Evaluation of Classroom Physical Adjustments for Inclusion of Pupils with Physical Disability within Inclusive Public Primary Schools in Bungoma County, Kenya

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Abstract

Kenya has always placed education as a priority at all levels, promoting it as a key driver for social and economic development. However, as schools are increasingly challenged to serve a diverse population of pupils, much of the concern now is no longer whether to provide inclusive education, but how to implement inclusive education in ways that are both feasible and effective in ensuring schooling success for all children. In relation to this, the government of Kenya recognizes the importance of special needs education as a crucial subsector for accelerating the attainment of Education for All (EFA) and the millennium Development Goals (MDGs). However, the Salamanca Statement reported great concern for learners with special needs being enabled to learn in a conducive environment. This includes adjustment of anything in the education sector that hinders imparting knowledge and skills to the learners, such as those with physical disability. Therefore, certain classroom conditions are paramount within inclusive schools for children with physical disability to enable enhancement of their learning activities. This paper therefore realized this and aimed at evaluating the preparedness in terms of classroom physical adjustments of the selected inclusive public primary schools to accommodate pupils with physical disability.

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This study adopted mixed method research paradigm. Descriptive survey research and phenomenology designs were used. The findings indicate that there are inadequate classroom physical adjustments for inclusion of pupils with physical disability.

**Keywords:** Inclusion; Classroom Physical Adjustments.

1. **Introduction**

Inclusion remains in 2016 as part of school and educational reform initiatives in Kenya and other parts of the world. In recent times, inclusion has been an initiative to improve quality in education in the fields of disability and is supported by the UN Convention on the Rights of Persons with Disabilities [1]. Inclusive education therefore means “Schools should accommodate all children regardless of their physical, intellectual, social, emotional, linguistic or other conditions…” (The Salamanca Statement and Framework for Action on Special Needs Education, Para. 3) [2]. It’s important to note that in inclusion, schools ought to conform to the needs of the pupils with special needs. This concept of inclusive education can be interpreted in terms of all children regardless of ability or disability having a basic right to be educated alongside their peers in their neighborhood schools. This means that the inclusive school needs to examine how the educational provisions can be accustomed to enhance equal education to the learners with disability as to those without disability. This is what the researchers have called adjustments. As one of the signatories of “Education for All,” Kenya is committed to enhancing access to education to all her citizens, and inclusive education is perceived to be the most effective approach in reaching this goal [3]. In regard to pupils with physical disability, one area that obviously needs adjustments to enhance learning activities is the classroom physical environment. These adjustments are in relation to: Ample space for mobility especially for those using mobility devices, adaptation of the desks used, availability of store boxes and the nature of chalk boards used. This study addresses the question of whether the aforementioned classroom physical adjustments meet the needs of pupils with physical disabilities and comply with our convictions of inclusion and full participation of the pupils in public inclusive schools for the pupils with physical disability in Bungoma County, Kenya.

2. **Study objective**

To evaluate classroom physical adjustments preparedness for inclusion of pupils with physical disability in inclusive public primary schools in Bungoma County.

3. **Research methods**

Mixed method research approach was employed by borrowing aspects of both Phenomenology and Descriptive Survey research designs. According to Crewell [4], qualitative research involves collection of narrative data to gain insight into phenomena of interest while quantitative research involves the collection of numerical data to gain insights into how one variable influences other variables. Mixed methods research approach utilizes in-depth contextualized and natural but time consuming insights of qualitative research coupled with the more efficient but less rich quantitative research [5]. This approach allowed for triangulation of different methods of inquiry, data collection, and data analysis. The target population included four 4 registered inclusive primary
schools offering inclusion for the pupils with physical disability, 354 pupils with physical challenges, 68 teachers and 4 head teachers. The researcher purposively selected all the 4 inclusive schools catering for pupils with physical disability. Out of the population, the researcher purposively sampled 138 pupils. Using the census method, all the 68 teachers and 4 head teachers were selected.

The methods of inquiry that were employed by the researchers were questionnaires, interviews and observation. The teachers and pupils with physical disability responded to the questionnaires items while the head teachers were interviewed. Observation was also used in order to establish the truthfulness of some of the responses given from the questionnaires and interviews. Data analysis was done using descriptive statistics and thematic analysis. Findings of the study were presented in narrative form, frequency distribution, graph, pie chart, percentages and by use of photographs as follows.

4. Results of the study

This study obtained information from a total of 210 respondents and thus the following sections present the research results and subsequent discussions.

4.1. Bio-Data of respondents

The demographic information of the respondents obtained provided parameters that supported the study although some of these parameters were not directly under study. These included class attended by the pupils with physical disability, distribution of the teachers per each inclusive school and the gender of the teachers.

4.1.1. Distribution of pupils with physical disability by school and class

The study involved four schools in Bungoma County namely A, B, C and D where 138 pupils, 68 teachers and 4 head teachers participated in the study. Table 1 shows demographic information for pupils by school and class attended.

| Number of pupils with physical disability by school and class attended |
|--------------------------|----------------|----------------|----------------|----------------|----------------|---------------|
| School | Class 4 | Class 5 | Class 6 | Class 7 | Class 8 | Total |
| A     | 15      | 12      | 15      | 22      | 6      | 70  |
| B     | 7       | 10      | 8       | 11      | 4      | 40  |
| C     | 2       | 6       | 3       | 4       | 3      | 18  |
| Total | 26      | 29      | 27      | 40      | 16     | 138 |

4.1.2. Distribution of teachers by school and gender

The study assumed that selecting all the teachers to be involved in the study was appropriate as at one point or
another they get to interact with all the pupils with physical disability from class four to eight. The teachers’
details are as follows;

Table 2: Distribution of teachers by school and gender

<table>
<thead>
<tr>
<th>Gender</th>
<th>School</th>
<th>Female frequency</th>
<th>Male frequency</th>
<th>Total frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A</td>
<td>12</td>
<td>10</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>10</td>
<td>8</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>C</td>
<td>9</td>
<td>6</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>39</td>
<td>33</td>
<td>72</td>
</tr>
</tbody>
</table>

4.2. Classroom physical adjustments for inclusion of pupils with physical disability

The main objective of this study was to evaluate classroom physical adjustments preparedness for inclusion of pupils with physical disability in inclusive public primary schools in Bungoma County. To achieve this objective, the following research question was posed; Are there classroom physical adjustments in place for inclusion of pupils with physical disability in inclusive public primary schools in Bungoma County? To answer this question, the responses of the participants were coded and scored. Under classroom physical adjustments, the following items were investigated: the kind of desks available, ample space for movement within the classroom, availability of store boxes and the nature of chalkboards used.

4.2.1. Adapted desks

To get more information about the kind of desks available, an interview schedule for the head teachers was conducted and questionnaires for teachers were administered. Further, an observation guide was utilized. When teachers were asked to describe the kind of desks that are used by the pupils with physical disability, their responses were analyzed as shown in percentages in Figure 1.
On the kind of desks available to allow comfortable use of books, papers and classroom supplies, Figure 4.1 indicates that 80% of the teachers said that pupils with physical disability are provided with ‘normal’ desks, 11% of the teachers said that some of the pupils are given special chairs with writing tables while 9% said that some pupils are given wheelchairs with writing table. This means that in the selected schools, teachers admit that pupils with physical disability are not provided with adapted desks in the classroom. Such pupils have to make do with desks which are used by their peers without physical disability. According to these responses, it also means that there are some pupils with severe physical disability who are provided with either special chairs with writing tables or wheelchairs with writing board fixed on them in order for them to be comfortable. The findings of this study are in tandem with the study carried out by [6] who found out that Ghanaian teachers were well aware of the concept of inclusive education, but inadequate adjusted infrastructure like furniture used by pupils with physical disability impeded the implementation of inclusive education. Lacking such facilities can lead to stress on the part of the learner hence hampering the learning activities that they take place in.

The responses of the teachers were at par with some of the observations made by the researcher on desks. In school A, the responses given by the teachers tallied with what was observed by the researcher. Here, desks that were available were not adjusted. Such desks do not allow comfortable use of books, papers and classroom supplies. Pupils with physical disability like the one in the Figure 2 are provided with un-adapted desks which do not suit their nature of disability. However, the researchers observed that although there are no adjusted desks for use, some of the pupils with severe physical disability are given special chairs with writing tables and those on wheelchairs are given wheelchairs with a writing board fitted. This information is illustrated in Figure 2.

![Figure 2: A physically challenged pupil using an unadjusted desk](image)

As can be seen in Figure 2, school A does not provide adapted desks for the pupils with physical disability. The pupil sitting at the left foreground has physical disability where the hands are shorter than “normal”. However, the pupil sitting at the background in the plate has no physical disability. Such a pupil with physical disability needs to be given a desk which is raised a little because the limbs are shorter in order to avoid strain. Although this kind of adjustment is required, the pupil is using an un-adjusted desk just like her peers. The desks are of
the same sizes and heights which cannot accommodate special needs of the pupil. In Figure 3, a pupil at the left foreground is using a wheelchair which has a writing table fitted on it. This greatly eases the learning activities as the child can write with comfort.

![A pupil with physical disability using a wheelchair with writing table](image)

**Figure 3:** A pupil with physical disability using a wheelchair with writing table

Through an interview carried out with the head teacher of school A, it was found out that the school did not have any provision for adjusted desks. The head teacher attributed this to the high expenses which would have been incurred in cases where each pupil had to be given a special desk because the pupils experience different kind of physical disability which requires different types of desks. However, he reported that those pupils with severe physical disability are provided with special chairs and wheelchairs which have writing boards fixed.

In school B, it was noted through the head teacher that the school does not provide adapted desks which suit specific pupils with physical disability. Unlike school A which provides an option of wheelchairs with writing tables fixed or special chairs with writing boards fixed on them, school B provides wheelchairs for the pupils with physical disability which are also used in classrooms but they have no writing tables on them. This makes it difficult for the pupils to write in books because they have to use their laps. This situation has been exemplified in Figure 4.

The information given by the head teacher of school B indicated that funding received cannot cater for provision of special desks for the pupils with physical disability who need them. This collaborates the findings of a study done by [7] who noted that Lack of funding was a major challenge in the inclusive primary school in Botswana. They further noted that it was that direct funding is not allotted to primary schools for buying equipment and structural modifications to support students with disabilities.
In our study, the head teacher of School B reported sadly that;

“Mmmh…(poses a bit) what we do is that we provide wider desks or lockers which can be used by all pupils but we do not go into the details of providing the specifics. I know the pupils have it rough but I can’t do much.”

This means that the specific needs of pupils with physical disability are not put into consideration when it comes to making desks. It also means that desks that are made are wider than normal to cater for the pupils with physical challenges. However, this information disagreed with what was observed. As illustrated in Figure 4, the desks on the left foreground have no wider surfaces. Furthermore, in the left background, lockers can be clearly seen in use but are not adjusted in any way. The head teacher further reported that there are only few wheelchairs which are used for mobility purposes and are not fixed with writing tables.

Figure 4: A pupil with physical disability using a wheelchair with no writing table

In Figure 4, both the pupil in the middle foreground and the pupil in the right foreground are using wheelchairs without writing tables fixed on them.

In school C, just like in schools A and B, it was observed that there are no adapted desks that are used by the pupils with physical disability. In addition, there was no evidence of alternative special chairs for use. There was only one pupil who had access to a wheelchair but it was not fixed with a writing table. When asked about this, the head teacher reported that;

“…we are still growing, (pauses a bit and then changes the facial expression and then continues) we haven’t
reached that level of specialized attention.”

This means that provision for the adjusted chairs and wheelchairs for the pupils was a major challenge. It also means that the school being an inclusive setting, it has not put in place requirements of adjusting the desks nor having special chairs and wheelchairs.

In school D, it was observed that the pupils with physical disability are not provided with neither special chairs, adjusted desks nor adjusted wheelchairs. In fact there was only one wheelchair in the school. The wheelchair is not fitted with a writing table and it is normally left at the doorstep by the pupil using it because the doors are un-adapted hence the wheelchair cannot pass through. Therefore, the pupil using this wheel chair has to crawl to class and struggle to accommodate him on an un-adjusted desk that is used by other pupils. This wheel chair is shown in Figure 5.

The head teacher admitted through an interview that there has been little attention on provision of adapted desks and adapted wheel chairs for the pupils who need them because the resources are few. The head teacher reported that;

“…it becomes so hard to access equipments such as wheel chairs because they are very expensive unless the ministry comes in fully or we get donors.”

This findings tally with those of a study done by [8] where it came out clearly that the irregularity of the funds disbursements has been reported to be causing anxiety in the inclusive schools. There is lack of research on cost-effectiveness of funds sent to schools to promote inclusion. Policy initiatives such as the aforementioned contradict the efforts towards achieving Education for All. This evidently means that pupils with physical challenges who need adapted desks and wheel chairs have to make do with the available ones which are not adapted in any way. In addition, these findings have been corroborated by other studies in developing countries, including those by [9, 10, 11] in India, and [12] in Lesotho. These researchers expressed concern about the deficiency of resources as one of the challenges for the successful implementation of inclusive education. This important aspect needs to be built into the guidelines for inclusive education if full inclusion of the pupils with physical disability is to be realized.

![Figure 5: A wheel chair with no writing table](image)
Generally, it’s evident that all of the inclusive schools do not give special attention to pupils with physical disability when it comes to provision of adjusted desks and some pupils with physical disability still have to make do with the existing conditions thereby limiting their participation in learning activities. This means the psychomotor domain of development has been ignored in these schools.

4.2.2. Provision of Ample Space

Majorly, provision of ample space is to ease use of mobility devices and enhancement of classroom learning activities like discussion. The study established that some of the schools had adequate space provided to facilitate free and safe movement of pupils with physical disability and therefore users of wheelchairs and other assistive devices like crutches and walkers can easily move into groups during discussions or in and out of the classrooms with ease. Many (90%) of the pupils reported that there is adequate space for their movement within the classroom. However, these findings differed with what the researchers found out through observation whereby some schools showed a different picture from what the pupils reported.

In school A, it was observed that pupils in some classrooms were seated so close together such that those pupils using wheelchairs and other assistive devices like crutches have difficulty in mobility. This was attributed to the large number of pupils accommodated in each of the classrooms. This situation is clearly exemplified in Figure 6. Here, the two pupils’ seated at the middle background and left background have physical challenges. The pupil in the middle background uses a wheel chair for mobility. However, in front of him, there are obstacles such as bags and desks. Further, there is a pupil seated on a desk in the right foreground of the photo with one of the legs outside the desk. Such obstacles close by are hindrances to free movement of the pupil like when moving into discussion groups or when the pupil wants to go outside the classroom.

This is in line with findings of a study done by [13] where it was found out that along with the environmental barriers, there are physical barriers in classes, where the vast majority of classes used for learning, passageways were a major concern for the students. Reported barriers included too little space between desks within classrooms, narrow aisles within the library, and crowded hallways. Therefore, just like in school A, it was especially difficult during class changeover, requiring the students using a wheelchair to leave class earlier than their peers to get to the next class or activity. To foster inclusion therefore, there has to be enough space between desks for easy movements of the learners with physical disability in class to enhance learning activities.

In school B, the researcher noted that all the classes had ample space for easy and accident free movement of pupils with physical disability especially those that are using assistive devices. This is illustrated in Figure 7.

Figure 7 illustrates the ample space for movement provided to facilitate mobility of pupils with physical disability. The pupil in the foreground was coming from outside the classroom and he could easily move with his wheelchair within the classroom up to where he normally seats. Such kind of space is required in class to avoid accidents and enhance general classroom participation of the pupils with physical challenges. This is at par with an assertion by [14] stating that most schools that take in children who have special education needs require some modifications to classrooms and the larger environment to make inclusion possible.
Figure 6: Pupils with physical challenges sitting at the back of the class with no ample space for free movement

Figure 7: Ample Space provided within the Classroom for Easy Movement of Pupils with Physical disability

Just like in school B, school C had classrooms well arranged with ample space for movement. Pupils with physical disability that used assistive devices had no problem in moving around the class for instance when moving to groups or when required to write on the chalkboard or even when moving in and out of the classrooms.

However, as much as school B and school C had classrooms with ample space for movement, school D did not have this characteristic. As illustrated in Figure 8, pupils are closely set together and the corridor (from the middle foreground to the middle background) between the two rows is not sufficient even for a pupil using a wheelchair to move through. In fact, there is a pupil who has sat within the corridor with both legs outside the desk. Also, there are bags placed on the floor of the corridor. Apart from that, the floor has ‘potholes’ which can
cause accidents of pupils using assistive devices like wheelchairs or crutches. These are part of the obstacles that may hinder accident free movement. This shows that the school has not abided by the requirement of provision of ample space in classrooms for safe mobility of pupils with physical disability.

![Figure 8: Lack of ample space for free movement of pupils with physical disability](image)

4.2.3. Availability of Store Boxes

To find out more information on the availability of store boxes, pupils with physical disability were asked if there are store boxes at arm’s length or closer to the floor for storing their personal things. Most of the pupils (85%) responded by stating that there are no store boxes available in their classrooms. Further, this implicates that only 15% of the pupils admit that they have store boxes in their classrooms. These findings are illustrated in Figure 9.

![Figure 9: Availability of store boxes](image)

The opinions of the pupils tallied with what was observed by the researcher during the study. It was found out that store boxes were only in school A and D. The store boxes in school A are located at low level which can be easily accessed by the pupils with physical disability. However, not all the classrooms in school A had store boxes. Only classes four and five have store boxes. As much as they are there, some of the store boxes are not easily accessible as can be seen in the Figure 10. Inaccessibility is due to presence of dangerous items such as iron sheets, broken pieces of wood which have been put closer to the store boxes which can end up injuring the
pupils. This means that such a school has adhered to the fact that store boxes should be provided but has failed to make the accessibility of the store boxes to be easy and safe. In a study done by [15], he recommended that classroom design and arrangement should be adequate and spacious for storage facilities for pupils with special needs. This was after the study established that physical barriers hinder inclusive education for learners with physical disability in the four primary schools studied. These findings tallied with the observations made by the researchers. Although the store boxes were spacious, they were inadequate and not easily accessible.

In Figure 10 above, the background clearly shows that store boxes are present. However, on top of the store boxes and in front of them, pieces of wood, wires, old iron sheets and other metals have occupied the spaces. As can be seen, even one of the metal pipes has extended to below a desk being used by the pupils in the right foreground. A pupil with physical challenges who may want to use these store boxes may get injuries.

In school B and school C, it was observed that there is no store box present in any of the classrooms. In school D, there is only one classroom with a store box. However, the store box is located far in the corner where it is not easily accessible especially to a pupil using a wheelchair to move around. Also, the doors are located at a raised level at which a pupil who may want to open may tend to struggle. This case may be very practical to pupils using wheelchairs. This scenario is clearly elaborated in Figure 11.

Figure 11 illustrates a store box in the right background. Pupils have arranged desks so close to the box such that there is no space for even opening the doors without moving the desks. This makes the box inaccessible especially to those pupils using assistive devices.
4.2.4. Nature of Chalkboards

The study found out through observation that all the inclusive schools have non-adjustable chalkboards. However, it was further established that chalkboards used in the classrooms are relatively low to encourage participation of pupils with physical challenges during class discussions where there is need to write on the board. This implies clearly that all the selected inclusive schools have conformed to the regulation that the chalkboards should be at lower levels or adjustable for easy access by the pupils especially those using wheelchairs to move around to enhance learning activities. Findings on chalkboards during observations agreed with what the head teachers in the four inclusive schools echoed. All (100%) of the teachers said that there were no adjustable chalkboards but all those that were there were constructed at a comparatively lower level to accommodate pupils with physical challenges. This is exemplified in Figure 12. With such a lower level of chalkboards, it raises the esteem of pupils with physical disability as they feel recognized. Further, their participation in classroom learning activities like writing on the board like in calculations enhances the learning process.

Figure 11: Location of a store box far at the corner with raised doors

Figure 12: Chalkboard at a lower level than normal

5. Summary of the Results

The study looked at four areas under the category of classroom physical adaptations. The first area that the study
endeared to look at was on the availability of adapted desks for the pupils with physical challenges. Generally, the study noted that there was no inclusive school which had adapted desks to accommodate pupils with physical challenges. In addition, there was only one school with adapted wheelchairs with writing tables fixed on them. Furthermore, store boxes were found in only two of the schools of which pupils with physical challenges were denied to access some of the store boxes available due to keeping dangerous items close to the boxes that could harm pupils accessing them. The third area under study was availability of ample space for mobility in class. Generally, it was noted that only two inclusive schools had adhered to the fact that ample space should be provided for easy movement especially for pupils using assistive devices. This was attributed to the high enrolment in the classrooms. Lastly, the nature of blackboards was examined where it was noted that as much as all the schools do not have adjustable chalkboards, the chalkboards present have been constructed at lower levels at which pupils with physical disability using assistive devices like wheelchairs can easily use them. Such chalkboards encourage participation of pupils with physical disability in learning activities like writing on the chalkboard when there is need. The inadequacy of some of the classroom physical adjustments could be attributed to the fact that most parents and the school administration lack awareness of the specific classroom physical needs of pupils with physical disability.

Studies conducted by [16] indicated that most parents choose schools for the children with physical disability based on proximity to home and not necessarily on availability of necessary classroom adaptations which facilitates easy learning for them. According to a study by [17], there is apparently a shortage of auxiliary equipment for the inclusion of special-needs children in a large portion of the schools. A high percentage (45%) of RSC directors reported that only a small portion of the schools had auxiliary equipment in classrooms. Without suitable equipment, the full inclusion of special needs children cannot be successful. These findings tallied with what was found out whereby the researcher concluded that the classroom physical adaptations were inadequate. Their inadequacy could be attributed to the fact that most parents and the school administration lack awareness of the specific classroom physical needs of pupils with physical disability.

6. Conclusion

Based on the results of this study, the researcher concluded that classroom physical adjustments were inadequate. This is attributed to the fact that there were no adapted desks in all the inclusive schools selected and only one of the schools had wheelchairs with writing tables fixed. In addition, it was noted that as much as some inclusive schools facilitate classroom space for free movement and participation of pupils with physical disability in classroom learning activities, some schools still have not adhered to this. This is because the pupils in the classrooms are squeezed together hence lack of ample space for movement. Also, only two schools had store boxes in the classrooms of which some of the available store boxes are inaccessible.

7. Recommendations

This paper recommends the following in relation to enhancing full inclusion of pupils with physical disability in terms of classroom physical adjustments.
1. The school administration and educators should ensure that learning activities are undertaken with ease by taking into account the special needs of each pupil with physical challenges disabilities with respect to providing adapted desks, special chairs with writing tables or wheelchairs with writing boards fixed on them to be used both for mobility within the school and also in class.

2. There is need for the school administration to construct more store boxes which are accessible for safe keeping of personal items of pupils with physical challenges. Also, the existing store boxes should also be made accessible by the pupils by removing obstacles such as broken chairs, pieces of wood and damaged wheelchairs.

3. Awareness of the various adjustments required in relation to inclusion as stipulated in various policies among others the National Special Needs Education Policy Framework (2009) be made to administrations of inclusive public primary schools for the pupils with physical disability. This will help administrators to know how to make provisions for pupils with physical challenges to enhance their education. This could include having awareness seminars and workshops.

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