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Teachers' Competence on the use of Science Instructional Resources in Teaching Science Activities among Pre-Primary Children in Ndhiwa Sub-County, Homa Bay County, Kenya

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Abstract: **Studies and practices have shown that pre-school science is a play based learning activity and in science lessons it may be easy to find materials and equipment for teaching science in schools not used or inadequate. This study aimed at assessing teachers' competence on the use of science instructional resources in Teaching Science Activities among Pre-primary children in Ndhiwa Sub-County, Homa Bay County, Kenya. The study adopted descriptive survey design. Targeting 14 public pre- schools 42 pre-school teachers, 14 head teachers and 700 pre-school children. Simple random sampling was used to sample 38 pre-school teachers, 248 pre-school children and 14 head teachers. The study was quantitative in nature where questionnaires were used to collect data from teachers. Research validity of the instrument was established by content validity technique where the instrument or tools were given to experts from the departments and the supervisors to assess and give their expertise advice, while the reliability of the instrument was also tested using the test-retest technique and reliability co-efficient computed to indicate how reliable data collection tools were. Qualitative data was analyzed based on the themes while quantitative data was analyzed using numeric measures from the scores of various responses, i.e. the correlation analysis used Pearson's product moment correlation coefficient, r. where ** correlation is significant at the 0.01 level (2-tailed). The study found that the instructional resources in teaching science activities were available but not adequate. Most of the teachers had an average competence having been given specific training on how to use instructional resources in teaching science activities in their training. The study recommends that the county government should ensure that all the pre-schools are provided with adequate instructional resources through adequate funding. The ministry of education under the county government should take an initiative to provide sufficient in – service training programmes on the use of instructional resources in teaching science activities to prepare teachers with skills to be involved in pre-school science to improve the performance and mastery of content. The management should provide more instructional resources and train teachers on how to use the resources to enhance their competency and delivery.**

Keywords: **Teachers' Competence, Instructional Resources, Science Activities.**

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1. INTRODUCTION

From the studies and practices done, children have much greater potential to learn than previously thought and therefore pre-school settings should provide richer and more challenging set up for learning. In this environment guided by skillful teachers, children's experience in the early years can have significant impact on their later learning. Children with more experiences in Mathematics or an area of science move more rapidly in acquiring more complex skills because they motivate children to experiment and explore which allows for nurturing and extending the boundaries of children's learning (N.R.C., 2012). Abadzi (2006) argued that science is a resource intensive and in science lesson it may be easy to find materials and equipment for teaching science in schools in adequate. A situation which is further complicated by importing foreign expensive and irrelevant materials. Despite all these, in Nhiwa Sub-County where the study was conducted most teachers and managers do not provide and use materials during science activities, a situation that has led to poor participation and application of science skills in real life situation. This also ascended to primary level according to a report by examination department office Ndhiwa Sub-County (2014). If this issue is not addressed as it deserves it means opportunity in sciences to advance academically will become foreclosed and this in the long run makes it difficult for Kenya to have good scientists. Most of studies done have been focusing on children's social, emotional and physical development as well as very basic skills like language and arithmetic although studies on influence of instructional resources in teaching Pre-school Science Activities is rare and in most cases no research done in majority of public Pre-schools. Hence this study aimed at investigating teachers' competence on the use of science instructional resources in public pre-schools in Ndhiwa Sub-County, Homa Bay County, Kenya.

2. LITERATURE REVIEW

A study done by Kang'ali (2007) highlighted that primary teacher training and ECDE courses did not provide enough practical experience to their trainees to cope with classroom challenges as using instructional resources in teaching science Activities, instead focusing mostly in theoretical experiences resulting to poor or no use of instructional resources in teaching science. Teacher's roles in science teaching instructional resources were not evaluated fully. The current research involved the researcher visiting schools under study and found out teachers' roles in science teaching instructional resources.

Brenneman, Macdold and Roman (2010) did a study that relied on teacher's perception on their qualification to teach in primary schools. The study was carried in Sweden, and found out that primary teachers were more qualified to work with older children and those with little qualification were better placed to work with pre-scholars. Part time training was also given to enable teachers to learn from each other to understand more on their own practices This study talked more on training programme for teacher to work in primary school and not on pre-school and also neglecting the role of teachers in instructional resources. Therefore this research was carried out in public pre-schools to find out the teachers' competence on the use of science instructional resources among Pre-Primary Children.

In Ghana it was revealed that most colleges implement content recommended in the teacher training programme, even though most tutors interviewed showed some challenges on how to determine the role of teachers in science instructional resources (Hergenhahn, 2005). This variation in content and practices makes it possible to raise questions about the quality of teachers trained from some institutions. The study has talked a lot on teacher education programmes and how this affects the quality of teachers produced by those training colleges. However, it does not talk of teachers' competence on the use of science instructional resources among Pre-Primary children in teaching science Activities.

In Kenya a study done by Margeret Kabiru, Ann and Njenga (2007) noted that no in- service training was being provided to pre-schools to prepare teachers with skills to be involved in pre-school science to improve the performance and mastery of content. Teachers were found to lack confidence and commitment and were using in appropriate instructional resource which negatively affected children's ability to deal with concepts in science. The study targeted teachers but did not show specially their roles in science instructional resources. The study focused more on the roles of teachers in science instructional resources. Waithaka (2008) emphasized the importance of training ECDE teachers as she observe that most ECDE Center's in Kenya enforces academic and give little time for learners to interact with instructional materials. She further explain that pre-school children in Kenya are subjected to academic work due to pressure from parents who would like to see them read and write within weeks upon joining pre-schools.

Even though the ECDE Curriculum developed by K.I.C.D has the provision for learners to interact with instructional resources, this is overlooked by school mangers who insist that the pre-school children have to be taught numeric,

literacy, ability to read and write due to the fact that primary school head teachers subject the ECDE children with oral and written interviews for them to be admitted in class one, this gives learners less opportunities to interact with instructional resources in science activities. Librera (2004) suggested that the role of teacher is expected to create a teaching environment as well as put forth resources he/she sees most beneficial to the child to learn and communicate in the classroom.

The teacher has to Endeavour first and understand that the world is organized in the most rational way possible before presenting it to the learners. This view required the teacher to provide the learners with appropriate science Activities with hands on learning with opportunities to experiment and manipulate the world. Kerlinger (2002) support the view suggested by Librera by arguing that teachers has a role in instructional resources in teaching science activities to transform the immediate local material available and bring to classroom for learners to interact with, they also retrieve resources that others sees as having no value to use with children. A lot of science resources can be salvaged from home, school and immediate environment of the pre-schools refers to the original copy was necessary for learning.

Worth (2005) also argued that science activities can build on everyday exploratory activities for pre-scholars. Therefore the pre-school teacher should let the children explore their environment through play for a large portion of the day; he/she should also allow learners enough time to interact with instructional resources so as to learn new skills and to practice existing ones. He further suggested that it is important to prompt the learners appropriately and plan worthy tasks. Through careful presentation of instructional materials teachers can do more than teach routine information as they can model skills, problem solving approaches, moral codes, performance standards, general class rules and creativity in the learners. The suggestions put forward above primarily relied on secondary data which might have less control of the researcher on how data was collected even lacking the most current information which might also be biased. Therefore, the current research involved the research visiting the actual public pre-schools observing the teachers involving in teaching science activities using the materials to obtain primary data in order to fill the gap.

3. METHODOLOGY

The study aimed at collecting information from respondents on their attitudes and opinions on the teachers' competence on the use of science instructional resources in teaching science activities in public pre-schools in Ndhiwa Sub-County. The researcher used questionnaires to collect the data from the respondents. . Secondary data was from the journals, internet, unpublished academic research and literature reviewed.

4. RESEARCH DESIGN

The research design for this study is descriptive survey design to investigate teachers' competence on the use of science instructional resources in teaching science activities in public pre-schools in Ndhiwa Sub-County, Homa Bay County. Descriptive survey is a method of collecting information by interviewing or administering a questionnaire to sample individuals (Orodho, 2003). It was appropriate in collecting information about people's attitudes and opinion. The design is appropriate for this study as the researcher collected information on state of affair on the instructional resource in pre-schools and not manipulating any variable to find out their effects in teaching science activities.

5. FINDINGS AND DISCUSSIONS

Teachers' Competence on the use of Instructional Resource

The objective of the study was to evaluate the teachers' competence on the use of instructional resource in teaching science activities.

The study sought to find out whether the teachers training gave the teachers specific training on how to use instructional resources in teaching science activities.

Table 1: Specific Training on how to use Instructional Resources

	Frequency	Percentage
Yes	27	84.4
No	5	15.6
Total	**32**	**100**

From the study findings, majority of the respondents as shown by 84.4% of the respondents indicated that the teachers training gave them specific training on how to use instructional resources in teaching science activities while 15.6% of the teachers were of the contrary opinion. This finding contradicts Kang'ali (2007) who highlighted that primary teacher training and ECDE courses did not provide enough practical experience to their trainees to cope with classroom challenges as using instructional resources in teaching science Activities, instead focusing mostly in theoretical experiences resulting to poor or no use of instructional resources in teaching science. This according to the findings implies that the teachers training gave the teachers specific training on how to use instructional resources in teaching science activities. The study also sought to find out whether the teachers had special organized presentation of instructional resources in teaching science activities

Table 2: Special Organized Presentation of Instructional Resources

	Frequency	Percentage
Yes	25	78.1
No	7	21.9
Total	**32**	**100**

From the findings, majority of the respondents (78.1%) indicated that, they had special organized presentation of instructional resources in teaching science activities while as 21.9% were of the contrary opinion. According to Margeret Kabiru, Ann and Njenga (2007) in- service training was being provided to pre-schools to prepare teachers with skills to be involved in pre-school science to improve the performance and mastery of content. This implies that the teachers had special organized presentation of instructional resources in teaching science activities. The study further requested the teachers to further indicate the organization that they normally use.

Table 3: Organization Normally Used

	Frequency	Percentage
Rows	6	18.8
Groups	21	65.6
Round table	2	6.3
Learning corners	3	9.4
Total	**32**	**100**

From the study findings, majority of the teachers (65.6%) indicated that they use groups, 18.8% indicated rows, 9.4% indicated learning corners while 6.3% indicated round table. Findings that are in line with Worth (2005) who argued that science activities can build on everyday exploratory activities for pre-scholars. This implies that majority of the teachers use groups in teaching science activities to pre-scholars.

The study requested the respondents to indicate the level of their agreement with the statements listed relating to teachers' competence on the use of instructional resource in teaching science activities to pre-scholars.

Table 4: Teachers' Competence on the use of Instructional Resource

Statements	Mean	Standard deviation
There are in- service training provided to pre-schools to prepare teachers with skills to be involved in pre-school science to improve the performance and mastery of content	2.13	0.17
Teacher provide the learners with appropriate science activities	3.97	0.17
to allow learners enough time to interact with instructional resources so as to learn new skills and to practice existing ones	3.91	0.21
to transform the immediate local material available and bring to classroom for learners to interact with	3.97	0.21
to prompt the learners appropriately and plan worthy tasks	3.94	0.17

From the study findings, the respondents agreed on the statements that they transform the immediate local material available and bring to classroom for learners to interact with and that the teachers provide the learners with appropriate science activities as shown by a man of 3.97 in each case. The respondents also agreed that they prompt the learners

appropriately and plan worthy tasks as shown by a mean of 3.94 and that they allow learners enough time to interact with instructional resources so as to learn new skills and to practice existing ones as shown by a mean of 3.91. The respondents however disagreed on the statement that there are in- service training provided to pre-schools to prepare teachers with skills to be involved in pre-school science to improve the performance and mastery of content. The teachers indicated that competent teachers apply the acquired knowledge and skill in the use of instructional resources in teaching science activities to achieve desired results. Similarly, Kerlinger (2002) support that teachers have a role in instructional resources in teaching science activities to transform the immediate local material available and bring to classroom for learners to interact with.

From the interviews conducted, the head teachers noted that there are very few in – service training programmes on the use of instructional resources in teaching science activities for pre-school teachers in their zone. They further explained that they sometimes encourage their pre-school teachers to attend even though very few pre-school teachers attend due to the limited number of the in – service training programmes. Most of the head teachers have however not received in-service training on how to use instructional resources in teaching science. This is because the in-service training are very rare in the zone. The head teacher also had a view that the in-service training on how to use instructional resources should be for the pre-school teachers as opposed to the head teachers thus they don't necessarily have to be trained on how to use instructional resources.

Most of the head teachers rated the level of teacher's competence in using instructional resources in teaching science activities as good. They explained that the teachers had acquired knowledge on how to use instructional resources in teaching science activities during their course work in college and thus they still possess the skills. However, some rated that the level of teacher's competence in using instructional resources in teaching science activities as below average. They explained that some of the teacher rarely uses the instructional resources in teaching science.

6. SUMMARY

The study found that in their training, the teachers were given specific training on how to use instructional resources in teaching science activities. The teachers had special organized presentation of instructional resources in teaching science activities as well. Majority of the teachers use groups in teaching science activities to pre-scholars. The study revealed that the teachers transform the immediate local material available and bring to classroom for learners to interact with and provide the learners with appropriate science activities. The teachers also prompt the learners appropriately and plan worthy tasks. The teachers allow learners enough time to interact with instructional resources so as to learn new skills and to practice existing ones. The teachers indicated that competent teachers apply the acquired knowledge and skill in the use of instructional resources in teaching science activities to achieve desired results. The study however found that there were no in- service training provided to pre-schools to prepare teachers with skills to be involved in pre-school science to improve the performance and mastery of content.

From the study findings, there are very few in – service training programmes on the use of instructional resources in teaching science activities for pre-school teachers in the zone. The head teachers sometimes encourage their pre-school teachers to attend even though very few pre-school teachers attend due to the limited number of the in – service training programmes. Most of the head teachers have however not received in-service training on how to use instructional resources in teaching science because the in-service training are very rare in the zone.

The teacher's competence in using instructional resources in teaching science activities was rated as good since most of the teachers had acquired knowledge on how to use instructional resources in teaching science activities during their course work in college and thus they still possess the skills although some are below average since they rarely uses the instructional resources in teaching science.

7. CONCLUSIONS

The study concludes that most of the teachers have an average competence having been given specific training on how to use instructional resources in teaching science activities in their training. The teachers had special organized presentation of instructional resources in teaching science activities mostly with the use groups in teaching science activities to pre-scholars. The study revealed that the teachers transform the immediate local material available and bring to classroom for learners to interact with and provide the learners with appropriate science activities.

The study also concludes that there are very few in- service training provided to pre-schools to prepare teachers with skills to be involved in pre-school science to improve the performance and mastery of content. The in – service training programmes on the use of instructional resources in teaching science activities for pre-school teachers in the zone are very few hence very few teachers attend the training programmes.

8. RECOMMENDATIONS

The study found that very few in- service training provided to pre-schools in the zone. The study therefore recommends that the ministry of education under the county government should take an initiative to provide sufficient in – service training programs on the use of instructional resources in teaching science activities to prepare teachers with skills to be involved in pre-school science to improve the performance and mastery of content. The head teachers should as well ensure that the pre-school teachers attend the in – service training programs whenever they are available so as to improve on their competency in the use of use of instructional resources in teaching science activities. This will help improve the performance of science subject in the schools.

REFERENCES

[1] Abadzi, H.(2006). *Efficient learning for the poor.Insights from the frontier of cognitive neuroscience.* Washington D.C World Bank.

[2] Brenneman, G.Macdold, & M.Roman (2010). *Pre-school pathway to science: ways of doing, thinking communicating and knowing about science.* Balthmore, M.D: Brookes Publishing.

[3] Hergenhahn, B.R. (2005). *An introduction to the theories of personality* (7th ed). Upper Saddle River, N.J prentice Hall.

[4] Kang'ali J. (2007). *Trends and projections in teacher education. In ministry of education, Report of the Third Teacher Education conference* (pp.2-10).Nairobi Republic of Kenya.

[5] Kerlinger, F.N. (2002). *Foundation of behavioral research* (5th ed). New Delhi.

[6] K.I.E, (2008) *Kenya pre-school Teacher Activity Guide Service:* Science and Environmental Activities; Nairobi: K.I.E.

[7] K.I.E,(2008). *Early childhood Development and Education Syllabus.* Nairobi Kenya Institute of Education,(2005). ECD Hand book for pre-school. Government Printers.

[8] Librera W.L. Allen , D, Anderson's, Atherly, C, Berliste- Werner, A. Benejan, et al. (2004). *Preschool teaching and learning expectation: standard of quality;* New Jersey state development of Education.

[9] Margeret . N. Kabiru, Ann, W. Njenga(2007). *ChildDevelopmentFocus* Publishers ltd. Nairobi Kenya.

[10] National Research Council (NRC, 2007). *Taking science to science:* Learning and teaching science in grades K-8 Washington DC: National Academies Press.

[11] Orodho.J.A (2009)..*Element of Education and Social Science Research methods.* Second Edition.Maseno.Kanezja publisher.

[12] Waithaka, E)2005). *Play and Social emotional Development in young children in Thika* Town UN Published PHD.

[13] World Bank (2012).Early *childhood in Africa: newsletter of the African childhood care and development initiative,* issue 4,2011.