



TEACHER CAPACITY BUILDING FOR PLAY-BASED EARLY LEARNING IN SIERRA LEONE

QUANTITATIVE REPORT

SIERRA LEONE

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EXECUTIVE SUMMARY

Early Childhood Education and Care (ECCE) is crucial for the development of children as it helps them achieve their full potentials as individuals and progressive citizens. Quality preschool education has been proven to support brain development, reduce deficits gained from negative experiences, equip children with stronger school readiness skills, enhance academic achievement, increase school retention and graduation rates, as well as increase access to post secondary education. Children learn best through play. It is therefore imperative that preschool environments and experiences be strengthened to support positive outcomes for children mostly through play-based approaches.

Early Childhood education in Sierra Leone was not formally part of the government education sector service delivery plans until the advent of the Free Quality School Education (FQSE) in 2018. To support this sector, the government of Sierra Leone has developed the relevant policies, including the Early Childhood development policy of 2020, the National Policy on Integrated Early Childhood Development of 2021. Despite these efforts Early Childhood Education (ECE) continue to face challenges in Sierra Leone, including unavailability or inadequacy of Teaching Learning Materials (TLM), inadequate infrastructure, lack of training in the relevant pedagogical approaches, general financial constraints etc.

The purpose of this quantitative study was to investigate the capacity of ECE teachers to implement play-based teaching and learning approaches in Ghana and Sierra Leone. Specifically, it aimed at answering the following research questions; How is the educational system adapting to the changes in the new early learning curriculum? How are education innovators in the early learning space influencing the early childhood education quality and uptake in Ghana and Sierra Leone? Can there be more cost-effective approaches to scaling up early learning activities through volunteer teacher programmes? and What is the value addition of play-based learning methods compared to schools which do not implement these, particularly in relation to early grade reading outcomes.

The study used the quasi-experimental design to compare intervention or experimental schools and non-intervention or control schools. Intervention schools are the beneficiaries of the innovations by Teach for Sierra Leone (TFSL) in Sierra Leone, Right to Play (RTP) and SABRE Foundation for Ghana. The control group (non-intervention) are schools that have received very little or no play-based innovation from any institution, government or private. In Sierra Leone, eighty schools and their headteachers, 240 teachers, and 480 pupils were targeted for the study. Of these numbers, 79 schools, 229 teachers and 460 pupils were successfully surveyed giving a return rate of 99%, 95% and 96% respectively. The Early Grade Reading Assessment (EGRA) and the Early Grade Mathematics Assessment (EGMA) tools were used to assess the impact of the innovation or lack thereof on children's learning outcomes. The data collection exercise in both countries was undertaken by trained enumerators using Computer-Assisted Personal Interviewing (CAPI) platform.

In terms of school characteristics, the majority of the schools were found to be single schedule systems with the exception of one school among the intervention schools which ran a shift schedule system. About two-thirds (63 per cent) of the intervention schools have pre-primary and primary divisions (having both pre-school and primary streams) compared to 51 per cent of the non-intervention schools. The non-intervention schools have a higher share of schools that have only a primary stream without a pre-school. More than 77 per cent of intervention schools are in rural or deep-rural locations, and 23 per cent in peri-urban locations. All non-intervention schools, on the other hand, were in rural or deep-rural locations. The intervention schools have an average of about 8 classrooms while non-intervention schools have an average of about 6 classrooms. Among schools with only primary level, the average number of classrooms is about 6 for the intervention schools and about 5 for the non-intervention schools. Furthermore, the non-intervention schools have about 60 per cent of their classrooms being defective (having broken doors & windows, leaky room, etc.) compared to just 23 per cent of classrooms in intervention schools. Non-intervention schools also have a higher percentage of uncompleted classrooms (20 per cent versus 11 per cent respectively). The share of classrooms without enough furniture for all students is comparable between the two study arms (about 61 per cent each).

In the adaptation of the education system to the new early learning curriculum, the study revealed minimal progress in the adaptation of the educational system to the changes in the new early learning curriculum as evidenced by the analysis of school infrastructure and the provision of teaching and learning materials. Most of the schools in both intervention and non-intervention districts are poorly resourced with inadequate classroom buildings, toilet facilities, healthcare facilities, outdoor playing facilities, school fencing and security, etc. Very few classrooms are in good condition, and some of them have to be blended to accommodate more children. While schools do much better with teaching and learning materials, these are also inadequate to meet the needs of the children. Teachers, Students, parents and families of particularly intervention schools have to improvise in order to complement the limited materials that are made available by government, education partners and innovators. The study revealed that non-intervention schools have a higher pupil-teacher ratio than intervention schools, particularly at the primary level. The response on educational qualification shows that Teacher Certificate is the most common qualification among teachers in both intervention and non-intervention schools, albeit the share is higher in intervention schools (73 per cent versus 61 per cent, respectively). In the reverse, non-intervention schools were more likely to have teachers whose highest academic qualification is West Africa Senior School Certificate Examination (WASSCE). About 7 per cent of teachers in intervention schools also reported having a university degree. About a quarter of the teachers in intervention schools and one-tenth in the non-intervention schools have a Higher Teacher Certificate. Teachers in both the intervention and non-intervention schools had participated in a play-based pedagogy training in the last 3 years although more teachers in the intervention schools had participated in these trainings. Even though teachers generally have positive beliefs, attitudes and actions towards play-based learning, and integrate play-based

learning activities in their teaching activities, those in the intervention schools do more than their counterparts.

With regards the role of the innovators in the ECCE space, The findings suggest that for the intervention schools, 65% of the teachers indicated that support for resource creation comes from the innovator (TFSL) that sent them to the school. That said, 6% of the teachers in the intervention school and 38% of those in the non-intervention schools suggested that the education partners provide such support. With regards to direct support from the MBSSE, 28% of teachers from the intervention and 43% of their counterparts from the non-intervention schools believed that support for resource creation comes from the MBSSE.

With regards the value addition of play-based learning methods, students in the intervention schools performed better than those in the non-intervention schools in the literacy and numeracy tests based on the EGRA and EGMA test conducted. Observation data suggest that the children from intervention schools significantly outperformed their counterparts from the non-intervention schools in language, reading and numeracy.

With regards to the cost of participation in Play-based training, the study shows that teachers in Sierra Leone do not have to pay for any training as the government takes up that responsibility.

The study identified among others three key factors of infrastructure, logistics and capacity-related challenges that inhibit the adaptation of the education system to the new PBL curriculum. The research therefore proposes the following recommendation to remedy the situation and improve the implementation and uptake of **PBL** in schools:

- The government should work with education partners, innovators, and community stakeholders to provide infrastructure for **PBL as well as include a strategy for sustainability**.
- Teachers should be trained in the ECE and play-based pedagogies to enhance their capacity to implement the approaches that would guarantee improved learning outcomes. It is therefore critical for MBSSE to work with the Teaching Service Commission of Sierra Leone and other education partners and innovators to develop innovative approaches to teacher training on PBL pedagogy to increase the effective implementation of PBL in both intervention and non-intervention schools.
- Non-Governmental organizations in the ECE space should adopt Teach for Sierra Leone's Teaching As Collective Leadership model of using graduate teachers in ECE classrooms.
- To increase the number of trained and qualified teachers in the schools, government should provide scholarships for interested individuals to pursue early childhood education courses in tertiary institutions.
- Teaching learning materials must be provided for schools to implement Play-based teaching and learning activities. Alternatively, in this resource constrained communities,

teachers should be trained to produce TLMs at the local level to augment government efforts.



Abdulai Maxim Conjoh (PhD) – Principal Investigator

Division of Educational Studies

Fourah Bay College

University of Sierra Leone

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CONTRIBUTORS

Dr. Abdulai Maxim Conjoh (Principal Investigators)

Mr Victor Joseph Kamara

Dr. Abubakarr Lamin

Mrs Agnes Pessima

Ms Ojufini Johnson

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ACRONYMS

CAPI	Computer Assisted Personal Interview
ECCE	Early Childhood Care and Education
ECD	Early Childhood Development
ECE	Early Childhood Education
EGMA	Early Grade Mathematics Assessment
EGRA	Early Grade Reading Assessment
FQSE	Free Quality School Education
HTC	Higher Teachers' Certificate
MBSSE	Ministry of Basic and Senior Secondary Education
T.C	Teachers' Certificate
TFSL	Teach for Sierra Leone
TLM	Teaching Learning Materials
WASSCE	West African Senior Schools Certificate Examination

CHAPTER 1: INTRODUCTION

1.1 Background and Context

Early Childhood Education (ECE) is crucial for the overall development of the child for the future. The Sierra Leone National Policy on Integrated Early Childhood Development (ECD) refers to ECD as the holistic growth and well-being of children between ages 0-8 across the physical, social-emotional, cognitive, language and self-regulation domains of development. ECE has been well established as a critical foundation for sustainable human capital, economic and societal development. ECD is dependent on an integrated framework of multi-sectoral services (MBSSE, 2021).

ECE takes place in pre-schools, and these are important years for students to develop pre-reading skills. During these years, students should be exposed to activities that teach them the alphabet, phonics, phonemic awareness, writing, and other basic literacy skills. When adults are able to interact with students during play-based literacy experiences it can enhance their experiences (Kjoberg, 2020).

Central to ECE is play which has been described as crucial in the overall development of the child. Learning through play provides children the opportunities to grow in a risk-free environment, communicate with peers, express feelings, and thoughts, discover and investigate various subjects, improve social-emotional skills, develop language and vocabulary, enhance cognitive capacity, build self-esteem, prepare for life, and establish a foundation for the next stage of school. Early childhood teachers can help students to do all these and more by providing learning through play (Alharbi & Alzahrani, 2020; Kjoberg 2020). Play is one of the most important pedagogical tools in the literature of early childhood learning (Singh et al. 2021; O’Keeffe & McNally, 2021; Pompert, van der Meer-Wijnands & Waard, 2022)

The role of the teacher in implementing play-based pedagogy is critical for children’s development. When teachers are able to provide the necessary support including lesson planning, play material selection and arrangement, they promote effective and active learning. According to Tarman & Tarman (2011), teachers can help children to build new experiences, extend and enrich ideas for play as well as finding ways to stimulate children’s imaginative play.

To effectively implement play-based pedagogies, teachers must be trained and qualified in methodologies that have proven outcomes. These trainings will help them develop competences and capacities for curriculum planning that can enhance the effectiveness of their job. Most teachers, however, do not fulfill some of the roles specified to them in the integration of play in ECE curriculum. This inhibits their role in the integration of play in ECE curriculum, (Murundu, Okwara & Odongo, 2014). As a result, efforts at improving the capacity of teachers in implementing play-based teaching and learning must be intensified.

The Government of Sierra Leone, through many development partners has intensified the implementation of ECE programmes in the country, developing the relevant policies, including the new play-based curriculum, building ECD centers and training the teachers in play-based pedagogy. In collaboration with the Ministry of Basic and Senior Secondary Education (MBSSE), over 4,000 children will now have access to 59 newly constructed ECD centers equipped with solar powered WASH facilities and user-friendly learning materials with the support of Global Partnership for Education, OSIWA and UNICEF. Investing in pre-primary education will expand universal and equitable access to quality education, contributing to building the future for children and the human capital the country needs, (UNICEF, 2023).

Education stakeholders in Sierra Leone are supporting the government's programmes at all levels of pre-secondary education, particularly at the pre-school and primary levels. One of such organizations is Teach for Sierra Leone (TFSL), who is implementing the Teaching As a Collective Leadership model of intervention, targeting peri-urban, rural and deep rural communities. The model utilizes play-based pedagogical approaches, using graduate teachers, who have been trained to perform their roles. For this study TFSL are the innovators and the study purpose was to investigate the value of play-based learning, as implemented by TFSL in ECE classrooms in Sierra Leone. The targeted classrooms included pre-primary as well as lower primary levels.

1.2 Research Questions

The research questions for this study are:

1. How is the new early learning curriculum with play-based approaches integrated into the pre-service and in-service teacher training programs?
2. How is the educational system adapting to the changes in the new early learning curriculum?
3. What innovations in play-based learning exist to support teacher capacity to implement play-based learning and what added value are these making (e.g., volunteer teacher models and right to play models)?
4. How are education innovators in the early learning space influencing the early childhood education quality and uptake in Sierra Leone?
5. Can there be more cost-effective approaches to scaling up early learning activities through volunteer teacher programs?
6. What is the value addition of play-based learning methods compared to schools which do not implement these, particularly in relation to early grade reading outcomes?

Those research questions were investigated using both qualitative and quantitative approaches. For this quantitative study, the focus was on research questions 2, 4, 5 and 6.

The report is structured in six chapters. Chapter one is the introduction, presenting the background context, and the research questions. The second chapter presents the methodology of the study, including the data collection tools and study implementation. The third chapter describes the sample of schools, teachers, and student population. The fourth and fifth chapters present the findings, and the sixth chapter presents the conclusion and recommendation.

CHAPTER 2: SURVEY METHODOLOGY AND IMPLEMENTATION

2.1 Study design and methodology

The design of this study is quasi-experimental which is an empirical interventional study used to estimate the causal impact of an intervention on a target population without random assignment. It allows the researcher to control the assignment to the treatment condition but using some criterion other than randomization. This design allowed the comparison between two cohorts, the intervention, and the non-intervention groups. The intervention group received some treatment while the non-intervention received none. The effect of the intervention on the treatment group is then tested. The intervention schools obtained from the intervention districts are beneficiaries of the Teaching as a Collective Leadership (TACL) model innovations by TFSL in Sierra Leone. The population for the control group, however, comprises schools that did not receive the TACL training, but may have received play-based innovation from government or other institutions.

Intervention schools were obtained from TFSL in Sierra Leone which constituted the population for the intervention. A sample of beneficiary schools was randomly drawn from the population of beneficiary schools in the districts of Bombali and Moyamba. Similarly, non-intervention schools were obtained from two districts (Karene and Bonthe), neighboring the intervention districts. The sample for the non-intervention group were selected from the two list of schools in the two districts. Given the similarity between the intervention and non-intervention districts, and based on previous test results from the districts, it is expected that the only difference between the intervention group and the non-intervention group will be the play-based innovations in the selected schools is the presence of volunteer teachers/Fellows at early childhood levels (Pre-Primary 1 to 3 and Primary 1 to 3).

The sample size determined for the study was 80 schools equally split between the intervention and non-intervention schools (40 schools per arm). In each school, 3 teachers in the early grades (pre-primary 1-3 and primary 1-3) were selected for interviews, making a total of 240 teacher interviews – 120 each for the intervention and non-intervention schools. In each school, a total of 6 students in grade 2 were targeted for literacy and numeracy assessment given that the goal of the TACL intervention is to improve the literacy and numeracy performance of the students in the early grades.

2.2 Questionnaire design

A school level questionnaire and a teacher questionnaire were developed to collect information about the schools and the teachers, respectively. The school level questionnaire was administered on the headteacher or deputy and was focused on collecting information about school infrastructure and facilities, and how the educational system in Sierra Leone is adapting to the changes in the new early learning curriculum, how the educational innovators in the early

learning space are influencing ECE quality and uptake, issues around cost-effective approaches to scaling innovation and the value addition to play-based learning methods. The teacher level questionnaire focused on teacher sociodemographic characteristics, participation in play-based training, attitudes and practices about play-based pedagogies and practices, and challenges to implementing play-based pedagogies and practices.

The assessment of learning outcomes was done using the Early Grade assessment tools in the forms of the Early Grade Reading Assessment (EGRA) and the Early Grade Mathematics Assessment (EGMA) tools. EGRA and EGMA tools are standardized assessment tools used globally for educational assessments and measure the competencies of children in key foundational skills in literacy and numeracy. These are the tools used by the MBSSE and UNICEF and it makes comparability easy.

The EGRA and EGMA tools test children's ability to identify letters and sounds, read simple texts and perform basic arithmetic tasks respectively. The tools focus on assessing whether a student can read alphabets, words, paragraphs, and stories, and whether the student can recognize numbers, solve basic arithmetic problems using subtraction and division. The student must be able to listen to the instruction, read, and speak aloud as per their ability to read and write for arithmetic problem-solving. These tools were used to capture students' language, reading, writing, and numeracy skills as measures of the impact of the innovation on the learners. Five EGRA sub-tasks (letter names, letter sounds, familiar words identification, invented word decoding, and reading) and 10 EGMA subtask (number identification, number discrimination, missing numbers, additional level 1, addition level 2, subtraction level 1, subtraction level 2, word problem, multiplication level 1, and division level 1) were assessed.

2.3 Recruitment and training

A total of 32 enumerators and 2 field coordinators were recruited and trained for the data collection exercise. Enumerators and coordinators were selected based on prior experience in undertaking field surveys and similar tasks, as well as familiarity with the terrain in the four study districts. Enumerators and coordinators were trained on the overarching objectives of the PBL project to allow them to fully appreciate and understand the survey questionnaire. Enumerators were also trained on the ethics of survey data collection, equipped with necessary skills for respondent engagement, and taken through the overall approach to fieldwork engagement and community entry techniques. As part of the training, enumerators were trained on how to handle, operate, and execute the digital version of the survey questionnaire. Enumerators were trained for 5 days on both the paper and electronic versions of the questionnaire designed for Computer Assisted Personal Interviews (CAPI). The training and pretest of instruments allowed for key questions to be clarified to ensure consistency in the interpretation of the questions during data collection.

2.4 Data Collection and Quality Control

Data collection took place over a 5-day period with the field teams spread simultaneously across all four districts. For quality control, the principal investigators were on the field to do monitoring throughout the period of the data collection. In addition, the data synched to the server was downloaded in real time for data quality checks, and feedback was sent to the teams to address any issues with the data. These quality controls ensured high quality data collection. The response rate for the various samples is presented in Table 2.1 below. All 80 targeted schools were reached.

The headteacher survey was not completed in one school because the headteacher and deputy were not available at the time of the visit, and the remaining teachers could not provide all the necessary information. The teacher survey and student assessment achieved response rates of more than 95 per cent while the response rate for the headteachers was 99%.

Table 2.1: Sample completion rate by Intervention status

Sample type	Intervention	% Completed	Non-Intervention	% Completed	Total	% Completed
Head teacher	40	100.0	39	97.5	79	98.8
Teacher Survey	118	98.3	111	92.5	229	95.4
Student Assessment	238	99.2	222	92.5	460	95.8

2.5 Challenges

The first challenge encountered on the field relates to respondents' research fatigue. There seem to be a lot of researchers in the field collecting one form of data or another. But for the intervention of the Deputy Directors of Education from the MBSSE and the TSC, the researchers would have struggled to obtain participation.

The second challenge encountered was the issue of lack of internet connectivity to enable communication and synchronization of data for real time review by technical team. Some of the deep-rural areas had limited data connectivity, making it difficult to synchronize data immediately after data collection. As a mitigation measure, additional funds were given to the teams to enable them move to the nearest location with better data connectivity so that enumerators could synchronize their data daily.

CHAPTER 3: DESCRIPTION OF SAMPLE – SCHOOLS AND TEACHERS

3.1 Introduction

This chapter deals with the description of the schools and teachers surveyed. It is divided into two parts. The first part presents school characteristics. This part describes the type of school, the level, and location. It also covers the state of infrastructure and utilities available in each of the schools surveyed. The second part deals with teacher characteristics. That is their academic and professional qualifications and the extent to which teachers have upgraded their qualification in terms of pursuing further studies.

3.2 Schools Characteristics

School characteristics are discussed in terms of shift system or school schedule, location, level of the school, and classroom facilities. In terms of the location, schools are classified as being in rural, deep-rural or peri-urban locations. None of the schools are in urban locations. Classroom facilities are described in terms of quantity and quality attributes. Table 3.1 presents the results on these indicators for intervention and non-intervention schools, along with a p-value from the test of equality of the means or proportions.

In terms of school schedule, the majority of the schools were found to be single schedule systems with the exception of one school among the intervention schools which still runs a shift schedule system. About two-thirds (63 per cent) of the intervention schools have pre-primary and primary divisions (having both pre-school and primary streams) compared to 51 per cent of the non-intervention schools. The non-intervention schools have a higher share of schools that have only a primary stream without a pre-school. Only 5 per cent of intervention schools and 3 per cent of non-intervention schools have pre-school, primary and junior secondary school (JSS).

More than 77 per cent of intervention schools are in rural or deep-rural areas locations, and 23 per cent in peri-urban locations. All non-intervention schools, on the other hand, are in rural or deep-rural locations. The intervention schools have an average of about 8 classrooms while non-intervention schools have an average of about 6 classrooms. Among schools with only primary level, the average number of classrooms is about 6 for the intervention schools and about 5 for the non-intervention schools. Also, among schools with a pre-school stream, the intervention schools have a higher average number of classrooms than the non-intervention schools. Furthermore, the non-intervention schools have about 60 per cent of their classrooms being defective (having broken doors & windows, leaky room, etc.) compared to just 23 per cent of classrooms in intervention schools. Non-intervention schools also have a higher percentage of uncompleted classrooms (20 per cent versus 11 per cent respectively). The share of classrooms without enough furniture for all students is comparable between the two study arms (about 61 per cent each).

Table 3.1 School Schedule, Level and Infrastructure

Indicator	Intervention	Non-Intervention	p-value
School schedule			
Shift Schedule System	2.50	0.00	0.308
Single Schedule System	97.50	100.00	0.308
School level			
Primary only	32.50	46.15	0.396
Pre-school and Primary	62.50	51.28	0.518
Pre-school, Primary, and JSS	5.00	2.56	0.339
School location			
Rural	42.50	30.77	0.375
Deep-Rural	35.00	69.23	0.080
Peri-Urban	22.50	0.00	
Classroom facilities			
# of classrooms	7.45	6.31	0.150
# of classrooms - schools with only primary level	5.62	5.28	0.634
# of classrooms for pre-school	2.41	1.90	0.043
Share of defective classrooms	23.42	58.09	0.003
Share of uncompleted classrooms	10.78	20.19	0.027
Share of classrooms without enough furniture for all students	61.03	60.50	0.968

3.3 Utilities for schooling convenience of children

The data shows that while 38 per cent of the intervention communities have pipe-borne water extended to those communities, only 15 per cent of the non-intervention communities have pipe-borne water extended to them. In terms of the number of schools having access to pipe-borne water in the school, only 20 per cent of the intervention schools have pipe-borne water while 3 per cent for the non-intervention schools have. In terms of access to water wells, 73 per cent of the intervention schools have access to this facility as against 56 per cent of the non-intervention schools. This means that about 93 per cent of intervention schools and 59 per cent of non-intervention schools have access to water through pipe-borne facilities or water well. The 2022 Annual School Census (MBSSE, 2022) suggests that 69% of schools generally have access to water. The percentage of those who do not have access to water at the pre-school level is 47%, which is very high considering the significance of the element in maintaining hygiene. In fact, schools' accessibility to water has dropped by 16% from 73% to 57% in 2022 (MBSSE, 2022)

Intervention schools also had better hygiene facilities for boys and girls compared to non-intervention schools (63 per cent versus 23 per cent respectively). Similarly, among the schools with a pre-school, intervention schools were more likely to have hygiene facilities for pre-school students (63 per cent versus 14 per cent respectively). This can be explained by the fact that

while some of the schools in the intervention district are in peri-urban town with more facilities, all the schools in the non-intervention schools are either in rural or deep rural communities where the chances of getting these facilities are slim.

In terms of electricity availability in the community, 40 per cent of the intervention communities had the National Electricity grid extended as opposed to 3 per cent of the non-intervention communities. Despite this, just about a quarter of intervention schools (25 per cent) and less than 10 per cent of non-intervention schools have electricity in the school – either through the national grid or an alternative source such as solar panels or generator. This finding aligns with that in the ASC (2022) which suggests that 75% of schools generally do not have electricity. At the pre-school level, the percentage without electricity is 76%. (MBSSE 2022). Table 3.2 shows the distribution of the utilities among the intervention and non-intervention schools.

Table 3.2: Utilities (water, electricity, sanitation & hygiene)

Indicator	Intervention	Non-Intervention	p-value
Pipe-borne water extended to community where school is located	37.50	15.38	0.403
Pipe-borne water available in the school	20.00	2.56	0.255
School has water well	72.50	56.41	0.251
School has pipe-borne water or water well	92.50	58.97	0.041
School has hygiene for boys and girls	62.50	23.08	0.033
School has hygiene facilities for preschool students	62.96	14.29	0.042
Electricity extended to community where school is located	40.00	2.56	0.166
Electricity in school - through national grid or other source	22.50	7.69	0.194

3.4 Teacher Characteristics, Academic, and Professional Qualifications

The sociodemographic (age, sex, marital status), educational qualifications, subject specialization, ECE teaching experience, and rank of the teachers are presented in Table 3.3. The average age of the teachers is found to be 34 years in the intervention schools and about 37 years in the non-intervention schools. The intervention schools were more likely to have female teachers (67 per cent) compared to the non-intervention schools (41 per cent). Teachers in the intervention schools were less likely to be married compared to the teachers in the non-intervention schools (48 per cent versus 62 per cent, respectively). This may be explained by the large share of volunteer teachers in the intervention schools.

The response on educational qualification shows that Teacher Certificate is the most common qualification among teachers in both intervention and non-intervention schools, albeit the share is higher in intervention schools (73 per cent versus 61 per cent, respectively). In the reverse, non-intervention schools were more likely to have teachers whose highest academic qualification

is WASSCE. About 7 per cent of teachers in intervention schools also reported having a university degree. The responses on the highest teaching qualification shows that a number of those with university degree do not possess a degree in education. About a quarter of the teachers in intervention schools and one-tenth in the non-intervention schools have a higher teacher certificate.

The response on subject specialization shows that less than 5 per cent of teachers in intervention schools and none in non-intervention schools have ECE subject specialization. On average, teachers in intervention schools have been teaching ECE for 4.5 years with 3.6 years of that in the current school. On the other hand, teachers in the non-intervention schools have been teaching ECE for about 6.9 years on average, with 6.2 of those years in the current school. Indeed, more than 85 per cent of the teachers have been teaching ECE only in their current school.

In terms of rank, about 86 per cent of teachers in intervention schools are of the Assistant Teacher rank compared to 55 per cent of teachers in the non-intervention schools. Teachers in the intervention schools were more likely to have teachers with the higher ranks of Senior Teacher or Deputy Headteacher or Headteacher. The main other ranks are volunteer teacher and fellow of TFSL.

Table 3.3 Teacher characteristics

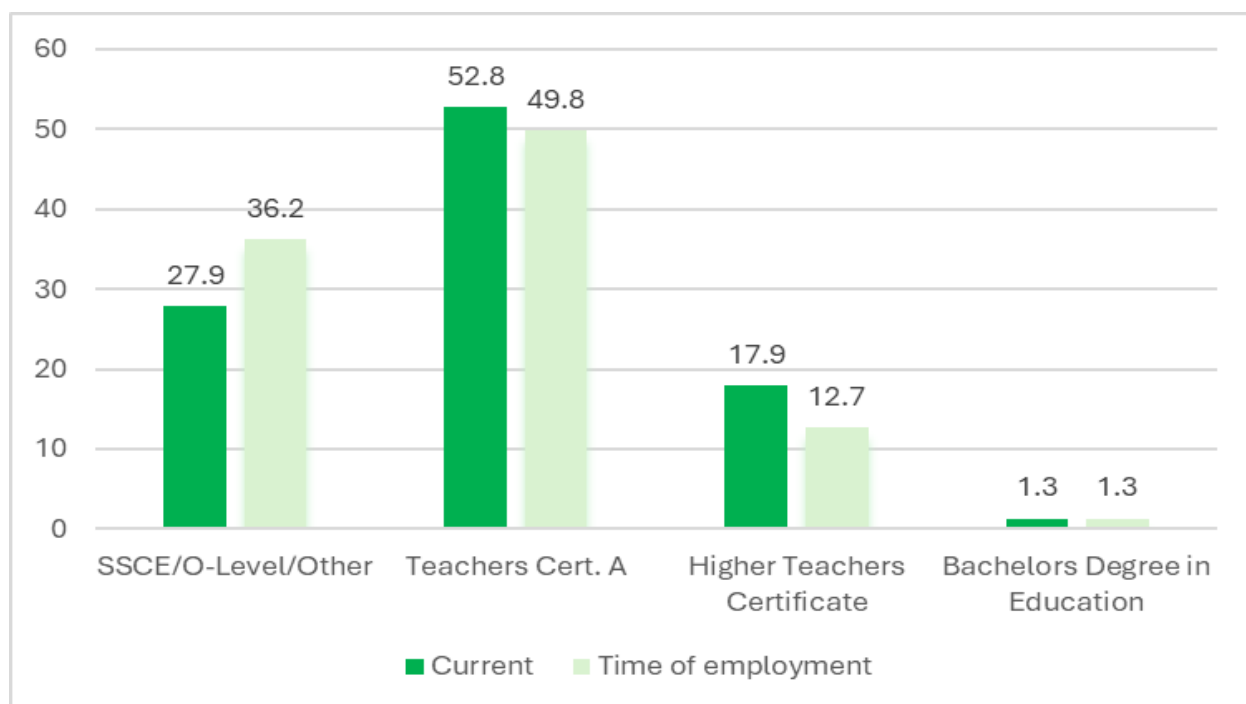
Indicator	Intervention	Non-Intervention	p-value
Age of teacher (years)	34.02	36.91	0.316
Share of Female teachers	66.95	40.54	0.018
Marital Status			
Married	48.31	62.16	0.311
Never married	44.07	31.53	0.199
Educational qualification			
WASSCE	17.80	27.93	0.263
Teacher Certificate	72.88	61.26	0.224
University degree	6.78	0.00	0.209
Highest teaching qualification			
Teacher Certificate	48.31	57.66	0.432
Higher teacher certificate	25.42	9.91	0.066
Degree in education	2.54	0.00	0.040
Subject specialization			
General subject specialization	83.90	92.79	0.063
ECE subject specialization	4.24	0.00	0.301
ECE experience			
Years teaching ECE overall	4.47	6.90	0.039
Years teaching ECE in current school	3.62	6.19	0.021
Only being teaching ECE in current school	80.51	89.19	0.112
Current rank on the job			

Assistant Teacher	85.59	54.95	0.010
Senior Teacher	6.78	14.41	0.130
Headteacher or Deputy Headteacher	2.54	14.41	0.061
Other rank	5.08	16.22	0.206

3.5 Changes in teacher qualification from time of employment to now

Figure 3.1 summarizes the distribution of teacher professional qualifications at the time of employment and currently. This is to assess career development efforts by the teachers. Overall, about 36 per cent of the teachers had SSCE/O’Level or other qualification at the time of employment but this reduced to 28 per cent presently. The difference of 8 percentage point may have acquired higher educational qualifications since entering the teaching services if they have not attrited. The likelihood that they may have acquired higher qualifications shows up in the share of teachers with Teacher Certificate A which has increased by 3 percentage points from 50 per cent to 53 per cent, and the share with higher teacher certificate has also increased from 13 per cent to 18 per cent. The share of teachers with bachelor’s degree in education has remained the same over time. A detailed crosstabulation of the educational qualification at the time of employment and currently is shown in Table A1 of the appendix.

Figure 3.1: Teachers’ qualification at the time of employment and current status



3.6 Proportion of teachers who teach at the early childhood grades

Table 3.5 shows the proportion of teachers in preschool and lower primary levels. Most of the teachers are class teachers which means that the responsibility of providing support and direction for the pupils rests squarely on those teachers. Less than 2 percent of the teachers teach in multiple grades either at the pre-school level (Kindergarten 1 to 3) or at the lower primary level (Primary 1 to 3).

Table 3.5: Proportion of teachers who teach at the lower level

Indicator	Intervention	Non-Intervention	p-value
Kindergarten 1 only	4.24	4.50	0.943
Kindergarten 2 only	5.93	2.70	0.549
Kindergarten 3 only	8.47	5.41	0.364
Multiple KG classes	1.69	1.80	0.943
Primary 1 only	22.88	27.03	0.184
Primary 2 only	30.51	28.83	0.479
Primary 3 only	24.58	25.23	0.913
Multiple primary classes	1.69	4.50	0.400

CHAPTER 4: ADAPTATION TO EARLY LEARNING CURRICULUM AND THE ROLE OF THE INNOVATOR

4.1 Introduction

Education programme implementation particularly in schools is based on the curriculum. For quite some time, implementation of ECCE programmes in Sierra Leone was based on an old curriculum that was teacher centered rather than utilizing participatory models. In recent years the Ministry of Basic and Senior Secondary Education developed a new curriculum that is play-based and child focused. The education system needs to adopt and adapt to the changes in the new early learning curriculum. This chapter is focused on how the education system is adapting to the changes in the early learning curriculum. This focuses on the availability and adequacy of school and classroom facilities and equipment for early childhood education as well as teacher capacity to implement the programme. Factors affecting the effective implementation of play-based were investigated as well as how the challenges can be mitigated. The role education innovators can play in adapting the changes in the new curriculum is also discussed.

4.2 School Facilities and Equipment for ECE

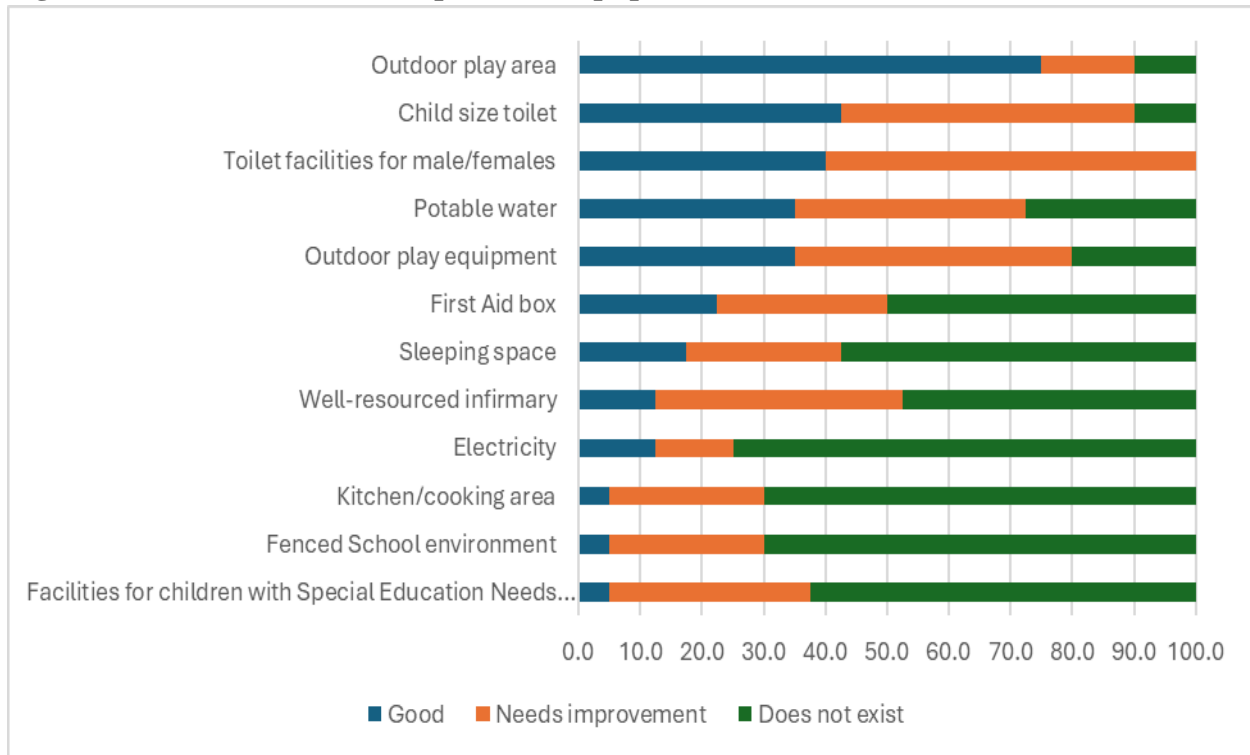
The implementation of the new curriculum is dependent on the availability, adequacy, and appropriateness of school facilities for ECCE. These facilities include the playing area, sickbay, outdoor equipment etc.

4.2.1 Physical Facilities, Space, and Equipment for ECCE

Effective implementation of the new ECD curriculum is contingent upon the availability and adequacy of physical facilities including space and equipment. Facilities such as furniture used by the pupils, whether it is of the appropriate size for children's use, sleeping space, electricity and the like. These create a conducive learning environment. The data on these equipment and facilities is presented in Figure 4.1 below. Among the possible equipment and facilities identified as important for ECD curriculum, it is only outdoor play area that a significant majority of schools (73%) indicated that what they have is good. This finding is in line with the national situation which suggests that 30% of schools at the pre-school level do not have play area and it is the highest among all the levels of the education system (MBSSE, 2022). Considering the fact that play is at the heart of pre-school education, this is a very serious challenge for the implementation of play-based approaches. The rest of the facilities and equipment are either present but needs improvement or not present at all. Over 60 percent of the schools do not have facilities for children with special needs and nearly 70 percent do not have fence.

A little over 40 percent of the schools have child size toilet facilities in good condition. However, a little less than 40 percent have separate toilet facilities for boys and girls. Only about 12 percent of the schools surveyed have well-resourced infirmaries, while about 48 percent do not have an infirmary at all

Figure 4.1: Status of facilities, space, and equipment for ECCE



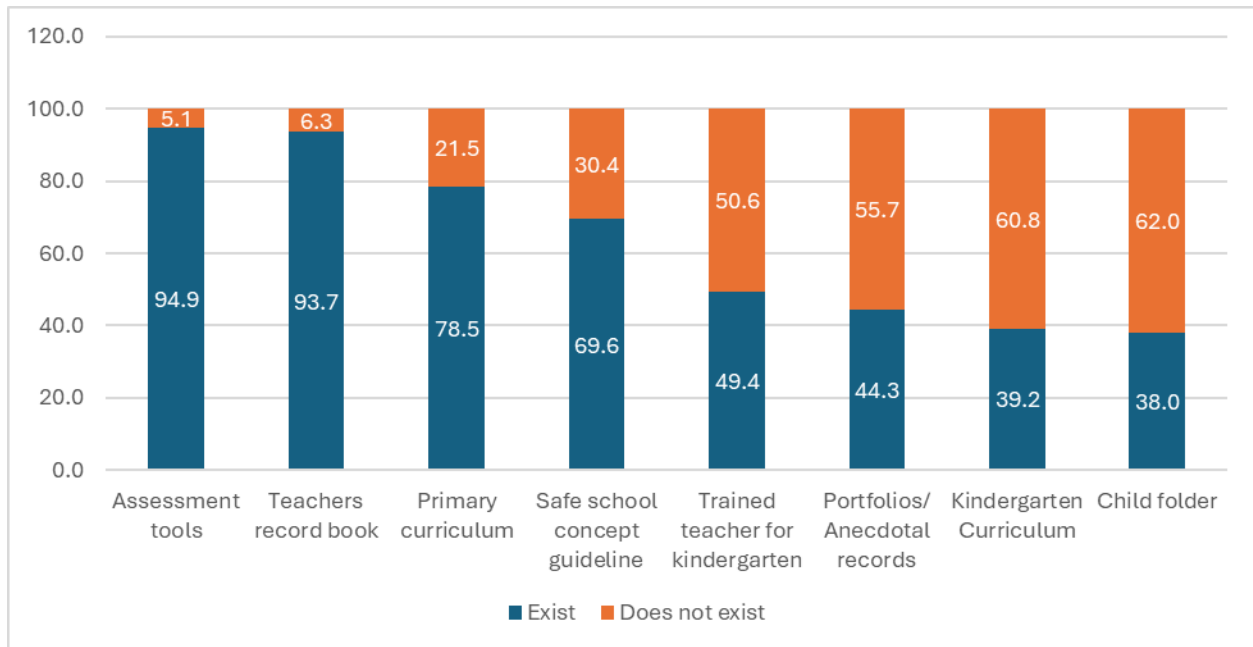
4.2.2 Learning Related Resources for ECE in School:

Learning related resources for ECE refers to pedagogical resources for teaching and learning at the early grade level. These include portfolio or anecdotal records, assessment tools, teachers record book, safe school concept guidelines, child folders etc. Teachers/caregivers must be equipped to ensure that effective teaching takes place and the school is properly managed. For instance, schools need curriculum, record books, assessment tools, the codes of conduct for proper behavior etc. From the human resource side of it, the teachers need to be trained in the implementation and management of ECE. The data on these pedagogical resources collected at the school level is presented in Figure 4.2. Below.

With regards to the existence of pedagogical resources, over 93% of the respondents reported that assessment tool and teacher record books exist in their schools. About 79% reported that they have the primary curriculum, the guide for pedagogical approaches. On the other hand, only

39% reported that the kindergarten curriculum is in existence. Fifty-one percent indicated that trained teachers for kindergarten exist in their schools.

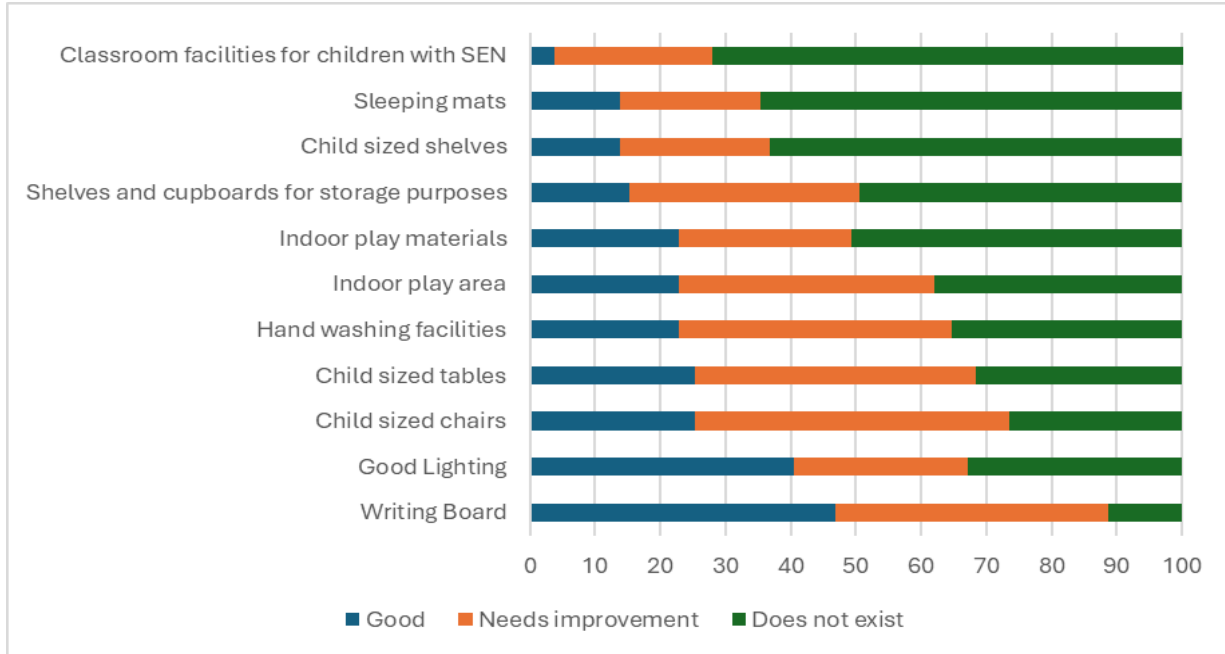
Figure 4.2: School Resources for Early Childhood Education



4.3 Classroom Facilities and Equipment for ECCE:

The study shows that there is a dire need for classroom facilities and equipment for ECCE. More than 70 percent of the respondents suggest that most of the classroom facilities and equipment for ECCE either need improvement or do not exist. With regards to classroom facilities for children with Special Education Needs (SEN), over 70 percent of the respondents suggested that they do not exist. In the era of inclusivity and the need for equity, all children should be catered for. Children engage in a lot of activities, most of which is physical. As a result, they get tired easily and, in most cases, require a midday nap. For this, the schools should provide beds or mats. The study, however, shows that only about 12 percent of the teachers suggested that that facility is good. About 88 percent indicated that it is either non-existence or needs improvement. The availability of blackboards ranked much better than all the others, with the study showing that equal number of respondents (45%) suggested that it is either good or needs improvement respectively. For convenience purposes children should sit on child size chairs and tables. For both equipment, it came out that 25 percent rated them to be good while 30 percent reported that they do not exist, implying that they are using adult chairs and tables in their schools. More need to be done to improve on the classroom facilities and equipment for ECCE in Sierra Leone.

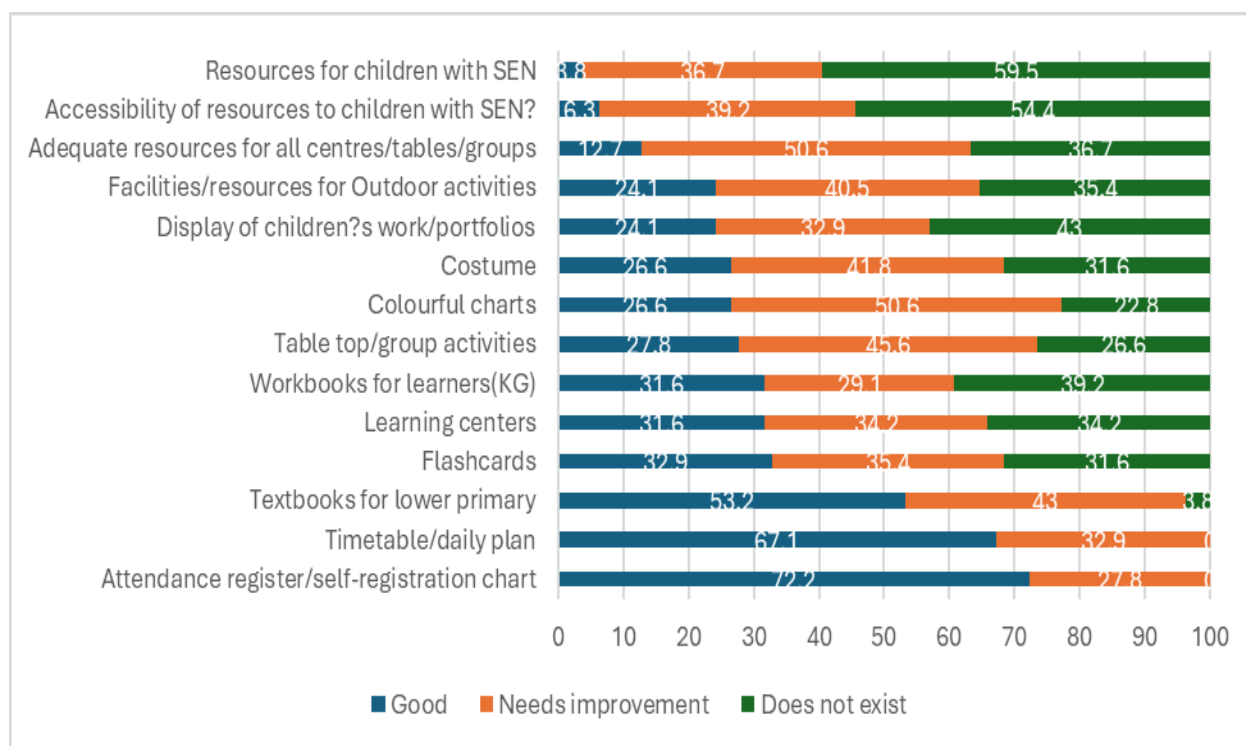
Figure 4.3 Classroom facilities and equipment for ECCE



4.4 Classroom Resources for Early Childhood Education

Classroom resources are the resources that the teachers and the children need and that have a direct effect on teaching and learning. These would include textbooks, workbooks, resources for children with special education needs, flashcards and the like. The status of those facilities was investigated, and the result is presented in Figure 4.4 below. The results show that except for timetables and attendance registers, all other classroom resources for ECE either needs improvement or do not exist. Around 70 percent of the respondents suggest that the status of both in their schools is good. The remaining 30 percent suggested that there is need to improve on the provision of attendance registers and timetables. With regards to workbook for KG learners, learning centers and flash cards, between 31 and 32 percent rated their status to be good. Around 30 percent suggested that there need to be improvement in their status. The situation is that with regards to classroom resources for ECE, more needs to be done.

Figure 4.4: Classroom resources for ECCE



4.5 Teaching Capacity, Qualification and Conditions in the Classroom

The ECCE program was not popular in schools in many parts of Sierra Leone until recently when the government made it mandatory for all government-owned and government-assisted primary schools to incorporate an Early Childhood Care and Education (ECCE) center in their existing facilities. It is worth noting that a few ECCE facilities have been established by both the government and other education partners. However, this has not been implemented without the numerous challenges the education sector faces in the country. One of those challenges is acquiring teachers with the necessary qualifications, skills, and practical knowledge to be deployed in those centers.

Table 4.1: Qualifications of pre-school teachers

Teacher qualification and conditions	Intervention	Non-Intervention	p-value
Number of professional teachers at KG	2.52	1.29	0.069
Number of non-professional teachers at KG	0.67	1.00	0.441
Total number of teachers at KG	3.19	2.29	0.001
KG teachers with ECE specialization	32.80	5.26	0.029
KG teachers who live in the same town where school is located	91.47	81.14	0.569
KG teachers who have taught for 3 or more years at the school	40.80	70.61	0.029

In terms of the number of professional teachers placed in ECCE centers, the data show that only an average of three (3) teachers for the intervention schools and two (2) for the non-intervention schools were found under this category. However, in terms of professional qualifications, while the intervention schools had an average of three (3) teachers, the non-intervention schools had only one (1) teacher on average who was qualified with at least a Teacher Certificate.

While none of the teachers in the intervention schools held a qualification not below a Teacher Certificate, an average of two teachers in the non-intervention schools were found without at least such qualification. Consequently, an average of two (2) teachers in the non-intervention schools were found to be non-professional teachers teaching in ECCE centers.

As nearly all the teachers in the intervention schools teaching at the ECCE level were serving a two-year fellowship, only an average of one (1) as against two (2) in the non-intervention schools had been in their school for not less than three years.

Table 4.2: Qualifications of lower primary teachers in a school

Teacher qualification and conditions	Intervention	Non-Intervention	p-value
Number of professional teachers at Primary 1-3	4.05	2.49	0.235
Number of non-professional teachers at Primary 1-3	0.97	1.90	0.026
Total number of teachers at Primary 1-3	5.03	4.38	0.517
Number of Primary 1-3 teachers who have taught for 3 or more years at the school	53.79	48.98	0.766

Like in the kindergarten level, there was an average of three (4) professional teachers designated to primary 1 to 3 in the intervention schools, while there was an average of only two (2) professional teachers in the non-intervention schools. However, no teacher surveyed both in the intervention and the non-intervention schools had an ECCE certificate or qualification. For non-professional teachers designated to teach at this level, there was an average of only one (1) teacher for the intervention schools and 2 for the non-intervention schools, while only an average of 54 teachers for intervention and 49 teachers) for non-intervention schools had been in the schools for not less than three years.

Average class size

The national average class size for pre-primary in Sierra Leone was at 43 while for primary it was at 63 as at the 2022 Annual School Census report (ASC, 2022). However, the data in Table 4.3 shows that the average class size for primary 1-3 is 76. The average number of students per class stands at 25 at the pre-primary level for the intervention schools. For the non-intervention schools however, the average class size for the pre-primary level is 23. In both the intervention and non-intervention schools, there are more girls than boys at the pre-primary level. For the lower primary level in the intervention schools, the enrolment for classes 1-3 stood at 175, with 84 being boys and 91, girls, suggesting more girls than boy at that level. The average class size per lower primary class stood at 58. At the non-intervention schools, the average enrolment for classes 1-3 stood at 207 with 103 boys and 103 girls. The average number of students per class at the lower primary level was at 69. These show that particularly at the lower primary level, and as per the national average, the classes are overcrowded. This has implication for effective implementation of play-based learning. Implementing play will be difficult.

Table 4.3: Average class size

Grade	Intervention	Non-Intervention	p-value
# boys enrolled in Pre-primary 1-3	37.41	33.29	0.263
# girls enrolled in Pre-primary 1-3	38.56	36.14	0.598
# enrolled in Pre-primary 1-3	75.96	69.43	0.376
Average number of students per Pre-primary class	25.32	23.14	0.376
# boys enrolled in lower primary (Class 1-3)	84.40	103.59	0.356
# girls enrolled in lower primary (class 1-3)	91.17	103.59	0.431
# enrolled in lower primary (class 1-3)	175.57	207.18	0.382
Average number of students per lower primary class	58.52	69.06	0.382

4.5 Teachers Participation in Play-Based Learning Professional Development Trainings

Professional Development Training (PDT) can be simply defined as in-service training offered to teachers to help them implement best practices in doing their job. These trainings can be conducted in various ways ranging from workshops to seminars, coaching etc. This is an indispensable component in every profession, especially in the teaching profession. Quality preschool education has been proven to support brain development, reduce deficits gained from negative experiences, equip children with stronger school readiness skills, enhance academic achievement, increase school retention and graduation rates, as well as increase access to post-secondary education. Children learn best through play. Therefore, it is extremely crucial that preschool teachers are provided with timely, relevant and rich PDT that will help them facilitate learning through play for children.

Professional Development Trainings (PDT) help to develop and sustain the competency skills of teachers as well as ensuring that they are updated with recent trends in their field.

In Sierra Leone, Professional Development Trainings (PDT) are offered by both government and non-governmental organizations. However, the government, through the Ministry of Basic and Secondary Education (MBSSE) and its partners is playing a leading role in this regard. The ECD Directorate under MBSSE is playing a great role in providing Play-Based Learning in-service training for preschool teachers in piloted districts under their programmes. These training sessions are done for free. Private schools and other individuals or groups may provide (PDT) to their teachers when the need arises. Some private schools conduct theirs, normally before the reopening of school, at the start of the academic year to get their minds on the right gear for work.

In this chapter, we attempt to establish the spread of play-based learning pedagogy under various indicators in the study area.

4.5.1 Teachers participation in play-based learning training

The success of Early Childhood Development (ECD) in preschools begins with the teachers training experiences (Learning Through Play, Preschool Teacher Training Guide). The experiences provided to teachers during professional development training such as workshops, seminars, coaching etc. directly serve to improve the quality of learning experiences offered to children in preschool. Thus, teachers' participation in play-based learning training cannot be overemphasized.

The findings below (Table 4.4), show that the teachers in both the intervention and non-intervention schools received some training either in the standards-based curriculum or play-based learning, specifically in ECCE. The training was either provided by the MBSSE, development partners or the innovators in the study. The study shows that 85 percent of the teachers in the intervention schools and 30 percent of their counterparts in the non-intervention schools had participated in play-based learning training in the last three years. Regarding the type of training teachers participated in, 97 percent in the intervention and 88 percent in the non-intervention participated in a Standard Based curriculum. Furthermore, 100 percent of teachers in the intervention group and 94 percent in the non-intervention group responded that the training received was related to Early Childhood Care and Education (ECCE). As to the organizers of the trainings, 89% of the teachers in the intervention schools suggested that they received their training from the innovators. However, 61 percent of the teachers in the non-intervention schools indicated that they received their training from the MBSSE while 30% indicated that they received theirs from other development partners. The difference in the findings between the intervention and the non-intervention schools lies in the participants. All the participants studied in the intervention schools are fellows from the Teach for Sierra Leone innovators and they

received their training from them. The average number of days for both the intervention and non-intervention groups was three (3) days

Table 4.4. Teacher capacity building for Play-Based Early Learning

Indicator	Intervention	Non-Intervention	p-value
Participated in a PBT in last 3 years	84.75	29.73	0.001
Number of PBTs			
1-3	90.00	90.91	0.814
4 or more	10.00	9.09	0.814
Timing of most recent PBT			
2024	58.00	27.27	0.100
2023	34.00	51.52	0.344
Training focus			
Training based on standard curriculum	97.00	87.88	0.040
Training was ECE related	100.00	93.94	0.271
Number of days for training	3.22	3.15	0.843
Did not have to pay for training	100.00	100.00	
Organizer of the training			
TSC/MBSSE	4.00	60.61	0.149
Education partners (e.g. UNICEF)	5.00	30.3	0.148
Teach for Sierra Leone	89.00	0.00	0.000
Other	2.00	9.09	0.542

4.5 Teacher’s Beliefs, Attitudes and Practices of Play-Based Pedagogy

Beliefs, attitudes, and practices are important components in the implementation of any program. The people who implement the program must believe in and act according to the design of the program for effective implementation. In this case, the implementation of an innovation depends on which beliefs, attitudes, and practices the implementers hold. In the field of education for example, the beliefs and attitudes of teachers are key for the achievement of the goals of education. However, where the beliefs and attitudes of teachers are weak and indifferent, uptake will be low, and implementation affected by imaginary challenges. At this point, it is safe to say that teachers’ beliefs, attitudes, and practices determine the quality of implementation of play-based learning in the classroom. The participants were asked to indicate whether they agreed to certain statements in relation to their beliefs, attitudes and practice about play-based pedagogy and the responses are presented below.

4.5.1 Beliefs about Play-based Teaching and Learning

The beliefs a teacher hold about play-based learning can affect the implementation of the approach. Most of the belief statements in this study relates to what happens in and around the classroom, particularly the relationship between the teacher and the learners. Generally, the study shows that teachers generally have positive beliefs towards play-based learning in the classroom. The majority of the items had over 60 percent of teachers in both intervention and non-intervention schools agreeing to them.

All the participants in the intervention schools (100%) and 96 percent of those in the non-intervention schools agreed that ‘an effective teacher must always be ready to exhibit the right way to solve problems. The teachers in the non-intervention schools seem to believe the teacher-centered rather than the learner-centered play-based approach with 79 percent of them holding the belief that ‘it is better when the teacher, not the student, decides what activities are to be done’. Sixty percent of the teachers in the intervention schools also hold that view. Teachers in both the intervention and non-intervention schools hold the belief that their role should be more of facilitating students’ own inquiry and also believe that ‘children learn best when they are able to find solutions to the problems they are confronted with through play. A reasonable amount of noise is tolerated during play as children interact with one another. Eighty-six percent of teachers in the non-intervention schools hold the opposite view, suggesting that a quiet classroom is generally needed for effective learning. Slightly over 50 percent of their counterparts in the intervention schools seem to hold that view.

Generally, teachers in both the intervention and non-intervention schools seem to be satisfied with their job as ECE teachers with over 80 percent of them holding that view and over 97 percent of them think that they are making a significant educational difference in the lives of their students through play. The above findings suggest that teachers generally hold positive beliefs about play-based pedagogy.

Table 4.5: Teachers who agree to the following belief statements about teaching

Teaching beliefs	Intervention	Non-Intervention	p-value
An effective teacher must always be ready to exhibit the right way to solve a problem	100.00	96.40	0.275
It is better when the teacher – not the student – decides what activities are to	60.17	79.28	0.028
My role as a teacher is to facilitate students’ own inquiry	94.92	89.19	0.452
Children learn best when they are able to find the solutions to the problem they are confronted with through play	100.00	92.79	0.061
A quiet classroom is generally needed for effective learning	54.24	85.59	0.017
Thinking and reasoning processes are more important than specific curriculum content such as play	69.49	81.98	0.241
All in all, I am satisfied with my job as ECE teacher	96.61	80.18	0.013
I feel that I am making a significant educational difference in the lives of my students through play	100.00	97.30	0.275
I usually know the kind of play my students need and want to engage in	98.31	88.29	0.337

4.6.1 Attitudes towards play-based learning and how teachers engage pupils during play hours

4.6.2 Teachers Attitude Toward Play- Based Learning

Teachers’ attitudes towards play-based learning and how to engage pupils during play hours was also examined. The results show that, 99 percent of teachers in the intervention schools and 94 percent of their counterparts in the non-intervention schools all affirmed that they ‘integrate games and songs in classroom learning activities’ This suggests that the majority of the teachers integrate play-based learning activities, one way or the other, in their teaching activities. That said, the difference between the intervention and the non-intervention teachers is noticeable.

Even though a significant percentage of the participants in both the intervention and non-intervention schools allow all learners to play with toys irrespective of their gender, those in the intervention schools do so with a significantly higher percentage. The percentage difference between the two groups is 14 percent. This could be as a result of the intervention of the innovators.

Lesson preparation, before children are engaged, is another practice that received a positive reaction related to the teachers' attitude in the classroom. In addition to this, another practice that received a lot of positive responses was using observation as an approach to assessing learners: Learners' participation in play is assessed through observations to determine learning outcomes. Among the teachers from both intervention and non-intervention schools, 100 percent and 89 percent respectively agreed to the use of observation (in particular) to assess learning outcomes.

Generally, the attitudes of teachers towards play-based learning in both the intervention and non-intervention schools is positive, promoting the ideals of the pedagogy. This observation is relevant particularly because there is no significant difference in the attitudes evinced by teachers in the intervention schools towards play-based learning and those in the non-intervention schools to be able to attribute that difference to the intervention of the innovators.

Table 4:6 Teachers who agree to the following statements of attitude about teaching

Attitudes towards teaching and about play-based learning	Intervention	Non-Intervention	p-value
I integrate games and songs in the classroom learning activities	99.15	93.69	0.200
I allow all learners to play with toys of their choice despite their gender	92.37	86.49	0.533
As a teacher, I plan all lessons to strengthen the learning experience of my students	94.07	95.50	0.740
Learners' participation in play is assessed through observations to determine learning outcomes	100.00	89.19	0.128
I interact with learners during play to enhance safe play	99.15	90.99	0.316
During group time, teachers should encourage children to sit and listen most of the time	81.36	91.89	0.458
Teachers should encourage children to pick up their toys (with adult help) during clean-up time	99.15	90.99	0.316
When a child takes a toy from another child, teachers should observe and see what happens	84.75	76.58	0.452
Teachers should put a variety of interesting activities out during free choice time and then let children make their own activity choices	99.15	90.09	0.312
When many children in the class lose interest during story time, teachers should stop and go on to something else	94.92	84.68	0.063

It is only recently with the popularization of the Radical Inclusion policy, that some teachers start to rethink their attitude towards role play in their teaching and the learning of the children. However, this idea that all learners must be given equal opportunities to reach their full potential

has not been fully recognized by some teachers. Hence, gender stereotypes are still evident in a number of schools.

4.6.3 Appropriate actions of teachers in the play-based learning classroom

Play-based learning requires the active participation of the learners as well as the caregiver. The role of the caregivers/teachers is to facilitate learning. The facilitation of learning involves creating the enabling environment for the learners to explore, design activities for them and providing the necessary materials that can contribute to sustained learning. The participants were asked to indicate the degree to which they agreed to statements that are favorable to play-based learning. The responses are presented in Table 4.7 below.

Table 4.7: Teachers who agree to the following actions in play-based learning classroom

Actions	Intervention	Non-Intervention	p-value
I get down on the floor and play with children.	98.31	67.57	0.195
I help children use play materials	99.15	88.29	0.162
I get involved in children's dramatic play	91.53	88.29	0.742
I talk with children in order to enhance their play	100.00	91.89	0.275
When children talk to me, I restate their comments	94.07	84.68	0.247
When I describe what children are doing, I give extra information	99.15	90.99	0.126
I help children find activities to play with	100.00	92.79	0.275
I show children the appropriate way to use play materials	97.46	91.89	0.451
I make suggestions for how to use material	94.07	91.89	0.746
I help children remember to clean up as they finish activities	100.00	90.99	0.187

From the findings in Table 4.7, one can see that teachers in both intervention and non-intervention schools generally did activities that are play-based friendly. This could be as a result of the intervention of the innovators as well as government's efforts generally at training teachers in play-based approaches. However, teachers in the intervention schools seem to be slightly ahead of their counterparts in terms of the percentage of teachers who did, albeit the difference is not statistically significant.

Play-based pedagogy requires the participation of the learners as well as the teachers in play activities. The study shows that more teachers in the intervention schools did this compared to their counterparts in the non-intervention schools with a 11-percentage point difference. This can also be confirmed by the percentage of teachers in the intervention schools (99%) who agreed that they helped children use play materials as compared to 88 percent in the non-intervention schools who did the same.

The study also showed that all (100%) of the teachers in the intervention schools agreed that they talk with children to enhance their play, while 91 percent of respondents in the non-intervention schools agreed to the statement. Again, while 100 percent of the teachers from the intervention schools helped children remember to clean up as they finish activities, 90 percent of their counterparts do the same. One should note that these two activities of talking to children and cleaning after activities are generally daily activities in schools in Sierra Leone, which could happen whether it is for play or not. This could explain why the percentages are high for both intervention and non-intervention schools. While those two activities are deliberate in intervention schools, one could say that they are incidental in non-intervention schools and even though the percentages are high in both cohorts, teachers in the intervention schools rated slightly higher than their counterparts in the non-intervention schools.

While all (100%) of the teachers in the intervention schools help find activities for play, only 92 percent of their counterparts in the non-intervention schools could do that. The difference in ratings here could be that teachers in the intervention schools have more orientation in play-based learning than their counterparts in the non-intervention schools. The wider implication is that teachers in the intervention schools are more knowledgeable in play-based methodologies than their counterparts in the non-intervention schools.

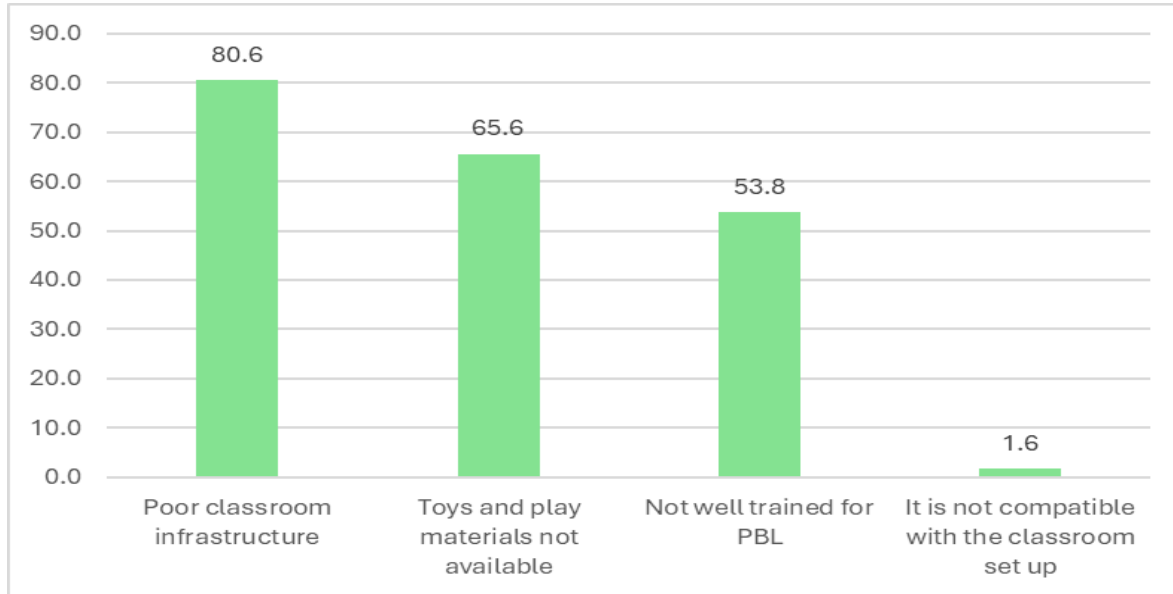
4.7 Challenges to the implementation of Play-Based Learning approaches in schools

Early childhood education and its methodologies are relatively new in the Sierra Leone education landscape. Relatively new as it might be, government's commitment to ensuring that it takes a foothold in Sierra Leone cannot be questioned. With the help of her development partners, policies have been developed, materials supplied, communities sensitised and teachers trained. Even with these support, ECE programme implementation, particularly the play-based approach is not without challenges. The factors that militate against the implementation of play-based learning approaches can be categorised into micro and macro factors. The micro factors are smaller, immediate factors in and around the classroom that makes implementation difficult or impossible. The Macro factors on the other hand are those factors that are not immediate, more capital intensive and mostly infrastructure related. These factors were investigated in this study.

4.7.1 The Micro Factor that challenge the implementation of Play-based learning approaches:

These are the factors that are closer to the classroom mostly required in the day-to-day affairs of the programme implementation. It includes materials needed for play-based learning, conditions within the classroom including classroom sizes etc. The perception of the participants about these factors were investigated and the result is presented in Figure 4.5

Figure 4.5: Micro Factors of influence upon the implementation of Play-based Learning Approaches

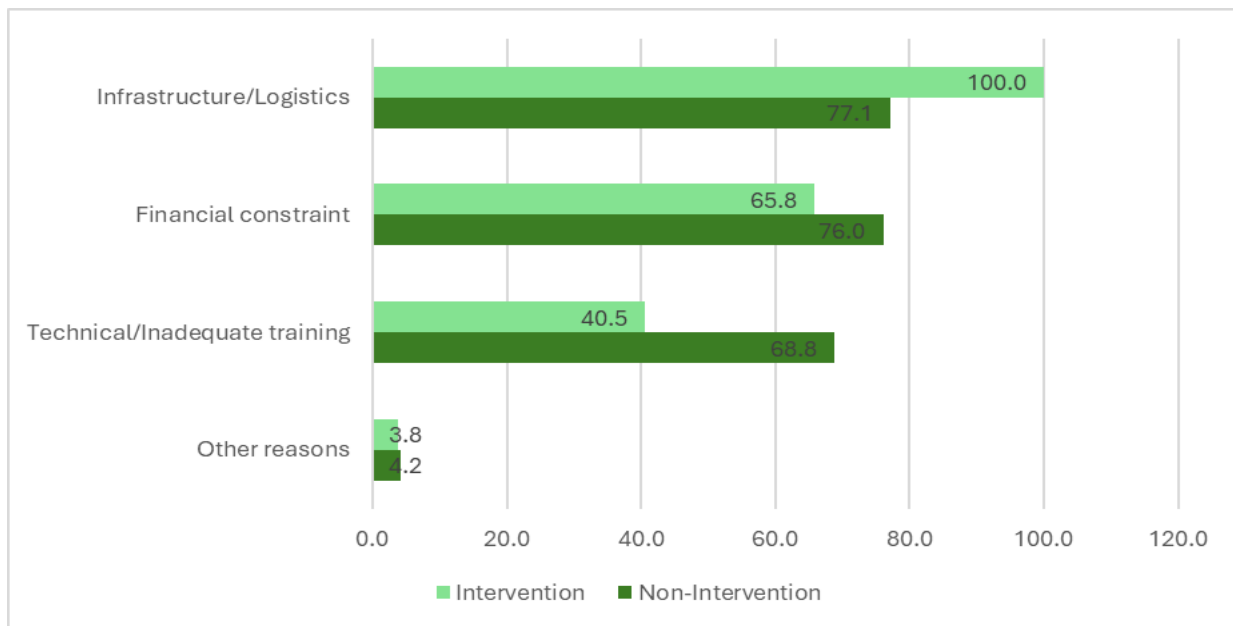


The data from Figure 4.5 above, indicated that 66 percent of the participants believed that the unavailability of play materials is one of the major factors affecting the implementation of play-based learning approaches. Considering that for play to take place the materials to play with must be available, this is a crucial limitation to its implementation. The setup in the classroom is also crucial to the implementation of play-based learning. In this regard, 81 percent of the teachers think that the classroom infrastructure is inappropriate for play-based learning to effectively take place. These might include adequate window provision for classroom lighting and ventilation, seating arrangements, space for group and pair work and for teacher pacing for facilitation among others. Closely related to classroom infrastructure is classroom compatibility to play-based learning approaches. With this, only 2 percent of teachers believed that the classroom is not compatible to play-based learning approaches. The classroom should be spacious enough to accommodate play activities as well as for the establishment of work centres within the classroom and and the teachers seem to believe that their classrooms are spacious enough, .only that the materials for play-based learning should be made available. Generally, about 54 percent of the teachers hold the view that they are not well trained in the implementation of play-based learning, These could be mostly teachers in the non-intervention schools with limited government intervention.

4.7.2 Macro Level Challenges Influencing the Implementation of Play-based Approaches.

The macro level challenges are mostly infrastructural, technical, and capital intensive and can be influenced by the policy environment. The results of the study with regards to the macro level challenges are presented in Figure 4.6 below

Figure 4.6: Macro Level factors impeding play-based learning.



The findings show that the major factors impeding the implementation of play-based approaches in Sierra Leone are infrastructural or logistical factors as well as financial constraints. From the Figure above, all (100%) the teachers in the intervention schools and 77 percent from the non-intervention schools recognised that infrastructure for ECE play-based learning is a major challenge. Infrastructure in this context refers to issues around classrooms particularly with increment in enrolment. This is what has led large class sizes. Playgrounds also fall under infrastructure which is critical for outdoor activities and play that involves large motor skill.

Finance is needed for the procurement of outdoor and indoor play materials as well as the provision of particularly capital-intensive infrastructure like buildings and additional classrooms. Teachers need to be trained and this requires finance for procurement or development of training materials. Unfortunately, 60 percent of respondents from the intervention as well as 76 percent of their counterparts from the non-intervention schools believe that finance is a major challenge. As can be seen, the situation is more acute in the non-intervention as compared to the intervention schools. The innovator in the intervention schools may have caused the difference between the two cohorts. Even though government and other development partners are providing support in

this direction, it remains a major challenge in the views of the teachers who are implementing the play-based learning approaches.

There seem to be a big difference between the intervention and the non-intervention schools in terms of the technical training or the lack of it as a challenge. While 40 percent of the teachers in the intervention schools indicated that training is a challenge to implementing play-based learning approaches, 67 percent of their counterparts in the non-intervention schools reported this to be a big challenge. While teachers in the intervention schools receive training from the innovators, those in the non-intervention schools do not. They rely on training they receive from government which because of resource constraints is limited.

With regards to policy environment, teachers in both the intervention and non-intervention schools believe that policy is not much of a challenge, as only about 4% of participants in the intervention and non-intervention schools hold the view that policy is a challenge. Government, through her development partners have put in place the relevant policies, including the new standards-based curriculum with the prescribed methodologies for play-based learning approaches.

4.8 Improving the integration of Play in teaching and learning in schools

As ECD is relatively new in Sierra Leone, so is the methodology of its implementation. The appropriate methodology is the play-based teaching and learning methods. For learning to be effective and long lasting, children need to engage in play activities. As a result, play must be integrated into teaching and learning.

The participants were asked as to how to improve the integration of play in teaching and learning. The following were their responses presented in Table 4.8

Table 4.8 Teachers’ recommendation for improving PBL outcomes in schools

Recommendations	Intervention	Non-Intervention	p-value
Teachers must be deliberate, purposeful and take thoughtful decisions and action	99.15	89.19	0.232
Teachers must ensure proper time management so that there is enough time for chi	100.00	91.89	0.275
Teachers must model play and introduce learners to new play opportunities	100.00	93.69	0.275
Heads of schools must provide appropriate indoor and outdoor play-safe environment	98.31	93.69	0.419
Parents must cooperate with teachers in the incorporation of play into the teach	100.00	92.79	0.165
Teachers must be trained on how to effectively	100.00	94.59	0.275

implement the play-based approach			
Teachers must provide effective supervision and care during play activities	100.00	91.89	0.082

Generally, the participants for both the intervention and non-intervention schools subscribe to the importance of training in improving the integration of play into teaching and learning in schools. To that end, all (100%) of the teachers in the intervention and 95 percent of their counterparts in the non-intervention schools agreed that teachers must be trained on how to effectively implement play-based approaches in the preschool classrooms. This underscores the significance of training in improving programme implementation.

Pupils should not be left unattended and teacher guidance and learning facilitation is a necessity during play. In that regard, almost 100 percent of the teachers in the intervention schools and 91 percent of those from the non-intervention schools respectively, agreed that ‘teachers must provide effective supervision and care during play activities.’ With regards to modeling play, 100% of the teachers in the intervention schools and 94 percent of those in the non-intervention schools suggested that ‘teachers must model play and introduce learners to new play opportunities. This is possible with effective lesson preparation and planning which is a deliberate attempt at being professional. Teachers must be deliberate, purposeful and take thoughtful decisions and actions to promote children’s innate drive for independent learning, a view supported by 99 percent of the teachers in the intervention schools and 89 percent of those from the non-intervention schools. With regards to time management, 100 percent and 91 percent of teachers in the intervention and non-intervention schools respectively agreed that ‘teachers must ensure proper time management so that there is enough time for children to play. The schools and the homes must work in harmony to ensure that play takes its hold in the system. This means that the schools and the homes must cooperate for the integration for the incorporation to be effective and the teachers in the two cohorts agreed to this view with almost 100 percent of the intervention teachers and 92 percent of the non-intervention teachers in agreement. It can be noted however that the percentage of teachers in the intervention schools who agreed to that statement is greater than those in the non-intervention schools. The difference could be as a result of that fact that teachers in the intervention schools have had a wider orientation than their counterparts in the non-intervention schools. Teachers from both cohorts also believe that the schools, through the heads, must create the enabling environment for the play-based learning, with over 93% of them (collectively) supporting the view that heads of schools must provide appropriate indoor and outdoor play-safe environments.

Generally, one would say that teachers in both the intervention and non-intervention schools support the integration of play into teaching and learning in schools to some extent although those from the intervention schools provided the greater support due to the extensive training they may have received from the innovators.

4.9 The Role of Education Innovator in influencing Early Childhood Education quality

4.9.1 Introduction

Government alone cannot implement education programmes. The education landscape is blessed with non-governmental organizations that are supporting the government's efforts in promoting her flagship programme, Human Capital Development programme. In doing so, the organization brings in innovative ways of doing things. The innovator for this project is Teach for Sierra Leone (TFSL), who brought into the education landscape the Teach as a Collective Leadership model. In this model, the organization recruits, trains and deploys graduate teachers to teach at the pre-school and lower primary levels, in deprived, hard-to-reach rural and deep rural communities, which in itself is a novelty in Sierra Leone. One aspect of this study was to investigate the role of the education innovator in influencing early childhood education quality in the country.

4.9.2: Provision of Facilities for Early Childhood Education and Play-based Learning:

Effective teaching and learning particularly using play-based approaches require resources. The resources could be provided by the government directly or by education partners, including the study's innovator or yet still by the schools themselves. The materials needed in the classroom can be procured or improvised especially as a result of resource constraints. Improvisation requires the teachers to produce the teaching learning resources they need. The section describes the institution that provides facilities for play-based learning in the classroom and the result is presented in Table 4.9.

Table 4.9: Main Sources of Support for Resources for Schools

Source of support	Intervention	Non-Intervention	p-value
Institution that that support resource creation			
TSC/MBSSE	27.97	43.24	0.167
Education partners	5.93	37.84	0.163
Teach for Sierra Leone	65.25	1.80	0.000
Other	0.85	17.12	0.226
Institution that provide classroom support			
TSC/MBSSE	14.41	50.45	0.026
Education partners	2.54	30.63	0.201
Teach for Sierra Leone	79.66	4.50	0.001
Other	3.39	14.41	0.213

The findings suggest that for the intervention schools, 65 percent of the teachers believed that support for resource creation comes from the innovator that sent them to the school. Some aspects of the training or orientation they received could have been on improvisation which positioned them to create classroom resources. That said, 6 percent of the teachers in the intervention school and 38 percent of those in the non-intervention schools suggested that the education partners provide such support. With regards to direct support from the MBSSE, 28 percent of teachers from the intervention and 43 percent of their counterparts from the non-intervention schools believed that support for resource creation comes from the MBSSE. The implication here is that education partners, including Teach for Sierra Leone are providing a strong support for the government education programmes.

With regards general classroom support, this is mostly provided by the MBSSE, with 14 percent of the teachers from the intervention and 50 percent of those from the non-intervention schools supporting that view. Participants in the intervention schools who are Teach for Sierra Leone Fellows strongly believes that the innovators are providing general classroom support in their schools of engagement, including the provision of resources such as chalk and other materials for effective teaching and learning.

4.9.3: Support for Capacity Building for Play-based Learning

The human resources of the schools are central to the implementation of programmes. To be able to teach and effect learning they need to be capacitated to do so. The capacity of interest here is training. Even when the resources are available, without the requisite amount and quality of training, teachers will struggle to effectively facilitate learning. This study also investigated who provides capacity building for the teachers and the result is presented in Table 4.10.

Table 4.10: Institutions that provide capacity building ECE PBL

Source of support	Intervention	Non-Intervention	p-value
Institution that support teacher training			
TSC/MBSSE	12.71	45.95	0.036
Education partners	0.00	34.23	0.135
Teach for Sierra Leone	86.44	3.60	0.004
Other	0.85	16.22	0.270
Institution that provided most recent PBL training			
TSC/MBSSE	4.00	60.61	0.149
Education partners	5.00	30.3	0.148
Teach for Sierra Leone	89.00	0.00	0.000
Other	2.00	9.09	0.542

From Table 4.10, while over 89 percent of the teachers in the intervention schools reported that the recent training, they received was from Teach for Sierra Leone, 60 percent of their

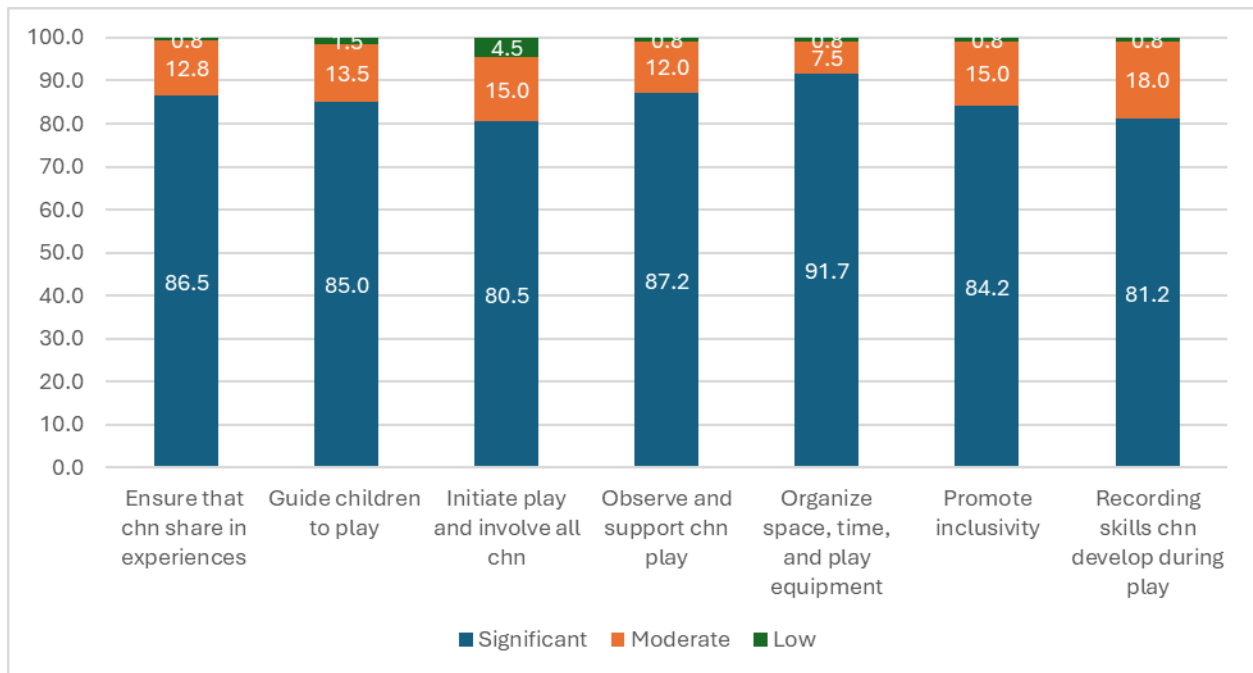
counterparts from the non-intervention schools indicated that the recent training they received was from MBSSE/TSC. However, other education partners may also have provided the most recent training as supported by 61 percent of the teachers in the non-intervention schools. With regards to who generally supported teacher training, a similar result is presented, with 86 percent of the **TFSL** fellows indicating that the innovators did so while 46 percent and 34 percent of the non-intervention teachers reported that the MBSSE and education partners respectively provided the support for teacher training.

The above shows that the innovator as well as other education partners are playing a significant role in supporting the education sector generally, but also support early childhood education particularly.

4.9.3 Teachers’ perception of the impact of play-based training received.

The participants were asked to evaluate the impact of the play-based early learning training they received from particularly the innovators. The data for this was collected from the teachers who had undergone training provided by the Teach for Sierra Leone. It aimed to find the extent to which they have acquired skills of recording the development of children, ability to initiate play, guide children during play, observe and provide support supervision among others. They were asked to indicate whether the impact was significant, moderate or low. The results of this evaluation are presented in Figure 4.7 below.

Figure 4.7 Teacher’s perception of the impact of play-based training received



The result as presented in Figure 4.7 shows that generally, there is a significant impact of the training on the teachers and the effect can be felt in the progress the children are making in their development. With regard to the teachers' skills to record the children's development during play, 81 percent of the teachers reported that the impact is significant, 19 percent reported that it is moderate while 18 percent report that the impact is low. One of the major roles of the teachers is to measure the progress the learners in his/her care are making and the skills to do that validly and reliably must be there.

With the ability to initiate play, only 5 percent of the teachers reported that the impact is low. That 81 percent and 15 percent reported that the impact is significant and moderate respectively shows that teachers have come to terms with the significance of play to improve learning outcomes and now can initiate play. Initiating play would mean planning play activities, setting up the centres, providing the materials and facilitating play. Further evidence of this development in the teachers can also be seen in their perception of the impact on guiding play. The result shows that 85 percent of them say that the impact is significant, while 14 percent suggest that it is moderate. Only 5 percent indicated that the impact on guiding children's play is low.

Observation is a key part of **ECE** teachers' job. Through observation they can monitor learning, assess extent of learning, identify misconceptions among others. Some impact has taken place in this regard, with 87 percent of the participants suggesting that the impact is significant, and 12 percent indicating that it is moderate.

The study also found out that 84 percent of the teachers indicated that the impact on promoting inclusivity is significant while 15 percent suggested it is moderate. Inclusivity could be gender focused, meaning that teachers now allow both boys and girls to equally participate in play activities without prejudice. This also means that children share experiences, with 87 percent of the teachers suggesting that the impact in that direction is significant and 13 percent suggesting that it is moderate. Less than 1 percent reported that the impact on the teacher's ability to ensure that the children share experiences is low. This shows that the teachers can now allow the children to share ideas and learn from one another, indicating adherence to Lev Vygotsky's principle of children learning from the 'More Knowledgeable Other'.

The general conclusion here is that there is a significant impact of the play-based training on the teachers and the result can be cascaded to the learners in the classroom.

Play-Based Pedagogical Approaches Used in Teaching and Learning

Individuals who participated in the play-based training were asked to indicate the extent to which they can implement the approaches learnt during the training. This was to find out whether they can use the play-based learning approaches and the extent to which they can do that. The approaches referred to here include active play-based methods, scaffolding, play-based

approaches to assessment, differentiation, and the use of digital approaches. The result is presented in Figure 4.8.

Table 4.11: Play-based pedagogical approaches used in teaching and learning

Play based pedagogy	Intervention	Non-Intervention	p-value
Scaffolding	95.76	26.13	0.002
Differentiation	95.76	37.84	0.003
Crossover teaching	68.64	35.14	0.070
Children exploring and creating using digital forms of expression	44.07	23.42	0.059
Active Play-Based method	100.00	79.28	0.121
Assessment	100.00	96.40	0.275

From the result presented in Table 4.11, it shows that the teachers made extensive use of the play-based approaches except the use of digital forms. Over 95 percent of the teachers in the intervention schools and 26 percent of their counterparts in the non-intervention schools used scaffolding as a pedagogical approach. A similar picture is painted with regards the use of Differentiation as a strategy with teachers in the intervention schools using it more. Play-based methods seem to be gradually taking hold in the schools with all (100%) of the teachers in the intervention schools and 79 percent of those in the non-intervention schools suggesting that they used ‘active play-based methods’ in their classroom. Assessment takes place regularly in the classroom. With play-based pedagogy, assessment through observation is an ongoing process. The teachers in both groups suggested that they use assessment in their classrooms, with over 96 percent of them indicating so.

What this shows is that the training has had a significant effect on the participants and that these strategies could have a significant effect on improving learning outcomes in the schools. There is however a need to improve the use of technology as a strategy in implementing play-based approaches.

4.9.4 Teachers’ Ability to Implement Play-Based Learning Pedagogies

There are certain practices that are akin to play-based learning. With the training and orientation they have received, one would expect the teachers to practice some if not all of these practices. These include involving children in play activities, organizing the classroom for play, observing and analyzing play to ensure that it has educational values, initiating play to name a few. The results of that aspect of this investigation between the intervention and the non-intervention schools is presented in Table 4.12.

Table 4.12: How well do you practice the following in your classroom

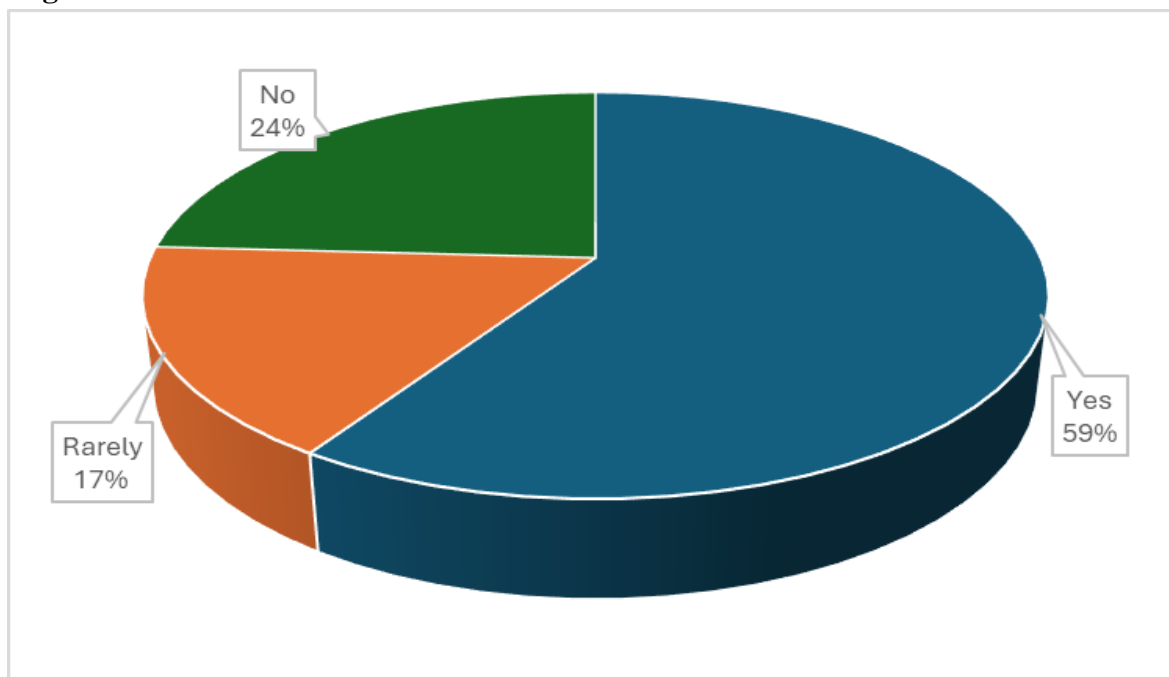
Play-Based Learning Practices	Intervention	Non-Intervention	p-value
Organize space, time, and play equipment to inspire different kinds of play.	72.03	33.33	0.000
Ensure that children share in experiences as a starting point for play and allow	74.58	41.44	0.039
Promote inclusive environment in your classroom?	81.36	53.15	0.069
Involve all children in play.	83.90	70.27	0.252
Observe, analyze, support, participate in and enrich the play on children's term	78.81	54.05	0.189
Supervise the children and guide them if the play lead to unhealthy patterns of	83.90	62.16	0.160
Initiate play and work proactively	79.66	51.35	0.047
Recording the skills children might have developed during play activities. (asse	77.12	50.45	0.018

The result showed that teachers in the intervention schools did significantly better in practicing these elements than their counterparts in the non-intervention schools. For example, while 72 percent of the teachers in the intervention schools indicated that they can organize space, time and play equipment to inspire different kinds of play, only 33 percent of their counterparts in the non-intervention schools could do the same. Also, the result shows that over 75 percent of the teachers in the intervention schools and 41 percent of those in the non-intervention schools ensure that children share experiences as a starting point for play. This is to ensure that the kids are participating and also ensuring that they move from the known to the unknown, a critical principle in teaching. While 84 percent of teachers in the intervention schools reported that they involve all children in play, 70 percent of the teachers in the non-intervention schools reported that they do the same. This also shows a significant difference in engaging in activities that encourage play as a pedagogy.

4.10 Cost of participation and implementation of Play-Based Learning

As indicated earlier, teachers did not have to pay anything to participate in CPDs including in play-based trainings. The study, however, investigated whether cost and access to play-based materials undermine ECCE in schools. From the result (shown in Figure 4.13), 59 percent of the participants answered in the affirmative. Twenty-four (24) percent however said the lack of it does not undermine implementation of ECCE in schools. Considering the fact that play material need money and that they are not got on the cheap, this could be a serious factor impeding programmes implementation. Those who think it has no effect may be relying on their knowledge in material creating to improvise which is one way to go in resource constrained communities.

Figure 4.8: Does cost and access to PBL materials undermine ECCE in schools?



CHAPTER 5: VALUE OF PLAY-BASED LEARNING IN EARLY CHILDHOOD EDUCATION

5.1 Introduction

This chapter answers objective 6 of the study regarding the value addition of play-based learning methods on early grade reading and numeracy outcomes. The government of Sierra Leone and other education partners have been using the Early Grade Reading Assessment (**EGRA**) and Early Grade Mathematics Assessment (**EGMA**) tools to measure student performance at the early grade level. The **EGRA** and **EGMA** tools test children's ability to identify letters and sounds, form words, read simple texts and perform basic arithmetic tasks respectively. The **EGRA** and **EGMA** tools focus on assessing whether a student can read alphabets, words, paragraphs, and stories, and whether the student can recognize basic arithmetic, solve problems of numbers using addition, subtraction, multiplication, and division. The student must be able to listen to the instruction, read, and speak aloud as per their ability to read and write for arithmetic problem-solving. For preschool level, there has not been a nationally accepted tool to measure performance and progress of students at this level. However, various education partners operating within the system use individual assessment tools to measure students' performance. For instance, the innovator in this study uses a Student Progress Tracking Sheet (SPTS), an assessment tool with a checklist that is used to track the child during everyday activities. This tool and checklist are used to capture students' language skills, reading, writing, and numeracy skills. This study opted for the EGRA and EGMA tools due to the appeal of global comparability and standardization.

While the study is not a randomized controlled trial, the intervention and non-intervention schools are found in similar districts and previous performance shows they were of comparable standards prior to the start of interventions. This means any differences that appear in the performances have evolved since the start of the interventions. We can therefore consider the differences as an impact of the intervention, noting that the causal attribution would have been much stronger with a baseline and full randomization.

5.2 Impacts on literacy skills (EGRA)

The EGRA assessment implemented in the study comprised of 5 subtasks from the EGRA tool which comprise of 15 subtasks. The five tasks selected were more appropriate for the grade 2 students that were assessed. The tasks were letter name identification, letter sounds, familiar words identification, invented words decoding and reading skills. The letter names tasks comprised a mix of 100 lower- and upper-case alphabets of the English language which students were required to name. The letter sounds required the students to identify the sounds of the letters presented to them on a stimulus sheet.

The familiar words identification subtask required the students to pronounce basic three- and four-letter words in English, and the invented word decoding required the students to pronounce non-sensical words comprised of three- and four-letter word combinations. The final task required students to read a paragraph of eight (8) sentences.

Each subtask was timed to be completed/stopped after 60 seconds (1 minute). This means there are two possible scores to calculate. First is the percentage of correct responses on each subtask out of the total number of options attempted in the given time. The second is the overall percentage, calculated as the number of correct responses out of the total number of items under the sub-task. For example, the letter names sub-task comprises of 100 items. If a student stops at item 70 during the 60-minute time allowed and gets 65 of them correct, then the first percentage is calculated as 65/70, and the second percentage is calculated as 65/100.

Table 6.1 shows the distribution of the scores for the various sub-tasks between intervention and non-intervention schools. For the letter names identification, students in intervention schools scored about 96 per cent on options attempted and 85 per cent overall. The corresponding percentages for the non-intervention group are 68 and 31 respectively. The test of equality shows that the differences are significant which means students in intervention schools performed significantly better than students in the non-intervention schools. The analysis shows that students in the intervention schools performed significantly better than students in the non-intervention schools on all the sub-tasks. All the differences are significant at the 1 per cent level of significance, except for the letter names identification (for total attempted) which is significant at the 10 per cent level.

Table 5.1: Performance on literacy among students in intervention and non-intervention

Indicator	Intervention	Non-Intervention	p-value
Letter Names - Percentage correct out of total attempted	96.38	67.55	0.084
Letter Names - Percentage correct out of all letters	84.90	31.31	0.007
Letter Sounds - Percentage correct out of total attempted	96.46	34.45	0.019
Letter Sounds - Percentage correct out of all letters	65.26	4.35	0.001
Familiar Words Identification - Percentage correct out of total attempted	96.45	47.90	0.004
Familiar Words Identification - Percentage correct out of all letters	79.43	10.28	0.000
Invented Word Decoding - Percentage correct out of total attempted	93.90	12.06	0.001
Invented Word Decoding - Percentage correct out of all letters	63.93	1.09	0.000
Number of sentences read correctly	5.68	0.19	0.003
Read two or more sentences correctly	99.16	3.60	0.000
Read five or more sentences correctly	74.79	2.70	0.020

For letter sounds identification, students in intervention schools scored an average of 96 percent on the once they attempted and 65 percent overall, compared to 34 per cent and 4 percent, respectively, among students in the non-intervention schools. More stark differences emerge regarding the familiar words identification, invented word decoding, and readding assessment. While students in intervention schools scored about 80 per cent on the familiar words identification, students in non-intervention schools scored just 10 percent. For the reading assessment, students in intervention schools read an average of 6 sentences, compared to an average of less than one sentence among students in non-intervention schools.

5.3 Impacts on numeracy skills (EGMA)

Numeracy skills are also assessed with 10 different sub-tasks. Number identification assesses the ability of students to identify various one-, two-, and 3-digit numbers in order to increase difficulty. The number discrimination sub-task assesses students’ ability to determine which of two given numbers is bigger. The missing numbers sub-task assesses students’ ability to identify the missing number in a given pattern of numbers. Addition and subtraction are each assessed at two levels – Level 1 and Level 2 – in order of increasing complexity. Word problem assesses students’ ability to translate a given narrative into a mathematical formulation and solve it. Multiplication and division are each assessed at 1 level.

The scores from the assessment are presented in Table 6.2. The results again show that students in the intervention schools performed significantly better on all the sub-tasks compared to students in non-intervention schools. For number identification, students in intervention schools scored an average of 95 per cent compared to 47 per cent for students in non-intervention schools. Similarly, for subtraction level 2, students in intervention schools scored an average of 76 per cent compared to an average of just 13 per cent among students in non-intervention schools. All the differences are significant at the 1 per cent level of significance.

Table 5.2: Performance on numeracy among students in intervention and non-intervention

Indicator	Intervention	Non-Intervention	p-value
Number identification	94.68	47.39	0.009
Number discrimination	90.55	55.90	0.004
Missing numbers	84.83	39.19	0.000
Addition Level 1	89.37	36.40	0.000
Addition Level 2	80.76	19.91	0.004
Subtraction Level 1	87.29	26.87	0.000
Subtraction Level 2	76.47	12.52	0.001
Word problem solving	88.24	46.55	0.000
Multiplication Level 1	76.49	15.20	0.000
Division Level 1	83.61	14.95	0.002

The above shows that the innovation of Teach for Sierra Leone has had a significant effect on the overall development of literacy and numeracy skills in children in their intervention schools.

SECTION 6: CONCLUSION

7.1 Introduction

Despite the inherent significance of play-based pedagogy in accelerating the achievement of positive learning outcomes for children, its implementation has been saddled with a range of challenges that compromise its great potential to grow young minds in schools. The enactment of the National Policy on Integrated Early Childhood Development of 2021 in Sierra Leone presented an opportunity for the overall wellbeing and welfare of children encompassing their cognitive, language, social, emotional, and motor development. Early Childhood Development (**ECD**) is recognized as a critical foundation for fostering positive lifelong outcomes, human capital development and sustainable national development. However, the implementation of this policy has been undermined by inadequate teacher capacity and paucity of Teaching and Learning materials.

A number of education partners (INGOs and NGOs) have stepped into the Foundational learning space to build teacher capacity and support the provision of teaching and learning materials for play-based learning, but the scope and magnitude of these interventions have been limited due to funding and manpower constraints affecting the reach and depth of the training. The aim of this study was to provide empirical evidence to enable a better understanding of the nature and complexity of interventions that are geared towards building the capacity of teachers to enhance foundational learning using child-centered and play-based approaches in Sierra Leone.

7.2 Summary:

School and Classroom facilities and equipment for ECCE

The study revealed minimal progress in the adaptation of the educational system to the changes in the new early learning curriculum as evidenced by the analysis of school infrastructure and the provision of teaching and learning materials. Majority of the schools in both intervention and non-intervention districts are poorly resourced with inadequate classroom buildings, toilet facilities, healthcare facilities, outdoor playing facilities, school fencing and security, etc. Very few classrooms are in good condition, and some of them have to be blended to accommodate more children. While schools do much better with teaching and learning materials, these are also inadequate to meet the needs of the children. Teachers, Students, parents and families have to improvise in order to complement the limited materials that are made available by government, education partners and innovators. There are also limited assessment tools to track the progress of children

Teaching capacity, qualification, and conditions in the classroom

The study revealed that non-intervention schools have a higher pupil-teacher ratio than intervention schools, particularly at the primary level. The research also revealed that intervention schools have more teachers with the requisite teaching qualifications than non-intervention schools. In spite of the high pupil-teacher ratio, classroom sizes are generally smaller than the recommended class size for pre-school but higher for primary levels making the later overcrowded.

Teachers' participation in Play-Based Learning Professional Development Trainings

Even though the study revealed that teachers have generally participated in inservice training in play-based pedagogy over the last 3 years, the data showed clearly that more teachers in intervention schools participated in these trainings than their counterparts in non-intervention schools. The research also showed that the organizers of CPD for **PBL** are the Ministry of Basic and Senior Secondary Education (MBSSE), education partners, Innovators like TFSL, etc. In the Sierra Leone context, these training sessions, as mentioned earlier, are supply driven and free at the point of delivery for teachers. Teachers are generally cognisant of the positive impact of PBL, but there are still a few teachers that are yet to grasp this concept. The study also revealed that teachers in intervention schools generally integrated PBL into their learning activities, compared to their counterparts in non-intervention schools.

PBL Implementation Challenges

The adaptation of **PBL** into the new Foundational Learning curriculum is challenged by both further micro-level and macro-level factors that were inter alia highlighted in the Chapter 4 of this report. Micro-level factors include lack of teaching and learning materials, inadequate classroom infrastructure, poor classroom set up that does not support PBL, etc. Macro-level challenges identified include the policy environment infrastructure/logistics, financial constraints, and inadequate training.

How to improve the integration of play into teaching and learning in schools

The study affirmed a clarion call for collective leadership among teachers, school management committees, parents and other education stakeholders across intervention and non-intervention schools in order to ensure the integration of play-based learning in schools. There was also a general consensus among stakeholders of the need for the implementation of **PBL** in our classrooms.

Role of education innovators in influencing early childhood education quality

Provision of facilities for ECCE and for PBL

There was a general consensus across intervention schools that education partners and innovators such as Teach Sierra Leone education are the main institutions that support them in creating local content teaching and learning materials for PBL, as well as providing direct classroom support. Non-intervention schools, on the other hand, rely on MBSSE and education partners to provide this support.

Provision of capacity building for play-based learning

Respondents identified the Ministry of Basic and Senior Secondary Education, Teach Sierra Leone (TFSL), and other Education Partners like UNICEF as the main providers of CPD for PBL in intervention schools. The government of Sierra Leone, through MBSSE, and education partners were classified as the main providers of CPD for **PBL** in non-intervention schools. There is a general consensus that the training provided has had a positive impact on the implementation of play-based learning across both intervention and non-intervention. Teachers in both intervention and non-intervention schools attested to being able to implement all of the relevant **PBL** pedagogical approaches in their classrooms. The data further revealed that most of the teachers who fully implemented PBL as a result of the training received were from intervention schools – testament to the comprehensive nature of the training provided by innovators.

Recognition of letters and reading ability, Literacy and Numeracy

The research revealed that children from intervention schools generally outperformed their colleagues in non-intervention schools in terms of recognition of letters, phonemic awareness, and overall reading ability. Similar inferences were drawn from the performance of children in literacy and numeracy, as children from intervention schools consistently outperformed children from non-intervention schools. In fact, the study further revealed that children from intervention schools generally outperformed their colleagues from non-intervention schools in the four domains of language, reading, writing, and numeracy.

Cost effectiveness and cost influences on PBL

In Sierra Leone, the government through MBSSE is the primary provider of infrastructure for **PBL** in both intervention and non-intervention schools. However, education partners and innovators also play a significant role in providing infrastructure across these schools. Individual schools, community stakeholders and district councils play a limited role in providing

infrastructure for **PBL** in **ECCE** settings. In terms of maintenance of school infrastructure, the government plays a pivotal role, supported by innovators, individual schools and community stakeholders in both intervention and non-intervention schools. Government also provides the highest percentage of TLMs in both intervention and non-intervention schools. But when it comes to maintenance of TLMs, Innovators play a major role in intervention schools, while individual schools and community stakeholders support the maintenance of TLMs in non-intervention schools.

7.3 Recommendations

The study identified three key factors of infrastructure, logistics and capacity-related challenges that inhibit the adaptation of the education system to the new **PBL** curriculum. The research therefore proposes the following recommendations to remedy the situation and improve the implementation and uptake of **PBL** in schools:

- There is a need for increased investment in school infrastructure to support effective **PBL** at the **ECCE** levels by government and education partners.
- Government should work with education partners, innovators, and community stakeholders to not only provide infrastructure for **PBL**, but also include a sustainable strategy for the maintenance of infrastructure. They should also engage with schools to ensure that facilities are in good condition.
- Digital play equipment such as laptops, tablets and TV sets should be provided to complement local content materials provided by teachers in both intervention and non-intervention schools. This will help grow the digital skills of the children and increase their interest in the world of technology.
- The need for human capacity development for **PBL** in **ECCE** cannot be over-emphasized. It is therefore critical for MBSSE to work with the Teaching Service Commission of Sierra Leone and other education partners and innovators to develop innovative approaches to teacher training on **PBL** pedagogy in order to increase the effective implementation of **PBL** in both intervention and non-intervention schools.
- The lack of trained and qualified staff in **PBL** at the **ECCE** level needs to be addressed. Government should work ardently with the education line ministry and development partners to ensure adequate staffing (both in terms of qualification and numbers) at the preschool level.
- For **PBL** to be successful at the **ECCE** level, there is a need for full engagement between school authorities and local community stakeholders to engender collective leadership that would enhance the active participation of parents and community leaders in the running of the school. Community stakeholders could serve as an important source of volunteers for effective classroom management, and also assist with local TLMs in the school.

- The principles of radical inclusion must inform the allocation of resources for children with special needs across intervention and non-interventions schools.

This quantitative study has provided evidence about the efficacy of **PBL** pedagogy in improving foundational learning outcomes, and the gradual adaptation of this approach to the new integrated **ECD** curriculum. Furthermore, the study has shed light on the role of educational innovators in influencing early childhood care and education, the fidelity of the play-based pedagogy, and the cost drivers of **PBL** in **ECCE**. This study also dissected a range of micro and macro challenges that need to be addressed in order to help teachers to effectively deliver **PBL** for the benefit of the children.

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Appendix

Table A1: Teacher qualification at time of employment and currently

Qualification	Status at employment		Current Status	
	Intervention	Non-Intervention	Intervention	Non-Intervention
SSCE/O-Level/Other	30.50	42.30	23.70	32.40
Teachers Cert. A	45.80	54.10	48.30	57.70
Higher Teachers Certificate	21.20	3.60	25.40	9.90
Bachelor's Degree in Education	2.50	0.00	2.50	0.00
Total	100.00	100.00	100.00	100.00