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From segregation to inclusive education: Examining the environmental adaptations on pupils with disabilities in regular schools within Yilo Krobo Municipality, Ghana

Research article

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Abstract

Inclusive education is the adaptation and modification of the learning environment and instructions to promote the academic performance of all learners irrespective of race, class, gender, disability, sexual preference, religion, culture, learning styles, and language. Oppong (2003) explains inclusive education as the adaptation of the school curriculum to make it equally accessible to students with special needs. This means that the school curriculum should suit students with and without disabilities and the school environment should also be made equally accessible to students with special needs. The descriptive cross-sectional survey design was employed. A quantitative data collection method was used, thus eight Likert scale type questionnaire was designed for the selected primary school teachers in the Yilo Krobo Municipality, Ghana. This study brings to light the challenges faced by pupils with disabilities and further recommends possible measures that could be put in place to improve teaching and learning in regular schools.

Keywords: academic performance, environmental adaptations, inclusive education, pupils with disabilities, regular schools

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Public Interest Statement

From the beginning of 2003/2004 academic year, there has been a paradigm shift from segregation to inclusive education in Ghana. Yilo Krobo Municipality and other areas in the country have been piloting inclusive schools to address the needs of individuals with disabilities so that, by 2020 inclusive education will be rolled on to other parts of the country. In spite of this intention, regular education system is yet to make the requisite adaptations to meet the learning needs of individuals with disabilities. This may be attributed to the curriculum being run by regular schools and the physical environment of the schools.

Introduction

According to Oppong (2003), inclusive education is the adaptation of the school curriculum to make it equally accessible to students with special needs. This means that, the school curriculum must suite both students with and without disabilities and the school environment should also be made equally accessible to students with special needs. Avoke (2004) also states that inclusive education is the adaptation and modification of the learning environment and instructions to promote the academic performance of all learners irrespective of race, class, gender, disability, sexual preference, religion, culture, learning styles, and language.

In Ghana, the attempt to integrate children with disabilities into regular schools dates back to 1960 soon after the attainment of independence, fifteen years before the American Education for all Handicaps Act was enacted in 1975. The Education Act of 1961, Chapter 5, Article 25 Clause '1A' of the 1992 constitution of the republic of Ghana, which states that, all persons shall have the right to equal educational opportunities and facilities and with a view of achieving the full realization of that right, Basic education shall be free compulsory education and available to all. The country was among the first countries to ratify the United Nations Convention on the Rights of the Child. The government also has through the promulgation of Persons with Disability Act, 2006 Act 715 made provisions for the education of the child with Special Educational Needs (SEN). For instance, Article 20 (1) stresses that 'A person responsible for admission into a school or other institution of learning shall not refuse to give admission to a person with disability on account of the disability unless the person with disability has been assessed by the ministry responsible for education in collaboration with the ministries responsible for health and social welfare to be a person who clearly requires to be in a special school for children or persons with disability'. By this all schools are mandated to enroll children with disabilities unless otherwise specified (Gyimah, 2009).

Also, the Ministry of Education's (MOE), Education Strategic Plan (ESP) 2003-2015, which has been extended from 2010-2020 is to achieve 100% inclusion of children with

disabilities into mainstream schools by 2020. The inclusive education plan identifies under policy objectives the provision of equitable educational opportunity (EA 7) which states that; children with disabilities should be integrated in mainstream schools by 2020 "and the prioritization of the disadvantage in the society (EA 9) which also requires that; An inclusive education system be achieved by 2020, including boys and girls with disabilities integrated into mainstream schools". As part of the Millennium Development Goals, all children with disabilities should receive quality inclusive education with appropriate support to ensure that each of them reaches the highest potential by 2015 (Wolfensohn 2000, cited in Gyimah, 2009). It can be said that inclusive education is based on the premise that, the special needs of individuals with disabilities can be appropriately catered for in regular schools if adequate preparations and arrangements are made.

Literature Review

Environmental Adaptation for Pupils with Disabilities in Regular School

Environmental adaptations involve organizing the physical settings to accommodate children with special needs as well as enabling teaching and learning activities go on effectively. These adaptations consist of accessible school buildings, the arranging the classroom desk to create adequate space for pupils, making the classroom more accessible, changing seating positions in the classroom, having adequate lighting systems and well ventilated. The direct effect of physical organization on students' academic performance is open to interpretation but how a classroom is physically organized can affect students learning and behaviour in a number of areas. For example, carefully arranged classroom can decrease noise and disruption, improve the level and quality of students and increase the percentage of time that students spend on academic task. (Paine, Radicchi, Rossellini, Deutchman and Darch 1983). McGuire and O'Donnell (1989) opine that, most school buildings should have entrances that are accessible to students who use mobility aids (wheelchairs, canes, crutches, and walkers). Also, students who use canes, crutches, or walkers appreciate having a chair or desk that is close to the door. They further explain that, access to these buildings should be flat, that is no steps, no uneven surfaces because wheelchair users need flat or ramped access, and classroom tables or desks must have enough clearance for them to get their legs underneath. Lab tables and computer consoles should be set up so that wheelchair users can comfortably reach the equipment.

According to the UN Convention on the Rights of Persons with Disabilities states that, buildings must be universally designed to enable everyone have access to it (Haddad, 2009). Haddad explains that, the first thing that meets us in most public buildings is stairs. These must be climbed before we can enter the building. Stairs are often the first barrier for many children and adults to access schools or other public buildings and enjoy the services these facilities have to offer. Some of the stairs have hand railings on the side to

give support, but most do not. All public buildings should therefore offer alternative ways to enter. The UN Convention on the Rights of Persons with Disabilities further explains that ramps are in most cases easy and relatively inexpensive to build (at least in 1-story buildings) and will therefore benefit many.

The document suggested that ramps should be added on to all existing schools and other public buildings. When new school buildings are being planned and designs are being developed, there is the need to be sure that they are equally accessible for all. Ramps and walkways should be incorporated into the design, in such a way that they do not become separate features for children, teachers and parents with disabilities, but will present attractive, alternative access-ways for all users. Again, the UN Convention on the Rights of Persons with Disabilities explains that, Universal design is not "just" about having access, but also about creating a more inclusive and learning-friendly environment in school. Schools that are built based on universal design principles will therefore be more effective because these schools will enable children to learn, develop, and participate, instead of "disable" children by creating barriers to their development and participation. Schools can make excellent use of these elements in creating buildings and grounds which reflect the needs and desires of their students and staff.

There should be adequate space in the room to be able to move around especially if there are students with physical disability. Space, light, materials, and even colour affect the way we experience education. According to Choate (2004), adapting the physical environment includes the appearance of the classroom and the use of space including wall areas, floor space, the desks, instructional material, ventilation and lighting and this affects behaviour in the classroom. The arrangement of the classroom can have a positive or negative effect on pupils learning. In a class where pupils with disabilities exist, the classroom should be arranged to accommodate them. Lain (2006) is of the view that, there should be flexibility in the arrangement of the classroom and therefore careful consideration into the arrangement of an inclusive classroom is needed to create an effective learning environment. The arrangement of students' desks, whether in rows, circles or small groups can have considerable impact on students with special needs. The desks should be arranged in a way that children will have a better view of the teacher and the interpreter if any. There should be no obstruction that will prevent the individual with disabilities from reaching the teacher. If there is adequate space in the classroom, areas in the classroom may be specially designed as a reading corner, writing corner or science corner. Choate (2004) explains that, colourful nicely arranged classrooms that have ample and appropriate instructional materials help establish an environment that is conducive to learning and promote teacher and student satisfaction.

Contrast colours should be used to create learning-friendly and accessible environments. Sound or noise levels should be reduced by using curtains, textile wall

decorations, and other sound-dampening materials. Colour coding should be used to identify different classrooms to ease orientation for children with low vision, as well as for children with developmental impairment. Wall areas can also be used for decorating, posting rules displaying students work and reinforcing class content, sometimes through the use of bulletin boards. Choate (2004) further explains that, the physical layout, condition of the room, student seating arrangements, together influence behaviour and must be carefully considered in the instructional planning (p 420). For effective teaching and learning, the classroom should be well arranged. And this should be done before the beginning of the lesson. This is supported by Boakye-Yiadom (2011) stating that, the arrangement for the activity planned for the day should occur before the beginning of the class so that confusion of desks arrangement will be eliminated (p 27).

It will also make the school more cheerful for all. Braille or other tactile symbols should mark every door to ease orientation for children with visual impairment. Unfortunately, schools are often designed and built without fully considering the needs of the community who uses them. (Kaplan 2007; Sophal 2006). Organizing the classroom and how pupils sit optimizes opportunities for communication, interaction and learning for all categories of pupils in the classroom with special focus on those pupils who have barriers to learning, development and participation. How a classroom is physically organized can affect students learning and behaviour in a number of areas. For instance, carefully arranged classroom can decrease noise and disruption, improve the level and quality of students and increase the percentage of time that students spend on academic task. According to Okyere and Adams (2003), this may not be feasible in the African context in almost all the classrooms due to large class size, especially in the urban centers. However, a teacher is encouraged to implement the following strategies in classrooms where the physical setting is conducive.

- A student with a physical disability should be given a space near the entrance to enable him have adequate space around him.
- An easily distracted student should also be seated in the front view to enable the teacher have his or her attention on him.

Also, Mastropieri and Scruggs (2000) say that, students with hearing impairment should be seated close enough to the front of the class to maximize their hearing enable them to read speech (lip read) and also enable them to see the teacher and the sign language interpreter. They should also be able to turn to face other students while they are speaking because hearing aids are extra sound- sensitive, loud or irritating noises should be avoided (p 29).

Another factor that must be considered is lighting and ventilation in the classroom. The classroom should be properly ventilated that is, there should be enough air inside the

room. This can reduce unnecessary noise in the classroom. Lighting either from window or ceiling lights can also be at problematic to students with special needs. According to Friend and Bursuck (2002), students with hearing impairment might need adequate light to speech read and see whatever activities are being carried out in the classroom. These children with hearing impairment should be in the front row and in a place where the lighting is good. Since most of these children often use lip-reading to supplement their learning. It is imperative that they have a clear view of the mouth that speaks. Visually impaired students also have difficulty working in areas that are not glare – free and well lighted. Okyere and Adams (2003) also opine that, a student with low vision should be placed infront of the room, in a position so that here is no glare on the board. The hearing impaired should also be in the front in order to have a clear view of the teacher. Friend and Bursuck continue to explain that, occasionally, students with learning disabilities or severe emotionally disturbances may be sensitive to and respond negatively to certain types of light (p 222). In most cases, problems with lighting can be remedied easily by seating students away from the glare caused by sunshine coming through the windows. Wall areas can also be used for decorating, posting rules displaying students work and reinforcing class content, sometimes through the use of bulletin boards.

Methodology

The researcher used probability sampling technique to select the sample for the study. According to Castillo (2009), probability sampling is a sampling technique wherein the samples are gathered in a process that gives all the individuals in the population equal chances of being selected. Probability sampling includes simple random sampling, interval or systematic sampling, stratified random sampling and cluster or multi-stage sampling. Out of the various sampling techniques, the researcher used the simple random sampling technique in selecting the schools for the study since there were thirty- nine primary schools in the district. Simple random sampling involves selection at random from a list of the population (Babbie, 2001). The researcher selected the sample using the following steps. The advantage of using a random sample according to White (2000) is the absence of sampling bias. Since the subjects are randomly chosen, the sample is therefore representative of the entire population. Despite the above advantage, random sampling is expensive to conduct as those sampled may be scattered over a wide area.

The research was conducted by means of field survey where the main instrument used for the collection of data was questionnaire. According to Bryman, (2001), social survey research comprises a cross sectional design in relation to which data is collected predominantly by questionnaire or structured interview on more than one case. Neuman (2000) stipulates that a questionnaire is a written document in survey research comprising

a set of questions handed out to respondents or used by a researcher to ask questions and record the answers.

A five-point Likert scaled questionnaire made up of eight items was developed for this research. The items were developed from the literature reviewed which were to solicit information about the adaptations made for pupils with disabilities in regular schools in relation to the content area and the environment. The Likert scale was used due to its resourcefulness in assessing personal views and attitudes. The research employed a quantitative data collection method. Quantitative data collection methods rely on random sampling and structured data collection instruments that fit diverse experiences into predetermined response categories and they produce results that are easy to summarize, compare, and generalize (Leedy & Ormrod, 2001).

Data analysis

Since the study was intended to find out about the adaptations made for pupils with disabilities in regular schools, the researcher after recording answers to the questions summarized data which enabled her drew some conclusions. The total size of the sample was reported along with the overall percentage of the returns. The percentage of total sample responding to each item was also reported. The percentage of respondents who chose each alternative for each question was also stated. Furthermore, all appropriate descriptive statistics such as tables, frequencies and percentages were used to describe the data. The result of each question was tabulated and a final percentage was reported using tables to further describe the results. Finally, summary of the cumulative results and conclusion were provided based on the analyses.

Findings/Results

The table below shows the responses by teachers on the adaptations of the environment for pupils with disabilities in the school.

A table showing adaptations of the environment for pupils with disabilities in regular schools

S/N	Item	Response					
		SA	A	NS	D	SD	Total
1.	The school building is adapted to facilitate movement of all pupils including those with disabilities.	9(10%)	18(20%)	0(0%)	45(50%)	18(20%)	90
2.	The school buildings are fitted with rails and ramps to help pupils with disabilities especially the physically disabled and visually impaired.	6(6.7%)	3(3.3%)	0(0%)	36(40%)	45(50%)	90
3.	The school compound is leveled and hedges well aligned to give directions for easy movement of pupils with disabilities	4(4.4%)	30(33.3)	3(3.3%)	44(48.9)	9(10%)	90
4.	The classroom desks are well designed to suit all categories of pupils in the school.	5(5.6%)	60(66.7%)	12(13.3%)	9(10%)	4(4.4%)	90
5.	The desks are well arranged to create enough space for pupils with disabilities to move freely in class	35(38.9%)	39(43.3%)	6(6.7%)	10(11.1%)	0(0%)	90
6.	Pupils with hearing or visual problems are seated in front to get attention from the teacher	31(34.4%)	50(55.6%)	6(6.7%)	3(3.3%)	0(0%)	90
7.	The classrooms have adequate lighting system	36(40%)	29(32.2%)	9(10%)	9(10%)	7(7.8%)	90
8.	The classrooms are well ventilated	45(50%)	32(35.6%)	4(4.4%)	9(10%)	0(0%)	90
	Total	**171(23.8%)**	**261(36.3%)**	**40(5.5%)**	**165(22.9%)**	**83(11.5%)**	**720**

Source: field survey (2012)

The table above shows the data gathered from respondents on the adaptations of the environment for pupils with disabilities in regular schools within Yilo Krobo Municipality.

The table shows that, 30% of the respondents agreed that, the school building is adapted to facilitate movement of all pupils including those with disabilities. While 70% of the respondents disagreed, none responded not sure. In terms of whether the school buildings are fitted with rails and ramps to help pupils with disabilities especially the physically disabled and visually impaired, 10% of the respondents agreed, 90% of them disagreed and 0% was not sure. Also, as to whether the school compound is levelled and hedges well aligned to give directions for easy movement of pupils with disabilities, 37.7%of the respondents agreed, 58.9% of them disagreed and 3.3% were not sure.

Again, 72.3% of the respondents agreed that the classroom desks are well designed to suit all categories of pupils in the school. Whereas 14.4% of them disagreed to the statement, 13.3% of the respondents were not sure. With regards to whether the desks are well arranged to create enough space for pupils with disabilities to move freely in class, 82.2% of the respondents agreed, 11.1% of them disagreed while 13.3% were not sure. Also, with the item stating whether pupils with hearing or visual problems are seated in front to get attention from the teacher, 90% of the respondents agreed, 3.3% disagreed and 6.7% of them were not sure. As regards the classrooms having adequate lighting system, 72.2% of the respondents agreed, 17.8% of them disagreed while 10% of the respondents were not sure. Finally, with response to the item which sought to find out whether the classrooms are well ventilated, 85.6% of the respondents agreed. While 10% disagreed, 4.4% of them were not sure. In a nut shell, the findings as represented on table show that a high proportion of the respondents representing 60.1% agreed that the environment is adapted to for pupils with disabilities in regular schools. While 34.4% disagreed to the statement, 5.5% of them were not sure.

Discussion

From the above table, majority of the respondents (70%) were of the view that the school buildings are not adapted to facilitate movement of pupils with disabilities in regular schools. This finding means that government does not take into account pupils with disabilities when putting up public school buildings. This contravenes the UN Convention on the Rights of Persons with disabilities (2006) which states that, buildings must be universally designed to enable persons with disabilities have access to the buildings. Also, majority of the teachers (90%) stated that, the school buildings do not have ramps and the few that had ramps were not fitted with rails to ease the movement of pupils with disabilities especially the physically disabled and those with visual impairment. This consequently is that, pupils with visual problems may find it difficult to climb the stairs especially those using wheel chairs and clutches. Also, most of the stairs do not have hand railings on the side to give support to pupils while they climb in order to avoid such challenges in accessing schools. The UN Convention on the Rights of Persons with

Disabilities (2006) pointed out that ramps and walkways should be incorporated in the designs for public buildings (including schools) so as to enable children/ teachers/ parents with disabilities not "just" about access, but also about create a more inclusive and learning-friendly environment in school. Also, the stairs should have hand railings on the side to give support. Schools that are built based on the universal design will therefore be more effective because these schools will enable children to learn, develop, and participate, instead of "disabling" children by creating barriers to their development and participation.

More than half of the respondents (58.9%) did not agree that, the school compound had been levelled and hedges well aligned to give directions for easy movement of pupils with disabilities particularly those with visual impairment and the physically disabled. This means such pupils might have difficulty moving on the school compounds. Thus, pupils with some type of disabilities for example the physically disabled and visually would not be afraid they may fall into ditches. However, such pupils might not be able to explore the school environment. UN Convention on the Rights of Persons with Disabilities explains that, Universal design is not "just" about having access, but also about creating a more inclusive and learning-friendly environment in school. Schools can make excellent use of these elements in creating buildings and grounds which reflect the needs and desires of their students and staff. In addition, a high proportion of the respondents (72.3%) agreed that the school furniture were suitable for all categories of special needs. This finding suggests that the furniture in some schools are suitable and also make pupils comfortable. This will enhance participation such pupils in the teaching and learning process as Allen and Abend (2001) stated that Student worktables can be combined or separated to support a variety of activities such as individual work, small group projects, and full class discussions are particularly useful.

Again, the majority of the respondents (82.2%) agreed that, the desks had been well arranged to create enough space for pupils with disabilities to move freely in class. Once there were pupils with disabilities in the class, their movement should not be hampered by the furniture or any other thing in the classroom as Lain (2006) pointed out that, there should be flexibility in the arrangement of furniture in the classroom and therefore careful consideration into the arrangement of an inclusive classroom is needed to create an effective learning environment. Choate (2004) also explained that, the physical layout, condition of the room and student seating arrangements, together influence behaviour and must be carefully considered in the instructional planning. The arrangement of the desks whether in rows, circles or small groups can have a considerable impact on pupils with disabilities. The desks should be arranged in a way that children will have a better view of the teacher and there should be no obstruction that will prevent the individual from reaching the teacher. Furthermore, a carefully arranged classroom can decrease noise and disruption, improve the level and quality of students and increase the percentage of time

that students spend on academic task (Paine, Radicchi, Rossellini, Deutchman and Darch 1983).

Again, majority of the respondents (90%) agreed that, pupils with hearing and visual problem were seated in front of the class in other to attract more attention from the teacher. When pupils with visual or hearing problems are seated in front, it enables them to get better view of the teacher and easy assistance when the need arises. Also, pupils with visual problems will be able to see whatever is written on the board which will also enable them to copy the right information correctly. This finding is consistent with the suggestion by Okyere and Adams (2003) who emphasized that a student with low vision should be placed infront of the class in a position that there is no glare on the board. Also, Mastropieri and Scruggs (2000) stated that, students with hearing impairment should be seated close enough to the front of the class to maximize their hearing enable them to read speech (lip read) and also enable them to see the teacher.

Besides the table revealed that majority of the respondents (72.2%) felt their classrooms were adequately lit to enable pupils with disabilities such as those with hearing and visual impairment to see things clearly. Good lighting system enables pupils with hearing impairment to see the teacher clearly and read the lips, the gestures and facial expressions as Friend and Bursuck (2002) explained that students with hearing impairment might need adequate light to speech read and see whatever activities are being carried out in the classroom. Also, a child with hearing impairment should be in the front row and in a place where the lighting is good since most of these children often use lip-reading to supplement their learning. Visually impaired students on the other hand have difficulty working in areas that are not glare free and well lit. Occasionally, students with learning disabilities or severe emotionally disturbances may be sensitive to and respond negatively to certain types of light. Furthermore, majority of the teachers (85.6%) agreed that the classrooms were well ventilated, which was good because if the classrooms were not well ventilated, pupils would feel very comfortable and would not participate well in teaching and learning. Also, Friend and Bursuck (2002) explained that the classroom should be properly ventilated to reduce unnecessary noise in the classroom.

Conclusion

It can be concluded from the findings of the study that majority of teachers in the thirteen schools agreed that the school environment is adapted for pupils with disabilities in regular schools. Even though most of the teachers indicated that the school buildings and the compound are not adapted to facilitate movement for pupils with disabilities, they however indicated that, the classroom furniture are well designed and arranged to suit all categories of pupils in the school. Furthermore, majority of the teachers were of the view that there are adequate lighting systems and the classrooms are well ventilated.

Recommendations

From the above findings, the study recommended that the authorities should take into consideration pupils with disabilities so as to construct rails and ramps to school buildings in order to facilitate their movement. The school buildings should be disability friendly especially; classrooms should be spacious to facilitate movement of all pupils including those with disabilities. The headteacher and staff should ensure that the school compound is levelled and hedges well aligned to give directions for easy movement of pupils with disabilities.

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