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The Impact of Play-Based Learning Pedagogy on Learners

KEY RESULTS

- Teacher qualifications at the ECE level have improved and there is support for play-based learning in schools and classrooms.
- Education innovators, such as Sabre Education and Right to Play, play a crucial role in enhancing the capabilities of teachers to implement play-based learning.
- The implementation of play-based pedagogy in pre-schools and lower primary levels in Ghana has a significant positive impact on the literacy and numeracy skills of early learners.

INTRODUCTION

For many years, the most effective method(s) for teaching and learning at the early childhood education (ECE) level have been debated. In recent times, there is a consensus that play-based learning is the best method for teaching children at the ECE level i.e. ages 0-8, as it has been proven that it is beneficial for both developmental learning and academic learning (Pyle and Bigelow, 2015; Edwards, 2018). Through play-based learning, children can develop cognitive skills, literacy and numeracy skills, social interaction skills among others. Play-based learning can be categorised into two: a) free play and b) guided play. Free play is also known as child-directed since the child learns through his or her curiosity and interests. Guided play on the other hand can be teacher-directed involving particular learning outcomes.

Realizing the value of play, several nations have established national and international education policies aimed at improving children's learning results, particularly for kindergarten pupils moving into primary school. Thus, funding Early Childhood Education and Care (ECEC) is an investment that will pay off in the long run. The government of Ghana implements a strategy of Free and Compulsory Universal Basic Education (FCUBE). In 2004, the Early Childhood Care and Development

(ECCD) Policy was formulated and in 2008, two years of pre-primary education, i.e. kindergarten (KG) was added to the FCUBE. This was to ensure that the country delivered on SDG 4.2 - universal access to quality early childhood education.

The 2021 ECE Policy informed by the Education Sector Plan (2018-2030) and the medium-term plan (2018-2021), led to the adoption of a play-based pedagogy as the medium of instruction at the pre-school level and in the new standards-based curriculum for the primary level (MOE, 2019).

The objectives of the ECE Policy include:

1. Ensure spaces are available for all KG children in Ghana.
2. Ensure effective implementation of the KG curriculum for improved play-based learning.
3. Equip Inservice and Pre-service Teachers and Non-Professional workers in the ECE space.

This policy brief presents evidence of the impact of the implementation of play-based pedagogy at the pre-school and lower primary levels on academic learning in Ghana.

Methodology

It is based on information gathered between May and June 2023 from 1,156 teachers working in 593 public schools in Ghana's Eastern and Northern regions. The schools were divided into two groups: Non-Intervention schools, where instructors receive no training from two education innovators, Sabre Education and Right to Play (RTP), and Intervention schools, where teachers receive training from the two education innovators, to apply the play-based pedagogy.

IMPLEMENTATION OF PLAY-BASED LEARNING (PBL)

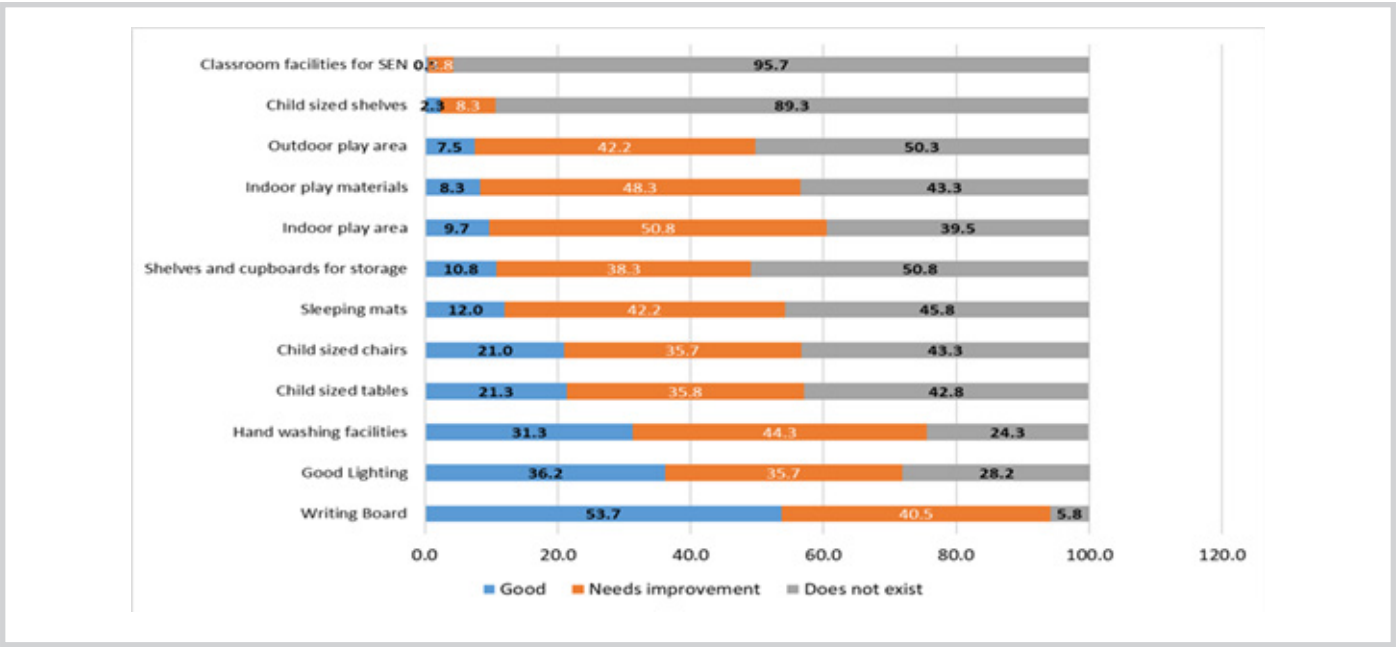
School and classroom characteristics

There are marked differences in school characteristics between the intervention and non-intervention schools. The predominant majority (99%) of the schools are the single-track type (no shift system). About 49 percent of schools in the intervention group had only KG and Primary level as against 79 percent among the non-intervention schools. In terms of location of school, 19 percent of schools in the intervention group were in urban towns while 17 percent of schools in the non-intervention group were in urban towns. It is also interesting to note that about 47 percent of schools from the Intervention group were in rural areas as against 50 percent in the non-intervention group. Schools in the intervention group had approximately 10 classrooms and 3 classrooms for KG1-P3, while those in the non-intervention group had 8 classrooms and 2 for KG1-P3. Also, 72 percent of schools in the intervention group had appropriate seating arrangements for the ECE level as compared to 58 percent for the non-intervention group. Across all the grades at both the preschool and lower primary levels, the distribution of the number of pupils in a class is significantly larger than the recommended class size for preschool and primary levels. The President's Committee on Education (2002) recommends not more than 30 pupils for preschool and not more than 35 pupils for the primary school. In our study, the nursery level had an average of 46 pupils in a class while the kindergarten level had between 33 and 40 pupils in a class.

Although the intervention schools have better utilities for schooling convenience, overall, the level of utilities in both groups is quite poor, especially in relation to designated hygienic places for preschool which is only 19 percent for the intervention group and 9 percent for the non-intervention group. Another area of concern is access to potable water for both piped and borehole water which is quite low for both groups.

Critical facilities and equipment such as outdoor play areas, child sized chairs and tables, sleeping mats, child sized shelves etc. were not available in many of the schools. For instance, child sized shelves do not exist in 89.3% of the schools (Figure 1). Similarly, outdoor play areas do not exist in 50.3% of the schools. The non-existence of child sized chairs and child sized tables is 43.3% and 42.8% respectively. These facilities are key for effective ECE and PBL and their non-existence can affect the ability of teachers to deliver PBL as expected.

Figure 1: Classroom facilities and equipment for ECE



Teacher characteristics

Across both intervention and non-intervention schools, teachers were mostly female (81% in intervention schools and 63% in non-intervention schools). Various studies have shown that higher teacher qualifications are significantly correlated with higher quality of ECE (Manning et al., 2017). Majority of the teachers in the study have a first degree (Figure 2), however, very few had specialization in ECE, reflecting the lack of educational expertise in ECE among teachers (Figure 3). Most teachers have extensive teaching experience, extending over 7 years in both groups, teaching at the early grade level and about 4 years of teaching in the present school.

Figure 2: Highest qualification of teachers

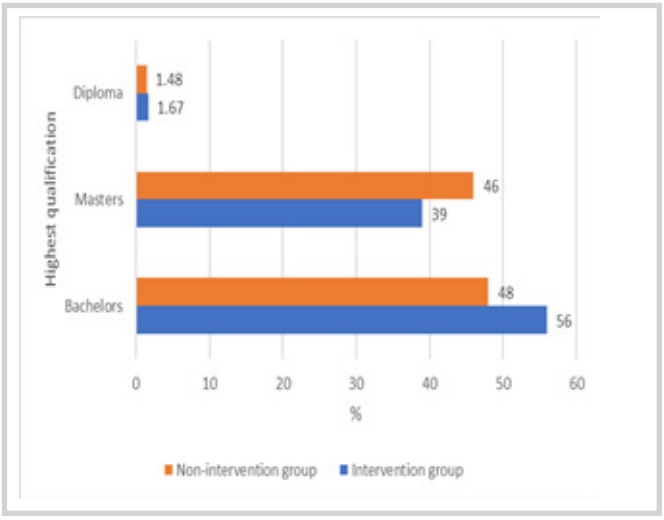
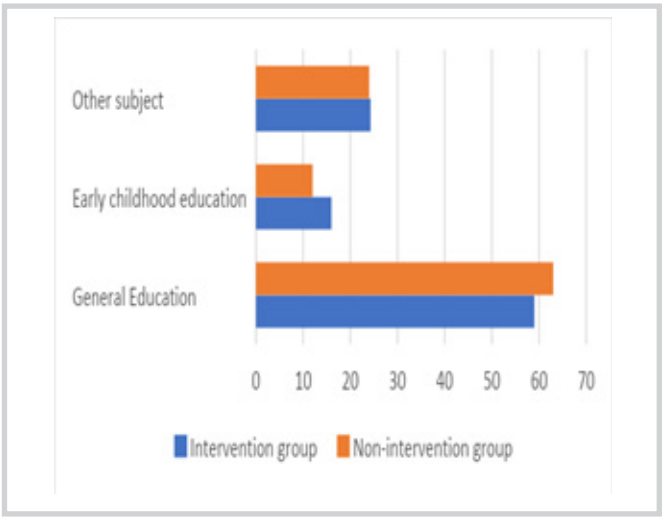


Figure 3: Teacher subject specialization



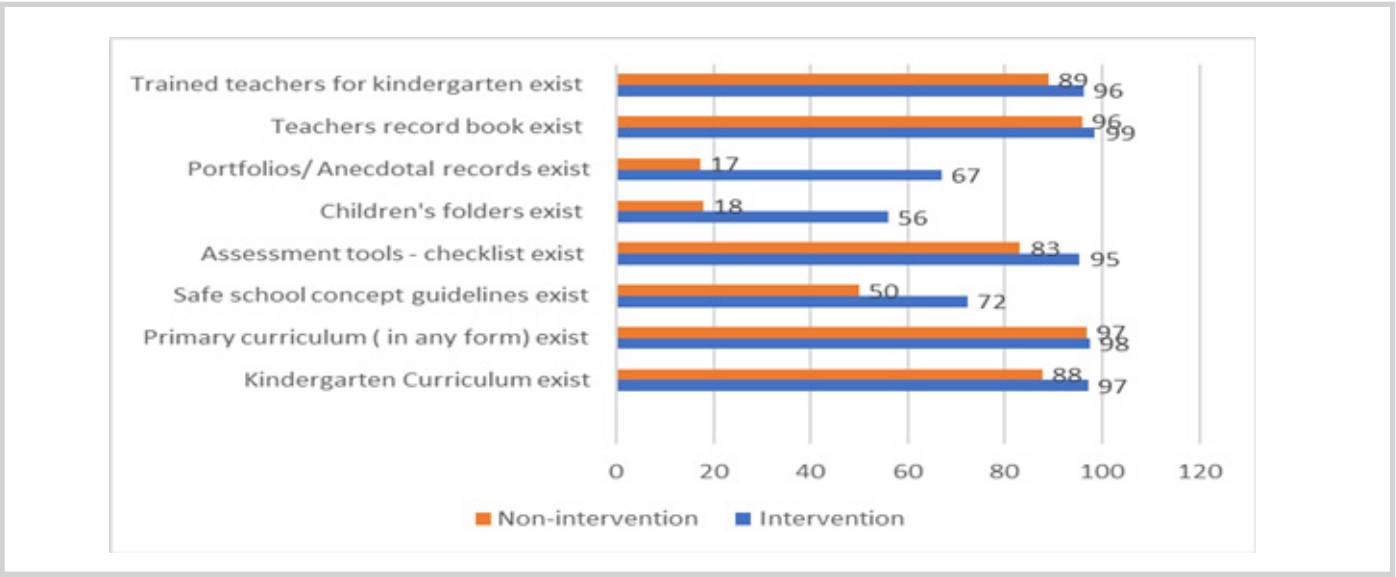
School resources for ECE

KG curriculum exists in 97 percent of the intervention schools as compared to 88 percent for non-intervention schools. Also, 96 percent of teachers are trained for KG in intervention schools while that of the non-intervention schools stands at 89 percent as illustrated in Figure 6. Children's folders exist in 56 percent of the intervention schools as compared with 18 percent in the non-intervention schools (Figure 4).

Schools' Human Capacity for ECE

With respect to play-based teaching and learning, 99 percent of teachers from both the intervention and non-intervention groups support the implementation of play-based learning. Given the fact that children with special needs may not easily adapt to playing or play socially, 43 percent of teachers from both the intervention and non-intervention groups agreed to conducting screening sessions to identify special needs children. 36 percent from

Figure 1: Classroom facilities and equipment for ECE



the intervention showed expertise in managing special needs children in their classrooms against 41 percent from the non-intervention group. Similarly, 40 percent of teachers from the intervention had children with special needs in their class compared to 32 percent of the non-intervention. As support for children, 28 percent from the intervention support special needs children compared to 10 percent of the non-intervention group.

Teachers' Participation in Play-Based Learning Professional Development Trainings

77 percent of the teachers in the intervention group sample had participated in play-based learning pedagogy, whereas 62 percent in the non-intervention group sample had participated in a play-based learning programme. This suggests that those in the non-intervention group may have received the play-based learning training from a different source and not from the innovators in this project.

30 percent of the teachers in the intervention schools confirmed that their most recent training was organised by the Ghana Education Service (GES)/Ministry of Education (MoE) against 44 percent of the non-intervention group. Most intervention school teachers received their training from Sabre (30%) and RTP (24%). 17 percent of teachers in the non-intervention group received their most recent training from RTP signifying the reach of the innovator even beyond their intervention schools.

Impact of Play-Based Learning (PBL)

The impact of PBL in ECE was evaluated based on children's literacy and numeracy tests.

Table 1: Assessment of children performance in literacy test

Literacy ability	Intervention	Non-intervention
Can child recognize at least 5 letters correctly?		
Yes	55.3	53.0
No	44.7	47.0
Can child recognize at least 5 words correctly?		
Yes	51.2	48.7
No	48.8	51.3
Can child read at least 2 sentences correctly?		
Yes	26.5	22.7
No	73.5	77.3
Can child read at least 5 sentences correctly?		
Yes	36.7	38.2
No	63.3	61.8

With other relevant variables held constant, the Average Treatment Effect on the Treated (ATT) analysis reveals that, although at a small significance level ($p<0.05$), the proportion of children in the intervention group who can read at least two sentences properly is greater by roughly 3 percentage points when compared to the non-intervention schools. Similarly, children from intervention schools had an 11-percentage point greater percentage of students who can read at least five sentences accurately than students from non-intervention schools.

Basic numeracy and calculation competence:

Number recognition and simple calculations were the two areas in which the learners' basic numeracy and calculation skills were evaluated. The results showed that 70 percent of the children from the intervention group compared to 64 percent of the children from the non-intervention group were at the initial stage of numeracy ability. Similar trends are reflected in all the other measures of numeracy where intervention schools outperform non-intervention schools (Tabel 2).

Table 2: Assessment of children performance in numeracy test

Numeracy competence	Intervention	Non-intervention
Initial	70.2	64.3
Child is at 0-20 level	29.8	35.7
Addition and subtraction of 2 digits		
Unable to perform addition and subtraction of 2 digits	61.7	65.9
Able to perform addition and subtraction of 2 digits	38.3	34.1
Division and Multiplication of 2 digits		
Unable to perform division and multiplication of 2 digits	27.1	19.6
Able to perform division and multiplication of 2 digits	72.9	80.4

The ATT analysis shows that the proportion of children from the intervention group who can perform addition and subtraction of 2-digit numbers is higher by about 3 percentage points, holding all relevant confounders stable compared to children from the non-intervention schools. Similarly, the number of children from intervention schools who can perform division and multiplication of two digits correctly is 11 percentage points higher than that of children from the non-intervention schools.

Observation of KG learners' development of language, reading, writing and numeracy

In all four domains of language, reading, writing, and numeracy at KG2, the observation data indicate that students from intervention schools perform noticeably better than students from non-intervention schools. For example, a significantly large proportion of children in the intervention schools (56.7%) can identify and describe objects by colour, size and name compared to the proportion of children from the non-intervention schools (41.4%) who can do the same. Also, 62% of children from intervention schools can use number names and count sequentially as compared to 35% in the non-intervention schools.

CONCLUSION

The positive impact of PBL in ECE has been affirmed in this study despite some challenges. The study findings highlight the school and teacher characteristics of both intervention and non-intervention schools, helping to contextualize the infrastructure and human capacity issues across these schools which have a direct implication for effective PBL pedagogy. Results emanating from both the intervention and non-intervention schools affirm PBL impact in literacy and numeracy levels among children. Even though there are substantial differences between intervention and non-intervention schools, non-intervention schools also show positive results pointing to the uptake of PBL pedagogy across both intervention and non-intervention schools albeit at different levels. A holistic approach to PBL pedagogy which addresses infrastructure and logistical needs as well as human capacity requirements together with the full support of parents and communities is necessary for effective and efficient PBL to deliver significant outcomes beyond the present results.

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The images in this policy brief showcase several schools in Ghana's Eastern Region, all of which were included in the study. Photographed by Nana Amma Asante-Poku.

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