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TEACHER TRAINING AND EXPERIENCE ON THE USE OF IMPROVISED LEARNING RESOURCES IN PRE-PRIMARY SCHOOLS IN MERU COUNTY, KENYA

[1]Kiambi Nchugune Idah, [2] Dr. Waithaka, Esther, PhD.

[1] Student, Department of Early Childhood and Special Needs Education, Kenyatta University, Kenya

[2] Lecturer, Department of Early Childhood and Special Needs Education, Kenyatta University, Kenya

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ABSTRACT

Use of improvised learning materials has been found to play a big role in performance of students learning worldwide. Despite this realization, the present scenario in most pre-primary schools in Kenya is that there is deficiency of learning resources. Although this has been attributed to inadequate funding of pre-primary education by the government, it is not clear why teachers who are supposed to improvise teaching materials fail to do so in order to address the shortfall. Therefore, the study aimed to determine how teacher Level of Training and teacher Experience factors influence the use of locally available materials in pre-primary grades in Meru County. The Constructivist Theory by Jerome Bruner was utilized to direct the study using the correlational research method. The South Imenti Sub-county in Meru County, Kenya was the study locale with a target population of 316 pre-primary school teachers. The study employed stratified, purposive and simple random sampling, through which a sample of 95 respondents forming a 30% of the target population was obtained. Pilot study was carried out in two pre-primary schools. The validity of questionnaires was decided through expert judgment who scrutinized the items in the instruments to ensure that they are relevant and adequate. Split half technique method which included frequencies and percentages. Inferential statistics that included Pearson Product Moment of Correlation Coefficient was employed to determine how the variables relate to each other while qualitative data was analyzed thematically. The study found that teachers' level of training, teachers' teaching experience had a positive and significant influence on the use of improvised learning resources in pre-primary grades in South Imenti Sub County. The study concluded that teachers from both public and private pre-primary schools in Meru County, Kenya had not achieved the highest level of training. Majority of the head teachers had Bachelor of education as their highest training certificate. Both public and private pre-primary schools had retained their teachers for a longer period as majority of them had worked for a period ranging from 6 to 10 years. However, the head teacher had less teaching experience in the current school as majority of them had stayed for only one year. The study recommended that the government should ensure that all pre-primary school head teachers and teachers achieves a higher learning certificate through establishing a proper career growth path. Pre-primary schools' management should retain the head teachers and teachers in their current school for a longer period of time so as to encourage them gain more experience in the use of improvised learning materials in the present environment.

Key Words: *Teacher Level of Training, Experience, Improvised Learning Resources*

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Background to the Study

Research has demonstrated that the first five years of children's life are fundamentally crucial and those who get good early education get a good beginning of life (UNESCO, 2010). It is also clear that early exposure and use of appropriate educational materials encourage the general development of children in various areas such as motor skills, visual and auditory perception, manipulating skills, language and socio emotional development (K.I.E. 2010). Instructions for Pre-primary schools in the United States of America observe the guidelines by the National Association for Education of Young Children (NAEYC) on activities which are suitable for growth of preschoolers. Programs of early education ensure that children have sufficient and appropriate resources from their environment to make learning simpler. Ezeasor (2012) established that most kindergartens in the USA encourage children to learn by doing, through manipulating learning materials and interaction with their peers, a practice that builds their self-confidence, self-esteem and development of skills. Bassey (2012) who conducted his study in the USA asserts that improvised instructional materials improve quality of teaching-learning and encourage classroom participation. On the same breath, Waigera (2013) states that improvisation requires the collection and development of adequate training and learning resources to meet the early years programme's demands, priorities and strategies.

Akanbi (2011) did a study in South Africa showing that use of improvised instructional materials provide stimulating environment for instruction and increase learners' interests in learning. In addition, Akanbi purported that materials also make learners become active, attentive and improves their transition smoothly from home to school, as they help them connect what they learn in class with their everyday experiences, thus promoting children's learning achievements. Larry (2010) affirmed that use of improvised learning materials stimulates learners' senses which facilitates smooth acquisition of knowledge and skills. Larry further emphasized that improvised learning materials engage learners in the learning process enhance their interaction and enables them to grasp new concepts as well as the specific learning outcomes with regard to the curriculum. According to the ECDE (2010) of Kenya, the main aim of Education at this level is to provide quality education to all children going to school, regardless of background. Children ought to access education which is culturally relevant for easy transmission of values, attitudes, knowledge and skills. KICD (2011) explains that improvised learning materials make learners to retain learnt content for long. To achieve this, teachers ought to use improvised teaching-learning materials with local content which is relevant to learners' local environment. This will enable children to access quality, relevant and affordable education. Uwezo (2016) study assessed learning outcomes of learners in literacy and numeracy countrywide. The study revealed that there is little learning that is taking place in early grades in most schools and Counties including Meru County. The study established that many pupils proceeded to lower primary levels without acquiring the basic preprimary literacy and numeracy skills. In addition, most pre-primary schools in Kenya lacked adequate instructional materials.

Statement of the Problem

The role of instructional materials in preprimary education cannot be over emphasized yet in most preprimary classes in Kenya the situation is that there is deficiency of teaching-learning resources. This has been attributed to inadequate funding of preprimary education by the government. This means that teachers should improvise materials to curb the deficit of instructional materials in classrooms. Statistics have shown that most pre-primary teachers do not improvise teaching materials and therefore do not use teaching materials which adversely influence the quality of learning leading to poor academic performance. In addition, effective use of the Competency Based Curriculum requires involvement of a variety of relevant learning resources. This calls on teachers in pre-primary schools to locally improvise materials in an attempt to improve instruction and learning in the formative years. Therefore, this study sought to investigate the extent to which identified teacher factors influence use of improvised learning materials in preprimary schools, in Meru County.

Objective of the Study

This study established the influence of teacher's level of training and teacher experience on the use of improvised learning resources in pre-primary grades in South Imenti Sub County Meru County, Kenya.

Research Hypothesis

H_1: Teachers' level of training and teacher experience influences the use of improvised learning resources in pre-primary grades in South Imenti Sub County Meru County, Kenya.

Significance of the Study

Study results could prompt the County government of Meru to organize preprimary teachers' in-service training programmes to advocate for improvisation of learning materials. As a consequence, pre-primary school teachers would be re-equipped with the required knowledge and competences to improvise relevant educational materials and enable them to use them in training.

Findings from the study could provide the school administrators with insights on teacher factors which influence use of improvised learning materials. The study could influence school administrators to embrace change that will strengthen the use of improvised tools in primary schools.

Theoretical Framework

This study was based on Jerome Bruner's (1996) Constructivist Theory of learning. The theory emphasizes that learning should be an active process through use of learning resources in which learners build new principles based on their experience. Bruner claimed that educational goals should be analytical creation, as opposed to rotary memorization of information. He claimed that programs would encourage the development of problem-solving skills through the investigation and experimentation processes. He felt that teaching should be done through the organization of concepts and through discovery by use of learning resources. Bruner supposed that Instruction must be concerned with the experiences and contexts that make learners willing and able to learn. In addition, Bruner emphasizes the subject matter to be taught in classrooms should be in the way children see the universe, and this should be structured in such a way that the mastering of skills contributes to the mastery of more complex and powerful ones. As for instruction, teachers should therefore encourage learners to discover principles on their own. Teachers and learners are supposed to engage in constructive conversation. The teacher's task is to translate the knowledge to be taught into a context suitable to the current state of comprehension of the learners. Curriculum should therefore be arranged in a spiralling manner, so that the pupil constantly draws on what they have already studied. Bruner believed that teaching must be about the interactions and environments that render the learners eager and worthy of learning. He insists that teaching should be organized so that learners can quickly understand the content. According to Bruner, effective methods of knowledge structuring will contribute to simplification, creation of new propositions and enhanced use of information.

The applicability of this theory was that it emphasizes discovery learning where by teachers ought to help learners construct their own knowledge through manipulation of learning materials. This is the main aim of the proposed study which will delve to investigate teacher factors influencing use of improvised learning materials to enhance learning. The theory asserts that all learning takes place through stages, and should start with direct object manipulation. This implies that teachers should have adequate learning materials which learners can interact with to create their own knowledge. After a learner has the ability to control the artefacts explicitly, symbolic interpretations, such as drawing an image or a diagram should be facilitated. Eventually, they can realize that symbols are linked to what they say. Pre-primary schoolteachers should make possible the learning process by developing materials for learners that offer the opportunity to view, manipulate and construct knowledge as opposed to teaching them how to memorize what they are told. This can only be done while studying by using the correct instructional materials. In view of the vital role of teaching resources in

learning, this research aims to classify factors related to teachers influencing utilization of improvised teaching resources in pre-primary grades.

Conceptual Framework

The framework of the study explains the connection between selected teacher aspects and use of improvised teaching resources. The independent variables include level of training, teaching experience. Dependent variables include improvised instructional materials such as flashcards, counters, charts, pictures farm materials and modeling materials that are locally constructed or collected

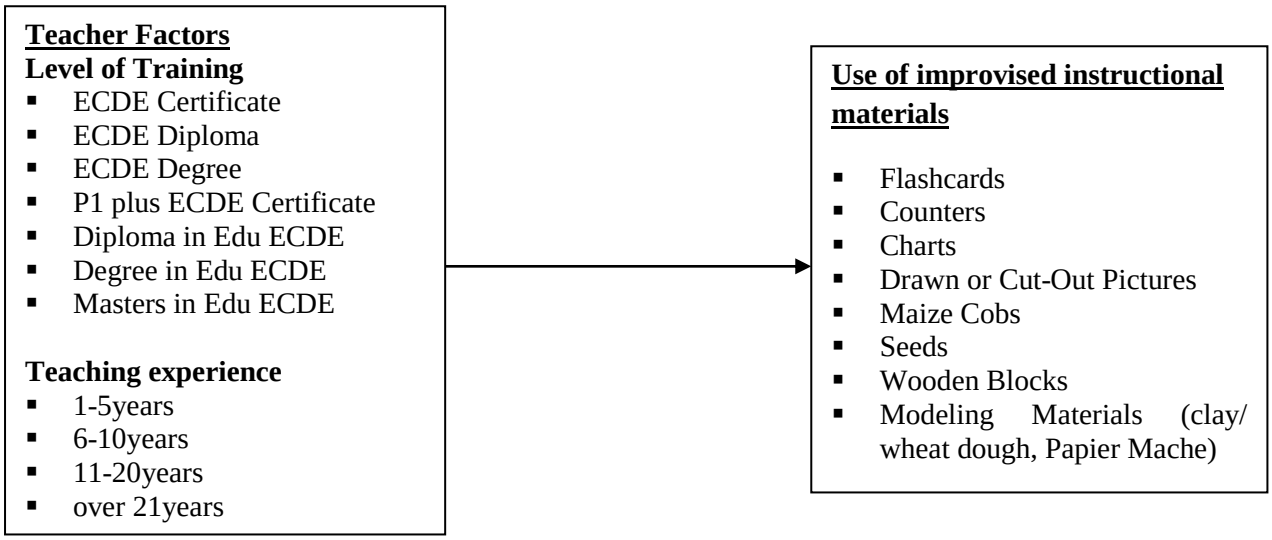

Figure 1: Teacher Factors on Use of Improvised Learning Resources

Figure 1 illustrates how independent variables which are teacher factors as they relate to the dependent variable which in this case is use of improvised learning resources in preprimary schools. The diagram illustrates that teachers' level of training, teaching experience, influence teachers' use of improvised instructional materials.

REVIEW OF RELATED LITERATURE

Teachers' Level of Training and Use of Improvised Learning Resources

Improvisation is defined as an act of supplying teaching materials from our locality where the standard ones are missing (Mboto, Ndem & Utibe-Abas, 2011). Improvisation is the opportunity to extract and bring together current pieces of material from our world for a reason in a new combination (Asokhia, 2010). Ibaam (2012) also describes improvisation as the use of locally accessible resources due to lack of actual resources that are needed. Improvisation of teaching materials therefore can be described as the ability of teachers to build suitable, adequate and relevant material resources. According to Maleu and Lajoie (2011), teachers need prerequisite skills on how to improvise learning resources. Maleu and Lajoie emphasize that for teachers to be able to manufacture learning materials effectively from locally produced products, the instructor must possess the skills that are required. The gaining of improvisation skills by teachers can be made possible through constant practice. Teachers should also be aware of the basic concepts and design elements.

Maleu and Lajoie (2011) emphasize the need for teachers to have improvisation skills, because instruction without the use of learning materials would hinder learners from grasping concepts as well it may lead to misconception of ideas and concepts. The result of using appropriate and sufficient instructional content in the achievement of students will enhance their understanding of concepts in its ideal context. A study carried out by Usman and Adewumi (2016) have argued that a teacher's capacity to improvise includes professional

engagement, expertise, imagination, self-confidence, positive attitude and resourcefulness. It suggests that the degree of improvising abilities gained by teachers varies from teacher to teacher. Use of improvised instructional resources plays a vital role of enhancing learners' performance in classrooms. Ogbeba (2015) carried out a study in Nigeria that measured the influence of instructional materials on students' performance in Chemistry. Descriptive research design was used and improvised chemistry teaching aids questionnaire was used to gather data from 150 students in chemistry who were randomly sampled. The study found students learned using modified chemistry teaching materials outperformed their unlearned counterparts using the improvised chemistry instructional materials. The report proposed opportunities for chemistry teachers to use innovative resources when teaching chemistry because it facilitates learning.

Utilization of improvised learning resources in instruction can be influenced by teachers' academic qualifications and professional development. Kjellfrid and Magne (2017) conducted a survey to establish teachers' utilization of improvise learning materials in primary schools. The study found the plurality of teachers (62 per cent) had a good understanding of what improvisation means however, they experienced challenges in their improvisational practices, because the knowledge and skills was lacking. The research proposed improvisation to be part of teacher training. Mwalyego (2014) did a study about establishing use of improvised teaching material in pre-schools in Morogoro region, Tanzania. It revealed that the teachers relied on instructional materials purchased by school administration which were not adequate. The teachers who participated reported teachers were not improvising pre-school learning materials to address the inadequacy of the instructional materials due to lack of improvising skills. Okudo and Omotuyole (2013) examined the use of locally made tools in early childhood education in Nigeria to facilitate successful literacy and communication skills. The study followed a systematic research design that used questionnaires to gather data. The study found that most teachers in early childhood education were not exposed to training programs that would help improve their knowledge of the use of local teaching and learning resources. It was proposed that teachers be educated on how to use tools locally made for successful pre-school teaching and learning.

A teacher with high academic qualification academically is believed to have vast knowledge and skills in improvising instructional materials. This is expected to improve pupils' academic outcomes. Those with low qualification are believed to lack adequate improvisation knowledge and skills which negatively impact on pupil's performance. Muganda (2011) argues that unqualified teachers lack creativity and improvisation skills hence, they offer poor quality of education which negatively affects pupil's performance which is the main driver of the variation in pupils learning outcomes at school. Training of teachers on how to improvise learning materials is helpful as it instills skills, knowledge, confidence and self-esteem to teachers enabling them to enhance pupil's holistic development.

A study by Buckler and Gafar (2013) established that training improves teacher's confidence, self-esteem and morale by giving them a sense of professional identity as teachers and improves their creativity in class. Lewin and Stuarts (2013) further explained that training enable teachers to manage their classes and deliver teaching using appropriate teaching methods. Lewin and Stuarts (2013) advocated giving concrete expression to the teaching of new concepts. Concretizing ideas means teaching from the concrete to the abstract. It includes the use of common teaching tools for implementing guidance. But in a situation where standard educational materials are not available, it is necessary for teachers to create an alternate attempt to manufacture educational materials from locally available materials. Further, Lewin and Stuart (2013) established that education system is unable to offer enough education on improvising training materials to meet demand for qualified and creative school teachers. Mulkeen and Higgins (2010) concurred with Lewin and Stuart (2013) that the system cannot offer enough training courses to the teacher trainer, posing as a reason for them feeling inadequately trained for instructional methods in pre-primary grades which affects their ability to improvise appropriate materials in teaching and learning. These brought deteriorating standards of education in preprimary grades. Mulkeen, (2010) further established that discrepancy in what is expected

from the curriculum and how teachers are trained to prepare instructional materials remains a challenge in education spectrum.

Low achievement level and poor quality of education could be attributed to lack of competent teachers and inadequate instructional materials as reported by World Bank (2015). The study raises concerns on quality of graduates being produced by Kenyan universities and colleges. It observes that the country's education system is failing to produce competent teachers. These teachers lack improvisational skills which are crucial for delivery of the curriculum. Ng'asike (2012) studied the preparation of early childhood and primary school science teachers. The study confirmed that while the Kenyan government emphasizes science as a critical subject for advancing technology and realizing the vision 2030, teacher training, research programs and teaching materials are not yet available to meet science's demands for comprehension, information and rational thoughts. The cited studies reveal that there is insufficient instruction for teachers at all stages of learning to improvise teaching resources. However, the studies have paid attention to many variations on improvisation of teaching-learning materials with regard to the teachers' level of training. Consequently, the focus of this study will be to establish whether pre-primary school teachers' level of training influences improvisation of learning materials.

Teachers' Teaching Experience and Use of Improvised Learning Resources

The number of years one has served as a teacher may influence their use of improvised learning materials in instruction as shown by Ngure (2014) who explored the use of social media in the pre-primary education teachers college. The study found out that most tutors have been teaching for a long time and that is why they are well trained to improvise and use the improvised teaching materials during lessons. Similarly, Adegbija and Fakomogbon (2012) looked at the use of electronic media for teaching and learning at selected Nigerian campuses. They suggested that an instructor's familiarity through in-service training, seminars, and conventions facilitated the use of instructional tools. Further, the study explained that teachers with many years of teaching experience had acquired expertise which enabled them to build and leverage educational resources.

Another study by Makokha (2017) examined the pre-primary college academics' use of improvised learning materials in science instruction in Bungoma East Sub-County, Kenya. The study specifically wanted to work out the connection between the frequency of use of improvised tutorial materials in science instruction by pre-primary teachers and {also the} factors that were believed to influence their use. Questionnaires and observation listing were accustomed generate data. Results from the information analysis disclosed that there have been a range of improvised science instructional materials in pre-primary colleges though they weren't adequately used. The study also according that there was a big relationship between teachers teaching expertise and frequency of use of jury-rigged tutorial materials at (p=0.001). It absolutely was conjointly according that there was a big relationship between head academics level of support and teachers frequency of use of IIM at (p=0.012). Further, the study established that no significant relationship between teachers coaching level and also the use of improvised materials in science instruction at (p=0.957).The study terminated that once teachers are well knowledgeable about and find adequate support from their head teachers, they're ready to use improvised learning materials often and effectively.

Samandi and Kauri (2014) examined whether there is a link between teachers experience in teaching and the amount of teaching resources that are used during pre-primary science training. It was determined that teachers with an increased experience of ECDE have a positive attitude towards improvising teaching-learning materials. It also established that experienced teachers had good relationships with pre-primary children relative to less experienced ones. When dealing with young children, seasoned pre-school teachers are seen to be more confident and are also more effective when teaching with educational materials. This is because they have acquired more expertise in teaching young children and are therefore in a stronger position to handle the teaching period (Samandi& Kauri, 2014). It has also been stated that teaching experience is very significant,

helping the instructor develop professional features such as timeliness, adaptability, productivity, attracting and maintaining the attention of students, providing adequate educational resources and being able to face the class with confidence (Sidhu, 2010). The above findings deviate from a research carried out by Waigera (2013) on the relationship between the use of appropriate cultural objects and the teaching experience. Research discovered the teachers ' teaching experience did not influence improvisation of relevant materials. Likewise, a study conducted by Rotumoi (2013) noticed that, despite the fact that most teachers had a good teaching experience, they did not effectively use improvised teaching-learning materials.

A study done by Yala and Wanjohi (2011) established that teachers' experience and educational qualifications are the main predictors of improvisation and utilization of relevant and quality educational materials by teachers. Similarly, a study carried out in Texas on teachers, schools and academic achievement by Ravkin, Hanushek and Kain (2010) pointed out that teacher teaching experience and educational qualifications were significantly related to quality of education and students' achievement. Bruce, Harsh and Mckibbin (2009) however had a different opinion that however experienced the teacher is, without professional commitment, other factors alone make little difference. Ngeru (2016) carried out a survey in Nairobi County to assess the impact of the background of a pre-school teacher, gender and academic qualifications on improvisation and teaching resources use in teaching numbers work. The study established that the pre-school teachers in the sub-country used abacus, toys, and real objects regardless of gender, teaching experience, educational qualifications and professional skills. The study concluded that academic qualifications, professional qualifications and teaching experience did not affect the improvisation and resource use of pre-school education numbers analysis. From the reviewed studies, it is not clear if experience improves the use of teaching materials or not. Therefore, this research seeks to determine the connection between instructor expertise and utilization of innovative services in teaching. In addition, the cited studies have discussed widely the way teaching experience impacts the use of conventional tools in education but the aspect of improvised materials has not received much attention. The proposed study therefore, specifically seeks to focus on the connection between the degree of teaching experience and the use of innovative training resources in pre-primary schools.

METHODOLOGY

***Research Design*:** The correlation research design was used in this study. The design is a systematic, empirical inquiry whereby a researcher establishes and describes the variables and the relationship existing between them with little or no attempt to manipulate them (Creswell, 2011).

Location of the Study: This study was carried out in South Imenti Sub- County in Meru County Kenya. South Imenti Sub-county has six wards with the highest population in comparison to the rest of the sub-counties (INFOTRAK, 2015).

***Target Population*:** The population of the study was teachers in pre-primary schools. The target population was 316 teachers in public pre-primary schools and 253 pre-primary school teachers from private schools (MoE, 2014).

***Sampling Technique and sample size*:** The study population is in different management level and hence use of stratified random sampling Orodho (2014); Creswell (2014) which concurs with their findings. This was achieved by listing the pre-primary schools and the teachers according to private and public, thereafter, samples were randomly picked from the lists according to their proportion in the target population.

The sample size used in the study was as presented on Table 1.

Table 1: Sampling Frame

	Target	30% Sample size
Public pre-primary schools	21	6
Private pre-primary schools	137	41
Public pre-primary teachers	63	19
Private pre-primary teachers	253	76
Public primary schools head teachers	21	6
Private primary schools head teachers	137	41

In this study, a sample size of 30 per cent targeted pre-primary schools, teachers and head teachers were selected.

***Research Instruments*:** The study used a questionnaire, an observation schedule and interview schedule to collect data.

***Pilot Study*:** The research methods were tested in advance in two pre-primary schools in South Imenti Sub-county.

Validity: Content validity was employed to ensure that the research instruments are valid.

Reliability of the Study: The researcher used split-half approach to define the instrument's internal consistency. The Cronbach Alpha coefficient was ranked fairly high at 0.7 and above. The results of reliability are presented in Table 2.

Table 2: Results of Reliability Test

Variable	Cronbach Alpha Value	Remarks
Teachers' level of training	0.802	Reliable
Teachers' teaching experience	0.754	Reliable
Aggregate Score	0.782	Reliable

Source: Pilot Study, 2022

Table 2 indicated that all the variables studied had an alpha correlation coefficient greater than 0.7. Orodho (2005) observes that an alpha coefficient of 0.7 makes the devices accurate. The findings of the reliability check of the pilot study were therefore 0.782, suggesting excellent reliability.

***Data Collection*:** The researcher started off data collection by observing the pre-primary school teachers during lessons and record the frequency at which teachers use improvised learning resources in classrooms followed by administration of the questionnaire.

***Data Analysis*:** Qualitative data was organized in line with the emerging themes according to the study objectives. The quantitative data was coded and entered into the Statistical Program for Social Sciences (SPSS) version 22. Demographic information was summarized using descriptive statistics that included mean and frequencies which was calculated and presented in tables and percentages. Whereas inferential statistics which include the Pearson Product Moment of Correlation was used to establish nature of association between dependent and independent variables of the study at 0.05 level of significance in the null hypotheses below that state;

Logistical and Ethical Considerations: The logistical and ethical considerations to be observed. The researcher sought authorization to conduct the study from Graduate School, Kenyatta University, permit from the National Council of Science, Technology and Innovation (NACOSTI) and permission to obtain data, from the South Imenti Sub-County Director of Education. Considerations to be made as proposed by Fraenkel (2011) included protecting the teacher respondents from harm. Confidentiality of information collected from the respondents was ensured and respondents assured that it was only used for the purpose of this study.

FINDINGS AND DISCUSSION

Response Rate

The questionnaires were self-administered 95 respondents including the public pre-primary school teachers and private pre-primary school teachers. The results were presented in Table 3.

Table 3: Response Rate

Category	Sample size	Respondents	Frequency
Head teachers	47	40	85%
Pre-primary school teachers	95	90	95%
Total	142	130	90%

Source: Survey Data (2022)

The response rate was 90% which was adequate for the study .The results concurred with Kothari (2014) that a response rate of 70% was sufficient for the study.

Demographic Information

The demographic information of the respondents was evaluated in terms of gender, age bracket, type of school and the grade the respondents currently teaching. The results are presented as follows:

Respondent's Gender

The study sought to establish how the respondents were represented in terms of their gender in the study. The results were presented in Figure 2.

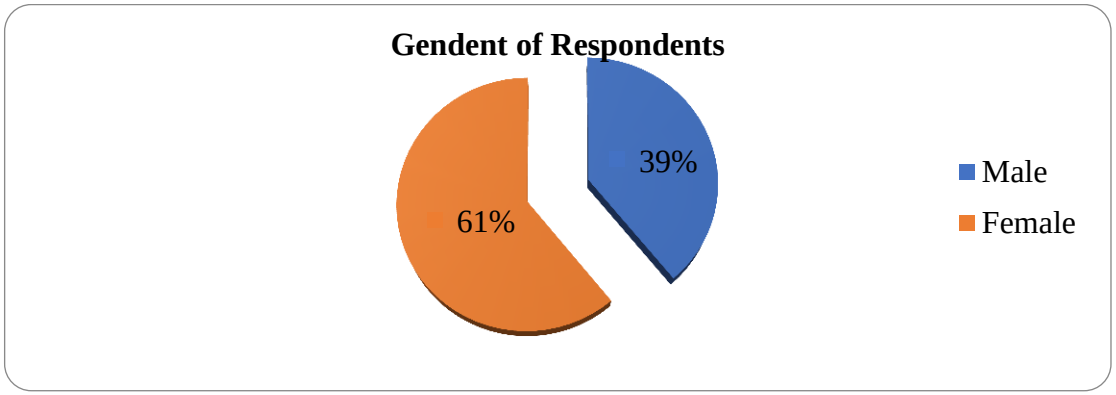

Figure 2: Respondents' Gender
Source: Survey Data (2022)

On the other hand, the study established that majority (61%) of the head teachers were female and male head teachers accounted for 39%. This shows that teaching staff in pre-primary schools in Meru County, Kenya is dominated by female.

Respondent's Age Bracket

The study sought to establish how the respondents were represented in terms of their age in the study. The results are presented in Table 4.

Table 4: Teachers' Age Bracket

Years	Frequency	Percentage
20 – 30	22	25
31 – 40	30	33
41 – 50	29	32
50 and above	9	10
Total	90	100

Source: Survey Data (2022)

The results in Table 4 showed that the teacher's ages ranging between 31 to 40 years accounted for 30 (33%), respondents aged between 41 to 50 were 29 (32%), while those aged between 20-30 were 25% and 10.0% of the respondents were aged above 50 years. On the other hand, majority (93.5%) of the head teachers indicated that they were aged over 40 years, followed by those who were aged between 31 to 35 years at 4.3% and 2.2% were aged between 36 to 40 years old. This is an implication that the study involved respondents of all ages within the schools whereby majority were aged between 31 to 50 years. The combination of young and older employees was important because they have different styles of working that enabled the researcher to obtain data based on various perspectives.

Table 5: Head Teachers' Age Bracket

Years	Frequency	Percentage
31 to 35	2	4
36 to 40	1	2
Over 40	43	94
Total	**90**	**100**

Source: Survey Data (2022)

Respondent's Type of School

The study sought to establish how the respondents were represented in terms of their type of school in the study. The findings are demonstrated in Figure 3.

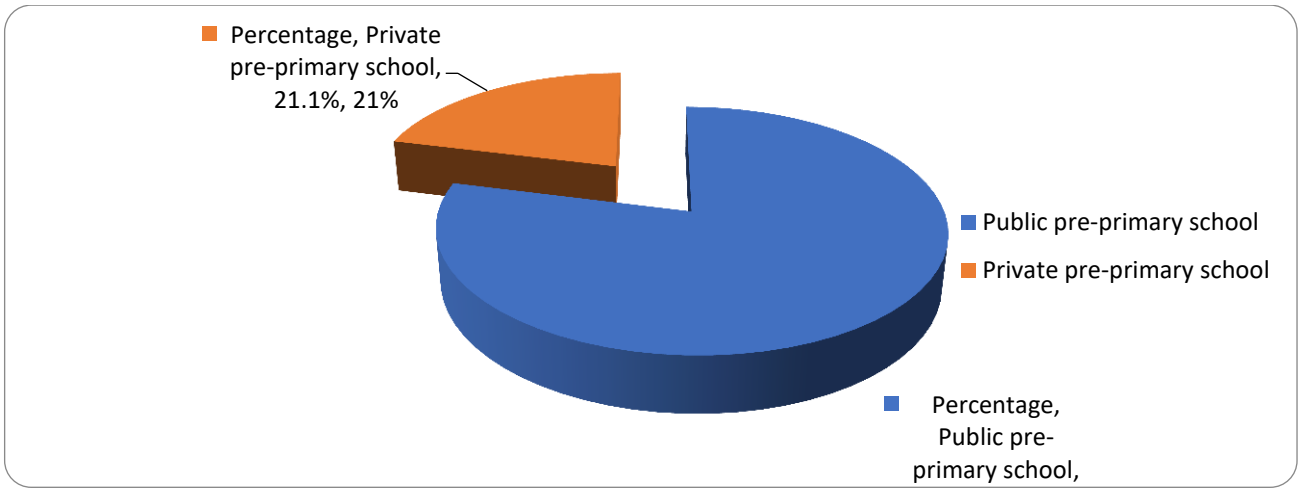

Figure 3: Type of School
Source: Survey Data (2022)

The results in Figure shows that majority (78.9%) of the respondents were from the public pre-primary schools and 21.1% from the private pre-primary schools. This shows that public pre-primary schools in Meru County, Kenya account majority.

Respondent's Current Teaching Grade

The study sought to establish how the respondents were represented in terms of their current teaching grade in the study. The findings are demonstrated in Table 6.

Table 6: Respondent's Current Teaching Grade

Grade	Frequency	Percentage
Pre-primary	45	50.0
Pre-primary	45	50.0
Total	**90**	**100**

Source: Survey Data (2022)

The findings as presented in Table 6 indicated that the respondents from both public and private pre-primary schools accounted 50.0% respectively. This shows that the study was well represented as it drew an equal number of the respondents from both categories of the pre-primary schools in Meru County, Kenya.

Pre-primary School Teachers' Level of Training

Teachers' level of training was measured in terms of the pre-primary school teachers' highest training certificate level and whether the level of training influence the way to use learning resources when teaching. The findings were presented in Table 7 and Figure 4.

Table 7: Teachers' Highest Training Certificate (Level)

Certificate Level	Frequency	Percentage
ECD certificate	30	33
ECD Diploma	69	65
P1 certificate	1	1
ECE degree	0	0.0
Diploma in education	0	0.0
Degree in education	0	0.0
Master in education	0	0.0
Not trained	0	0.0
Total	90	100

Source: Survey Data (2022)

The results as presented in Table 7 showed that majority (66%) of the respondents had their highest training certificate level as ECD diploma, followed by those who had ECD certificate as represented by 34% of the respondents and those respondents who had a P1 certificate accounted for 1%. This is an indicator that teachers from both public and private pre-primary schools in Meru County, Kenya had been trained with their highest level at ECD diploma. However, none of these respondents had their highest training certificate at ECE degree, Diploma in education, Degree in education and Master in education.

Table 8: Head Teachers' Highest Training Certificate (Level)

Certificate	Frequency	Percentage
MA	1	2
BeD	23	50
PGDE	5	11
Diploma	4	9
P1	13	28
Total	**90**	**100**

Source: Survey Data (2022)

The results, 50% of head teachers had Bachelor of education (BeD) as their highest training certificate, followed by 28% of those who had P1 certificate, 11% PGDE, 9% Diploma and 2% Diploma certificate. This is an indicator that the head teachers had attained the highest academic level than the teachers. The findings are presented in Table 8. According to Maleu and Lajoie (2011), teachers need prerequisite skills on how to improvise learning resources.

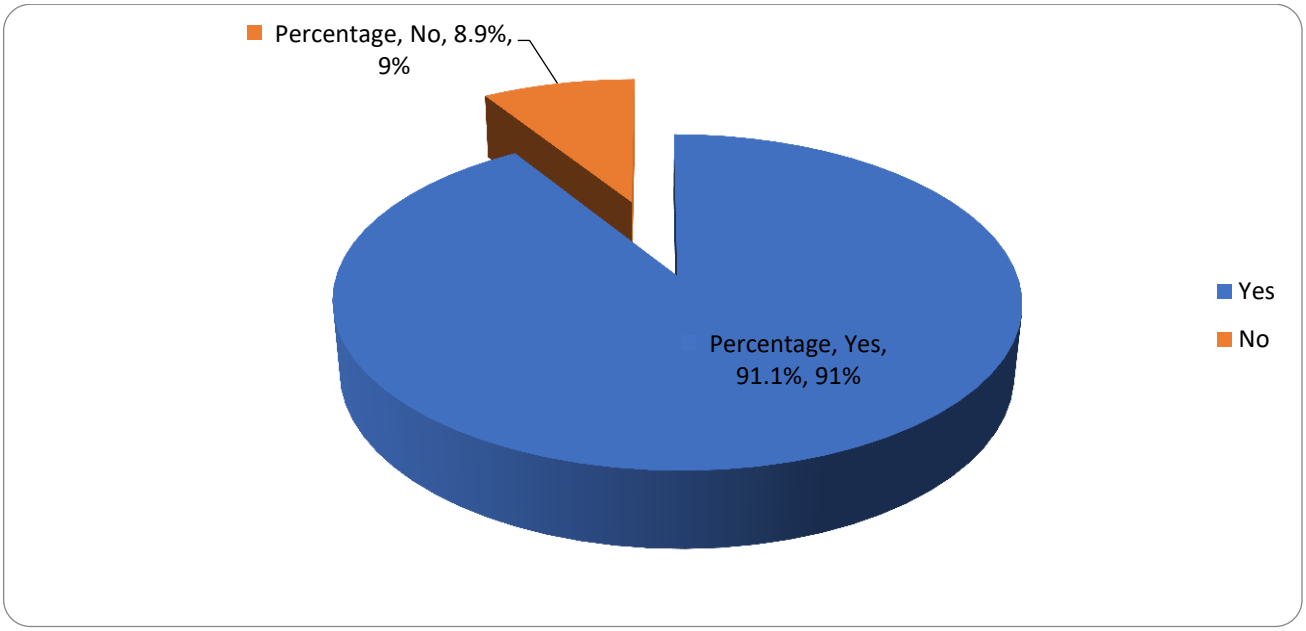

Figure 4: Level of Training and Use of Learning Resources
Source: Survey Data (2022)

The results as presented in Figure 4 showed that majority (91.1%) of the respondents agreed that the level of training influences the way to use learning resources when teaching while 8.9% of the respondents disagreed. This leads to a conclusion that pre-primary school teacher level of training actually influences the use of learning resources when teaching in both public and private pre-primary schools. This finding concurs with Muganda (2011) argues that unqualified teachers lack creativity and improvisation skills hence, they offer poor quality of education which negatively affects pupil's performance which is the main driver of the variation in pupils learning outcomes at school.

Pre-primary School Teachers' Teaching Experience

The study sought to determine the relationship between teachers' teaching experience and use of improvised learning resources in pre-primary school. Teacher's teaching experience was measured in terms of the length of teaching in pre-primary schools and whether the teaching experience influences the way to use learning resources when teaching. The findings are presented in Table 9 and Figure 5.

Table 9: Teachers' Length of Teaching in Pre-primary Schools

Years	Frequency	Percentage
1 to 5	16	18
6 to 10	33	37
11 to 20	22	24
Over 20	19	21
Total	**90**	**100**

Source: Survey Data (2022)

The results as presented in Table 9 showed that majority (37%) of the respondents had their length of teaching in pre-primary schools for a period ranging from 6 to 10 years, followed by those who had taught for a period ranging between 11 to 20 years accounting for 24%, 21.1% accounted for those respondents who had over 20 years and 17.8% to those who had a period of 1 to 5 years. This shows that majority of the pre-primary school teachers had taught for a period ranging between 6 to 10 years. Therefore, it can be concluded that both public and private pre-primary schools had retained their teachers for a longer period.

From the interview schedules, in was observed from the head teachers that they had served as the head teachers in the current school for an average period of 4 years ranging from 1 year to 24 years. Majority of the head teachers had served for a period of 1 year. This implies that head teachers had not served for a long period in the pre-primary schools in Meru County, Kenya. The findings also concur with Samandi and Kauri (2014) study that examined whether there is a link between teachers experience in teaching and the amount of teaching resources that are used during pre-primary science training and determined that teachers with an increased experience of ECDE have a positive attitude towards improvising teaching-learning materials.

The study further sought to establish whether the teaching experience influences the way to use learning resources when teaching. The findings are presented in Figure 5.

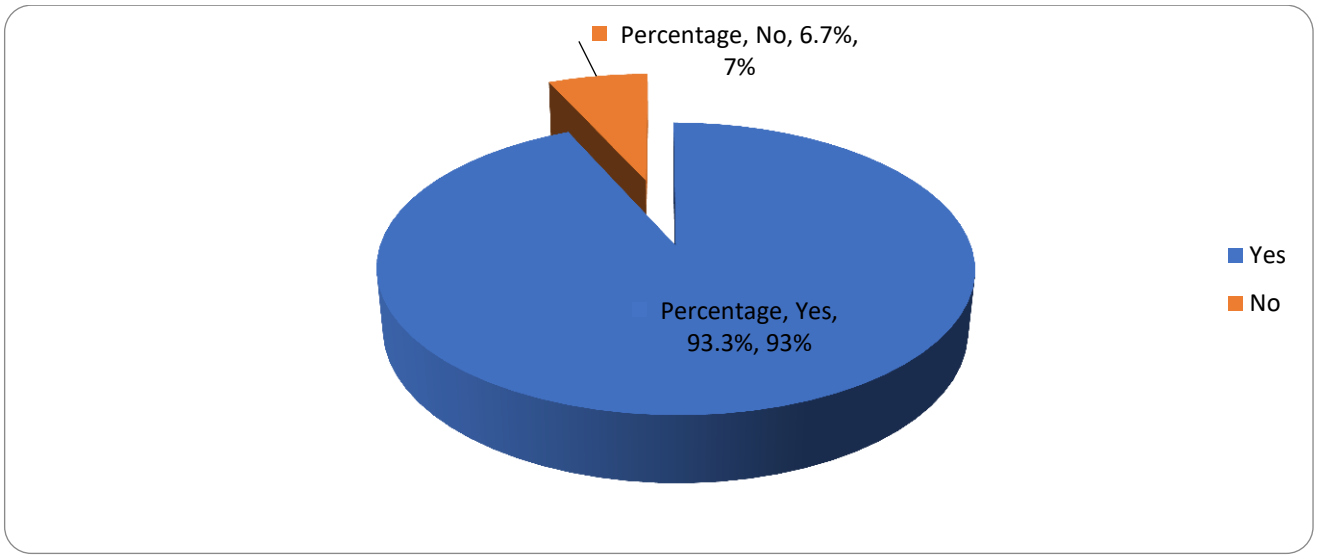

Figure 5: Teaching Experience and Use of Learning Resources
Source: Survey Data (2022)

The results as presented in Figure 5 showed that majority (93.3%) of the respondents agreed that the teaching experience influences the way to use learning resources when teaching while 6.7% of the respondents disagreed. The findings agree with Adegbija and Fakomogbon (2012) study that looked at the use of electronic media for teaching and learning at selected Nigerian campuses. They suggested that an instructor's familiarity through in-service training, seminars, and conventions facilitated the use of instructional tools.

Results of Inferential Statistics

Inferential statistics involved the use of correlation and multiple linear regression analysis in order to establish how teacher factors relating to their level of level of training and teaching experience on use of improvised learning resources in pre-primary grades in South Imenti Sub County. The two analyses were performed using Statistical Package for Social Sciences (SPSS).

Correlation Analysis

Pearson correlation analysis was done and results presented in Table 10.

Table 10: Correlation between Use of improvised learning resources and teacher's factors

Correlations				
		Use of improvised learning resources	Level of Training	Experience
Use of improvised learning resources	R Correlation	1	.781**	.717*
	Sig. (2-tailed)		.007	.001
	N	96	96	96
Level of Training	Pearson Correlation	.781**	1	.004
	Sig. (2-tailed)	.007		.966
	N	96	96	96
Experience	Pearson Correlation	.717*	.004	1
	Sig. (2-tailed)	.001	.966	
	N	96	96	96

*. Correlation is significant at the 0.05 level (2-tailed).

The r in the correlation table 7 indicated the correlation factor for each variable, where there is Sig. 2-tailed has (**) indicated that Correlation was significant at the 0.01 or 99% confidence level and where Sig. 2-tailed has (*) indicated that correlation was significant at the 0.05 (2 tailed) of 95% confidence level. The results also indicated that level of training has a strong, significant and positive correlation with use of improvised learning resources as indicated by correlation factor, r=0.781, PV=0.007<0.05. The results were supported by Maleu and Lajoie (2011), teachers need prerequisite skills on how to improvise learning resources and that for teachers to be able to manufacture learning materials effectively from locally produced products, the instructor must possess the skills that are required and that there exist a moderately strong, significant and positive correlation between teaching experience and use of improvised learning resources as r=0.717, PV=0.001<0.01. This implies that teaching experience predict insignificant improvement in use of improvised learning resources. The results are in line with Sidhu, (2010) who found that teaching experience is very significant, helping the instructor develop professional features such as timeliness, adaptability, productivity, attracting and maintaining the attention of students, providing adequate educational resources and being able to face the class with confidence.

Study Hypotheses

The following hypothesis guided the study:

H_1: There is no significant relationship between teachers' level of training and use of improvised learning resources in pre-primary school.

Teachers level of Training and Use of Improvised Learning Resources in Pre-Primary School

In order to test hypothesis HO_1, a simple linear regression analysis was employed. The model equation of the form $Y=\alpha+ \beta_1X_1+\varepsilon$. was used.

Table 11: Model Summary for HO1

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.581[a]	.338	.323	0.51898

From the results, R-Squared is 0.338 and indicate that there is correlation between the teacher training and use improvised learning resources in pre-primary schools. It implied that variation in teacher training result into 33.7% variation in use of improvised learning resources in pre-primary school. The model summary results in Table 11 showed R^2 is 0.337, Std Error= 0. 0.51898 indicating that there was a significant variation at 33.7% in use of improvised learning resources in pre-primary schools due to change in training of teachers.

Table 12: Anova Analysis for HO_1

	Sum of Squares	df	Mean Square	F	Sig.
Regression	20.287	1	20.287	31.973	.007[b]
Residual	59.643	94	0.6345		
Total	79.930	95			

These results in Table 12 indicated that the model had an F-ratio of 31.973, P=0.007<0.05. This result ascertain the univariate regression model $Y=\acute{\alpha}+\beta_1X_1+\varepsilon$. adopted for testing the hypothesis had a significant goodness of fit as F=31.973 and far exceeds the F=statistic 2.940 and PV=0.007<0.05.

Table 13: Regression Coefficients for HO1

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	13.710	1.095		12.515	.000
	Teacher Experience	.2212	.0284	.181	7.788	.001

From the results in Table, 13 the resultant univariate $Y=\acute{\alpha}+\beta_2X_2+\varepsilon$ was established to be $Y=13.710+0.2212X_1+\varepsilon$. The results indicated that an increase in teacher training contributed significantly to an increase in the use of improvised learning material by factor β_1= 0.2212, PV=0.001<0.05.

H_0: $\beta_1=0$

H_1: $\beta_1 \neq 0$

Table 10 showed P= 0.000< 0.05 therefore the study reject the null hypothesis and accepted the alternative hypothesis accepted that there existed a significant and significant relationship between teachers self-efficacy and use of improvised learning materials in pre-primary schools.

Teaching Experience and Use of Improvised Learning Resources in Pre-Primary School

In order to test hypothesis HO_2, a simple linear regression analysis was employed. The model equation of the form $Y=\acute{\alpha}+\beta_2X_2+\varepsilon$. was used.

Table 14: Model Summary for H_1

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.517[a]	.2673	.2459	0.56107

From the results in Table 11, R-Squared was 0.2673 and indicated that there is correlation between the teaching experience and use improvised learning resources in pre-primary school. It implied that variation in teaching experience result into 26.73% variation in use of improvised learning resources in pre-primary school. The model summary results in Table 15 shows R^2 is 0.2673, Std Error= 0. 0.56107 indicating that there was a significant variation at 26.73% in use of improvised learning resources in pre-primary schools due to change in teaching experience.

Table 15: Anova for HO2

	Sum of Squares	Df	Mean Square	F	Sig.
Regression	11.188	1	11.188	70.371	.001[b]
Residual	98.031	94	0.159		
Total	109.219	95			

These results in Table 16 indicated that the model had an F-ratio of 70.371, P=0.001<0.05. This result ascertain the univariate $Y=\acute{\alpha}+\beta_2X_2+\varepsilon$. regression model adopted for testing the hypothesis had a significant goodness of fit as F=70.371 and far exceeds the F=statistic 8.762 and PV=0.001<0.05.

Table 16: Regression Coefficients for HO2

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	15.459	.955		16.186	.000
	Teacher Experience	.5042	.055	.4875	9.169	.000

From the results in Table 13, the resultant univariate $Y=\acute{\alpha}+\beta_2X_2+\varepsilon$ was established to be $Y=15.459+0.5042X_1+\varepsilon$. The results indicated that an increase in teacher experience contributed significantly to an increase in the use of improvised learning material by factor β_1=, .309, PV=0.000<0.05.

H_0: $\beta_2=0$

H_1: $\beta_2 \neq 0$

Table 13 showed P= 0.000< 0.05 therefore the study reject the null hypothesis and accepted the alternative hypothesis accepted that existed a significant and significant relationship between teachers self-efficacy and use of improvised learning materials in pre-primary schools.

Multivariate Regression Analysis

The study perform multiple regression analysis to determine whether combined total sum variables predict dependent variable as recommended by Mugenda (2008). The study performed multivariate regression analysis due to the number of variables that were more than one independent variable. The multivariate model considers teachers factors and use of improvised local learning materials in pre-primary schools.

Table 17: Model Summary

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.696[a]	.4844	.4391	.55296

a. Predictors: (Constant), Teachers level of training and teacher's experience

b. Dependent: Use of improvised local learning materials in pre-primary schools

The results in Table 14 of R-Squared revealed that there existed a significant variation between teachers factors that is Teachers training and teacher's experience and use of improvised learning materials as correlation factor r=0.4844 . Adjusted R^2 is called the coefficient of determination and indicates variation in teacher factors. From the model summary Table 17, the value of adjusted R^2 is 0.4391. This implied that, there was a significant variation of 43.91.3% of use of improvised learning materials due to change teachers training, teacher's experience.

ANOVA

Table 18: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	23.637	4	5.909	9.065	.000[b]
	Residual	59.314	91	0.6518		
	Total	82.951	95			

Predictors: (Constant), Teachers level of training and Teacher's experience

b. Dependent: Use of improvised local learning materials in pre-primary schools

In Table 18, The F-calculated of 9.065 reported at 0.000< 0.05 far exceeded that F-critical 2.5094. This clearly indicated that there existed a goodness of fit between teacher's factors and use of improvised learning materials in pre-primary schools.

Table 19: Beta Coefficients

Coefficients a					
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	15.111	3.811		3.965	.000
Teachers training	.224	.0406	.211	5.505	.000
Teacher's experience	.335	.047	.314	7.132	.000

b. Dependent: Use of improvised local learning materials in pre-primary schools

The study proposed a multivariate regression model as indicated

The multiple linear regression model that will be used in this study as presented below:

$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \varepsilon$

Where;

Y = Use of improvised local learning materials in pre-primary schools

X_1= Teachers level of training

X_2= Teacher's experience

β_0 = Constant

β_1, β_2, β_3 and β_4 = Beta coefficients and

ε = Error term

The results regression model substituting the beta coefficient was

$Y = 15.111 + 0.224X_1 + 0.335X_2 + \varepsilon$

From the results in Table 16, constant value in regression model was α= 15.111. This indicate the level of use of improvised local learning materials in pre-primary schools holding teachers' factors constant. This implied that there could be other factors determine use of Use of improvised local learning materials in pre-primary schools not consider by the current study. Regression results revealed that teacher training had a significant positive influence on Use of improvised local learning materials in pre-primary schools (B_1= 0.224, PV = .000<0.05, t=5.505). The finding implied that an increase in a unit in training would lead to a significant increase in Use of improvised local learning materials in pre-primary schools by regression factor B_1= 0.224. Regression results revealed that teacher experience had a significant and positive influence on Use of improvised local learning materials in pre-primary schools (B_2= 0.335, PV = .000<0.05, t=7.132 The finding implied that a unit increase in teacher experience would lead to a significant increase in Use of improvised local learning materials in pre-primary schools by regression factor B_2= 0.335.

The study carried out and observation checklist based on finding out the frequency of use of improvised instructional resources in both public and private pre-primary schools in Meru County, Kenya. From the public pre-primary schools, it was observed that the most frequently used improvised instructional materials were; charts, flashcards, maize cobs, seeds and collected blocks, drawn or cut-out pictures. On the other hand, modeling materials and clay dough was least used.

CONCLUSIONS AND RECOMMENDATIONS

The first research objective was to determine whether there existed a relationship between training of teachers and level of use of improved learning resources in pre-primary school in South Imenti Sub County. The finding revealed that majority of preschool teachers were qualified and had acquired teaching skills and knowledge on using improvised learning resources. Descriptive results further showed that teachers' training contributed to teaches using improved learning resources in pre-primary schools. Correlation results revealed that there existed a strong, significant association between level of teachers training and use of improvised instruction resources. This was further supported by regression results that established that an improvement in teachers training would lead to increase in the used of improvised instructional resources in pre-primary schools.

The second research objective sought to determine whether teacher' experience was a precursor for use of improvised learning resources in pre-primary schools in South Imenti Sub County. Descriptive results revealed that majority 82.2% of teachers had a teacher experience of more than 6 years with high frequency of use of improvised learning materials in teaching at pre-primary schools in South Imenti Sub County. The finding was supported interviewees who indicated that the more experienced teachers used improved teaching resources more often in an effort to achieving expected learning outcomes. Pearson correlation established there is a strong, positive and significant association between teachers' teaching experience and use of improved learning resources in pre-schools in South Imenti Sub County. Regression results confirmed that teachers' experience as a strong predictor of use of improvised instruction materials to achieve intended learning goals as increased teaching experience resulted to improvisation of instruction materials in teaching in preschool classes.

From the findings, the study concluded that preschool teacher training is factors that significantly influence use of improved instructional materials in pre-schools in South Imenti Sub County. Attainment of the requisite education qualifications and attending trainings equip the preschool teachers with skills and knowledge that influence utilization of improvised learning resources to achieve the intended learning outcomes in pre-primary schools. From the results, the study concluded that teachers' experiences was a precursor that significantly influenced utilization of improvised learning materials in teaching preschool children in South Imenti Sub County. The period of time the preschool teachers had been teaching and frequency of use of improvised instructional materials was revealed to be a teachers' factor that significantly influence use of improvised learning materials in preschools in South Imenti Sub County.

Based on the conclusions, this study makes the following recommendations:
That the government, through the Ministry of Education should ensure that all pre-primary school head teachers and teachers achieves a higher learning certificate through establishing a proper career growth path as most of the teachers had only achieved an ECD diploma certificate, create professional development opportunities that promote teacher collaboration and use Information and Communication technology (ICT) to provide access to content, professional development and professional learning communities. The management of ECDE and specifically management of preprimary schools should devise administration measure to foster teachers self-efficacy toward use of local learning materials to achieve learning outcomes.

Suggestion for Further Studies

The current study investigated the influence of teacher factors relating to their level of training, teaching experience, self-efficacy and attitudes influence use of improvised learning resources in pre-primary grades in South Imenti Sub County. Therefore, the study suggests that there should be further studies. The study was done in South Imenti Sub County. A further study should be carried out focusing on teacher's factors influencing use of improvised learning resources in Urban setting such as Nairobi City County to achieve a comparative outcome of the study and informed policy framework to would foster improvisation and use of local learning materials in pre-primary school. A further study should be carried out to determine the influence of policy framework in determining use of improvised learning resources in preschools in South Imenti Sub County. The extent to which improvised learning resources influence performance among the preschool children should be studied. This would foster the value of using improvised instructional resources in pre-primary schools in Kenya.

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