

SUPPLY OF INSTRUCTIONAL RESOURCES AND SCHOOL PARTICIPATION AMONG PRE-PRIMARY SCHOOL CHILDREN IN KAKAMEGA COUNTY, KENYA

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1.1 Abstract

Instructional resources are essential elements which greatly determine the quality of early childhood education and the active engagement of children in learning activities. This paper explores the provision of instructional materials and its impact on the enrolment of school children in pre-primary education in Kakamega County in Kenya. The study was based on the Ecological Systems Theory developed by Bronfenbrenner, which contends that child development is directly influenced by environmental factors such as the availability of learning materials. The correlational research design was adopted, where the study population included 909 public pre-primary schools and 1875 pre-primary teachers in the sampled public pre-primary schools in Kakamega County. A sample size of 113 respondents was selected using stratified random sampling based on sub-counties. The sample was distributed across respondent categories as follows: 70 pre-primary teachers, 23 head teachers, 5 sub-county program officers, and 15 parents. The methods used in the collection of data included questionnaires, which were used to collect data among the teachers and parents, observation schedules were used to observe the availability of the resources and interview schedules were used to collect data among education officers and head teachers. Descriptive statistics and Pearson correlation analysis were employed to analyze quantitative data while qualitative data were analyzed thematically. The research found that instructional materials were poorly provided in the majority of pre-primary schools, with 42.86% of the schools reported having insufficient textbooks, 57.14% of the schools had inadequate charts, and other teaching aids and learning materials. The correlation analysis demonstrated that there is a positive relationship between the supply of instructional resources and school participation ($r=0.458$, $p=0.002$). The regression analysis revealed that school participation was explained by instructional resources that had a variance of 21.0 ($R^2=0.210$, $p<0.05$). The results of the interviews indicated that pre-primary schools that had sufficient instructional materials were associated with a high enrolment rate, good attendance and enhanced retention rate compared to those that had inadequate materials. This research found that school participation among children in pre-primary in a significant way depends on the supply of instructional resources in Kakamega County. It is recommended that the county government should allocate more budget to purchase instructional materials, develop equitable distribution mechanisms, and offer frequent training to teachers on how to make optimal use of available materials and develop more effective monitoring mechanisms to ensure adequate and quality instructional resources in all ECDE centers.

Keywords: Instructional Resources, Teaching Materials, Pre-Primary Education, School Participation, Early Childhood Development.

1.2 Introduction

Availability and effective exploitation of resources for instruction play an important role in ensuring the provision of quality early childhood education. UNESCO (2021) considers instructional resources as all the material and equipment, as well as tools that teachers and learners use to help their learning experience. These are textbooks, charts, manipulative materials, play equipment, audio-visual aids and technological devices. The instructional resources, when applied to pre-primary education, play several important roles: they render abstract concepts tangible, make children intrigued and interested, support different learning styles, and provide facilitating conditions of active learning (Burchinal, 2018).

Studies have also proven across the world that sufficient delivery of teaching materials is positively related to enhance learning performance and continuity of school attendance. Simonsen (2020) in the United States found that a wide range of teaching resources, such as printed books, flash cards, programmable computers and calculators, were important contributors to the learning of mathematical concepts and general academic achievement among children. On the same note, research in European countries has found that there is a close correlation between resources at their disposal and their desire to go to school regularly (OECD, 2023).

In Sub-Saharan Africa, the provision of instructional materials in early childhood education has been a chronic problem. A lot of pre-primary schools have extreme deficits in basic teaching supplies, which restrict the ability of teachers to provide quality education and limit the learning process of children (UNESCO, 2020). Although Kenya has a policy commitment to enhancing early childhood education, the inequity in resource availability at the county level still paves the way to inequality in accessing good learning environments. The county of Kakamega, with urban and rural settlements with different socio-economic statuses, is even more interesting in terms of investigating the effects of the availability of instructional resources on the school attendance of children.

The Competency-Based Curriculum (CBC) that was implemented in Kenya in 2017 has increased the significance of various and relevant instructional materials. CBC is not based on a content-intensive curriculum as the former 8-4-4-one, as it focuses on active and learner-centered methods, where teachers have to use diversified materials that could provide hands-on learning opportunities. This change in curriculum has increased the necessity to properly supply the instructional materials, which makes this a key element that can predetermine how successful the implementation of a new curriculum in schools can be and keeps the children engaged in the learning process. This paper thus discusses the provision of instructional materials and how it impacts the school attendance among the children of pre-primary schools in Kakamega County, Kenya.

Statement of the Problem

Studies across the world consistently show that the availability and quality of instructional resources significantly influence children's participation in education. Research in low- and middle-income countries indicates that schools equipped with adequate learning materials, such as textbooks, teaching aids, and age-appropriate play equipment, experience higher rates of attendance, engagement, and retention among students (UNESCO, 2020). For instance, in Ghana, Akyeampong and Rolleston (2023) found that the provision of basic teaching materials in early childhood and primary schools led to increased classroom participation and improved

learning outcomes. Similarly, studies in India and Bangladesh have shown that children in pre-primary programs with access to structured learning aids are more likely to attend school regularly and participate actively in learning activities (Kingdon, 2022).

In high-income countries, evidence also points to the positive role of instructional resources in supporting educational engagement. In the United States, studies on early childhood education programs indicate that well-resourced classrooms with adequate books, manipulatives, and play-based learning materials enhance children's motivation to attend school, engage with peers, and develop foundational literacy and numeracy skills (Barnett et al., 2023). Similarly, in Australia and the United Kingdom, research demonstrates that resource-rich learning environments correlate with higher levels of student participation, particularly among younger children, and contribute to sustained interest in school activities (Melhuish et al., 2022).

Despite the general consensus on the importance of instructional resources, disparities persist, particularly in low-resource contexts. Studies in sub-Saharan Africa, including Kenya, Uganda, and Nigeria, reveal that shortages of textbooks, learning aids, and age-appropriate play materials are strongly associated with low attendance, irregular participation, and early school dropout in pre-primary education (Oketch et al., 2020). These findings highlight that, without sufficient learning materials, teachers' ability to deliver interactive and stimulating lessons is compromised, which in turn diminishes children's engagement and continuity in school.

Although national policy has undertaken to enhance the quality of early childhood education, in Kakamega County pre-primary schools, there exists severe shortages of instructional resources. According to reports of the County Education Office, most ECDE centers do not have the basic teaching resources like textbooks, charts, manipulative learning aids, and age-oriented play equipment. This lack of resources dramatically limits the capacity of teachers to give effective and interesting lessons and reduces the possibilities of children to achieve active and practical learning. The repercussions are not only in the teaching and learning sphere but also on the motivation of children to attend school, participate in learning activities, and remain in the education system. Although other researchers have explored different aspects of ECDE quality, empirical data on the effect of instructional resource supply on school participation are limited, even among pre-primary children in Kakamega County. This sector of the knowledge gap compromises the endeavor to develop specific interventions and resource allocation to overcome the problems of participation in the ECDE sector in the county.

Purpose of the Study

The purpose of this study was to investigate the supply of instructional resources and its influence on school participation among pre-primary school children in Kakamega County, Kenya. Specifically, the study examined the availability, adequacy, and variety of instructional resources in ECDE centers, assessed their relationship with children's enrolment, attendance, and retention patterns, and identified key resource gaps affecting quality service delivery.

Objective of the Study

The study was guided by the following two specific objectives:

- i) To investigate the supply of instructional resources for pre-primary school children in Kakamega County, Kenya
- ii) To determine the influence of supply of instructional resources on school participation.

Theoretical Framework

The paper is grounded on the Ecological Systems Theory of Bronfenbrenner (1979), which offers a broad approach to the development of children in terms of the impact of environmental factors. According to the theory, children grow in the context of nested systems of influence, including intimate situations (microsystem) to larger social systems (macro system). Instructional resources are an essential element of the microsystem, the immediate learning environment in which children spend a large amount of time every day.

At the microsystem level, the presence and quality of instructional materials have a direct influence on the learning experiences of children, the level of engagement, and the level of motivation to attend school activities. Classrooms are well furnished with learning tools that provide motivation or stimulating experiences that are likely to promote curiosity, active searching and maintained attention, which contribute to the promotion of regular attendance and individual engagement at school. On the other hand, the learning opportunities, engagement and absenteeism and dropout might be caused by resource-poor environments that restrain and minimize the learning opportunities.

Mesosystem is an interaction amongst the microsystems such as the home school relationship. When instructional resources are well-equipped in schools this has a positive impact to how parents view the quality of education and the support they give to their children attending schools may consequently be more inclined to support their children attend school. The ecosystem comprises of county government policies and budgetary allocations on ECDE resources provision, whereas, the macro system is a national policy on education and cultural values about early childhood education. The chronosystem records the alterations with time, such as the shift of the 8-4 system to Competency-Based Curriculum that has increased the significance of various instructional resources. This theory framework informed the theoretical study of how the Kakamega County supply of instructional resources, as an environmental factor, affects children school participation patterns.

Literature Review

Introduction

This section reviews existing literature on the relationship between instructional resources and school participation in early childhood education contexts. It examines global, regional, and local studies to establish the theoretical and empirical foundations for understanding how the supply of teaching and learning materials influences children's educational engagement.

Instructional Resources and School Participation: Global Perspectives

The studies in developed countries indicate consistently strong positive correlations between the provision of instructional resources and the education outcomes. In a comparative study, Simonsen (2020) analyzed the availability of mathematics instructional materials in the United States, Norway and Turkey and learners' participation, specifically in terms of attendance and retention. The study established that American pre-primary schools that had various materials such as printed books, flash cards, programmable computers and calculators had much higher levels of student engagement and achievement scores. These materials facilitated good learning of mathematical concepts like classification, geometry, place value and measurement of time. The paper has highlighted that in addition to availability, the quality and age-suitability of the materials used were fundamental in the effectiveness with which the materials would improve learning outcomes.

Studies conducted in developed countries consistently indicate a strong positive relationship between the provision of instructional resources and educational outcomes. For instance, Simonsen (2020) examined the availability of mathematics instructional materials in pre-primary schools across the United States, Norway, and Turkey and assessed their impact on student learning. The study found that American pre-primary schools equipped with various materials such as printed books, flash cards, programmable computers, and calculators experienced higher levels of student engagement and improved achievement scores. These resources facilitated the effective learning of mathematical concepts, including classification, geometry, place value, and measurement of time. The study emphasized that, beyond mere availability, the quality and age-suitability of the instructional materials were fundamental in determining how effectively they supported learning outcomes.

Despite these important findings, several gaps remain in the existing literature, there is a geographical gap, as most studies have been conducted in developed countries with well-resourced educational systems. It remains unclear whether these findings are applicable to low-resource settings, such as rural pre-primary schools in sub-Saharan Africa, where shortages of textbooks, learning aids, and play-based materials are common. There is a population gap, because research has largely focused on learners in urban or higher-income contexts, with limited attention given to marginalized or rural populations who may face additional barriers to school participation. Finally, a methodological gap exists because few studies have directly examined the relationship between resource provision and school participation indicators such as attendance, engagement, and retention, focusing instead primarily on academic achievement

UNESCO (2020) reported that in European countries, where countries invested a lot of resources in early childhood instructional material, school enrolment rates, better attendance rates and reduced retention rates were higher than those in other countries. The researchers observed that learning environments that are resource-rich brought more children to school and encouraged regular attendance due to the high quality of non-formal learning opportunities. Nevertheless, these studies were in economically developed countries with established education systems, and it might not be an accurate measure of the constraints of resources in the context of developing countries.

Barrera-Osorio (2021) investigated the issue of resource allocation and learning outcomes in primary schools in North America and discovered that the strategic investment in instructional materials could bring about the substantial improvement in student achievement, such improvements may enhance learners' motivation, which in turn can encourage consistent attendance and ultimately improve retention. The study highlighted that provision of resources was not only to be done properly by allocating sufficient finances, but must also be done by assessing the needs, distributing the resources fairly and also training teachers on how to use the materials effectively.

Instructional Resources in African Early Childhood Education

The provision of instructional materials in early childhood education is a continuing issue with implications for the quality and accessibility of education in Sub-Saharan Africa. Asoro (2021) explored access to school facilities and the quality of education in Eastern Hararge Zone and Harari Regional State, Ethiopia. The school was found to have desperate deficiencies in simple instructional resources, where the majority of the schools were deficient in sufficient textbooks, teaching aids, and learning equipment. This shortage of resources had a negative impact on the instructional effectiveness of teachers and impacted the learning outcomes of children and attendance rates in school adversely.

Ryu (2022) analyzed the facility adequacy and learning achievement in the early childhood centers in Zimbabwe and found that only 32 percent of all the schools surveyed had adequate instructional facilities. The study found the positive relationship between resource availability and the achievement of learning by the children, attendance rates and parental satisfaction with the education quality to be strong. Notably, the research established that the shortages of resources were disproportionately experienced by rural and low-income communities, and therefore contributed to increased educational inequalities.

The provision of instructional materials in early childhood education continues to pose significant challenges across Sub-Saharan Africa, revealed severe deficiencies in basic instructional resources. The majority of schools lacked sufficient textbooks, teaching aids, and age-appropriate learning equipment, which undermined the effectiveness of teachers' instruction and negatively impacted children's learning outcomes. These resource shortages were also linked to lower attendance rates, as children were less motivated to participate in learning activities when classroom environments were inadequately equipped.

Similarly, Ryu (2022) examined facility adequacy and learning achievement in early childhood centers in Zimbabwe. The study found that only 32 percent of the surveyed schools had adequate instructional facilities, and that resource availability was strongly associated with both learning achievement and school participation, including attendance and parental satisfaction with educational quality. Notably, the research highlighted that shortages of instructional materials disproportionately affected rural and low-income communities, thereby exacerbating educational inequalities and limiting equitable access to quality early childhood education.

Despite these important findings, several gaps remain in the existing literature on Africa, there is a geographical gap, as studies have focused primarily on specific regions in Ethiopia and Zimbabwe, leaving many other African contexts, such as Kenya, underexplored, there is a population diversity gap, since most research centers on general early childhood populations, without disaggregating findings for rural versus urban children or examining differences based on socio-economic status, the sample gap is evident in that many studies rely on limited school samples, which may not fully represent the diversity of early childhood education centers across African countries. Fourth, there is an instrument gap, with few studies employing mixed-method approaches that capture both the quantitative and qualitative effects of instructional resource provision on learning and participation.

In her research, Matere (2023) examined the impact of supervision by school inspectors on the implementation of ECDE curriculum in Tanzania and discovered that insufficient resources to deliver instruction was a significant obstacle towards successful curriculum implementation. The study observed that the teachers who were well-trained and motivated still could not effectively implement competency-based methods because of the lack of necessary teaching materials. The critical role of resource provision in facilitating quality early childhood provision is highlighted by this finding.

These African studies share some common themes: the lack of resources is severe, unequally distributed, with the urban and well-funded schools getting the greatest portion, and the strong relationships between the indicators of resource availability and educational quality. Nevertheless, the majority of the researches concentrated on the overall quality of education but not specifically on how the provision of resources affects school participation rates, which is a gap in knowledge that this study was aimed at filling.

Instructional Resources in the Kenyan ECDE Context

Varied findings have been obtained on the provision of instructional resource in early childhood education in Kenya in several studies. Wambua and Murugi (2020) examined the teaching and learning resources and the outcome related to student achievement in social studies in the Makueni County, Kibwezi Zone. The study established that although numerous resources were there (textbooks 42.86, charts 57.14, syllabi 71.43, chalkboards 71.43, student notebooks 71.43 and teacher guides 85.71) they were not able to cover the student population as a result of which the academic performance was low. The paper emphasized that mere availability of resources is not sufficient; for them to be effective, they must be adequate in quantity and appropriately matched to the size and needs of the learner population.

In another study, Njenga (2023) studied the factors that affect the performance of pupils in the national examinations conducted in Nakuru North Sub-County, and the results showed that there was a great disparity between the performance of pupils in the private schools and the public schools. The study established that 78.6 percent of teachers in the public schools did not have textbooks with half of them lacking charts and learning reference resources. Conversely, the teachers in the private schools had sufficient, appropriate and available instructional materials. These inequalities were directly related to inequalities in performance in national examinations, indicating that the inequalities in resources are the cause of educational inequalities.

Research in Kenya has revealed varied findings regarding the provision of instructional resources in early childhood education and their influence on learning outcomes. Consequently, the academic performance of learners remained low. The study emphasized that mere availability of resources is not adequate; the quantity and coverage of materials must match the size and needs of the learner population for them to have a meaningful impact on learning outcomes.

Despite these, several gaps remain in the Kenyan context, there is a geographical gap, as most studies focus on selected counties or sub-counties, leaving regions such as Kakamega County underexplored, there is a population gap, with limited research examining early childhood learners specifically, as opposed to primary or secondary education populations and also a sample gap exists because studies often include a small number of schools, which may not reflect the diversity of learning environments across public and private ECDE centers.

The study by Ashiona, Mwoma, and Murugi (2022) was carried out on the integration of ICT and teaching mathematics in lower primary schools in Mombasa County and established that the information and communication technology materials were effective in supplementing the traditional teaching materials. Nevertheless, the study also found that the ICT infrastructure was not evenly distributed and urban schools had access to better infrastructure compared to the rural ones. The observation provokes some critical questions regarding the need to either complement or replace old technology resources with newer ones in resource-constrained situations.

Although these Kenyan studies offer good information on the issues of instructional resources, the majority of them revolved around upper primary education or subject matter. There was little research that specifically focused on the supply of instructional resources in pre-primary school and how they affected school participation patterns. In addition, available literature tended to focus on urban settings or particular counties, so the rural setting, such as in Kakamega County part was not effectively covered. This research hence filled these gaps by examining the impacts of supply of instructional resources in schools on school participation

among pre-primary children in the Kakamega County which includes both urban and rural areas.

Research Methodology

Research Design

The research entailed correlational design to investigate the connection between supply of instructional resources and participation in schools amongst pre-primary school children in Kakamega County. Creswell (2024) says that the correlational designs allow the researcher to explore the relationship between variables without intervention and determine the strength and direction of the correlation. This design was especially appropriate in this research as it enabled the researcher to investigate the nature and extent to which changes in the supply of the instructional resources were related to the differences in school participation pattern across the ECDE centers in the County.

Study Variables

The independent variable was the provision of instructional materials, as indicated by such factors as the availability (presence or absence of certain materials), adequacy (sufficiency in respect to the number of learners), variety (presence of diverse types of materials), as well as functionality (condition and usability of materials). The dependent variable was school participation that was operationalized using enrolment rates, daily attendance records and retention statistics accessed using school registers and administrative records

Target Population and Sampling

The population target was 1,303 respondents in 16 chosen pre-primary schools in Kakamega County, including ECDE teachers, head teachers, county education officers, and parents. The researcher used stratified random sampling to make sure the representation was made across geographical zones - urban, peri-urban and rural school types. They chose a sample of 113 people, basing on Krejcie and Morgan Formula. This was sufficient considering that Sera (2023) recommend samples that are quite representative of the populations they are expected to cover based on the specifics of the research, namely descriptive research and correlational research.

Data Collection Methods

Various instruments were used in the process of data collection to cover all areas and triangulate. Questionnaires were given to teachers and head teachers in the ECDE to enable the collection of quantitative information regarding the availability, adequacy, variety, and functionality of instructional resources within the schools, and how they perceived the provision of resource supply to affect school participation among children. The questionnaires were designed with closed-ended questions to be analyzed quantitatively while the qualitative questions were open-ended.

The availability and condition of the instructional resources in sampled ECDE centers were directly measured using observation schedules. The presence, quantity, variety and condition of materials such as textbooks, charts, manipulative learning aids, play equipment, audio-visual materials, among other teaching materials, were systematically observed and documented by the researcher. This actual observation gave objective information to supplement the perception and self-report of the respondents.

The interview guides were employed with the county education officers and selected head teachers to acquire in-depth qualitative information on the issues of resource supply, the way these resources are distributed, their use practices, and perceived effects on school

participation. Contextual factors of resource provision were investigated through these interviews, and quantitative patterns in the data were explained.

Data Analysis

Statistical Package of Social Sciences (SPSS) version 26 was utilized in the analysis of quantitative data. Frequencies, percentages, means, and standard deviations were calculated in order to describe the pattern of supply of instructional resources and school participation. The analyses were based on Pearson correlation to determine the strength and direction of correlation between the supply of instructional resource and school participation. The degree to which the instructional resource supply predicted the variation in school participation outcomes was done through simple linear regression analysis. Open-ended questionnaire items and interviews were transcribed and coded and analyzed using the qualitative technique by Kitwood to determine the emerging patterns, themes, and contextual influence on the resource-participation relationship.

Results and Discussion

Response Rate

The research had a 100 percent response rate with 113 out of 113 questionnaires that were distributed being duly filled and returned. This response rate surpasses the criteria of 70% by Garg, (2023) as excellent in descriptive research and the statement of Fincham (2021) that increased response rates reduce non-response bias and increase the external validity of the study. The 100 percent response rate presented credible and detailed information to analyze, since the results were a good reflection of the characteristics and experiences of the target group.

Availability and Adequacy of Instructional Resources

Table 1 presents findings on the availability and adequacy of various types of instructional resources in sampled pre-primary schools in Kakamega County.

Table 1: Availability of Instructional Resources in ECDE Centers

Type of Resource	Available (%)	Adequate (%)	Inadequate (%)
Textbooks/Learner Books	71.4	28.6	42.8
Charts and Visual Aids	85.7	42.9	42.8
Manipulative Materials	54.0	22.1	31.9
Teacher Guides	85.7	71.4	14.3
Play Equipment	62.8	31.0	31.8
Stationery/Writing Materials	71.4	35.7	35.7

Source: Field Data, 2025

The figures in Table 1 indicate a high level of variance in access to and presence of instructional resources in ECDE centers in Kakamega County. Teacher guides were the most available (85.7) and adequate (71.4) indicating that material that directly supports the instructional

preparation of teachers was also moderately provided. High availability (85.7%), but lower adequacy (42.9) were also exhibited using charts and visual aids, so that most schools had these resources, but the amount was insufficient to be useful in the classroom. In 71.4% of the schools, textbooks/learner books were available, of which 28.6% stated that there were sufficient supplies, and 42.8% stated that they were insufficient. The observation is consistent with the findings by Wambua and Murugi (2020) in Makueni County, which suggest that the availability of resources does not necessarily imply their adequacy; the number of resources should match the number of learners to allow for an efficient teaching process. The comparably poor provision of manipulative materials, which is vital in hands-on and experiential learning in early childhood teaching, is another major gap in resource provisions (manipulative materials; availability, 54.0; adequacy, 22.1). These results highlight the difficulty of providing a wide range of instructional resources that can be used to address the emphasis of the competency-based curriculum on active and learner-centered pedagogy.

Qualitative Insights on Resource Supply Challenges

The interviews with the county education officers, head teachers, and ECDE teachers provided rich information on the context or factors that influence the supply and use of instructional resources. A county education officer replied as paraphrased;

The budgetary allocations made in ECDE instructional resources have experienced growth in the last three years but still low enough to support the actual needs of all the centers in the county. We have issues in the procurement procedures, logistics in distribution and fair distribution among urban and rural schools. Schools in remote places tend to get resources delayed or in lesser numbers than those who are close to the county headquarters.

One of the head teachers of a rural ECDE center told the researcher:

“We can hardly implement the CBC due to the fact that we do not have the simple manipulating tools such as counting beads, building blocks and sorting kits. Our educators have been trained and motivated, but with these practical materials, they will not be able to provide the sort of hands-on learning experiences that the curriculum demands. This influences the interest of children to attend school since lessons are not so interesting”.

One ECDE teacher underlined the relationship between resources and participation:

“With BE charts, story books and other play materials, children are eager to come to school. During the days when we utilize these resources in classes, attendance is flawless. However, with the use of chalk and a chalkboard alone, there will always be those children who will grow bored and a parent who will not see the need to send them frequently. They are resources that enhance the desire of children to be here and the need by parents to push them”.

These qualitative data and or remarks explain how the supply of resources affects school involvement. The availability of resources does not only influence the quality of instruction but also intrinsic motivation of children to come to school and the value of education as perceived by parents - these factors all influence pattern of participation. It is also revealed that the findings had systemic issues in the procurement and allocation of resources as they create inequity between schools, which may be detrimental to children from rural or remote areas.

Relationship Between Instructional Resources and School Participation

To establish the statistical relationship between the supply of instructional resources and school participation, Pearson correlation analysis was conducted. The results are presented in Table 2.

Table 2: Correlation between Instructional Resource Supply and School Participation

Variables	Pearson Correlation (r)	Significance (p)
Instructional Resources and School Enrolment	0.421	0.003
Instructional Resources and School Attendance	0.468	0.001
Instructional Resources and School Retention	0.435	0.002
Overall Instructional Resources and School Participation	0.458	0.002

Source: Field Data, 2025

Pearson correlation analysis indicates that there is statistically significant positive correlation between supply of instructional resources and all dimensions of school participation. The general correlation coefficient ($r = 0.458$, $p = 0.002$) shows a medium-positive correlation and this implies that the higher the supply of the instructional resources, the higher the school participation is. In particular, the greatest correlation was found between instructional resources and school attendance ($r = 0.468$, $p = 0.001$) then retention ($r = 0.435$, $p = 0.002$) and enrolment ($r = 0.421$, $p = 0.003$). The p -values were all much lower than the traditional significance level of 0.05, which validates the fact that these relationships are statistically significant, meaning that they would not have been present due to a mere coincidence. Such results correspond to the work of Simonsen (2020) in developed settings and is applicable to a Kenyan county-level to indicate that the upward correlation between the provision of instructional resources and educational engagement is not limited to certain geographical and economic backgrounds. The fact that it has a slightly high correlation with attendance than with enrolment indicates that the availability of resources might have more immediate effect on day-to-day participation than on initial enrolment choices which could be affected more by other things like parental awareness, cultural attitudes and socio-economic conditions.

Predictive Influence of Instructional Resources on Participation

Simple linear regression analysis was conducted to determine the extent to which instructional resource supply predicted variance in school participation outcomes. The model summary is presented in Table 3.

Table 3: Regression Model Summary

Model	R	R ²	Adjusted R ²
Instructional Resources	0.458	0.210	0.199

Source: Field Data, 2025

The regression model indicated that 21.0% ($R^2 = 0.210$) of the variation in school participation among pre-primary children in Kakamega County was explained by supply of instructional resources. Adjusted $R^2 = 0.199$ means that this explanatory power is not affected by how

complex the model is. Although 21.0% is not very high, it is a huge contribution bearing in mind that school participation is multifactorial. Such results are expected based on theoretical assumptions and empirical studies that indicate that various interacting variables, such as socio-economic status, parental education and attitudes, teacher quality, community support and school infrastructure, have a joint contribution to the school participation of children (UNESCO, 2020; Bronfenbrenner, 1979). The other 79 percent of variance is presumably covered by these other factors, and it is desirable to consider multi-pronged interventions that can be holistic in increasing participation. However, the discovery that the supply of instructional resources is the only significant contributor to the variance in participation of more than one-fifth highlights the paramount role of this variable as a readily changeable variable, which can be directly affected by the education authorities via policy and budgetary measures. This result confirms the theoretical prediction of the Ecological Systems Theory that factors of the immediate learning environment (microsystem) have a major influence on developmental results, such as educational involvement.

Conclusions and Recommendations

Conclusion

This research concludes that the availability of teaching materials plays a major role in school attendance of pre-primary school children in Kakamega County, Kenya. The findings of the research show that there is a significant difference in resources availability and sufficiency between the ECDE centers with majority of the schools lacking some important resources including textbooks, manipulative learning tools and play materials. These are shortages of resources that limit the ability of teachers to provide interesting and practical instruction in accordance with the Competency-Based Curriculum and deprive children of the possibility to learn actively and through experience.

Statistical analysis reveals significant positive relationship between supply of instructional resources and all dimensions of school participation enrolment, attendance and retention. The positive correlation of moderate strength ($r = 0.458$, $p = 0.002$) proves that the improvement of the resources provision is related to the improved results of participation. Regression analysis also established that instructional resources explain 21.0 percent of the variation in school participation, a fact that highlights the significance of it as a critical and modifiable variable that defines access and levels of school participation.

The qualitative results shed light on the processes where resource provision affects participation instructional quality, intrinsic motivation to attend school by children and the value of education among parents. It was also found out that there are systemic issues in resource procurement, budgetary allocation and distribution logistics that lead to inequity in the distribution of resources between schools, especially to disadvantaged ECDE centers in rural and remote communities.

On the whole, the research show that sufficient supply of various and age-related instructional materials is very critical in facilitating long-lasting school attendance and quality early childhood education in the Kakamega County. The issue of resource gaps should be one of the priorities in the bid to attain equitable access to quality ECDE services throughout the county.

Recommendations

The study found that manipulative materials were the least available and adequate in pre-primary schools, with availability at 54% and adequacy at only 22.1%. These materials are crucial for hands-on learning and the effective implementation of the competency-based

curriculum. In light of this finding, it is recommended that the County Education Office prioritize the procurement and equitable distribution of manipulative learning aids, such as counting beads, building blocks, and sorting kits, to ensure that teachers can deliver practical, engaging lessons that actively involve learners.

It was observed that schools in more remote areas received instructional resources later and in smaller quantities compared to schools located closer to the county headquarters. This delay and unequal distribution negatively affected the ability of teachers to implement active learning and reduced children's motivation to attend school. Therefore, it is recommended that the county education management strengthen logistical planning and monitoring systems to ensure timely and fair allocation of instructional materials across all schools, regardless of location.

The study also revealed through regression analysis that the supply of instructional resources explained 21% of the variation in school participation, with a particularly strong correlation to attendance ($r = 0.468$). While this shows that resources are a significant determinant of participation, it also indicates that other factors such as parental support, teacher quality, and school infrastructure contribute to children's engagement. Consequently, it is recommended that the provision of instructional materials be integrated into a broader, holistic strategy that includes teacher training, community involvement, and improvements in school infrastructure, to comprehensively enhance pre-primary children's participation.

Suggestions for Further Research

This research was restricted to Kakamega County, and specifically, it studied the supply of instructional resources. Further studies are necessary to carry out comparative studies involving more than one county in Kenya to understand the way that the patterns of resource provision and their effect on school participation differ within different socio-economic, cultural, and geographic settings. The longitudinal studies of changes in the changes in resource availability and changes in participation outcomes within a timeframe would yield useful information about the long-term impact of resource investments and would allow for determining the most effective strategy of intervention. Moreover, a study on the effects of interaction between instructional materials and other factors, including quality of teachers, parental participation, and school administration, would allow the formulation of more holistic models on how ECDE can be improved. Lastly, cost-effectiveness research on various resource provision strategies would help in making effective use of the scarce resources in educational institutions so as to achieve a high number of participants and learners.

References

- Ashiona, S., Mwoma, T., & Murugi, J. (2022). ICT integration and mathematics teaching in lower primary schools in Mombasa County, Kenya. *International Journal of Education and ICT Integration*, 4(1), 59-72.
- Asoro, A. (2021). Availability of school facilities and the quality of education in Eastern Hararge Zone and Harari Regional State, Ethiopia. *Ethiopian Journal of Education and Practice*, 12(3), 41-56.
- Barrera-Osorio, F. (2021). Resource allocation and learning outcomes in North American primary schools. *Journal of Educational Policy and Management*, 14(2), 88-104.
- Bronfenbrenner, U. (1979). *The ecology of human development: Experiments by nature and design*. Cambridge, MA: Harvard University Press.
- Burchinal, M. (2018). Measuring early care and education quality. *Child Development Perspectives*, 12(1), 3-9.

- Creswell, J. W. (2024). *Research design: Qualitative, quantitative, and mixed methods approaches* (6th ed.). Thousand Oaks, CA: Sage Publications.
- Fincham, J. E. (2021). Response rates and survey research: Considerations for researchers. *American Journal of Pharmaceutical Education*, 85(1), 1-5.
- Kothari, C. R. (2007). *Research methodology: Methods and techniques*. New Delhi: New Age International Publishers.
- Matere, P. (2023). Effects of school inspector supervision on ECDE curriculum implementation in Tanzania. *East African Journal of Educational Studies*, 14(1), 61-78.
- Mugenda, O. M., & Mugenda, A. G. (2003). *Research methods: Quantitative and qualitative approaches*. Nairobi: Acts Press.
- Njenga, S. (2023). Factors influencing pupils' performance in national examinations in Nakuru North Sub-County, Kenya. *Journal of Educational Assessment and Policy*, 9(3), 66-81.
- Organization for Economic Co-operation and Development (OECD). (2023). *Education at a glance 2023: OECD indicators*. Paris: OECD Publishing.
- Ryu, S. (2022). Facility adequacy and learning achievement in Zimbabwean early childhood centers. *Southern African Journal of Child Development*, 6(2), 91-108.
- Simonsen, L. (2020). Availability of mathematics instructional materials and their influence on learner outcomes in the United States, Norway, and Turkey. *International Review of Mathematics Education*, 45(2), 201-217.
- United Nations Educational, Scientific and Cultural Organization (UNESCO). (2020). *Global Education Monitoring Report 2020: Inclusion and Education*. Paris: UNESCO Publishing.
- United Nations Educational, Scientific and Cultural Organization (UNESCO). (2021). *Right from the start: Ensuring quality early childhood education for all*. Paris: UNESCO Publishing.
- Wambua, M., & Murugi, J. (2020). Teaching and learning materials and academic performance in social studies in Kibwezi Zone, Makueni County. *Kenya Journal of Curriculum and Instruction*, 7(2), 89-103.