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Quality of Early Learning Opportunities in Early Childhood Development Centres in Kiambaa Sub-County, Kenya

Joan Njoki Mong'are[1*], Nyakwara Begi[1], George Mathenge Wairungu[1]
Department of Early Childhood and Special Needs Education, Kenyatta University, Kenya
*Corresponding author email: mongarejoan347@gmail.com

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Abstract

This study evaluated the quality of early learning opportunities in Kiambaa sub-county, Kiambu County. The study was guided by Bronfenbrenner's Ecological Systems Theory and adopted a descriptive research design with a mixed-methods approach. The target population was caregivers and managers from across 18 ECDE centres. The centres were selected through stratified sampling (public and private), while participants were selected through simple random sampling. The study found the overall quality of early learning opportunities within Kiambaa sub-county to be moderate (M = 3.36; SD = 0.662). The centres were found to be efficient in the creation of gender-inclusive learning opportunities and an age-appropriate curriculum, as well as in conducting regular assessments that contribute to enhanced quality of learning. However, the study found that lower teacher-student ratios, inadequate instructional materials, limited resources for children with special needs, and inadequate physical facilities contributed to reduced learning quality. The findings indicate that while ECDE centers have made progress in curriculum implementation, gaps in resources and infrastructure persist and affect the quality of learning. The study recommends that county governments and relevant stakeholders allocate more resources to create child-friendly learning environments and deploy more teachers to enhance the quality of early learning opportunities.

Keywords: *Early childhood learning, quality of early childhood learning, early childhood learning opportunities, Kiambaa, Kiambu*

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1. Introduction

Early childhood education is a very important phase in a child's holistic growth. Globally, many countries have made substantial progress in access to early learning opportunities. Despite this progress, differences in education quality and opportunities persist (Davis & Elliott, 2023). According to Davis and Elliott (2023), these differences stem from factors such as teacher-student ratios, learning resources, and quality assurance mechanisms. Across Africa, access to early learning opportunities is affected by poor infrastructure and insufficient instructional resources. Evidence from UNICEF (2019) shows lower government spending across most African countries, typically below required international standards. This implies that most people continue to rely on the private sector for early learning opportunities. This suggests that learners, especially those from disadvantaged households, continue to experience poor-quality learning, which may not support holistic development.

In Kenya, the government has adopted several policy frameworks, such as the Basic Education Act (2013) and the National Pre-Primary Education Policy, to ensure equitable access to learning opportunities. The rollout of the Competency-Based Curriculum (CBC) in early years has further shifted the focus towards holistic, play-based, and learner-centered pedagogies. However, effective implementation of this curriculum and its associated competency-based assessments relies heavily on teacher preparedness and the availability of adequate instructional resources. Studies by Ngusa, Begi, and Ndani (2026) on teacher-related challenges in Kibwezi West highlighted that many pre-primary teachers struggle to apply competency-based assessment due to insufficient training and large class sizes, a trend that threatens the realization of quality learning outcomes. Similarly, Awili and Begi (2021) found a significant relationship between instructional leadership and CBC implementation, underscoring the need for strong administrative support.

At the same time, the Constitution of Kenya (2010) transferred early childhood learning to county governments to ensure localized support. As a result, the Kiambu County Government has taken important steps, including constructing new classrooms and recruiting teachers to improve learning quality (Mwaniki et al., 2020). Despite this progress, challenges such as limited instructional resources and inadequate infrastructure persist. The economics of early childhood education remain a critical factor, as Begi (2023) noted that insufficient financing often translates into poor physical infrastructure, low teacher morale, and inadequate learning materials. Furthermore, Rono, Begi, and Mwoma (2020) established a significant correlation between class size and pupils' acquisition of early mathematics competencies, emphasizing that overcrowded classrooms severely limit individualized attention. In Kiambaa sub-county, for instance, enrolment has grown visibly over time. However, concerns remain about whether learners receive the quality education needed to support holistic development. As a result, the focus of this study is on quality learning opportunities in early childhood development centres in Kiambaa sub-county.

1.1 Problem Statement

Kenya only allocates about 1.8 percent of its education budget to early learning (pre-primary education), which limits the infrastructure and institutional resources required to achieve quality education (Centre for Global Development, 2024). Equally, evidence from Kiambu County indicates that less than 5% of the total budget is allocated to ECDE (County Government of Kiambu, 2025). Given the region's insufficient teaching resources, evidence remains limited on whether learners have a stimulating environment and receive individualized attention and continuous assessment that contribute to quality, holistic learning opportunities. Prior empirical studies, such as those by Begi, Mwoma, and Murungi (2023) and Mwoma, Begi, and Murungi (2018), have documented severe deficiencies in the quality of physical environments and safety in preschools within informal settlements and resource-constrained areas, which directly impede child development. Additionally, Kigadi and Begi (2021) highlighted that transition challenges and inadequate literacy competencies often stem from poor foundational learning environments. Without localized empirical evidence, it would be difficult to adopt county-specific interventions to improve the quality of early learning opportunities. Therefore, this study sought to fill this gap by evaluating the quality of early learning opportunities in Kiambaa Sub-County.

1.2 Research Objectives

i. To assess the quality of early learning opportunities in ECDE centres in Kiambaa Sub-County in terms of age-appropriate curriculum implementation, continuous assessment practices, gender-inclusive participation, and safe learning environments.

ii. To evaluate the adequacy of institutional resources that influence quality early learning, including physical infrastructure, instructional materials, teacher-child ratios, indoor/outdoor play facilities, and support for children with special needs.

2. Literature Review

The study was supported by Bronfenbrenner's Ecological Systems Theory. The theory assumes that children's learning and developmental outcomes result from ongoing interactions between the child and multiple interconnected, mutually reinforcing environmental systems (Feriver et al., 2022). The theory includes five systems relevant to the current context of ECDE. First is the microsystem, considered the most important system. It includes caregivers, the classroom, other children, learning resources, and play opportunities that directly shape children's interactions in day-to-day settings (Feriver et al., 2022). In this context, teacher practices, such as those examined by Ngusa, Begi, and Ndani (2026) regarding competency-based assessment, and the instructional strategies investigated by Otwate, Begi, and Mwangi (2021), are critical microsystem factors that directly shape the quality of learning.

Second is the mesosystem, which outlines the link between different microsystems. In this context, this entails interaction between home and school environments to support learners. According to Banda et al. (2025), such collaboration reinforces the learning gains obtained in schools. Onyango, Begi, and Mugo (2024) support this locally, finding a significant relationship between parental engagement in learning activities and children's early language competencies in Busia County, indicating that strong home-school connections enhance educational quality. The third is the exosystem, which includes county government policies and practices, education funding, teacher deployment, professional development, curriculum support, supervision, and resource allocation. These institutional decisions shape the quality of teaching/learning materials, classroom facilities, teachers, and instructional support available to young children, shaping their learning experiences (Feriver et al., 2022). Studies by Ireri and Begi (2019) and Mariba and Begi (2020) emphasize the role of parents in school management and the influence of school climate on parental involvement, both exosystemic factors that affect quality.

The fourth level is the macrosystem, which includes broader cultural values, national education policies, the legal system, economic factors, and beliefs about early education. Banda et al. (2025) argue that macro-level policies affect learners' ability to access safe learning environments and institutional resources. Begi (2023) reinforces this by linking national economic investment in ECE to overall quality outcomes. Lastly, the chronosystem acknowledges that changes over time in the individual and society affect children's development. This means that children's access to early learning opportunities is constantly influenced by educational reforms such as the CBC, advances in early childhood pedagogy, technological progress, and demographic shifts (Macharia, Mugo, & Begi, 2025).

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3. Methodology

3.1 Study Design

The study adopted mixed-methods research with a descriptive survey design. The rationale of the design is that it allowed the researcher to systematically evaluate the quality of early learning opportunities within Kiambaa Sub-County through a combination of qualitative and quantitative methods.

3.2 Study Settings

The study was conducted in Kiambaa Sub-County, Kiambu County, Kenya. The area was selected because of its large population and diverse learner base, which enabled evaluation of learners from varied socio-economic backgrounds. At the same time, the county has both public and private ECDEs, which were found to be relevant to achieving comprehensive results.

3.3 Target Population

The study focused on primary caregivers and managers from ECDE centres across Kiambaa sub-county. Managers were selected because they ensure the curriculum is implemented and followed, while caregivers are the main implementers of the curriculum and have direct contact with children.

3.4 Sampling Approaches

First, stratified random sampling techniques were applied in selecting ECDE centres from public and private settings. At this stage, a total of 18 centres (14 public and 4 private) were selected. Second, a simple random sampling technique was applied based on the sampling frame in Table 1.

Table 1: Simple Size

ECD Centre			**Caregivers & Administrators**	
	Population	15% Sample	Population	Sample
Public	92	14	92	28
Private	26	4	26	8
Total	118	18	118	36

3.5 Data Collection Process

The study used questionnaires administered to primary caregivers, interviews with institutional managers, and observation checklists. The questionnaire segments aligned with the study objectives. Piloting was conducted with two randomly selected centres within the study area and assisted in refining the instruments. The instruments were tested for reliability and found to be appropriate (Cronbach's alpha > 0.7). Data collection was in person and conducted over a 12-week period, beginning with questionnaires, followed by interviews, and finally the observation checklists.

3.6 Data Analysis

All quantitative data were subjected to descriptive analysis, including mean and frequency distributions, to identify patterns within the datasets. The second stage was thematic analysis, applied to select specific patterns and themes in qualitative data. The researcher then triangulated the findings using data from the observation checklists.

3.7 Logistical and Ethical Considerations

The researcher began by acquiring permission to conduct the study from the institutional ethics committee, followed by the National Commission for Science, Technology and Innovation, and later, the County Government of Kiambu. The researcher considered several ethical considerations, beginning with informing participants of all relevant information about the study and then obtaining informed consent (Hasan et al., 2021). Participants were assured that all information collected would be kept confidential and anonymous.

4. Results and Discussion

4.1 Quality of Early Learning Opportunities

The study aimed at evaluating the quality of early learning opportunities offered in ECDE centres in Kiambaa Sub-County. Caregivers rated ten indicators on a 5-point Likert scale. Descriptive statistics were used to determine the extent to which these quality indicators were provided, as shown in Table 2.

Table 2: Quality of Early Learning Opportunities

	N	Min	Max	Mean	Std. Deviation
Safe, clean, and child-friendly environments	18	2	5	4.06	.639
Adequate facilities are available in ECD centres	18	2	4	2.78	1.003
Sufficient educational materials for all children	18	1	5	2.33	1.372
Well-equipped outdoor and indoor play areas.	18	2	5	3.00	1.085
Resources to support children with special needs	18	1	5	2.33	1.572
Curriculum is age-appropriate and promotes holistic child development	18	2	5	4.50	.786
Regular assessments of children's development and learning outcomes are conducted	18	1	5	4.00	1.188
Teacher-to-child ratios are used to ensure individual attention to each child	18	1	5	2.28	1.320
Equal opportunities for boys and girls to participate in all activities	18	4	5	4.78	.428
Community support and collaboration	18	2	5	3.56	1.097
	18			3.3611	.66167

From Table 2, the overall mean was moderate (M = 3.36; SD = 0.662), indicating that the quality of early learning opportunities within Kiambaa sub-county is average. This indicates that caregivers actively shaped gender-inclusive classroom settings in which boys and girls

participated in learning activities equally. The highest indicator was on the equity of participation and opportunities (M = 4.78; SD = 0.428). Consistent with Chapman (2022), equal participation helps boost the confidence and competencies of all learners. The next indicator was on the appropriateness of the curriculum, with a high mean (M = 4.50; SD = 0.786). This means that the majority of centres developed learning experiences which covered children's cognitive, emotional, physical and social development. This discovery reinforces current views on the importance of play-based, child-centred learning (Muller & File, 2020). Furthermore, this high rating aligns with the ideals of the Competency-Based Curriculum. However, as Ngusa, Begi, and Ndani (2026) note, effective curriculum implementation depends heavily on aligned teacher assessment practices, which were reported positively here. Otwate, Begi, and Mwangi (2021) similarly found that teachers' subject competence and professional training are significant predictors of effective instructional strategies, suggesting that caregivers in Kiambaa have adequate foundational competence.

Other indicators with relatively high means were a safe and friendly environment (M = 4.06; SD = 0.639) together with the presence of regular assessments (M = 4.00; SD = 1.188). On safe environments, findings can be interpreted to mean that the ECDE centres have spaces that enable children to confidently explore, interact, and participate in classroom activities. On assessments, the findings imply that educators can adapt their strategies to individualized needs. However, as Murungi, Begi, and Mwoma (2021) and Mwoma, Begi, and Murungi (2018) caution, maintaining safety and security requires continuous intervention, which was largely observed in this context.

Notably, several factors had relatively low mean scores. For instance, the teacher-child ratio had the lowest mean (M = 2.28; SD = 1.320). This suggests that low staffing levels adversely affect the quality of ECDE learning in the sub-county. Consistent with Banda et al. (2025), a major challenge of low staffing is that teachers struggle to provide individualized attention. This finding strongly corroborates empirical evidence from Rono, Begi, and Mwoma (2020) in Kericho County, who found a significant correlation between large class sizes and diminished acquisition of early mathematics competencies. Similarly, Macharia, Mugo, and Begi (2025) found that contextual factors such as overstretched classrooms contribute to dropout tendencies, underscoring the urgent need to address staffing deficits to ensure foundational literacy and numeracy (Otwate, Begi, & Mwangi, 2021).

Another factor with a relatively low mean score was the lack of educational materials (M = 2.33; SD = 1.372). This means that a majority of the centres within the county lack sufficient educational materials required to achieve quality learning. Although the curriculum was found to be inclusive, the lack of sufficient educational materials suggests that the desired quality of learning would not be achieved. This aligns with Ngirerea and Begi (2018), who found that centre-related factors, including a lack of resources, significantly influence curriculum implementation in Turkana County, a problem that appears pervasive across Kenyan counties. Equally, the factor on resources for learners with special needs received one of the lowest means (M = 2.33; SD = 1.572). This means that despite the presence of a safe environment, a majority of the centres still do not accommodate learners with diverse needs. Wafula, Kang'ethe, and Begi (2020) highlighted the positive impact of inclusive remedial teaching on performance in Butere, suggesting that the lack of specialized resources observed in Kiambaa limits the potential for effective inclusive education, which is a key tenet of quality ECDE.

At the same time, participants noted infrastructure challenges, including physical facilities (M = 2.78, SD = 1.00) and indoor and outdoor play areas (M = 3.00, SD = 1.09). According to Davis and Elliott (2023), developmentally appropriate physical environments offer opportunities for exploration, creativity, motor development, and social interaction. The findings align directly with those of Begi, Mwoma, and Murungi (2023), who documented severe inadequacies in the quality of physical environments in Kenyan preschools that restrict children's ability to learn through play and outdoor activities, ultimately affecting overall quality. Njiru, Begi, and Mwoma (2018) also established a direct link between the adequacy of physical facilities and teacher trainees' satisfaction with the quality of education, implying that unsatisfactory environments demotivate both teachers and learners.

The findings above support the idea that multiple interacting environmental systems influence children's learning, as espoused by Bronfenbrenner's Ecological Systems Theory (Feriver et al., 2022). Positive ratings for curriculum implementation, assessment practices, and equitable participation indicate strengths in the microsystem (direct interactions between children and caregivers). However, weaknesses in facilities, materials, staffing, and inclusive education resources represent failures in the exosystem (institutional and policy contexts) and macrosystem (national funding priorities), which indirectly yet powerfully shape classroom realities. In this context, the quality of early learning opportunities also differed between private and public schools, as shown in Table 3.

Table 3: Public-Private Comparison

Type of School	N	Minimum	Maximum	Mean	Std. Deviation
Private	4	3.00	4.60	3.9500	.68069
Public	14	2.30	4.10	3.1929	.57307
Total	18	2.30	4.60	3.3611	.66167

The findings suggest that private schools depend more on tuition fees to support their activities than public schools, which depend on the government. Consequently, private schools can invest in staffing and instructional materials. This observation aligns with Mabagala and Begi (2020), who found that school type significantly influences parents' satisfaction with the quality of pre-primary education in Dar es Salaam. Similarly, Kaminju and Begi (2017) found that parents' socioeconomic status, which often determines enrollment in private versus public institutions, shapes satisfaction with service quality. Furthermore, Avoga, Wambiri, and Begi (2020) noted that demographic factors, such as parents' age, influence perceptions and may affect demand for quality across different school types. Despite these disparities, the overall moderate quality indicates that while progress has been made in curriculum implementation, much is still required regarding instructional resources, infrastructure, inclusive education, play facilities, and teacher staffing to ensure all children have access to high-quality early learning experiences that support holistic development.

5. Conclusion

The study concludes that ECDE centres within Kiambaa sub-county in Kiambu County have a moderate quality of early learning opportunities. First, the study has found that the ECDE centres within the sub-county have excelled in terms of the creation of gender-inclusive learning opportunities, an age-appropriate curriculum, as well as regular assessments aimed at promoting the understanding of the needs of learners. However, visible gaps remain in staffing, access to instructional materials, and infrastructure, including indoor and outdoor facilities. These gaps align with documented challenges across various Kenyan counties, including Kibwezi (Ngusa, Begi, & Ndani, 2026), Kericho (Rono, Begi, & Mwoma, 2020), and Busia (Otwate, Begi, & Mwangi, 2021), suggesting systemic underinvestment in early learning resources. The gaps differed between public and private schools, with the latter having better access to materials and resources through tuition fees, echoing findings by Kaminju and Begi (2017) and Mabagala and Begi (2020). Based on the above, improvements to the current learning environment are required to provide all children with a safe, stimulating, equitable, and developmentally appropriate learning opportunity conducive to holistic development.

6. Recommendations

The following are the major recommendations arising from the study:

(i) The County Government of Kiambu should allocate more resources towards ECDE. These additional resources should be directed toward creating child-friendly indoor and outdoor play environments to enhance the quality of ECDE. This is particularly critical given evidence from Begi, Mwoma, and Murungi (2023) and Njiru, Begi, and Mwoma (2018) linking physical infrastructure to overall quality and satisfaction.

(ii) The county government and the relevant stakeholders should increase the number of teachers in ECDE settings to improve teacher-child ratios. More teachers would provide more individualized attention, improve the quality of classroom interactions, and foster children's cognitive, social, emotional, and physical development. This recommendation is strongly supported by Rono, Begi, and Mwoma (2020) and Otwate, Begi, and Mwangi (2021), who found that class size and teacher competence significantly determine early learning outcomes.

(iii) There is a need for education stakeholders to conduct continuous monitoring and quality assurance to ensure that the centers meet the current standards of learning. Monitoring should be frequent, evaluating the infrastructure, learning materials, and curriculum implementation against the required standards. Given the challenges highlighted by Ngusa, Begi, and Ndani (2026) regarding teacher practices in competency-based assessment, centers should also institutionalize continuous professional development.

(iv) Special focus should be given to inclusive education. Centres should be equipped with resources and specialized materials to support children with special needs, as the current study found this to be one of the most neglected areas. As Wafula, Kang'ethe, and Begi (2020) demonstrated, remedial and inclusive teaching strategies significantly boost performance among learners with difficulties, and such practices should be scaled up across the sub-county.

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