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Teachers' Involvement in Adapting Learning Environment in Regular Primary Schools in Siaya County, Kenya

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Abstract: Inclusive education is a process that involves the transformation of regular schools to become inclusive in nature. One of the indicators for an inclusive learning environment is curriculum differentiation which is a strategy to address the diverse learning needs of the learners. National special needs education policy framework, 2009 emphasizes the promotion of quality, relevant and holistic education in all learning institutions for learners with special needs. This is to uphold the principle of learner – centered curriculum and responsive learning systems and materials. This can be realized when teachers are involved in curriculum differentiation to ensure that learning tasks are commensurate to the needs of every learner to enhance their effective participation in the learning activities. Studies have however, established that few regular schools (10(1.57%)) in Siaya County adapt teaching and learning strategies and even learning resources during instruction to address learners diverse needs. This is despite the fact that teachers with inclusive education training background are present in such schools. The purpose of this study was to determine teachers' involvement in adapting the learning environment to respond to the diverse learning needs of the learners. The objectives of the study were to:- determine teachers' involvement in adaptation of the classroom physical environment to suit the needs of all the learners, establish teachers' involvement in adaptation of teaching strategies and establish teachers' involvement in adaptation of learning strategies to address the needs of learners with diverse learning needs. Descriptive survey research designs was used for the study. The population comprised 216 teachers and 72 head teachers. Out of which 10% were used for piloting. Saturated sampling technique was employed to select 194 teachers and 65 head teachers for the study. Instruments for data collection included Questionnaires, Interview Schedule, Observation Guide and Document Analysis. Content and Face validity of the instruments were determined by experts in the school of education and their comments and recommendations were used to determine the validity of the instruments. Reliability of the instruments was established through test re-test method and correlation coefficients of 0.76 and 0.78 were obtained for teachers and head teachers respectively. Quantitative data was analyzed using descriptive and inferential statistics while qualitative data was transcribed and categorized into emergent themes. The results on adaptation of classroom physical environment show that 88(45.4%) teachers adapted the classroom physical environment by removing distracters in the classroom; 69(35.6%) teachers provided preferential sitting position in the class for learners with special educational needs and 57(29.4%) teachers demarcates learning environment into specific activity areas. Adapted strategies that were often used included team teaching and task analysis. The overall results indicated that teachers rarely adapted teaching strategies during classroom instruction as evident by a mean of 2.04. The overall mean (M=1.69) of adaption of learning strategies shows that teachers very rarely adapted learning strategies. Study concludes that although teachers adapted the classroom physical environment by removing distracters and providing preferential sitting position for learners with special needs, however other areas such as creation of space and organizing the appropriate seating arrangement was very rarely done. There was also under utilization of adaptation of teaching strategies in schools hence teaching majorly was still done in the traditional manner. Adaptation of learning strategies was equally inadequate. Apart from more time and peer support, not much adaptation had been done. Study recommends that more teachers need to adapt their teaching and learning strategies during classroom instruction. They also need to develop individualized education programme to address the learning challenges experienced by learners with diverse needs.
Keywords: Inclusive education, teachers, learning tasks, learning activities.

Background to the Study

Curriculum differentiation refers to the mediation of instructional, content and material level to accommodate learner learning diversity. In addition, it is any adjustment or modification to the teaching and learning environment, learning techniques, learning support material that enhances learner's performance and participation in learning activities [1]. The essence of curriculum differentiation is to assist every learner to overcome intrinsic and or extrinsic barriers to learning,

enables the learner to apply current skills while promoting the development of new ones, prevents dissonance between the learner's skills and the learning activities designed for the class, reduces the level of abstract information to make content relevant to the learner's current context and future life and creates harmony between the learner's learning style and the educator's teaching style [2]. Regular schools in Siaya County, although have learners with diverse learning needs that require curriculum to be differentiated, still use regular curriculum for instructional purposes, the onus is therefore on the teachers to implement the curriculum by making the necessary differentiation to address the diverse needs of learners in their classes. This has not been easy due to rigidity and inaccessibility of the regular curriculum and methods of evaluation [3].

The government acknowledges in the National Special Needs Education Policy Framework (2009) that there is need to have a curriculum that is adequately responsive to the different categories of children with special needs and disabilities. Such a curriculum should be flexible in terms of time, teaching/learning resources, methodology, and mode of access, presentation and content. Many subject areas of the 8.4.4 curriculum need to be adapted and some areas prepared anew to suit learners with special needs and disabilities enrolled in regular schools. Baseline survey revealed that there are 158 (32.5%) learners with cognitive differences in the sampled regular primary schools in Siaya County. Despite the enrolment of these learners in these schools, teachers still use one-size-fits-all teaching instruction which does not convey good teaching instruction practices in these types of settings. They do not make any adaptation as is necessary in an inclusive class. The survey further revealed that none of the teachers developed and implement individualized education programme to support learners with diverse needs in the schools.

Various studies have been done on curriculum differentiation. For example, Ryan [4] conducted a study in Michigan, on the effect of classroom environment on student learning and noted that many schools had desks aligned in rows within the classroom which made students lose focus and created a higher number of disruptions in the classroom. It did not equally encourage interaction between students and focuses more on the student as an individual completing their own work. This does not augur well with humans who are social creatures that want attention, and if they fail to get it from their classmates, they often strive to act out to get attention from their teachers. She indicated that teachers can organize their classrooms where students can interact with others and stay focused on the content at the same time. If the student can meet their individual desires while staying engaged in the curriculum then there will less likely be disruptive behavior. Bucholz [5] concurred with Ryan that the type of classroom environment that a teacher creates can either increase or decrease a students' ability to learn and feel comfortable as a member of the class. A teacher should strive to create an atmosphere of mutual respect, where learners feel relax in asking questions and expressing their thoughts and feelings [5]. Ryan study concentrated on the organization of desks in the classroom, however arrangements of seats is not the only aspect of classroom organization which may affect or enhance learning, this study went a step further to look at the entire classroom organization and specifically how the physical classrooms were adapted in regular schools in Siaya County to promote learning for all learners.

Khaouli, [6] in the study on how elementary school teachers adapt their classroom environment and instructional strategies in general classroom settings for students with visual impairment, argues that it is important for all students to move around during the school period and it is just as important for students with visual impairment to do so as well. Accommodation of physical environment can be done by ensuring that furniture in the classroom remains in a permanent position in order for students with visual impairment creates a mental image of the classroom so it would be easier to move around. He emphasized that it is important for students with visual impairment to move around throughout the school community and to have support from a mobility specialist to become more familiar with the layout of their schools, including the layout of classrooms, exit doors, library, the cafeteria, and restrooms. Khaouli focused much on the classroom adaptation for learners who are visually impaired in mind, the current study, however , took cognizance of the fact that proper classroom adaptation is not only beneficial to learners with visual impairment but to all the learners in the classroom. The current study therefore was concerned with how adaptation of classroom physical environment would impact on all learners and not only those with specific impairments.

Lee [7] interprets teaching strategies to mean ways in which teachers deliver content or skills to learners and evaluate to establish whether learning has taken place. The presentation is done using a number of different approaches to teach content and skills. Heacox, [8] observed that with contemporary classroom becoming increasingly diverse, teachers are differentiating teaching and learning strategies to incorporate variety of learning profiles.

Valiande, Kyriakides and Koutselin [9] conducted a study on the impact of differentiated instruction in mixed ability classroom in Nicosia Educational District in Cyprus. They employed

experimental design for the study. A sample of 490 pupils and 14 volunteer teachers that differentiated instruction was selected for the study through convenience sampling technique. Data was collected using pre and post written and literacy tests. The result of multiple regression analysis for both tests showed that there was a significant difference in the use of differentiated instruction between the control and experimental groups of learners. The performance of the experimental group was high. The current study went further to identify instructional techniques that the teachers differentiated to determine which among them were predominant.

Vorapanya [10], conducted a study on a model for inclusive schools in Thailand, the emphasis was on development of Individualized Education Plan (IEP) as a modification strategy for adapting instructions of learners with disabilities. He used focused group discussion to collect data from the principals of schools. The results indicated that all the principals said that the teachers developed IEPs, particularly for their certificated special needs children. However, in practice, the principals of the "best practices" schools in this study consistently reported that they believed that the IEP was not used as it should be. They said it was, in practice, more of a paperwork process done because it was needed to document eligibility for the subsidy, and not as a useful tool to increase awareness for parents and teachers about the child's needs and achievements. The principals reported that it was difficult and time-consuming to get everyone to work on the initial IEP, and when the IEP was completed, it was unusual for anyone to consult it to guide daily teaching and assessment, and it was almost unheard of for the original IEP team to reconvene to review child progress on the IEP. Principals reported that most parents did not understand what an IEP was or what its potential was for guiding their child's education, and that parents typically did not participate in IEP meetings. Much work will have to be done to assure parents that there is a place for their input in the IEP process.

Chidindi, [11], conducted a study in four different schools from one district of Harare province in Zimbabwe. The study was qualitative and an explorative case study design was used. A purposively selected sample that consisted of eight teachers was drawn from the four schools. The aim was to investigate how the teachers adapted their instructional strategies by letting them teach while the investigator observed, to capture the details of the adaptations. In order to gain more in-depth information and clarification on the teachers' actions, follow-up interviews were conducted immediately after the observations for the teachers to give their own reasoning for the actions and their own perspective of the adaptations that they made. Overall findings showed that even though some teachers truly adapted and differentiated their instructional strategies and the learning environment for learners with developmental disabilities, others needed to be made aware of the need for some adaptations when teaching and be taught the various ways that teachers can use adaptations in their instructions that can benefit the learners. The study also led to the discovery and finding of some of the impediments to adaptations that included large class sizes and inflexible environments which need to be addressed. The results however were only representative of the schools studied and could not be generalized to the whole teaching population. The study concluded with some recommendations to the findings that included reduction of the teacher to pupil ratio, the need for constant upgrading of teachers through workshops and in-service training. The current study went further to apply descriptive survey which allowed for a large study population whose findings could be generalized. In addition the study employed both qualitative and quantitative approach in the analysis to enable the researcher to verify the information provided by the respondents' thus minimizing information which would otherwise compromises the results.

Kuyini [12] carried out a survey to examine how teachers were adapting instructional practices in inclusive classrooms in Ghana. The sample size included 37 teachers from 20 primary schools in two districts in Ghana. Data was collected using questionnaires and observation checklist which was analyzed using descriptive statistics, t-test and Regression analysis. The findings indicated that teachers used fewer instructional adaptations to meet the needs of learners with special educational needs. The study restricted itself to adaptation of instruction of instructional strategies rather than curriculum adaptation in general. This obscured the comprehension of other possible adaptations necessary in the classroom environment to meet the needs of learners with special educational needs. The sample size equally was small (37) to warrant generalization of the findings which is not palatable in developing countries like Ghana and many such countries where inclusive education is still seemingly at piloting level. In view of the short comings, the present study undertook to examine adaptations teachers had done in the curriculum to meet the learners with diverse needs.

Gathumbi, Ayot, Kimemia and Ondigi [13] carried a study on teachers and school administrators' preparedness in handling students with special needs in inclusive education in Kenya. The participants were 140 teachers and 13 principals of selected secondary schools in Kenya. The instruments for data collection included questionnaire, interview schedule and classroom observation. Data were analyzed descriptively and using inferential statistics. Result revealed that there as

general lack of pedagogy and knowledge of how to handle learners with special needs and that collaboration among teachers to support learners with special needs fell below expectation. In addition the findings indicated that instructional resources were unsuitable to support learners with special needs

Nyambura 2011, conducted a study on curriculum barriers to the implementation of inclusion for learners with Autism-a case study of City primary school, Nairobi County, Kenya, looked into adaptations teachers had made to the curriculum and teaching/learning strategies to suit learners with autism. The findings indicated that the teaching and learning strategies employed to cater for learners with autism include Individualized Educational Programme and Direct Instructions. However other very effective specialized teaching techniques such as Diagnostic Prescriptive Teaching (DPT), Task Analysis and Prompting were rarely utilized by teachers. In addition she also found out that overwhelming number of teachers (70%) suggested that there was a need to make curriculum flexible to cater for learners with autism in an inclusive setting. The study by Nyambura targeted special unit for Autistic children and restricted the issue of adaptation to curriculum and teaching/ learning strategies to learners with Autism. However the present study was concerned with the adaptation of curriculum in regular primary schools with an inclusive set up.

Kenya institute of curriculum development has developed curriculum and support materials for children with special needs in specific subjects, despite this effort, these curricula are hardly found in regular schools. Alternatively these curriculum and support materials for learners with special needs in integration programmes come later when their counterparts without special needs have already received theirs. These delays make the students lag behind in the syllabus implementation which adversely affects their performance in schools. To ameliorate such inconvenience to learners with diverse learning needs in regular schools, it is imperative for teachers to adapt the regular curriculum and support materials to address the needs of such learners. It was mandatory in this study to determine teachers' involvement in adaptation of classroom physical environment, teaching learning strategies to meet the diverse learning needs of learners in the classroom.

STATEMENT OF THE PROBLEM

Regular schools, though have learners with diverse needs that require curriculum to be differentiated, still use regular curriculum for instructional purposes. Baseline survey revealed that there are 158(32.5%) learners with cognitive differences in the sampled regular primary schools in Siaya County. Despite the enrolment of these learners in regular primary schools in the County, teachers still use one-size-fits-all teaching instruction which does not convey good teaching instruction practices in these types of settings. They do not make any adaptation as is necessary in an inclusive class. The survey further revealed that none of the teachers developed and implement individualized education programme to support learners with diverse needs in the schools. Furthermore preliminary information reveals that few regular schools,(10(1.57%)) in Siaya County have their physical environment adapted. Access to alternative communication for learners with sensory limitation is a nightmare, teaching of skills such as KSL and braille have not taken off despite them being officially recognized in the Kenya constitution and special needs policy framework as communication modes to be taught in regular schools. These deficiencies exist despite the Siaya County having teachers with inclusive education background.

OBJECTIVES OF THE STUDY

The objectives of the study were to:-

1. Establish the teachers' involvement in adaption of classroom physical environment..
2. Determine teachers' involvement in adaptation of teaching strategies.
3. Determine teachers' involvement in adaptation of learning strategies.

RESEARCH METHODOLOGY

The study adopted descriptive research design. It was conducted in Siaya County. The Target population comprised of 216 teachers trained in inclusive education and 72 head teachers in the sample schools. Saturated sampling technique was used to select teachers and head teachers. Sample size of this study comprised, 194 teachers and 65 head teachers in schools with teachers trained in inclusive education, (Table 1).

Table 1: Study Population and sample Frame

Category of respondents	Target Population	Pilot Sample	Sample Size	Percentages
Teachers	216	22	194	90%
Head Teachers	72	7	65	90%

Source: Researcher's field data

Instruments for data collection for this study included Questionnaires for teachers and head teachers, Interview Schedule for head teachers, observation schedule and Document Analysis. Face and content validity of the instruments was determined by experts from the faculty of education to ensure that the instruments were up to standard and that there was no ambiguity. To determine the reliability of the instrument, a pilot study was conducted where of 10% (22 teachers and 7 head teachers) of head teachers and teachers were involved. These teachers were excluded from the main study. to avoid influence of prior Knowledge. Reliability of the instruments was determined through test-retest reliability method. The questionnaires were administered twice to the respondents in a span of two weeks and the results computed using Pearson Product Moment correlation. Questionnaire for head teachers yielded a reliability coefficient of 0.76 and the teachers 0.78 at a significant level of 0.05. Quantitative data collected from close-ended questionnaire was analysed using descriptive and inferential statistics. Descriptive statistics applied included frequency counts, percentages and mean. On inferential statistics, t-test to determine if there was significant difference in the response of the teachers and head teachers was computed for specific objectives and results presented accordingly. Qualitative data from interviews, observation checklist and document analysis were coded and organized into themes from which generalizations was formulated .Key findings were recorded, interpreted, explained summarized and conclusions made. A narrative report was written and enriched with verbatim from respondents and included in the report. In the interviews respondents were assigned coded numbers to conceal their identities and the numbers were used for reporting.

RESULTS AND DISCUSSIONS

Teachers were asked to indicate adaptations that they had done in their classroom physical environments and responded as indicated in table 2.

Table 2: Teachers response to adaptation of classroom environment (n=194)

S/N	**Adaptation of classroom physical environment**	**Frequency (f)**	**Percentages (%)**
1	Provide preferential sitting positions in the class	69	35.6
2	Remove distracters in the classroom	88	45.4
3	Demarcates learning environment into specific activity areas	57	29.4
4	Arranging learning resources to enable ease of accessibility by all learners	36	18.6
5	Label items/materials in the classroom	49	25.3
6	Organize classroom to create more space for accessibility	27	13.9

The results in table 2 show that 88(45.4%) teachers adapted the classroom physical environment by removing distracters in the classroom. This was followed by another 69(35.6%) teachers who said they provided preferential sitting position in the class to care for the needs of learners with special educational needs. However, the results also revealed that few teachers, 27(13.9%) organized classroom to create more space for ease of accessibility to both the teachers and the learners.

To corroborate the teachers' information, the head teachers were asked to rate the level of adaption done by the teachers in the classroom physical environment and the results were as shown in Table 2. Scores were rated on a 5 point scale thus 1= Unacceptable, 2= Very poor, 3=Poor, 4= Good, 5= Very Good. (1.1 to 1.44= Unacceptable; 1.45 to 2.44= very poor, 2.45 to 3.44= poor, 3.45 to 4.44= good 4.45 to 5.00= Very good).

Table 3: Head Teachers' responses on adaptation of Classroom Physical Environment (n=65)

S/N	**Classroom Adaptation**	**Unacceptable**	**Very Poor**	**Poor**	**Good**	**Very Good**	**Mean**	**STD**
1	Provide preferential sitting positions in the class	3(4.7)	19(29.3)	13(20)	30(50.7)	0(0.0)	3.06	.966
2	Remove distracters in the classroom	0(0.0)	14(7.21)	16(24.6)	35(53.8)	0(0.0)	3.22	.812
3	Demarcates learning environment into specific activity areas	0(0.0)	23(35.4)	32(49.2)	10(15.4)	0(0.0)	2.80	.689
4	Arranging learning resources to enable ease of accessibility by all learners	18(27.7)	39(60)	8(12.3)	0(0.0)	0(0.0)	1.85	.618
5	Label items/materials in the classroom	0(0.0)	22(33.8)	31(47.7)	12(18.5)	0(0.0)	2.85	.712
6	Organize classroom to create more space for accessibility	34(52.3)	21(32.3)	10(30.8)	0(0.0)	0(0.0)	1.66	.776
	Overall						**2.57**	

The results in table 3 show that 35(53.8%) head teachers rated removal of distracters in the classroom as good, another 30(50.7%) had a similar rating for provision of preferential sitting positions in the class for learners with diverse needs. Arranging learning resources to enable ease of accessibility by all learners was rated as very poor by 39(60%) head teachers, while 34(52.3%) head teachers rated as unacceptable the way teachers organized classroom to create more space for accessibility by teachers and learners.

The response of the head teachers on teachers' adaptation of classroom physical environment showed a concurrence with those of teachers. The rating indicated that adaptation was poor as captured in the overall rating mean of 2.57.

Kluth's [14] observed that a classroom with each wall cluttered with a variety of students art works, posters, visual supports and a disarray of equipment can be very visually distracting for the students. He further asserts that such wall displays may divert students with attention problems from concentrating during the instruction and suggested that such learners should be placed where they are least likely to be distracted by displays. Attention is an important cognitive ability for effective learning to take place. A class with distracters suppresses this ability hence the learner may not focus attention on the learning stimuli, may not sustain the span required during instruction and may equally not maintain the attention as the lesson progresses. Ryan [4] noted that a well organized classroom permits more positive interaction between teachers and learners and reduce probability that challenging behaviour will occur. Kuyini [12] found that extremely large class-sizes make adaptations of the classroom environment very challenging. Smith [15] pointed out that an organized classroom environment is that in which students can easily find materials, facilitates independent movements and assist the students to participate in the learning. The finding confirmed that adaptation of classroom physical arrangement in regular primary schools in Siaya County is poor hence it is difficult for learners with diverse learning needs to benefit much.

Adaptations of Teaching Strategies

Teachers were presented with questionnaires to indicate whether they used adapted teaching strategies during classroom instruction. The responses from the questionnaire were measured on a 5-point scale 1= Never Used, 2= Very Rarely Used, 3= Rarely Used 4= Often Used, 5= Very Often Used. The mean was determined thus 1.1 to 1.44-Very rarely used, 1.45 to 2.44- Rarely Used, 2.45 to 3.44 Often used, 3.45 to 4.44- Very Often used and 4.45 to 5.0 – outstanding. Teachers were asked to rate the level of adaption they had done in the teaching strategies and the results were as shown in Table 4.

Table 4: Teachers' responses on adaptation of Teaching Strategies (n=194)

S/N	Adaptations	1	2	3	4	5	Mean
1	Differentiate learning tasks to learners with learning challenges	0(0.0)	158(81.4)	34(17.5)	2(1.0)	0(0.0)	2.20
2	Uses small group instructional approach during lesson delivery	0(0.0)	106(54.6)	88(45.4)	0(0.0)	0(0.0)	2.45
3	Uses individualized instruction to address the needs of learners with learning challenges	146(75.3)	48(24.7)	0(0.0)	0(0.0)	0(0.0)	1.25
4	Develops and implement Individualized Education Plan.	194(100)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	1.00
5	Uses task analysis during presentation to address the need of learners with learning needs	0(0.0)	98(50.5)	67(34.5)	29(14.9)	0(0.0)	2.65
6	Teacher applies team teaching	19(9.8)	74(38.1)	52(26.8)	49(25.3)	0(0.0)	2.66
	Overall Mean						**2.04**

Key: 1= Never Used, 2= Very Rarely Used, 3= Rarely Used 4= Often Used, 5= Very Often Used

The results in Table 4 show that only 49(25.3%) teachers said that they often used team teaching and another 29(14.9%) indicated that they often used task analysis during instruction to address the needs of learners with learning challenges. In addition, 158(81.4%) teachers revealed that they very rarely differentiated learning tasks to learners with learning challenges and another 106(54.6%) very rarely used small group instructional approach during the lesson delivery. However 146(75.3%) declared that they never used individualized instruction to address the needs of learners with learning needs, yet another 194(100%) teachers confirmed that they never developed and implemented individualized education

plan. The overall results indicated that teachers in regular primary schools in Siaya County rarely used adapted teaching strategies during classroom instruction as evident by a mean of 2.04..

The head teachers were asked to indicate the frequency with which teachers used adapted teaching strategies during classroom instruction. The result is as shown in table 5.

Table 5: Head Teachers' responses on teachers' adaptation of Teaching Strategies (n=65)

S/N	Adaptations	1	2	3	4	5 Mean
1	Differentiate task for different group of children	9(13.8)	35(53.8)	18(27.7)	3(4.6)	0(0.0) 2.23
2	Small Group Instruction	42(64.4)	22(38.8)	1(1.5)	0(0.0)	0(0.0) 1.37
3	Individual Instruction	65(100)	0(0.0)	0(0.0)	0(0.0)	0(0.0) 1.00
4	Teachers develop and implement Individualized Education Plan.	65(100)	0(0.0)	0(0.0)	0(0.0)	0(0.0) 1.00
5	Task Analysis	47(72.3)	18(27.7)	0(0.0)	0(0.0)	0(0.0) 1.28
6	. Team teaching	33(50.8)	32(49.2)	0(0.0)	0(0.0)	0(0.0) 1.49
						1.40

Key: 1= Never Used, 2= Very Rarely Used, 3= Rarely Used 4= Often Used, 5= Very Often Used

The result in table 4 showed that only 3(4.6) head teachers indicated that teachers often differentiated learning task for different group of children. It further revealed that 35(53.8%) head teachers said that teachers very rarely differentiated learning task for different group of children, another 34(49.2) head teachers confirmed that teachers very rarely used team teaching and another 22(38.8%) indicated that teachers very rarely used task analysis. The result equally declared that 65(100%) head teachers confirmed that teachers never used individualized instruction, neither did they develop and implement individualized education programme. Furthermore, the results in table 4 show that 47(72.3%) head teachers said that teachers never used task analysis and another 42(64.4%) head teachers acknowledged that teachers never used small group teaching strategies. The overall mean (M=1.40) response of head teachers in table 5 confirmed that teachers very rarely used adapted teaching strategies during classroom instruction.

Table 6: Results of teachers' and head teachers' responses to teachers' adaptation of teaching Strategies.

	Adaptation of Teaching Strategies	M1	M2
1	Different learning tasks for different group of children	2.20	2.23
2	Small Group Instruction	2.45	1.37
3	Individual Instruction	1.25	1.00
4	Teacher develops and implement Individualized Education Plan	1.00	1.00
5	Task Analysis	2.65	1.28
6.	Team teaching	2.66	1.49
	Overall Mean	**2.04**	**1.40**

Keys: M1= Teachers response, M2=Head teachers responses

The results in table 6 show that teachers rarely used team teaching (M=2.66), task analysis (M=2.65) and small group instruction (M= 2.45). However, they never developed and implemented individualized education programme (M=1.00). The response of head teachers disputed that of teachers as shown in their responses in table 4. The responses of the head teachers indicated that teachers very rarely differentiated tasks to different group of learners (M=2.23) and used team teaching (M= 1.49). They never used small group instruction (M=1.37) and task analysis (M=1.28).The head teachers and teachers concurred that teachers never developed and implemented individualized programme (M= 1.00) and used individualized instruction (M=1.00).

The overall mean of adaptation of teaching strategies show that teachers and head teachers responses were slightly at variance. Teachers believed that they rarely adapted teaching strategies (M=2.04) while head teachers acknowledge that teachers very rarely adapted teaching strategies (M= 1.40)

To determine how significant these differences were, a sample independent t-test was computed and the result was as shown as in Table 6.

Table 7: Group Statistics: Mean differences of Teachers and Head teachers

	Respondents	N	Mean	Std. Deviation	Std. Error Mean
Teaching Strategies	Teachers	194	12.22	2.763	.198
	head teachers	65	8.37	1.167	.145

The results in table 7 indicate that the difference in the means of teachers (M=12.22) and head teachers (M=8.35) was 3.85 with 2.763 and 1.167 standard deviations respectively. This implies that teachers said they adapted their teaching strategies a sentiment that head teachers had no consent with. It was therefore necessary to find out whether the differences were significant. An independent sample t-test was therefore used to compute the significance of these differences.

Table 8: Mean difference between teachers and head teachers on their responses on adaptation of teaching Strategies

	F	**Sig**	**t**	**df**	**Sig (2-tailed)**	**Mean Difference**
Equal variance assumed	66.834	.000	10.896	257	.000	3.847
Equal variance not assumed			15.669	244.347	.000	3.847

Table 8 indicates the result of independent sample t-test which showed a significant difference between head teachers and teachers responses on adaptation of teaching strategies t (257) =15.669, p<.0.05. The study found that adapting teaching strategies by teachers had statistically significant higher response (12.22) than head teachers (8.37). Although the head teachers lacked training in special needs education as the teachers, they were still able to tell if teachers trained in inclusive education were using different strategies in their teaching to support learners with learning challenges. The responses of head teachers with regard to using adapted teaching strategies were evident that teachers very rarely adapted their teaching. It is possible to conclude that such learners were not supported enough during instruction to enable them make progress in learning. This was inconsistent with the result of Choo, Eng and Ahmad [18] who found that proper adaptation of the teaching strategies improves the performance of learners with diverse needs with a sample t test result showing a significant different between the experimental and control groups where t(66)=9.919; P< .000

Observation was done to determine whether teachers adapted their teaching strategies and the results were as shown in Table 9.

Table 9: Adapted teaching strategies used during classroom instruction (n =17)

S/N	Strategies	VOU f %	OU f %	RU f (%)	VRU f (%)	NU f (%)
1	Differentiated learning tasks for different group of children	0(0.0)	0(0.0)	0(0.0)	2(11.8)	15(88.0)
2	Small Group Instruction	0(0.0)	0(0.0)	3(17.6)	3(17.6)	11(64.7)
3	Individual Instruction	0(0.0)	0(0.0)	0(0.0)	0(0.0)	17(100.0)
4	Teacher develops and implement Individualized Education Plan	0(0.0)	0(0.0)	0(0.0)	0(0.0)	17(100.0)
5	Task Analysis	0(0.0)	0(0.0)	3(17.6)	4(23.5)	10(58.8)
6	Tem teaching	1(5.9)	1(5.9)	2(11.8)	3(11.8)	8(47.1)
7	Diagnostic Prescriptive teaching	0(0.0)	0(0.0)	0(0.0)	0(0.0)	17(100.0)

Very Often Used (VOU), Often Used (OU), Rarely Used (RU), Very Rarely Used (US), Not Used (NU)

Table 9 shows the adapted teaching strategies used during classroom instruction of learners with diverse needs as observed by the researcher. From Table 9, only 1(5.9%) teacher very often used team teaching during classroom instruction. The results also indicate that 3(17.6%) teachers rarely used small group instructional strategy, another 3(17.6%) also rarely used task analysis during instruction and 2(11.8) teachers rarely used team teaching. The researcher further observed that 4(23.5%) teachers very rarely used task analysis, 3(17.6%) teachers very rarely used team teaching strategy, the same number of teachers very rarely used small group instruction and 2(11.8%) teachers very rarely provided different task for different groups of children. The results reveal that none of the teachers developed and implemented individualized education program, used individualized instruction and also used diagnostic prescriptive teaching approach

during classroom instruction.. Majority of the teachers 15(88.24%) did not differentiate the learning tasks, despite the classes having learners with diverse needs. They taught learners as though they were homogeneous group without considering their individual differences for adaptation. Further observation indicated that majority of teachers 11(64.7%) did not provide the necessary support to learners in needs of such attention in the small group discussion. Observation data indicated that most teachers were not paying significant attention towards group activities or request for support by learners. Some observations were made in specific classes as follows:

It was time for mathematics class four, the time was 8.40am, and the teacher came to the class and asked the learners to take out their primary mathematics text books and open page 81.He showed them two examples on the chalkboard on addition and subtraction of centemetres from metres and instructed them to do question 1 to 14 (Exercise 63) in their text books and take the books to the classroom for marking at the end of the lesson".

Some learners experienced difficulties in mathematics and required more support at individual levels from the teachers and even their peers. These were never available for them. In another scenario;

"A teacher walked in class seven, a note book in her hand and instructed the learners to keep away everything and take out their science exercise books. He wrote the sub-topic on the Chalkboard ***"ways of conserving water",*** *then proceeded immediately to dictatenotes from her notebook. As the other learners were busy writing, a learner sat silently, his exercise book closed. On enquiring, it was found that he was hard of hearing. Later the researcher asked the teacher how she assisted such a learner when dictating notes. she remarked "that is one of the challenges that I face with* ***disabled learners*** *in the class, anyway, I do encourage him to read from his friends". The comment indicated either disinterest or lack of commitment''.*

This was enough evident that although there were learners with diverse needs in the class, teachers never paid much attention to them hence treated the class as one group not individual learners with specific needs.

Valiande A. S, Kyriakides L. & Koutselini M [9] found out that teachers were teaching class as a whole and hardly individualized their instruction to suit the needs of the other learners. In defending their use of undifferentiated teaching approach, teachers argued that individualized response to learning was highly demanding in terms of time and work load. Voparanya [10] in his study reported that principals reported that teachers developed IEP for learners with severe disabilities; however, in practice it was more of paperwork process done because it was needed to document eligibility for the subsidy and not as a useful tool to increase achievement of a learner in the areas of needs. His finding was inconsistent with that of the current study which shows that teachers were not developing IEP at all in their primary schools in Siaya County as revealed by least rating. The finding of Maina [16] agreed with that of the current study that IEP was inadequately provided for by teachers.

Adaptation of Learning Strategies

The teachers were asked to indicate the extent to which they had adapted the learning strategies. Their responses were measured on a 5-point scale of 1Not Used 2. Rarely Used 3 Rarely Used, 4. Often used 5.Very often used (Not Used -1.1 to 1.44-, Rarely Used -1.45 to 2.44,Rarely Used -, 2.45 to 3.44, often used-3.45 to 4.44 and Very Often used and 4.5 to 5.0.

Table 10: Response of teachers on adaptations of Learning Strategies (n=194)

S/N	Adapting Learning strategies	1	2	3	4	5	M	STD
1	Adapt the amount of learning task according to learners needs.	0(0.0)	70(36.1)	82(42.3)	42(21.6)	0(0.0	2.86	.748
2	Adapt ways in which learners take notes during the lessons.	146(75.3)	48(24.7)	0(0.0)	0(0.0)	0(0.0)	1.25	.433
3	Adapt lesson time according to learners needs.	16(8.2)	108(55.7)	40(20.6)	30(15.5)	0(0.0)	2.43	.851
4	Involve sign language interpreter during lesson delivery.	194(100.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	1.00	.000
5	Adapt the mode of communication during teaching –learning process.	194(100.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	1.00	.000
6	Effectively involves parents in the children's learning.	90(46.4)	56(28.9)	27(13.9)	21(10.8)	0(0.0)	1.89	1.055
7	Assign learners to support peers with learning and developmental challenges.	0(0.0)	70(36.1)	82(42.3)	42(21.6)	0(0.0)	2.86	.748

8	Adapt teaching learning resources used during classroom instruction.	194(100.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	1.00	.000
9	Adapt assessment procedures according to the needs of the learners.	194(100.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	1.00	.000
	Overall Mean						**1.69**	

The results from table 10 show that 42(21.6%) teachers said that they often adapted the amount of learning task according to learners needs and assigned learners to support peers with learning and developmental challenges. The finding furthermore revealed that 82(42.3) teachers equally confirmed that they rarely adapted the amount of learning task according to learners needs and assigned learners to support peers with learning and developmental challenges. In addition 108(55.7%) teachers indicated that they very rarely adapted lesson time according to learners needs. However 194(100.0%) teachers confirmed that they never involved sign language interpreter during lesson delivery, adapted the mode of communication during teaching –learning process, adapted teaching learning resources used during classroom instruction and adapted assessment procedures according to the needs of the learners. The overall mean (M=1.69) of adaption of learning strategies shows that teachers very rarely adapted learning strategies

Head teachers were also asked to indicate the extent to which teachers adapt the learning strategies. Their responses were measured on a 5-point scale of (1). Not Used -1.1 to 1.44-, (2). Rarely Used -1.45 to 2.44, (3). Rarely Used -, 2.45 to 3.44, (4.) Often used-3.45 to 4.44 and (5) Very Often used and 4.5 to 5.0. The results are as shown in table 11

Table 11: Response of Head teachers on adaptations of Learning Strategies (n=65)

S/N	Adapting Learning strategies	1	2	3	4	5	M	STD
1	Adapt the amount of learning task according to learners needs.	9(13.8)	22(33.8)	26(40.0)	8(12.3)	0(0.0)	2.51	.886
2	Adapt ways in which learners take notes during the lessons.	32(49.2)	26(40.0)	7(10.8)	0(0.0)	0(0.0)	1.62	.678
3	Adapt lesson time according to learners needs.	11(16.9)	23(35.4)	17(26.1)	13(20)	1(1.5)	2.54	1.047
4	Involve sign language interpreter during lesson delivery.	65(100.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	1.00	.000
5	Adapt the mode of communication during teaching –learning process.	65(100.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	1.00	.000
6	Effectively involves parents in the children's learning.	65(100.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	1.00	.000
7	Assign learners to support peers with learning and developmental challenges.	8(12.3)	25(38.5)	28(43.1)	3(4.6)	1(1.5)	2.45	.830
8	Adapt teaching learning resources used during classroom instruction.	65(100.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	1.00	..000
9	Adapt assessment procedures according to the needs of the learners.	65(0.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	1.00	.000
	Overall Mean						**1.57**	

The results in Table 11 show that 13(20%) head teachers said that teachers often adapted lesson time according the learners needs. In addition 23(43.1%) head teachers revealed that teachers rarely assigned learners to support peers with learning and developmental challenges, another 26(40%) head teachers also confirmed that teachers rarely adapted the amount of learning task according to learners needs. All the head teachers 65(100.0%) confirmed that they had not involved sign language interpreter during lesson delivery, adapted the mode of communication during teaching –learning process, effectively involved parents in the children's , adapted teaching learning resources used during classroom instruction and adapted assessment procedures according to the needs of the learners. However the overall mean (M= 1.57) according to the head teachers indicated that teachers very rarely adapted learning strategies during classroom instruction. This resonated well with the responses of the teachers which the overall mean (M=1.69) equally indicated that teachers very rarely adapted learning strategies.

Table 12: Adaption of Learning Strategies

	Adaptation of Learning Strategies	M1	M2
1	Adapt the amount of learning task according to learners needs	2.86	2.51
2	Adapt ways in which learners take notes during the lessons.	1.25	1.62
3	Adapt lesson time according to learners needs	2.43	2.54
4	Involve sign language interpreter during lesson delivery	1.00	1.00
5	Adapt the mode of communication during teaching –learning process	1.00	1.00
6	Effectively involves parents in the children's learning.	1.00	1.00
7	Assign learners to support peers with learning and developmental challenges.		
	Adapt teaching learning resources used during classroom instruction.	2.86	2.45
8	Adapt assessment procedures according to the needs of the learners.	1.00	1.00
9	**Overall Mean**	1.89	1.00
		1.69	**1.57**

Key: M1= Teachers, M2= Head teachers

Table 12 results shows that adaptation of learning strategies was done very rarely by the teachers based on the overall mean rating of the teachers and head teachers respectively (M=**1.69)** and (M=157). The responses by teachers indicate that learning strategies that were rarely adapted included adapting the amount of learning task according to learners needs (M=2.86) and assigning learners to support peers with learning and developmental challenges (M=2.86). Head teachers on the other hand indicated that learning strategies that teachers rarely adapted included adapting lesson time according to learners needs (M=2.54) and adapting the amount of learning task according to learners needs (M= 2.51).

Both the teachers and the head teachers (M=1.00) concurred that teachers never adapted the following learning strategies; involving sign language interpreter during lesson delivery, adapting the mode of communication during teaching –learning process, effectively involving parents in the children's learning and adapting teaching learning resources used during classroom instruction. In addition, head teachers indicated that teachers did not adapt assessment procedures according to the needs of the learners.

The overall impression of the teachers and the head teachers was that teachers very rarely adapted teaching learning strategies during classroom instruction. To determine the significant differences in the means of teachers and head teachers on adaptation of Learning Strategies, a sample t-test was computed as shown in Tables 13 and 14

Table 13: Mean differences of Teachers and Head teachers' response on adaptation of Learning Strategies

	Respondents	N	Mean	Std. Deviation	Std. Error Mean
Learning Strategies	Teachers	194	15.28	3.581	.257
	head teachers	65	14.13	3.308	.410

The results in table 11 indicate that the difference in the means of teachers (M=15.28) and head teachers (M=14.13) was 1.11 with 3.6 and 3.3 standard deviations respectively. This implies that teachers were more varied in their response than the head teachers who had compact responses. It was therefore necessary to find out whether the differences were significant. An independent sample t-test was therefore used to compute the significance of these differences.

Table 14: Mean difference between teachers and head teachers on their responses on adaptation of teaching Strategies

	F	**Sig**	**t**	**df**	**Sig (2-tailed)**	**Mean Difference**
Equal variance assumed	.001	.969	2.334	257	.020	1.176
Equal variance not assumed			2.428	118.105	.017	1.176

Table 14 indicates the result of independent sample t-test. The study found that there was no significant difference between head teachers and teachers responses on adaptation of learning strategies t (257) = 2.334; p> 0.05. The study found that adaptation of learning strategies by teachers had statistically higher responses

Topping [1] asserts that peer tutoring is an intervention in which students work in pairs to master academic skills or content. He observes that peer tutoring involves partners who are the same age or different ages (cross-age. Nguyen (2003) pointed out the following as the benefits of peer tutoring; improves reading achievement for students of all levels, accommodates diverse students within a classroom, promotes higher-order thinking, results in positive effects on social, self-concept, and behavioral outcomes and increases students' sense of control and responsibility for their academic achievement. The finding indicated that teachers in regular schools in Siaya County rarely used peer tutoring going by the rating of M=2.86. This denied the learners the benefits both in cognitive and social terms as highlighted by Ngueny [17].

Observation was carried out to 17 teachers teaching classes with learners placed in the schools by EARCs.. The results of observation were based on the following scale: 1=not done, 2= poorly done, 3= fairly done, 4= done 5= outstandingly done.

Table 15: Observation of accommodation of Learning Strategies done among 17 teachers in regular primary schools in Siaya County

S/N	**Adaptations**	1	2	3	4	5
1	Assign learners to peers for help during teaching learning process is ongoing.	4(23.53)	3(17.65)	4(23.53)	6(35.29)	0(0.0)
2	Provide learners with diverse needs with appropriate learning materials during instruction	12(70.59)	2(11.76)	3(17.65)	0(0.0)	0(0.0)
3	Provide handouts to learners with learning challenges before or after the lesson	17(100)	0(0.0)	0(0.0)	0(0.0)	0(0.0)
4	Vary the amount of contents given to the learners to match the ability levels	14(82.35)	2(11.76)	1(5.88)	0(0.0)	0(0.0)
5	Allow the learners more time to complete the learning task	4(23.53)	2(11.76)	3(17.65)	7(41.18)	1(5.88)

Observation done on learning strategies indicated that most teachers never adapted learning strategies during instruction. The two adaptations that were done included allowing the learners more time to complete the learning task 11(64.71) and encouraging learners to seek for help from the peers as teaching learning process is ongoing 10(58.82). However 17(100%) teachers did not provide handout to learners with learning challenges before the lesson begun despite experiencing writing difficulties due to sensory and physical limitations. This was followed by 14(82.35%) teachers who did not vary the amount of content given to the learners to match the ability level. Another 12(70.59%) teachers did not provide learners with diverse need with appropriate learning materials.

The observation made in the classes revealed that print materials, including text books and other written learning materials like charts were in the normal font 12, which disadvantaged learners with low vision who were conditioned to use the same with the sighted peers. The teachers went about their work as though nothing needed to be done and like all learners were the same. Data from the researcher's dairy indicates this scenario:

"It was a social study lesson for class six and the topic was 'finding direction on a map'. The teacher asked the learners to describe the direction of a chief's office from a cattle dip. The symbols and writings on the map were so small that the learner with low vision had difficulty seeing but the teacher did nothing about it. When asked to respond, the learner took too long struggling to identify the two points and eventually gave up".

The reaction of the teacher to the learner's response to the learning tasks demonstrates total ignorance or lack of concern to the learner's situation. The teacher should have given individual instruction to the learner on the details of symbols and features on the map and how to determine the direction. This could suffice when enlarging the map is a problem; otherwise the best adaptation was to enlarge the map for clarity of information to the learner.

In another circumstance, the researcher established the following:

It was the third lesson in class five, the teacher came in the class and wrote eight words and asked the learners to construct sentences using the words on the board, after 10min of the lesson, she asked the learners to exchange their books for marking, a student said "excuse me teacher", the teacher responded, "what is it" ," please teacher, add us five

minutes" the classmates in unison said "yes" the teacher, looked at the learners and roared 'o.k', 'five minutes more and then exchange your books'.

The reaction of the teachers when requested by the learners to add them five minutes to complete their work demonstrated flexibility with time during teaching learning process. The teacher was concerned with need of the learners to complete their tasks effectively. This flexibility of the teachers during delivery of the lesson was advantageous to those learners with diverse needs who require more time and support for them to succeed.

The findings on teachers' involvement in the adaptation of the learning environment to accommodate learners with diverse needs show that teachers rarely adapted the learning environment. This is a demonstrated that learners with diverse learning needs in regular primary schools were not being attended to efficiently by the teachers during instruction.

CONCLUSION

Adaptation of classroom physical environment that teachers did included removal of distracters and providing preferential sitting position for learners with special needs, however other areas such as creation of space and organizing the appropriate seating arrangement was low. There was under utilization of adaptation of teaching strategies in schools hence teaching majorly was still done in the traditional manner. Adaptation of learning strategies was inadequate. Apart from more time and peer support, not much adaptation had been done. Nevertheless teachers' involvement in the adaptation of learning environment was inadequate.

RECOMMENDATION

The Study recommended that: Administration should construct more classrooms to create space and reduce congestion in the classrooms. Ramps should be constructed in the entrance of all the buildings in the school not just in some few. The ramps themselves should be constructed at the acceptable standards More teachers need to adapt their teaching and learning strategies during classroom instruction. They also need to develop individualized education programme to address the learning challenges experienced by learners with diverse needs.

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