Infrastructure Improvement on Implementation of Inclusive Education in Public Primary Schools in Nandi County, Kenya

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Abstract: **- The status of inclusive education in developing countries in Africa typically highlights difficulties in the implementation of inclusive education. The Kenyan government has put in place policies governing inclusive education in primary schools. However, a larger number of children with disabilities are still not enrolled in schools. The purpose of the study was to determine school improvement planning on inclusive education in public primary schools in Nandi County, Kenya. The specific objectives was to determine the effect of infrastructure improvement on inclusive education in public primary schools in Nandi county, Kenya, This study adopted explanatory survey design using mixed method approach. The study targeted primary headteachers, teachers, and sub-county directors of education in public primary schools in Nandi County.Multiple regressions was used to test the set hypotheses while qualitative data from interview schedules was thematically analyzed and presented as per the research objectives.This study concludes that infrastructure improvement had no significant relation on implementation of inclusive education public primary schools in Nandi County. The findings provided important information to the policy makers in the Ministry of Education on challenges faced by headteachers, teachers, parents and learners in the teaching and learning in an inclusive setting.**

Key Words: **Infrastructure, Improvement, Implementation Inclusive Education**

I. INTRODUCTION

Teaching children with diverse abilities is a big challenge, especially in terms of creating a friendly environment. UNESCO (2004a; 2001) points out that; learners have diverse needs and inaccessible environment within and even outside the school may contribute in excluding them from learning institutions. Those views were supported by Ogot (2005a), who said that accessible environment helps to keep CWDs in school unlike where schools had inaccessible environment. To alleviate this problem then, the environment should be adapted to suit the diverse learner's needs. This involves organizing the classroom and the school compound. UNESCO (2004d) shows that this can be possible by building ramps to classrooms and school buildings, construction of adapted latrines, enlargement of classroom windows, painting walls to improve the lighting, leveling of the play grounds to ease mobility. The physical facilities entail provision of all the relevant physical facilities ensuring their proper utilization and maintenance, authorizing and approving the procurement of all teaching-learning equipment in consultation with the heads of departments.

Mutinda (2012) found out that availability of physical facilities is an important aspect of the learning process. He further indicated that if children are crowded in their seating positions they would find it difficult to write. Teachers also cannot move freely in the classrooms and it means that the teacher can neither help the needy children nor mark the pupils work as they continue working. Individuals with physical impairments are not disabled by their impairments but rather by barriers that exist within their surroundings, Olufemi (2015). A study carried out by UNESCO (2004) shows that most heads of institutions regard learners with physical impairments as wasteful and that guided by such sentiments they regard it as a waste of resources providing for learners with 'less productivity' when their average counterparts could efficiently deposit greater output.

Panda (1997), states that children with physical impairments generally have an average or above average intelligence. They only have a poor body image and if provided with relevant aid in terms of physical facilities they are capable of competing with their regular counterparts in an inclusive setting. Such resources aid in mobility, classroom positioning and recreation for the learners within the school. Children with special education needs require special facilities to help the cope with barriers in learning.A general report on environment requirement for learners with special needs in regular schools by the task force on the implementation of Free primary education in 2003 gave barrier free environment with compounds used by children, adopted toilets, bathrooms with added bars, ramps with recommended gradients to entries and exits to classrooms, dormitories, playgrounds, spacious classrooms and dormitories, playgrounds, spacious classrooms which are well lit and ventilated, large classrooms to allow use of wheelchairs, provide inbuilt group hearing mechanisms and feedback mirrors and water (MOE, 2003). Since the inception of free primary education, most primary schools have been identified with overcrowded classrooms.

UNESCO (2008) noted that there is still inappropriate infrastructure like buildings and toilets to making learning

environment friendly for physically challenged children. Study by Kadima (2006) found out that physical facilities were inadequate; classrooms were overcrowded while toilets were narrow and had no seats making it difficult for special education needs learners to comfortably use them. In some area's classes are done under a tree. The study further established that in majority schools, there had been some modifications made on structures such as ramps and toilet seats. However, the ramps were too steep for learners with physical impairments, who needed assistance from other students to enter the buildings. In schools where there were no ramps the learners with physical impairments depended on peers for accessing the toilets.

In Nandi county where this study was carried most schools do not have such friendly environments for learners with physical impairments. Most heads of institutions say that it is the responsibility of the affected family to ensure provision of necessary equipment. Save for the governments' capacitation for the same. However, most learners with physical impairments hailed from poor backgrounds and cannot meet the high cost of these facilities. They rely on aid from both school and outside school, which is hard to come by this influence implementation of inclusive education. It is this respect that the proposed study intends to establish the influence of physical resources on implementation of inclusive education.

1.1 Statement of the Problem

The concept of inclusive education assumes that these school factors can be restructured and adopted so that the needs of each individual learner can be met (UNESCO 2004). School factors are bottlenecks within the school that may influence effective implementation of inclusive education. These include physical facilities, instructional materials, teaching methods and classroom routine practices and finance. Nyaigoti (2013, studied on factors within the institution that influence implementation of inclusive education in public primary schools in Rigoma Division, Nyamira county, Kenya and recommended for a replication of the same study in other areas. The school improvement planning included the factors such as instructional materials, physical facilities, budgeting; professional development. Although the government has issued a directive to all the schools to accommodate all learners irrespective of their ability and without discrimination, many of them even those with minor disabilities are either in special schools or at home waiting for placement. This poses a great challenge towards meeting the EFA goal. However, no such study has been carried out to establish the effect of school improvement planning on implementation of inclusive education in Nandi County. This study filled the gap.

1.2 Objectives of the Study

To determine the effect of infrastructure improvement on implementation of inclusive education in public primary schools in Nandi county, Kenya

1.3 Hypothesis of the Study

H_{01}: Infrastructure improvement has no significant relationship on implementation of inclusive education in public primary schools in Nandi County, Kenya

II. RESEARCH METHODOLOGY AND METHODS

The study adopted a mixed methods approach using pragmatist paradigm for it was useful in helping researchers meet the criteria for evaluating the "goodness" of their answers (Tashakkori & Teddlie, 2003) better than do the single approach designs. A mixed research is an approach to inquiry that combines both qualitative and quantitative forms. It involves integration of philosophical assumptions, the use of both quantitative and qualitative approaches and the mixing of both approaches in a study. It is thus more than simply collecting and analyzing both kinds of data; it also involves the use of both approaches in tandem so that the overall strength of a study is greater than either one of the two approaches (Creswell, 2009). This study used pragmatist paradigm since it combines the qualitative and quantitative approaches within different phases of the research process (Tashakkori & Teddlie, 2003). Pragmatist researchers focuses on the 'what' and 'how' of the research problem (Creswell, 2009). Pragmatism is seen as the paradigm that provides the underlying philosophical framework for mixed-methods research, since this research used quantitative and qualitative approaches, this paradigm is deemed appropriate for this study.

2.1 Ethical Considerations

In addition to conceptualizing the writing process of the proposal, a researcher needs to anticipate the ethical issues that may arise during a study. First the researcher sought for research permit from the National Council for Science, Technology and Innovations (NACOSTI), County director of Education and head teachers of the sampled schools before conducting research. The respondents' participation was voluntary and free. The respondents was assured of privacy and confidentiality of the information obtained from them

III. FINDINGS AND DISCUSSION

The first objective was to the effect of infrastructure improvement on implementation of inclusive education in public primary schools in Nandi county, Kenya. The respondents were asked to rate on a five-point Likert scale their level of agreement on several statements describing the infrastructure improvement in public primary schools in Nandi County and their response were summarized in Table 1.1

Table 1.1 Infrastructure improvements on implementation of inclusive education

	SA		A		UD		D		SD		Mean	SD
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%		
The classroom is suitable to LWD	26	8.6	108	35.8	26	8.6	63	20.9	79	26.2	2.80	1.39
The sanitary facilities are designed to be used with LWD	26	8.6	87	28.8	27	8.9	74	24.5	88	29.1	2.63	1.38
Ramps, paths, and runways are not well built to influence inclusive education	37	12.3	94	31.1	36	11.9	71	23.5	64	21.2	2.90	1.37
Learning support and facilities are well enhanced to suit LWD	19	6.3	83	27.5	31	10.3	95	31.5	74	24.5	2.60	1.29
School facilities are adequate for all learners	28	9.3	114	37.7	29	9.6	82	27.2	49	16.2	2.97	1.29
The school has adequate classrooms for inclusive learning	33	10.9	91	30.1	37	12.3	88	29.1	53	17.5	2.88	1.31
The school has adequate and appropriate play spaces for LWD	26	8.6	75	24.8	32	10.6	87	28.8	82	27.2	2.59	1.34
The school ensures that the physical facilities for LWD adhere to the school safety guidelines	21	7.0	93	30.8	42	13.9	80	26.5	66	21.9	2.75	1.29
There are facilities which are sensitive to LWD	15	5.0	81	26.8	42	13.9	92	30.5	72	23.8	2.59	1.25
There are designed desks for the physically challenged	17	5.6	33	10.9	19	6.3	111	36.8	122	40.4	2.05	1.19
Mean											**2.66**	**0.89**

From the study 124(41%) of the teachers agreed that school has adequate classrooms for inclusive learning, with 141(46.6%) disagree and 37(12.3%) were undecided. At least 134(44.4%) of the teachers agreed that the classroom is suitable to LWD, while 142(47.1%) disagree and 26(8.6%) undecided.Majority of the teachers 162(53.6%) disagreed that the sanitary facilities are designed to be used with LWD, with 113(37.4%) agree and 27(8.9%) were undecided. Most of the teachers 184(60.9%) disagreed that toilets and latrines are well built to suit LWD, with 84(27.8%) agreed and 34(11.3%) disagreed. At least 135(44.7%) disagreed that ramps, paths, and runways are not well built to influence inclusive education, with 131(43.4%) agreed and 36(11.9%) undecided. Majority of the teachers 169(56%) disagreed that learning support and facilities are well enhanced to suit LWD, with 31(10.3%) undecided and 102(33.8%) agree. At least 131(43.4%) of the teachers disagreed that school facilities are adequate for all learners, while 142(47%) agree and 29(9.6%) undecided.

Majority of the teachers 156(51.6%) disagreed that school had adequate sanitation facilities for inclusive learning, with 41(13.6%) undecided and 105(34.8%) agree. Most of the teachers 169(56%) disagreed that the school has adequate and appropriate play spaces for LWD, while 101(32.4%) agree and 32(10.6%) undecided. Majority of the teachers 146(48%) disagreed that school ensures that the physical facilities for LWD adhere to the school safety guidelines, with 114(%) agree and 42(13.9%) were undecided. Most of the teachers 164(54.3%) disagreed that there are facilities which are sensitive to LWD, with 96(31.8%) agreed and 42(13.9%) undecided. Majority of the teachers 233(77.2%) disagreed that there are designed desks for the physically challenged, with 50(16.5%) agreed and 19(6.3%) were undecided. From the findings of the study, it was noted that the mean of 12 statements used to measure infrastructure improvement had a mean range of between the 2.05 and 2.9, with an overall mean of 2.66. This shows that majority of the respondents disagree on the statements that were used to measure the influence ofinfrastructure improvement inclusive education. Similarly, the standard deviation of majority of the items ranged between 1.19 and 1.39. It was deduced that the responses to the infrastructure improvement items were not deviating much from the expected responses.

The study findings infrastructure improvement on implementation of inclusive education in public primary schools in Nandi County, found that school had adequate classrooms for inclusive learning. UNESCO (2004d) shows that this can be possible by building ramps to classroom and school buildings, construction of adapted latrines, enlargement of classroom windows, painting walls to improve the lighting, leveling of the play grounds to ease mobility. The ramps, paths, and runways were not well built to influence inclusive education; Children with special education needs require special facilities to help the cope with barriers in learning. This agrees with UNESCO, (2004) that there is need for simple ramps and internal classroom arrangement to accommodate the physically challenged. The sanitary facilities were not designed to be used with LWD, toilets and latrines are well not built to suit LWD, learning support and facilities are not well enhanced to suit LWD, school facilities were inadequate for all learners. It concurs with Kadima (2014) that physical facilities were inadequate; classrooms

were overcrowded while toilets were narrow and had no seats making it difficult for special education needs learners to comfortably use them.The school had in adequate sanitation facilities for inclusive learning, the school had inadequate and appropriate play spaces for LWD, school does not ensure that the physical facilities for LWD adhere to the school safety guidelines. This agrees with UNESCO (2008) that there is still inappropriate infrastructure like buildings and toilets to making learning environment friendly for physically challenged children. From the study there were no facilities which are sensitive to LWD and there were no designed desks for the physically challenged. This agrees with UNESCO, (2004) that children with special education needs require special facilities to help the cope with barriers in learning. There is need for simple ramps and internal classroom arrangement to accommodate the physically challenged.

3.1 Infrastructure improvement

The factor analysis results of infrastructure improvement, indicated that the KMO was 0.913 and the Bartlett's Test of sphericity was significant ($p<.05$) and a chi square of 1623.554 (Table 1.2). The Varimax rotated principle component resulted in two factors loading on infrastructure improvement variable that explained 56.38% of variance with Eigen values larger than 1. All the statements explaining infrastructure improvement was retained computed and renamed infrastructure for further analysis.

Table 1.2 Rotated Component Matrix on measurement items for Infrastructure improvement

	Component	
	1	2
The classroom is suitable to LWD	.703	
The sanitary facilities are designed to be used with LWD	.725	
Toilets and latrines are well built to suit LWD	.668	
Ramps, paths, and runways are not well built to influence inclusive education		.817
Learning support and facilities are well enhanced to suit LWD	.669	
School facilities are adequate for all learners	.580	
The school has adequate classrooms for inclusive learning	.789	
The school has adequate sanitation facilities for inclusive learning	.805	
The school has adequate and appropriate play spaces for LWD	.717	
The school ensures that the physical facilities for LWD adhere to the school safety guidelines	.658	
There are facilities which are sensitive to LWD		.715
There are designed desks for the physically challenged		
KMO	**.913**	
Approx. Chi-Square	**1623.554**	
Bartlett's Test of Sphericity (P<0.001) df=66		
Eigenvalues	**5.688**	**1.078**
% of Variance (56.382)	**39.096**	**17.286**

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 3 iterations.

The study hypothesized that there is no significant influence of infrastructure improvement on implementation of inclusive education in public primary schools in Nandi County. The study findings depicted that there was a negative insignificant influence of infrastructure improvement on implementation of inclusive education in public primary schools in Nandi County (β_1= -0.002 and p value >0.05). An infrastructure improvement does not lead to implementation of inclusive education in public primary schools in Nandi County.

The null hypothesis (**Ho_1**) was accepted. This finding agrees with MoEST (2009) that effective implementation of inclusive education in Kenya is hampered by inadequate facilities, teaching and learning materials and lack of equipment. The lack of physical facilities and instructional materials are major impediments to the implementation of inclusive education. There was a positive insignificant influence of instruction resources on implementation of inclusive education in public primary schools in Nandi County (β_2= 0.053 and p value >0.05). An increase in instruction resources does not led to implementation of inclusive education in public primary schools in Nandi County

IV. CONCLUSIONS

The school had adequate classrooms for inclusive learning. The ramps, paths, and runways were not well built to influence inclusive education; Children with special education needs require special facilities to help them cope with barriers in learning. The sanitary facilities were not designed to be used with LWD, toilets and latrines are well not built to suit LWD, learning support and facilities are not well enhanced to suit LWD, school facilities were inadequate for all learners. The school had in adequate sanitation facilities for inclusive learning, the school had inadequate and appropriate play spaces for LWD, school does not ensure that the physical facilities for LWD adhere to the school safety guidelines. From the study there were no facilities which are sensitive to LWD and there were no designed desks for the physically challenged.

V. POLICY RECOMMENDATION

The Ministry of Education should consider increasing the provision of teaching and learning resources in public primary schools to ensure that pupils with special needs are adequately and appropriately catered for. This will help in the provision of functional and assistive devices to facilitate the teaching and learning in the inclusive schools. The government should consider immediate restructuring of physical environment in schools aiming at making them barrier free and disability friendly. This will ease accessibility to educational opportunities for learners with special needs.

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