liberia (2016) 'Education Sector Analysis'*.*

Pritchett, L. (2015) *Creating Education Systems Coherent for Learning Outcomes: Making the Transition from Schooling to Learning.*

Republic of Liberia (1986) *The Constitution of the Republic of Liberia.*

World Bank (2004) 'World development report 2004: making services work for poor people'*.* World Bank Publications.

Annex A   List of organisations involved in the adaptation process

Organisation name
BRAC
EPAG
Innovations for Poverty Action
MOE
Ministry of Gender, Children, and Social Protection
OSIWA
Save the Children
Street Child
UNICEF
United Methodist University
University of Liberia
USAID
We-Care
World Bank
YMCA

Annex B   Research questions

Table 8:   Overarching research questions: quality

Q1: What is the level of quality of education at the ECE level in Liberia?

Q1A: What is the level of children's learning achievement?

Q1B: How well developed are children's socioemotional skills?

Q1C: What is the level of quality observed in the classrooms?

How are we answering these questions?

Measuring learning achievement and the quality of learning environments using the MELQO tools.

Research questions—coherence within relationships of accountability	Compact relationship	Management relationship	Voice/client power relationship
Q2: Is the delegation element in the compact, management, and voice/client power relationships coherent with respect to the goal of improving ECE quality?	Q2A: Are the policy priorities of the president and Parliament, the MOE and deputy ministers, development partners, and MOF aligned to improve ECE quality?	Q2B: Does the ministry bureaucracy effectively prioritise ECE quality in its directives to CEOs and DEOs? **Q2C: Is the ECE curriculum used? Are strategies for improving ECE quality included in school plans? Do they form the topic of management discussions between teachers and principals?**	**Q2D: Do parents choose schools based on quality-related indicators?**
How are we answering this question?	Review of key policy documents, KIIs with Office of the President, MoE, deputy ministers, development partners, MoF	KIIs with DEOs and CEOs, representatives of the ministry bureaucracy, CSA, NICECD, ESDC Primary quantitative data collection from principals and teachers	Primary quantitative data collection from parents Review of secondary literature and policy documents
Q3: Is the finance/resources element in the compact, management, and voice/client power relationships coherent for improving ECE quality?	Q3A: Do ministers and deputy ministers possess the necessary skills and time to take actions to improve ECE quality? Q3B: Are existing financial resources committed by MoF and	Q3C: Do members of the ministry bureaucracy and CEOs/DEOs possess the required skills and finance to provide effective school inspection and support for fostering ECE quality?	**Q3F: Do the fees charged at the ECE level enhance parents' ability to hold schools accounTable for improving quality?**

Research questions—coherence within relationships of accountability	Compact relationship	Management relationship	Voice/client power relationship
	development partners sufficient to improve ECE quality?	**Q3D: Is the training of teachers and principals sufficient to provide good quality ECE?** **Q3E: Are finances at the school level sufficient to stimulate good quality provision?**	
How are we answering this question?	Review of key policy documents, KIIs with Office of the President, MoE, deputy ministers, development partners, MoF	KIIs with DEOs and CEOs Review of secondary data and primary data collection from teachers, principals	Primary data collection from parents and principals
Q4: Is the information element in the compact, management, and voice/client power relationships coherent for improving ECE quality?	Q4A: Is information about ECE quality collected and used to inform policy?	Q4B: Is information on school performance collected and used by DEOs and CEOs to provide schools with supervision and support for improving quality? **Q4C: Is information on the performance of teachers collected and used to provide them with supervision and support for improving quality?**	**Q4D: Do parents base their school choice decisions on reliable information about school quality?**
How are we answering this question?	Review of key policy documents, KIIs with Office of the President, MoE, deputy ministers, development partners, MoF	KIIs with DEOs and CEOs Review of secondary data and primary data collection from teachers, principals	Primary data collection from parents
Q5: Is the motivation element in the compact, management, and voice/client power relationships coherent for improving ECE quality?	Q5A: Are systems for advancement/promotion of the Education Minister and deputy ministers related to achieving goals related to implementation of government policy or targets on ECE quality? Are any sanctions in place for not tackling the issue?	Q5B: Are systems for advancement/promotion of DEOs and CEOs related to achieving goals related to implementation of government policy or targets on ECE quality? Are any sanctions in place for not tackling the issue? **Q5C: Are systems for advancement/promotion of teachers and principals related to achieving goals related to implementation of government**	**Q5D: Are parents satisfied with the quality of their schools? What actions do they undertake to reward or sanction school performance?**

Research questions—coherence within relationships of accountability	Compact relationship	Management relationship	Voice/client power relationship
		policy or targets on ECE quality? Are any sanctions in place for not addressing the issue?	
How are we answering this question?	Review of key policy documents, KIIs with Office of the President, MoE, deputy ministers, development partners, MoF	KIIs with DEOs and CEOs, Review of secondary data and primary data collection from teachers, principals	Primary data collection from parents

Q6: What is the level of overage enrolment in the ECE system in Liberia and how does this relate to access?

How are we answering this question?

Understanding the distribution of ages at the ECE level by socioeconomic status and school type.

Table 9:   Overarching research questions—overage enrolment

Research questions—coherence within relationships of accountability	Compact relationship	Management relationship	Voice/client power relationship
Q7: Is the delegation element in the compact, management, and voice/client power relationships coherent with respect to the goal of addressing overage enrolment?	Q7A: Are the policy priorities of the president and Parliament, the MoE and deputy ministers, development partners, and MoF aligned to address overage enrolment?	Q7B: Does the ministry bureaucracy effectively prioritise overage enrolment in its directives to CEOs and DEOs? **Q7C: Are strategies for addressing overage enrolment included in school plans? Do they form the topic of management discussions between teachers and principals?**	**Q7D: Do parents participate in the decision about the age of enrolment? Is there any evidence that they choose schools based on considerations about the age of enrolment?**
How are we answering this question?	Review of key policy documents, KIIs with Office of the President, MoE, deputy ministers, development partners, MoF	KIIs with DEOs and CEOs, representatives of the ministry bureaucracy, the CSA, NICECD, ESDC Primary quantitative data collection from principals and teachers	Primary quantitative data collection from parents Review of secondary literature and policy documents

Research questions—coherence within relationships of accountability	Compact relationship	Management relationship	Voice/client power relationship
Q8: Is the finance/resources element in the compact, management, and voice/client power relationships coherent for addressing the issue of overage enrolment?	Q8A: Do ministers and deputy ministers possess the necessary skills and time to take actions to address the issue of overage enrolment? Q8B: Are existing financial resources committed by MoF and development partners sufficient to address the issue of overage enrolment?	**Q8C: Do members of the ministry bureaucracy and CEOs/DEOs possess the required skills and institutional support to provide effective school inspection and support for addressing overage enrolment?** **Q8D: Do teachers and principals possess the skills and financial resources to address the issue of overage enrolment?**	**Q8E: Do parents have the financial resources required to enrol their children in school at a younger age?**
How are we answering this question?	Review of key policy documents, KIIs with Office of the President, MoE, deputy ministers, development partners, MoF	KIIs with DEOs and CEOs, Review of secondary data and primary data collection from teachers, principals	Primary data collection from parents and principals
Q9: Is the information element in the compact, management, and voice/client power relationships coherent for improving ECE quality and addressing the issue of overage enrolment?	Q9A: Is information about overage enrolment collected and used to inform policy?	Q9B: Is information on overage enrolment collected and used by DEOs and CEOs to provide schools with supervision and support for addressing the issue? **Q9C: Is information on the performance of teachers collected and used to provide them with supervision and support to address the issue of overage enrolment?**	**Q9D: Do parents base their school choice decision on information about overage enrolment?**
How are we answering this question?	Review of key policy documents, KIIs with Office of the President, MoE, deputy ministers, development partners, MoF	KIIs with DEOs and CEOs, Review of secondary data and primary data collection from teachers, principals	Primary data collection from parents
Q10: Is the motivation element in the compact, management, and voice/client power relationships coherent for improving ECE quality and addressing the issue of overage enrolment?	Q10A: Are systems for advancement/promotion of the Education Minister and deputy ministers related to achieving goals related to implementation of government policy or targets on	Q10B: Are systems for advancement/promotion of DEOs and CEOs related to achieving goals related to implementation of government policy or targets on overage enrolment? Are any	**Q10E: Are there mechanisms in place for engaging with or influencing schools on the issue of overage enrolment, and are parents aware of them?**

Research questions—coherence within relationships of accountability	Compact relationship	Management relationship	Voice/client power relationship
	addressing overage enrolment? Are any sanctions in place for not tackling the issue?	sanctions in place for not addressing the issue? **Q10C: Are systems for advancement/promotion of teachers and principals related to achieving goals related to implementation of government policy or targets on overage enrolment? Are any sanctions in place for not addressing the issue? Q10D: Is there evidence of perverse incentives for teachers and principals to keep children in ECE instead of progressing them to the primary level?**	
How are we answering this question?	Review of key policy documents, KIIs with Office of the President, MoE, deputy ministers, development partners, MoF	KIIs with DEOs and CEOs, Review of secondary data and primary data collection from teachers, principals	Primary data collection from parents

Annex C   Sampling

C.1   Universe or population of interest

The main unit of analysis for the research is the school. The total universe is represented by all the schools providing a pre-primary class in selected counties and districts in Liberia. The universe encompasses the schools of all types (public, private, and community/church) and whether they are officially registered with MoE as organisations providing education for young children or not.

The Table below lists all the geographical areas covered by this design and their characteristics, and indicates which ones were included in the survey. The exact geographical representations of schools for the suggested survey was guided by two principles:

(i)   the variability of schools according to pupil performance and cultural diversity; and
(ii)   the immediate need of the government, namely MoE, to enhance the data availability in the regions with currently active programmes, namely the GPE programme.

To ensure that GPE counties are represented, and that there is diversity in terms of region and language family, the following eight counties have been selected to delineate the geographical space of the universe: Bomi, Grand Kru, Maryland, Montserrado, Nimba, River Cess, River Gee, and Sinoe.

Table 10:   List of counties included in the survey

	County	No. of districts	No. of ECE schools[45]	Region	Language family	GPE grant operational[46]	Selected for survey
1.	**Bomi**	**4**	**152**	**Western**	**Atlantic Mande Kru**	**Yes**	**Yes**
2.	Bong	12	419	North Central	Mande		
3.	Gbarpolu	6	133	Western	Atlantic Mande Kru		
4.	Grand Bassa	8	293	South Central	Kru		
5.	Grand Cape Mount	5	169	Western	Mande Atlantic		
6.	Grand Gedeh	3	156	South-Eastern	Kru		
7.	**Grand Kru**	**18**	**120**	**South-Eastern**	**Kru**	**Yes**	**Yes**
8.	Lofa	6	342	North Central	Atlantic Mande		
9.	Margibi	4	323	South Central	Kru Mande Indo-European		
10.	**Maryland**	**2**	**154**	**South-Eastern**	**Kru**	**Yes**	**Yes**
11.	**Montserrado**	**4**	**1,788**	**Western**	**Mande Indo-European Atlantic**		**Yes**
12.	**Nimba**	**6**	**619**	**North Central**	**Mande Kru**		**Yes**
13.	**River Cess**	**6**	**127**	**South Central**	**Kru**	**Yes**	**Yes**
14.	**River Gee**	**6**	**101**	**South-Eastern**	**Kru**	**Yes**	**Yes**
15.	**Sinoe**	**17**	**184**	**South-Eastern**	**Kru**	**Yes**	**Yes**

---

[45] Taken from EMIS 2015–16
[46] The World Bank hope to target all non-LEAP public and community schools in 6 of the 15 counties of Liberia. The proposed targeted counties are Grand Kru, Bomi, Rivercess, River Gee, Sinoe, and Maryland. At the time of designing the sample, they estimate to be working with approximately 620 schools.

C.2   Sampling frame

The sampling frame for the proposed sampling design was based on EMIS, which is managed by Liberia's MoE. EMIS is based on the school census, conducted annually, and includes all schools nationwide. In recent years, the MoE has spent more effort in capturing the schools not officially registered with the ministry in the census. Currently available EMIS data is based on the school census 2015–16. The school census data for 2017 was, however, still being processed, and the most recent data was not available in time for sampling to be based on the 2017 EMIS revision.

EMIS data is gathered primarily around the education administrative areas, with the Education District as the lowest education administrative unit considered. For the purpose of this survey, the sampling frame was enhanced with the primary administrative areas from the county, to at least the clan level (in urban centres, the clans were replaced by zones). This enhancement of the frame provided greater flexibility to apply the proposed sampling design at the most appropriate geographical level.

The EMIS database forms a comprehensive list of all schools in Liberia, with a number of characteristics monitored and updated annually. According to official sources, the coverage of the school census and thus EMIS is of high quality. The target of this research is all organisations providing ECE and it is expected that most of the schools would be included in EMIS and thus available for selection.

However, ECE is also provided by an increasing number of non-state centres, either community-based or private, and the project team expected that these types of establishment are more prone to be missed during the school census. To verify the comprehensiveness of EMIS as a sampling frame for this survey, spot checks of the school listing were performed in four clusters to assess the achieved coverage of the ECE centres within EMIS. If the spot checks had revealed large under-coverage problems of EMIS data, we would have recommend creating a new area sampling frame based on administrative units. Operationally, this would require a full listing of schools to be conducted at the cluster level in all primary sampling units selected. Fortunately, as described in the next section, the spot checks did not reveal major or systemic gaps in EMIS data.

C.3   Spot check of EMIS

Ten spot checkers were recruited to attend three days training including one day field practice from 6 to 8 September 2017.[47] Spot checkers were organised into two teams, each comprising one supervisor and four enumerators. One team was deployed in Montserrado County; the other was deployed in Nimba County. Each team was responsible for listing all the schools (not just those with ECE) in one rural clan and one urban zone using the following methodology.

1. The team arrived at the cluster and met with the community leader to provide notice of the visit and compile a list of eligible key informants or gate keepers relating to schools in the cluster.
2. The team walked the boundary of the cluster to establish its perimeter and school eligibility area. Any schools existing outside the established boundary of the cluster were excluded from the listing.
3. All the named schools located within the cluster boundary were listed.
4. The supervisor then held the Master List of Schools. He/she assigned each lister with a certain number of schools for interviews. The lister took a photograph of the list and stored this on their tablet.

---

[47] Four additional spot-checkers were trained as backup.

5. The school listing questionnaire (see Annex) was administered to the principal. After completing the questionnaire, the lister asked the principal about other schools in their cluster (showing them the map if necessary).
   a. The newly compiled list was compared to the master list as photographed earlier.
   b. In the case of any schools mentioned by the principal that were not on the master list, the lister contacted the supervisor to add this school.
   c. The supervisor then assigned any new schools to his/her listers to complete the interview.
6. Teams moved systematically through the cluster and canvassed structures based predominantly on visual cues. Members of the community were approached for information as the canvassing was conducted. Standard listing methods of systematic canvassing were employed, such as the right-hand rule or the snake rule.

The results of the school mapping are summarised in the Table below and are compared to the figures found in EMIS 2015–16.

Table 11:   Comparison of school spot checks with EMIS

County	District	Clan	Total number of schools		Number of private schools		Number of public schools		Number of community schools		Number of faith-based schools		Number of schools established since 2015	
			OPM school mapping 2017	EMIS 2015–2016	OPM school mapping 2017	EMIS 2015–2016	OPM school mapping 2017	EMIS 2015–2016	OPM school mapping 2017	EMIS 2015–2016	OPM school mapping 2017	EMIS 2015–2016	OPM school mapping 2017	EMIS 2015–2016
Nimba	Zoe Gbao	Whepea	8	7	1		7	7						-
Nimba	Garr Bein	Bein	97	71	30	44	16	8	12	6	26	13	13[48]	-
Montserrado	Todee	Fahn Seh	20	14	4	3	8	10	4		6	1	4	-
Montserrado	Greater Monrovia	New Georgia	19	15	7	7			1	1	11	7	1	-
Total			144	107	42	54	31	25	17	7	43	21	18	-

---

[48] There are also 13 schools in Bain for which we do not have a year of establishment because the principal was not interviewed; two refused to answer, and eleven were still closed.

In total, this is a difference of 37 schools, at least 18 of which can be explained by the fact that they have been established since the census was administered.

The comparison also shows that some schools were incorrectly categorised as private (in Bein) that could have fallen under a different category. Results of the survey show that the definition of a private school is not always very clear; for example, a church could own the school's land but not manage the school or fund it. As such, these discrepancies are expected.

Based on these results, and the fact that we expect the next round of EMIS to capture any missing schools established since 2015, the project team decided to use EMIS as a sampling frame for the pilot survey. However, we also included community schools identified in the school mapping (and not EMIS) as a separate stratum in our sample design. This procedure is explained in the next section, but the objective was to allow us to understand more about these missing schools.

C.4   Sample size

The sample size of the pilot survey targeted **50 schools** in total, **500 children**, **50 principals**, from **50 teachers**, **500 parents,** and **50 classroom observations** (using two methodologies).

Different scenarios may reflect different conditions as encountered in the field. One of the main challenges for delivering higher sample sizes within schools are opening hours of schools and thus the limited time available for the fieldwork teams to conduct their interviews, assessments, and observations. Preliminary information from the field indicated that schools could be open for as little as two hours per day.

The proposed sample size of 50 schools provides a good geographical and contextual spread of schools across the pilot areas and provides a sample of pupils achieving adequate precision for the analysis of the pupil assessment instruments and initial diagnostic results for this report.

The required precision is measured in terms of margin of error, a standard statistical concept based on the 95% confidence interval. Margin of error is defined as the circumference or half of the confidence interval and operationalised in the following formula:

$$ME = z\alpha_{/2} \cdot \sqrt{\frac{p \cdot (1 - p) \cdot Deff}{n}}$$

where *p* is a proportion of 50%, *n* is the total sample size of all pupils, and *Deff* is the design effect assumed to be 3.1, which is based on the assumed intra-cluster correlation (*ICC*) of 30% and a cluster size *m* (number of pupils per school) of either 8 or 12. Design effect is operationalised using the following formula:

$$Deff = 1 + (m - 1) \cdot ICC$$

The sample size of 10 pupils per school and the total of 500 pupil tests administered yields a margin of error 8.3 percentage points on a 50% estimate, meaning that the expected width of the 95% confidence interval would be 41.7%–58.3%.

The sample of schools will yield a margin of error of 13.9 percentage points on a 50% estimate, and the expected width of the 95% confidence interval of 36.1%–63.9%. The school level indicators will thus yield only tentative diagnostic results at this stage to inform the formulation of research questions for further research.

C.5   Sampling design

As mentioned earlier, EMIS 2015–16 was used as the main sampling frame. Our sampling frame only included schools from the selected counties in the larger frame, i.e. Bomi, Grand Kru, Maryland, Montserrado, Nimba, River Cess, River Gee, and Sinoe.

The sampling design employed a single stage sample only, which in turn resulted in smaller sampling errors and a lower complexity of the sampling.

Schools were selected from the sampling frame according to PPS and implicitly stratified across the following strata: county; district; urban/rural location; school types: private, public, community, and faith-based; newly identified community schools from Montserrado County; and newly identified community schools from Nimba County. We adopted an implicit stratification sampling strategy for the county; district; urban/rural location; and school type. For the remaining strata we employed an explicit stratification as follows:

- three schools from EMIS in Montserrado;
- three schools from EMIS in Nimba;
- two additional community schools from listing in Montserrado; and
- two additional community schools from listing in Nimba.

Box 3: Implicit stratification

> Implicit stratification is used in systematic random sampling and does not require explicit draws from each stratum. Implicit stratification ensures that the sample drawn is proportionally the same as the population it is drawn from. Operationally implicit stratification means that the units in the sampling frame are sorted according to stratification variables and the systematic selection is applied on the sorted frame, thus ensuring the proportional representativity of the sample.

The procedure involved sorting the sampling frame of schools by county, district, and urban/rural location. Once the sampling frame was sorted across these dimensions, we used a count to select 40 schools (the remaining 10 schools were selected across the explicit strata). This ensured that the selected schools covered a range of dimensions proportional to the size of these dimensions. Within the strata, schools were sampled using PPS.

Box 4: PPS

> PPS selection requires that the size of each cluster or school is considered when applying the systematic random selection. Therefore, bigger schools (i.e., schools with a larger number of pupils) have a higher probability of being selected than smaller schools. This is achieved by constructing a sampling queue based on cumulative numbers of pupils.
>
> | School | Number of pupils in School | Cumulative queue | Selection |
> |--------|-----------|------------|-----------|
> | SC1 | 100 | 100 | |
> | SC2 | 300 | 400 | 375 |
> | SC3 | 200 | 600 | |
> | SC4 | 150 | 750 | 750 |
> | SC5 | 100 | 850 | |
> | SC6 | 150 | 1,000 | |
> | SC7 | 300 | 1,300 | 1,125 |
> | SC8 | 200 | 1,500 | 1,500 |

It is worth noting that PPS is recommended if the main unit of analysis is the pupil rather than the school. The sampling strategy as described above will produce an approximately self-weighted sample—i.e., in theory there would be no need to include weights when conducting an analysis of pupils. Due to imprecise information on school size at the sampling stage, however, sampling adjustment weights have been estimated and used at

analysis. As expected, the weights were insignificant and caused only minute adjustments of the final estimates. Weights that deflate large schools and inflate small schools were also constructed at the school level.

C.6   School replacements

While sampling the 50 schools for the study, additional schools within each strata were also randomly selected in case they were required to replace a sampled school that we were unable to reach. The list of additional schools was not shared with the field supervisors and was only referred to in case of extreme circumstances. This was because we wanted to avoid a situation where a team replaces a sampled school with one that is easier to reach or locate.

Five schools from the original sample were replaced, for reasons including travel difficulty, communication errors, and planning errors. An extensive discussion of the fieldwork is available in the fieldwork report.

In two cases, outdated or incorrect EMIS data required a replacement school to be skipped for the next school in the listing. In both cases, the skipped school was in Timbo District, River Cess. The annual school census is meant to be conducted every year, in all parts of the country. However, based on the discrepancies discovered by the research team, it may be that this has not happened consistently in this district.

The original replacement school for the Jedepo Mission School should have been the Children Smile Humanitarian School (Timbo District, River Cess). However, the latter school had been closed for several years after the NGO funding it left the country, so the next replacement school for the 'private' strata was selected instead: the Edward S. Wragiri School, Senjeh District, Bomi.

The original replacement school for the Amos W. Doe KG School should have been the Government Central Elementary School (Timbo District, River Cess). However, this school had no pre-primary programme, so the next replacement school for the 'public' stratum was selected instead: the Nyantujah School in Webbo District, River Gee.

Annex D   Topics covered by the questionnaires

D.1   Teacher questionnaire

This questionnaire will be administered to sampled ECE teachers at a given school, after both the classroom observation and student assessments are completed.

Table 12:   Overview of areas in the teacher questionnaire

Teacher questionnaire: general		
Tool duration: 30–40 minutes		
Section	**Description**	**Objective**
Section A: Teacher and school background information	This section collects summary information about basic respondent and ECE programme characteristics, such as teacher qualifications, experience, and workload (within and outside the school), and ECE programmes in the community	The purpose of this section is to collect contextual information on the respondent and the ECE program(s)/environment in the community
Section B: Classroom observation follow-up questions	This section collects information on the observed class: some student demographics, number of students, and topics covered in ECE instruction	The purpose of this section is to collect contextual information on the students in the observed classroom, what they are being taught, and how gender, physical disability, and language and ethnicity are represented and accepted
Section C: Teacher professional development and teaching practice	This section collects information on curriculum and lesson planning, pedagogy, teacher training, teacher accountability, and perceptions of ECE quality	The purpose of this section is to understand ECE quality at a given school, and what challenges are faced in trying to provide good quality programmes
Section D: Teacher remuneration and reward	This section collects information on teachers' remuneration, workload, and work status, as well as teachers' feeling of fulfilment (or lack thereof) in their work	The purpose of this section is to determine teacher levels of intrinsic and extrinsic motivation
Section E: Parent and community involvement	This section collects information on the ECE programme's interaction with families and the community, and reporting of student progress and performance to families	The purpose of this section is to understand what performance information schools report to parents, and if there are organised channels for parental/family involvement and communication between schools and families. This also provides context on how students' progress (or do not progress) through grade levels, and therefore overage enrolment
Section F: Pupil enrolment and advancement	This section collects specific and direct information on how students are meant to progress through grade levels, the degree of functionality of this system in a given school, and issues surrounding overage enrolment, both from the teacher and from the family perspective	The purpose of this section is to understand causes and impacts of overage enrolment, how children are placed in grade levels and how they are meant to progress, what specific learning practices teachers adopt with overage children and/or children who are falling behind

This questionnaire will be administered to the respondent teacher's class for every sampled child who has been tested successfully. This information will be collected for all children in the final pupil sample (i.e., not of any children who were initially selected but later had to be replaced).

Table 13:   Overview of areas surveyed in the teacher questionnaire (pupil-specific)

Teacher questionnaire: pupil		
Tool duration: 10–15 minutes		
Section	**Description**	**Objective**
Section A: Child introduction	This section asks for basic background information: how long the child has been in the teacher's class, and the child's present grade level	The purpose of this section is to collect basic background information on the child, as well as give context on how well the teacher knows the child and therefore how well-equipped the teacher is to answer questions about him/her (by asking how long the child has been in the teacher's class)
Section B: Child health	This section asks about the child's physical (dis)ability, health, school absenteeism, and meal regularity	The purpose of this section is to collect contextual physical health information that may impact student performance on the assessment It also provides information on teachers' awareness of these factors
Section C: Social and emotional development	This section asks the teacher to provide information about the child's ability to self-regulate, his/her social relationships and skills, and his/her emotional wellbeing/behaviour	The purpose of this section is to collect contextual social and emotional developmental information that may impact student performance on the assessment This section also answers the quality measurement question, 'What is the level of children's executive function development?', as well as provides a gauge for teachers' awareness of such development

D.2   Parent questionnaire

This questionnaire will be administered to a sample of parents or other caregivers who have a child enrolled in an ECE programme in one of the sampled schools. The questionnaire intends to find how the relationship between providers and clients be made more coherent, so that quality may be delivered at scale.

Table 14:   Overview of areas in the parent questionnaire

Section	Description	Objective
Tool duration: 50–60 minutes		
Section A: Introduction	This section asks about the respondent's relationship to the child, the child's length of time in their current ECE programme and any others, and what languages are spoken at home	The purpose of this section is to collect basic background information on the child and family
Section B: Child health	This section asks about the child's physical (dis)ability, health, and school absenteeism	The purpose of this section is to collect contextual physical health information that may impact student performance on the assessment; this section corresponds and triangulates with Section B of the Teacher Questionnaire—pupil
Section C: Social and emotional development	This section asks the caregiver to provide information about the child's ability to self-regulate, his/her social relationships and skills, and his/her emotional wellbeing/behaviour	The purpose of this section is to collect contextual social and emotional developmental information that may impact student performance on the assessment This section also answers the quality measurement question, 'What is the level of children's executive function development?', as well as providing a gauge for caregivers' awareness of such development
Section D: Contextual factors	This section asks the caregiver to provide contextual information on factors within the child's household environment that promote learning, cognitive and socioemotional development and stimulation, and general wellbeing	The purpose of this section is to collect contextual social, emotional, and cognitive developmental information that may impact student performance on the assessment This section also provides some information to gauge caregivers' awareness of how these factors impact development
Section F: School engagement	This section asks about the caregiver engagement and relationship with the school, the school management system, and their child's teacher	The purpose of this section is to understand what actions caregivers undertake to improve school performance, what their level of involvement is with ECE, what performance information schools report to caregivers, and if communication between schools and caregivers happens in an organised manner

Section	Description	Objective
Section G: School choice and information	This section asks about how the caregiver made the decision to send their child to school for an ECE programme, and how they selected the school and programme	The purpose of this section is to determine who makes school choice decisions—including whether and when to enrol, and the role of fees—and what influences these decisions, including fees This section also seeks to determine caregivers' perceptions of ECE quality, what they expect to result from their child attending ECE, and what information/perceptions they have of grade level determination and advancement
Section H: Overage enrolments and parental perceptions	This section explores what factors influence overage enrolment in ECE	The purpose of this section is to continue to explore school choice decisions, specifically for caregivers whose children are overage for ECE. This includes financial factors and consequences, decision making around how to place children, and the perceptions of parents'/caregivers' peers
Section I: Household schedule	This section lists who lives in the respondent's household, and their age, gender, relationship to head of household, education level, and employment status	The purpose of the Household Schedule is to create a record of the basic demographic information of everyone living in the household. This provides contextual information for analysis, determines how many school-age children are in the household, and determines their enrolment status
Section J: Schooling of all children aged 4–18	This section lists education information for all school-age children from the household schedule	The purpose of the Schooling Schedule is to determine if school-age children are in school, are working or both: if they are enrolled and if they are overage; if they are or have had ECE; their parents' education levels; and the physical accessibility of the school (e.g., distance, ease of access, etc.)
Section K: School expenditure	This section asks about the fees and costs of sending each child to school	The purpose of this section is to know what the official school-related costs and schedules for payment are for each child, and if there is divergence between this, and what and when caregivers pay
Section L: Household income	This section asks about household income and employment	The purpose of this section is to collect contextual household income information as an additional variable against which to compare and regress results, specifically, the education/income levels of parents enrolling their

Section	Description	Objective
		children in ECE, and if they differ by type of ECE provider used These data can be used as a general poverty indicator, and can be compared to school costs to give an indication of families' ability to pay school fees and other expenses
Section M: Household wealth	This section asks about household wealth: commodity/amenity ownership, land ownership, livestock ownership, and water and toilet facilities	The purpose of this section is to collect contextual household wealth information as an additional variable against which to compare and regress results, specifically, the wealth levels of parents enrolling their children in ECE, and if they differ by type of ECE provider used These data can be used as a general poverty indicator, and can be compared to school costs to give an indication of families' ability to pay school fees and other expenses

D.3 Principal questionnaire

This questionnaire will be administered to the principal or the principal (or the assistant principal or vice principal, if neither of the former are available) of each of the sampled schools. The questionnaire seeks to find extensive information about school quality, management, supervision, and accountability, relationship with the community, costs, and resources. The overarching goal is to learn how the relationship between the state and providers can be made more coherent so that quality may be delivered at scale.

Table 15:   Overview of areas in the principal questionnaire

Section	Description	Objective
Tool duration: 50–60 minutes		
Section A: School information	This section asks for basic but detailed information about the school, including its identification code, registration status, what class levels are taught, and about enrolment and attendance records	The purpose of this section is to collect identifying and contextual information about the sampled school
Section B: School enrolment	This section asks for basic but detailed information about how many students and teachers are at the school, and the ages, grade levels, and genders of the students	The purpose of this section is to collect contextual information about the sampled school's student and teacher populations
Section C: School staff	This section builds an ECE teacher roster that asks about teachers' age, gender, experience, qualifications, workload, absenteeism, salary and salary payment schedule, and in-service training It also asks follow-up questions about these topics	The purpose of this section is to collect information about the background and experience of the sampled school's ECE teachers, as well as gain an understanding of school management systems and how well they are functioning, and the key challenges faced in trying to provide good quality ECE at the school

Section	Description	Objective
Section D: Non-teaching staff	This section builds a roster similar to the one in Section C, but for non-teaching staff at the sampled school. 'Non-teaching staff' includes all people who regularly work at the school, including part-time and/or unpaid volunteers	The purpose of this section is to collect information about non-teaching staff involvement in ECE, and provides context for understanding management systems and ECE quality at the school
Section E: Teaching and school management practice	This section asks questions about the school's ECE curriculum, teaching materials, lesson planning, lesson observation, staff meetings, teacher and principal absenteeism, and school monitoring and management	The purpose of this section is to get a comprehensive picture of school management and supervision practices, and how these impact ECE quality and perceptions thereof
Section F: Parental and community involvement in school	This section asks about how the school and its teachers interact and communicate with parents/families	The purpose of this section is to understand the channels of communication between schools and families, including what performance information is reported to families. This has an impact on both the transition from ECE to primary school, as well as on overall ECE quality and perceptions thereof
Section G: Age of enrolment	This section asks about the school's enrolment policies and practices	The purpose of this section is to understand the school's enrolment and placement practices for ECE, how they align with or differ from official (government or school) policy, and parents'/families' role in placement (if any) It also seeks information on the number of overage children, the impact of having overage students in ECE and perceptions of that impact, and strategies for addressing these impacts
Section H: School fees, school costs and school income	This section asks about school fees and costs, school expenditure, families' payments, and school grants and other funding support	The purpose of this section is not only to understand school financing (funds received, costs, and funds' adequacy to cover costs), but also patterns of (ir)regularity in funding requirements and funding flows Some of this information can also be triangulated with the Parent Questionnaire to identify and better understand discrepancies
Section I: School materials and capital investments	This section asks about expenditure on furnishings and utilities, non-consumable school materials, transport, and facilities investments	The purpose of this section is to understand school expenditures, and the school's financial position (positive, balanced, or negative)
Section J: Relationship with government	This section is intended for private schools only, to ask about their relationship with the district, county, and national representatives of government	The purpose of this section is to understand how the relationship between the state and providers be made more coherent towards the goal of delivering equity, specifically in the case of private schools. It also seeks to determine

Section	Description	Objective
		reasons for establishing private schools, and how their relationship with the government may differ from that of public schools
Section K: School observation	This section records information about the school's physical facilities, including toilets and water supply	The purpose of this section is to provide contextual information on schools, and to survey school facility needs
Section L: Closing	This section asks about other ECE programmes nearby (formal or informal), and takes a school GPS reading	The purpose of this section is to learn what other formal or informal ECE programmes are operating in the vicinity, and to record a precise and accurate reading of the school's location, for identification purposes

Annex E   Learning outcomes measurement

This section provides further detail on the learning outcomes measurement carried out by the team.

E.1   Domains covered by MELQO

Domains (MELQO)	Domains (ECE Liberia)	Sub-domain	Measure
English literacy and language	• Literacy knowledge and skills • Language development • English language development	• Phonological awareness • Alphabet knowledge • Expressive vocabulary • Listening comprehension • Early writing • Print concepts and conventions	• Understand print concepts and conventions • Know the letter names and sounds associated with the letters • Use language and comprehend what is verbally communicated to them • Writes letters, words, and sentences (primary level) • Reads letters, words, and sentences (primary level)
Mathematics knowledge and skills	• Mathematics knowledge and skills	• Numbers and operations • Measurement vocabulary • Spatial relationships	• Understand that numbers represent quantities and have ordinal properties • Use numbers to describe relationships and solve problems • Understand measurement vocabulary, including size, length, weight, and time • Understand spatial vocabulary, including above/below, behind/in front of…
Executive function	• Fine motor skills	• Fine motor skills • Working memory • Inhibitory control	• Control small muscles for such purposes as writing and building • Store and mentally manipulate memory contents • Suppress the processing of irrelevant yet dominant stimuli

E.2   Transformation of the test scores

The tables below list the test items that were used to compute the student achievement scores. The executive function items were not used to estimate the mathematics scores. Estimates were obtained for a total of 490 children, 248 girls, and 242 boys.

Table 16:   List of mathematics items used in score estimation

Item	Code	Content domain	Score	Rescore
item1	Counting from 1	Numbers and quantities	(1,2)	
item2	Counting from 50	Numbers and quantities	(0,1,2)	
item3	Counting with counters	Numbers and quantities	(0,1,2)	
item4	Reading single digits	Numbers and quantities	(0,1,2)	
item5	Reading double digits	Numbers and quantities	(0,1,2)	(0,0,1)
item6	Quantities: greater/smaller	Numbers and quantities	(0,1,2)	
item7	Simple sums with counters	Operations, relationships	(0,1,2)	
item8	Harder addition sum	Operations, relationships	(0,1)	
item9	Harder subtraction sum	Operations, relationships	(0,1)	
item10	Addition word problem	Operations, relationships	(0,1)	
item11	Subtraction word problem	Operations, relationships	(0,1)	
item12	Sum without counter	Operations, relationships	(0,1)	
item13	Subtraction without counter	Operations, relationships	(0,1)	
item14	Measurement vocabulary	Measurement vocabulary	(0,1,2)	
item15	Shapes	Spatial vocabulary	(0,1,2)	
item16	Object relationships	Spatial vocabulary	(0,1,2)	
item17	Mental transformation 1	Spatial	(0,1)	
item18	Mental transformation 2	Spatial	(0,1)	
item19	Mental transformation 3	Spatial	(0,1)	
item20	Mental transformation 4	Spatial	(0,1)	

Table 17:   List of literacy items used in score estimation

item	Code	Content domain	Score	Rescore
item1	Naming upper-case letters	Letter knowledge	(0,1,2)	
item2	Naming lower-case letters	Letter knowledge	(0,1,2)	
item3	Letter sounds	Letter sounds	(0,1,2)	(0,1,1)
item4	Oral vocabulary: body parts	Oral vocabulary	(0,1,2)	(0,0,1)
item5	Oral vocabulary: foods	Oral vocabulary	(0,1,2)	
item6	Oral vocabulary: animals	Oral vocabulary	(0,1,2)	
item7	Listening comprehension	Listening comprehension	(0,1,2)	
item8	Copying 'x'	Writing	(0,1,2,3)	(0,1,1,2)
item9	Copying 'circle'	Writing	(0,1,2,3)	(0,1,1,2)
item10	Copying 'rectangle'	Writing	(0,1,2,3)	(0,0,0,1)
item11	Name writing	Writing	(0,1,2)	(0,0,1)
item12	Letter writing	Writing	(0,1,2)	
item13	3-letter word writing	Writing	(0,1, 2)	(0,0,1)
item14	4-letter word writing	Writing	(0,1, 2)	(0,0,1)
item15	3-letter word reading	Reading	(0,1)	

To avoid negative achievement scores, the student ability estimates were transformed to a scale with a mean of 500 and a standard deviation of 100, as follows:

$$\theta_n^* = [(\theta_n - m)/sd] * 100 + 500$$

where θ_n is the ability for student n in logits and θ_n^* the transformed ability for student n, m is the weighted mean score of all students and sd is the weighted standard deviation of all students.

The values of the mean and standard deviation for each assessment domain are included in the tables below.

Table 18: Mean and standard deviation of mathematics and literacy logit estimates

	Mathematics	Literacy
Mean (m)	-0.21	0.10
Standard deviation (sd)	1.39	1.64

**Table 19: Mean and standard deviation of mathematics and literacy scaled scores**

	Mathematics	Literacy
Mean (m)	507.73	509.81
Standard deviation (sd)	101.55	100.23

E.3 Mathematics item targeting

The Figure below plots the overall distribution of person abilities and item difficulties on the same continuum. This distribution shows whether there are sufficient items for the range of student proficiencies. The upper histogram summarises the distribution of the person ability estimates, and the lower histogram shows the distribution of the item difficulty estimates. Harder items and more able students are located towards the right of the distribution. Easier items and less proficient students are located towards the left. A test is well targeted if the average of item difficulties is about the same as the average of the students' abilities and the item difficulties are evenly spread across the ability distribution (OECD, 2012: 222).

The mathematics test is well targeted. The distribution shows a wide spread of items relative to persons (-5.0 to 5.0 logits). There is a small ceiling effect in that the variance in person ability estimates at higher levels of proficiency may be underestimated. However, including additional harder items may not be warranted. The scale could be strengthened by adjusting the stop rules so that students are required to try more of the harder items, and easier items could be extended to cover harder concepts: e.g. measurement, shapes, relationships, spatial. The mean person location is close to the mean item location of zero ($\bar{\beta}_i$ = -0.17; SD = 1.40), providing additional evidence of good targeting. Removing the executive function items improves test targeting slightly ($\bar{\beta}_i$ = 0.05; SD = 1.36). High person separation (r_β = 0.85) also indicates that overall the test distinguishes well between high and low performers.

Figure 83: Distribution of ability estimates in relation to item difficulty estimates
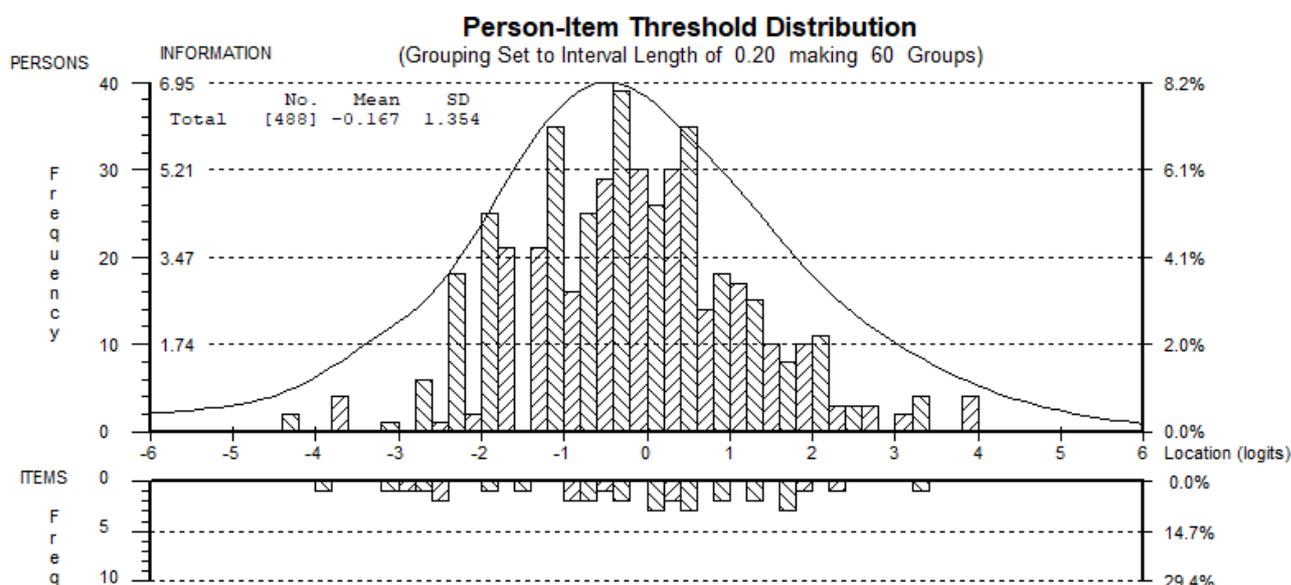
E.4   Literacy item targeting

The Figure below shows a wide spread of items relative to persons (-3.5 to 3.5 logits). The items are fairly well targeted to the students in the sample. There is a small gap in the continuum at the upper end and the information function peaks below the mean item location, at -0.50 logits. This is to be expected, since the harder reading and writing items were removed from the analysis due to a high proportion of incorrect or missing responses. The mean person location is close to the mean item location of zero ($\bar{\beta}_i$ = 0.34; SD = 1.34), which provides additional evidence of good targeting. High person separation (r_β = 0.87) indicates that the test distinguishes very well between high and low performers.

Figure 84:   Distribution of person ability in relation to item difficulty, literacy test
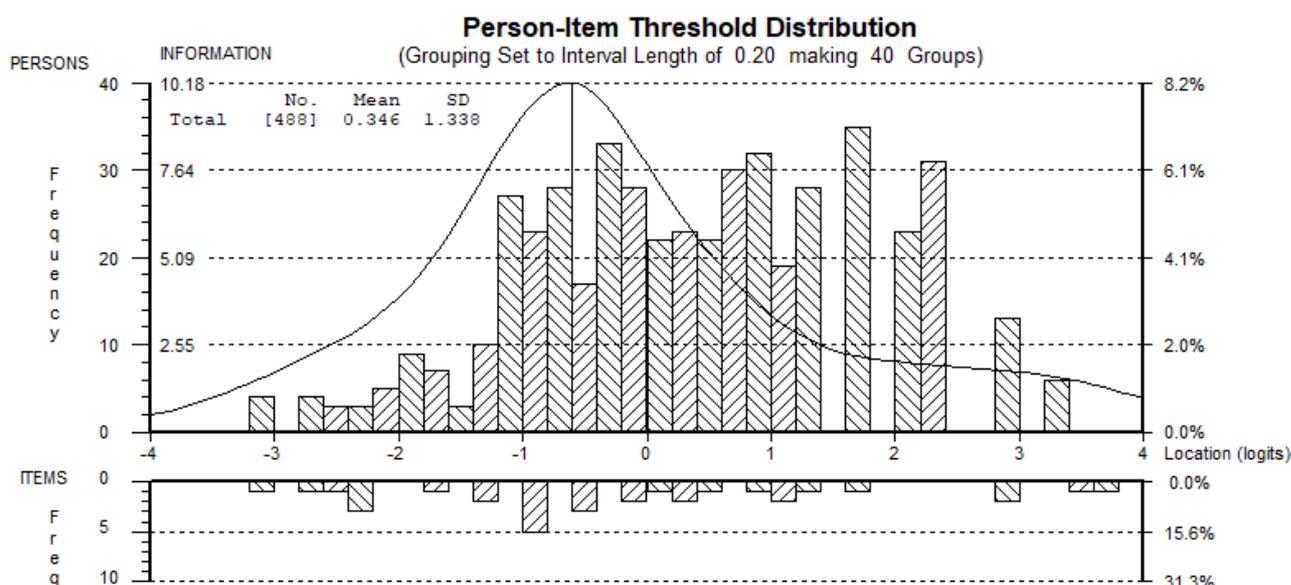
E.5   Socioemotional skills

Confirmatory factor analysis was performed to evaluate the factor structure and reliability of teachers and parents' ratings of socioemotional skills. On average, teachers' ratings of children's socioemotional skills were more favourable than parents' ratings.

E.5.1   Teacher—report

The 3-factor structure—demonstrated moderate global fit, $\chi^2(149)$ = 490.67, p < .001, RMSEA = .068 (90% CI: .062 to .075), CFI = .930. However, examination of modification indices and factor loading patterns indicated local misfit in the form of a residual correlation between the items 'Child takes turns when playing together with other children' and 'Child initiates play with other children.' In addition, three items loaded similarly on multiple factors. Based on content and theory, 'Child gets distracted from an activity', and 'Child has difficulty doing things he/she does not like' were specified to load on the Attentional Focusing/Approaches to Learning factor instead of the Problem Behaviours factor. 'Child is sad or unhappy' was specified to load on the Social Skills factor instead of the Problem Behaviours factor (with the latter more representative of externalising behaviours), although it seems questionable whether this makes conceptual sense.

The final model demonstrated good fit, $\chi^2(148)$ = 323.38, p < .001, RMSEA = .049 (90% CI: .042 to .056), CFI = .964. All three factors demonstrated adequate reliability evidence, with information peaking at .18 SD (maximum reliability = .92) units away from the mean for Social Skills, .31 SD (maximum reliability = .94) units away from the mean for Problem Behaviours, and -.02 SD (maximum reliability = .84) units away from the mean for Attentional Focusing/Approaches to Learning. Reliability was at or above .70 between -2.82 and 1.29

SD (Social Skills), -.25 and 1.76 SD (Problem Behaviours), and -2.02 and 1.12 SD (Attentional Focusing/Approaches to Learning) units away from the mean.

E.5.2 Parent—report

The 3-factor structure—hypothesised based on the final teacher-reported factor structure—demonstrated mediocre global fit, $\chi^2(148) = 426.59$, $p < .001$, RMSEA = .063 (90% CI: .056 to .070), CFI = .898. Examination of the factor loading patterns indicated that the item 'Child is sad or unhappy' did not load on the Social Skills factor, and the items 'Child gets distracted from an activity' and 'Child has difficulty doing things he/she does not like' did not load on the Attentional Focusing/Approaches to Learning factor (or loaded in an unexpected direction). Re-specifying the model such that these items loaded on the Problem Behaviours factor (as in the Mainland Tanzania sample) did not improve the model, as the items also did not load appreciably on the Problem Behaviours factor (or loaded in an unexpected direction). Accordingly, the three problematic items were removed from the model.

The final model demonstrated moderate (albeit not great) global fit, $\chi^2(100) = 330.57$, $p < .001$, RMSEA = .069 (90% CI: .061 to .078), CFI = .922. Table 5 in the separate write-up on the analysis of socioemotional skills provides the standardised factor loadings. As with the teacher-report data, 'Child initiates play with other children' had a relatively weak loading. Compared to the teacher-report data, reliability evidence was weaker. Information peaked at .21 SD (maximum reliability = .83) units away from the mean for Social Skills, -.26 SD (maximum reliability = .78) units away from the mean for Problem Behaviours, and .39 SD (maximum reliability = .70) units away from the mean for Attentional Focusing/Approaches to Learning. Reliability was at or above .70 between -1.28 and 1.58 SD (Social Skills), -.87 and 1.85 SD (Problem Behaviours), and .24 and .54 SD (Attentional Focusing/Approaches to Learning) units away from the mean.

Annex F   Costing methodology

The approach to costing pre-primary schooling in Liberia involves two main elements: first, the costs involved in providing pre-primary schooling currently, as found by our research teams' empirical work; second, a normative costing for better-equipped pre-primary schools with trained teachers.

F.1   Empirical costing

For our empirical costing, first we collected from principals the complete expenditure information for the school, detailing salaries, bills, maintenance and any other recurrent costs—but not start-up costs, as these are often too far in the past to expect principals to know them. We include salaries of government primary school teachers diverted from the primary level to teach ECE classes as salary expenditure by the school, even if the teacher is paid directly by MoE and the salary money never reaches the school.

We also gathered information on the complete income of schools. For many schools, the key source is the fees and other costs that parents are meant to pay; all fees parents must pay to the school are recorded. Details of any sources additional to the fee income already mentioned were also recorded. Other sources of income include teacher salaries being paid by the government (applicable at some government schools but not all), and any income or income in kind from any other source (such as NGOs, religious missions, or individuals).

As noted, we gather information from parents on what they pay, whether to the school or not, and to whom each cost is paid (for example, uniforms are often bought from a shop or are stitched by a local tailor, while school fees are paid directly to the school). This information establishes what pre-primary schooling costs at the present time at government, private, and community schools, both to the parent and to the school providing the service.

Regarding government schools, official government documents cannot be used as a basis for costing pre-primary schooling because at the present time there are no civil service teachers deployed to the pre-primary level and there is officially no budget for ECE. As noted, oftentimes a teacher deployed to teach the primary level is diverted to teach pre-primary, or else schools hire someone locally and informally, paid out of parental fee payments. Another costing issue regarding government schools is that official policy regarding fees, discussed in Section 2.1, is not currently being adhered to because the stipulated fee level is too high, so schools set their own fee levels.

F.2   Normative costing

Irrespective of ownership status, most schools were extremely poorly resourced and there was little variation observed in terms of teaching and learning, or in terms of the physical environment and materials available. For this reason, we provide a normative costing as well as the current actual (empirical) costing, so that the budgetary implications of scaling up a better quality of learning environment with trained teachers could be considered and, in due course, planned and budgeted for.

We calculated these costs based on government stipulations of various elements, such as the size of the classrooms, and what types of teaching-learning materials are meant to be present. Start-up costs include construction of three classrooms, a kitchen, three toilets, and a borehole. It also includes the purchase of a plot of land in urban areas, as well as classroom fittings (furniture, blackboards, floor mats, storage cupboards), kitchen fittings (the basic utensils and equipment needed for school meals), teaching and learning materials (a range of educational toys and storybooks), and initial teacher training (pre-service training for three teachers using OSIWA or We-Care's training plan). The ESA 2016 includes the cost for training a teacher for one year (longer than the training included here) of US $5,709, as opposed to our US $2,500 per teacher.

Annual recurrent cost are made up of all staff salaries, including teachers; one-third of the principal's salary; at least one cook/cleaner; in-service refresher training for at least one teacher per year; the regular supply of food ingredients and cooking fuel for making school lunches; all consumables for the classroom (chalk, drawing and writing materials, paper, etc.); cleaning; and savings for maintenance and savings for eventual replacement of all classroom furniture and fittings and elements of buildings, such as the roof (maintenance and amortised costs). Costs associated with the ECE Bureau and district or county officials and their duties are not included.

Taking the list of items stipulated by government, we were able to cost items in the market. The cost of block construction (which is favoured for its durability over less hard-wearing, less permanent types of construction) of regulation-sized classrooms and a kitchen, as well as toilets and a borehole, were costed by professionals. Average government civil service teacher (and non-teaching staff) salaries were used to estimate staffing costs. The lifespan of all fittings and furniture in the school were estimated by the research team to arrive at amortised costs that need to be budgeted for and a percentage of the value of these items is included every year for maintenance. For non-state costs, we took the average non-state teacher salary to estimate staffing costs. While many non-state schools might choose to have non-regulation-sized classrooms and less permanent construction, local colleagues advised us to cost for the same types of buildings as government schools. There is little difference between government and private schools other than the staffing costs; in reality private school proprietors may choose to invest more or less. In terms of PTR, they are investing more, having the lowest PTR of any of our three school types.

F.3   Factors not costed

The primary aim of our costing exercise is to arrive at unit costs at schools, rather than taking into account organisation-level costs, such as salaries of DEOs, CEOs, and staff in the ECE Bureau, which was outside of the scope of our field research. We also stated our intention to separate out certain NGO or religious mission staff (where applicable) that might be working with schools to provide ECE services. Our primary interest is to establish the costs of running well-equipped ECE centres, while we would intend also to estimate the administrative costs of running an expanded ECE Bureau, equipped to run an up-scaled ECE system in the country. CEOs and DEOs are already deployed in the field to oversee the schools that ECE centres are attached to, but these officers already work under difficult conditions and with little resourcing (as noted in the ESA of 2016). It is therefore likely that there will be some cost associated with stepping up their involvement in overseeing ECE.

No home-based ECE provision has been costed, as no such centres were found to provide a basis for costing. In addition, regionalised costs are not provided, knowledge on regional variation in costs will require work in additional regions of the country in the second phase of the research.