

# Teaching Literacy Skills to Learners with Cerebral Palsy

*Individualized adaptations of the instructional strategies and the learning environment*

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## **Abstract**

This is a multiple-case study that examines the teaching of literacy skills to primary school pupils with cerebral palsy in special schools in Kenya. It focuses on pupils experiencing functional motor limitations involving speech and hand use. These pupils have varying degrees of challenges in terms of their learning ability. This calls for variations in both instructional strategies and the set up of the learning environment aimed at addressing the needs of each pupil. The study looks at how much these strategies and the learning environment are individualized and adapted to suit the special needs of each pupil. This is what is referred to in this paper as “individualized instructional strategies and learning environment”.

The study took place in two special primary schools for children with physical disabilities and two petö classes (special units for children with cerebral palsy). Four teachers participated in the study and each teacher was a case.

It is demonstrated by the study, some significant similarities and variations in the way the four teachers individualized and adapted the instructional strategies and the learning environment for learners with cerebral palsy. This is demonstrated in the methods, differentiated activities and the materials used; the physical classroom organization and the quality of the emotional learning atmosphere.

The study shows that in the petö classes the instructional strategies and the learning environments were individualized and treated the learners with cerebral palsy as heterogeneous groups while those in the grade three tended to be more homogenous.

The study therefore, suggests that teachers should be trained on how to individualize and adapt their teaching of pupils with cerebral palsy through refresher courses. The teachers’ training should include a package on basic teaching of reading and writing skills to beginning readers with cerebral palsy and how to make the classroom environment child friendly.



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## **Dedication**

To my loving parents, Mama Maritha and Daddy Obinga, you laid the foundation; in memory of my beloved brothers, Onyango, Dan, Mzee, and Japuony

To Tom

and to

Archie, Wendy, Chris and Russell, with love





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# 1. Introduction

Reading and writing are literacy skills that go hand in hand and, are ways through which people communicate. These are essential skills in education introduced early in a child's education process and are also important tools in learning all school subjects. For one to be termed literate, he or she has to know how to read and write and, apply it in day to day activities. A learner with difficulty in any one of these areas usually goes through a hurdle to cope with academic tasks in school. Children with cerebral palsy are such learners who are faced with this challenge. Smith (1992) also observes that challenges emanating from reading difficulties are commonly reported in the non speaking cerebral palsy population. Such difficulties may be related to deficits in perceptual functioning, language skills, or learning experiences.

This study looked into how special needs education teachers teach literacy skills to learners with cerebral palsy in primary schools in Kenya, with regards to individualized adaptations and differentiation of the instructional strategies and the learning environment. The focus was mainly on teaching reading and writing to learners with cerebral palsy experiencing motor difficulties affecting speech and the use of the hands.

## 1.1 Background of the study

The term cerebral palsy has been defined by several people. The recent definition of cerebral palsy coined by a panel of doctors is that:

‘Cerebral palsy (CP) describes a group of disorders of the development of movement and posture, causing activity limitations that are attributed to non-progressive disturbances that occurred in the developing fetal or infant brain. The motor disorders of cerebral palsy are often accompanied by disturbances of sensation, perception, cognition, communication, and behavior, by epilepsy, and by secondary musculoskeletal problems’ (Rosenbaum, Dan, Levinton, Paneth, Jacobsson, Goldstein & Bax 2007, p.9).

The condition affects muscle tone, which interferes with voluntary movement and delays gross and fine motor development (Kirk, Gallagher & Anastasiow 1997). This voluntary movement is crucial in the performance of tasks that require oral speech and the use of the hands, such as the literacy skills –reading and writing.

It follows therefore that children with cerebral palsy are extremely a heterogeneous group; they have functional abilities that vary, given the unique differences in their conditions, abilities and needs. There are those with unintelligible speech or its absence due to paralyzed or weak speech muscles, uncontrollable or uncoordinated movements, there are others with some degree of low intellectual functioning, while some of them have a mixture of almost all the above characteristics (Kirk et al. 1997, Hallahan & Kauffman 1997). It implies therefore that there is no atypical child with cerebral palsy.

All these functional difficulties listed above would in some way influence their participation in activities in the learning process that involves reading and writing tasks. Teachers teaching learners with cerebral palsy need to consider their unique abilities and learning styles as a guide in selecting and planning for appropriate approaches, materials, activities and a conducive environment for their lessons.

Heller, Fredrick & Diggs (2000) argue that, teaching reading effectively to students who were born with physical disabilities that impede speech and movement is one of the most critical problems in the field of physical disabilities. These learners require a least restrictive learning environment (Kirk et al. 1997). This means that the individualized adaptations of both the instructional strategies and the learning environments need to be considered when teaching learners with cerebral palsy to maximize active, hands-on learning.

According to Kirk et al. (1997), children with cerebral palsy who have muscle weaknesses, involuntary movements, and poor coordination of the fingers and hands may require a writing aid or alternative system to complete written tasks in school in a neat and timely manner. This would improve their speed and efficiency in reading

and writing. This implies that the teacher has to be creative in the classroom in making necessary adaptations for the benefit of each child experiencing speech and motor difficulties. This would be possible having known their learning styles, as each child might require adaptation that is totally different from that of the others. Efforts put in teaching the reading and writing skills to learners with CP is vital. These skills are important in education since they constitute the foundation in understanding all subjects.

National Dissemination Centre for Children with Disabilities (2004) observes that a child with cerebral palsy requires individualized help because such a child can face many challenges in school. These challenges would include performing academic tasks as well as communication and interaction with peers due to limitation in motor functioning and speech difficulties. This individualized help is one of the surest ways a teacher can employ to enhance the child's learning.

This study sought to investigate how teachers trained in special needs education individualize their teaching strategies and learning environments to accommodate learners with cerebral palsy in reading and writing lessons. The assumption is that these are very good teachers trained in special needs education and trainers can learn from them when teaching other teachers or advising other teachers. Suggestions on how best teachers can be assisted, especially those experiencing difficulties supporting these learners in literacy skills are also a priority, to help them function in the classrooms. This would pave way for improvements in the training of teachers in special needs education and the education of children with cerebral palsy which is wanting, in Kenya.

## 1.2 Research problem

*How do Special Needs Education teachers individualize their instructional strategies and the learning environments in reading and writing lessons for primary school pupils with cerebral palsy in special schools?*

This is a descriptive case study that investigated the phenomenon in its natural setting. Yin (1994) contends that an in-depth study of a phenomenon can be carried out in its natural context. The phenomenon of this study is individualized adaptations of instructional strategies and the learning environment. The phenomenon was studied through four teachers who are the cases.

### **1.2.1 Research sub questions**

The research problem was answered through the following sub questions:

**The instructional strategies:** a) what approaches do teachers use in teaching reading and writing skills? b) What activities, materials and methods do the teachers individualize for learners with CP in reading and writing lessons?

**The learning environment:** c) How is the physical classroom setting organized?  
d) What emotional learning atmosphere exists in the classroom?

These sub-questions were essential in that they helped to focus on the aspects of the instructional strategies and the learning environment thereby avoiding deviations that might occur (Gall, Gall & Borg 2007) so as not to lose focus. This is because there are many other aspects that are equally interesting and important but do not constitute the core of the study. These sub questions also clearly spell out and split the research problem into single units or areas of focus. The sub questions guided the analyses of the phenomenon under investigation.

## **1.3 Theoretical framework of the Study**

The study is based on the socio-cultural theory of learning- the concept of the Zone of Proximal Development - Vygotskian framework. The Zone of Proximal Development is defined as the distance between what a child can achieve on his own and what he is capable of achieving when under the guidance of adults or more capable peers (Vygotsky 1978). This theory is conducive to the teaching of literacy skills to

learners with cerebral palsy since it advocates for individual assistance and also helping a child to overcome obstacles in reading and writing.

Vygotsky gives one of the best directions on assisting learners in academic performances with regard to teaching reading and writing (the zone of proximal development) where the teacher and significant others strive to enhance a child's grasp of concepts (Vygotsky 1978). According to Vygotsky, “good instruction is aimed at the learner’s zone of proximal development” (Vygotsky 1986 as quoted in Dixon-Krauss (1996, p.14). This is vital in improving their functional abilities in reading and writing tasks and thus enhancement of learning through adaptations.

Learners with cerebral palsy need support in task performance and an environment that is stimulating for enhancement of these skills. How the children learn through mediation (Klein 2001), where a care giver (teacher or any capable adult or peer) accords assistance in the learning process; and guided participation (Rogoff 2003), through imitation, correction and practice are quite essential. Mediation can be applied to children with cerebral palsy in the learning process when the teacher accords individualized assistance in reading and writing exercises or tasks. The teacher can also enlist the help of more capable peers to assist in the learning process. This encourages collaborative learning so that development goes to the next zone.

In her analysis of the phenomenon, Rogoff (2003) suggests a responsive way to assist the children that leaves the pace and direction of children’s efforts up to them as being poised to help. It involves helping according to the child’s need, rather than organizing instruction according to adult plans. This calls for flexibility in instructional methods used in the classroom. Individualizing the instructional strategies and the learning environments by restructuring the teaching methods, activities, learning materials, and arranging the classroom set up that suits their unique individual needs is a way of assisting children with cerebral palsy..

In her analysis, Krauss observes that learner –centered classrooms are important, and in those classroom settings, meaningful writing is emphasized, which should be

learner –centered (Dixon-Krauss 1996). This idea is quite relevant to children with cerebral palsy in the enhancement of their learning of reading and writing skills since they require the aspect of individualization into their programs.

## 1.4 Justification for the study

According to the Kenyan Ministry of Education Science and Technology (MOEST) (2005), Kenya has few number of teachers trained in special needs education. This means that few teachers have adequate knowledge on how best they can teach learners with special needs, in the learning situations. With the introduction of the Free Primary Education (FPE) in 2003 by the Kenyan government, the National Rainbow Coalition<sup>1</sup> (NARC) there has been an upsurge in the enrollment rates, including learners with special needs, which has led to overcrowded classrooms, overstretched physical facilities, lack of teachers among others (MOEST 2005).

This poses a great challenge for the few teachers to handle the teaching effectively hence, a challenge on the individualization of the learning programs for learners with special needs, including those with cerebral palsy. The teaching a child with cerebral palsy demands competence in several aspects of special education and experience in dealing with a variety of disabling conditions (Bigge 1991, Tyler & Colson 1994, Zadig 1983, cited in Hallahan & Kauffman 1997). Therefore, the way few teachers already trained in special needs education provide support to learners with cerebral palsy in the classroom during the learning process is of great concern for this study.

Studies have been conducted on education of children with motor impairments on teaching reading in other countries but no similar study has been conducted on teaching of literacy skills to learners with cerebral palsy in Kenya. It became an area of interest to find out how specially trained teachers teach these learners literacy skills, to be an eye opener for further research in this field. In Kenya, the

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<sup>1</sup> The government that consisted of a coalition of a disparity of parties that came to power in 2002.



development of literacy is not given adequate attention in the teacher training programs. Bunyi (2006) observe that there is no special training in teaching reading for teachers who are expected to teach initial reading in lower primary. This therefore, is an area that is still wanting in the primary schools in Kenya, and more so for learners with cerebral palsy.

It is also quite evident that there are very few learners with mild cerebral palsy in regular primary schools in Kenya. Those that happen to get admissions are in special schools and in these special schools, very few with mild disabilities are found in the main classes, grade one to eight. The rest are found in special classes. These are some of the reasons that have inspired the need to conduct the study. The way teachers teach literacy skills to learners with motor difficulties are vital to this study as these skills are the backbone to one's success in education up to a higher level since much of a learner's future education in Kenya depends on learning from print.

#### **1.4.1 Practical implications of the Study**

Reading is at the heart of education, the basic skill upon which all others are built. A learner who can read and write is capable of coping and competing with the academic work and advancement in his or her education, in whatever setting, whether in a regular, inclusive or special education setting.

This study is hoped would highlight important aspects that teachers and their trainers in special needs education need to look into to plan for the teaching of reading and writing skills to children with cerebral palsy. This is hoped would improve their enrolment rates and retention in primary schools, in regular, inclusive or special education settings.

The knowledge gathered from the study is hoped would be utilized by teacher trainers in imparting the knowledge and skills in teachers' colleges to improve the skills of supporting children with cerebral palsy in the individualization of their learning programs.

The government, through the ministry of education is hoped would utilize the knowledge to support the education of learners with cerebral palsy by providing materials for their education, especially with the electronic devices which are normally very costly but very essential. This study would therefore assist in the planning for the education of learners with cerebral palsy in primary schools.

## 2. Literature Review

In this section, literatures relevant to the study about the following topics are reviewed.

- Functional motor difficulties in children with cerebral palsy
- Theories relevant to teaching reading and writing to learners with cerebral palsy
- Approaches to teaching reading and writing to learners with cerebral palsy
- Individualized adaptations and differentiation in the classroom for learners with cerebral palsy

The theories discussed in this chapter do not all entirely and specifically focus on teaching children with cerebral palsy but are relevant and could help explain some of the concepts touching on choice and organization of the classroom practice. The theories that touch directly on the area of study could not be got, apart from studies conducted which involved these children and other related disabilities.

### 2.1 Functional motor difficulties in children with cerebral palsy

It has been mentioned earlier that cerebral palsy refers to brain paralysis. It is paralysis of the part of the brain that directs muscle movement, resulting to loss or impairment of motor function (National Institute of Neurological Disorders and Stroke (NINDS) (2006). This loss or impaired motor function results into functional motor difficulties ranging from mild to severe. The severity of motor function and level of involvement vary from child to child. The degree of function among other things mostly communicates what degree of physical support the person with physical and motor impairment will require (Best and Bigge 2005). In some cases it affects both gross and fine motor systems in a person.

Some children experience difficulties with precise motions such as writing or buttoning a shirt (NINDS 2006) and even speaking. Speech and hand use are necessary functions in the learning process. A child would require the hand muscles to perform writing and reading tasks, and speech to read. However, there are cases where there are functional limitations and a child is unable to use the hands to write or the speech to read due to paralysis. In such a case, the teacher has to find alternative ways of assisting the child to function within the classroom.

Speech difficulties in some persons with cerebral palsy range from simple pronunciation defects, which can be slow, heavy speech to severe, or lack of speech (Kirk et al. 1997, Best & Bigge 2005). Damage to the Central Nervous System (CNS) affecting muscles may result in slurred speech, distorted speech, or speech may be absent (Baugmart, Johnson & Helmester 1990, Best & Bigge 2005). Speech as a motor act is essential in communication and necessary in aloud reading. Best & Bigge (2005) argue that if speech and language are involved, the individual may have trouble understanding what is said, formulating a response, and using speech to communicate.

Baugmart et al. (1990) observes that augmentative and alternative communication technique (AAC) can be used with children with speech difficulties and those without speech to facilitate communication. These involve the use of communication boards, bliss symbols and other electronic devices, depending on the needs of the child. Kirk et al. (1997) also observe that, some children with cerebral palsy have severe involvement of the oral muscles used in speech and limited fine motor abilities that hamper their writing skills. In the classroom therefore, a teacher needs to take into consideration these functional limitations to select appropriate strategies for teaching literacy skills in a class where there are learners with cerebral palsy, if these learners have to benefit from the classroom instruction.

## 2.2 Theories relevant to teaching reading and writing to learners with cerebral palsy

### 2.2.1 The zone of proximal development in the classroom practice

The Vygotskian framework, the zone of proximal development has been recommended by many scholars as relevant to the classroom practice. Vygotsky firmly holds the idea that learning through instruction considerably extended human intellect (Tilstone & Layton 2004) and ‘good instruction is aimed at the learner’s zone of proximal development’ (Vygotsky 1986 cited in Dixon-Krauss 1996, p. 14). In his explanation on the zone of proximal development, Vygotsky states that it is the area between a child’s actual present level of functioning and his potential performance level (Dixon- Krauss 1996). This potential performance level includes all the activities and functions that a learner can perform only with someone else’s help (Schütz 2004 in Offord 2005). To reach this goal; collaboration needs to be incorporated in the learning situation.

Vygotsky (1978) contends that mediation is the best method of teaching literacy, during the learning activity as it both guides and originates from social interaction. The teacher as the mediator does not impart knowledge but mediates learning through the social interaction during this process (Dixon-Krauss, Calderhead & Miller 1985; Lampert & Clark 1990 cited in Offord 2005). This social interaction enhances a child’s participation in the learning process since the development of the mind of the child is both individual and social at the same time (Vygotsky 1978).

### 2.2.2 Mediation as a tool in the learning process

Klein (2001) observes that modification of an individual occurs through interaction with his environment. Dixon-Krauss (2001) observes that the goal of instructional mediation is to assist the learner to develop her own mediating system that is self-directed, in order to become a self-directed independent reader. This is possible when the teacher has identified the strategies to use as well as the learners’ difficulties and

their learning styles. On the same note, Verity (2005) asserts that mediation should not be meant to 'transmit' the expert's knowledge but to provide a starting point for task engagement for the learner. When the knowledge is transmitted in the manner highlighted by Verity, then learning shifts from teacher-centered to learner-centered type of learning which transforms the child from a passive learner into an active participant in the learning process. This is quite essential for learners with speech difficulties and hand use so as to participate actively in the learning process to acquire the literacy skills.

***Scaffolding:*** Scaffolding is the process by which someone receives support from an experienced person to work in the zone of proximal development and the person who guides is someone who has largely mastered the function, who provides non-intrusive intervention in this process (Wood, Brunner, Ross 1976, Wood & Middleton 1975 cited in Offord 2005). According to Verity (2005), scaffolding is a crucial form of strategic mediation and that, like all mediation, it should be offered to a learner depending on his needs.

Scaffolding strategies for reading and writing are essential for those learning to read and write because these are complex tasks that are unique and involves the recognition and use of meanings (David, Lui-Chivizhe, Mcknight & Smith 2003). It must be used at the level of the learner's zone of proximal development and able to alleviate the needs of the child already identified (Verity 2004). The scaffolding strategies for reading and writing can be used by the teacher to guide learners in reading more complex texts which they may not be able to read when left to read on their own. It leads to development of reading and writing skills that would help learners read independently (David et al 2005).

***Guided participation in the classroom:*** Guiding a learner in the learning process helps in improving his or her performance in a task or activity in the classroom. This is another form of mediation in the learning process. Rogoff (2003) argues for being responsive in the learning situation by being poised to help, leaving the direction and pace up to the children. It implies the teacher being there for the learners and assisting

those experiencing difficulty at the time of need. Structuring situations and transferring responsibilities between children and their social partners takes place in the process of guided participation. For either social partner, adult or peer, the extent to which the child, as the learner, participates, or engages himself or herself, in a shared thinking process with the support of a more skilled partner is what is crucial (Zhang 2006).

### **2.2.3 Concreteness in the learning process**

Concreteness as a means of teaching and learning in the classroom helps bring meaning and reality in the learning process. Vygotsky (1978), notes that concreteness is necessary and unavoidable only as a stepping stone for developing abstract thinking. This view is shared by Piagetian theory which advocates for concretization in the teaching at the concrete operation stage because the child at this stage is not yet capable of abstraction in the learning process.

To aid the learner develop from the stage of concreteness, integration of different materials and teaching methods can be initiated to make learning a reality. This will in essence aid a child to move from a zone of learning disability to a new zone of proximal development as coined by Mendéz et al. (2008). Another notion held is that when children learn through physical and social interaction with an object they will be able to conceptualize and express ideas about it, which, according to Vygotsky, is how their thinking transforms from concrete to abstract (Dixon-Krauss 1996). People, adults and children, with various degrees of expertise; use of artifacts, such as books, videos, wall displays, can be active agents within the zone of proximal development (Brown et al. 1993 in John-Steiner & Mahn 1996) as they help to elevate a child's functioning level, which is the potential performance level.

## 2.3 Approaches relevant to teaching reading and writing to learners with cerebral palsy

A reading approach, also known as method is a way to start teaching beginning readers (Boothe, Lane & Walter 1999). If a teacher wants a child to read well, he must find a way to induce him or her to read well, which is achieved by good teaching (Adams 1998). Therefore, the approach that the teacher uses in teaching learners to read and write is vital, an approach that would instil interest and reading tradition in the child. The choice of an approach would depend on the individual needs of the learners. The teacher should select what functions best for his or her learners.

Some approaches have been found to be promising when used with learners with severe speech and motor impairments. These approaches include the language experience approach, literature -based approach, direct instruction, whole language approach and the basal approach. These approaches can be divided into two major categories namely, whole-language-type approaches and phonics-type approaches (Heller 2005).

### 2.3.1 The whole language approaches

Whole language approach is considered a philosophy by many scholars and it is often used interchangeably with whole language experience approach. In the whole-language approach the meaning of the text is dependent upon the background knowledge and understanding that the reader brings. It promotes reading and writing through the use of personal experience and oral language. It is based on the notion that learning to read is like learning to speak (Heller 2005). This approach is good and provides children with a print-rich learning environment as they are exposed and interact with print in many ways and it does not stress on the rules of teaching reading based on letter-sound relationships like phonics-type approaches (Heller 2005).



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Heller further points out that the whole-language approach involves reading stories; being read to and learners listen and follow the readings, learners are exposed to literature, learners build their own stories based on pictures they observe, they write their own stories which can be through dictation or with invented spelling. However, it is difficult for children with physical impairments who lack exposure to essential experiences due to limited motor function that impede the interaction with the print-rich learning environment (Foley 1993 cited in Heller 2005). Phonics instruction seems to be the method that can work well with learners with severe speech and physical impairments, if adapted and used with other approaches (Heller 2005). This can help these learners acquire the reading skills.

### **2.3.2 Phonics –type approaches**

Phonics as a method in a classroom, places great emphasis on reading precision, and children are encouraged to read the words exactly as they appear on the page. In using this method a child is exposed to individual components of words, the phonemes and graphemes (Wikipedia 2008). Examples of phonemes are: /r/, /æ/, /t/ and their graphemes: **r, a, and t**. It also works well with a child who has already developed phonemic awareness which lays a good foundation for phonic instruction (Heller 2005). When a child lacks this ability, instruction in phonemic awareness is essential for it is regarded as one of the strategies that can improve a child's literacy (Armbruster, Lehre, & Osborn 2001 cited in Heller 2005). Burns, Griffin and Snow (1999) states that students should be taught phonemic awareness, the alphabetic principle and given practice in letter recognition, oral blending and segmentation.

Many reading educators advocate for using embedded phonics, a type of phonics where letters are taught focused on meaning during other lessons (Wikipedia 2008). In the embedded phonics, Wikipedia further contends that the emphasis is on short vowels and consonants as well as letter combinations. Examples of short vowels are, **æ ε i ũ**. and long vowels, **ai oU u:** (Hornby 2005). Phonics provides a strategy for

students to decode words and learn them and, to be able to recognize them automatically ones they have learned them (Heller 2005).

In order to assist learners with cerebral palsy with speech impairments read using phonics instruction, teachers may use the few reading strategies that are adapted specifically for this group of learners. Phonics-type approaches can be used together with Non-verbal Reading Approach (Heller et al. 2000, Heller 2005). The Non-verbal approach involves communication without speech. The strategy has been found to be ideal in teaching reading to students with severe speech and physical impairments. It is where the learner is encouraged to use the internal speech, diagnostic arrays, error analysis and active participation, in conjunction with specific adaptations and assistive technology (Heller et al. 2000, Heller 2005).

Diagnostic arrays analysis is where a group of words is presented to the student to be able to analyze and come up with the correct word while error analysis is where the student sorts out words and identifies the errors through discrimination (Hornby 2008). In both ways, the pupil may perform the task through pointing, gaze, noises or approximation of letter sounds (Heller 2005), etc, depending on the technology according to the child's functioning ability.

Bigge (1991) cited in Heller et al. (2000, p.6), states that, 'when students are not physically able to verbalize phonemes while sounding out words they may be taught to use internal speech'. Internal speech is the process of silently speaking to oneself. Research demonstrating the development of sound-blending skills in the absence of speech production abilities has been done (Smith 1989 cited in Heller 2005). Heller (2005) explains that internal speech is talking 'inside the head' and it is a useful strategy in teaching reading to learners without speech. The teacher can incorporate the Non verbal Approach in the curriculum to be used with other instructional strategies when teaching sight words for instance, word attack skills where a student is asked to silently say the word 'inside his head'. The teacher can devise a method of finding out whether the child understands by assessing the child's response.

### **2.3.3 The Basal reader approach**

Basal approach is a well organized approach where each skill is presented in a sequential order. It is a series of graded readers, workbooks, and supplementary materials designed for use in grade 1- 8. It is structured with group and teacher interaction and generally combines elements of different methods with emphasis varying from one lesson to the other (Meara & Ryan 2006). This approach is not individualized enough because teachers tend to use the basal as the entire reading, often having a tendency to regard the teacher's guide as the source instead of as a guide.

### **2.3.4 Presentation of vocabulary and text comprehension to a learner with cerebral palsy**

Teaching literacy aims at helping a child to “crack the reading code” and develop comprehension skills (Lyster 2005). Lyster contends that the idea of reading single words and simple sentences does not make one literate but understanding the meaning of the text read. It means therefore, that teachers have to strive to teach what a text or a word communicates.

Children require direct vocabulary instruction (Armbruster, Lehr & Osborn 2001 cited in Heller 2005) especially learners with cerebral palsy who may not readily pick up vocabulary due to lack of exposure or practice in oral language (Heller 2005). Teachers need to teach students specific vocabulary and methods learners can use to determine a word meaning (Heller 2005). The specific vocabulary, for instance, could be selected from a text that will be read, a story or a lesson and these words are presented in different contexts and activities to assist the learner comprehend their meaning. The reader is also taught to use other methods and resources like the dictionary, to get to learn their meanings (Burns, Griffin & Snow 1999, Heller 2005).

In teaching comprehension skills, the teacher needs to go in stages, starting with the word meaning, phrases and sentences then later to paragraphs, passages and stories (Burns et al. 1999, Heller 2005). In this manner achievement in reading

comprehension is ensured with a learner with cerebral palsy, however slight the improvement may be due to his or her impairment.

Heller (2005) presents three stages of teaching basic comprehension, a strategy she calls “BIG” which stands for, ‘ Before reading, Investigate what’s going on during reading, and Get the big picture when you are done’ (p.428). Before reading, Heller observes that learners could be exposed to the title and discusses it; in the course of reading, learners are asked to reflect what they are reading; and a teacher can ask oral questions to get their understanding of the text (Burns et al. 1999) and after reading provide written exercise or oral questions based on the text. In the same view, Burns et al. (1999) observe that after reading a teacher needs to help learners relate the text to their lives and then as a follow up, give children writing connected to what they have read.

### **2.3.5 Teaching writing to learners with cerebral palsy**

Heller (2005) notes that learners with motor impairments should be provided access to writing and writing activities at an early age by using appropriate technology and providing them experiences in practice writing to promote literacy. Learners should have access to these writing tools and utilize them to develop the writing skills. She further suggests that learners will need adaptations and use of assistive technology in order to have access to writing tools and to develop writing skills. Given their functional limitations in the hand use, the adaptation of the writing tools as well as the writing activities have to be based on individual needs. This is due to the heterogeneity of this group of children.

Legibility of the handwriting is vital in the production of a written text and this is something that teachers need to foster in their teaching of these learners with difficulties in hand use. The learners require handheld writing tools and paper adaptations (Kirk et al. 1997, Heller 2005) in order to perform writing tasks. Some may also require other technologies, depending on their condition and needs.

The literacy skills, reading and writing involve many of the same mechanisms and should be taught in an integrated manner and not as separate subjects (Kucer 1985 cited in Heller 2005). Heller (2005) also points out that handwriting should be taught directly. This can help learners with cerebral palsy acquire the skill as the teacher will be able to monitor the child's progress during such instructions.

## 2.4 Individualized adaptations and differentiation in the classroom with regards to learners with cerebral palsy

Westwood (2004), states that, the term 'differentiation' is often used to describe the adaptive approach to meeting individual needs. It involves using of strategies to accommodate individual differences among students. Teaching learners with cerebral palsy require adaptations in a number of areas. These involve modification of skills being taught, varying the environment to create an appropriate setting in which to learn; changing of the actual content of lessons, and introduction of technology that meets their special needs (Haskell and Barret 1993, Kirk et al. 1998). Bigge and Best observe that since severity of cerebral palsy varies greatly from child to child they require programs that encompass individualized adaptations and differentiation of the classroom learning tasks and exercises.

Learning to read, like learning to speak is potentially present in all human beings, and that, theoretically, every child is capable of developing the skills needed in order to be able to read (Haskell & Barret 1993), provided there is some degree of adaptation within the child's environment. For children with cerebral palsy, the degree of impairments interferes with this capability, and reduces the number of skills the child can acquire for reading, making him or her slow. Best and Bigge (2005) advocate for differentiating task difficulties that arise from either motor or cognitive challenges.

### **Task analysis**

This is a strategy a teacher can employ in the teaching process. It has been found to be more helpful to learners with special needs, cerebral palsy inclusive in a functional

task performance. Best and Bigge (2005) reports that functional tasks can be analyzed through observation in a natural setting and then parts posing difficulties are identified. Learners with cerebral palsy require task analysis to be able to perform certain tasks that involve the use of motor movement, like reading and writing.

Best and Bigge (2005) further observes that students with motor impairments frequently experience difficulty in participating in curricular because their motor impairments prevent them from exhibiting the necessary control and speed for performing activities in usual ways. When these difficulties are not identified and modifications are not made, students are not able to demonstrate what they know and can do. Motor deficits of cerebral palsy must not be allowed to interfere with meaningful participation in educational experiences (Best and Bigge (2005). children with motor impairments must be actively involved in the lessons.

#### **2.4.1 Individualized assistance**

Assistance in the classroom activities is frequently needed by individuals with cerebral palsy. Best and Bigge (2005) observes that it is not unnatural for teachers and others to “over assist” students because it is easier and faster to provide help rather than watch students struggle. At the same time, they argue that assistance, if overused can contribute to learned helplessness. They advocate for assistance with dignity, which is accorded without hurting the child’s emotional wellbeing. The teachers can assist in several ways, ranging from physical, use of verbal prompts and the like, to enhance a child’s functioning ability in the learning process.

**Prompting:** This is one of the ways the teachers can apply to different situations and levels of student need. Teachers and others who provide services to individuals with physical and multiple disabilities use a variety of prompting techniques which include verbal instruction, demonstration, gestures, visual cues and physical assistance (Downing and Demchak cited in Best and Bigge (2005).

Students require enough time to respond after any prompt. This allows the students to think, and execute a response which can either be the use of motor, or motor and speech (Bigge & Best 2001; Downing & Demchak cited in Best and Bigge 2005). Best and Bigge (2005) further advise that teachers must resist the impulse to immediately provide additional prompts or physical assistance, which may confuse the students and that some students with motor and cognitive disabilities may need several minutes to respond

***Shaping:*** This is another way a teacher can employ to assist learners with cerebral palsy in teaching literacy skills. In teaching writing, the students with fine- motor impairments learning to make letters can be assisted using shaping. This can be done through verbal instructions, telling a child how the letter is formed, followed by writing the formation of the letter on the chalkboard (demonstration). The student can then be encouraged to come to the chalkboard to practice making the letter, and the teacher accepts attempts at making approximation of the letter formation (Best and Bigge (2005). The teacher can physically prompt a learner with hand-coordination problem during the lesson activities or tasks. Best and Bigge (2005), states that occasionally the teacher may reposition the student's hand to facilitate writing (Physical assistance).

#### **2.4.2 Use of reinforcement in a learning situation**

Reinforcement means strengthening a response (increasing its rate), and positive reinforcements have been found to strengthen responses by adding positive consequences such as food, praise or attention. Negative reinforcement also strengthens a response by removing unpleasant or aversive stimuli (Crain 1992). In the classroom teaching, a teacher is expected to acknowledge a learner's response or effort. An attempt at a task is a child's valuable contribution in a learning process. Reinforcement can be either positive or negative depending on the situation.

Crain (1992) analyses Skinner's idea on reinforcement and he observes that, negative reinforcement as a form of punishment does not always produce desirable results

which he calls unwanted side effects. A child who is scolded in school may soon appear inhibited and conflicted. The child is torn between working and avoiding work because of the feared consequences. It implies that a tensed learning atmosphere does not always produce positive results instead, the learners would fear participating in class for fear of reprimands. The reprimands lead to development of negative self image or low self esteem. A learner with special needs need to be motivated to learn, irrespective of the nature and the severity of the special need.

Positive reinforcement has been found to produce desirable outcomes in reading and writing lessons as it is a form of motivating a child in the learning process. . Lyster (2005) states that, ‘The greatest challenge is perhaps not to teach dyslexic and other poor readers to “crack the reading code” and develop good comprehension skills at the same speed as their classmates, but to help them keep their motivation and their self –confidence so that they are able to put the necessary effort in their learning tasks’ (p. 400). Children with cerebral palsy experience reading difficulties due to the paralysis of the speech muscles. It implies therefore that the teacher has to ensure the children are motivated in task performance in the classroom, as this is crucial for their emotional wellbeing. When the emotional wellbeing of a student is positively taken care of, a classroom learning atmosphere that is conducive is ensured.

### **2.4.3 The learning environment in relation to learners with cerebral palsy experiencing functional motor difficulties**

Best, Reed and Bigge (2005, p. 203) stated that, ‘Discussion of the individual’s position is not complete without addressing the location of the individual in the classroom’. The learning environment includes classroom organization, that is, the seating arrangements, Space in the classroom that allows movement and manipulation of tasks, the type and size of furniture the learners use- whether they are child’s size, and suitable type that do not restrict child’s performance of reading and writing tasks (Kirk et al.1997, Haskell & Barret 1993). Children with cerebral palsy are supposed to assume correct and good posture, since good posture is required in the performance of the reading and writing tasks. Hallahan and Kauffman (1997)



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argue that it is essential to observe proper positioning as it maximizes physical efficiency and ability to manipulate materials. Haskell and Barret (1993) states that, environmental and emotional factors have been found to account for proportion of cases of reading difficulties.

***Classroom organization:*** The learners' seats and tables are supposed to be child's size, comfortable to work on in performing reading and writing tasks. Other wheelchair users can have tables to work on in their wheelchairs. This implies that they should be the right type for individual child's needs and condition (Kirk et al.1997, Haskell & Barret 1993). That is to say, the learning environment should be least restrictive (Kirk et al. 1997). Best et al. (2005) noted that to help a student with physical impairment, teachers can help arrange the classroom environment so the student can get to parts of the classroom with ease.

The seating arrangement should be taken note of as it can impact on the classroom learning and interaction. Cinar (2006) argues that the arrangement of the learners in the classroom have an indirect but important effect on their levels of learning. According to Ayd'n (2000) in Cinar (2006), there are two basic types of seating arrangements which are either teacher- centered or learner-centered. Cinar (2006) observes that in the teacher–centered arrangement learners sit in two or more lines of desk groups one behind the other so that they can see the nape of the one seated in front. He further explains that in this type of arrangement, the pupil- pupil interaction is rather poor because communication usually takes place between teacher and the learners. On the other hand, Tutkun (2002) in Cinar (2006) suggests that it is suitable to use the teacher- centered type of arrangement for situations where the classroom is small and the number of students is high. The learner centered-can take several forms for example, round type, U type, and study group type (Cinar 2006). The learner-centered type is essential for learners with cerebral palsy for it facilitates interaction between the learners as well as the teacher, the interaction that is necessary.

***The learning materials & activities:*** Learning activities and materials for use in the classrooms are also important aspects to consider in the learning environment. Adams

(1998) observes that, materials and activities used in developing reading skills must consistently be selected with sensitivity to the needs and interests of students with whom they will be used, to be maximally effective. Stewart (1999) also suggests that teaching aids can be used by teachers to illustrate or reinforce a skill, fact, or idea, help learners improve reading and writing skills, and to relieve anxiety, fears, or boredom in a child. The classroom should be rich in reading and writing materials that the child with CP can also manipulate to enhance the skills in question. This includes the classroom display. Teaching aids are helpful in a classroom situation or with individual learners (Stewart 1999). The teacher can select the materials to use as teaching aids for young children understand better what they can see and even touch, an experience that learners with cerebral palsy require.

***The classroom climate:*** Warm, supportive classroom environments are essential for proper learning to take place. There should be cordial relationship between the caregiver / mediator (teacher and other teacher aides) and the learners. The teacher as the care-giver and mediator needs to develop a healthy attachment with these children for positive interaction in the classroom situation (Rye 2005). The quality of the teacher –child and child-child interaction is crucial as shown by several American classroom- based studies, in achieving successful reading and writing development for all children (Gruthie and Alao1997 in Kjellin and Wenneström 2006). This interaction should be healthy to bring a positive outcome of the learning situation.

It is also essential for a teacher to be patient with these children in the reading and writing lessons, by giving them opportunity to participate in the lessons, appreciate their efforts in performance of tasks, however small their contributions may appear. This will encourage them to continue participating in class. This is in line with Rye (2005) on rewarding child's efforts, a way of recognizing what a child has accomplished, to feel worthy and competent, which helps a child develop self-confidence that is grounded in actual accomplishment. This helps a child with CP develop self confidence and will always want to make attempts in task performance

in class as Skinner's idea also has it that a behavior once reinforced is likely to be repeated.

Skinner, in his theory of learning notes that children are completely malleable (Crain 1992). This implies that a teacher can change a child by use of appropriate strategies in the learning process. His learning theory focuses on the role of environmental factors in shaping the intelligence of children, especially on a child's ability to learn by having certain behaviors rewarded and others discouraged (Crain 1992). In the classroom situation, the teacher is the key provider of reinforcement. The key factor here is rewarding of a learner's effort in the classroom attempts, however minimal the contribution may be due to the disability. This helps develop positive self-esteem in an individual child with special needs. Learners with cerebral palsy experiencing speech difficulties and hand use may find it difficult participating in the lessons. And positive rewards and encouragements would make them develop the urge to participate in the learning process without being shy or fear of reprimand.

On the same note, Best and Bigge (2005, p.103) argue that 'teachers must appreciate that students with speech difficulties have important things to say and that appropriate interaction behavior includes waiting for students with speech difficulties to complete statements, refraining from finishing their words or sentences and asking for rephrasing when they are difficult to comprehend'.



### **3. Methodology.**

Methods used in the data collection, population sample, sampling techniques, instruments, piloting as well as challenges and the positive aspects encountered during the study are described. The study sought to find out how special needs education teachers organized their teaching of the literacy skills when teaching pupils with cerebral palsy in special schools.

The study employed the qualitative method because the intention was to study the phenomenon in a natural setting to get rich data. This was to observe as much as possible what actually goes on in the classrooms and, to understand it from the perspective of the teachers.

Denzin and Lincoln(1994) , cited in Creswell (1998) assert that, qualitative researchers study things in their natural settings to try and make sense of or interpret phenomena in terms of the meanings people bring to them. The qualitative study was relevant because the research problem sought to investigate the ‘how’ question and the topic needed an exploration (Creswell, 1998).The nature of the research question therefore puts this study under qualitative value.

#### **3.1.1 The phenomenon under investigation**

The study was based on the instructional strategies and the learning environment in reading and writing lessons, with regards to individual adaptations for learners with cerebral palsy. These are learners experiencing functional motor difficulties involving speech and the use of hands in performing reading and writing tasks in the classroom.

### **3.2 The Design**

Multiple-case study design was used. This was hoped would generate rich data about the phenomenon in question. In this study, the teachers make the four cases that were

selected from environments that had some aspects of similarity as well as differences in their structure or feature in terms of the nature of the schools, category of learners, the teachers' special needs education background and the nature of the special needs education programs offered in the schools. Teachers worked at four separate schools. In a multiple-case study design Gall et al. (2007) argues that, the unit of analysis needs to be at least two or more individuals or two or more instances of a phenomenon, selected either to be similar to each other or different from each other in some way that is of interest to the researchers.

This study sought to find out how each of these teachers taught literacy skills to learners with cerebral palsy. In addition, to find out how there were some similarities and variations in the way the four teachers in the four selected schools organized and taught reading and writing to children with cerebral palsy. Individualization of the teaching methods, materials, activities, the classroom organization and the emotional learning atmosphere were the main aspects of the phenomenon studied. Even though they were all special schools for learners with physical disabilities, there were assumptions that there were still some variations in the classroom setup and the methods individual teachers used.

### **3.2.1 Methods of data collection**

Observation was the main method used in the study to obtain data. Informal conversations were also used. These were methods thought would help generate rich data for the study.

### **3.2.2 Observation**

Observation involves purposeful and systematic study of behavior or phenomena. The study was conducted through non-participant observation in the classrooms, to cover as much data as possible with minimal interference in the classroom during the reading and writing lessons. The study aimed at capturing the events in their context. This is in line with Yin (1994) who observes that observation covers events in real

time and it is contextual in nature. The method has also been criticized to have some weaknesses like the observer effects (Gall et al. 2007).

### **3.2.3 Informal interviews**

Data was also collected through informal conversations, after each observation session. An informal interview or a conversation puts the respondent at ease and he or she generates information in a tension free atmosphere and may not realize that he or she is being interviewed. Befring (2004) states that, an open dialogue, in the form of a free and flexible conversation is an important approach. This helped to secure the validity of the study. The conversations involved the backgrounds of the learners and the professional backgrounds of the teachers. Other factors included choice of content taught to the learners, the availability and choice of reading and writing materials and, the inclusion or exclusion of the learners with cerebral palsy in the lesson activities.

### **3.2.4 Participants**

Those selected for this study were teachers in special primary schools for learners with physical disabilities in Kenya. The cases were four special needs education teachers.

## **3.3 Sampling**

Some researchers hold different opinions on the idea of sampling in a qualitative study (case study) because a case study is not a representation of a population whose results can be generalized. On the other hand, Gall et al. (2007) states that in selecting the case or cases studied in the research, the definition of the phenomenon of interest leads to the choice of sampling strategy that is appropriate to the research problem or question. As for this study, the teachers were purposefully sampled to be the cases to obtain rich data. Gall, Gall and Borg (2007) states that, in purposeful sampling; the

goal is to select cases which are likely to be “information- rich”. An intensive sampling strategy was adopted.

### **3.3.1 Criteria for the sample of schools**

There are four special primary schools for learners with Physical disabilities in Kenya and several units. Three out of the four schools were selected because they were all special primary schools for learners with physical disabilities, they had teachers trained in special needs education, learners with cerebral palsy could be found there and, they were economically and geographically accessible at all times.

One teacher from one of the sampled special schools was not willing to participate in the study, and there was no other teacher in the same school to replace this teacher because the school has single streams where it is a teacher per class in the lower grades. In the course of the study plan, two units for learners with cerebral palsy, the Petö Classes were included. The name ‘Petö’ comes from the founder, Andres Petö (1893-1967), a Hungarian who founded a conductive education, a pedagogical approach that addresses all aspects of development for non ambulatory children in 1948 (Sutton 2008). Inclusion of the two schools therefore modified the plan on sampling. The final sample of schools therefore consisted of two special primary schools for learners with physical disabilities and two units for pupils with cerebral palsy (petö classes). One of the special schools has an inclusive model. One petö class is situated in a regular primary school compound while the other is in a special primary school compound.

### **3.3.2 Criteria for the sample of teachers**

The criterion sampling strategy was used to select the teachers. These were teachers who had trained in special needs education, diploma level; were teaching in lower primary, grade three in special schools and literacy class in the petö class; had one or two learners with cerebral palsy; were teachers of language( English teachers), and must have taught for at least one year in the same school.



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The criterion sampling was the most preferred because it was felt these cases would yield rich information about the phenomenon in question. Gall et al. (2007) states that, criterion sampling involves the selection of cases that satisfy an important criterion, and would yield rich information about aspects of the phenomenon.

One teacher for language in lower primary grade 3 in the special school and one in the literacy class in the petö class, with one or more pupils with cerebral palsy were sampled from each school. Languages were chosen in lower primary grades because reading is extensively taught at this level, during these language lessons.

English teachers were the most preferred since English is used as the medium of instruction in school. All subjects are taught in English, except Kiswahili and other languages that are treated as mother tongue, and used in lower grades as the medium of instruction, depending on the catchment area. The language policy in Kenya requires that mother tongue be used as the language of instruction in lower primary school, up to class 3. English and Kiswahili are taught as subjects, but from class 4-8, English is adopted as the medium of instruction (Muthwi 2001).

The lower primary grade was crucial for this study because it is the foundation stage for the development of reading and writing, amongst other skills in education. Grade three was preferred because it is the final grade for lower primary in Kenya, where a learner is expected to acquire all the skills necessary for coping with the tasks in upper primary grades. In the upper grades, learners are expected to tackle independent reading and writing tasks with minimal support from the teacher. The teachers were those who had undergone training in special needs education, diploma level being the lowest. This is because typically in Kenya, a holder of diploma in special needs education already possesses the theoretical skills for teaching children with CP, as part of their specialization and qualification in the training requirement.

The sample therefore comprised of two special needs education teachers teaching English in grade three in two special schools for learners with physical disabilities and two teaching language in the literacy class in the special units (petö class). All the

teachers had trained in special needs education, diploma level and had taught learners with cerebral palsy for at least one year. This totaled to four teachers sampled for the study.

## 3.4 Aspects of the phenomenon studied

### 3.4.1 Instructional Strategies

These include the teaching methods, the learning activities initiated, and the materials used by both the learner and the teacher in the reading and writing lessons for learners with motor difficulties.

**Teaching methods:** They include the presentation of reading and writing lessons and tasks to learners experiencing functional motor difficulties involving speech and the use of hands, whether there was any aspect of individualization. This included the teaching pace, mode of communication, use of a teaching aid, individual attention, and reinforcement.

**Learning activities:** These included both individualized and group activities in both reading and writing tasks; whether there was any use of collaborative group with varying abilities adapted to suit individual needs of the learners with C P; any existence of enlistment of peer assistance.

**Use of Materials:** The focus was on the type of the reading and writing tools such as books (with modifications if any), whether they were suitable for use by all the learners; the course books, supplementary readers, and other reading materials such as word banks, flash cards, charts; As for the writing materials; adapted pens and pencils and any other writing implement for weak grasps; hand splints for those experiencing difficulties with contractures, and mouth or head pointers; classroom displays, electronic devices like computers and typewriters, whether they were accessible to learners with cerebral palsy.

### 3.4.2 The learning Environment

**Classroom organization:** The seating arrangements, availability of space in the classroom that allows for movement and manipulation of tasks

**Furniture:** The type and size of furniture the learners' use- whether they are child's size, and suitable type that do not restrict child's performance of reading and writing tasks

**Available materials:** These were the classroom displays and any other learning material, whether they were within reach of all the learners including the wheelchair users

**The learning atmosphere:** This looked into the way the teacher and the learners relate during the learning process. The major areas were the establishment of rapport, including rewards or reprimands to the learners as well as reactions or responses.

## 3.5 Instruments

Two observation sheets were used as guides in the study. One sheet had aspects of the instructional strategies, looking into the actual presentation of reading and writing lesson to the whole class including children with cerebral palsy. This included the instructions teacher gave to the class, whether there were any aspects of adaptations to learners with cerebral palsy; the activities, whether there were any aspects of adaptations, the materials used by both the teacher and the learners, whether those for the learners with cerebral palsy had some adaptations (see appendix 6). The other observation sheet contained the aspects of the learning environment, the classrooms where the lessons were held. These included the furniture learners use (the type and size), the seating arrangement, the space in the classroom (whether adequate for movement), classroom displays, and the emotional learning atmosphere (appendix 7).

### **3.5.1 Gaining entry to the field**

It is difficult to gain entry into the study without following the formal procedures. Gall (Gall et al., 2007) asserts that success in gaining entry into the study area depends on one's presentation. Permission to carry out this study in the selected schools was sought from the Kenya Ministry of Education (Appendix 2) who informed the District Commissioners and District Education Offices of the respective districts. They in turn informed the head teachers of the sampled schools (Appendix 3, 4 & 5). The head teachers identified the classroom teachers who were then consulted to obtain informed consent (Gall et al., 2007) in order to observe their planned lessons.

### **3.5.2 Piloting**

One teacher in one of the sampled special schools was sampled for the pilot study. This was to test the validity of the method used in the data collection (observation) as well as the instrument, the observation sheet. This was to verify whether the instrument and the method employed were going to be workable. It helped improve the following: -

- the adjustment of the two observation sheets by including the main aspects of the phenomenon which were left out in the first instrument;
- ways of capturing the events of the lesson by focusing on the main issues during note taking;
- decision on the number of visits to the classes before the main recording of data;
- positioning in the classroom during observation; and
- the duration to take in observing each lesson.

The teacher who participated in the pilot study did not form part of the main study. This was aimed at safeguarding validity.

### 3.5.3 Data collection

Four classroom observation sessions per teacher in the two identified Special Schools were carried out in two classes and two observation sessions for the other two teachers in the special units for children with cerebral palsy (Petö class). A total of twelve (12) lessons were observed and recorded for the whole study. This variation arose because in the special primary schools, reading and writing are handled separately in separate lessons during the English language lessons; while in the Petö classes, reading and writing are handled in a single lesson during teaching of language.

Informal conversations with the teachers were conducted to help clarify certain aspects that arose, and this was meant to obtain in-depth information on the phenomenon in question. This took place during consecutive observations; where investigator felt needed to find out more on certain issues observed during the lesson. Short hand was used to record the points. Where the respondent was not at ease with the recording of information, note taking in his or her presence was avoided and the points written down immediately after the discussion.

During the lessons, data was recorded using field notes and the observational sheet was used as a guide, to help capture as much data as possible. Both descriptive and reflective notes were written down. These were based on the instructional strategies, that is, what the teacher said or did, whether to an individual child with cerebral palsy or to the whole class; the activities initiated, the materials used by both the teacher and the learners with cerebral palsy, and whether there were any individualized adaptations in these areas for learners with cerebral palsy. As for the learning environment, field notes were used to describe the classroom organization using the observational sheet as guide. Recording of data was based on the seating arrangement, the space, the reading and writing materials, the furniture learners used, classroom displays, and the emotional learning atmosphere. Notes were also taken on some special aspects that emerged in the course of the lessons.

### **3.5.4 Analysis of the data**

Interpretational analysis was adopted for analysing the data. Gall et al. (2007) states that, it is a process of examining case study data closely in order to find constructs, themes, and patterns that can be used to describe and explain the phenomenon under study. Analyses of the four cases were each presented separately following similar pattern to show clearly the aspects of the phenomenon studied for each case. Gall et al. (2007) assert that, organization of cases in a similar form facilitates comparisons between them.

Data was analysed in four stages. In the first stage the aspects studied in each case were presented and discussed based on the existing theories under two topics as in; discussion of (teacher One, Two, Three, and Four's) individualization of the instructional strategies in reading and writing lessons; and discussion of (Teacher One, Two, Three, and Four's) individualization of the learning environment in reading and writing lessons. The second stage was the comparison of the results of all the four cases summarized in a single matrix so that the similarities and variations could be seen clearly. Gall et al. (2007) observe that use of a table in data presentation presents results more clearly and it is economical than in text presentation. The third stage was the comparison across one or more cases and the fourth was comparison across two or more cases with discussions based on the theories and other researches.

### **3.5.5 Reporting**

Interpretational analysis and analytic reporting style were adopted in the report. Gall et al. (2007) observe that analytic reporting style is appropriate when emphasis is made on interpretational analysis of case study data. The thesis has sections of introduction; literature review; methodology; results, discussions, conclusions and recommendations; and, references and appendices.

### 3.6 Ethical considerations

The head teachers and the classroom teachers of the schools where the study was conducted were consulted to give consent (Gall, et al, 2007) for their lessons to be observed. The identities of the schools, the participants in the study are concealed. That is, the persons and settings are anonymous, and the respondents' answers are treated confidentially (Bryman 2004).

### 3.7 Validity and Reliability

It is not always easy to avoid aspects that influence a study. There were some aspects that were thought could have some influence on the validity and the reliability of the study.

#### *Validity:*

The period during which the study was scheduled to take place was rather busy and short for scheduling proper observation of lessons. This is because this period in Kenya is the third term in the education system which is characterized by lots of revisions, end of year and final examinations, both local and national. Several adjustments in the observation schedules were done to try to overcome this crisis.

Time apportioned for each class was not proportional in the sense that two teachers in grade three were each observed four times, in two reading lessons and two writing lessons. The two in the Petö classes were each observed two times in two combined lessons of reading and writing. This is because in the Petö class, reading and writing skills are taught in a single language lesson in duration of 30 minutes. In grade three, the two skills, reading and writing are handled separately in separate lessons of 30 minutes each. This unequal number of observations was felt could be a threat to both validity and reliability.

Piloting was conducted to check the instrument used as well as the method chosen for the study. The instruments, the observation sheets were adjusted accordingly to suit the main theme of the study before embarking on the main study.

There was cosmetic handling of a lesson where some teachers taught in a way that seemed unnatural, such as overdoing it. There were also some instances where uneasiness from some of the teachers was sensed. These were thought to be as a result of the presence of the observer in the classroom. To overcome these instances, rapport with the head teacher and the classroom teachers was established. The investigator first had a session with the teachers, explained the intentions and planned the sessions together before stepping into the classrooms. The first appearance in class was meant to help the teacher and the learners to get accustomed to the presence of the observer so as not to influence the flow of the lessons. No data was recorded in the first visits to the classes.

The ethical problem that was anticipated concerning the methodology was the participants' unnatural behaviors when under observation. Repeated number of observations were conducted which were hoped would in a way solve this problem as the teachers and the learners got accustomed to the presence of the observer in the classroom.

### *Reliability:*

Two observations were conducted in each Petö class and four in the special schools identified for learner with physical disabilities. These repeated numbers of observations was to help check the reliability of the data collected, after the teachers and the learners got accustomed to the presence of the observer in the classroom. Observing the same aspects of the phenomena helped to secure the reliability, even though some other issues also emerged in the process in different settings. Triangulation of the method of data collection was also employed where the investigator used the informal interviews alongside the observations.



## 4. Results and Discussions

Interpretational data analysis has been utilized. Results are first presented and discussed case by case. Aspects of the phenomena in question are discussed. Constructs, themes and patterns in the phenomenon have been identified, thereafter cross case analysis are presented.

For the purpose of confidentiality and anonymity, the four teachers who are the cases in the study are presented by the use of numbers; Teacher One, Teacher Two, Teacher Three, and Teacher Four; the learners with cerebral palsy are presented using constructed names. In Teacher One's class they are called, Odemba, Gracie and Mary; in Teacher Two's class, Brown, Sophia and Jenny; in Teacher Three's class, Babu, Betty, Quinn, and Dodo; and in Teacher Four's class, Chidi, Brian, and Brad.

### 4.1 Teacher One

The teacher was a male who had a certificate in regular teacher education and at the time of the study had just completed his diploma in special needs education through distance learning program. He had taught in the same school for a period of three years. He teaches grade three together with a co- teacher where they share the subjects equally, English being one of his subjects. The teacher has low vision and he puts the book very close to the eyes while teaching.

***The classroom setting:*** Teacher One's class consisted of forty (40) learners with varied types of physical disabilities. Ten learners had cerebral palsy. Six out of the ten learners with cerebral palsy used wheelchairs. Odemba and Gracie had both problems with speech and hand use while Mary had a problem with speech.

#### 4.1.1 The Instructional Strategies used by Teacher One in reading and writing lessons

**Lesson presentation** The teacher addressed the whole class at the beginning of the two observed reading lessons, revising what was done previously, and continued in this manner almost throughout the lessons. It almost seemed like a pattern. Standing in front facing the class, in the first reading lesson, he asked, “Who can tell us the words we learnt yesterday?” And in the second reading lesson, “Who can tell us the sentences we learnt yesterday?” In the first and second writing lessons, revision of sentence patterns and vocabulary learnt in previous lessons were recalled before embarking on the new task of writing.

**Teaching methods:** In presenting the reading lesson, the teacher used familiar events and instances to introduce new words in the passage about to be read from the English course book. For instance, in the second reading lesson, the teacher asked the class, “If someone asked you what you have been doing when you come from a *shamba* (garden) what will you say.” “I have been digging”, they answered in chorus. The teacher involved the class in repeated reading in the first reading lesson. He also read a passage aloud as learners followed along in their English text books. He then read the first lines in the passage and the whole class read the alternating lines as a group. In the second reading lesson they read the passage together. The teacher did much of the talking and learners listened with just a few participating in answering oral questions in chorus form. The learners with cerebral palsy were not involved in much of the lesson. Odemba was involved in answering an oral question in the first reading lesson. Gracie was only accommodated during activity time. Mary was given a chance to read aloud.

In the writing lessons, construction of short sentences was done from the course books. In the second lesson, learners were taken through oral construction of short sentences using the sentence patterns learnt in previous oral and reading lessons, and then wrote them in their exercise books.

**Teaching pace:** The teacher went by the quick learners' pace. This was noted when he addressed no one in particular in the first and second reading lessons, asking oral questions and receiving response from some section of learners in class. On receiving the response, he continued with the lesson, not minding whether it was the same pupils who constantly responded. This was exemplary in the second reading lesson. The Teacher asked, "What was the problem with Mr. Muna? A few pupils answered (*in chorus*), "He never liked to spend his money", and he continued in this manner throughout, questioning the whole class. In all the writing lessons observed, the learners were accorded equivalent duration of time to perform the writing tasks." "Collect your books when you finish", the teacher told the class at the end of the first writing lesson.

**Teacher and pupils' mode of Communication:** Verbal speech was the mode of communication used during the two reading lessons. The teacher mixed both English and Kiswahili much of the instruction time, learners likewise. An example is when he told George<sup>2</sup> in Kiswahili, "*Wewe! soma vizuri!* (You, read properly!). In the writing lesson, he gestured to Gracie and Odemba through beckoning to relocate to his table for individual assignments, in the first writing lesson.

**Learners' initiative and teacher's response:** A learner called out for the teacher to show her the page he was referring to during the first reading lesson. "*Mwalimu, Mwalimu!*" (Teacher, Teacher!). Show me the page". The teacher went to her desk, took her book, looked for the page and gave back the book to her. In the first reading lesson, Odemba raised his hands in the air; the teacher noted and asked, "*Ni nini?* (What is it?) . Odemba did not say anything he just looked at the teacher and the teacher did not prompt to find out what he actually wanted to say or do. He instead continued with the lesson. There was no learner's initiative observed in the writing lessons. The teacher took the initiative in all the lessons.

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<sup>2</sup> George was another learner with cerebral palsy in Teacher One's class who had difficulty reading.

***Reinforcement of pupils' efforts (Rewards and reprimands):*** In the two reading lessons observed, the teacher verbally rewarded learners who got the correct answers to oral questions and those who read correctly; and reprimanded those learners who did not read correctly. In the first reading lesson the teacher said, "Yes, Odemba, tell us!" Odemba opens his mouth and tries to say, "Zeb...ra cr-r-r----osing". And the teacher said "very good. Mary was shouted at during aloud reading, "You! Shut up!" shouted the teacher, "Stop making noise, you refused to talk when you were asked to read!" In the second reading lesson, when others trailed behind in aloud reading, the teacher commented, "*Wengine wenu ni kama mulibebwa na maji na hawakujua penye walikuwa wanaenda*" (It is as if some of you were carried by water and they never knew where they were heading"). These variations in the teacher's reactions towards individual learners brought some uneasiness in the classroom's learning atmosphere. It was not relaxed. This was a tense classroom.

The teacher made fun of the learners' answers in the first writing lesson. A learner constructed a sentence, "although I was late I came to class." "Eh! You are always late, eh?" the teacher asked, and the whole class laughed. Mary was also told to verbally construct a sentence from the exercise given. She opened her mouth and, her lips moved but no sound came out. Pointing a finger at her in a strong tonal voice, the teacher said, "Mary, did you follow my instructions? Are you able? Did you follow my instructions?" He then turns to the next pupil who gives correct sentence as, "Although it was raining we climbed the mountain". "Yes, that is good", said the teacher.

### ***Learning activities***

***Individual activities and tasks:*** In both reading lessons, learners engaged in silent reading at their desks, and Gracie read the passage aloud to the teacher at her desk. The other learners with cerebral palsy sat on their wheelchairs with no possibility to participate in the activities. They were not assigned any task. None was issued with the reading materials. According to the teacher, they were "non-readers".

In the two writing lessons, individually, learners stated the words learnt in the reading lesson. Learners wrote short sentences from the English text books. In the first lesson observed, the teacher wrote the first four letters of the alphabet, both the upper and the lower case; Aa, Bb, Cc and Dd, in Gracie's exercise book and told her to copy the same below severally. Odemba was given letters 'A' and 'B' in two separate lines to copy in a fresh line. According to the teacher, these two pupils had difficulty writing long sentences due to poor motor control. The rest of the learners apart from the six on wheelchairs had short sentences written on the chalkboard to write in correct form using the word 'although'. In the second writing lesson, the teacher wrote three two-letter words; 'my', 'at', and 'am', in Gracie's exercise book, which she read and copied, with his assistance.

**Group activities:** No special group activity was in place in both reading and writing lessons.

**Individualized assistance (attention):** In the first reading lesson, the teacher read aloud to Gracie and she read after him. In the second lesson observed, Gracie read aloud the few lines in the passage for the teacher at her desk. Tracing the lines with her finger, she read one word at a time and the teacher repeated after her. He also prompted whenever she encountered difficulty. Other learners with cerebral palsy never got any individualized assistance during the two reading lessons. Odemba was also not attended to as Gracie. Most of the time in the two reading lessons, with the book on his desk, he just sat staring into space and the teacher never took notice..

**Physical prompts:** In the second lesson, the teacher placed the pencil in Gracie's right hand, pressed the left hand on one side of the book, held her right hand by the wrist, and assisted her to slowly move the pencil in the book to write the words, 'my', 'at' and 'am'.

**Peer assistance:** There was no enlistment of peer assistance in all the reading and writing lessons. Each pupil worked individually.

### *Use of materials*

**Teaching aids:** In all the reading and writing lessons observed. The teaching aids used were pictures in the pupils' text books that the teacher referred to. For instance, the teacher asked the learners during the introductions of the two reading lessons and one writing lesson, "What can you see in the picture?"

**Reading materials:** Only the English pupils' text books for grade three were used by both the teacher and the learners. According to the teacher, additional reading books were available in the library to be used during library lessons.

**Writing tools:** In the two writing lessons, learners used ordinary pens and pencils and they wrote in single ruled exercise books. There were no special writing materials used by learners with cerebral palsy. According to the teacher, he normally wound a thick tape round a pen or pencil for Gracie and Odemba. But these were not to be so in all the lessons observed.

## **4.1.2 The Learning Environment in Teacher One's class**

### *The classroom organization:*

**Type and height of desks and chairs:** In the four observed lessons, the learners had double -wooden lockers (desks whose top surfaces can be opened), chairs- all of same size. The lockers were high for some learners. Odemba occasionally stood and leant on the locker when performing writing tasks in the two writing lessons observed because he could not reach it. Wheelchairs used by six learners with cerebral palsy were adapted with smooth plastic chairs with back support and arm rests. The other chairs for the other children also had back supports.

**Quality of the working surface:** The working surface was adequate for one learner. They were large enough for books and writing materials. In the four lessons observed, one learner on a wheelchair shared a table with a classmate. Another pupil had a board placed on his wheel chair, and one used his lap for the reading and writing materials.

**Seating arrangement:** In the four lessons observed, all the learners except one sat in straight rows facing the front of class. One learner on a wheelchair sat facing across the class. Desks were arranged closely knit together in columns and rows. The two learners with cerebral palsy, Gracie and Odemba sat at the back of the class on the 5<sup>th</sup> and 6<sup>th</sup> (last) columns in the middle row, while other six on wheelchairs sat together on the third row at the back of class. According to the teacher, that was where there was ample space for them.

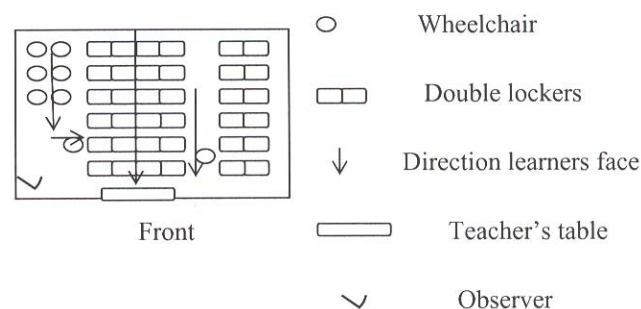


Figure 3: The seating arrangement in Teacher One's class

**Space in the classroom:** There was narrow space in the classroom between the set of six rows of desks and in the isle.

### *The emotional learning atmosphere*

Relationship between the teacher and some learners in class varied. Use of unfriendly words and expressions by the teacher was observed in the four lessons, for example, “You shut your mouth” was said to a learner in the first reading lesson. Occasions of tension during the lessons were noted. There were rebukes, reprimands to learners experiencing difficulty reading correctly and continuous lecture at pupils on errors committed, for instance, “you! Read what you can see!” was observed in the second reading lesson. There also existed some instances of verbal rewards to good performers, -comments such as, “yes, that is good,” “very good” were used in all the four lessons, to those who managed to read or answer oral questions.

### *Materials*

***Classroom displays:*** A few used charts were pasted high up on the walls, beyond learners' reach, even those without wheelchairs. Subject areas were allocated on walls. English had few charts of lower and upper case letters, sentence patterns and pictures. A model of a shop was at the back of the class with items arranged on the shelves but not labeled though it was within the learners' reach.

***Reading and writing materials:*** There were English text books (course books) for standard three in the two reading lessons and in the second writing lesson. Each learner had a book in front of him or her, except the six learners on wheelchairs, who received no reading or writing materials in the four observed lessons. In the first writing lesson and the two reading lessons, chalkboard was also used. The writing materials for the learners in the two writing lessons were ordinary single-ruled exercise books, ball pens and pencils. Other reading and writing materials were stored in a cupboard in front of class, but were never used in the four lessons. According to the teacher, there was a library in the school and a lesson once every week for extra reading practices for the learners.

#### **4.1.3 Discussion of Teacher One's individualization of the instructional strategies in reading and writing lessons**

The teacher addressed the learners as a group and only in few cases did he address individual learners. This made other learners passive in the learning process. Rogoff (2003) suggests for organizing lessons according to the child's need, rather than organizing instruction according to adult plans. He did not take into consideration their unique individual needs. His methods seemed to treat the learners as a homogenous group. The nature of the reinforcement he accorded the learners seemed to hamper their participation in the learning process.

During the reading lessons, this teacher read aloud to the class. It has been established that reading aloud to the class and the class following the reading by looking at the text being read is one way of helping learners in reading skills (Burns et al 1999,



Heller 2005). This was observed in the two reading lessons in Teacher One's class. He also paused and asked oral questions in the middle of reading, which according to Heller (2005), is a good way of finding out learners' comprehension of a text. However, he did not distribute questions to individual learners across the class. This meant that only a section of the class took active part in the lessons while the rest assumed a passive role. Mendéz et al. (2008) contend that teaching in the zone of proximal development requires sensitivity to students' current abilities and their potential development. He seemed to be using the basal approach, for he strictly based his teaching in the course book.

Learners learn at different pace, and more so those with special needs. In his teaching, Teacher One did not take into consideration the learners' pace. This could be interpreted by the pace at which he taught. He taught at the fast learners' pace as is evident in the way he asked questions to no one in particular and he continued without checking who were and who were not responding. Verity (2005), asserts that strategic mediation should not be meant to 'transmit' the expert's knowledge but to provide a starting place for the learner to begin to engage with the task.

A section of learners in Teacher One's class never participated in any activity in all the observed lessons. Best and Bigge (2005) observe that learners should be included in the learning process to eliminate segregation or exclusion in the learning process. This was evident in this class among learners with CP on wheelchairs as neither were they assigned reading, writing tasks nor questions or materials during the reading and writing lessons. Though the teacher reasoned that they were "non readers", this showed that they had labeled them and ended up neglecting them in the learning process and no individualized adaptation was planned and used with them.

Best and Bigge (2005) advocate for differentiating task difficulties that arise from either motor or cognitive challenges. Only two learners were assigned different activities. An example was observed when Odemba and Gracie were assigned different tasks during the writing lessons. According to the zone of proximal development, a learner is supposed to be assisted to move to another level (Vygotsky

1978). However, the nature of the tasks that Gracie and Odemba were engaged in did not seem to give challenge. For instance, in the writing tasks, they were engaged in writing few letters of the alphabet, letter A, B, C, which they had already mastered writing. This made it appear as if they remained at the same level and were not challenged to move to the next zone.

He accorded physical assistance to Gracie during one of the writing lessons when he held her wrist to write. This was an example of physical prompting. Best and Bigge (2005) observes that “over assisting” student is not unnatural because it is easier and faster to assist rather than watch the student struggle. This assistance was necessary because Gracie could not steady her hand during the writing activity. However, according to Kirk et al. (1997), children with cerebral palsy who have muscle weaknesses, involuntary movements, and poor coordination of the fingers and hands may require a writing aid or alternative system to complete written assignments. This teacher did not adapt any writing material like a thick pencil or wound a tape around the pencil as he said he usually did, but this was not observed to be happening.

Vygotsky asserts that, children must learn through physical and social interaction with an object in order to be able to conceptualize and express ideas about it (Dixon-Krauss 1996). Stewart (1999) also asserts that teaching aids are helpful in a classroom situation or with individual learners. Teacher one used pictures in the pupils’ books and no additional teaching aid or concrete objects. This made his lessons appear teacher – centered for he did a lot of talking and the learners listened, answered oral questions and no materials to manipulate.

#### **4.1.4 Discussion of Teacher Ones’s individualization of the learning environment in reading and writing lessons.**

Hallahan and Kauffman (1997) argue that proper positioning which maximizes physical efficiency and ability to manipulate materials is essential. The type of furniture learners used seemed not to be the right size for all the learners in this class for manipulation of reading and writing tasks. They seemed to be too high, especially

the lockers (desks). However, the spaces on the surface of the lockers were seen to be suitable for the books and task performance, for those who used them as a section of learners had no tables or desks before them in this class.

Best, Reed and Bigge (2005) assert that it is not complete discussing the individual's position without addressing the location of that individual in the classroom. The implication here is that a learner's seating position in class is crucial, especially one with special needs. They further observe the perception people hold of placing students with multiple or physical disabilities at the back of the classroom because there is more space for the wheelchairs. This was evident in Teacher One's class where learners with CP on wheel chairs sat at a corner at the back of class evidenced by the seating arrangement and the teacher's statement that, that was where there was ample space for them.

The nature of the seating arrangement was not interactive it gave an impression of a teacher-centered type of classroom, according to Ayd`n (2000) in Cinar (2006) as the learners sat in straight rows facing the front of class. On the other hand, Tutkun (2002) in Cinar (2006) suggests that this type of arrangement is suitable in situations where the number of students is high and the classroom is small. This class had forty pupils and limited space.

The learning environment should be least restrictive (Kirk et al. 1997), allowing learners the opportunity to learn in a relaxed atmosphere. The emotional learning atmosphere in Teacher One's class was tense and this could be seen to hamper pupils' performance in class, given the nature of the reinforcement the teacher accorded the learners. Haskell and Barret (1993) also observed that environmental and emotional factors have been found to account for proportion of cases of reading difficulties. Rye (2005), advocates for rewarding child's efforts as a way of recognizing his or her accomplishment, which makes the child to feel worthy and competent. In teacher One's classroom, the learners were tense from the teacher's outbursts and negative comments at individual learners who experienced difficulties during the reading lessons. An example is when he told Mary to shut up and another with speech

problems to read what he could see and to read properly. Best and Bigge (2005) argue that teachers must appreciate that students with speech difficulties have important things to say and that appropriate interaction behavior includes waiting for students with speech difficulties to complete statements.

He constantly accorded learners different treatment. The quality of the child-child and teacher –child interaction is crucial in achieving successful reading and writing development for all children (Gruthie and Alao 1997 cited in Kjellin and Wenneström 2006). Those who read without difficulties were rewarded and those who experienced difficulties were reprimanded. Perhaps this explains why only few learners volunteered to answer oral questions as well as participate in the aloud reading. According to Crain (1992), a child who is scolded in school may soon appear inhibited and conflicted. The child is torn between working and avoiding work because of the feared consequences. The teacher as the care-giver and mediator needs to develop a healthy attachment with these children for positive interaction in the classroom situation.

The classroom display in Teacher One's classroom consisted of a few used charts of lower and upper case letters, sentence patterns and pictures. These were all posted on the walls beyond learners' reach. At the back of the class, was a model of a shop with items arranged on the shelves unlabeled though it was within the learners' reach. A rich learning environment where reading materials are available helps improve a child's proximal development (Vygotsky 1978) when they interact with these materials. However, the learners in this class had very minimal interaction with reading materials which was only their English course books, at the time of reading the passages and writing exercise.

## 4.2 Teacher Two

Teacher Two was a male who also had a certificate in regular teacher education, a holder of diploma in special needs education and at the time of the study, was

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undertaking his bachelor's degree in special needs education at the university during the school holidays. According to the teacher, he had taught in the same school for thirteen (13) years and started with the grade three right from grade one. He taught all the subjects in grade three.

***The classroom setting:*** Teacher Two's class was an inclusive classroom of learners with and without physical disabilities. In the lessons observed, there were a total of twenty five (25) learners in this class. Three learners had cerebral palsy. Sophia, one of the learners with cerebral palsy used a wheel chair and had speech problems, Brown had paralysis of the upper limbs and unclear speech, he uses his feet to write, and Jenny also had speech problems. Brown and Jenny were not wheelchair users.

#### **4.2.1 The Instructional Strategies in Teacher Two's reading and writing lessons**

**Lesson presentation:** The teacher began his lessons with a greeting to the pupils. With his teaching materials assembled on his table in front of the class, he announced to the learners that they were going to read and demanded their attention. "Today we are going to learn how to read words with some sounds", he said.

**Teaching methods:** Learners were engaged in the sounding of new English words containing the short vowel sound /i/, blending of consonants <sh > to teach the sound /f/ and <ch>to teach the sound /tʃ/ in the first reading lesson and the long vowel sound- /ai/, in the second reading lesson. examples of the words used to reinforce the sound /i:/ were, ' deep' sleep', 'meet', the sound /f/ and /tʃ/ were sheep', 'church' and the sound /ai/ were, 'light', 'right', 'fight', ' sigh', among others. According to the teacher, the reading lessons were simplified by having the content adapted from the previous passages read in the English course book for standard (grade) three, which he identified to be problematic for the learners.

In the first writing lesson, the learners were instructed on how to write correctly. The teacher said to the class, "There must be good spacing between the words. If you are

writing a sentence, you must start with a capital letter”. The teacher also stressed the shapes of letters and the punctuation marks. In the second writing lesson, dictation of sentences was done and learners wrote in their exercise books. Examples were, ‘this line is straight’, and ‘a pencil is lighter than a book’. The learners read aloud individually and as a class they corrected words and sentences on the chalkboard. The sentences comprised of the words with the sounds taught the previous reading lesson.

***Teaching pace:*** In all the reading lessons, the teacher went at the learners pace.

Learners were given time to decode. The teacher ensured that all the learners were brought on board almost to the same level of speed. He waited patiently for those who experienced difficulties like Brown. For instance, in the first lesson, the teacher said to Brown, “Take your time. I will collect your book when you are through”.

During the dictation exercise in the second writing lesson, a learner signaled to the teacher and whispered, “I have finished”. The teacher said to her, “Just stay calm and wait for the rest”. The teacher repeated each sentence three times and paused before dictating the next. In the second lesson, Brown was asked to spell a word they had just written to fill the blanks. He starts, “f—f” stops, and, the other learners start calling out, “Teacher, Teacher! To be given the chance. The teacher tells them,” you are not Brown. Let Brown do it. Please, let us give him time”.

***Teacher’s and pupils’ mode of Communication:*** Verbal speech and non verbal language was used by both the learners and the teacher in all the lessons observed. Body language was observed, when they smiled, and even when the teacher displayed a sign of seriousness on his face in the second writing lesson (directed at Amina Swalleh<sup>3</sup>, see rewards and reprimands). The teacher used English language in teaching reading lessons. The learners could mix the languages especially calling out for the teacher, “*mwalimu, mwalimu*” (“teacher, teacher”) to answer questions or to draw his attention in all the lessons. According to the teacher, he discouraged mixing

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<sup>3</sup> Amina Swalleh was another learner without cerebral palsy in teacher Two’s class.

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of languages during English lessons so as not to confuse the learners learning of sounds in English.

Brown could not raise his hands due to the paralysis of the upper limbs. He could try to call the teacher or just smiled and moved excitedly in his seat during the two reading lessons. The teacher interpreted that gesture and gave him the opportunity to participate in the lessons.

**Prompts:** Learners were always prompted and encouraged when difficulties arose during the lessons. The teacher used verbal prompts. During the reading of words, Sophia was told to read a word on a flash card and read it as 'date'. The teacher said, "You have tried, you got the first sound". To the chalkboard, pointing at the double 'ee' the teacher asks the class. "What did we say this sound is?" The class answers in chorus, "/i/". Sophia is then asked to read the word. She reads it as /d-i-p/ (deep). Teacher says, "Good", and asks Brown to read it too. Jenny is asked to read the next word on the flash card and reads it as '/met/'. The teacher tells her, "You have got the first sound /m/".

**Learners' initiative and teacher's response:** There were occasions of learners taking the initiative in the lessons. During the dictation exercise in the second writing lesson, Jenny drew the teacher's attention. "Number two", says Jenny." The teacher said, "Yes, Jenny has finished. Now let us go to number two".

**Reinforcement of pupils' efforts (Rewards and reprimands):** In the first reading lesson, Teacher Two displayed a card with the writing 'sh' to the class. One pupil says, "/chi/". "You have tried", says the teacher. Another one says, "/shia/", and the teacher says, "No". Jenny reads the word as, "/she/" correctly. The teacher told the class, "Can you clap for Jenny", and they clapped. In the second reading lesson, pointing at a word on a chart he has displayed, the teacher asks, "Brown, can you read this word?" Brown reads, "ta...ta, "just continue, the teacher encouraged. He reads, /ta – i- t/ (tight). "Very good, Brown", says the teacher.

The learners' efforts were reinforced. The teacher used verbal rewards such as, 'good, 'yes', as in the first writing lesson," let us give examples of letters that look like 'g', Said the teacher. Brown said, 'q'. "Yes", said the teacher and he wrote it on the chalkboard. In the second lesson, Sophia is asked to do number 4 of the writing exercise, she says, "fright". "Good", says the teacher. "Can you spell it?" She spells, "f-r-i-g-h-t". "Good, the word is fright," says the teacher. One reprimand was observed in the second writing lesson. The teacher said to a learner, 'you know I don't like those who chew *miraa*<sup>4</sup> in my class", said the teacher, to a learner found chewing something in class. In the second lesson, during the teaching of sentences, one pupil uttered something and the teacher retorted. "You know, when you talk too much you can't get what I am saying. Would you please keep quiet and listen!"

### *Learning activities*

***Individual activities and tasks:*** Learners were involved in sounding the letters of the alphabet, the vowel sounds, a /æ/, e /ɛ/, i /i/, o /o/, and u /ʊ/, and some words aloud in the first reading lesson. Reading of sentences also involved loud reading individually in both lessons. Jenny and Brown participated in sounding of the letter sounds and reading of the words in the two lessons. In the first reading lesson, the teacher dictated the words; 'deep', 'feel', 'meet', 'sheep', and 'cheers', aloud and the learners individually wrote them in their exercise books.

One learner<sup>5</sup> was assigned writing of letters 'a, b, and c' on a manila paper (work sheet) to copy using a felt pen. According to the teacher, he was a "non starter", meaning, he was not able to read and write at the level of grade three. The rest of the learners individually engaged in copying short sentences from the English textbooks into their exercise books in the first lesson. They also filled in blank spaces in single

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<sup>4</sup> Miraa is an addictive traditional plant found in Kenya

<sup>5</sup> This was one of the learners included in this class. He had learning difficulty but did not have cerebral palsy.



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words with blended consonant sounds and long vowel sounds from a chart in the second writing lesson. Brown and Jenny also engaged in the same activities.

***Individualized assistance (attention):*** During the teaching of reading, the teacher assisted individual learners in different ways. In the first lesson, Brown was assisted to identify and differentiate different words with sounds '/i/' and '/ai/', by asking other learners to sound them and he is asked to repeat severally after them.

In the first writing lesson, the teacher checks Brown, Sophia and Jenny's work. He corrects letters that Jenny has not shaped well. He takes Brown's English text book, places it on his low table so that he faces directly his writing table.

***Physical prompts:*** There were no physical prompts observed

***Group activities:*** There were no activities organized in groups in both reading and writing lessons

***Peer assistance:*** The help of individual learners was enlisted to assist those learners who had difficulties reading some words orally. In the second reading lesson, Brown is asked to read a sentence from a chart displayed. He does it slowly, "I ha...v...e...., the teacher points at the word 'eight', he stops, then the teacher asks, "Who can help Brown?" One pupil volunteers and reads correctly. "I have eight books". Brown is asked to repeat and he does it slowly but correctly.

In the second writing lesson during dictation exercise, Brown, left behind in the writing, a peer seated next to him repeats to him the third sentence, "A pencil is lighter than a book", and he writes it down.

### ***Use of materials***

***Teaching aids:*** Flash cards with letter sounds were used in teaching of phonemes, vowel sounds, 'a e i o u', and blending of two consonants, 's' and 'h', 'c' and 'h', to produce sounds /ʃ/ and /tʃ/ in the first lesson. The teacher also used flash cards of letters of the alphabet, and the charts displayed on the wall to teach different sounds

they represent. The chalkboard was also used in correcting the errors learners made in all the lessons.

The teacher used a chart containing the letters 'a', 'b' and 'g', and the words, 'reading', 'with' and 'writing' to teach letter formation or features in the first writing lesson. This was used in teaching how to write positioning the letters, ascenders, those that descend and those to be written along the lines. Pointing at the word 'reading', he explained, "the letter that has a tail going up must be shown properly (pointing at letter d) and the letter with the tail going down must be shown properly like this (pointing at letter 'g')". "We have those letters up there (referring to the letter cards posted on the wall), letter A to Z, capital and small letters". In the second lesson, the teacher also used another chart containing words with blanks to fill to make the English words containing the sounds, /ai/ that the class had learnt earlier. The chalkboard was also used in both lessons.

**Reading materials:** There were charts and flash cards with words, sentences and letters of the alphabet that served as the reading materials. The English course books for grade three were also available. These books were only used by the pupils in one of the writing lessons. There were no other text books available within the classroom. According to the teacher, the pupils borrowed story books of their choice from the library.

**Writing tools:** All the learners used single ruled exercise books and pens in writing in the two writing lessons. Brown used a pen and wrote in a single ruled exercise book on a low table, using his feet. According to the teacher, Brown was attending computer lessons every Thursday afternoon alongside other learners from other classes to practice typing.

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#### 4.2.2 The learning environment in Teacher Two's class

*The classroom organization:*

***Type and height of desks and chairs:*** Single tables with large surfaces adequate for two learners, chairs that were child's size were used by the learners in all the lessons observed. Brown had an additional low wooden box -table with a raised board on one end, beside his seat. According to the teacher, he made the box himself for a learner with a similar disability who had so far completed his primary education and saw it fit to be used by Brown. In all the lessons, learners used straight wooden chairs with back support and metallic legs, and learners on wheel chairs also had back supports.

***Quality of the working surface:*** The surfaces on the tables were adequate for use for the learners. Brown used a low flat leveled box like table for writing activities in the two writing lessons observed.

***Seating arrangement:*** In all the lessons observed, seventeen (17) tables were arranged around the room in a rectangular pattern with some learners sitting facing the front of class while others sat on the sides along the walls facing the centre of class. Nine learners used their tables singly while the rest of the learners shared the remaining eight tables. Brown sat in the middle row facing the front of class and shared a table with a peer for placing reading materials in front of him and the table he used for writing on to his right side. According to the teacher, Brown had to share a table with a peer to help position the books and open the pages in reading lessons because the upper limbs were paralyzed.

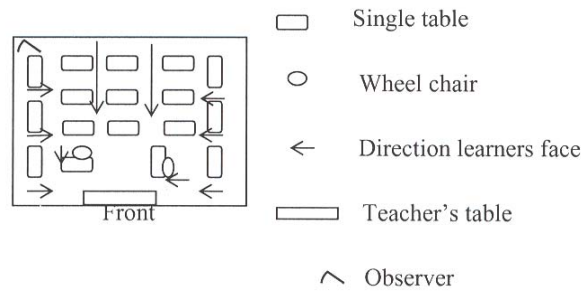


Figure 4: The seating arrangement in Teacher Two's class

**Space in the classroom:** There existed adequate space between the tables and along the isles. Learners moved freely without any hindrance, including those on wheelchairs. The teacher could reach individual learners without difficulty in all the lessons.

**The learning atmosphere:** In all the lessons observed, there was an aspect of free learning atmosphere. Several learners were observed striving to catch the teacher's attention during the lessons, by snapping their fingers and calling out, "Teacher! Teacher! The teacher smiled to his learners and created a friendly learning atmosphere. One reprimand to a learner found chewing in class was observed in the second writing lesson.

### Materials

**Classroom displays:** Flash cards with letters of the alphabet both lower and upper cases were displayed in front of class above the chalk board. This was too high for all the learners including the teacher, though it was visible to all of them. The teacher had to use a long pointer to refer to them during the lesson. Some charts were also displayed on the walls within learners' reach including those on wheel chairs. Other reading and writing materials were stored in the cupboard.

**Reading and writing materials:** Flash cards with letters of the alphabet, vowels and charts with short sentences were available. Single ruled exercise books, English text books for grade 3, chalkboard and pieces of chalk, manila papers (work sheets for some learners) were also available.

Computers were also in a separate room where Brown took typing lessons every Thursday afternoon with the same teacher. He used an unsharpened pencil with a rubber at one end. The side with the rubber was used for pressing the keys on the keyboard.

#### **4.2.3 Discussion of Teacher Two's individualization of the instructional strategies in reading and writing lessons**

Learners with motor difficulties get to learn the orthographic nature of words even if they are not in a position to sound them properly due to the paralysis of the speech muscles (Heller et al 2000). Teacher Two used phonics method in teaching reading and learners with speech difficulties were involved in sounding the vowels and reading the words with those vowel sounds. He also taught writing of short sentences through dictation and use of filling in blanks. Teacher Two used the same methods and same content for all the learners. Best and Bigge (2005) argue for differentiation and adaptation of the teaching methods. This was necessary in this class given the heterogeneity of the learners.

In using phonics method, a child is exposed to individual components of words, the phonemes and graphemes (Wikipedia 2008), for instance, This teacher taught single vowel sound /i/, blending of consonant sounds 'sh' /tʃ/ and 'ch' /ʃ/ in words, 'sheep', 'church'. The teacher adapted the content for the reading lessons by identifying sounds that pupils found difficulty reading from their English text books in previous lessons, and then taught phonetically. This is in line with Burns, Griffin and Snow (1999) that students should be taught phonemic awareness the alphabetic principle and given practice in letter recognition, oral blending and segmentation. He gave them practice in writing the sentences and words involving sounds learnt in previous reading lessons. This is in view of what Vygotsky believed in that, 'good instruction is aimed at the learner's zone of proximal development' (Vygotsky 1986 cited in Dixon-Krauss 1996, p. 14). The teacher used a combined the basal reader approach with phonics approach because he used the English course books though he adapted the content.

The teaching progressed at the learners' pace. For instance, he was heard several times telling the class to give some pupils time. It meant that he took into consideration the individual differences at this point.

Teacher Two engaged all the learners in similar learning activities in both reading and writing lessons except one learner who had a different content in one of the writing lessons. It was also necessary to treat the lessons differently with varied activities and content depending on different functional abilities of the learners. Scaffolding as a mediating strategy must be at the level of the learner's zone of proximal development and able to alleviate the needs of the child already identified (Verity 2004). An example was the individualized activity that took place in arranged lessons every Thursday afternoon outside class hours in the library, where Teacher Two trained Brown on typing using a computer. Though in the classroom, the teacher attended to the learners during the learning process.

According to Vygotsky, children learn through physical and social interaction with an object in order to be able to conceptualize and express ideas about it. This is how their thinking transforms from concrete to abstract (Dixon-Krauss 1996). This was observed to be happening in Teacher Two's class. This teacher made good use of the teaching aids, such as charts and flashcards in teaching both reading and writing lessons, making the lessons realistic and interesting to the learners.

#### **4.2.4 Discussion of Teacher Two's individualization of the learning environment in reading and writing lessons**

The classroom furniture should be the right type for individual child's needs and condition (Kirk et al.1997, Haskell & Barret 1993). Teacher Two adapted a table for a learner with paralysis in the upper limbs and the pupil was being trained to use his feet to write. This was to meet the learner's individual needs. The tables learners used were of the right size for all the learners and had adequate amount of space for books and task performance. This is in line with the idea that the nature of furniture for

learners with physical impairments is not supposed to restrict child's performance of reading and writing tasks (Kirk et al. 1997, Haskell and Barret 1993).

For the seating arrangement, the teacher arranged his class in a way that was interactive as learners could at least see most of each other's face. It had an element of learner-centered type of arrangement which was almost U- type (Ayd`n 2000 cited in Cinar 2006). There was also ample space for movement which according to Bigge and Best (2005) should facilitate movement where a student can get to parts of the classroom without complex movement.

In order to achieve successful reading and writing development for all children the classroom climate should be conducive. Teacher Two had established good rapport with his learners. In all the lessons observed, the emotional learning atmosphere was warm and friendly. The teacher encouraged learners who were experiencing difficulty reading. This was done through prompts, smiles, verbal rewards (very good, right, yes), claps, nods, and called students by their names. This kind of emotional learning atmosphere helps to build and improve positive self image and self confidence of a learner with special needs which is a challenge for most teachers. This point of view is shared by Lyster (2005) states that, 'The greatest challenge is perhaps not to teach dyslexic and other poor readers to "crack the reading code" and develop good comprehension skills at the same speed as their classmates, but to help them keep their motivation and their self –confidence so that they are able to put the necessary effort in their learning tasks' (p. 400).

It is also natural to find varied conducts in a classroom. In this class, the teacher reprimanded a learner who was found chewing something in class. This according to Skinner is regulating a child's behavior in the classroom (Crain 1992) which helps the child to attend to the task at hand.

Classroom displays were available, that is charts, word cards as well as letter cards, which according to Vygotsky (1978), helps in the zone- of proximal development.

But, most of them were put high up above learners' reach and yet they are supposed to be manipulated by the learners to help develop to a higher zone.

### 4.3 Teacher Three

The teacher in the petö class was a female who was a holder of certificate in regular teacher education. At the time of the study she was undertaking her diploma in special needs education through distance learning program. She had taught in the same school for three years. She taught the literacy class together with a co-teacher who was a holder of a bachelor's degree in special needs education. They shared the subjects equally and she taught language, in which reading and writing was handled.

***The classroom setting:*** There were a total of ten (10) learners with cerebral palsy enrolled in Teacher Three's class. Quinn had no speech but could control her fine motor, Dodo had no speech and had difficulties with hand use, Babu and Betty had unclear speech and difficulties with fine motor abilities.

#### 4.3.1 The Instructional strategies in Teacher Three's reading and writing lessons

**Lesson presentation:** The teacher assembled all her teaching materials in a tray set on the table before her, took her seat then started with greetings. "Good morning class". "Good morning teacher", they all responded. "How are you?" she asked. "We are fine they responded. "Thank you very much". Then turned to individual learners, "Good morning Babu", said the teacher. "Good morning teacher, he responded. "How are you Babu?" asked the teacher. "I am fine", he replied. "Thank you Babu", said the teacher. This could go on until all the learners had been greeted individually.

**Teaching methods:** In the first lesson, the teacher displayed flash cards with letters one by one and asked individual learners to identify them. She did the same with items and pictures whose names corresponded with the letter displayed. The teacher also used songs to reinforce the concepts taught, for instance in the first



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lesson, in teaching the concept of color so that the learners could discriminate against two displayed colors, she sang together with the learners, “Choose color choose, choose color choose, do you like a blue color do you like a yellow color choose color choose”, while displaying different colors in turn to the class and they identify them one by one. An ‘ABCD song’ was also sung to recite the letters of the alphabet in the second lesson.

**Teaching pace:** The teaching was at the learners’ pace in both lessons observed. In the first lesson the teacher picked a block with a letter on it, displayed to the learners and asked, “Which letter is this? “ Letter A”, they said in chorus. “ Yes, letter A”, said the teacher and then each pupil’s name was called to pronounce letter A, as, “Quinn”, “letter A”, “Betty,” “letter A , “Babu”, “letter A”, until all of them had pronounced the letter then another letter was produced. This trend went on in all the lessons.

**Teacher’s and pupils’ mode of Communication:** Verbal speech and non verbal speech was used in the two lessons. The teacher used gestures together with speech. An example was, “Today is Tuesday. What about yesterday? ”She used a sign for yesterday. Other learners without speech also used gestures to communicate; an example is Quinn, during the reading exercise (*see learners’ initiative and teacher’s response*).

**Learner’s initiative and teacher’s response:** This teacher gave the learners opportunity to participate in the lessons by making sure each and every learner took part in all the stages of the lesson. During the writing activity in the first lesson, one pupil called out to the teacher, “*Nimemaliza* (I have finished). The teacher responded, “*Umemaliza?* (Have you finished?)”, “Yes,” she answered. “Very good”, said the teacher and reached out to her to correct her work. Babu tells the teacher, “*Ninataka kuendelea* (I want to continue).” “Okay”, says the teacher, then goes to the chalk board and writes for him letter ‘B’ to continue writing.

During the second lesson, Quinn calls out while standing and pointing at a chart opposite her table and tries to draw teacher's attention. Teacher asks her, "Quinn, where is blue color?" The teacher stands up, goes to the chart, tries to point, at different colors, red, green and Quinn shakes her head while uttering some sounds and continues to point until the teacher points at a blue circle. She then smiles broadly and nods. "Yes, very good Quinn, this circle is blue in color", says the teacher.

***Reinforcement of learners' efforts (rewards and reprimands):*** Individual learner's attempts as well as the whole class were recognized and rewarded both verbally and the use of claps, as in the first lesson, a pupil identifies letter 'f' and the teacher says, "Very good, then repeats, "letter f. everybody say letter f". The class repeats and the teacher says, "Very good". In the second lesson, after singing the 'A B C' song, the teacher said, "Well done! Well done! Can you clap for yourselves? They clapped as they said well done! Well done! (See also learners' initiative and response). There was no use of reprimand in all the lessons observed. The teacher recognized each and every learner's effort.

### ***Learning activities***

***Individual activities and tasks:*** Each learner was assigned a task to do individually according to his or her ability in both lessons. In the first lesson, after teaching the letters of the alphabet, Babu arranges bottle tops along the outline of the letter 'A' drawn with a piece of chalk on his slate. Three learners write letter 'A' repeatedly with a pencil in the lines drawn wide apart in their exercise books. Dodo sorts and arranges in alphabetical order, blocks of letters on his tray slate. He sometimes uses his nose to push the blocks in a straight line. Another pupil arranges small stones along the outline of letter 'A'. Quinn arranges in correct sequence in her slate the flash cards of the first seven letters of the alphabet, A to G., then they swapped activities with Babu. In the second lesson, Dodo and the other learner on a wheel chair sort and group according to colors colored blocks in their trays; three learners color picture of an apple drawn in their exercise books, using red color. They choose

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the color from a bunch of colored pencils; one pupil is given a board with circles of different colors and colored cards which he sorts and places near each circle. Babu sorts colored stones on his tray slate.

***Individualized assistance (attention):*** The teacher assisted each and every learner during task performance. The co-teacher also assisted in attending to the pupils during the activity. Babu was asked to read the letters he had written. Pointing with his index finger, he read the A B C D E F G he had written on his slate. Dodo was asked to read what he had arranged on his slate. He opened his mouth and produced some sounds as the teacher pointed one by one at the letters on the blocks. The teacher then pointed at each letter, read them aloud and he repeated with unclear sound.

***Physical Prompts:*** There were no physical prompts observed.

***Group activities:*** Learning was not organized in groups. According to the teacher, the learners had different abilities that required each and every one with a different activity that would not frustrate him or her.

***Peer assistance:*** There was no enlistment of peer assistance observed. It is the teacher who took the initiative of assisting each and every learner for instance reading aloud to Dodo.

### ***Use of materials***

***Teaching aids:*** An assortment of materials were used in teaching reading and writing, adapted to suit the individual needs of the learners in both lessons. Letters of the alphabet were presented on wooden blocks and flash cards, in the first lesson. Colored drawings on flash cards, charts and articles in the classroom environment like learners uniforms were used in the second lesson. For instance, in the first lesson, a block with letter 'A' was displayed to the class and the teacher asked, "Which letter is this?" the class responded, "A". The teacher then displayed a flash card with a picture of an apple and said, "A for apple", and the class repeated. This was the trend

the teacher used in teaching the reading and all the first seven letters of the alphabet were presented in the same pattern, using the teaching aids. The learners were to associate the letters with the sounds and familiar words they represent as well as the familiar objects.

The concept of color was taught using objects in the environment such as the learners' uniforms, for instance, the teacher asked "What color is Betty's dress? And Babu said, "Color blue." pencils, and books were also referred to. There were also colored blocks, stones, bottle tops and wooden chips. Drawings on charts posted on the walls were also used in the lesson.

**Reading materials:** There were course books that the teacher used. Letters and words from the flash cards and the charts the teacher displayed as well as those that were displayed on the walls were available and used in both lessons. According to the teacher, she extracted and adapted the material to teach the learners from the course book and Kenya Pre-school Teachers' Activities Guide Series.

**Writing tools:** Learners used single ruled exercise books, pencils and crayons. Crayons were used by learners with weak grasps, for instance Betty. All the learners had tray-like slates. Some learners used slates and pieces of chalk in performing writing tasks. The teacher drew lines widely spaced in learners' exercise books to give suitable space for writing, where they performed the writing tasks. The learners' exercise books were placed inside the slates. The teacher said this was to protect them from sliding as there were no book holders.

#### **4.3.2 The learning Environment in Teacher Three's class**

##### *The classroom organization*

**Type and height of desks and chairs:** Plinth tables, and chairs with ladder backs which were learners' size were in use during the two observation sessions. There were two arm chairs for two learners. One chair had leg separator and back support.

The two chairs were cushioned. The other Chairs also had back support but no foot rest. Tables had spaces where learners grasped for support (The plinths).

***Size of the working surface:*** There were tables with large spaces for learners' use, each with adequate space suitable for use by two learners in the two lessons observed.

***Seating arrangement:*** Four plinth tables were joined together at the centre of the classroom and three pupils sat and shared each of the longer sides while two sat on each of the shorter sides. All sat facing the center including the teacher in all the lessons.

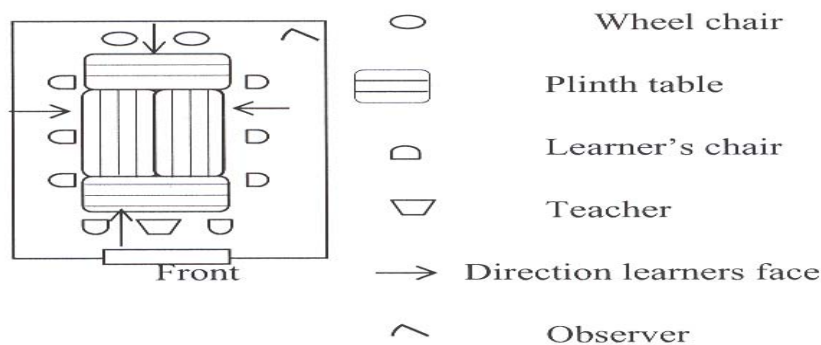


Figure 5: The seating arrangement in teacher Three's class

***Space in the classroom:*** Space was a bit limited for movement around the classroom. Learners were able to move around with some restriction as the classroom was a bit small in size, partitioned with a temporary cardboard, separating it from the other classroom for another grade. In the two lessons observed, the teacher could reach each and every learner by going around the learners' tables.

### ***The emotional learning atmosphere:***

In the two lessons observed, with a smile on her face the teacher began her lessons with greetings to the class and to each individual child and they responded in turns with smiles on their faces and excited voices. The teacher rewarded each and every learner's efforts as in the first lesson, Betty identified letter 'f' from a flash card and the teacher said, "Very good", and then individual learners were asked to repeat in

turns and rewarded the same. The classroom atmosphere was relaxed and the learners interacted with the teacher freely.

### *Materials*

***Classroom displays:*** During the observed lessons, used charts were displayed on the walls, within learners' reach containing letters of the alphabet, shapes, colors and pictures. Small boxes with assortment of reading and writing materials were also available in the classroom.

***Reading and writing materials:*** Several learning materials were available. These were assorted colored wooden blocks and chips of wood, stones, bottle tops, and flash cards with words, letters and pictures. Slates were used on tables plus colored pieces of chalk and erasers. The exercise books used by four learners in the two lessons were ordinary single ruled exercise books. The teacher drew lines widely spaced in the pupils' exercise books using a pen and a ruler. According to the teacher, there were no special books as they were expensive. Some learners used pencils for writing and others used thick crayons. Chalk board was available and was low enough for learners' reach.

### **4.3.3 Discussion of Teacher Three's individualization of the instructional strategies in reading and writing lessons**

The choice of words were adapted to the learners' every day lives as the teacher used familiar words and presented familiar objects. This was an example of whole-language approaches because the learners were engaged in reading without following the phonics rules. They were looking and identifying letters A, B, C, and D, on flash cards, and words presented. Heller (2005) suggests the use of Non-verbal approach with learners with impaired speech. An aspect of non-verbal approach was observed when the teacher worked with Quinn, during the identification and naming of colors. Pointing at different colors on a chart and Quinn responding by use of body language was an aspect of Non-Verbal Approach. These are indications that the teacher integrated several teaching approaches in her lessons to accommodate the diversities

of the learners in class. This idea is supported by Kirk et al. (1997) that individual differences should be addressed in class.

This teacher went by the learners' pace in all the lessons. She made sure all the learners were involved when each and every one was given time to either pronounce the letter or identify the color, with or without speech.

Aspects of individualizing and differentiation of activities according to learners' functioning abilities was observed. Best and Bigge (2005) advocate for differentiating task difficulties that arise from either motor or cognitive challenges. The activities initiated were as per the individual abilities of the learners. The activities were related to the main theme of the lessons, only adapted to suit each child's needs and abilities. For instance, Babu was to arrange bottle tops along the outline of the letter 'A' drawn with a piece of chalk on his slate. Three learners wrote letter 'A' repeatedly with a pencil in the lines drawn wide apart in their exercise books. Dodo was to sort and arrange in alphabetical order blocks of letters on his tray slate. This was differentiation as Westwood (2004) states that differentiation involves using of strategies to accommodate individual differences among students.

Interaction with the learning materials is one of the aspects of improving a learner's zone of proximal development (Vygotsky 1978). The teacher made good use of the teaching aids to make her lessons realistic to all the learners. Stewart (1999) also observes that the teaching aids help learners improve reading and writing skills. Teacher Two used objects from the learners' immediate environment- the classroom, for instance referring to learners' uniforms during the teaching of colors. She adapted her lessons to the immediate learning environment.

The learners require handheld writing tools and paper adaptations (Kirk et al. 1997, Heller 2005). This was observed in Teacher Three's class. The learners who could write in exercise books had ordinary single ruled exercise books. The teacher drew lines widely spaced in learners' exercise books using a pen and a ruler to give suitable space for writing. This was adaptation done to individual learners in the

tasks. Slates and pieces of chalk were also in use as well as crayons for those with weak grasps.

#### **4.3.4 Discussion of Teacher Three's individualization of the learning environment in reading and writing lessons**

According to Hallahan and Kauffman (1997) proper positioning maximizes physical efficiency and ability to manipulate materials. Furniture for use in this class was appropriate for the individual needs of the learners. Examples were the two arm chairs for Dodo and the other learner that were cushioned, and one with a leg separator, foot rest and back support. All the tables had spaces where learners grasped for support (The plinths).

Seating arrangement was learner-centered type which was good for interaction in class as pupils could see each other's face including the teacher. They sat around the tables which were joined together. Cinar (2006) observes that, a successful arrangement of students in class has a positive effect on both the class interaction and instruction. Best and Bigge (2005) noted that teachers can help by arranging the classroom environment to allow for ample space for movement. Given that Teacher Three's class had limited space, the way she arranged the class allowed some space for movements as well as interaction.

Teacher Three was very friendly to all her pupils. She wore a pleasant face, with a smile during her teaching. She began all her lessons by individually recognizing the presence of each child through greetings, like, "Good morning Babu". Her voice was also soft and she never used any harsh words in all the lessons observed. These gave an impression of a warm and friendly emotional learning atmosphere for all the learners, the kind of learning atmosphere conducive to learners with cerebral palsy or any learner with special needs since they undergo a lot of difficulties in the learning process. Rye (2005), advocates for demonstration of positive feelings for positive interaction. This was indeed a least restrictive environment that Kirk et al. (1997) and Haskell and Barret (1993) assert that learners with physical disabilities require.



According to Adams (1998), materials and activities used in developing reading skills are of critical importance. These have to be selected carefully taking into consideration the learners needs. This was ensured in Teacher Three's class. The classroom displays in Teacher Three's class consisted of charts and flash cards of letters of the alphabet, shapes, colors and pictures and small boxes with assortment of reading and writing materials.

## 4.4 Teacher Four

Teacher Four was also a female who had a certificate in regular teacher education. At the time of taking this study she was a diploma graduate in special needs education. She had taught the petö class for one year. The class was being handled by two teachers and she handled language in which reading and writing was taught. At the time of this study, she was the one teaching all the subjects. According to her, the co-teacher had been seriously ill for long and could just come to class and take no active part in teaching.

*The classroom setting:* In Teacher Four's class, there were a total of twelve (12) learners with mild to server cerebral palsy. One learner, Chidi, had difficulty with both speech and hand use. He uses a wheelchair. Brad and Brian also had speech and hand- motor difficulty but did not use wheelchairs. There were also learners with intellectual difficulties.

### 4.4.1 The Instructional Strategies in Teacher Four's reading and writing lessons

**Lesson Presentation** The teacher begins her lessons by setting the date and day of the week, involving learners in suggesting. "What is the date today?" she asks, and the learners suggest in chorus. She presented individual learners with flash cards with different numbers to pick the correct date and set on the date's chart. After these preliminaries she embarks on the day's lesson and begins by revising previous lesson.

In the first lesson, “What letter did we learn yesterday?” She asked. “*Juzi tulisoma letter gani?*”(Which letter did we learn the other day?) Was asked in the second lesson and learners gave their responses in chorus and she wrote their responses on the chalk board.

**Teaching methods:** Instruction to the learners involved use of questioning, explanation and demonstrations by the teacher in teaching the new words and writing them down in the two lessons. The look and say method was used. The teacher mimicked a sound when introducing a new word. In one of the lessons observed she imitated the cry of a baby to introduce the word ‘baby’.

The teacher used both verbal and physical instruction in her lessons. In the second lesson, writing of letter ‘d’ in the air was demonstrated by both the teacher and the learners. The teacher asked the class, “How do we write letter ‘d’? Brian is told to write letter ‘d’ in the air. He tries and does it correctly and teacher says it is correct. With the back turned to the class, the teacher raised her hand in the air and demonstrated writing of letter ‘d’ in stages as she said aloud in Kiswahili, “*Kutoka juu kuja chini, kushoto, kwa ubweni, kwenda kulia, funga ubweni na urudi chini*” (From up, down, to the left in a circle, close the circle and come down) with the learners following. She then repeated the same activity and said in English. Oral participation was for the whole class as a group as well as individuals in naming of familiar words beginning with letters ‘b’, ‘c’, and ‘d’ (*bag, bus, cow, cup, cat, dog, donkey*). Pictures were used to facilitate the reading.

**Teaching pace:** The teacher taught at the learners’ pace. The learners with speech difficulties were given time to utter words in oral lessons. They were also allowed time to speak slowly and severally for the teacher to get what they were saying. For instance, in the second lesson, Chidi struggles to say a word, he is asked to repeat and the teacher gets the word and says, “Yes, date,” and she writes it on the chalk board. During writing activity, individual learners with motor difficulties were also allowed time to go their limits. For instance, in the second lesson, Chidi called out to the teacher, “*Mwalimu, nimechoka* (teacher, I am tired)”. The teacher asked,

“*Umechoka?* (Are you tired?)” “*Ndiyo*” (yes), he responded. She then collected his book.

***Teacher’s and pupils’ mode of Communication:*** Speech and gestures were used. For example, in the first lesson, teaching of words that start with letter “c”, the teacher gestured wearing some clothe, and telling the class, “the one I wore the other day”. One pupil at the back shouts, “Coat”. “Yes”, she says, and writes the word ‘coat’ on the chalkboard. In the second lesson, teaching words which begins with letter ‘b’, the teacher imitated the cry of a baby, and the learners chorused, “Baby”. Chidi used gestures, for instance pointing together with the slurred speech to draw the teacher’s attention.

Mixture of language use was noted in both lessons. The teacher used *dholuo* (the local language of the area), Kiswahili and English in instructing the learners, and the learners did the same, for instance, the teacher said, “*Leo tuta andika dog*” (Today we shall write dog.)”Doll *ni nini* (What is a doll)?” Chidi says, “*kitu ya watoto*” (a thing for babies). Teacher asks again, “What about dress?” “*Ya wasichana* (for girls), *ya wamama* (for mothers)”, Chidi said again. “Yes for girls”, teacher laughs lightly, pupils laugh too and she repeats, “Dress is for girls”. And another instance, “*adwaro ni itemane ndiko maber e lain tir*” (I want you to try to write properly in a straight line), was said to a learner.

***Prompts:*** Prompts were used, for instance, where the teacher asked the whole class, “From letter c, where do we go to?” Some learners’ response was, “d”.

***Learner’s initiative and teacher’s response:*** There were instances where the learners took the initiative to participate in the lesson. In one of the lessons observed, during the teaching of vocabularies beginning with letter ‘b’, Brad staggers to the wall where displays are, points at a picture of a bird. “Yes, that is a bird”, says the teacher. Brian says, “*Ny-a--gnya*”. The teacher ignores but he persists. The teacher then moves closer to him, gets the word which is slurred with some omissions,” *Nya—gnya*” (*Nyaugenya*). “Yes, that is a bus”, says the teacher. (*Nyaugenya* is the name of a bus

operating in that region). The teacher accepted Brian's answer because he had the idea of a 'bus', by giving its name.

Chidi, a learner on a wheelchair with speech problem struggles to say something. The teacher hears and moves closer to him. He is asked to repeat what he had said; teacher listens and gets the word." Yes, Chidi, 'date' (*she repeats the word aloud*), that is correct, very good". She then writes the word 'date' on the chalkboard.

***Reinforcement of learners' efforts (rewards and reprimands):*** All the learners' efforts were recognized and rewarded. The teacher used verbal praises. In one of the lessons observed, Chidi gave a correct answer and the teacher told him, "That is correct, very good". Learners were also clapped for as the class called out, "well done, well done, a very good boy. A learner wrote letter 'd' on the chalkboard and the teacher asked the class to clap for him. Chidi made sketches of the word 'dog', and gestured to the teacher to rub saying, "*Hiyo ni mbaya*" (that one is bad). Teacher said to him, "*Hiyo mbaya ndiyo nataka kuona*" (that bad one is the one I would like to see). The teacher could also be hard with learners who she perceived to be stubborn. For instance, "Brian, I will kick you out of this class if you do not write those things", was heard in one of the lessons.

### ***Learning activities***

***Individual activities and tasks:*** The teacher after presenting the lesson, at her table, she would assemble learners' exercise books on her table and one by one assigned different tasks to individual learners. In one of the lessons observed, three learners were to colour a drawn picture of a cup using crayons in their exercise books. Chidi, Brian and Brad, together with the rest of the class were to individually copy in their exercise books, the word 'cow' which the teacher had written in their exercise books. In another lesson, all the learners were to write the word 'dog' severally in their exercise books.

***Individualized assistance (attention):*** The teacher assisted individual learners during the performance of activities in the lessons observed. An example was in the writing

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task. Teacher responded to Chidi's call during the writing activity. Chidi asks the teacher, "*Mwalimu, na-andi-ka ka-ma we-we*" ("I'm I writing like you teacher?"). The teacher looks at his work and responds *positively*, "yes Chidi". He smiles and stretches his left arm, places it on the book to hold it in place and struggles to write with the right hand.

**Physical prompts:** The teacher helped individual pupils in the activities. In one of the lessons observed, Chidi asked the teacher to hold the upper part of his pencil to steady it as he wrote. "*Mwalimu, shika hapa juu*" (teacher hold this upper part). The teacher did just that and instructed him to place his right arm on the book, let him try to write as she looked on. Brian, a learner with motor difficulty, holding the pencil, tried to write in his book but it kept on sliding. He had nothing to help hold his book in place He was not assisted.

**Group activities:** In one of the lessons observed, the activities were self directed, especially in the second lesson. Learners engaged in different activities, some practicing writing the new words learnt on the chalkboard, they especially practiced writing the word 'cow'. Others using the word cards, showed to their seated peers (those with speech difficulties), Brian, Brad and Chidi. They identified the words and pictures and said them aloud. The teacher sat at her table, marking the learners work but monitored the activities. She occasionally corrected the learners or prompted where one experienced difficulties. An example is where a peer showed a flash card with a picture to Chidi and he said what it was, this pupil did not get the word clearly but the teacher interjected and said, "*amesema ni flower*"( he has said it's a flower).

**Peer assistance:** Some Individual learners assisted their peers in different ways. An example is in the second lesson where one learner came to Chidi, from another table, when he saw him struggling to erase his work. Chidi said something that was not clear, but the classmate understood what he was asking for, took a rubber and erased what Chidi had written. Chidi smiled at him and continued to write as the other pupil looked on. This was also seen in group activities where a peer showed chidi flash cards to identify.

### *Use of materials*

**Teaching aids:** The teacher used flash cards with pictures and words during her teaching. As in the first lesson, she produced flash cards of pictures of a cupboard, clock, and a car which the learners identified. Brian also referred to a picture of a bird on the display in one of the lessons. She also made use of the chalk board to write the pupils' oral answers.

**Reading materials:** learners were to read from flash cards as well as from the chalk board, the words the teacher had written. They did not have any book to read from in the two lessons observed. There were also displays of charts of poems, letters of the alphabet and labeled pictures.

**Writing Tools:** ordinary single-ruled exercise books were used by learners who had mild motor problems, while double-ruled exercise books were used by the learners with difficulty in hand use. Chidi, Brad and Brian used the double ruled exercise books and the thick pencils. Crayons were used by three learners in one of the lessons observed.

## **4.4.2 The Learning environment in Teacher Four's class**

### *The classroom organization:*

**Type and height of desks and chairs:** wooden plinth tables with ply woods placed on top and wooden ladder-back chairs were used by the pupils. They varied in sizes as some had long backs. According to the teacher, the seats were adjustable depending on the age and size of the user. The plinth tables were for learners' grasps for support during learning activities and the ladder back chairs for postural support.

**Quality of the working surface:** Each table was shared by two learners, and still allowed ample space for use. Chidi shared a table with a peer.

**Seating arrangement:** Tables were arranged in two rows, three tables per row and two learners per table. The learners were seated very far from each other apart from

the one with whom they shared a table. All pupils sat facing the front of class. Teacher's table was put in front of the class near the chalk board.

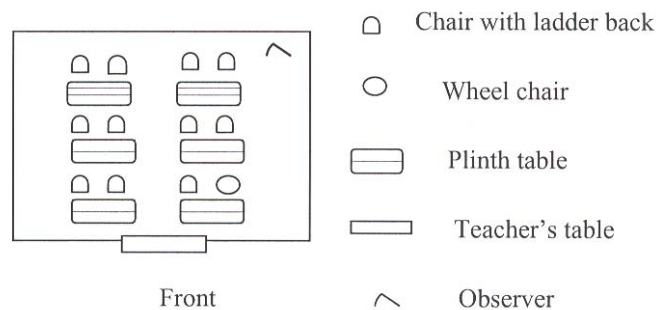


Figure 6: The seating arrangement in Teacher Four's class

**Space in the classroom:** The classroom was spacious. It accommodated large tables and still there was ample space between the rows and tables which was sufficient for movement. The teacher could reach each and every pupil with ease during class activity and likewise learners.

**The emotional learning atmosphere:** The emotional learning atmosphere in the classroom was friendly. The teacher was pleasant and had cordial relationship with the learners. Learners talked freely to the teacher. They laughed together, as in the first lessons when the teacher asked the class what a dress was and Chidi said, “*Ni ya wasichana, ya wamama*” (it is for girls, for mothers). There were rewards and positive comments from the teacher in both lessons. Brad pointed at a picture of a bird. “Yes, that is a bird”, said the teacher. In one of the lessons, the teacher also became hard on a learner who was being stubborn, in refusing to perform writing tasks. “I will kick you out of this class if you do not write those things”, she told her.

### Materials

**Classroom displays:** Charts with short poems, months of the year, letters of the alphabet A to F (upper and lower case) were posted on the walls. Small cards with pictures drawn and labeled were strung and hanged across the wall in a curved position. Models of letters were pinned on the wall using pin thumbs. A model of “a

homestead” was at one corner of the classroom with few labels. There were also boxes of bottle tops and chips of wood with letters of the alphabet displayed on the side tables along the wall. Learners’ works were also displayed on a cardboard at the back of the class. All these classroom displays were within the reach of all the learners.

***Reading and writing materials:*** There were pieces of chalk for the teacher and the learners. There were also flash cards with pictures drawn, and labeled. Flash cards with numbers and words were also available. Ruled exercise books; single ruled and double ruled, pencil with thick tape rolled around it (*adapted for a learner with weak grasp*) were used by the learners during the writing activities in the two lessons. There were thick crayons for three pupils. Other thick pencils were also used by some learners who had weak grasps. A course book was used as reference.

#### **4.4.3 Discussion of Teacher Four’s individualization of the instructional strategies in reading and writing lessons**

Teacher Four used varied approaches and strategies in her lessons which seemed to be whole- language approach and look and say method because she based her teaching on the learners’ experiences, for instance, when she imitated the cry of a baby and also involved learners in naming of items they knew which started with the letters she introduced. This teacher also presented items and pictures on flash cards for pupils to identify and say what they were. She also used shaping technique in one of the lessons in teaching how to write letter ‘d’ which she demonstrated first by writing in the air, before involving the learners to do it in bits. This method is supported by Best and Bigge (2005) in which they assert should be used with verbal cues and demonstration and the teacher accepting approximations of the letter formation when teaching writing to learners with cerebral palsy.

The teacher took into consideration the individual differences in the classroom by teaching at the learners’ pace and made sure each learner was involved in the lesson. This was observed in the way she accorded the individual learners opportunity to



answer oral questions. It was also observed in one of the writing lessons when one of the learners (Chidi) said he was tired and the teacher excused him. This was an example of taking into consideration the functional abilities of the learners, which are said to vary.

Haskell and Barret (1993) and Kirk (1998) argue that adaptations are essential in a number of areas; can be the modification of actual content of lessons, modification of skills being taught, and introduction of technology that meets their special needs. Teacher Four assigned pupils' different activities related to their abilities. For instance, some of the learners repeatedly wrote the word 'cow' in their exercise books while others colored the picture of a cup, to reinforce the new words learnt, beginning with letter 'c'. Learners also engaged in group activities and some peers were observed working together with learners with speech difficulties, an example is one who displayed flash cards to Chidi to read. This is inline with Best and Bigge (2005) on differentiating task difficulties that arise from either motor or cognitive challenges of the learners.

Individualized assistance, which is essential with the learners with functional motor impairments, was accorded by the teacher. An example was when she held Chidi's pencil to steady it as he wrote, when chidi requested her to do so. This was an example of scaffolding. According to Verity (2005), scaffolding is a crucial form of strategic mediation and that, like all mediation, it should be offered to a learner depending on his needs. It is also argued that learning takes place better through social interaction between the child and the care giver which helps a child to move to a potential performance level, as in the concept of the zone of proximal development (Vygotsky 1978, Klein 2001, Dixon-Krauss 2001). This potential performance level includes all the activities and functions that a learner can perform only with someone else' help (Schütz 2004 cited in Offord 2005), which Teacher Four was seen to be according her learners.

During the writing activities, one learner, Brian tried to write and his book kept on sliding, interfering with his task performance. Best and Bigge (2005) observe that

motor deficits of cerebral palsy must not be allowed to interfere with meaningful participation in educational experiences. A masking tape could have been more appropriate for masking Brian's book to stop it from sliding during the writing task.

#### **4.4.4 Discussion of Teacher Four's individualization of the learning environment in reading and writing lessons**

The ply woods that were placed on learners' plinth tables were smooth and good for writing activities, but did not have grips to hold the sliding books. The plinths on the tables that learners could hold onto were also covered by the large ply woods. The learners had chairs with ladder backs which gave back support. Best and Bigge (2005, p.197) also observed that, 'good positioning results in alignment and proximal support of the body'. This assumption of good posture meant that the learners were in a good postural position of performing the literacy tasks.

The kind of seating arrangement in Teacher Four's classroom gave an impression of teacher-centered type of classroom which is also referred to as the traditional type (Cinar 2006) because learners sat in straight rows facing the front of class and this limited interaction between the learners during activity. Tutkun (2002) cited in Cinar (2006) suggests that the traditional arrangement is suitable for situations where the classroom is small and the number of students is high. This was contrary in this teacher's classroom which was spacious and had only twelve pupils. Kirk et al. (1997), states that, a learning environment should be least restrictive. It does not mean that only a classroom with minimal space is restrictive, even a spacious one can be restrictive if the learners cannot reach out to their peers during the learning process. This kind of seating arrangement was not individualized. Even though there was ample space in Teacher Four's classroom, it limited interactive activities between the pupils during the lessons.

Rye (2005) advocates for a stimulating learning atmosphere where learners get support and encouragement from the teacher that make them feel worthy. Teacher Four ensured a relaxed emotional learning atmosphere for all the learners. An

example is where she even laughed together with the pupils in one of the lessons. There was also an observation in one of the lessons; the teacher became hard on a learner who was being stubborn, in refusing to perform writing tasks. She told him, “I will kick you out of this class if you do not write those things”. Skinner states that negative reinforcement can be applied to help change behavior (Crain 1992).

Use of adapted reading and writing materials in Teacher Four’s class for the learners made the learners with motor difficulties ease in tasks performance. Best et al (2005) observed that one way in which teachers can help pupils in participating in functional activities is the adaptations that might present helpful solutions. This view is shared with Kirk et al. (1997) who suggests that, children with cerebral palsy who have muscle weaknesses, involuntary movements, and poor coordination of the fingers and hands may require a writing aid or alternative system.

The classroom displays gave an impression of a rich learning atmosphere (see section on classroom displays under the learning environment). Artifacts, such as books, videos, wall displays have been found to be active agents within the zone of proximal development (Brown et al. 1993 cited in John-Steiner & Mahn 1996).

#### **4.5 Cross- case analysis of the four teachers studied**

All the four teachers studied had a background in special needs education, meaning that they all possessed the required skills and knowledge in teaching learners with cerebral palsy. They all had learners with cerebral palsy in their classes. Teacher One taught in a special school for learners with physical disabilities, while teacher Two taught in a special school for learners with physical disabilities with an inclusive model. Both of them taught grade three pupils. Teacher Three taught in a special school for learners with cerebral palsy, the petö class, situated in a regular school compound. She taught the literacy class, and; Teacher Four taught in a petö class situated in a special school for learners with physical disabilities under inclusive model. It is a single unit.

Case	Individualization of the Instructional strategies	Individual adaptations of the learning environment
<b>Teacher One</b>	-used whole language approach and basal reader approach )-Taught at the fast learners' pace – aloud reading to the class –could pause and ask oral questions - verbal speech was used - learners worked individually on tasks – a section of learners never involved in the lessons– physically prompted a learner in writing activity –no additional teaching aid was used apart from pictures in pupils' text books -gave very strong and negative reinforcements and comments to individual pupils- had learners who were labeled.	- large class of forty pupils in a small room –teacher-centered type of seating arrangement-learners sat in straight rows facing front of class - -all the learners had lockers except six on wheelchairs – adequate working surface on lockers but height high for some pupils–tense emotional learning atmosphere, use of rebukes, reprimands - a few used charts displayed high up on the walls, too high for all the pupils- ordinary pens and pencils and single ruled exercise books were used by the pupils.
<b>Teacher Two</b>	-used mostly phonics approach and method.- taught at the learners' pace –constantly sought attention from the pupils -rewarded learners' efforts –gave similar tasks to all the learners - made use of teaching aids and classroom displays– oral speech and body language used-ongoing training of a child in typing skills- had learners who were labeled	-spacious classroom of twenty five learners- size of tables and chairs adequate for all the pupils – learner-centered type of seating arrangement, ensured learners could see each other's face- relaxed emotional learning atmosphere- a few classroom displays high up on the walls -adapted table for one pupil (Brown) - ordinary single-ruled exercise books and pens were used by all the learners
<b>Teacher Three</b>	-used a combination of whole language approaches and non-verbal approach – taught at learners' pace -rewarded each and every learner's efforts-both speech and body language was used in class -made good use of the teaching aids in all the lesson–involved all the lessons at every stage – utilized familiar words and objects in the environment-considered learners' functioning abilities when giving tasks	-a small class of ten pupils -sat together with the pupils around the tables -plinth tables and ladder back seats were used – learner-centered type of seating arrangement, sat together with the pupils around the tables – warm and friendly emotional learning atmosphere -a variety of reading materials and displays available
<b>Teacher Four</b>	-used whole language approach as well as look and say method - taught at the learners' pace –encouraged and rewarded every learner's attempt -used flash cards, pictures and real objects in all the lessons– assigned different tasks- utilized group activities, -both verbal and physical prompts accorded -used shaping in demonstrating writing of letter 'd'	- a class of twelve learners -plinth tables and ladder back seats were used by the learners – teacher-centered type of seating arrangement, learners sat in straight rows facing the front- a relaxed and friendly emotional learning atmosphere -adapted pencils and exercise books were used by the learners -classroom displays were labeled and within the reach of all the learners – displays of learners' work on the wall

Table 1: Cross case analysis of the instructional strategies and the learning environments of the four teachers

As illustrated in the above table, there were similar aspects in the way the teachers studied handled their teaching of learners with cerebral palsy. There were also some significant differences in the instructional strategies and the learning environment with regards to individualization, differentiation and adaptation for learners with cerebral palsy. The teachers also taught in different classroom settings.

#### **4.5.1 Individualized adaptations cutting across one or more cases**

Teacher One used basal approach and basal reader approach, Teacher Two basal and Phonics, Teacher Three a combination of whole language and non verbal approach and Teacher Four, Whole language and ‘looks and say’ method.

The three teachers, Teacher Two, Three and Four went by the learner’s pace. Teacher One went by the fast learners’ pace. It is interesting to note that all these teachers were trained by the same institute and yet one of them taught differently. This shows that maybe training is not the factor; maybe there could be other factors that could explain this. The most significant feature was on the reinforcement of learners’ efforts (rewards and reprimands), which was observed to be very strong on the negative aspect in Teacher One’s class. It created a tense learning atmosphere. The other three teachers, Teacher Two, Three and Four’s emotional learning atmospheres were relaxed. The teachers had cordial relationships with the learners. Such kind of classroom climate is essential for learners with motor difficulties, an atmosphere that encourages participation due to healthy attachment between the teacher and the learners. This is the kind of attachment that Rye (2005) supports, that the child requires encouragement in the learning process.

All the teachers tried to involve the learners in their lessons, though Teacher One only involved a few section of his pupils in the learning process. In the use of the materials in class, all the teachers except teacher One referred to and used the displayed materials during their teaching.

It should be noted that Teacher One's class was very large with forty pupils with varied physical disabilities as opposed to the other three teachers' classes. Teacher Three taught ten pupils, Teacher four, twelve and Teacher Two twenty five. Even though Verity (2005) asserts that, mediation should not be meant to 'transmit' the expert's knowledge but to provide a starting place for the learner to begin to engage with the task, it is difficult for effective mediation to occur in such a scenario of forty pupils with varied physical disabilities. Perhaps, this explains why Teacher One could not accord individual assistance effectively to the learners due to the demand of the large class and instead made his teaching appear teacher- centered. Though the other three had fewer learners as opposed to Teacher One's class, the teacher-pupil ratio was still large for implementation of effective individualization in the learning process.

It was only Teacher Two who devised a table for a learner who uses his feet to write. And, he is the only one who was engaged in the training of the learner in typing skills using a computer. Teacher Four is the only one who displayed the learners' work on the walls.

#### **4.5.2 Individualized adaptations cutting across two or more cases**

It is also interesting to note that it was only Teacher One and Four who accorded physical assistance to learners with difficulty in hand use, during the writing activity (see individualized assistance for teacher One and Teacher Four). Best and Bigge (2005), state that occasionally the teacher may reposition the student's hand to facilitate writing (Physical assistance).

Teacher Four and Teacher Three's classes were rich in displayed materials. These were the petö classes that gave an impression of rich learning atmosphere. This implies that in these classes use of materials are highly encouraged. In teacher Two and teacher One's classes, the few materials were displayed beyond the learners reach though in teacher Two's class, some of the displayed material could be reached by all the learners. The learning material has been found to be an active agent within the

zone of proximal development (Brown 1993 in John-Steiner & Mahn 1996), which the teachers can utilize to help learners attain their potentials in the acquisition of the literacy skills.

Teacher One and Teacher Two had learners who were labeled. In Teacher One's class, the six learners with cerebral palsy on wheel chairs were known as "non readers", while in Teacher Two's class had those who were referred to as "non starters".

## 4.6 Conclusions and Recommendations

### 4.6.1 Conclusions

The study shows that teaching literacy skills to learners with cerebral palsy is quite demanding and requires more than just formal qualification as a trained teacher in the area of special needs education. It also requires commitment and creativity in making learning and the learning environment meaningful and child friendly. The study points out significant differences in the individualization of the instructional strategies as revealed by the approaches (methods), learning materials, and the learning activities used by each teacher in the literacy classes. The teachers in the petö classes tried to individualize and adapt their teaching strategies for learners with cerebral palsy while the two who taught grade three treated their learners as a homogenous group, though there were instances of individualization in the task performance in one of these teacher's lessons.

The learning environments were also different in some ways as depicted by the different classroom organizations; the type of furniture; the individualized adaptations; category of the learners, class size (number of learners) each teacher handled; and the nature of the emotional learning atmosphere. The petö classes seemed to be rich in learning materials for the learners and had sound emotional learning atmosphere.

Perhaps, the training of the teachers did not focus on other important aspects on how to give possible feedback to the learners, how to individualize methods, activities and materials for learners, which are very essential in the learning process. This is an implication on what to focus on in the training of these teachers in special needs education on teaching literacy skills to learners with cerebral palsy as a heterogeneous group of children.

The study wishes to distinguish that children with Cerebral palsy have been primarily understood as homogenous in the Kenyan context and this labeling creates a big problem fundamentally. This is because children with cerebral palsy are heterogeneous groups who have varied disabilities and needs. And these needs are supposed to be addressed individually and not collectively. Therefore, this study opens up for future research in the area of diversities within learners with cerebral palsy and teacher education on the same.

#### **4.6.2 Recommendations**

Education for children with cerebral palsy is as important as any other child's education. Therefore, the following are the suggestions felt could be put across for the benefit of learners with cerebral palsy:

Teacher education should emphasize on the aspect of the diversity of learners in the training programs on teaching of literacy skills to learners with cerebral palsy.

The government should address the issue of class size and the teacher- child ratio for effective teaching to take place.

The Kenyan government should also provide the teaching and learning materials for teaching learners with cerebral palsy as most schools lack in this area.

There should also be close monitoring in the way teachers support learners with cerebral palsy so that these learners get to benefit from the instructional programs set for them.



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## Appendices



## Appendix 1: Letter of authority from the University of Oslo



UNIVERSITY  
OF OSLO

Department of Special Needs Education

P.O.Box 1140, Blindern  
N-0318 Oslo  
NORWAY

Your ref:  
Our ref: 19/07 ST/db  
Contact person: Denese Brittain [d.a.brittain@isp.uio.no](mailto:d.a.brittain@isp.uio.no)

Visiting address:  
Helga Eng's Building  
3rd and 4th floor

Date: June 5, 2007

Telephone: +47 22 85 80 59  
Telefax: +47 22 85 80 21

FACULTY OF EDUCATION

### TO WHOM IT MAY CONCERN:

This is to certify that **OGONO, Sarah Anyango**, date of birth 06.05.1963, is a full-time student pursuing a course of study at the Department of Special Needs Education at the University of Oslo, Norway, leading to the degree of Master of Philosophy in Special Needs Education (M. Phil. SNE).

This is a continuous two-year programme run on the "sandwich" principle, which involves periods of study and field work/research in both Norway and the home country. The student has concluded the initial 11-month period in Norway and will be returning to the home country in July 2007 to continue full-time studies/research until 1 January 2008 when s/he returns to Norway for the final part of the degree. The period of study will be completed at the end of May 2008.

The main responsibility for supervising the research, developmental work and thesis remains with the Department of Special Needs Education, University of Oslo, Norway. However, we would kindly request that the relevant authorities give the student the access required to the schools and educational establishments necessary in order to undertake field work and research. We would also be most grateful for any assistance that is afforded to the student which enables her/him to carry out this work, particularly the use of facilities such as access to telephone, fax, e-mail, computer services and libraries at the various educational establishments.

Yours sincerely

Ass. Professor Steinar Theie  
Academic Head of International Master's Programme  
Department of Special Needs Education

Institutt for spesialpedagogikk  
Det utdanningsvitenskapelige fakultet  
Universitetet i Oslo  
Norge

Department of Special Needs Education  
Faculty of Education  
University of Oslo, Norway





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**Appendix 2: Research Authorization from the Ministry of Education****REPUBLIC OF KENYA  
MINISTRY OF SCIENCE & TECHNOLOGY**

Telegrams: "SCIENCE TEC", Nairobi  
Telephone: 02-318581  
E-Mail: ps@scienceandtechnology.go.ke

JOGOO HOUSE "B"  
HARAMBEE AVENUE,  
P.O. Box 9583-00200  
NAIROBI

When Replying please quote  
**Ref. MOST 13/001/ 37C 540/2**

**17<sup>th</sup> August 2007**

Sarah Anyango Ogono  
University of Oslo  
**NORWAY**

**RE: RESEARCH AUTHORIZATION**

Following your application for authority to carry out research on,  
*'Instructional Strategies and the Learning Environments in Reading  
and Writing Lessons for Primary School Pupils with Cerebral Palsy'*

I am pleased to inform you that you have been authorized to carry out  
research in Kisumu, Mombasa and Thika Districts for a period ending 31<sup>st</sup>  
December 2007.

You are advised to report to the District Commissioners, the District  
Education Officers and the District Medical Officers of Health of the  
respective Districts you will visit before embarking on your research  
project.

On completion of your research, you are expected to submit two copies of  
your research report to this office.



**M. O. ONDIEKI  
FOR: PERMANENT SECRETARY**

Copy to:

The District Commissioner  
**Kisumu District  
Mombasa District  
Thika District**

The District Education Officer  
**Kisumu District  
Mombasa District  
Thika District**



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**Appendix 3: Letter of authority from the District Commissioner, Mombasa**REPUBLIC OF KENYA  
**OFFICE OF THE PRESIDENT**Telegrams, "DISTRICTER", Mombasa  
Telephone: Mombasa 2220092DISTRICT COMMISSIONER'S OFFICE  
P.O. BOX 90430  
MOMBASAWhen Replying please quote  
FAX NO.2227927  
Ref. No. ADM.4/VOL.V/1199<sup>th</sup> October, 2007**TO WHOM IT MAY CONCERN****RE: RESEARCH AUTHORIZATION – SARA ONYANGO OGONO**

The above named person is authorized to carry out research on instructional strategies and the learning environment in reading and writing lessons for Primary School pupils with cerebral palsy.

Kindly accord her any necessary assistance.

  
**M.N. MWANIKI (MS)**  
**FOR: DISTRICT COMMISSIONER**  
**MOMBASA**

C.C.

The District Officer,  
**ISLAND DIVISION.**

The District Officer,  
**KISAUNI DIVISION.**

**Appendix 4: Research authorization from the District Commissioner's Office,  
Kisumu**

**OFFICE OF THE PRESIDENT**

Telegrams: 'DISTRICTER', Kisumu  
Telephone:  
When replying please quote  
REF: ADM. 4/8. VOL. VIII/99



OFFICE OF THE DISTRICT COMMISSIONER  
KISUMU EAST DISTRICT  
P.O. BOX 1921  
KISUMU

Date: 31st October, 2007

The District Medical Officer Of Health  
KISUMU EAST DISTRICT.

The District Officer  
WINAM DIVISION.

The District Education Officer  
KISUMU EAST DISTRICT.

RE: RESEARCH AUTHORIZATION - SARAH ANYANGO OGONO.

The above named person is a student at University of Oslo Norway.

She has been authorized to carry out research on, 'Instructional Strategies and the Learning Environments in Reading and Writing Lessons for Primary School Pupils with Cerebral Palsy'.

The period of research runs up to 31st December, 2007.

Any assistance accorded to her will be highly appreciated.

J. K. CHERUIYOT  
For: DISTRICT COMMISSIONER  
KISUMU EAST.

C.C -

→ Sarah Anyango Ogono

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**Appendix 5: Permission from the District Education Office, Kisumu****MINISTRY OF EDUCATION**

Telegrams:

Telephone: Kisumu (057)  
When replying please quoteDISTRICT EDUCATION OFFICE  
KISUMU EAST

P.O. Box 1914

**KISUMU.**

REPUBLIC OF KENYA

Ref: KSM/MISC/29/VOL.I/121

31<sup>st</sup> October, 2007The Headteacher  
Joyland Special Primary School  
P.O.Box 1790  
KISUMU.**RE: RESEARCH AUTHORIZATION – SARAH ANYANGO OGONO**

The above named is a post graduate student at University of Oslo-Norway.

She is carrying out research on **“Instructional Strategies and the Learning Environments in Reading and Writing Lessons for Primary School Pupils with Cerebral Palsy”**

She has been authorized to access data/information from your institution for writing her thesis in partial fulfillment for the award of her Masters Degree.

You are therefore asked to assist her collect data in your school for her course.

A handwritten signature in black ink, appearing to read 'Dixon O. Ogonya'.

**DIXON O. OGONYA**  
FOR: DISTRICT EDUCATION OFFICER  
KISUMU EAST DISTRICT



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**Appendix 6: The observation sheet for the instructional strategies**

An Observation sheet for the instructional strategies for reading and writing lessons:

What teacher says or does	adaptations if any	learning activities	adaptations if any	teaching and learning materials	adaptations if any





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**Appendix 7: The observation sheet for the learning environment**

An observation sheet for the learning environment in reading and writing lessons:

The nature of the seating arrangement	adaptations if any	furniture in the classroom	adaptations if any	classroom displays	the nature of the emotional learning atmosphere



**Appendix 8: Sample of questions for the informal interview**

The questions:

Teacher's professional background

- a) Have you trained in regular teacher education? What about special needs education?
- b) When did you join this school?
- c) How long have you been teaching this class?

Teacher's classroom

- a) Who decides on the type of furniture to use in this class? What about the seating arrangement?
- b) How do you plan your reading and writing lessons for learners with cerebral palsy?
- c) What are your considerations in selecting the methods and materials for your lessons?
- d) What reference materials and books do you use for reading and writing lessons?
- e) Why don't you use group activities?
- f) Do you have other reading and writing materials available for learners with CP?



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## Appendix 9: A Sample of observed lesson for Teacher One

### An observation of Teacher One's first reading lesson

Teacher revises previous lesson by asking the class to state some of the new words learnt yesterday and individual pupils orally mention the vocabularies one by one (accident, zebra-crossing, pothole). He writes the words mentioned on the chalk board, asks learners to read them, they read the words on the chalk board aloud. Informs pupils they are going to read, issues the English text books, course books to each pupil, and tells them to open their books page 78. They open the page 78 with the story 'Not another accident'; one pupil opens his book with his big toe. Asks pupils "look at the pictures, what you can see in the picture?" Pupils try to identify them, they answer in chorus, stating, 'people crossing the road, cars, road. He explains that he will read a line then the whole class reads after him the lines that follow and they look at the teacher as they listen. He reads out aloud the first sentence as the pupils follow what he is reading by looking at their books, and then joins in reading their lines in unison. Learners with CP do not participate, are engaged in their own activities. He instructs the class, "You are now going to read silently without moving your mouths". Pupils embark on silent reading individually. Teacher goes to Gracie's desk (learner with CP) and reads aloud to her, Gracie reads after the teacher. She traces with the fingers as she reads one word at a time from the passage, she is experiencing difficulty pronouncing the words, and the teacher prompts in the reading. Teacher stops the activity and tells the class, "I think now you are through". Learners say, "Yees", in chorus. Asks one pupil to read the first sentence aloud, he reads aloud and the teacher reads after him. He tells the pupil, "good". Another pupil (Mary, with speech difficulty) is asked to read the next line. The pupil looks at her book, moves her lip without producing any sound, as the rest of the class stares at her. The teacher tells her, "I will throw you out of class if you refuse to read". He goes and shows her the section to read and insists she reads aloud. The young girl, looking tense, traces the line of words with her index finger as she struggles to read aloud with difficulty, "p-p-p- and then, "Pothole! ", shouts the teacher. Assigns another

learner to read, learner reads correctly as the rest of the class follow silently, rewards him. Gives other pupils opportunity to read, this Individual reading aloud continues in turns as he rewards good readers, prompts those who under go difficulty and reprimands poor readers. He then tells the whole class to read aloud, stands in front facing the class. Pupils read as a group. Tells the young girl( Mary who couldn't read properly )to keep quiet. He tells her, "*Wewe! fungu mdomo! wacha kupiga kelele na saa ya kusoma hukua unaongea!*"(You! keep your mouth shut! Stop making noise! When you were asked to read you refused to talk!). The girl flinches and stops reading aloud. She reads silently as she traces the words with her index finger. Reading goes on and when they are done, he asks the whole class to read the questions below the passage. They read the questions in chorus; he again orders the same girl (Mary) to keep quiet. The young girl stops and looks at the teacher sadly. At this time very few learners are concentrating in the lesson. He then tells learners to answer the questions from the passage, again reprimands and lectures the same pupil (Mary). The classroom is tense. The lesson ends.

