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Strategies used by Learners with Cerebral Palsy to Acquire Literacy Skills in schools for the Physically Handicapped in Kenya

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Abstract
Learning to read and write is essential in the development and functioning of every child, with or without a disability including those with Cerebral Palsy (CP). Learners with CP experience limitations in Literacy Skills (LS) due to lack of speech, motor difficulties and/or use of inappropriate instructional strategies. These factors are likely to affect their overall academic work. In Kenya, learners with CP are enrolled in schools for children with Physical Handicap (PH) where they are expected to transit annually to the subsequent higher grade. However, information available in these schools shows that more than half (56% to 88%) of learners with CP repeated various classes between the years 2009 to 2011. This could be attributed to inadequate literacy skills that have affected their academic work and transition to higher grades. This study analyzes the strategies that learners with cerebral palsy use to acquire literacy skills under mediated instructional strategies. The study is based on the Vygotskian theory of zone of proximal development. Descriptive and embedded case study designs were used. Purposive sampling technique was used to select 18 learners with CP with speech difficulties from three schools for the PH in Kenya. Data was collected through observational guides and document analysis guides. The data was then analyzed using descriptive statistics for quantitative data using frequency counts and percentages and interpretational analysis for qualitative data where data was coded into categories and themes as the patterns emerged. Experts' opinion was used to determine both face and content validity of the instruments. Reliability of instruments was determined through the test re-test method. The results reveal that most learners 11 (61.1%) with CP use association of object/picture paired with experience. However, they over use this strategy which leads to over-dependence and subsequently hindering their independence in acquiring literacy skills. The results also indicate that this over-dependence is due to the fact that teachers do not fade out learner support during instruction. The findings of the study are important since they show that although learners with CP are able to use mediated strategies to acquire literacy skills, teachers are not encouraging the moderated use of scaffolding for independent reading. The findings of this study may enable teachers of literacy inculcate independence in learning to read and write and to help increase the transition rate of learners with CP to subsequent grades in school.

Keywords: cerebral palsy, literacy, acquisition, strategies, physically handicapped

INTRODUCTION

Student's overall academic success can be compromised by the lack of well-developed reading and literacy skills (Alvermann & Phelps, 2002). Moreover, writing skills are built on reading skills, and many students with special needs require extra assistance in this area (Saddler, 2004 as cited in Lewis & Doorlag, 2011). Literacy is necessary for all learners with or without a disability. Among those with disabilities are children with cerebral palsy. Learners with cerebral palsy who experience speech and motor difficulty related to oral-motor difficulties such as dysarthria are at increased risk for literacy problems (Hallahan et al., 2012; Bigge, Best & Heller, 2005; Peeters, Verhoeven, van Balkom & de Moor, 2009). This reinforces the view by Smith (1992) who observes that challenges emanating from reading difficulties are commonly reported in the non speaking cerebral palsy population. However, a study conducted in America by Smith (2014) on Literacy Challenges and Early Intervention for Children Using Aided Communication revealed that neither the presence of CP nor limited speech intelligibility necessarily prevents these children from learning to read and write.

Cerebral palsy is one of the types of physical disabilities with disorders that involve the central nervous system (Friend, 2008; Hallahan, Kauffman & Pullen, 2012). It represents a group of chronic conditions that affect muscle coordination and body movement (Friend, 2008). The injury hinders the brain's ability to control the muscles of the body properly (Martin, 2006). They experience problems in

motor coordination which is necessary for reading and writing (Hallahan et al, 2012; Friend, 2008). Wairimu (2015) confirms that some learners with CP tremble a lot. This trembling interferes with coordination and performance of writing tasks.

Research by Peeters et al.(2009) in Netherlands on Home literacy predictors of early reading development in children with cerebral palsy demonstrated that phonological awareness and phonological short-term memory were the most important precursors for word decoding skills in typically developing children. In contrast, for children with CP, the most important precursor for word decoding was speech production. This study however focused on home literacy environment and not the classroom environment. The study also examined the precursors for word decoding skills but did not consider the strategies used by learners with CP in acquiring literacy skills.

Dahlgren-Sandberg (2006) longitudinal study in Sweden also focused on reading and spelling abilities in children with severe speech impairments and cerebral palsy at 6, 9, and 12 years of age in relation to cognitive development phonological abilities, and short-term memory. The study spanned from preschool and revealed that children with cerebral palsy with severe motor problems and unintelligible speech had difficulty acquiring literacy skills. However, she recommended further research to establish the strategies used in literacy acquisition in these children with cerebral palsy. Information on this latter aspect remains limited.

Studies conducted in Kenya by Obinga and Kochung (2011) and Obiero (2009) on teaching literacy skills to learners with CP focused on how teachers individualized their strategies and how they included learners with CP in reading and writing respectively. Their studies did not look at strategies used by learners with CP in acquiring literacy skills. On the other hand, a study conducted in United States of America (USA) by Asbell, Donders, VanTubbergen & Warschausk, (2010) revealed that within the group with cerebral palsy, there was an indirect effect of functional expressive ability on reading comprehension, mediated by phonemic awareness. But, the exact strategies used by these children in learning reading comprehension were not highlighted by this study. Their study also concentrated on reading comprehension but literacy acquisition was not captured. It is important to establish whether learners with CP in Kenya rely on phonemic awareness as a strategy of mediating literacy acquisition.

In a study involving three students, Heller et al. (1999) used Non-Verbal approach in conjunction with a Direct Instruction Reading Program over a school year to learn how to read and the learners used the “inner voice” to read (Heller et al., 2002 cited in Swinehart-jones & Heller, 2009). Spear-Swerling (2006) analysis of use of context cues in reading assert that when children encounter an unfamiliar word in reading, they may make use of context cues, that is, information from pictures or from sentences surrounding the unknown word. Light & McNaughton (2012) assert that in sounding out letters of the alphabet, displaying cards of letters that make a word provide visual support to help the student hold the sounds in memory. This helps a child to reach a higher zone of proximal development (Vygotsky, 1978). Tudge and Scrimsher (2003) note that Vygotsky was not only interested in that which more knowledgeable others brought to the interaction, but also in what the child himself or herself brought to the interaction.

Studies conducted by Smith (1992), Asbell et al. (2010), Peeters et al.(2009) and Dahlgren-Sandberg (2006) focused on teaching of literacy skills among learners with cerebral palsy from different environments and countries. The length of their studies also varied from cross sectional to longitudinal studies that produced in-depth information about learners with CP in literacy issues. However, these studies that looked at strategies used by teachers did not focus on the strategies used by learners with CP in acquiring literacy skills.

Learners with cerebral palsy are confronted with the reality of repetition of grades more than unlike other learners due to poor academic performance. These children with CP attend school in special education institutions for the physically handicapped (PH) and special units attached to regular primary schools (Ministry of Education Science and Technology (MOEST), 2005). Children with CP experience difficulty in academic work. This leads to rampant repetition of grades thereby interfering with normal grade transition. The preliminary data drawn from three special schools in Kenya depicts this repetition of grades as in Table (1.1)

Table 1.1 Transition of learners with and without cerebral palsy to subsequent grades between 2008 and 2011 in three selected schools for the PH in Kenya

	2008		2009		2010		2011	
	CP	NCP	CP	NCP	CP	NCP	CP	NCP
School X								
Grade 1	12	20	5	2	3	1	2	0
Grade 2			**7**	18	5	1	5	1
Grade 3					**4**	18	2	3
Grade 4							**3**	15
School Y								
Grade 1	10	13	6	1	3	0	1	0
Grade 2			**4**	12	4	1	3	0
Grade 3					**3**	12	6	2
Grade 4							**0**	11
School Z								
Grade 1	10	25	7	2	5	0	2	0
Grade 2			**3**	23	3	2	5	1
Grade 3					**2**	23	2	3
Grade 4							**1**	21

Source: Baseline survey data from admission registers, class registers and progress reports from three schools for learners with physical disabilities in Kenya (2013).
CP= Cerebral palsy; NCP = Non cerebral palsy

From the three special schools, it is evident that the transition of learners to subsequent grades has been decreasing from 32 admitted in grade 1 to 14 in grade 2, 9 to grade 3 and 4 to grade 4.

Table 1.2: Transition and repetition of grades by learners with cerebral palsy (2008 cohort) between 2008 and 2011 in three selected schools for the PH in Kenya
(N=32)

Year/Grade	Transition (f)	%	Repetition of grades (f)	%	Total %
2009 (G2)	14	43.75	18	56.25	100
2010 (G3)	9	28.1	23	71.9	100
2011 (G4)	4	12.5	28	87.5	100

Repetition among learners with cerebral palsy had steadily increased by grade 4(28(87.5%) up from 18 (56.25%) in grade 2, while transition to subsequent grades had declined from the year 2009, up from 14(43.75%) 4(12.5%) in 2011(Table 1.2). It is evident that the higher the repetition rate, the lower the transition rate of learners with CP to subsequent grades. This could also imply that the lower the literacy skills, the higher the repetition rates due to weak performance in overall academics. The scenario that is evident in all the three schools is that, while those without cerebral palsy steadily transit to upper grades at a higher rate, those with CP consistently repeat grades (Table 1.1). Wairimu (2015) cited difficulties faced in handling learners with CP in the mainstream in both the regular and special schools. Instead of transiting, they were retained in school for several years or taken to special classes to learn life skills only. It was therefore necessary to analyze the strategies used by learners with CP in acquiring literacy skills.

METHODOLOGY

Embedded case study research design was used in this study that generated both quantitative and qualitative information on the phenomena under study. Creswell, Plano Clark, Gutmann and Hanson (2003) assert that embedded design is a mixed method design in which one data set provides a supportive, secondary role in a study based on the other data type (Creswell & Plano Clark, 2007). Yin (2003) contends that an in-depth study of a phenomenon can be carried out in its natural context using case studies. Purposive sampling was used to select 18 learners with cerebral palsy who are experiencing difficulty with speech and hand use from lower primary grades1 to 3.The lower primary grade was crucial for this study because it is the foundation

stage for the development of literacy skills, amongst other skills in education. Observational guides and document analysis guides were used for data capture. The validity of the instruments was ensured through expert opinion and their reliability through the test-retest method. Quantitative data was analysed using frequency counts, percentages. Interpretational analysis method was used to analyse qualitative data because it examines data closely in order to find constructs, themes, and patterns that can be used to describe and explain the phenomenon under study (Gall, Gall & Borg, 2007).

Limitation of the study

The study was conducted within a span of 6 months. This was a limitation since acquisition of literacy skills requires a longer time of study in order to analyze the strategies used by learners with CP effectively. It was also limited to lower grades 1 to 3 only. The findings of this study may also have some limitations because the children studied were enrolled in a class with a majority of learners without cerebral palsy and the teachers might have ignored strategies that are specific to CP and engaged in strategies that favour the majority of the children. Despite being trained to teach children with physical disabilities, these teachers may not have had specific skills for teaching children with cerebral palsy that are a subset within physical handicaps.

RESULTS AND DISCUSSIONS

The first section presents the demographic information of the respondents while the second section presents the analysis of strategies used by learners with cerebral palsy in literacy skills acquisition followed by discussions of the findings. The learners with cerebral palsy in grades 1 to 3 are referred to using pseudonyms.

Demographic Information of the Respondents

Information about eighteen learners, their admission, transition and present grades were obtained from the document analysis.

Table 1.3: Admission and grade transition of learners with cerebral palsy in three special schools in Kenya

Name of learner	Date of admission	Grade admitted	Present grade at 2013	Expected grade at 2013	Researchers' remarks
Jaba	2011	G1	G1	G 3	Repeated G1 Twice
Tieni	2013	G 1	G1	G1	Not repeated any grade
Boby	2010	G1	G2	G4	Repeated G1&2
Linsa	2012	G1	G2	G2	Not repeated
Linta	2011	G1	G3	G3	Not repeated
Juddu	2009	G1	G3	G5	Repeated G1 & G 2 Twice each
Korry	2013	G1	G1	G1	
Koddy	2013	G1	G1	G1	Not repeated
Timi	2010	G1	G2	G4	Not repeated
Teff	2010	G1	G2	G5	Repeated G1 Twice
Jeffi	2010	G1	G3	G4	Repeated G1 twice
Jerro	2012	G2	G3	G3	Repeated G2 Not repeated
Mimi	2013	G1	G1	G1	
Lisia	2013	G1	G1	G1	Not repeated
Brany	2010	G1	G2	G4	Not repeated
Tabia	2011	G1	G2	G3	Repeated G 1 & G2
Munzi	2008	G1	G3	G6	Repeated G1
Jenna	2008	G1	G3	G6	Repeated G1 and G3. She has been in the same grade 3 for three years.

Key: G= Grade

Table 1.3 shows that the learners with CP were admitted to grade one between 2008 and 2013. Out of the 18 learners observed across grades one to three, 11 (61.1%) learners had repeated grades while only 7 (39%) learners had not repeated any grade; 8 (44.4%) had repeated grade 1 at least once; 3 (37.5%) had repeated grade 2, and 2 (11.11%) repeated grade 3.

Table 1.4 Learners repeating grades

Grade	Number of learners who repeated grades (f)	Percent %	Number of learners who had not repeated grades (f)	Percent %
Grade one	8	44.4%	7	38.9%
Grade two	3	37.5%	1	5.55%
Grade three	2	11.11%	2	11.11%

Based on this document analysis, the research findings revealed that there was a lot of repetition of all the grades among the learners. Out of the 18 learners, 8 (44.4%) repeated grade one during their studies; 3 (37.5%) of the learners repeated grade two while 11.11% repeated grade three. The average level of repetition of a grade in the learners with CP was therefore computed to be 31.0%. Wairimu (2015) cited difficulties handling learners with CP in the mainstream in both the regular and special schools. Instead of transiting, the affected learners were either retained in school for several years or taken to special classes to learn life skills only. This study confirms the high grade repeater rate among learners with CP in special schools for the PH in Kenya. It further implies that learners with CP lack literacy skills that can assist them to keep up with the academic subjects in school. Alvermann and Phelps (2002) note that students' overall academic success can be compromised by the lack of well-developed reading and literacy skills. Lack of literacy skills hampers achievement in academic subjects which, in turn, affects overall grade transitions.

Strategies Used By Children With Cerebral Palsy To Acquire Literacy Skills In Special Schools For The Physically Handicapped In Kenya

The objective of this study was to determine the strategies used by learners with cerebral palsy in acquiring literacy skills in schools for the physically handicapped in Kenya. To achieve this objective, learners were observed on several literacy lesson activities of reading and writing that were intended to determine the strategies they use in acquiring literacy skills in special primary schools for the physically handicapped. The results on reading and writing strategies are summarized in Table 1.5, 1.6, 1.7and 1.8.

Reading Strategies Used By Learners With Cerebral Palsy In Acquiring Literacy Skills

Eighteen learners were observed during literacy lessons to establish the reading strategies that they used in acquiring literacy skills. Data was obtained through video recording and field notes. Multiple responses were observed and recorded as indicated in Table 1.5.

Table 1.5 Reading strategies used by learners with cerebral palsy (N=18)

Reading Strategies learners use	Frequency (f)	Percentage (%)
One word reading	3	16.6
Guess work	3	16.6
Rote reading	2	11.1
Association with picture/object experience	11	61.1
Association with sound experience	2	11.1
Association with gesture experience	2	11.1
Selective reading	1	5.5
Use of inner voice and eye gaze	1	5.5

It emerged that, out of the18 learners observed, 11(61.1%) used association with picture/object experience as a reading strategy in acquiring reading skills; 3(16.6%) of them used guess work and another 3 (16.6%) used one word reading strategy. Association with sound experience, association with gesture experience and rote reading were each used by 2(11.1%) pupils. It is only in the use of selective reading strategy and the use of inner voice with eye gaze that registered 1(5.5%) pupil each. Altogether, 8 different reading strategies were observed and recorded as used by learners with cerebral palsy. Studies conducted by Smith (1992) and Dahlgren-Sandberg (2007) on literacy among learners with CP indicated that learners with CP experience reading difficulties and these children often have additional impairments that can limit their literacy experiences. However, they did not reveal the strategies used by learners with CP in literacy acquisition as this was not their focus. The results of this study show a total of 8 different strategies used by the 18 learners with CP to acquire reading skills. There were multiple responses observed in which some of the strategies were used by more than one child, or a child using more than one strategy during literacy lessons (Table 1.5).

The results from observation during reading lessons depict association with picture/object and experience as the strategies used by many learners with CP in reading skills. Over half of the learners observed, 11(61.1%) out of 18(100%) use these strategies (Table 1.5). Tudge and Scrimsher (2003) note that Vygotsky was not only interested in what more knowledgeable others brought

to the interaction, but also in what the child himself or herself brought to the interaction, as well as how the broader cultural and historical setting shaped the interaction. This notion is in line with what the study has revealed. The learners use their experiences as a strategy in acquiring literacy skills. They relate their experiences with the objects and pictures displayed to the words and letters. Spear-Swerling (2006) analysis of use of context cues in reading assert that when children encounter an unfamiliar word in reading, they may make use of context cues, that is, information from pictures or from sentences surrounding the unknown word. His study correlates with the findings of this study since learners with CP also use visual scaffold to read letters, words or sentences. Pictures or objects displayed acted as visual supports that learners associated with the words to read. There was association of words and letters with picture or objects. This study supports the research by Tinzmann, Jones, Fennimore, Bakker, Fine, & Pierce (1990) that successful learning also involves an interaction of the learner, the materials, the teacher, and the context. This implies that learners with CP use association paired with experience to acquire reading skills.

Apart from the strategy of visual support, there were others who seemed not to be sure of what they were reading. They instead depended on words they had heard their peers read. This was as a result of experience, based on what they had encountered before, even if they were not relevant to the words being read; a strategy that was treated as 'guess work'. The study confirms the observation by Spear-Swerling (2006) which concludes that over- reliance on contextual cues is ultimately undesirable, because the child is guessing rather than attending carefully to all the letters in the word. Although children may be capable of naming letters in a robotic-like, rote memorization manner, they may fail to acquire the long-term goal-an understanding of how the letters function for reading and writing and the ability to use what they know to make sense of the print in their environment (Strickland & Riley-Ayers, 2006). Other learners with CP read without attaching meaning to what they read. This means that they engaged in "rote reading".

Even though the study by Dahlgren- Sandberg (2007) revealed that children with cerebral palsy, severe motor problems and unintelligible speech had difficulty acquiring literacy skills, this does not mean that they are incapable of acquiring literacy skills. The learners who participated in this study had significant speech difficulties including those without speech, whom this study demonstrated were capable of acquiring literacy skills. A study conducted in America by Smith (2014) on Literacy Challenges and Early Intervention for Children Using Aided Communication revealed that neither the presence of CP nor limited speech intelligibility necessarily prevents these children from learning to read and write. Munzi, a grade 3 pupil without speech used non-verbal approach which was treated as "inner voice" to read the new words with the teacher's scaffold. It is a positive indication that learners with CP without speech are capable of acquiring reading skills. This confirms the study by Heller et al. (1999), in which three students used this approach in conjunction with a Direct Instruction Reading Program over a school year to learn how to read (Heller et al., 2002 cited in Swinehart-jones & Heller, 2009).

Asbell, Donders, VanTubbergen & Warschausk, (2010) Study on Predictors of Reading Comprehension in Children with Cerebral Palsy and Typically Developing Children revealed that within the group with cerebral palsy, there was an indirect effect of functional expressive ability on reading comprehension, mediated by phonemic awareness. The findings of this study from observation of strategies used by learners with CP in reading acquisition agree with the findings of Asbell et al., that learners with CP rely on sound experience (Table1.5). For instance, sound experience involves sounding out letters of the alphabet, displaying cards of letters that make a word provide visual support to help the student hold the sounds in memory (Light & McNaughton, 2012). Another strategy that was used by learners to acquire reading was treated as 'selective reading'. Instead of reading the whole sentence, the learner selected and read only words that they found easier to read in a sentence. The results point to the association with picture, object and experience as the major strategy used by the learners with CP. It indicates that, without these scaffolds, learners with CP are not able to read the letters, words or sentences. This has affected their reading ability, leading to limitations in literacy skills expected of their grade levels. The implication is that they rely so much on support to an extent that that they have developed overdependence on scaffolds. This over reliance has made them become dependent readers as opposed to independent readers. There should therefore be multi-strategies in literacy acquisition.

Writing Strategies used by learners with cerebral palsy

This was obtained through observations conducted during the writing activities. The techniques used by learners in writing are described in Table 1.4 and 1.5. Out of the 18 learners with CP observed, 14 (77.7%) use their hands to write, 1(5.5%) learner uses the

mouth and teacher's support to perform writing activities while 3(16.66%) learners do not write. They instead depend on verbal responses with the teacher's support.

Table 1.4 what learners with cerebral palsy use to write (N=18)

Strategies learners use	f	%
Use of a mouth with a stick, eye gaze and teacher's support	1	5.6
Use of Hands	14	77.7
Do not write, use verbal responses with teacher's support	3	16.7
Total	18	100

The learners were also observed in terms of the usage of the strategies to perform the writing tasks, the pencil grip and gliding of the pencil on paper, amount of pressure exerted on the paper/book/slate and the writing materials to perform the handwriting skills. Different styles of pencil grip and styles of writing are summarized for each learner in Table 1.5. Out of the eighteen learners observed, 14(77.7%) of them use hands to perform writing tasks, in which 7 grasp pencils with unusual pencil grip. One learner depends on the mouth stick while three depend on the teachers' scaffold.

Table 1.5 Writing strategies used by learners with cerebral palsy

Writing Strategies learners use	Pencil Grip	Writing skills	f	%
Use of a mouth stick , eye gaze	Holds the stick tightly with the lips	Arranges blocks/models of letters to write complete words	1	5.6
Use hands	Grasps the pencil with all the fingers	-Writes one letter at a time with pauses -Pressing pencil on paper -makes strokes on the paper(one student)	3	16.6
Use of hands	Grasps pencil between the fourth and the little finger	One letter at a time with pauses -Pressing pencil on paper	2	11.1
Use of hands	Grasps the pencil with thumb and index finger	One letter at a time with pauses -Pressing pencil on paper	4	22.3
Use of hands	Grasps the pencil with thumb and index finger; wrist bent towards the body	Writes slowly, one letter at a time. Shakes a lot - Strained handwriting	1	5.6
Use of hands	Grasps the pencil with Index and third finger and the thumb	One letter at a time with pauses -Pressing pencil on paper	3	16.6
Use of hands	grasps between the fourth and the little finger and rests it on the wrist at the base	Writes one letter at a time.	1	5.6
Verbal	Used verbal responses	Selects what to be written through the teachers' scaffold	3	16.6

Source: Field data

Handwriting Skills of Learners With Cerebral Palsy

Table 1.6 Progress on the Handwriting of learners with cerebral palsy

G	Name of learner	legibility	Shaping of letters	Spacing of words	Others
1	**Jaba**	Slightly legible but strained	Decipherable	Not well done	Applies a lot of pressure
	Tieni	Illegible	Can shape letters though some letters are reversed	Very little spaces between the words	Reversed letters 'b' as 'd'; 'e' as ∂
2	**Boby**	Illegible	-Problems with shaping letters	Crowded work	Makes strokes on paper that are not clear. Not mastered motor memory
	Linsa	Legible	Good shaping	Scattered handwriting	Exaggerated size of the ascenders in relation to other letters in a word, strained
3	**Judu**	Does not write	-	-	-Depends on verbal responses
	Linta	legible	-Shapes well	Good spacing	Difficulties mastering letter formation. With scaffold, writes well
1	**Korry**	Displays messy	Not well shaped	Does not space words	Presses pencil on paper. Shakes a lot while attempting to write
	Koddy	handwriting Slow Messy handwriting.	Not well shaped	Does not space words correctly	Does not write on a straight line. Applies a lot of pressure
2	**Timi**	Legible	well shaped	Spaces words Correctly	Applies inappropriate pressure to the paper
	Teff	illegible	No clear shapes	Widely spaced	Shows a tendency to use whole hand to write. Not mastered writing skills
3	**Jeffi**	legible	Shapes well	Good spacing of words	Tried shaping the letters in a word as instructed and modeled
	Jerro	Slightly legible	Some letters cannot be identified	Irregular spacing of words	Applies a lot of pressure on the paper
1	**Mimi**	Does not write	-	-	Verbal responses
	Lisia	Does not write	-	-	Verbal responses
2	**Brany**	legible	Largely shaped but crooked	Widely spaced	Difficulty writing on a straight line
	Tabia	illegible	Not well shaped	Words widely spaced and not easy to decipher	Struggles with the pencil grasp
3	**Munzi**	Uses a mouth stick to arrange models of letters	-	Able to space the words using block of letters	Uses models or co-teacher assists in writing his choices
	Jenna	legible	Decipherable	Good spacing	Writing along the ruled lines is still a challenge. Has mastered writing skills

Source: Field data Key: Key: G =Grade

The 18 learners observed were from three different schools with 6 from each school. Table 1.6 shows the learners' progress in handwriting skills as observed during the literacy lessons which show the legibility and illegibility of their handwriting skills. It also shows 3 (Munzi, Lisia, Mimi and Judu) learners who are unable to use their hands to write but depended on either verbal responses and /or mouth stick to write their responses (Table 1.4 & 1.5). The results show 8 out of the 18 learners with legible handwritings while 4 had illegible handwritings. At the same time, 4 learners who were not capable of writing were able to use alternative methods to the use of hands. The three used verbal responses while one (Munzi) used a mouth stick and wooden and plastic modeled letters on his slate (Table 1.4; 1.5).

The results show that the three learners who were not able to use their hands to write progress well through verbal responses. Munzi was using either the verbal response or an alternative mode such as models of letters to form words as instructed. This is an indication that even learners with CP who cannot use their hands can learn how to write using alternative methods or means. It is also evident that learners from some specific grades in one school had mastered the writing skills while others were still struggling with the writing skills. Various studies have provided evidence that children with CP are vulnerable to difficulties in learning to read and write due to the disability (Dahlgren-Sandberg, 2006; Smith, 1992; Hay and Fielding-Barnsley (2009). Even though they have difficulties with motor abilities, learners with CP are capable of engaging in writing activities, depending on the strategies they use as revealed by this study. Out of the 18 learners observed, 14 (77.7%) use the hands to perform handwriting skills. This is a clear indication that these learners have the ability to use their hands to write, in spite of the co-ordination difficulty noted. The challenge is the coordination that has been observed and the trembling as seen in some of them, that affects precision when it comes to placing a pen on paper or the exercise book to write. This finding agrees with the findings of Wairimu (2015) that some learners with CP tremble a lot. This trembling interferes with coordination and performance of writing tasks.

Similarly, one learner, representing 5.5% had spastic CP which has affected his hands and legs, making it difficult to use the limbs in grasping a pen/pencil (Table 1.4. and 1.5). In line with this view point, El-Maksoud, sharaf & Rezk-Allah (2011) assert that an individual with cerebral palsy may have difficulty with fine motor tasks, such as writing or cutting with scissors. However, this learner (Munzi) with quadriplegic CP has learnt to use his mouth with an aid of a mouth stick to perform writing activities. This is one of the alternative ways of writing that is adapted to suit an individual child's needs. This confirms Kirk et al (1997), Hallahan (2011) and Bigge et al (2005) assertion on the use of augmentative and alternative methods which can be adapted to individual learners with CP. It also confirms the use of differentiation of the writing tasks.

Learners with CP experience difficulties with motor ability. Some children with CP demonstrate poor hand function due to spasticity in the wrist and finger flexor (Mehl-Madrona, 2001 as cited in El-Maksoud et al, 2011). Thus spasticity in the flexor muscles of the upper limbs poses a great deal of functional limitation in the hands. The rest of the learners, 3(16.6%) observed were not engaged in physical writing activity, instead depended on verbal responses (Table 1.4). This implies that learners with CP who could not physically engage in writing depended on verbal responses and teachers' scaffolds to perform writing tasks. This shows how teacher engagement in adaptation of instruction in several ways assisted the learners in acquiring literacy skills. It is evident that differentiation of writing tasks was initiated depending on the different strategies applied by learners with CP. The study therefore reveals that, in literacy acquisition, learners have strategies to use, but overdependence on teachers' scaffold has limited their independence in reading and writing skills.

CONCLUSION

The study revealed that learners with CP repeated grades because they experience difficulties with literacy skills which in turn impacts on their academic performance. The study has shown eight different strategies used by learners with CP to acquire literacy skills which include: Association with experience, object, picture, gestures or sounds; "inner voice" as a non-verbal strategy and scaffold. All of them relied on different scaffolds to acquire literacy skills. The study has shown that difficulty in acquiring literacy skills has been hampered by over reliance on scaffolds such as visual support paired with experience to an extent that these learners have become dependent as opposed to independent readers, thus the inadequacy in literacy skills.

RECOMMENDATIONS

It is important for the teachers not to allow overreliance on scaffolds during reading and writing lessons. Instead, teachers should consider fading the learner support to inculcate independence in learning to read and write.

RECOMMENDATIONS FOR FUTURE RESEARCH

There is need to establish the literacy skill levels of learners with CP in special schools to help curb the difficulties surrounding the literacy skill acquisition.

REFERENCES

Alvermann, D.E. & Phelps, S. (2002*). Content Reading and literacy: Succeeding in Today's Diverse Classrooms*, (3rd ed). Boston: Allyn and Bacon.

Asbell, S., Donders, J., VanTubbergen M., & Warschausk, S. (2010). Predictors of Reading Comprehension in Children with Cerebral Palsy and Typically Developing Children Child Neuropsychology: *A Journal on Normal and Abnormal Development in Childhood and Adolescence, vol.*16, no.4, Pp.313-32. DOI: 10.1080/09297041003733588.

Bigge, J.L. Best, S.J. & Heller, K.W. (2005).Teaching Individuals with physical or Multiple disabilities. Upper Saddle River : Prentice Hall.

Creswell, J.W., Plano Clark, V. L., Gutmann, M., & Hanson, W. (2003). Advanced mixed methods research designs. In A. Tashakkori &Teddie (Eds.), Handbook of mixed methods in social and behavioral research (pp.209-240). Thousand Oaks, CA: Sage.

Creswell, J.W., Plano Clark, V. L. (2007). Designing and Conducting Mixed Methods Research London: Sage.

Dahlgren Sandberg, A. (2006). Reading and spelling abilities in children with severe speech impairments and cerebral palsy at 6,9,& 12 years of age I relation to cognitive input: A longitudinal study. *Developmental Medicine & Child Neurology, vol.48, No. 8, pp.629-634.* DOI:10.1111/j.1469=8749.2006.tbo1331x.

El-Maksoud, G. M. A., Sharaf, M. A., & Rezk-Allah , S. S. (2011). Efficacy of cold therapy on spasticity and hand function in children with cerebral palsy .*Journal of Advanced Research*, Vol. 2, No. 4, pp. 39-325. Retrieved on 15 July 2013 from

http://www.sciencedirect.com/science/article/pii/S2090123211000300.

Friend, M. (2008). Special Education: Contemporary Perspectives for School Professional (2nd ed.). Boston: Pearson Education Inc.

Hallahan, D.P., Kauffman, J.M. & Pullen, P.C. (2012).*Exceptional learners: An Introduction to Special Education* (12thedn). Upper Saddle River: Pearson Education Inc.

Gall, M.D., Gall, J.P. & Borg, W.R. (2007) *Educational Research: An Introduction,* (8thedn.). Boston: Pearson Education Inc.

Hay, I., Fielding-Barnsley, R. (2009) Competencies that underpin children's transition into early literacy. *Australian Journal of Language and Literacy*, Volume 7 Issue 33. www.curriculum.edu.au/competencies_that_underpin_childrens_transition,29188.html?issu esID=11951

Kirk, S.A., Gallagher, J.J., & Anastasiow, N.J. (1997).Educating Exceptional Children (8thedn). Boston: Houghton Mifflin Company.

Lewis, R.B., & Doorlag, D.H. (2011). *Teaching Students with Special Needs in general Education Classrooms* (8th ed). Boston: Pearson.

Light, J. & McNaughton, D. (2012). Literacy instruction for Individuals with Autism, Cerebral palsy, Dowwn Syndrome and other Disabilities. Retrieved 25 June 2012.

Martin, S. (2006).Teaching motor skills to children with cerebral palsy and similar movement disorders; A guide for parents and professionals, MD. Bethesda: Woodbine House.

Ministry of Education Science and Technology. (2005). *Kenya Education Sector Support Programme, 2005-2010.* Retrieved from

http://planipolis.iiep.unesco.org/upload/Kenya/Kenya%20KESSP%20FINAL%202005.pdf

Peeters, M., Verhoeven, L., van Balkom, H., & de Moor, J. (2009). Home literacy Environment: characteristics of children with cerebral palsy, *International Journal of* Language & Communication Disorders, 44(6), 917–940. Viewed 12 May, 2012. http://www.informahealthcare.com.

Obiero, N. A. (2009). Inclusion of Learners with Cerebral Palsy in Reading and Writing: A case study of teachers in two primary schools practicing inclusive education in Kenya. Unpublished Master thesis, University of Oslo: Norway.

Obinga, S.A.O., & Kochung', E.J. (2011). Instructional Strategies in Teaching Literacy Skills to Learners with Cerebral Palsy: A Case Study for Special Classes in Kenya. *Journal of Emerging Trends in Educational Research and Policy Studies. 2(5), 400-407.*

Smith, M.M., (2014). Literacy Challenges and Early Intervention foe Children using Aided Communication: Starting well. In Redstone, F., (2014). Effective SLP Instruments for Children with Cerebral Palsy: NDT. San Diego: Plural Publishing Inc.

Smith, M.M. (1992). 'Reading abilities of non speaking students: Two case studies', *International society ofAugmentative and Alternative Communication*, 8(1), 57-66 Ingenta Connect.

Spear-Swerling, L. (2006). The Use of Context Cues in Reading. Viewed 28th April 2016. http://www.ldonline.org/spearswerling/The_Use_of_Context_Cues_in_Reading/

Strickland, D & Riley-Ayers, S. (2006). Early Literacy: Policy and Practice in the Preschool Years. Viewed May 5th 2016. http://www.readingrockets.org /article/early-literacy- policy-and-practice-preschool-years

Swinehart-Jones, D., & Heller, K.W. (2009). Teaching Students with Severe Speech and Physical Impairments: A Decoding Strategy Using Internal Speech and Motoric Indicators. *The Journal of Special Education*, 43(3), 131-144. Downloaded: May 11, 2012. <http://sed.sagepub.com/content/43/3/131>.
Tinzmann, M.B., Jones, B.F., Fennimore, T.F., Bakker,

J., Fine, C., & Pierce, J. (1990). What Is the Collaborative Classroom? Viewed January 13 2012 http://www.docstoc.com/docs/2243213/What-Is-the-Collaborative-Classroom>

Tudge, J. R.H., (1992). Processes and Consequences of Peer Collaboration: A Vygotskian Analysis. *Child Development*, 1992, 63, 1364-1379.

Vygotsky, L.S. (1978). Mind in Society: The Development of Higher Psychological Processes, Cambridge: Harvard University.

Wairimu, A. K. (2015). Analysis of Predictors of Participation in Learning Among Learners with Cerebral Palsy in Special and Regular Schools in Thika Municipality, Kiambu County, Kenya. *Unpublished Thesis*. Viewed 3rd April 2016. http://irlibrary.ku.ac.ke/bitstream/handle/123456789/13330/Analysis%20of%20Predictors.....pdf;sequence=1

Yin, R.K. (2003). Case Study Research: Design and Methods (2nd edn). London: SAGE Publications, Inc.

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