

**INFLUENCE OF HABILITATION ON ACADEMIC PERFORMANCE OF
LEARNERS WITH SPINA BIFIDA: A CASE OF JOYTOWN
SPECIAL SCHOOL, KIAMBU COUNTY, KENYA.**

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**A RESEARCH THESIS SUBMITTED IN PARTIAL/FULFILLMENT OF THE DEGREE
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DECLARATION

This thesis is my original work and has not been presented for a degree in any other university/institution for consideration. This thesis has been complemented by referenced sources duly acknowledged. Where text, data (including spoken words), Graphics, pictures or tables have been borrowed from other sources, including the internet, these are specifically accredited and references cited in accordance in line with anti-plagiarism regulations.

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DEDICATION

I dedicate this work to my family, my husband Mr. Benson Kago and to my children Duncan and Grace who gave me a reason to live and accomplish this task.

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I thank my Almighty God who gave me good physical and mental health and opportunity to undertake and accomplish this work.

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ABBREVIATIONS AND ACRONYMS

ADLs	Activities of Daily Living Skills
IDEA	Individuals with Disabilities Education Act
MOEST	Ministry of Education, Science and Technology
NTDs	Neural Tube Defect
O.T	Occupational Therapist
S.A	Salvation Army
SNE	Special Needs Education
SB	Spina Bifida
SC	Spinal Cord
SPSS	Statistical Package for Social Sciences

ABSTRACT

The purpose of this study was to evaluate the influence of habilitation process on academic performance of learners with spina bifida at Joytown special school, Kiambu County, Kenya. In spite of habilitation services available in the institution the learners have continued to perform dismally. The study focused on the habilitation process for academic performance of learners with Spina Bifida. The objectives of study were to establish the extent to which performance on academic of learners with SB has been influenced by habilitation process, to determine the Daily/Living skills acquired as a result of habilitation process, to examine the methods and materials used in habilitation process and finally to establish the qualification level of the personnel offering habilitation at Joytown special school. The study was guided by Social Cognitive Theory. The target population of the study was 45 participants; 1 head teacher, 20 learners with SB at Joy town primary school, 20 teachers, 2 teacher aides and 2 therapists. Purposive sampling was used to select a sample of 1 head teacher, 20 learners with SB, two therapists, 10 Teachers and 2 Teachers' aides. Three instruments were used to collect data: Interview guide for Head teacher, Teacher aide, learners, Therapists and Questionnaire for teachers at Joy town specials school. Observation schedule was also used to find out how the habilitation is carried out. Piloting was done at Dagoretti special school in Nairobi County. Descriptive statistics was mainly used in data analysis. Qualitative data was analyzed thematically from emerging themes. The coded data from quantitative statistics was entered into the computer for analysis using Statistical Package for Social Sciences (SPSS) computer software. After the data was analyzed, it was presented in form of tables, frequencies and percentages. The study found out that the habilitation is important in improving the academic performance and also in self reliance for those who gained ADLs. When participating in learning, the study found out that the learners had diverse limitations including poor motor skills, slow in completing assignments, low concentration in learning tasks and mobility problems A lot need to be done in order to improve on the effectiveness of habilitation done at Joytown special school. Government need to draw policies to necessitate the equipping of the institution's habilitation center. Some teachers handling these learners do not have training in special education, hence the need for in-service training.

CHAPTER ONE

INTRODUCTION

1.1 Introduction

This chapter focused on background to the study, statement of the problem, purpose of the study, objectives of the study, research questions, and assumptions of the study, significance of the study, scope and limitations of the study, theoretical and conceptual framework and operational definition of key terms.

1.2 Background to the Study

Spina Bifida (SB) is a disorder caused when the embryonic neural tube does not close completely when developing (www.spinabifidaassociation.org). It presents itself as the brain being not fully developed, spinal cord and /or meninges (the protective covering around the brain and spinal cord). Spina Bifida is a disabling condition which has a high impact on individual and their families, from not accessing care, to having high health care costs, caused by a lot of surgeries and being hospitalized frequently. The key to a better life for many people living with SB is research. The aim being to develop better treatment and understanding of causes, other ways of preventing SB and effective habilitation to obtain skills and education. (Fern. Rowley -Kelly, 2000).

SB is known to be a neural tube defect that affects around 3,000 pregnancies each year, although the number appears to be decreasing. SB affects approximately seven of every 10,000 children born alive in the US. According to the SB Association of America, it is estimated that more than 70,000 people in the US are living with this birth defect. Up to 90% of children who have the extreme form of SB have hydrocephalus (fluid on the brain) and it is highly advisable to have surgery to insert a “shunt” which helps remove the fluid.

The person stays with the shunt for the rest of their life. Other problems are full or partial paralysis, difficulties in bladder and bowel control, learning disabilities, depression, latex allergy; social and sexual issues. Ninety five percent of neural tube defects (NTDs) affect women with no personal or family history of NTDs. (Spina bifida website).

SB rates vary widely among countries and in terms of geographic regions within countries. Neural tube defects occur at frequencies [per 10,000 births] ranging from 0.9 in Canada and 0.7 in central France, to 7.7 in the United Arabs Emirates and 11.7 in South America. People who are socioeconomically low are associated with higher risk in many areas. For the last 50 years, epidemics of myelomeningocele have been reported in Boston, Massachusetts; New York, Ireland, China and Jamaica. The average incidence of SB in the world is 1 case per 1000 births. The highest numbers are found mostly in parts of the British Isles, mainly Ireland and Wales, where 3-4 cases of Myelomeningocele per 1000 people have been reported, together with at least more than 6 cases of anencephaly (both live births and still births) per 1000 population. The overall reported incidences of myelomeningocele in the British Isles are 2-3, 5 cases per 1000 births. (spina bifida website)

Children with SB have a higher incidence of clubfoot factures and other orthopedic problems. Despite the effects SB has on individuals, families, society and the nation, it is sad, little research on it has been conducted on the many components of this complex birth defect. Many studies have been conducted involving volunteer research participants, called clinical trials are now underway examining the complex health and medical issues that surround SB. Research now going on is on the Genetics of Neural Tube Defects. Researchers at the university of Miami Hussmann Institute for

Human Genomics (HIHG) want to learn more about the causes of both open neural tube defects (NTD), and closed NTDs'. The research objective is to understand better the genetic and environmental causes of NTDs, which may lead to more accurate genetic counseling and quick assessment of risk which may lead into better methods of prevention and improvement on treatments/interventions to improve the outcome of NTD (Miles, 2006).

Among 1,000 babies born in African in 2006, one out of three may have SB and or develop hydrocephalus. The survival rate has improved but there is high likelihood that among the 10,000 babies born alive, 140 could die within five years, even though less than 20 may have serious impairment at birth. Of the 140 who will die at least 110 could be saved by well known, basic low cost practices. Because of different reasons they are not being used effectively by families, communities and the governments (Brinkerhoff & Derose, 1996).

In Kenya no data exists on countrywide prevalence due to high rate of infanticide in the rural areas and the parents hiding their children who live with disability (Johanna Christensen, 2010). According to Neural surgical society of Kenya, 2005, the data available demonstrate a steady rise in the number of cases treated each year. These may be attributed to increase in awareness of the disease and treatment options. It was in this context that the researcher wanted to find out the influence of habilitation services on academic performance of learners with SB at Joytown special school, Thika.

1.3 Statement of the Problem

Spina Bifida is a disabling condition which has a great impact on individual person and their families. This includes instructional constraints for example slowness in completing learning tasks due to poor motor skills, inability to manipulate reading and

writing aids, mobility difficulties due to paralysis of limbs and in some cases problem in ambulation. Habilitation directly contributes to a child's ability to acquire skills such as motor functioning for academic participation. If a learner does not receive adequate habilitation then their functional deficits will worsen with time hence preventing them from academic participation. At Joytown special school, there are children with SB who enroll for purpose of continued habilitation and classroom placement. It is one of several special schools offering habilitation of children with Spina Bifida in Kenya; others include Dagoretti special school, O'lkalau, Joy land, Port Reiz etc.

No study has attempted to interrogate the influence of habilitation on academic performance of the learners with SB. Most of the studies conducted in the area of PH have tended to focus on identification and early intervention (Lerner, 2006). The current study therefore focused on the influence of habilitation process on academic achievement of learners with Spina Bifida at Joytown special school.

1.4 Purpose of the Study

The study sought to establish the influence of the habilitation process on academic performance of learners with SB at Joytown special school, Kiambu County, Kenya.

1.5 Objectives of the Study

The objectives of the study sought to:

1. Assess the extent to which the academic performance of learners with Spina Bifida is influenced by the habilitation process.
2. Establish the daily/living skills acquired by learners with Spina Bifida as a result of habilitation process.

3. Examine the methods and materials used in the habilitation of learners with Spina Bifida.
4. Investigate the qualification level of the personnel offering habilitation to the learners with Spina Bifida.

1.6 Research Questions

The study sought to find answers to the following formulated research questions:

1. Is the academic performance of learners with SB influenced by the habilitation process?
2. Which are the ADLs acquired by learners with SB as a result of habilitation process?
3. Which are the methods and materials used in the habilitation process of learners with spina bifida?
4. Are the personnel adequately qualified in offering habilitation to learners with spina bifida?

1.7 Significance of the Study

The findings of this study could be of use to policy makers and education planners so as to develop a policy program, curriculum, teacher preparation (training) and professional qualification that are necessary for habilitation of children with SB.

The study findings may be of use to parents and teachers handling learners with SB on their role in ensuring effective habilitation of learners with SB. For instance, being more motivated and providing intervention strategies to enhance the quality of habilitation required by learners with SB. The study findings may help the government inspectorate, concerned Non-governmental organizations, religious bodies and other stake holders to ensure that learners with disability, specifically SB

receive appropriate services, facilities and qualified personnel to facilitate effective habilitation of these children. It is also anticipated that the findings of this work could sensitize other researchers and readers in other areas not covered by the researcher in relation to the habilitation and education of learners with SB. The study will help the learners in improving their academic performance and also in their self esteem. Finally the study findings will benefit the learners by receiving appropriate and effective habilitation that may help them on academic achievement and in their daily/living skills so as to become useful members of the society.

1.8 Limitation and Delimitations of the study

1.8.1 Limitations of the study

The study was conducted in one school only, so the findings cannot be generalized.

1.8.2 Delimitations of the study

The study was restricted to one institution. That is, at Joytown Special School which is one of the institutions which offers habilitation and transition services including formal education to children with SB after surgery and early intervention is done at Bethany kids centre, in Kijabe. The health professionals i.e. Therapist, teachers and learners with Spina Bifida were involved in the study. The study was restricted to personnel training, methods and materials used in the habilitation, academic skills acquired for academic participation and daily/living skills acquired after habilitation.

1.9 Assumptions of the Study

The study had the following assumptions:

- The school devotes for each learner adequate time to offer habilitation services.
- The school engages the services of qualified personnel to offer habilitation to these learners with SB
- The learners' academic performance is a direct result of the type and quality of habilitation services received.

1.10 Theoretical Framework

The study was guided by Social Cognitive Theory. The social cognitive theory was advanced by Bandura in 1986. This theory states that human functioning controls a central role of cognitive vicarious, self – regulatory and self reflective processes in human adaptation and change. From this view, the functioning of human is seen as a result of dynamic interplay of personal, behavioral and environmental influences. These create interactions that result in triadic reciprocity. The reciprocity makes it possible for the therapeutic efforts to be created. This results in habilitation of the individual in aspects of his / her life. These are directed at personal, behavioral and environmental factors. The theory accounts for the influence of social and technological innovation that creates new environmental selection pressures (Bussey& Bandura, cited in Pajares 2007).

This implies that the technological advancement in the habilitation field can lead to improvement in their academic participation hence improved academic achievement for those with Spina Bifida. Bandura includes collective agency, people work together on shared beliefs about their capabilities and common aspirations. This means that

therapists, teachers and the community at large if they work together would provide very effective results on habilitation of children with SB.

According to Kirk, S. and Gallagher, J. (2003), academic and social well-being of a learner with SB cannot adequately be provided by teachers alone without involvement of experts (Therapists) using this theory as a framework, teachers and professional therapists can improve the learners “personal factors”, that is the physical inadequacy in order to improve their academic participation and their daily living skills. They can change the school and classroom structures that may undermine the learner’s success (environmental factors) as the therapists help on academic skills acquisition. Occupational therapists help the learners on improving their occupational skills for materials manipulation in classroom and in their ADLs. OT also helps in manipulation and use of assistive devices. It is in this context that the researcher set out to find out the habilitation services offered and competence of personnel offering habilitation to learners with SB, in order for them to participate in academics and for independent daily living.

1.10.1 Conceptual Framework

The conceptual framework is a pictographic presentation of the study. In figure 1.1., two sets of variables are presented; Independent and dependent variables. The independent variables influence changes in the dependent variables as shown by the direction of the arrows.

**HABILITATION OF LEARNERS WITH SPINA BIFIDA AT JOYTOWN
SPECIAL SCHOOL**

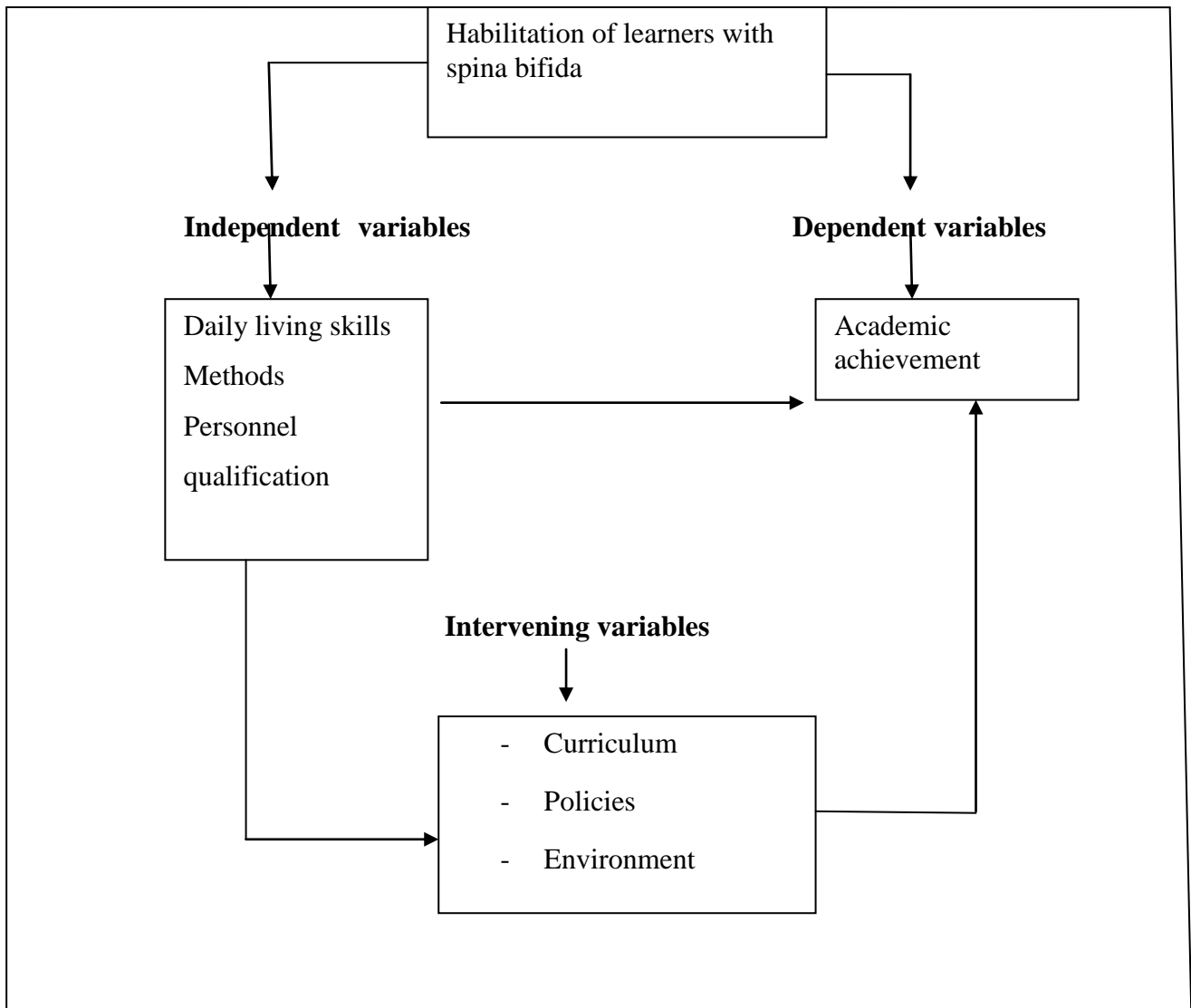


Fig. 1 A Diagrammatic Representation of Conceptual Framework

Source: Researcher's own perception

Learners with SB face challenges in education in the absence of the right and necessary habilitation. If adequate habilitation is done for the learners with SB, then their diverse needs will be catered for; if the wrong strategies for habilitation are employed with inadequate personnel training and facilities, the habilitation will not cater for their diverse needs. If the personnel are provided, the learners will be able to acquire the required skills and the academic participation and achievement will improve and the transition rate will increase. Provision of specialized equipment to learners with SB would widen these learners horizon and enable them to complete their learning tasks with ease. Specialized personnel should be available to ensure that the learners with SB are catered for according to their diverse needs; since they will be trained in a manner that is customized to help minimize the health problems they face. Trained physiotherapist and occupational therapists should be increased in number at Joytown special school to take care of various needs of these learners to improve their quality of their lives.

1.11 OPERATIONAL DEFINITION OF KEY TERMS

Academic skills	A collection of study habits, learning strategies and time management tools that help learners learn and absorb school lessons
Challenges	Factors limiting habilitation of children with spina Bifida
Habilitation	Services provided in order for a person to attain, maintain or prevent deterioration of a skill or function never learned or acquired due to a disabling condition.
Habilitation centre	Refers to an institution where a child can stay, be taken care of and get habilitated into functioning in a way he/she could not.
Learners' diverse needs	Variations of abilities and differences found among any group of Learners in a group.
Physical Disability	Unable to function normally in a particular socio-cultural context. It is Limitation to function as expected of a human being of a given age and sex.
Rehabilitation	to restore to useful life, as through therapy and education
Skill acquisition	The process of learning to perform a task or set of tasks through training.
Special needs	These are factors or conditions that interfere with the normal learning and development of individuals. They include: disabilities, social, academic difficulties or health difficulties.
Spina Bifida	A developmental congenital disorder caused by the incomplete closing of the embryonic neural tube, which cause partial or complete paralysis of the child.

The above definitions were adopted from the following website:

<http://www.spina-bifidaassociation.org>. accessed on 14th November 2014, for the purpose of this study.

CHAPTER TWO

RELATED LITERATURE REVIEW

2.1 Introduction

This chapter review literature related to: academic achievement of learners with SB, daily/living skills acquired by learners with SB, methods and materials used in habilitation of learners with SB, level of training of personnel offering habilitation to learners with SB and the summary.

2.2 Academic performance of Learners with SB After Rehabilitation

Academic skills can be described as a collection of study habits, learning strategies, and time management tools that help learners learn and absorb school lessons. Children suffering from SB have various problems with their motor skills, attention, memory and organization.

Canella, H and Fleming ,C.(2011), points out that ,Therapists can encourage the learners with SB on spending time and energy on simple games and activities which involves eyes and hands working together, including activities like threading objects on a string , building blocks, throwing and catching balls according to age etc. Children can also be encouraged to model clay objects paint and color, cut and paste pictures on books. Work completed on time may be rewarded as reinforcement. This might need help from the therapists to set up program. The use of tape recorder can be used to enhance memory. Explicit teaching of skills for the learners with SB such as skimming and scanning and how to use eye movements should be considered.

Habilitation of learners with SB includes physical therapy, recreational therapy and occupational therapy. Speech therapy can be given to patients with speech and/or swallowing difficulties, Canella, H. and Flemings, C. (2011).

According to Wolff, H, K (1996), Physical therapy sessions are programmed to parallel the normal achievement of gross motor milestones. For Occupational therapy, it is advisable it be initiated early to compensate for motor skill deficits and should go on along the normal developmental order. Recreational therapy helps promote independence by improving play and recreational opportunities.

Every child is entitled to taking part in education and training, regardless of the support they may need for their health .Schwartz, D. (2005) states that, children with Spina Bifida require support in order to become actively involved, particularly in the peer activities that are unstructured. The school staff should be informed that not only the motor skills but also the process skills have an impact on the children's active classroom participation. It is important to assist learners with SB to be involved actively in peer – related and unstructured activities and to encourage them to participate in both academic and societal learning. To achieve this, it is important to make sure that all the people involved in the education of learners with SB are well trained and have the relevant resources to help the learners with SB participate in academic achievement. The teacher is supposed to assist the learner on developing organizational skills, for instance by keeping the books and other school materials within easy reach and by making lists and schedules of assignments, tests and special events. It is important for the teacher to encourage the use of computers, typewriters and other learning aids to increase speed and to overcome any hand control difficulties. If learner is using wheelchair, where possible the teacher should place him/herself at the learners eye-level when talking. Desks that have a table-type surface with adequate space for legs need to be considered if the learner is on a wheelchair. Salvia and Ysseldyke (1981), suggests that learners with SB should be given enough time by the teacher to complete tasks given in the classroom. If possible

the white/black board should be lowered. To facilitate learner's reading, the teacher can use portable reading racks of adjustable desks.

Rowley-Kelly and Reigel (1993), points that, it has been shown that learners achievement scores rise, learners' attendance increases, learners' motivation and self-esteem improve, discipline problems decrease, the drop-out rate declines, and parental perception of the school is enhanced when parents are involved in their children habilitation. Teachers work with the therapists to arrange for equipment or classroom modifications that might be needed. This may include accommodation for mobility equipment e.g. wheelchairs, standing frames, walkers, supportive toilets seats or mechanical lifts. The teacher should determine any changes to the school timetable or schedules. Adapted tools and materials, such as slant boards, adapted writing paper and pencils and specialized computer software should be provided if weakness in the arms and hands make writing difficult. Provide additional time for transition between classes (Departmental of education and skills, 2001).

Inaccessible environment pose academic challenges to learners with SB. Areas of concern include the ramps or step lifts to provide access handrails on both inside and outside building. OT is effective in helping children attain goals and develop skills in areas underlying and supporting school performance in academic work. The researcher intended to find out the academic skills acquired for academic participation after habilitation of learners with SB.

In line with this recommendation, the study intended to establish the extent to which lack of effective habilitation process affect learners with SB in their academic achievement at Joytown Special School.

2.3 Daily/ Living Skills Acquired by Learners with Spina Bifida

According to Lombardi, P. (2011), children with SB often have deficits in motor skills and in conducting activities of daily living skills (ADL). Early training to correct these deficits is beneficial. Upper-extremity stabilization and dexterous hand use require proper postural control of the head and trunk. In the first year of life, promotion of growth of these postural mechanisms or use of passive support, if necessary is needed to promote eye- hand co-ordination and manipulatory skills. When fine motor skills are attained the OT educates learners in the use of adaptive instruments and other methods of self-care. Other ADL programs for pre-school and school aged children are also effective.

James (2008), suggests that basic ADL is restricted to activities that involve functional mobility (ambulation), wheelchair mobility and transfer to a chair and personal care (feeding, hygiene, toileting, bathing and dressing). Learning to perform activities of daily/living like dressing, self-feeding and toileting is important to a person's independence and their ability to participate in academic and the world at large.

Klein, D, M. (2001), states that independence in mobility, transfers from chair to other support systems, toileting, dressing and managing equipment (including braces) are important skills of self-care. Time should be provided for learners to use these skills while in school. There are several ways to facilitate and reinforce initiative and independent function. First, learners should be taught to master tasks through consistent practice and positive response. Mastery motivation is a normal aspect of development, but learners who depend on others for self-care skills may have lost

initiative. According to Heller, (1996), independence in locomotion is a very important feature of self-care.

Teachers and others may need to provide praise and encouragement for attempts and slowly require more refined skills levels. Task efficiency should be stressed once a skill is established. The person's performance of their daily occupations is influenced by the environment in which they are performing the activity. The goal of OT in school environment is to improve a learner's performance of tasks and activities important for academic functioning, Heller, (1996). This may involve direct intervention to improve, restore, maintain or prevent deterioration in the skills required for functioning in the school environment. It is in this view that the researcher intended to find out the ADLs acquired by the learners with SB that help in academic achievement.

2.4 Methods and Materials Used in the Habilitation of Learners with SB

Habilitation for SB includes the following: physical, occupational and recreational therapy. Speech therapy is sometimes suggested for those with speech and swallowing problems. Physical therapy is designed to parallel the normal achievement of complete motor markers. It is advisable that OT starts early to compensate for the deficits in motor skills and strengthen the normal sequence of development. Recreational therapy is important in encouraging the learner's independence by increasing play and recreational skills

According to Korabek and Cuvo (1996) almost all children with SB have some degree of bowel or bladder incontinence. The children learn to go to the bathroom at regular

intervals rather than relying on their body to tell them. The learners can be taught self-catheterization as part of their self-care skills (Rowley-Kelly and Reigel, 1993).

Orthopedic care is essential to prevent deformities of the spine, hips and legs which may interfere with achieving independence mobility.

Bigge, J. and Heller, K.(2005) states that, frequent standing sessions and/or time spent in the prone or stomach position is helpful in preventing contractures (muscle tightness) in the hips. Surgery, braces and splints can also help correct or reduce deformities. Surgery may also be indicated if the child's develops severe spinal curvature which may interfere with sitting and walking (Banit, 2001; Liptak, 1997).

Braces are usually required to support the lower extremities trunk and to assist in ambulation (walking). Physical therapists assist children with gait training, use of mobility and other aspects of independent function. OTs is instrumental in the areas of self-care, such as independent dressing and provides suggestions to enhance fine motor eye-hand skills, Ndurumo, M (1993). An OT can identify problematic areas in everyday life and help work out practical solutions. This can be by encouraging certain movements or providing equipment such as handrails, to make the activity easier. Children with muscle weakness of the lower limbs will require a wheelchair, leg braces and other walking aids can be used by children who have weakness to the muscles of the lower legs. Computers are a good tool for children with learning disabilities. An OT can identify activities which are causing difficulties. Then they can help by teaching using a different way to complete the activity, recommend changes that will make the activity easier or by providing devices that make activities easier.

According to Liptak , (1997), some exercises could include bowling, swimming, yoga and pirates. There are also machines used to help stimulate muscle tone in the lower limbs which may need extra help if they are partially paralyzed. Taking care to stretch before work outs is essential for patients with SB to prevent further injuries. Physiotherapists monitor joints alignment, muscle imbalances, muscle contractions, posture and sign of gradually increasing of neurologic deficits.

Liptak, (1997) further suggest that therapist should also provide caretakers with instructions in handling and positioning instruments to stop the soft tissue contractures. Physical therapists, OT, and wheelchair technicians assess each patient's positioning and seating needs to prescribe seating systems that will promote optimal posture, respiratory function and skin integrity and serve as a platform to facilitate the ability to perform daily activities. This may include computerized pressure mapping to determine proper cushioning and prevent skin breakdown. Comprehensive bracing services should be available for those individual who need adjustment, replacement or revisions in their orthotics (Liptak, 1997). It is important to provide specialized care to learners requiring habilitation services for speech deficit due to SB. The latest techniques in manual therapy and neuromuscular electrical stimulation may be integrated as part of comprehensive treatment plan for various speech deficits. This study intended to find out the methods employed to habilitate learners with SB at Joytown special school.

Reinert , (1986) outlines several important aspects of educational materials that can be used in special classes. Learners with Spina Bifida require adapted seats, writing equipments, adapted computer, therapy equipment, wheel chair, therapy ball, crutches, outhouses calipers and braces, prostheses, adapted functional aids such as

pens and cutlery among others. In developed countries like America, learners are provided with electric wheel chairs which increase the child's horizon. Other resources include; swivel walkers, canvas straps or spinal braces, among others.

According to task force, 2003, all schools and public facilities were to be made barrier free for those with disability (Ministry of education with collaboration with relevant ministries, Task force, 2003). Therapists must orient and train the learner on how to use the devices in various settings and safely. The devices must be functional to allow the student to perform various academic and social tasks within the school environment. This study purposed to find out the extent to which resource materials are used and if they are available in Joytown special school.

2.5 Qualification level of the Personnel Offering Habilitation to Children with SB

Health care in general is changing and the expectations put on health professionals are increasing. Physiotherapy education therefore should reflect in general the health and social priorities of the nation. The world's confederation of physical therapy (WCPT) is committed to assisting physiotherapy associations in developing educational standards, Bigge, J. I. & Heller, (2005). The main challenges being faced by most African countries, Kenya included are: lack of undergraduate training opportunities, inadequate number of therapists, upgrading of physiotherapy educators, research as a major component of physiotherapy education, and recognition of physiotherapy as an essential service. There is also lack of resources, funding and recognition of institutions offering these services. (Internet journal on Allied Health Sciences, (2007).

In year 2000, it was stated that in developed countries the average physiotherapist to population ratio is 1:1,400 compared to an estimated 1:550,000 in developing

countries such as in Kenya. Related to the few training institutions for physiotherapists in Africa, there is a shortage of physiotherapists in the countries to meet the needs of the people.

According to the internet Journal on Allied sciences (2007), the limited number of physiotherapists in Kenya stems from the lack of training institutions as well as the lack of funds in the country. Institutions that train physiotherapists do not train them at the same rate as nurses and doctors. The limitation in resources is not only in the form of human resources but also lack of funds and equipment. Physiotherapy is seen as a profession with relatively less importance in health and development compared to doctors and nurses. Therapists team up with the school to provide individualized programming for children, providing assessments, intervention plans, and consultation and monitoring of programmes. They also train and support staff to implement the programmes with the learners to ensure continuous practice of the acquired skills throughout the school days. According to Okech, M.T. (2003), a physiotherapist assist learners with SB develop and improve their academic skills in the form of exercise, education, consultation, or in the recommendation of adaptive equipment. O.T helps learners with SB to live and function independently. O.T is a health care profession that is concerned with a person's ability to perform the daily occupations they are expected to, need to do or want to do. The goal of OT in the school environment is to improve learner's performance of tasks and activities important for school functioning. This may involve direct intervention to improve, restore, maintain or prevent deterioration in the skills required for functioning in the school environment.

According to Fairbairn and Davidson (1993), therapists should be knowledgeable, supportive and providers of practical programming, physical exercises and adapted equipment. OT should enhance the learner's ability to learn and eliminate problems that interfere with a child's ability to profit from instruction. The OT should provide medical, physical and developmental information in educationally relevant terms.

The study intended to find out the qualification level of the personnel offering habilitation to learners with SB at Joytown special school.

2.6 Summary of Related Literature Review

Learners with SB require a series of operations throughout their childhood and school years. In the literature review, special rehabilitation for these children has been stressed in relation to: research being done on SB, school program being flexible to accommodate these special needs, effective habilitation procedures that can be used to help these learners with spina bifida, habilitation personnel in schools and the role they play in the education of these learners with spina bifida. The literature shows gaps that were filled by this study. These include: resources for rehabilitation, information on the available resources for rehabilitation, competence of the personnel offering rehabilitation, rehabilitation strategies used for effective rehabilitation and academic participation. Lack of qualified effective methods and materials in an institution would adequately affect the rehabilitation process, leading to low academic performance. Most of the literature reviewed has also been on international perspective. There is lack of adequate literature on the habilitation of children with spina bifida from the Kenyan perspective. It is in view of these gaps that the present study was designed to find out the habilitation done on children with spina bifida and its influence on academic achievement and independent of learners with SB at Joytown special primary school in Kiambu County, Kenya.

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

3.1 Introduction

This chapter focused on methodological details appropriate to the study; research design, variables, location of the study, target population, sampling techniques and sample size, construction of research instruments, pilot study, validity, reliability, data collection techniques, data analysis, logical and ethical considerations.

3.2 Research Design

The study adapted a descriptive design. According to Gay (1973), the descriptive method of research is a process of collecting data in order to test the hypothesis or answer questions concerning the current status of the subjects in the study. Despite of various interventions, the learners have continued to perform dismally. According to Best and Khan (1993:76), descriptive study presents what is and interprets the nature of an ongoing event. It deals with conditions or relationship present, opinion that are held by the people, processes going on, effects that can be witnessed, or developing trends. It is mostly concerned with the current occurrences, although it often visits past events and influences as they relate to current conditions. Its main objective is getting a true picture of a situation, behavior or attitude of individuals. The design was seen to be suitable in this study because it assisted the researcher to focus on establishing the nature of existing situations at Joytown primary school and analyze them. It also enabled the researcher to secure evidence concerning all such existing conditions.

Variables

The study had both independent and dependent variables

Independent Variables

The independent variables constituted habilitation, which include personnel qualification, methods, facilities and materials.

Dependent Variables

The dependent variable in this study was academic performance. Academic performance of learners with SB depends on the effective provision of effective habilitation.

3.3 Location of the Study

The study was conducted at Joytown special primary school, situated in Thika, Kiambu County, Kenya. The researcher selected the school since it admits children from Kijabe Hospital, where habilitation of children who have been operated is carried out, after which they are re-admitted to schools to continue with the habilitation process. It is also easily accessible by the researcher.

It is about 45 km from Nairobi, the capital city of the republic of Kenya. The school was founded in 1962 by the Salvation Army missionaries' officer, Colonel Cyril Woods, Ojwando, (1996). Joytown is a special primary school for the children who are physically disabled. It accommodates the various categories of learners with physical disability.

3.4 Target Population

The target population was 45 respondents, comprising of 1 head teacher from Joytown special school, 20 learners with SB, 20 teachers handling the learners with SB, and 2 teachers' aides from the same institution, 1 occupational therapist and 1

physiotherapist handling these learners with SB. The head teacher was selected because as the head of the institution he provided the critical information the study required; the teachers and teacher aide were selected on the basis of offering services to the learners with SB and the therapists because they provide habilitation in form of physiotherapy and O.T. These helped a great deal in enabling collection of data on habilitation of learners with SB at Joytown special primary school.

3.5 Sampling Techniques and Sample Size

3.5.1 Sampling Techniques

Purposive sampling was used to select head teacher, teachers, teacher aides, learners, physiotherapist, and occupational therapist. In purposive sampling the goal is to select cases that are likely to be “information rich” with respect to purposes of the study. The main objective is to achieve an in depth understanding of selected individual (Gall, 1996). In line with this observation, the head teacher was selected purposively because he is the head of the institution and in- charge of school administration at Joytown special school. Ten teachers of the institution were purposively selected on the basis of being the teachers of learners with SB. The teachers were selected mostly from lower primary and pre-school because this is where habilitation begins. The two teacher’s aides were picked because they serve learners with SB in the classes. The physiotherapy and occupational therapist were purposively selected because they offer physical rehabilitation in the institution to the learners with SB. The learners were selected purposively for observation from pre-school (4), class 1(3), class 2 (3), because most of intervention is done at these levels.

3.5.2 Sample Size

The sample size comprised of, 1 head teacher, 10 teachers, 10 learners with SB, 2 teachers Aides, 1 physiotherapist, and 1 occupational therapist. The total sample for the study was 25 participants.

Table 3.1 Sample Size

Joytown Primary School	Target Population	Sample Size	Per cent
Head teacher	1	1	100%
Teachers	20	10	50%
Teachers Aide	2	2	100%
Learners	20	10	50%
Therapists	2	2	100%
Total	45	25	55.5%

Source: Field survey 2015

3.6 Research Instruments

The study used a combination of instruments as suggested by Kane, (1995). Use of complimentary methods normally reveals discrepancies that a single method cannot. Methods used in the study included; focus group discussions, observation checklist, questionnaire and an interview schedule. Each was organized as described below:

3.6.1 Focus Group Discussion Guide

Focus group discussion is a process of collecting data through interviews with a group of people, normally 4-6, Franklel & Wallen, (2000). The researcher asked a few general questions and tried to get responses from all members in the group. Focus groups usually have an advantage when there are similarities in interaction among the interviewees. They are also useful when the time to collect information is inadequate,

Frankel & Wallen, (2000). The learners sampled to take part in the focus group discussions sit in a group, in a room and are engaged in a discussion. The researcher starts by asking broad questions followed by probing notes and eliciting responses from the group members.

The responses are then recorded. The focus group discussion guide comprised of broad questions each with probing notes, to address the research objectives.

3.6.2 Observation Checklist

An observation was carried out using a checklist as the researcher visited the selected classes to administer interviews to the respondents. Observation is a simple method of collecting data in which a researcher notes events as they naturally occur (Orodho, 2004). The researcher went round the institution with the help of the head of the institution and observed the key facilities in the institutions used for the habilitation e.g. handrails, wheel chair, assistive devices, gym equipments etc. These were recorded on the checklist. This enabled the researcher to make conclusions on the observable institutions factors that could reinforce the information obtained from the focus group discussions on the habilitation and acquisition of academic skills. The researcher observed the medical files for learners under study provided by the Therapists in order to obtain their medical history on diagnosis and treatment. The researcher also requested from the Class teachers the learner's academic files/documents so as to obtain information on their classroom academic performances.

3.6.3 Interview Guide

The interview guide was used to carry out face-to-face interviews with the head teacher, and the physiotherapists. This was in relation to government policies,

financial challenges and for the therapists physical rehabilitation strategies etc. The interview guide comprised of the items addressing the objectives of the study.

3.6.4 Questionnaire

According to Orodho (2003), a questionnaire has the ability to collect a large amount of information in a reasonably quick space of time. It also ensures confidentiality. Close ended items in the questionnaire was used to get specific data to enable the study to be more realistic and focused in the findings. The open ended questions allowed the respondents to give their personal opinions and views. Two different questionnaires were administered to the respondents selected for the study. These are the teachers. The questionnaire included information on the level of education and professional qualification, duration of their stay in the institution, and the level of their involvement in habilitation of learners with SB.

Questionnaires were also appropriate to the study since they collect information that is not directly observable as they inquire about feelings, motivation and attitudes of individuals. Questionnaires have the added advantage of being less costly and using less time as instruments of data collection (Gall, (1996).

3.7 Piloting

Piloting was done at Dagoretti special primary school in Nairobi County, to validate the research instruments and ascertain their reliability. Piloting was done in the school because it has the facilities and characteristics of the school under study. The institution admits learners from Kijabe hospital for continuation of habilitation and classroom placement. Piloting involved the head teacher, three learners with SB, one teacher, teacher aide and one therapist. The procedure used was the same as that of the main study. The selected school for piloting was not used in the final study. The

random sample for piloting instruments should depend on the size of the sample ranging from 1% to 10%.

The pilot study was necessary in order to test the validity and reliability of the instruments help establish any items in the instruments that will be ambiguous or not clear to the respondents and change them where necessary, and to enable the researcher to be familiar with administration of the instruments to the respondents.

The procedure used in pre-testing the instruments was the same as those that were used during the actual data collection. Important suggestions, omissions and corrections from the pre-testing exercise were incorporated in the final instruments of data collection.

3.8 Validity

Validity is the degree to which the sample of test items represents the content the test is designed to measure. Mugenda and Mugenda (1999), suggest that the common procedure in assessing the content validity of a measure is to use a professional or expert in a particular field. In order to determine the validity of the research instrument, the researcher sought opinions from peers and experts in the field of study especially the two researcher's supervisors and other experts from the department. Peer review was also used to correct inconsistencies and helped check on the content validity in the interview schedule and focus group discussions. This facilitated the necessary revision and modification of the research instruments thereby enhancing validity. Piloting also helped in enhancing validity of instruments.

3.9 Reliability

Reliability is a measure of the degree to which a research instrument yields consistent results after repeated measurements are taken of the same subjects under similar conditions (Gay, 1992). Test –retest method was employed. This was possible

because the number of participants was not big. The same questions with the same participants were asked after two weeks. The responses were then compared for consistence.

Pearson correlation formula was used to compute the correlation coefficient so as to establish the extent to which the contents of the interviews and observation guide were consistent in getting the same responses every time the two instruments were administered. A correlation coefficient of 0.75 was considered adequate to judge reliability of the instruments.

According to Orodho, (2003), a correlation coefficient (r) of about 0.75 should be considered high enough to judge the reliability of the instrument. The reliability of the research instruments was improved through a pilot study that was done at Dagoretti special school. Piloting also helped to enhance the reliability of instruments. The pilot data has not been included in the actual study. Reliability is synonymous with the consistency of a test, observations, interviews or other measuring devices.

3.10 Data Collection Techniques

After the validity and reliability of instruments was ascertained, the researcher visited the school under study to familiarize herself with the school and to seek permission from the head teacher. The head teacher was briefed on the purpose and objectives of the study. The researcher distributed the questionnaires to the teachers under the study to respond to by writing appropriate answers. They were then collected after one week. The researcher used an interview guide, focus group discussion, questionnaires and an observation guide to collect data from the respondents. Interviews were conducted with the respondents during lunch break and games time for one day. These are the Head Teacher, Teacher's Aides, Learners and Therapists. The interviews for teacher's aides were conducted during the long break and lunch break

in one of the room that was vacant in the school for 30 minutes. The head teacher was also interviewed after school in his office for 1 hour. Great care was taken not to interfere with the normal teaching schedule.

The researcher had to create a rapport with the respondents. Through the head teacher the researcher was allowed to have access to the learners progressive marks report books. This was to help the researcher in analyzing the learner's academic achievement before and after habitation. The observation guide was used to observe the following areas: classrooms, adaptive aids, habilitation strategies by the two therapists, assistive devices e.g. Wheelchairs, crutches, braces, etc, physical exercises, ease of adaptation in the classroom, physical intervention done on the learners at SA Joytown special primary school for PH in Thika District

3.11 Data Analysis

Descriptive statistics was mainly used in data analysis. Descriptive statistics involves tabulating, graphing and describing data, Orodho, (2005). After the actual fieldwork, data collected from interviews was assembled together according to emerging themes and classified by different categories; the items that were looking for information on the same objectives were put in the same group and then coded. This was done by assigning symbols to each answer which fall in a pre-determined class. Descriptive statistics such as frequencies and percentages were employed to analyze quantitative data from questionnaire for the teachers and learners academic performance analysis from report books and qualitative data from interviews for the head teacher, teacher aides and therapists. The qualitative data from the observation guide and Focus Group Discussion were analyzed thematically from the emerging themes. The coded data from quantitative statistics was entered into the computer for analysis using Statistical

Package for Social Sciences (SPSS), computer software. After data was analyzed it was presented in form of tables, frequencies, charts and percentages

3.12 Logistical and Ethical Considerations

A research permit was obtained from the Principal Secretary (PS) Ministry of Education, Science and Technology (MOEST) through the Dean Graduate School, Kenyatta University before administering the research instruments in the field. The researcher made preliminary visits to SA Joytown special primary school where the researcher was to carry out the research in order to establish rapport with the head teacher of the institution and also to discuss the relevance of the study. Other considerations included; getting consent from the respondents and the administration before carrying out the interview and also treating them with dignity. The participants were made to understand that they were participating voluntarily and could withdraw any time if they so wished. The researcher also made it clear that, the data will be under lock and key, coded language will be used while labeling the data and the given information shall only be used for the given purpose. Further, the participants were informed that all unused data will be discarded after the research.

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND DISCUSSION

4.1 Introduction

In this chapter, a presentation of data analysis and discussions of the study carried out at Joytown special school in Kenya is done. The responses are discussed under the following major themes generated by the research questions which guided the study.

- Is the academic performance of learners with SB influenced by the habilitation process at Joytown special school?
- Which are the daily/living skills acquired by learners with SB as a result of habilitation process at Joytown special school?
- Which are the methods and materials used in the habilitation process of learners with SB at Joytown special school?
- Are the personnel adequately qualified to offer habilitation to learners with SB at Joytown special school?

4.2 Skills that influence Academic Performance of Learners with Spina Bifida

The study aimed at finding out the extent to which academic achievement of learners with SB is influenced by habilitation process at Joytown special school.

The results are shown on the table 4.1

Table 4.1 Academic skills acquired by learners with SB that facilitate academic performance

Skills facilitating learning	No. of respondents	%
Improved mobility	4	40.4
Handling learning materials	5	50.2
Attention	6	50.7
Organization skills	4	40

As presented in Table 4.1, majority of the learners improved on their classroom attention as reported by 6(50.7%) of the learners with SB. The learners said that this is

due to the fact that they are dry for a longer time because they use catheters to collect their urine, hence can concentrate for long in class. Some learners, 5(50.2%), said that they were able to handle learning materials such as books and pens after habilitation, while others, 4(40%) reported having achieved organization skills. They said that they were able to keep their learning materials within easy reach when required and make lists of schedules of assignments given by their teachers. Most of the teachers said that habilitation was important in improving academic participation in the classroom. They concurred that the learners who were well habilitated were improving in their classroom performance as evidenced by their academic records. Their mobility was better than those who were not habilitated. This helped them to become more independent. Habilitated learners also improved in their self-esteem because they were no longer embarrassed by wetting themselves. This made them more comfortable when addressing other learners in class and also improved their concentration.

Table 4.2 Academic performance results of end of the year exam, before and after habilitation

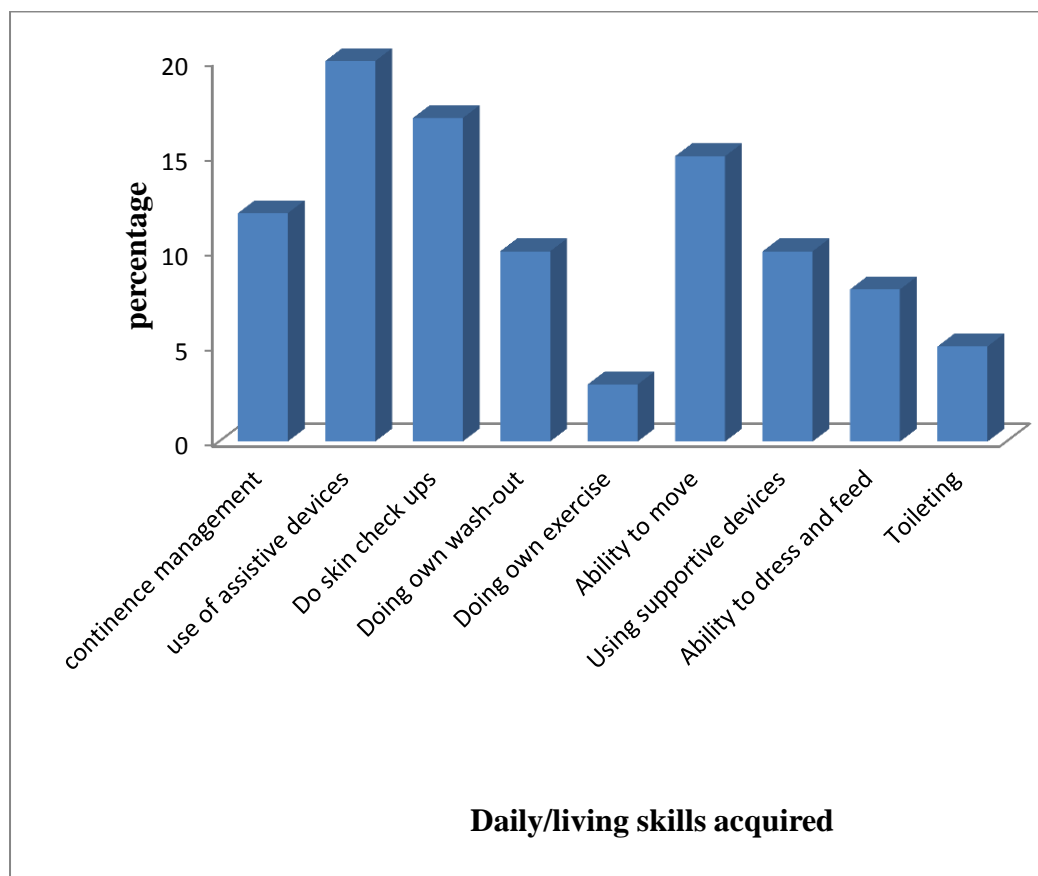
Total Marks Before		Total Marks After		Class	No. of learners	Total No. of respondents	%
Lowest	Highest	Lowest	Highest				
220	250	235	256	Pre.sch	2	4	40
				1	2		
250	280	275	300	Pre.sch	2	3	30
				1	1		
280	310	282	325	2	2	2	20
310	315	350	365	2	1	1	10

As presented in table 4.2, the results show that out of the required 500marks, majority of the learners were ranging below average. The results shows that 4 (40%) of the learners were ranging between 220-250 marks. After habilitation they ranged between 235-256 marks. Three (30%) of the learners ranged between 250-280 marks before habilitation and after habilitation they improved and ranged between 275-300 marks. Also, 2(20%) of the learners were ranging between 280-310 marks and improved to range between 282-325 marks after habilitation. One (10%) of the learner improved from 310 marks to 350 marks after habilitation. The results indicate slight improvement after habilitation process. The learners said that this was contributed by the fact that they were able to handle and manipulate their learning materials and resources with ease after habilitation process. They were also able to concentrate more in class because they remained dry for long.

Rowley-Kelly and Reigel (1993), points that it has been shown that learner's achievement scores rise, attendance increases, Learner's motivation and self esteem improve, the drop out declines and parental perception changes when they are involved. This shows that when the teachers and the therapists work together, the habilitation process is more organized, faster and the results are more promising.

4.3 Daily/Living Skills Acquired by Learners with Spina Bifida after Habilitation

The second research question sought to establish the daily/living skills acquired by learners with SB as a result of habilitation. Data collected generated the following results as summarized in figure 4.1.

Figure 4.1: Daily/Living skills acquired as a result of habilitation

Source: Field survey, 2015

The results in Figure 4.1 indicate that learners easily gained the skills of using assistive devices such as wheelchair and braces. The results indicate that 2(20%) of the learners observed were able to use these devices without any assistance. Two (17%) of the learners were also found to be in a position to do skin checkups on their own to prevent sores. Habilitation had also helped 2(15%) of the learners to improve their mobility. They could move freely to the classrooms and to the toilets without help. One (12%) of the learners was found to have acquired the skill of continence management. That meant she was able to empty the bladder on her own using catheter; hence remained dry for at least three hours.

Another skill that learners were found to have acquired from habilitation was the ability to do own wash-out. One (10%) of the observed learners was able to empty and clean the catheter. Also, 1(8%) of the learners could dress and feed himself while 1(5%) learner was able to do toileting on her own. Such learners were also able to transfer from chair to other support systems and manage their braces. The least acquired skill, 1(5%), was doing own exercise. The results agreed with James, (2008), who suggested that basic ADL is typically restrictive to activities involving functional mobility (ambulation) wheelchair mobility and transfer) and personal care (feeding, hygiene, toileting, bathing and dressing) As suggested by Rowley-Kely & Reigel (1993), the learners with SB can be taught self-catheterization as part of their self-care skills. Some of the learner's had also acquired the skill of continence management. This means that they were able to empty the bladder on their own using catheter; hence remaining dry for at least three hours.

These findings concur with Korabek & Cuvo (1996) who indicated that children with bladder incontinence should go to the bathroom at regular intervals rather than relying on their body to alert them. This finding concurs with James (2008), who suggested that learning to perform activities of ADLs is crucial to a person's independence and their ability to take part in academic work and the world at large.

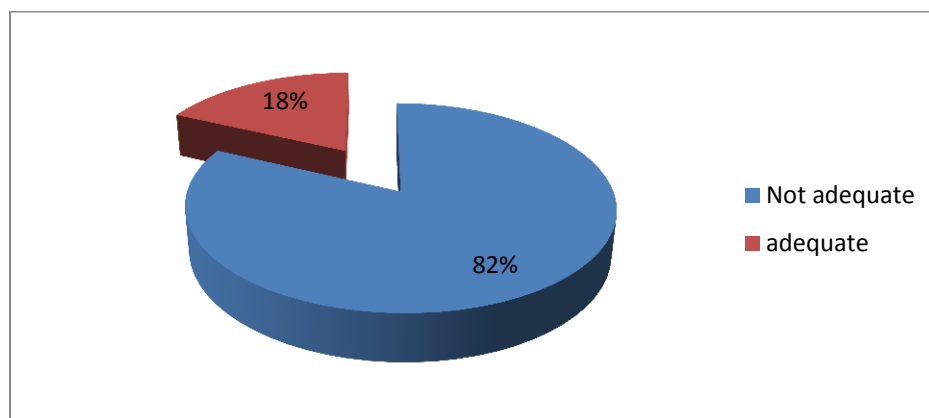
4.4 Methods and Materials Used in Habilitation of Learners with Spina Bifida

The study intended to find out the methods employed to habilitate learners with SB at Joytown special school. Data collected by the researcher generated the following results as summarized in table 4.3

Table 4.3 Methods used in Habilitation Process

Method used	frequency	%
surgery	5	50
Frequent bowel movement	8	80
Self-catheterization	2	20
Orthopedic care	8	80
Frequent standing sessions	10	100
Gait training	6	60
Assistive devices	9	90
Teaching a different way to accomplish a task	7	70

The data in table 4.3 indicates that the most used method with 10(100%) respondents is frequent standing while using of assistive devices was reported second with 9(90%) of the respondents. Frequent standing sessions prevent contractures (muscle tightness), while assistive devices helped by making doing some activities easier, for example movement and handling of learning materials. Surgery was done on 5(50%) of the learners. This was done mainly and on the limbs and if the child developed severe spinal curvature. Teaching a different way to accomplish a task was used on 7(70%) of the learners with SB. For instance, use of handrails for easy movement. Also, 8(80%) said that they have gone through Orthopedic care to prevent deformities of the spine, hips and legs while 6(60%) of the learners are going through gait training to help them function independently. Self –catheterization was used on 2(2%) of the learners with SB. Teachers' aides use habilitation methods such as ensuring that the learners go for changing and do CIC at regular intervals of three hours. They also assisted those who were unable to go to the washrooms. Learners who had lost their self-esteem were counseled in order to instill some sense of belonging.

Figure 4.2: Resources and learning materials for offering habilitation

Source: Field survey 2015

The data in figure 4.2 indicates that 2 (100%) of the therapists said that the institutions did not have enough resources and materials for habilitation. It also indicates that 40 (82%) of the respondents said that they faced difficulties while accessing habilitation materials.

The available materials and resources were either overcrowded or in bad condition. This is because they have been in use for years with being replaced and the number of learners has also increased with time. Classes had more than the recommended number of students. The head teachers said that more classes were needed to cope with the high number of students (Table 3). The institution has a dispensary but the medical facility need to be more equipped with specialized equipment to help these learners with SB. There was a general agreement with most of the respondents that the beds in those institutions are adequate and comfortable for the learners since they are not broken and are spacious. There was also a general agreement that there was a need to construct more disability friendly washrooms and dorms. The ones available were not spacious enough to allow wheel chair usage.

The devices such as wheelchairs should also be availed to learners to make their movement more comfortable. The 2(100%) therapists said that one of the reasons why these resources are not adequate is because most of the facilities are donor funded, thus, learners have to share the few materials that these donors bring to the institution.

Table 4.4 Facilities/equipment available in the institution used in the habilitation process

Location in school	Available facilities/equipment	Adequate/inadequate
classroom	Tables/lockers	inadequate
Toilet	pan	adequate
Dormitories	Bed	adequate
Environment	handrails	inadequate
Habilitation resource centre	therapy equipment	inadequate
Medical services	Dispensary	inadequate
Medical equipment	catheters	inadequate

Source: Field survey 2015

The findings in table 4.4 indicate that most of the classrooms were small hence overcrowded. The learners said that sometimes it is hard for them to navigate around the crowded classrooms. The toilets were raised and clean hence could sit on the pan. The dormitories were adequate and clean. The handrails were conspicuously available to ease their movement but in some few areas they were missing. Therapy equipment were inadequate at the habilitation resource centre. The institution had one dispensary and the medical equipment were not enough to cater for all the learners in the institution.

Table 4.5: Materials/equipment used in habilitation process of learners with SB

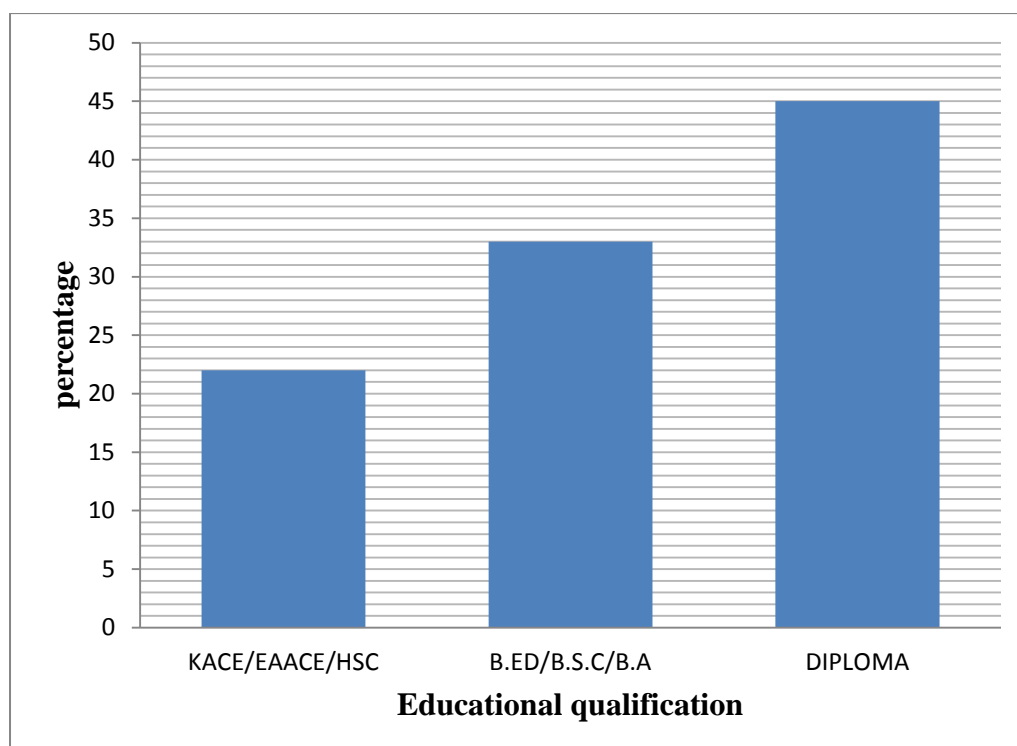
Materials/equipment	Respondents	%
Braces	6	60
Adapted seats	3	30
Therapy equipment	4	40
Crutches	6	60
Wheelchairs	4	40
Spinal braces	2	20

The results in table 4.5 indicate that majority of the respondents, 6(60%) used braces and crutches. The respondents said that the braces help them in their movement instead of using a wheelchair. The results also show that few learners, 2(20%), are fitted with spinal braces to align their spine at the back to prevent spinal curvature. The researcher observed that 4(40%) of the learners used wheelchairs which are manually controlled to ease their movements, while 3(30%) of the respondents used adapted seats in the classroom. Therapist explained that all the learners were allowed to use the therapy equipments at the resource centre during P.E lessons, however 4(40%) of the learners attended special sessions to use therapy equipment to improve on their wasted muscles.

4.5 Qualification and experience of Personnel Offering Habilitation to Learners with Spina Bifida

The study intended to find out the extent to which the personnel offering habilitation qualify to handle learners with SB at Joytown special school.

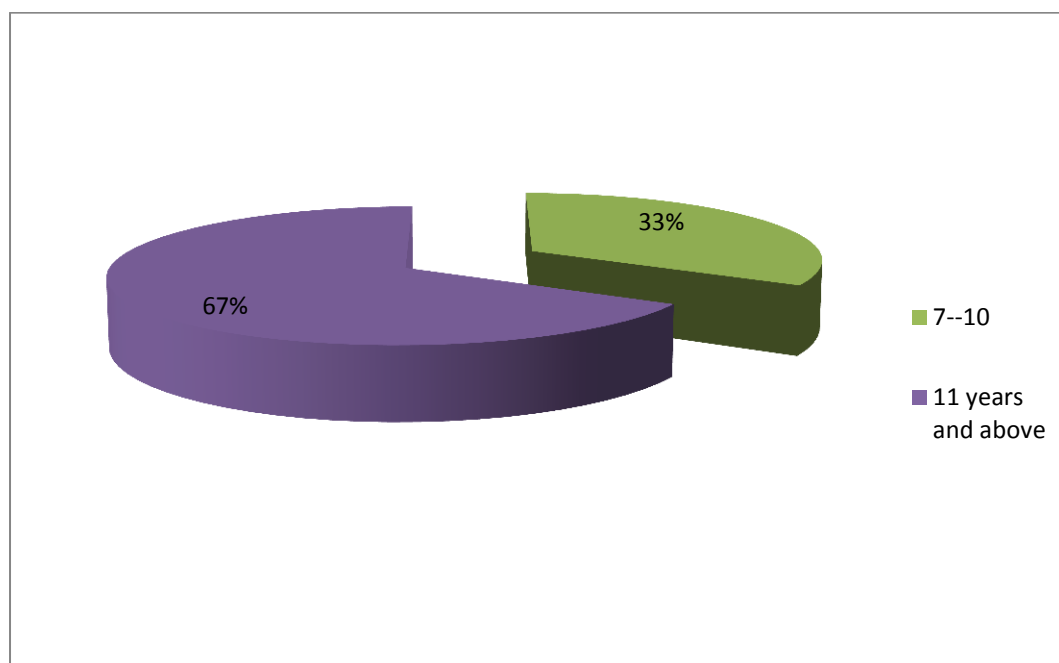
Figure 4.3 Educational qualifications of the personnel



Source: Field survey 2015

Data from figure 4.3 shows that, in terms of educational qualification, the 2 (100%) therapists have a bachelor degree in Physiotherapy.

It was established that most, 4(45%) of the respondents had a diploma in education while 3(33%) of the respondents have B.ED/B.SC/B.A. Only 2(22%) of the respondents said that they had KCE/GSE/KCSE (figure 6). One respondent didn't give an answer. This means that most of the teachers who handled learners with Spina Bifida had the required educational qualification.

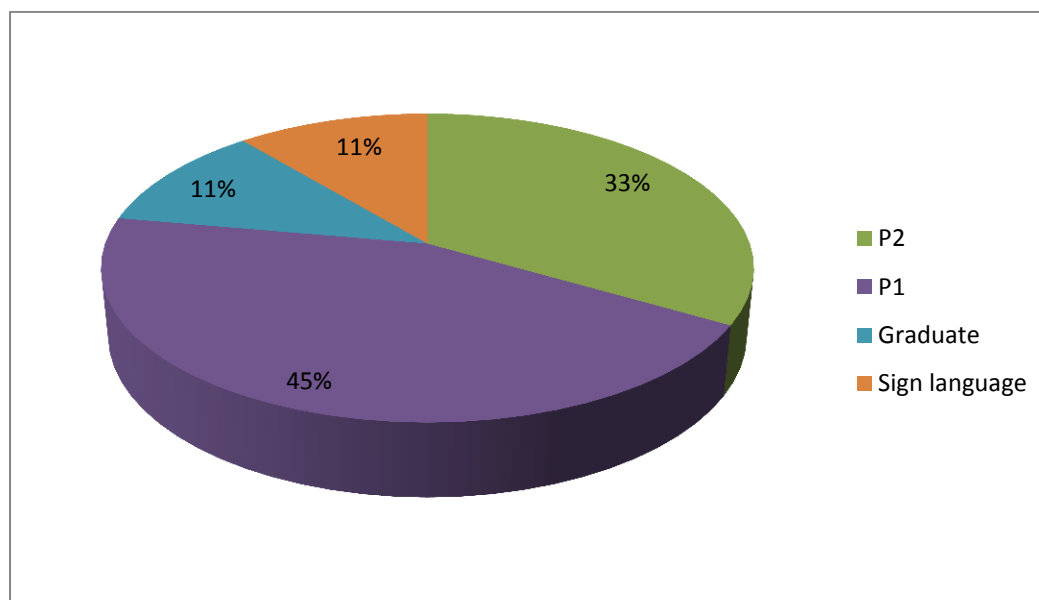
Figure 4.4: Professional experience of personnel offering habilitation

Source: Field survey 2015

As presented in figure 4.4, most of the respondents 7(67%) said that they have been in the profession for more than 11 years while 3(33%) have taught for 7 to 10 years. However, this professional experience may not translate to better service to learners with Spina Bifida because majority of the respondents said that they don't have training in special education. Most of these teachers have acquired skills on how to handle these special learners while in their work stations. Almost all of them said that they acquired the skill from their older colleagues. This kind of training may not be the best because even their older colleagues were not trained in special education. However, the therapists interviewed said that they had professional training. All of them had a Bachelor of Science in Physiotherapy. This enabled them to give learners the best exercises and also advice teachers on how to handle learners with SB. The therapists complained of being few in number to be able to handle the many raising cases of learners with SB.

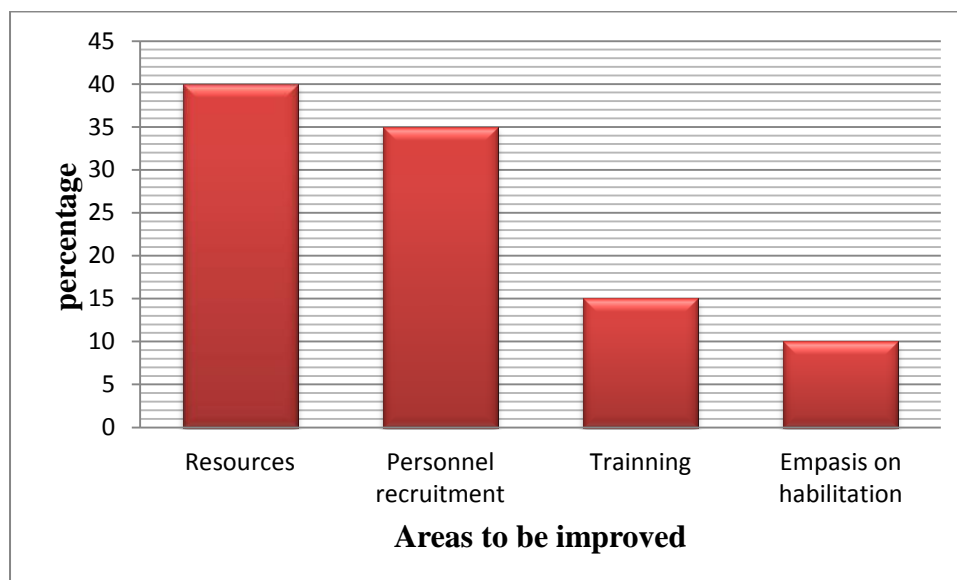
These findings concur with Fairbairn & Davidson (1993), who pointed out that the therapists should have knowledge, able to support and provider of practical programming, physical exercises and adapted materials and/ or equipment.

Figure 4.5 Professional training of the teachers



Source: Field survey 2015

The data in Figure 4.5, indicate that, 5(45%) of those interviewed said that they had P1 certificate and then upgraded to diploma in early childhood education while 3(33%) had P2 certificate. Only 1(11%) of them went for a bachelors degree. Also, 1(11%) of the respondents had training in special education. The study shows that most of the teachers did not have training in special education. This is an indicator that not all teachers are adequately trained to handle learners with special needs. Some of those trained in special education said that they only acquired the skill through in-service training programs. This study also established that most of the graduates had not specialized in special education. This means that after employment, they had to be trained on how to handle learners with special needs.

Figure 4.6: Areas to be improved for effective habilitation process

Source: Field survey, 2015

As shown in figure 4.6, majority 18 (40%) of the respondents, had the view that more needs to be done to improve on the habilitation done in the school. The respondents said that more resources are needed in the school to improve the conditions. Most of these resources are learning materials that are friendly to the learners. Other facilities like disability friendly washrooms and dormitories should also be constructed. Rehabilitation services should also be provided to hasten the process of habilitation. These materials will make it easier for the learners to gain more academic skills after habilitation. A number of learners, 15(35%) respondents felt that personnel recruitment is the best solution to the problem. The school head teacher emphasized that there is need to have therapists and teachers trained in special education. Therapists help learners to improve on their rehabilitation. However, 5(10%) respondents felt that now that habilitation is helping in academic performance, more emphasis should be put on habilitation.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

In this chapter the summary of the findings of this study was done. The summary is divided in parts guided by the objectives which the researcher aimed at achieving. The summary is followed by conclusions based on the findings of the study also made in connection with objectives of the study. After summary and conclusion the researcher suggests some recommendations on effect of habilitation on academic skills acquisition of learners with SB at Joytown special school. Lastly, the researcher makes suggestions on areas for further study.

5.2 Summary of Research Findings

The study aimed at finding the influence of habilitation on academic performance of learners with SB at Joytown special school. The study participants included 1 head teacher, 10 learners with SB, 10 teachers, 2 teachers' aide and 2 therapists. The summary of the findings of the study are presented in accordance with the objectives of the study as follows: To

- Establish the extent to which academic performance of learners with SB is influenced by the habilitation process at Joytown special school.
- Determine the daily/living skills acquired by learners with SB from the habilitation process at Joytown special school.
- Examine the methods and materials used in the habilitation process of learners with SB at Joytown special school.
- Establish the qualification level of personnel offering habilitation to learners with SB at Joytown special school.

5.1.1 Academic performance of learners with SB after habilitation

This study found out that habilitation is important in improving academic participation and achievement in the classroom. Learners who are well habilitated have improved in their classroom performance. Those learners were also mobile. This helps them to become more independent. They can move from one place to another better than those who are not habilitated. Habilitation has also improved learner's self-esteem. This makes them more comfortable and improves their concentration in class. They perform better than those who have not gone through the process. The learners are also able to handle learning materials better than before. They can carry their books, write notes and read without problems. They can also make lists of schedules of assignments given. The learners with SB who have not been habilitated are less independent and their academic performance was still dismal.

5.1.2 Daily/living skills acquired by learners with SB from the habilitation

Process

Habilitation of learners with Spina Bifida has helped learners to become self reliant. Learners have gained many daily and living skills such as using assistive devices like wheelchair and braces. Most of the learners observed were able to use these devices without any assistance. They reported that they could move freely to the classrooms and to the toilets without help.

The learners had also learned how to do own wash-out. This means that they are able to empty and clean their catheter. They were also able to dress and feed themselves and do toileting on their own. Such learners were also able to transfer from chair to other support systems and manage their braces. The learners who had not been fully habilitated could not perform most of their basic daily living activities like toileting and feeding themselves.

5.1.3 Methods and materials used in habilitation process of learners with SB

This study found out that a lot needs to be done to improve on the effectiveness of the habilitation done in the institution. The available materials and resources are either overcrowded or in bad condition. Classes have more than the recommended number of students. More resources are needed in the school to improve the conditions. Most of these resources are learning materials that are friendly to the learners. Other facilities like disability friendly washrooms and dormitories should also be constructed. Rehabilitation services should also be provided to hasten the process of habilitation. These materials will make it easier for the learners to gain more academic skills after habilitation. Personnel recruitment is another solution that can be adopted. The schools need to have more therapists and teachers trained in special education. Therapists will help learners to improve on their rehabilitation.

5.1.4 Level of qualification of personnel offering habilitation to learners with SB

In terms of educational qualifications, it was established that most of the teachers have a diploma in education. The study also established that some of the teachers have been in the profession for more than 11 years. However, this professional experience has not translated to better service to learners with Spina Bifida because most of them don't have training in special education. Most of these teachers have acquired skills on how to handle these special learners while in their work stations. However, the therapists interviewed said that they had professional training but they are not enough to handle the emerging cases of learners with SB.

5.3 CONCLUSION

In conclusion therefore, it was noted that habilitation has been of great help to learners with Spina Bifida. Learners have gained mobility and many other skills by

themselves. They can do toileting and own wash out, use wheelchairs and catheter and use books in class. Those learners have improved academically and made progress in their social lives. Some of the teachers handling these learners have had training and experience in special education. However, most of them only have training in education and have not trained in special education. They only learn about caring for learners with spina bifida from older colleagues. Therapists have helped learners with spina bifida to gain more skills by helping them in doing exercises. This makes these learners mobile and more comfortable in class. The school also have dispensary where these learners get medical attention whenever needed. However, in this dispensary there are no facilities that are friendly to learners with spina bifida. There is a need to equip these facilities with equipment that will enable medical professionals to handle learners with spina bifida in the best way. The schools should also have facilities that are friendly to the learners. The classrooms should have the recommended number of learners for easy movement and manipulation of learning materials.

Concerning the difficulties experienced by learners with SB when participating in learning, the study found out that the pupils had diverse limitations including poor motor skills, slow in completing assignments, low concentration in learning tasks, problems in grasping objects, poor bladder and bowel control and mobility problems which hindered movement when participating in learning tasks. Supporting these findings, Bigge (1982), says that learners with SB face special obstacles that other learners without disabilities do not face on their road to maturity and independence. These findings imply that for learners with SB to overcome the obstacles that are directly caused by their disability, they need assistance, failure to this the learners' academic performance will continue being dismal.

5.4 Recommendations

The study aimed at establishing the influence of habilitation on academic achievement of learners with SB at Joytown special school. The following recommendations are made on the strengths of the study findings.

5.4.1 Recommendations on Academic Skills

Learners with Spina Bifida have the potential to excel in academics. After habilitation, they become more confident and have greater self-esteem. The following recommendations can be adopted to ensure that learners with spina bifida benefit more academically after habilitation;

- Early intervention is important to ensure that their condition is arrested before it becomes more serious. This will make it easier to habilitate the learners before they get to the upper classes where it is hard to learn new skills.
- Some learners with SB are very slow in learning hence the need for curriculum to be reviewed to cater for their needs.
- The classrooms were found to be crowded hence the need for making the classrooms to be more disability friendly. They should be more spacious and well equipped.
- It was also found out that some of the teachers handling these learners were not well trained. The National government should make it a requirement for all teachers who have no training in special education to have in-service training in special education and professional development sessions or courses for those already in the field.

- Schools should provide equipment like therapy equipment, wheelchairs, seats and computers that are friendly to learners with spina bifida, pens and other learning materials.

5.4.1 Recommendations on Daily Living Skills

Some of the recommendations that can help learners acquire daily living skills include;

- There should be early training and the learners should be given ample time to learn the skills without pressure because they are slow in learning.
- Adapted functional aides should be provided, for instance, cutleries

5.4.3 Recommendations on Methods and Materials Used

Most of the resources in these institutions are donor funded and sometimes they do not offer them. Some of the recommendations that can be adopted to solve this are;

- The institution should have a running workshop and employ more artisans and other qualified personnel to take care of these equipments.
- The government should draw some policies to necessitate the equipping of the institution's habilitation centre. More funds should be availed by government to equip the institutions. The county government and local leadership through C.D.F should also come in and help in improving infrastructure in the school.

5.4.4 Recommendations on qualification level of Personnel offering habilitation to learners with SB

The following recommendations can help therapists and teachers deliver better services;

- ❖ It was found that the number of personnel is low. There should be introduction of undergraduate programs in most of higher learning institutions.

- ❖ . The ratio of therapists to the learner is still high. More therapists should be deployed in the institution. The teachers as well as therapists should be well remunerated.

5.5 Areas for Further Research

The following study areas have not been covered by this study. More research can be carried out on them.

- Effectiveness of early intervention on social development of learners with SB.
- Causes of an increase of cases of SB and hydrocephalus in Kenya today, mostly from poor background.
- Other causes of low academic performance of learners with SB.

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APPENDICES

RESEARCH INSTRUMENTS

INTERVIEW GUIDES

This interview is part of an educational study that is being conducted by the researcher in the institution. The information will be treated as confidential during and even after the study. The researcher is therefore requesting for your co-operation and assistance. The information you give will be very important for this study.

APPENDIX A

INTERVIEW GUIDE FOR HEAD TEACHER

1. For how long have you been the head of this institution?
2. Have you been trained in special needs education? If yes, up to which level?
3. Are there some difficulties you have faced as an administrator when handling learners with spina bifida? If yes, give some examples.
4. Does the school offer habilitation for children with spina bifida? If yes, what difficulties have you faced in the habilitation in terms of personnel training and other resources in the institution?
5. Are there enough habilitation facilities and personnel in the school? Give your insight and recommendations.
6. What is the impact of the habilitation on the academic performance in the school?
7. What is your view on the habilitation done on the learners with SB in your school? What are your recommendations?

APPENDIX B

INTERVIEW GUIDE FOR TEACHER AIDES

1. How do you assist learners with Spina Bifida in classroom?
2. Which difficulties do you encounter when offering services to the learners with SB?
3. How can these difficulties be minimized?
4. Does habilitation help the learners in their Daily living skills?
5. How is the performance in the classroom of the learners before and after habilitation process?

APPENDIX C**INTERVIEW GUIDE FOR LEARNERS**

1. For how long have you been in this institution?
2. Have you had any surgery done on you? If yes, where on your body, and where was it done (health institution)?
3. How long did you stay in the institution where the operation was done?
4. Is there any habilitation that has been carried out by the Therapists?

(Probe for the exact habilitation done).
5. Are you still going through the habilitation?
6. Has there been any change you have experienced due to habilitation? (Probe for Comparison).
7. Have you been given any adaptive aids from the school? (Probe for their effectiveness).

APPENDIX D**INTERVIEW GUIDE FOR THE THERAPIST**

1. Have you been in any professional training in habilitation? If yes, what is your highest qualification?
2. Which difficulties do you face when handling learners with spina bifida?
3. Are the resources in the institution enough to handle their diverse needs in habilitation?
4. Which strategies do you use in the habilitation of the learners to improve their quality of life and academic performance?
5. What more can be done on rehabilitation to improve the educational performance of learners with Spina bifida.
6. In the absence of habilitation, what do you think would happen to these children with Spina Bifida?
7. Does the school offer enough support on habilitation of these learners?
8. Give your general recommendations on habilitation of learners with spina bifida.

APPENDIX E

QUESTIONNAIRE FOR TEACHERS

This questionnaire has been formulated to obtain information on influence of habilitation on academic achievement of learners with SB. The information that you will supply will be treated as confidential and will not be used in any way against you. Ideas from various teachers will be combined in such a way that your identity will not be revealed. Put a tick (✓) in the bracket corresponding to your answer and explain where spaces have been left.

Name of the institution _____

Date _____ Class _____ Year _____

Gender: Male () Female () Age ()

1. What is your highest educational qualification?

a) KCE/GSE/KCSE ()

b) KACE/EAACE/HSC ()

c) B.ED/B.S.C/B.A ()

Others (specify) _____

2. What is your professional qualification?

a) P4 ()

b) P3 ()

c) P2 ()

d) P1 ()

Others _____

3. For how long have you been teaching learners with disability?

a) 0-3 years ()

b) 4-6 years ()

c) 7-10 years ()

d) 11 years and above ()

4) How long have you been teaching in this institution?

a) 0-3 years ()

b) 4-6 years ()

c) 7-10 years ()

d) 11years and above ()

5) Have you had any training in special education?

Yes () No ()

6) Do you face any difficulties when handling learners with SB?

If yes, give some details_____

7) Does habilitation help in academic participation in the classroom?

Yes () No ()

If yes, give some details on their performance before and after habilitation.

8) Make any other comment on what need to be done to make habilitation more effective for academic performance.

THANK YOU FOR YOUR CO-OPERATION

APPENDIX F**OBSERVATION GUIDE FOR THE RESEARCHER**

Item	Available facilities/equipment	Adequate/inadequate	condition
Classroom	Tables/lockers		
Toilet	Pan		
Dormitories	Bed		
Environment	Handrails		
Habilitation Resource Centre	Therapy equipment		
Medical services	Dispensary		
Medical equipment	Catheters		