

Role of Play-Based Learning in Enhancing Psychosocial and Cognitive Development in ECDE Centers in Kakuma Refugee Camp-Turkana County

Philomena Chepsiror¹, George N. Areba², Billiah Gisore³ Eliud Nyakundi⁴ & Florence Boinett⁵

¹Department of Curriculum, Instruction and Educational Media, Moi University, Kenya

^{2,4}Department of Education Administration, Planning and Economics, Kisii University, Kenya

^{3,5}Department of Educational Psychology & Early Childhood Education, Kisii University, Kenya

*Corresponding author: gareba@kisiiuniversity.ac.ke

<https://doi.org/10.62049/jkncu.v6i2.557>

Abstract

This study examined the role of play-based learning in enhancing psychosocial and cognitive development in Early Childhood Development and Education (ECDE) refugee learning centres in Kakuma, Kenya. Guided by four objectives, the study assessed the extent of play integration in curriculum delivery, examined psychosocial and cognitive outcomes, identified implementation challenges, and generated policy-relevant recommendations for sustaining play-based pedagogy in refugee contexts. A mixed-methods design was employed, combining teacher surveys (N = 27), Head Teachers' interviews (N = 11), and structured classroom observations across 11 ECDE centres. Quantitative data were analyzed using descriptive statistics and confirmatory factor analysis, while qualitative data were analyzed thematically. Findings revealed strong integration of play-based learning with a high composite mean score for play integration (M = 4.27, SD = 0.65). Teachers reported frequent use of singing and music (M = 4.89), art-based play (M = 4.67), games (M = 4.44), and storytelling (M = 4.19), while puppetry was least used (M = 2.85), largely due to resource constraints. Psychosocial and cognitive outcomes were strongly endorsed, with all nine outcome indicators recording mean scores above 4.18; peer relationships recorded the highest mean (M = 4.70). Confirmatory factor analysis demonstrated a strong unidimensional psychosocial construct (CR = 0.96; variance explained = 74.53%). Classroom observations corroborate these results, showing frequent positive psychosocial behaviors (overall psychosocial profile M = 2.23) and competent cognitive engagement (CDI M = 2.05). Despite play being pedagogically effective, major challenges such as inadequate play materials and overcrowded classrooms (both M = 4.33) hamper its effective utilization. Overall, the study concludes that play-based learning in Kakuma ECDE centres is pedagogically effective and psychosocially supportive but constrained by systemic and resource limitations, necessitating recommendations on coordinated interventions to sustain inclusive, high-quality early childhood education in refugee settings.

Keywords: Psychosocial, Cognitive, Play-Based Learning, Development, ECDE and Kakuma

Introduction

The critical role of play in enhancing psychosocial and cognitive development during early childhood has been well-documented by researchers. Play-based learning (PBL) fosters problem-solving skills, creativity, emotional regulation, and social interaction among children (UNICEF, 2018). In sub-Saharan Africa (SSA), where crises such as poverty, conflict, and displacement are prevalent, the integration of play in education has the potential to address developmental delays and emotional challenges. However, despite its proven benefits, PBL remains underutilized in early childhood education, particularly in marginalized settings like refugee camps.

Kakuma Refugee Camp, one of the largest refugee settlements in SSA, hosts thousands of children aged 0–8 years who attend Early Childhood Development and Education (ECDE) centers. These children face significant adversities, including exposure to trauma, limited access to resources, and unstable living conditions, all of which adversely affect their psychosocial well-being and cognitive growth (Save the Children, 2021). While ECDE is recognized as a foundation for lifelong learning, the specific role of play in mitigating the unique challenges faced by refugee children in Kakuma remains inadequately addressed.

Research highlights that play-based learning can support refugee children by providing a safe space to process trauma and build social skills, yet its implementation is hindered by several factors (UNESCO, 2019). Teachers in Kakuma often lack training in play pedagogy and face cultural biases that regard play as non-essential to formal education (Save the Children, 2021). Additionally, ECDE centers in the camp are plagued by overcrowding, limited teaching materials, and insufficient infrastructure, which constrain the effective integration of PBL strategies. These challenges are further compounded by the absence of context-specific evidence to guide the design of effective interventions.

From a policy perspective, this research is critical for informing educational practices in SSA. Global frameworks such as the Sustainable Development Goals (SDGs), particularly Goal 4, underscore the need for inclusive and equitable quality education (United Nations, 2015). However, the lack of targeted research on the intersection of education and play in crisis-affected areas limits policymakers' ability to create effective programs for refugee children. Addressing this gap is essential for ensuring that all children, regardless of their circumstances, have access to holistic education that supports their full developmental potential. This study aims to fill this knowledge gap by investigating the role of play-based learning in enhancing psychosocial and cognitive development among ECDE learners in Kakuma Refugee Camp.

Purpose of the Study

The purpose of this study was to investigate the role of play-based learning (PBL) in enhancing psychosocial and cognitive development among children aged 0–8 years in Early Childhood Development and Education (ECDE) centers within Kakuma Refugee Camp.

Statement of the Problem

Despite strong evidence that play-based learning (PBL) supports psychosocial wellbeing and cognitive development in early childhood, its effective integration in refugee ECDE settings remains limited. In Kakuma Refugee Camp, learners, especially in early years face trauma, displacement, overcrowded classrooms, inadequate learning materials, and limited teacher training among other constraints which

constrain the use of play as a meaningful pedagogical strategy. Although global and national frameworks advocate holistic, learner-centered approaches, there is insufficient context-specific evidence on how play is implemented, its developmental impact, and the challenges teachers encounter in fragile contexts. It is against this background that this study sort to establish the role of play-based learning (PBL) in enhancing psychosocial and cognitive development among learners in Early Childhood Development and Education (ECDE) centers in Kakuma Refugee Camp.

Study Objectives

Specifically, the study sort:

- To examine play integration teaching learning strategies utilized in curricula in Kakuma ECDE refugee learning centre.
- To assess the influence of play activities on the psychosocial and cognitive development of children in Kakuma ECDE refugee learning centre.
- To identify the challenges faced by teachers in implementing play-based learning strategies in teaching and learning in Kakuma ECDE refugee learning centre.
- To develop policy recommendations for promoting and sustaining play-based learning strategies in Kakuma ECDE learning refugee centre.

Literature Review

Play Integration Teaching Learning Strategies

Play is a self-chosen, enjoyable, and process-driven activity in which children (and adults) exercise agency, explore possibilities, manipulate ideas and materials, and engage in non-literal thinking. It is the primary mechanism for integrating cognitive, social, emotional, and physical experiences, leading to adaptive learning, creativity, and well-being (Baker, Le Courtois, & Eberhart, 2023).

In pedagogical practice, the integration of play into learning encompasses a spectrum that ranges from child-directed free exploration to adult-guided play. Scholars such as Zosh et al. (2018) characterize guided play as the dominant paradigm in contemporary research and practice. As Weisberg et al (2015) posits, guided play involves intentional adult scaffolding within a child-directed context, serving as an essential bridge between pure free play and direct instruction. In this approach, the educator designs a learning-oriented environment, poses strategic questions, and gently guides inquiry while preserving the child's agency over the play experience (Pyle & Danniels (2017). This balance of structure and autonomy makes guided play a widely endorsed model for integrating meaningful learning with developmentally appropriate play.

A number of strategies have been put forward for integrating play into learning. Baron and Keller-Margulis (2022) identify the creation of Provocative and Intentional Play Environments as a core strategy for integrating play into early childhood learning. This approach requires educators to deliberately design and provide learning areas with materials that stimulate inquiry and problem-solving aligned with curricular goals. Consequently, the physical and conceptual organization of the classroom itself functions as a primary pedagogical strategy.

Research indicates that Playful Pedagogies embedded in the Curriculum are highly effective. Evidence-based approaches that enhance learning outcomes, engagement, and holistic development when intentionally integrated into core academic content makes learning real. Zosh et al. (2018), argue that embedding play into curriculum aligns with how children learn best, supporting cognitive, social, and emotional development simultaneously. Effective play-based pedagogy requires that the teacher thoughtfully weave play opportunities with specific learning objectives, ensuring that joy, agency, and meaningful instruction are inseparably intertwined (Pyle et al., 2017). This approach moves beyond viewing play as a break from learning, instead positioning it as the essential medium through which curricular goals are achieved.

The integration of Games with Rules is another highly effective play-based learning strategy. It employs structured play to channel engagement toward specific skills (Vogt et al., 2018). In this guided play approach, the teacher intentionally designs or selects a game to meet a learning objective (Ramani & Scalise, 2020). Initially, the educator acts as a model and co-player, explicitly teaching rules and social norms like turn-taking and sportsmanship. Subsequently, the teacher shifts to a facilitator role, observing and allowing peer interaction while providing minimal support to mediate conflicts or clarify rules as needed, thereby maintaining child agency within the structured framework (Pyle & Danniels, 2017). This balances joyful play with meaningful skill practice.

Influence of Play Activities on the Psychosocial and Cognitive Development of Children

Children all over the world face multiple challenges in realizing their right to play, often the centrality of play in children's lives is misunderstood and ignored. Play-based learning (PBL) is an opportunity for holistic student development as play opportunities create intentional connections for children's social, emotional, behavioral, and academic gains (Phajane, 2019). It significantly enhances children's cognitive abilities and emotional well-being, fostering creativity, resilience, and social skills that lay a strong foundation for lifelong learning (Ghosh, 2024). Play is regarded as the natural way for children to learn (Kampen, 2021).

PBL fosters cognitive, emotional, and social development as children engaged in play-based learning demonstrate enhanced problem-solving skills, better language skills, particularly in terms of vocabulary and narrative construction (Ghosh, 2024). The author adds that the children exhibit higher emotional intelligence, with better self-regulation and empathy as well as greater resilience in the face of challenges, such as conflicts during play. Additionally, the children have increased cooperation during group activities and enhanced ability to share and negotiate, leading to better social bonding.

Exploring emotions during peer play through unstructured play-based learning activities encourages joy, empathy for others, and resilience (Kampen, 2021). Unstructured playtime also allows safe processing and understanding of other emotions, such as sadness, that also comes with peer play. Intentionally structured opportunities for students to explore difficult conversations during play-based learning opportunities allows students to safely explore other difficult emotions, such as frustration, disappointment, and even embarrassment. The exploration and knowledge of personal emotions provide a foundation for the next domain that explores engaging cognitive skills (Phajane, 2019).

PBL supports children in becoming active participants in their learning, leading to more holistic development and equipping children with essential life skills for the future. Amberson (2023) argues that children learn social cues by modeling other children's behaviors and practicing these behaviors in social situations to determine positive or negative associations. Children not exposed to play most times exhibit poor social skills resulting from limited social interactions, which interferes with language development (Ginsburg, 2007). Children naturally navigate social skills such as cooperation, conflict resolution, taking turns, and management of emotions during both structured and unstructured play settings. When children learn to negotiate conversations at initial stages in life, the skills often result in a reduction of conflicts as they grow older (Daubert et al., 2018).

Unfortunately, most professional development opportunities for teachers do not support the implementation of play-based education (Amberson, 2023). Due to a lack of intentional training, many teachers lack knowledge of the instructional practices to include play-based opportunities in their elementary classrooms.

Challenges Faced by Teachers in Implementing Play-Based Learning Strategies in Teaching and Learning in Fragile Contexts

Research indicates that when teachers effectively implement play-based strategies, children demonstrate higher levels of engagement, improved problem-solving abilities, and stronger emergent literacy skills (Cheruiyot, 2023; UNESCO, 2021). In particular, children's literacy acquisition has been shown to depend significantly on how teachers structure and utilize play-based methods within instructional contexts (Cheruiyot, 2023). Despite its strong theoretical and empirical grounding, translating play-based learning into consistent classroom practice within Early Childhood Development and Education (ECDE) settings remains complex and is often constrained by systemic and contextual challenges.

A persistent challenge across diverse contexts is inadequate teacher training and limited professional development opportunities related to play-based pedagogies. Empirical studies suggest that many ECDE teachers possess insufficient knowledge of play-based learning strategies or lack confidence in applying them effectively, largely due to gaps in pre-service preparation and limited access to continuous in-service support (Kabiru et al., 2020; UNICEF, 2019). In the absence of strong pedagogical grounding and practical skill development, teachers tend to revert to traditional, teacher-centred instructional approaches that conflict with the principles of play-based learning. These challenges are particularly pronounced in resource-constrained settings such as refugee camps, where professional development opportunities are scarce and institutional support is limited.

Constraints related to resources, materials, and infrastructure further hinder effective implementation of play-based learning. Evidence from Kenya and other low-resource contexts demonstrates that many ECDE centres lack adequate play materials, manipulatives, safe outdoor spaces, and developmentally appropriate learning environments (Mugo et al., 2022; UNESCO, 2021). As a result, teachers are often compelled to rely on improvised or insufficient materials, which limits the diversity and quality of play experiences they can offer. Without appropriate physical and material support, it becomes difficult to design and sustain child-centred, exploratory play activities aligned with curricular objectives.

Time constraints, rigid curriculum demands, and negative perceptions of play also present significant barriers. Teachers frequently report that tightly packed curricula and emphasis on direct instruction leave

limited time for extended play-based activities, compelling them to prioritize examinable academic content over exploratory learning (KICD, 2017; Kabiru et al., 2020). In addition, some teachers perceive play as less academically rigorous or as a distraction from ‘serious learning,’ which further undermines its consistent classroom integration.

Cultural beliefs and inclusive education challenges also influence the implementation of play-based learning. In some communities, parents and educators view play primarily as leisure rather than as a legitimate instructional strategy, thereby weakening institutional and community support for play-based approaches (UNICEF, 2019). Moreover, teachers report difficulties in adapting play-based learning to accommodate children with disabilities due to limited training, inadequate adaptive materials, and insufficient guidance on inclusive pedagogies (Mugo et al., 2022). These gaps point to the need for targeted policy and professional development interventions to strengthen inclusive and culturally responsive play-based learning practices, especially in fragile contexts.

Policy Initiatives for Promoting and Sustaining Play-Based Learning Strategies

Play-based learning has gained significant attention in early childhood education as educators and policymakers recognize its contribution to holistic development. Policy initiatives that support play-based learning provide the structural, financial, and curriculum frameworks necessary for sustainable implementation, particularly in resource-constrained contexts such as refugee camps (Dahlberg, Moss, & Pence, 2013). At the global level, the United Nations Educational, Scientific and Cultural Organization (UNESCO, 2019) emphasizes play as a core component of quality early childhood programs, recommending national and regional policies that integrate play into standards, teacher training, and assessment frameworks.

National education policies in several contexts highlight the importance of play in early learning. For example, the Kenya Early Childhood Development Policy outlines play as an essential pedagogical approach that fosters cognitive and psychosocial outcomes (Government of Kenya, 2016). Such policy frameworks often mandate play spaces, learning materials, and teacher competencies that align with play-based pedagogy, bridging formal curriculum goals with child-initiated activities (Katz, 2015). Importantly, policy initiatives should also embed mechanisms for monitoring and evaluation to assess fidelity and impact of play-based strategies on learning outcomes (Siraj-Blatchford et al., 2016).

In contexts affected by crisis and displacement, including refugee settings, policy support for play can be transformative. The Inter-Agency Network for Education in Emergencies (INEE, 2018) highlights play-based learning as integral to psychosocial support and resilience among young children. Policy instruments designed for emergency education must therefore prioritize flexible guidelines that allow ECDE teachers to adapt play activities to cultural and environmental constraints, while also safeguarding emotional well-being (Miller & Rasco, 2004). Without explicit policy backing, play-based learning risks being marginalized in favor of rote or survival-oriented instruction, which may neglect social-emotional development (Dryden-Peterson, 2016).

Funding policies also play a crucial role. Allocations for learning materials, playgrounds, and continuous professional development for ECDE teachers strengthen the sustainability of play-based practices (OECD, 2017). When governments and partners invest in coherent policy frameworks linking early childhood

curriculum, teacher education, and community engagement, play becomes an embedded, rather than optional, strategy for promoting child development (Whitebread & O'Sullivan, 2012).

Methodology

Design

The study utilized a mixed-methods approach, which was considered ideal because it allowed for the collection of both quantitative and qualitative data. The quantitative component measured specific cognitive and psychosocial outcomes using standardized tool, while the qualitative component explored teachers' perceptions, as well as children's experiences, through interviews and observations.

Research Design

Target Population, Sample Size and Sampling Techniques

The target population is comprised of all the 13 ECDE schools in Kakuma refugee camp, that is 6 standalone ECDEs and 7 Comprehensive Schools with 125 Teachers and 8790 pupils. The final sample size was determined proportionately through Morgan formular which realized ($N = 27$) surveys from teachers, ($N = 11$) Head Teachers' interviews, and ($N=11$) structured classroom observations across selected ECDE centres.

Research instruments

Social and Emotional Learning (SEL) framework was utilized as observation checklist for play-based activities and assessment of cognitive skills; For Head of institutions semi-structured interview guides and teachers' questionnaires were administered to gather insights on their perceptions of the impact of play-based learning on children's development.

Pilot Study

This study piloted the instruments in two public junior schools from a neighboring sub-county. The aim was to test and adjust the research tools for accuracy and clarity. Based on Sahu's (2013) guideline, 10% of the main study's sample size was used. 4 Teachers were selected using simple random sampling, while 2 school heads were included automatically once their schools were chosen.

Validity of the Study Instruments

The Content Validity Index (CVI) was used to quantify the relevance of items, where items deemed valid were retained. The process involved two stages: initially developing and organizing items based on objectives and then refining them through experts' feedback.

Reliability of the Data Collection Instruments

Reliability was tested using the test-retest method. The instruments were administered to two ECDE schools and repeated after two weeks with the same respondents. Cronbach's Alpha was calculated for both sets of responses. A reliability coefficient of 0.7, as recommended by Mugenda and Mugenda (2003), was obtained and deemed acceptable, confirming the tools' internal consistency.

Data Processing and Analysis

Collected data underwent cleaning and coding before analysis. Quantitative data was analyzed using descriptive statistics. Inferential statistics were applied to explore relationships between variables. Qualitative responses from open-ended questions were analyzed using content analysis, to identify recurring themes and concepts. SPSS Version 26 was utilized due to its capacity to handle both small and large datasets (Greening, 2019). Findings were presented using tables, and frequencies for clarity and better comprehension.

Ethical and Logistical Considerations

The study took place in ECDE centers in Kakuma Refugee Camp, a setting involving vulnerable populations, particularly young children. Consequently, strict ethical principles guided the entire research process. Informed consent was obtained from all adult participants, including teachers, caregivers, and administrators. Participation was voluntary, and all participants were informed of their right to withdraw from the study at any stage without any negative consequences. Confidentiality and privacy were maintained throughout the study. Personal identifiers were removed from all data, and participants' anonymity was ensured during data collection, analysis, and reporting. All research data were securely stored in password-protected systems and accessed only by authorized members of the research team.

The study minimized potential harm by prioritizing the psychological, emotional, and physical well-being of participants. Observations were conducted in natural classroom settings to reduce disruption and ensure children's comfort. Sensitive issues were handled with care, and participants were allowed to skip questions they found uncomfortable. Cultural sensitivity was observed by engaging local stakeholders and research assistants familiar with the community's cultural and linguistic context. Ethical approval was obtained from Kisii University's Institutional Scientific and Ethics Review Committee (ISERC) the National Commission for Science, Technology and Innovation (NACOSTI), United Nations High Commissioner for Refugees, (UNHCR) and permission through refugee camp managers and education officers in Kakuma ensuring compliance with national and international ethical standards.

Results and Discussion

Play Integration in Teaching and Learning

Objective one of this study sort to examine play integration teaching–learning strategies utilized in curricula in Kakuma ECDE Refugee Learning Centres. This objective was addressed using descriptive statistics, reliability analysis, and measurement modeling. Descriptive statistics results are shown in Table 1

Table 1: Descriptive Statistics for Play-Based Teaching and Learning Items (N = 27)

Item	SDA	DA	N	A	SA	M	SD
I frequently use play-based activities in my daily teaching practices	0	0	0	13	14	4.52	0.51
Play-based methods are integrated into the delivery of the preschool curriculum	1	1	1	6	18	4.44	1.01
The pre-school curriculum supports the use of play as a key teaching and learning strategy	0	2	0	17	8	4.70	0.67
I feel confident using play to teach different areas of the curriculum	1	1	0	9	16	4.44	0.85
Teaching and learning materials available in the centre support play-based learning	3	2	4	12	6	3.89	1.05
I have received adequate training on how to integrate play in teaching and learning	4	2	6	9	6	3.41	1.34
Play-based learning effectively helps learners achieve the intended curriculum outcomes	1	0	0	10	16	4.48	0.85

Descriptive statistics presented in Table 1 indicate a strong overall endorsement of play-based pedagogy among teachers. The composite mean score of $M = 4.27$ ($SD = 0.65$) reflects widespread agreement that play is central to daily instructional practice. The relatively low standard deviation suggests a high level of consistency among teachers, indicating that play-based approaches are not isolated practices but are broadly embedded across centres.

At the item level, teachers most strongly agreed that the pre-school curriculum supports play as a key teaching and learning strategy ($M = 4.70$, $SD = 0.67$; Table 1). This finding reflects strong alignment between classroom practice and Kenya's Competency-Based Education (CBE) framework, which emphasizes learner-centred, experiential, and developmentally appropriate pedagogies. Such alignment mirrors international policy positions that recognize play as foundational to inclusive and equitable early childhood education (UNESCO, 2019).

Teachers also reported high confidence in using play across curriculum areas ($M = 4.44$, $SD = 0.85$) and perceived play-based learning as effective in helping learners achieve intended curriculum outcomes ($M = 4.48$, $SD = 0.85$). Teacher confidence is widely recognized as a critical determinant of pedagogical quality, influencing instructional choices, classroom management, and learner engagement (Siraj-Blatchford et al., 2016). Within refugee contexts, confident use of play further supports psychosocial safety and emotional regulation for learners affected by displacement-related adversity (INEE, 2016).

However, comparatively lower mean scores were reported for the availability of teaching and learning materials ($M = 3.89$, $SD = 1.05$) and adequacy of training on integrating play ($M = 3.41$, $SD = 1.34$). The higher variability on these items suggests unequal access to resources and professional development across centres. These structural constraints are consistent with evidence from emergency education literature, which emphasizes that learner-centred pedagogy requires sustained investment in teacher capacity and instructional materials (Dryden-Peterson, 2016; INEE, 2010).

Confirmatory Factor Analysis of Play Integration

To examine the coherence of play integration as a construct and given the modest sample size ($n = 27$) a confirmatory factor analysis (CFA) was conducted using a one-factor model comprising seven indicators (INT1–INT7). As shown in Table 2, standardized factor loadings ranged from 0.25 to 0.46, with the strongest contributions from perceived effectiveness of play-based learning ($\lambda = 0.46$) and teacher confidence ($\lambda = 0.45$). These findings indicate that pedagogical efficacy and teacher self-efficacy are central dimensions of play integration as shown in Table 2.

Table 2: Standardized Factor Loadings for Play Integration Construct Indicator

	Indicator	Standardized Loading
INT1:	Frequent use of play-based activities	0.33
INT2:	Integration of play into curriculum delivery	0.37
INT3:	Curriculum support for play	0.25
INT4:	Teacher confidence using play	0.45
INT5:	Availability of play materials	0.40
INT6:	Adequacy of training	0.35
INT7:	Effectiveness of play-based learning	0.46

Moderate loadings for training adequacy, material availability, and curriculum integration reflect enabling conditions rather than defining characteristics of play integration. The lower loading for curriculum support ($\lambda = 0.25$) suggests that while policy alignment is widely acknowledged, it contributes less to explaining variation in actual classroom practice. The model demonstrated good internal consistency (Cronbach's $\alpha = 0.82$) and accounted for 51.8% of total variance, providing evidence of convergent validity and structural coherence. These results confirm that play-based strategies are systematically integrated into ECDE curricula in Kakuma, consistent with findings from comparable low-resource contexts (Sitorus et al., 2025).

Play-Based Strategies Utilized

Teachers reported frequent use of diverse play-based activities, as shown in Table 3. Singing and music activities recorded the highest mean ($M = 4.89$, $SD = 0.42$), reflecting their accessibility, cultural relevance, and effectiveness in supporting language development, memory, and classroom routines. Music-based learning has been shown to enhance engagement and support early numeracy and literacy development, particularly in multilingual contexts (Kemma, 2020 & Kemma, 2020). Table 3 presents the frequency distributions, means, and standard deviations for each activity type.

Table 3: Frequency Distribution, Means, and Standard Deviations of Play-Based Activities (N = 27)

Play-Based Activity	Never	Rarely	Sometimes	Often	Always	M	SD
Storytelling (oral stories, picture books, cultural tales)	0	1	7	5	14	4.19	0.96
Singing and Music (counting, alphabet, routines)	0	0	1	1	25	4.89	0.42
Role Play (e.g., doctors, shopkeepers, parents)	0	1	15	4	7	3.63	0.93
Games (matching, sorting number or word games)	0	0	4	7	16	4.44	0.75
Building Blocks / Construction Play	0	0	7	9	11	4.15	0.82
Puppetry (handmade or sock puppets)	3	4	16	2	2	2.85	0.99
Dramatization (acting out stories or routines)	0	4	8	6	9	3.74	1.10
Art-Based Play (drawing, coloring, modelling)	0	0	2	5	20	4.67	0.62
Outdoor Play With Learning Purpose	0	1	10	12	4	3.70	0.78

Art-based play ($M = 4.67$, $SD = 0.62$) and structured games such as matching and sorting ($M = 4.44$, $SD = 0.75$) were also highly utilized. These activities support creativity, imagination, critical thinking, and problem-solving, aligning closely with CBE core competencies. Research demonstrates that arts integration strengthens higher-order thinking and learner motivation in early childhood settings (Samira & Extension Kiu Publication, 2024).

Storytelling ($M = 4.19$, $SD = 0.96$) and construction play ($M = 4.15$, $SD = 0.82$) were commonly employed to support language development, cultural transmission, and hands-on problem-solving. Moderate use was reported for dramatization ($M = 3.74$) and outdoor play with learning purposes ($M = 3.70$), likely reflecting constraints related to space, supervision, and safety. Puppetry recorded the lowest mean ($M = 2.85$, $SD = 0.99$), suggesting limited materials or training, despite its documented effectiveness in supporting emotional expression and communication among young children (Barton & Ledford, 2018).

CFA of Play-Based Teaching and Learning Strategies

To assess whether the observed play practices formed a coherent construct a CFA examining nine play-based strategies (TYPE1–TYPE9) was utilized and it demonstrated moderate convergence, with standardized loadings ranging from 0.38 to 0.73 as shown in table 4.

Table 4: Standardized Factor Loadings for Play-Based Teaching and Learning Strategies

	Construct	Standardized Loading
TYPE1	Storytelling (oral stories, picture books, cultural tales)	0.56
TYPE2	Singing and Music (counting, alphabet, routines)	0.55
TYPE3	Role Play (e.g., doctors, shopkeepers, parents)	0.61
TYPE4	Games (matching, sorting, number or word games)	0.56
TYPE5	Building Blocks / Construction Play	0.72
TYPE6	Puppetry (handmade or sock puppets)	0.38
TYPE7	Dramatization (acting out stories or routines)	0.73
TYPE8	Art-Based Play (drawing, colouring, modelling)	0.66
TYPE9	Outdoor Play with Learning Purpose	0.56

Construction play, dramatization, and art-based play exhibited the strongest contributions, while puppetry showed weaker loading due to contextual constraints rather than pedagogical irrelevance. The composite reliability (CR = 0.86) indicates that the strategies form a reliable implementation index, supporting their aggregation for policy and programmatic analysis (Stevens et al., 2023).

Synthesis of Quantitative and Qualitative Evidence

The qualitative themes converge strongly with the quantitative results presented earlier. Table 5 summarizes the frequency with which different play activities were identified as effective in supporting children's learning.

Table 5: Types of Play Activities Supporting Children's Learning (N = 28)

Play Activity	Frequency (f)	Percentage (%)
Outdoor and physical play	18	64.3
Music, singing, and movement	16	57.1
Creative arts (drawing, modelling, painting)	14	50.0
Role plays and drama	13	46.4
Manipulative and construction play	9	32.1
Storytelling and symbolic play	7	25.0

The table results show that outdoor and physical play, music and singing, and creative arts were the most frequently reported activities. The gradual decline across other categories suggests that while teachers employ a range of play-based strategies, some activities may be constrained by time, space, or resource availability. Overall, the findings demonstrate that diverse forms of play contribute meaningfully to children's learning by supporting engagement, expression, social interaction, and holistic development in line with CBE principles

Adaptation of Play-Based Activities for Diverse Learners

Teachers' responses to the open-ended question on how play-based activities are adapted to meet the needs of learners from diverse backgrounds in refugee settings were analyzed thematically. The analysis revealed six interrelated themes reflecting linguistic, cultural, pedagogical, and social adaptation strategies aimed at ensuring inclusive participation and meaningful learning.

First, teachers emphasized the use of familiar and inclusive languages that is mother tongue, Kiswahili, English, and local languages combined with gestures and songs to reduce linguistic barriers and enhance participation, noting that *"all learning songs are taught in languages that are well understood by most learners"*. This approach strengthens communication and collaboration competencies as underscored by UNESCO, (2019).

Second, inclusive grouping and peer interaction were used to promote social cohesion and citizenship, as *"mixing children from different nationality helps them learn from each other"* This was reinforced by UNHCR, (2022). Third, culturally responsive play through dances, stories, and role-play ensured representation and nurtured creativity and imagination. Fourth, learner-centered and interest-based approaches empowered self-efficacy by allowing choice and flexible roles, with teachers observing that *"by looking at what learners like most... play becomes easier and more enjoyable"* has also opined by Cheruiyot, (2023).

Additionally, teachers prioritized safe and supportive environments to encourage emotional expression and peaceful coexistence. Finally, effective adaptation depended on teacher preparation, early planning, and professional skills, reflecting the Competency Based Education (CBE) of learning to learn. Overall, the findings highlight play-based learning as a flexible, inclusive pedagogy well-suited to culturally and linguistically diverse refugee contexts.

Psychosocial Outcomes of Play-Based Learning

Objective two of the study sort to assess the influence of play activities on the psychosocial and cognitive development of children in Kakuma ECDE Refugee Learning Centres. Descriptive statistics presented in Table 6 indicate strong endorsement of the psychosocial and cognitive benefits of play-based learning. Mean scores across all nine indicators exceeded 4.18, reflecting consistent agreement that play supports peer relationships, emotional expression, resilience, concentration, problem-solving, language development, memory, and independent thinking. The psychosocial outcomes measured in this study (PSYCHO1–PSYCHO9) in Table 10 capture key social, emotional, and cognitive dimensions of children's development supported through play-based learning.

Table 6: Frequency Distribution, Means, and Standard Deviations of Psychosocial Outcomes of Play-Based Learning (N = 27)

Code	Psychosocial Outcome Item	SDA	DA	N	A	SA	M	SD
PSYCHO1	Play activities help children build positive relationships with their peers	2	0	0	0	25	4.70	1.07
PSYCHO2	Play helps children express their emotions more freely	2	0	0	2	23	4.63	1.08
PSYCHO3	Play helps children cope with emotional stress and trauma related to their refugee experience	1	0	0	7	19	4.59	0.84
PSYCHO4	Play activities contribute to emotional stability and positive behavior in children	1	0	0	8	18	4.56	0.85
PSYCHO5	Children develop confidence and independence through play	1	0	0	9	17	4.52	0.85
PSYCHO6	Play activities improve children's ability to concentrate and stay focused	1	0	0	7	19	4.59	0.84
PSYCHO7	Structured play enhances children's problem-solving skills	1	0	0	9	17	4.52	0.85
PSYCHO8	Regular play improves children's language and communication skills	1	0	0	18	8	4.19	0.79
PSYCHO9	Play supports the development of memory and independent thinking among children	1	0	0	8	18	4.56	0.85

The highest mean score was recorded for peer relationships ($M = 4.70$), underscoring the role of play in fostering social connectedness and cooperation. High scores for emotional expression and coping with stress (PSYCHO2 and PSYCHO3) highlight the protective psychosocial function of play in refugee contexts, consistent with SEL frameworks and trauma-informed pedagogy (CASEL, 2020; Miller & Rasco, 2004).

Confirmatory Factor Analysis of Psychosocial Outcomes

CFA results presented in Table 7 confirm a strong unidimensional psychosocial outcomes construct. Standardized loadings ranged from 0.69 to 0.93, with high reliability ($CR = 0.96$; $\alpha = 0.95$) and substantial variance explained (74.53%) as shown in Table 7.

Table 7: Standardized CFA Results for the Psychosocial Outcomes Construct (PSYCHO1–PSYCHO9)

Item	Psychosocial Outcomes Indicators	Standardized Factor Loading
PSYCHO1:	Peer relationships	0.69
PSYCHO2:	Emotional expression	0.72
PSYCHO3:	Coping with stress and trauma	0.92
PSYCHO4:	Emotional stability and behaviour	0.88
PSYCHO5:	Confidence and independence	0.92
PSYCHO6:	Concentration and focus	0.90
PSYCHO7:	Problem-solving skills	0.90
PSYCHO8:	Language and communication	0.87
PSYCHO9:	Memory and independent thinking	0.93
	Variance explained by latent construct	74.53%
	Composite Reliability (CR)	0.96
	Average Variance Extracted (AVE)	0.74
	Cronbach's α	0.951

These results validate the use of a single latent construct capturing integrated social, emotional, and cognitive development, reinforcing the theoretical coherence of play-based learning as a holistic pedagogical approach (Cheruiyot,2023).

Head Teachers' Perspectives

Interviews with Heads of Institutions (HOIs) revealed strong consensus that play-based learning enhances both psychosocial wellbeing and cognitive development among learners in Kakuma ECDE refugee learning centres. All HOIs reported positive psychosocial outcomes, with confidence and self-esteem identified as the most dominant benefits. Through structured and free play, learners were observed to express themselves more freely, participate actively, and interact confidently with peers. Emotional expression and regulation were also emphasized, as play provides a safe space for children to express feelings and develop emotional stability. As one HOI stated, *'Play activities boost confidence, encourage self-expression, and improve positive behaviour among learners.'* Social interaction and relationship building further emerged as critical outcomes, with play fostering cooperation, teamwork, and peaceful coexistence in the multicultural refugee context. However, a minority of HOIs noted that inadequate play materials can undermine these benefits, highlighting the need for sustained institutional support.

Cognitively, play-based learning was consistently associated with improved memory retention, problem-solving, and critical thinking skills. HOIs reported that learners retain concepts longer when instruction is delivered through games, songs, and interactive activities. Play-based tasks such as group games, puzzles, and role play were described as stimulating reasoning, planning, and decision making. Language and communication development also featured prominently, as play encourages peer interaction, vocabulary growth, and communication across diverse linguistic backgrounds. This was summarized by one respondent who noted that *"Play helps children think critically, remember concepts better, solve problems creatively, and develop stronger language skills."* Overall, findings affirm play-based learning as a holistic, learner-

centered approach that simultaneously supports emotional wellbeing and cognitive engagement of learners and addressing their complex developmental needs in refugee contexts (UNICEF, 2023).

Observation Schedule Findings

Observations took place in N = 11 ECDE centres using a checklist that recorded good social behaviours (like working together, showing feelings, taking turns), difficult social behaviours (like fighting or keeping to themselves), and signs of thinking skills (like attention, memory, solving problems, and sticking with tasks). Each item was scored based on how often it happened or how well it was done. This allowed for summary numbers and overall scores for each centre. Observation data presented indicated high levels of positive psychosocial behaviour and competent cognitive engagement across ECDE centres. Negative behaviours were generally infrequent, while composite indices showed favorable overall psychosocial ($M = 2.23$) and cognitive development ($M = 2.05$) outcomes. These findings provide direct behavioural evidence that complements self-reported perceptions as shown in table 8, 9, 10 and 11 measured in the stated scale below.

Table 8: Positive Psychosocial Profile Indicators (Items 1–6)

Indicator	0	1	2	3	Mean	SD
Shares toys with peers voluntarily	0	3	4	4	2.09	0.83
Joins group activities without being prompted	0	1	3	7	2.55	0.69
Expresses feelings in appropriate ways	0	4	3	4	2.00	0.89
Helps other children during play	0	1	9	1	2.00	0.45
Waits for turn during games	0	0	3	8	2.73	0.47
Follows play rules in group settings	0	2	5	4	2.27	0.65

All positive psychosocial indicators recorded mean scores of at least 2.00, indicating that positive behaviours were observed *often to always* across most ECDE centre while negative psychosocial behaviours were generally infrequent, with mean scores close to 1.0, indicating that these behaviours occurred only *sometimes* in most ECDE centres as shown in table 9.

Scale: 0 = Never, 1 = Sometimes, 2 = Often, 3 = Always

Table 9: Negative Psychosocial Indicators (Items 7–10)

Indicator	0	1	2	3	Mean	SD
Hits or pushes other children	0	10	1	0	1.09	0.30
Refuses to share or cooperate	0	3	7	1	1.82	0.60
Becomes aggressive when upset	0	9	2	0	1.18	0.40
Withdraw from play or peer interactions	0	7	4	0	1.36	0.50

The descriptive statistics on cognitive development indicated generally moderate to high levels of cognitive development, with learners demonstrating strongest performance in sustaining focus on activities ($M = 2.55$, $SD = 0.52$) and remembering short sequences of instructions ($M = 2.45$, $SD = 0.69$), suggesting that play-based activities effectively support attention and working memory as shown in table 10

Scale: 0 = Not observed, 1 = Emerging, 2 = Competent, 3 = Masters

Table 10: Cognitive Development Indicators (Items 11–16)

Indicator	0	1	2	3	Mean	SD
Remember short sequences of instructions	0	1	4	6	2.45	0.69
Shows logical reasoning and understanding of the play task	0	1	10	0	1.91	0.30
Try to complete the given task	0	0	9	2	2.18	0.40
Engages in problem-solving during play	0	4	7	0	1.64	0.50
Sustains focus on the activity	0	0	5	6	2.55	0.52
Ask questions during play	0	9	1	1	1.27	0.65

In contrast, lower mean scores for asking questions ($M = 1.27$, $SD = 0.65$) and problem-solving during play ($M = 1.64$, $SD = 0.50$) indicate emerging higher-order cognitive engagement, highlighting the need for more intentionally scaffolded play experiences to promote inquiry and independent problem-solving (Pyle et al., 2022). The composite indices in table 11 indicated generally favorable developmental outcomes across ECDE centers.

Table 11: Summary Statistics for Composite Psychosocial and Cognitive Indices ($N = 11$)

Composite Index	Minimum	Maximum	Mean	SD
Positive Psychosocial Index (PPI)	1.33	3.00	2.37	0.54
Negative Psychosocial Index (Reversed) (NEGr)	1.00	2.00	1.78	0.32
Overall Psychosocial Profile (OPP)	1.56	2.80	2.23	0.41
Cognitive Development Index (CDI)	1.50	2.67	2.05	0.45

The Overall Psychosocial Profile demonstrated relatively low variability across centres, while the Cognitive Development Index reflected competent levels of cognitive engagement in most ECDE settings.

Play Exposure, Psychosocial Profiles, and Cognitive Development in ECDE Centres

This section examined differences in psychosocial and cognitive development outcomes across ECDE centres based on play frequency, play duration, and type of play exposure. Analyses were conducted at the ECDE centre level ($N = 11$) using aggregated observation scores and presented as in Table 16,17 and 18. Positive Psychosocial Index (PPI), Reversed Negative Psychosocial Index (NEGr), and Cognitive Development Index (CDI) were computed on a common 0–3 scale, where higher scores indicate more favourable outcomes. Given the small sample size and ordinal nature of the data, non-parametric Kruskal–Wallis tests were used to compare group differences. Descriptive analyses indicated that centres offering more frequent, longer, and more diverse play opportunities tended to record higher psychosocial and cognitive scores. Although differences were not statistically significant due to small sample size, consistent patterns suggest that play diversity and duration may be more influential than frequency alone, supporting constructivist and socio-cultural theories of learning (Piaget, 1962; Vygotsky, 1978). Table 12,13 and 14 presents the mean psychosocial and cognitive scores by play frequency category; mean psychosocial and Cognitive scores by play duration and summarized mean for psychosocial and cognitive scores by type of play exposure.

Table 12: Mean Psychosocial and Cognitive Scores by Play Frequency

Play Frequency	N	PPI (Mean)	NEG _r (Mean)	CDI (Mean)
1–2 times/week	4	2.04	1.81	2.00
3–4 times/week	3	2.33	1.50	2.08
5+ times/week	4	2.43	1.55	1.97

Table 13: Mean Psychosocial and Cognitive Scores by Play Duration

Play Duration	N	PPI (Mean)	NEG _r (Mean)	CDI (Mean)
15–30 minutes	9	2.23	1.68	1.97
30–60 minutes	2	2.67	1.25	2.33

Table 14: Mean Scores by Type of Play Exposure

Play Type	PPI _{Obs}	PPI _{Not}	NEG _{rObs}	NEG _{rNot}	CDI _{Obs}	CDI _{Not}
Physical	2.30	2.04	1.64	1.81	2.03	2.00
Symbolic	2.42	2.18	1.58	1.74	2.17	1.96
Constructive	2.33	2.17	1.71	1.63	2.07	1.98
Creative	2.31	2.22	1.69	1.66	2.09	1.96
Group	2.36	2.12	1.61	1.78	2.15	1.92

The findings demonstrate that play exposure is meaningfully associated with psychosocial and cognitive development in ECDE centres, with positive psychosocial outcomes showing the strongest and most consistent relationship. These results support constructivist and socio-cultural theories of early childhood development. From a Piagetian perspective, constructive and symbolic play facilitate cognitive processes such as problem-solving, reasoning, and conceptual understanding (Piaget, 1962). Similarly, Vygotsky's socio-cultural theory emphasizes the role of social interaction and language in development, which is reflected in the stronger psychosocial outcomes observed in centres offering group and symbolic play opportunities (Vygotsky, 1978).

Triangulation of Psychosocial and Cognitive Development Outcomes

To strengthen credibility, findings were triangulated across teachers' surveys, confirmatory factor and structural modelling, classroom observations, and Head Teachers' interviews, providing convergent evidence on the role of play-based learning in psychosocial and cognitive development in Kakuma ECDE refugee centres. Survey results showed strong endorsement of play-based learning, with high mean scores across nine psychosocial and cognitive indicators, including confidence, emotional regulation, peer relations, attention, problem-solving, language, memory, and independent thinking. Confirmatory factor analysis reinforced these patterns, demonstrating strong indicator loadings, high composite reliability, and substantial variance explained, indicating a coherent and integrated developmental construct.

Classroom observations corroborate survey findings through direct behavioural evidence. Positive psychosocial behaviours such as cooperation, sharing, turn-taking, emotional expression, and rule adherence were frequently observed, while negative behaviours were rare. Observed cognitive outcomes

similarly reflected competent levels of memory, sustained attention, task completion, and problem-solving during play, reducing the likelihood that survey results reflected perceptual bias.

Head Teachers' interviews added contextual depth and validation. All reported improvements in learners' confidence, wellbeing, social interaction, engagement, memory, critical thinking, and language development, aligning closely with quantitative and observational results. They also identified structural constraints, including limited play materials, overcrowding, and restricted space, which help explain variations in play.

Success Stories and Positive Outcomes of Play-Based Teaching

Teachers' success stories indicate that play-based teaching significantly enhances learners' emotional wellbeing, social development, communication skills, and engagement with school. These outcomes reflect the holistic aims of Social and Emotional Learning (SEL) and align with Kenya's Competency-Based Education (CBE), which emphasizes learner-centered, inclusive, and experiential pedagogies that nurture confident, socially responsible learners.

A key outcome was improved emotional regulation and stress management. Teachers consistently reported that play created emotionally safe spaces where learners could cope with stress and regulate emotions effectively, reflecting the SEL competencies of self-awareness and self-management (CASEL, 2020). This supports evidence that play serves as a psychosocial support mechanism in crisis and displacement contexts (UNESCO, 2019). As one teacher observed, *"We have seen learners who can now manage their own stress through the help of play activities."*

Improved confidence, courage, and self-expression also emerged strongly. Teachers described learners who were previously withdrawn becoming more expressive and participatory through art, role play, storytelling, and music. These changes align with CBE competencies such as communication, creativity, and self-efficacy, while reflecting positive identity development within SEL frameworks. One teacher shared, *"I have one learner that was always sitting alone and quiet all the time. After using art and play in teaching, the learner can now speak at the top of her voice."*

The findings further highlight enhanced social interaction, cooperation, and relationship-building. Group play promoted sharing, unity, respect, and peaceful coexistence, consistent with CASEL's social awareness and relationship skills and INEE's emphasis on peer interaction in emergency education (INEE, 2016). Teachers noted that *"The learners can interact among one another, show love and unity, and cooperate while playing together."*

Play-based strategies also strengthened communication and language development, particularly through songs, poetry, drama, and storytelling, supporting inclusive learning in linguistically diverse classrooms (UNESCO, 2020). Increased motivation, attendance, motor skills, creativity, and memory retention further demonstrate that play-based teaching is a transformative psychosocial and pedagogical approach that advances CBE and SEL goals in refugee contexts (CASEL, 2020; UNESCO, 2019; INEE, 2016).

Challenges Faced by Teachers in Implementing Play-Based Learning Strategies in Kakuma ECDE Refugee Learning Centres

Based on objective four, this study sought to identify the challenges faced by teachers in implementing play-based learning strategies in Kakuma ECDE refugee learning centres. Evidence drawn from quantitative survey data, Head Teachers' interviews, and open-ended teacher responses indicate that these challenges are largely structural, systemic, and resource-related, rather than arising from negative teacher attitudes or lack of pedagogical commitment.

Quantitative findings presented in Table 19 demonstrate that the most severe challenges were inadequate play and learning materials (CHAL1) and overcrowded classrooms (CHAL9), both recording the highest mean scores ($M = 4.33$) as shown in table 15:

Table 15: Frequency Distribution, Means, and Standard Deviations of Challenges in Implementing Play-Based Learning ($N = 27$)

Code	Challenge Item	SDA	DA	N	A	SA	M	SD
CHAL1	Inadequate play and learning materials	2	0	0	10	15	4.33	1.07
CHAL2	Large class sizes	6	2	1	7	11	3.56	1.63
CHAL3	Limited space for play activities	4	8	0	3	12	3.41	1.65
CHAL4	Insufficient time in the school timetable	5	5	2	5	10	3.37	1.60
CHAL5	Limited teacher training on play-based pedagogy	2	10	3	6	6	3.15	1.35
CHAL6	Language barriers and learner diversity	8	4	1	10	4	2.93	1.54
CHAL7	Managing learner behaviour during play	9	6	3	7	2	2.52	1.40
CHAL8	Lack of administrative support	3	8	1	6	9	3.37	1.50
CHAL9	Overcrowded classrooms	0	2	2	8	15	4.33	0.92
CHAL10	Limited parental/ community support	2	6	1	11	7	3.56	1.31

More than half of the teachers strongly agreed that these constraints significantly limit the effective use of play-based strategies. The relatively low standard deviations suggest strong consensus among respondents, reflecting shared experiences across ECDE centres. These findings are consistent with education-in-emergencies literature, which identifies material shortages and overcrowding as persistent barriers to child-centred pedagogies in refugee settings (INEE, 2016; UNESCO, 2019).

Large class sizes (CHAL2) and limited parental or community support (CHAL10) also emerged as major challenges, each with a mean score of $M = 3.56$. Teachers indicated that large enrolments make it difficult to supervise learners during play, ensure safety, and provide individualized psychosocial support. Similarly, limited parental understanding of the value of play was perceived as reducing reinforcement of play-based learning beyond the classroom. As one teacher explained, *"The key challenge is having inadequate materials for all learners, making it difficult to use play-based strategies."* Research suggests that parental perceptions of play as non-academic can undermine its consistent implementation, particularly in marginalized communities (Wood & Bennett, 2014).

Moderate challenges were identified in relation to limited physical space, insufficient time in the school timetable, and lack of administrative support, each recording mean scores around $M = 3.37$. Teachers

reported that constrained infrastructure, rigid schedules, and competing curriculum demands limited opportunities for extended or outdoor play. The variability in responses indicates differences in school infrastructure and leadership support. Studies show that institutional leadership plays a critical role in enabling learner-centred pedagogies by prioritizing time, space, and resources for play (Siraj-Blatchford et al., 2016).

Teacher capacity-related challenges were present but comparatively less pronounced. Limited training on play-based pedagogy (CHAL5) recorded a mean score of $M = 3.15$, while language barriers and learner diversity (CHAL6) recorded a lower mean score of $M = 2.93$. These findings suggest that although professional development gaps and multilingual classroom dynamics pose challenges, many teachers have developed adaptive strategies to support diverse learners. Notably, managing learner behaviour during play (CHAL7) was the least severe challenge ($M = 2.52$), with a majority of teachers disagreeing that behaviour management significantly hindered implementation. This indicates that teachers generally possess adequate classroom management skills and confidence in facilitating play-based activities.

Qualitative findings from Head Teachers' interviews strongly triangulated the quantitative results. Inadequate play and learning materials were identified by 10 out of 11 Heads of Institutions as the most dominant constraint. Head Teachers emphasized that shortages of basic resources such as balls, skipping ropes, hula hoops, and kites limit learner participation and the variety of play experiences. One Head Teacher stated, *"There's no enough materials in schools for playing."* Another added, *"Lack of learning and playing materials like hula hoops, skipping ropes, and kites is a major challenge."*

Overcrowding and large class sizes were also widely reported, with Head Teachers highlighting difficulties in supervision, individualized support, and identifying learners with psychosocial needs. As one respondent observed, *"Overcrowded classes make it hard for teachers to identify learners who have undergone challenges back home."* Limited physical space, environmental constraints such as flooding, insufficient teacher training, language barriers, and low learner motivation were additional challenges reported.

Teachers' open-ended responses regarding the support required to implement play-based strategies further reinforced these findings. Adequate play and learning materials were the most frequently cited need (78.6%), followed by teacher training (67.9%). Teachers emphasized that materials and training are interdependent, noting that the absence of either reduces the effectiveness of play-based learning. One teacher explained, *"The more the materials are available, the more the learning will be easier, and learners develop positive emotions as they play together."* Administrative support, safe play spaces, reduced class sizes, and additional learning support personnel were also identified as enabling conditions.

To synthesize the qualitative themes identified above, a summary extraction of the support needs and their relative prominence is presented in Table 16. These summaries illustrate the distribution of support needs across the sample.

Table 16: Support Required to Enhance Play-Based Teaching (N = 28)

Support Required	Frequency	Percentage
Adequate play and learning materials	22	78.6
Teacher training	19	67.9
Administrative support	9	32.1
Adequate play spaces	8	28.6
Reduced class size	6	21.4
Learning support personnel	5	17.9
Lesson preparation support	4	14.3

Overall, the findings demonstrate that challenges to implementing play-based learning in Kakuma ECDE refugee learning centres are predominantly systemic rather than teacher-related. Teachers and school leaders largely value play-based pedagogy and demonstrate willingness and capacity to implement it, but operate within severely constrained environments. These results provide a strong empirical foundation for Objective 4, which focuses on policy initiatives to promote and sustain play-based learning.

Policy Recommendations for Promoting and Sustaining Play-Based Learning Strategies in Kakuma ECDE Refugee Learning Centres

Objective 4 sought to develop evidence-based policy recommendations for promoting and sustaining play-based learning strategies in Kakuma ECDE refugee learning centres. Drawing on findings from Objectives 1, 2, and 3, this study developed evidence-based policy recommendations for promoting and sustaining play-based learning in Kakuma ECDE refugee learning centres. The evidence demonstrates that play-based learning is pedagogically effective, psychosocially beneficial, and well aligned with Kenya's Competency-Based Education (CBE), yet constrained by structural and institutional barriers that require coordinated policy intervention.

First, the study underscores the need to institutionalize play-based learning within ECDE curriculum implementation frameworks. Although play-based strategies are widely used, implementation remains inconsistent and largely dependent on individual teacher initiative. Policy action by the Ministry of Education (MoE) and the Kenya Institute of Curriculum Development (KICD) should strengthen curriculum support materials by providing explicit guidance on mapping different forms of play such as music, storytelling, games, creative arts, and construction play to CBE competencies. Teacher guides should include structured lesson exemplars, guidance on balancing structured and unstructured play, and assessment approaches that recognize learning through play (Government of Kenya, 2017; KICD, 2019).

Second, given the strong evidence of psychosocial and cognitive benefits, policy should explicitly position play-based learning as both a pedagogical and psychosocial support strategy. The study found improvements in emotional regulation, peer relationships, confidence, communication, and coping with trauma, aligning closely with Social and Emotional Learning (SEL) frameworks. Integrating play-based approaches into early childhood psychosocial support initiatives would strengthen learner wellbeing and resilience in refugee contexts (CASEL, 2020; INEE, 2016).

Third, the study highlights the urgent need for targeted investment in resources and infrastructure. Inadequate materials and overcrowded classrooms were the most severe barriers identified. Policy

interventions should prioritize the provision of low-cost, locally sourced, and reusable play materials appropriate for refugee settings. Improving learning environments through classroom expansion, safe outdoor play spaces, and flexible or temporary learning structures is essential in high-enrolment contexts (UNESCO, 2019). These interventions operationalize SDG 4.a and align with the Kenya Education Sector Plan (KESP).

Fourth, sustaining play-based learning requires strengthened teacher professional development and institutional support. Continuous professional development should focus on practical play-based pedagogy in overcrowded classrooms, improvisation of materials, classroom management during play, and integration of play into daily routines. Teachers themselves emphasized this need, with one stating, *“Attending training will help me gain knowledge and skills to help learners develop positive emotions and thinking as they play together.”* At the institutional level, school administrators should support play-based learning through flexible timetabling, supervision, and provision of enabling conditions.

Finally, the study highlights the importance of parental and community engagement. Limited parental support emerged as a notable barrier, indicating the need for community sensitization programs that build shared understanding of the educational and psychosocial value of play. Strengthening school community partnerships can enhance sustainability, local resource mobilization, and learner engagement, consistent with SDG 4.7 and KESP priorities.

Conclusion

The study concludes that pre-school curriculum integrates and supports play as a key teaching and learning strategy in Kakuma ECDE refugee centres. Secondly, play-based learning enhances both psychosocial wellbeing and cognitive development among learners. Thirdly play based learning is compounded by myriads of challenges ranging from capacity building, inadequate materials, limited space, lack of administrative support, retrogressive cultural practices among others. Finally play based pedagogy is effective and contextually appropriate but requires coordinated policy action across curriculum guidance, psychosocial support, resources, infrastructure, teacher development, and community engagement. Fourthly, at policy level sustaining play-based learning in Kakuma ECDE refugee learning centres requires coordinated, system-wide policy interventions addressing curriculum guidance, psychosocial support, resources, infrastructure, teacher development, and community engagement. Finally, aligning national policies with international education-in-emergencies standards offers a coherent pathway for delivering inclusive, equitable, and high-quality early childhood education in fragile contexts.

Acknowledgement

The authors appreciate Education Sub Saharan Africa (ESSA) and the Research for Equitable Access and Learning (REAL) Centre at the University of Cambridge and Conrad N. Hilton Foundation for having sponsored this study as a grant award in June 2025. The call was purposed to enhance ECD outcomes in Kenya arising from need for evidence-based policies that are locally relevant and contextually grounded. The award amount for this grant was USD15,000

References

- Amberson, M. M. (2023). *A case study: Elementary teachers' perceptions of play-based learning* [Unpublished doctoral dissertation]. Baylor University.
- Baker, S. T., Le Courtois, S., & Eberhart, J. (2023). Making space for children's agency with playful learning. *International Journal of Early Years Education*, 31(2), 372–384. <https://doi.org/10.1080/09669760.2021.1997726>
- Barton, E. E., & Ledford, J. R. (2018). Teaching social communication skills using puppetry. *Young Exceptional Children*, 21(1), 23–36.
- CASEL. (2020). What is social and emotional learning (SEL)? Collaborative for Academic, Social, and Emotional Learning.
- Cheruiyot, C. (2023). *Play-based learning and inclusive pedagogy in early childhood education*. Kenyatta University Press.
- Cheruiyot, J. K. (2023). Teacher use of play-based learning strategies and early literacy development in Kenyan ECDE centres. *Journal of Early Childhood Education*, 11(2), 45–60.
- Dahlberg, G., Moss, P., & Pence, A. (2013). *Beyond quality in early childhood education and care: Languages of evaluation* (3rd ed.). Routledge.
- Daubert, E., Geetha, R., & Rubin, K. (2018). Play-based learning and social development.
- Dryden-Peterson, S. (2016). Refugee education: The crossroads of globalization. *Educational Researcher*, 45(9), 473–482.
- Ghosh, U. (2024). The role of play-based learning in enhancing cognitive and emotional development in early childhood. *International Journal for Multidisciplinary Research*, 6(6).
- Ginsburg, K. R. (2007). The importance of play in promoting healthy child development and maintaining strong parent-child bonds. *Pediatrics*, 119(1), 182–191.
- Government of Kenya. (2016). *National Early Childhood Development Policy*. Ministry of Education.
- Government of Kenya. (2017). *Competency-Based Curriculum Framework*. Ministry of Education.
- INEE. (2010). *Minimum standards for education in emergencies*. Inter-Agency Network for Education in Emergencies.
- INEE. (2016). *Minimum standards for education: Preparedness, response, recovery*. Inter-Agency Network for Education in Emergencies.
- INEE. (2016). *Psychosocial support and social-emotional learning*. INEE.
- INEE. (2018). *Minimum standards for education: Preparedness, response, recovery*. Inter-Agency Network for Education in Emergencies.

Kabiru, M., Njenga, A., & Wanjiku, E. (2020). *Foundations of early childhood education in Kenya*. Longhorn Publishers.

Kampen, M. (2021, July 21). Understanding play-based learning and its impact on education.

Katz, L. G. (2015). *Engaging children's minds: The project approach* (3rd ed.). Greenwood Publishing Group.

Kemma, A. (2020). The use of music and songs in developing the four skills. *International Journal of English Literature and Social Sciences*, 5(4).

Kemma, J. (2020). Songs as instructional tools in early childhood classrooms. *Early Childhood Education Journal*, 48(3), 345–357.

Kenya Institute of Curriculum Development. (2017). *Basic education curriculum framework*. KICD.

Kenya Institute of Curriculum Development. (2019). *Early Childhood Development Education syllabus*. KICD.

Miller, K. E., & Rasco, L. M. (Eds.). (2004). *The mental health of refugees: Ecological approaches to healing and adaptation*. Lawrence Erlbaum.

Ministry of Education Science and Technology. (2005). *Kenya Education Sector Support Programme (KESSP 2005–2010): Strategic plan for the development of school infrastructure*. MOEST.

Mugo, J. K., Mutisya, M., & Otieno, L. (2022). Inclusive play-based learning practices in low-resource early childhood settings in Kenya. *African Journal of Educational Studies*, 14(1), 88–104.

OECD. (2017). *Starting strong 2017: Key OECD indicators on early childhood education and care*. OECD Publishing.

Phajane, M. H. (2019). Play as a medium for learning: Overwhelming challenges for early childhood teachers. *Gender and Behaviour*, 17(4), 13962–13969.

Piaget, J. (1962). *Play, dreams and imitation in childhood*. Norton.

Pyle, A., & Bigelow, A. (2015). Play in kindergarten: An interview and observational study in three Canadian classrooms. *Early Childhood Education Journal*, 43(5), 385–393. <https://doi.org/10.1007/s10643-014-0666-1>

Pyle, A., & Danniels, E. (2017). A continuum of play-based learning: The role of the teacher in play-based pedagogy and the fear of hijacking play. *Early Education and Development*, 28(3), 274–289. <https://doi.org/10.1080/10409289.2016.1220771>

Pyle, A., DeLuca, C., & Danniels, E. (2022). A scoping review of research on play-based pedagogies in early childhood education. *Review of Education*, 10(1), e3332. <https://doi.org/10.1002/rev3.3332>

Samira, M. K., & Extension, Kiu Publication. (2024). The role of arts in education: Enhancing creativity and critical thinking. *ROJE Publications*, 3(3), 66–70.

Samira, A., & Extension Kiu Publication. (2024). Arts integration and creativity in early learning. *International Journal of Early Childhood Studies*, 12(2), 45–61.

Save the Children. (2021). *Education in emergencies: Prioritizing learning for crisis-affected children*. Save the Children International.

Siraj-Blatchford, I., Sylva, K., Muttock, S., Gilden, R., & Bell, D. (2016). *Researching effective pedagogy in the early years*. DfES.

Sitorus, H., Siregar, M., & Sari, D. (2025). Play-based pedagogy in low-resource early childhood contexts. *Journal of Early Childhood Research*, 23(1), 89–105.

Stevens, K. E., Siraj, I., & Kong, K. (2023). A critical review of the research evidence on early childhood education and care in refugee contexts in low- and middle-income countries. *International Journal of Child Care and Education Policy*, 17(1), 7.

Stevens, R., Siraj, I., & Kong, K. (2023). Measuring pedagogical quality in early childhood education. *Early Education and Development*, 34(4), 512–529.

UNESCO. (2017). *Education for Sustainable Development Goals: Learning objectives*. UNESCO.

UNESCO. (2019). *Framework for inclusive education: Ensuring access and equity for all learners*. UNESCO.

UNESCO. (2019). *Global Education Monitoring Report 2019: Gender report*. UNESCO Publishing.

UNESCO. (2019). *Global Education Monitoring Report: Migration, displacement and education*. UNESCO.

UNESCO. (2019). *Learning through play: Strengthening learning through play in early childhood education*. UNESCO.

UNESCO. (2019). *Right to play: Supporting the psychological and social well-being of children*. UNESCO.

UNESCO. (2020). *Education in emergencies: Guidance for policymakers*. UNESCO.

UNESCO. (2020). *Inclusion and education: All means all*. UNESCO.

UNESCO. (2021). *Reimagining early childhood education: Play, learning, and equity*. UNESCO Publishing.

UNHCR. (2022). *Refugee education 2030: Inclusive learning strategies in displacement contexts*. UNHCR.

UNICEF. (2018). *Learning through play: Strengthening early childhood education through play-based approaches*. UNICEF.

UNICEF. (2023). *Learning through play: Strengthening learning through play in humanitarian and fragile contexts*. UNICEF.

United Nations. (2015). *Transforming our world: The 2030 Agenda for Sustainable Development*. United Nations.

Vygotsky, L. S. (1978). *Mind in society*. Harvard University Press.

Whitebread, D., & O'Sullivan, L. (2012). Play, cognition and self-regulation: What exactly are children learning when they learn through play? *Educational and Child Psychology*, 29(4), 24–34.

Wood, E., & Bennett, N. (2014). Play, learning and the early childhood curriculum. In *SAGE handbook of early childhood education* (pp. 37–53). SAGE.

Zosh, J. M., Hirsh-Pasek, K., Hopkins, E. J., Jensen, H., Liu, C., Neale, D., Solis, S. L., & Whitebread, D. (2018). Accessing the inaccessible: Redefining play as a spectrum. *Frontiers in Psychology*, 2(19).