

UNIVERSITY OF EDUCATION, WINNEBA

DEPARTMENT OF SPECIAL EDUCATION

**DEVELOPING MANIPULATIVE SKILLS OF CHILDREN WITH
SEVERE INTELLECTUAL DISABILITIES, USING DRAWING AND
PAINTING.**



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DECEMBER, 2014

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A DISSERTATION/THESIS IN THE DEPARTMENT OF EDUCATION IN SPECIAL
EDUCATION, FACULTY OF EDUCATIONAL STUDIES, SUBMITTED TO THE
SCHOOL OF GRADUATE STUDIES, UNIVERSITY OF EDUCATION, WINNEBA
IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF
MASTER OF EDUCATION IN SPECIAL EDUCATION, WINNEBA

DECEMBER, 2014

DECLARATION

Candidate Declaration

I, Odiade Roland Richmond hereby certify that the material which is submitted in this thesis towards the award of the Masters in Special Education is entirely my own work and has not been submitted for any academic assessment other than part-fulfillment of the award named above.

Name of Candidate: Odiade Roland Richmond

Signature of Candidate:

Date:

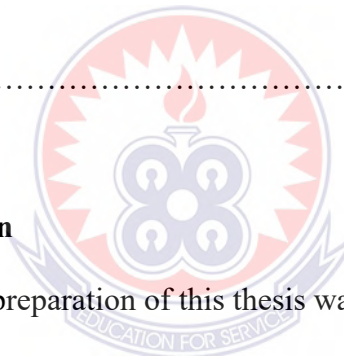
Supervisor's Declaration

I hereby declare that the preparation of this thesis was supervised in accordance with the guidelines and supervision laid down by the School of Research and Graduate Studies of University of Education, Winneba.

Name of supervisor: Dr. Yaw Nyadu Offei

Signature of Supervisor:

Date:



DEDICATION

This work is dedicated to my wife, AUGUSTINE A. ODIADE, my son SELI and my entire FAMILY, for their patience and support for allowing me to pursue this course at the expense of their comfort. Their daily prayers for me have brought me to the successful end of my course.



ACKNOWLEDGEMENTS

I would like to express my profound gratitude to The Lord God for the success of this thesis. Second gratitude goes to my supervisor Yaw Nyadu Offei (PhD), for his encouragement, guidance and useful suggestions throughout this thesis. His moral support and suggestions have helped me with the successful completion of my thesis.

I would also like to thank all the participants who agreed to take part in the research. Their valuable time and views have contributed immensely to this work. This thesis would not be possible without them.

I am also grateful to Prof. Mawuto Avoke, Dean for GRADUATE SCHOOL, UNIVERSITY OF EDUCATION, WINNEBA for his guidance and useful suggestions and support. I wish to thank Rev. Prince Bohli, Mrs. M. A. Thompson and Mr. Moses Affran for their support.

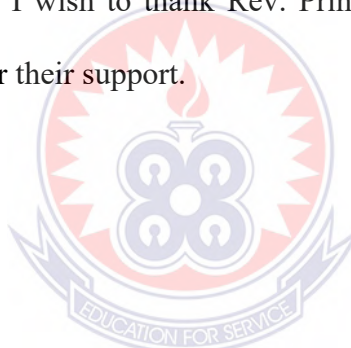
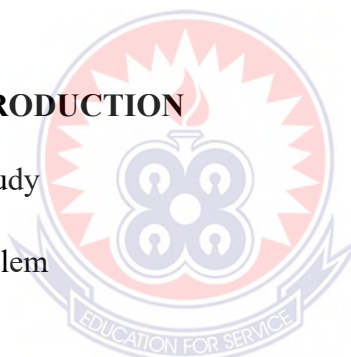


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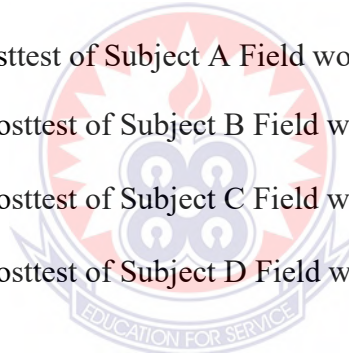
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ABSTRACT

There is a relatively small body of research on the motor performance of children with severe intellectual disabilities. Adequate levels of motor skills may contribute to lifelong enjoyment of physical activity, participation in sports and healthy lifestyles. This paper is An attempt to examine current practices of developing the manipulative skills of children with severe intellectual disabilities with the view to accurately analyzing, categorizing, documenting and coming up with areas of best practices. This study explores the role of drawing and painting in developing the manipulative skills of children with severe intellectual disabilities. It was also aimed to address the role of the teacher in teaching drawing and painting and the significant role of drawing and painting in the development of the manipulative skills of children with severe intellectual disabilities.

It was also to observe their experience in drawing and painting and other activities such as combing of hair and lacing of shoes. The data gathered from the beginning till the end helped to determine the effectiveness of the study.

The findings were that most of the children with severe intellectual disabilities could not hold drawing tools appropriately and join the broken lines correctly and paint within a given space correctly. At the end of the exercise, the subjects were able to grab the drawing tools correctly, join broken line, and also coloured all boxes correctly.

This study highlights the importance of improving motor skill performance in children with severe intellectual disabilities, and the results support the notion that the level of motor and cognitive functioning are related in children with severe intellectual disabilities.

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

This study sought to use drawing and painting to help develop the manipulative skills of children with severe intellectual disabilities in Dzorwulu Special Schools, Accra. An attempt made to examine current practices of developing the manipulative skills of children with severe intellectual disabilities with the view to accurately, analyze, categorize, document and come up with areas of best practices. These areas of best practice are the ones which will be combined to give rise to the proposed new ways of using drawing and painting in developing the manipulative skills of children with severe intellectual disabilities

The ability of children with severe intellectual disabilities to live independently is an issue that poses great challenge to parents, teachers and the society as a whole. This has become essential because of the realization that persons with severe intellectual disabilities are after all capable of learning and training that could make them independent (Avoke 2001). Special Education Department of the University of Education, Winneba, under the Ghana Education Service has designed teaching methods that guide special education teachers on ways of developing the fine motor skills of children with severe intellectual disability.

Fine motor skill is an art which basically teaches pupils how to use their upper extremities to operate simple appliances and accessories for pre-vocational activities. Examples of such activities include pointing and touching, mulling and shaping, drawing and painting, grasping and releasing and so on.

The development of fine motor skills is a fundamental skill needed because it enables children with severe intellectual disability the urge to perform daily living activities. Fine motor skill development is essentially considered for different situations in the life of children with severe intellectual disabilities. Persons with severe intellectual disabilities require some kind of exposure and practices to develop dexterity in performing many fine motor tasks. According to Mauro (2002), a learner who is not exposed to the development of fine motor skills will have deficits in task such as cutting with scissors, colouring, drawing, scribbling, writing, and many others. Persons with intellectual disabilities whose hands do not seem to coordinate in the way they should, become frustrated and they may resist activities that require them to coordinate all the muscles and joints in their hands and fingers (Woodward & Swinth, 2002).

According to Shand (2004), weakness in fine motor skills can affect a child's ability to eat and write legibly. It is said that children who are well grasped with fine motor skill have the ability to hold pencil and other objects firmly. Activities like drawing and painting, clay work, and bead making are very useful for fine motor skill development (Avoke 2005). Though all these have been provisions provided in the curriculum, drawing and painting are not seen as a way of improving the fine motor skills of persons with severe intellectual disabilities.

1.2 Statement of the problem

Many children with severe intellectual disabilities remain in the special schools for a many years without acquiring any basic skills to enable them live independently, due to the fact that they have problems with fine motor skills. In Dzorwulu Special School for instance, it has been observed that many learners have difficulty participating in activities involving manipulative skills. Most of them have difficulty holding objects. They cannot perform tasks such as brushing of the teeth, washing of hands, carrying things and even playing games that involve throwing and catching. This assertion is supported by a special needs education report of 2009, by the Special Education Division of the Ghana Education Service, it stated that 70% of individual with special needs are unable to perform basic activities that require the use of their physical senses like the hands.

It is against this backdrop that this study seeks to establish the extent to which drawing and painting could be used as a tool to improve upon the fine motor skill of these individuals. Avoke (2005) is of the view that painting and drawing has the potential of enhancing the fine motor skills of persons with intellectual disabilities.

1.3 Purpose of the study

The purpose of this study was to establish the use of drawing and painting for the development of fine motor skills of children with severe intellectual disabilities. It also seeks to identify the strategies teachers could use in drawing and painting for developing fine motor skills of learners with severe intellectual disabilities. Furthermore, the study is to uncover the challenges teachers face using drawing and

painting for developing fine motor skills of learners with severe intellectual disabilities.

1.4 Objectives of the Study

The study was guided by the following objectives:

- 1.4.1 To find out how the use of drawing and painting by schools helps in developing the manipulative skills of children with severe intellectual disabilities.
- 1.4.2 To determine the effectiveness of drawing and painting in developing fine motor skills and identify challenges teachers encountered and how they resolve them.
- 1.4.3 To be able to establish benefits from the use of drawing and painting for the development of fine motor skills of children with severe intellectual disabilities.

1.5 Research questions.

The study is guided by these instructive questions:

- a) What role do drawing and painting play in the development of fine motor skills of children with severe intellectual disabilities?
- b) What is the role of the teacher in developing the manipulative skills of children with severe intellectual disabilities through drawing and painting?
- c) What procedures do teachers use by means of drawing and painting to develop the fine motor skills of children with severe intellectual disabilities?
- d) What are the challenges teachers face in using drawing and painting to develop the fine motor skills of children with severe intellectual disabilities?

- e) What are the benefits children with severe intellectual disabilities derive from the use of drawing and painting for the development of fine motor skills?

1.6 Significance of the study

The core contribution of this work is for teachers in special schools to develop interest and understand the importance of using drawing and painting to develop the fine motor skills of children with severe intellectual disabilities so they will be capable of manipulating their environment. This work will also provide a foundation for generating strategies to be used in developing manipulative skills of these individuals with drawing and painting in mind. It would provide the foundation on which other adaptive skills and activities will be based when teaching individuals with severe intellectual disabilities. Finally it will expose the challenges special educators face using drawing and painting for developing fine motor skills of persons with severe intellectual disabilities, which would be a reminder to all stakeholders of the need to provide the needed logistics for special education purposes.

1.7 Delimitations of the Study

Even though different categories of children with intellectual disabilities are found at Dzorwulu Special School in Accra, this study focused only on selected teachers and children with severe intellectual disabilities. The school was purposively chosen because the researcher has been a teacher in this school since 2003 and hence, has become familiar with the teaching and learning environment of the school.

1.8 Definition of terms

Intellectual disability: A disability characterized by significant limitations both in intellectual functioning and in adaptive behaviour, which covers many everyday

social and practical skills. This disability originates before the age of 18. Intellectual disability is a term used when a person has certain limitations in mental functioning and in skills such as communicating, taking care of him or herself, and social skills.

Fine motor skill: Generally refers to the small movement of the hands, wrists, fingers, feet, toes, lips and tongue. Shand (2004) define fine motor skills as small muscle movement in the hands and fingers.

Fine Motor Skills: Defined as coordination of small muscle movement which occurs in fingers in coordination with the movement of eyes

Creativity: The ability to make or design something new.

Line: The path made by a moving point of a tool, instrument or medium across an area.

Drawing: a drawing is an artwork created from lines on areas or on a piece of paper. Drawing is a two-dimensional artwork created from lines or tone that is dominated by a dry medium but can include wet mediums such as ink, and washes of paint.

Painting: Is the practice of applying paint, pigment, color or other medium to a surface . The medium is commonly applied to the base with a brush but other implements, such as sponges, and brushes, can be used. Paintings may have for their support such surfaces as walls, paper, canvas, wood, glass, lacquer, clay, leaf, copper or concrete, and may incorporate multiple other materials including sand, clay, paper, gold leaf as well as objects.

Repetition: A principle of design, where an element is used more than once.

Test: A collection of tasks that are used to enable the systematic observation and recording of behaviours selected to represent important educational aims.

Testing: The eliciting of responses from students to questions posed under structured conditions.

1.9 Organization of the Study

The study was organized into six chapters. These chapters are thematic in the sense that they indicate what is being covered. The chapters are in this order:

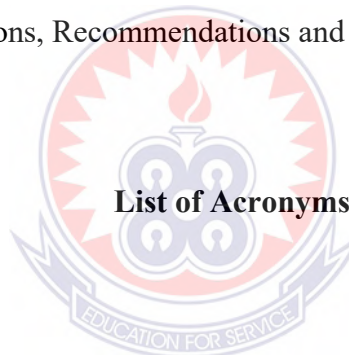
Chapter 1: Introduction

Chapter 2: Theoretical framework or Literature Review

Chapter 3: Methodology

Chapter 4: Results Interpretation, Analysis and Presentation, Findings and discussion

Chapter 5: Conclusions, Recommendations and Suggestions



List of Acronyms

WK: Week

HER: Hummingbird Educational Resources

SOC: Saskatchewan Online Curriculum

PAR: Participatory Action Research

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This section reviewed related pertinent literature of earlier studies conducted on developing the manipulative skills of children with severe intellectual disabilities using drawing and painting. The literature was reviewed from research articles, journals, periodicals, magazines, internet, and books written by renowned authors.

The areas reviewed were:

- i. Motor skills development.
- ii. Fine motor skills
- iii. Fine motor skills development.
- iv. Creativity in children and the creative process
- v. Artistic Development and Growth in Children
- vi. The use of drawing and painting for developing fine motor skills of children with severe intellectual disabilities.
- vii. Strategies for developing fine motor skills for children with severe intellectual disabilities using drawing and painting.
- viii. Benefits of fine motor skills development for children with severe intellectual disabilities.

2.2 Motor skills development

Due to the immaturity of the human nervous system at the time of birth, children grow continually throughout their childhood years. Many factors contribute to the ability and the rate that children develop their motor skills. An uncontrollable factor includes genetic or inherited traits and learning disorders. A child born to short and overweight parents is much less likely to be an athlete than a child born to two athletically built parents. Controllable factors include the environment, society, and the culture they are born into. A child born in the city is much less likely to have the same opportunities to explore, hike, or trek the outdoors than one born in the rural area. For a child to successfully develop motor skills, he or she must receive many opportunities to physically explore the surroundings. (Kurt & Lisa 2007).

A motor skill is described as an action which involves the movement of muscles in a body. Motor skills are also commonly considered the building blocks to more advanced movement skills and specific sport skills (Payne & Isaacs, 2002; Seefeldt, 1980). According to Amorson (2001), a motor skill is an action that involves the movement of muscles in the body. Motor skills help children control their bodies, manipulate their environment, and form complex skills and movement patterns involved in daily living activities and other recreational activities (Payne & Isaacs). Motor skills do not simply develop as a result of age; they must be instructed and practiced (Haywood & Getchell, 2002; Payne & Isaacs,).

Motor skills are divided largely into two groups: gross motor skills and fine motor skills. Gross motor skill require the use of large muscle groups to perform tasks like walking, balancing, and crawling. Much of the development of these skills occurs

during early childhood. The performance level of gross motor skill remains unchanged after periods of non-use. Gross motor skills, which include the larger movements of arms, legs, feet or the entire body, enable such functions as crawling, running, jumping walking, kicking, sitting upright, lifting and throwing a ball, maintaining a body balance, and coordinating. According to Floet (2010), it also maneuvers large muscle groups coordinating functions for sitting, standing, walking, running, keeping balance and changing positions. Throwing a ball, riding a bike, playing sports, lifting and sitting upright are brief descriptions of large motor movements. Gross motor skills depend upon muscle tone, the contraction of muscles and their strength for positioning movements.

Fine motor skills on the hand is the use of smaller muscle groups to perform tasks that are precise in nature. Activities like playing the piano and playing video games are examples of using fine motor skills. Fine motor skills are the collective skills and activities that involve using the hands and fingers (Amundson & Weil, 2001; Case-Smith & Shortridge, 1996). That is, fine motor skills are those skills that require the small muscles of the hand to work together to perform precise and refined movements. Additionally fine motor skills involve movements of the fingers, hands and wrists. It helps in the manipulation of small objects, like typing, cutting, tying, sewing and do other complex activities that require working with the small muscles of the hands. According to Wells (2001), a fine motor skill involves small action, such as grasping objects between the thumb and a finger or using the lips and tongue to taste things. Fine motor skills also involve the small muscles of the body that enable such functions as writing, grasping small objects, and fastening clothing. It develops as the neurological system matures. The level of development of fine motor control

in children is used to determine the developmental age of the child. Fine motor control requires awareness and planning to complete a task. It also requires muscle strength, coordination and normal sensation. Tasks such as stacking blocks, cutting out shapes with scissors, drawing lines or circles, tearing paper, buttoning a button, and holding and writing with a pencil can occur only if the nervous system matures properly. Davis (2013). Under normal circumstances, both types of motor skills usually develop together because many activities depend on the coordination of both skills. Discrete tasks usually require more fine motor skill than gross motor skills. Furthermore, both types of motor skills usually develop together, because many activities depend on the coordination of the gross and fine motor skills. Again, Edwards, Buckland, and McCoy-Powlen (2002) suggested that fine motor skills cannot develop smoothly without the concurrent development of gross motor skills. Motor skills development is a well laid down educational programme for the development of children with severe intellectual disabilities to build their joints for coordination and ability to hold objects. Furthermore, Liddle and York (2003). point out that motor development consist of the ability of learners to imagine a mental strategy to carry out a movement or an action, for instance, how to get on top of a table, how to move from one point to the other and overcome some obstacles or learning how to skip. These authors explain that most learners develop some preconscious planning in the sequencing of movements, including how the body and limb coordinate, the amount of strength required and the necessary steps needed to achieve a specific goal. Kurtz (2003) noted that a person with that developmental coordination disorder has a hard time doing things like riding a bike, holding a pencil and throwing a ball. People with developmental coordination disorders may also have a hard time completing tasks that involve movement of muscle group in sequence.

Such persons might be unable to open and close doors, get out a jacket and put it on. It is a common knowledge that children who experience learning disabilities have delayed developments in the motor skills.

2.3 Fine Motor Skills

Fine motor skills are broadly defined as the manual dexterity involved in coordinating muscle movements in the fingers (Essa, Young, & Lehne, 1998), and primarily rely on the prefrontal cortex (PFC) and cerebellum (Diamond, 2000). This includes the basic control of small muscle movements, which govern such abilities as finger dexterity, motor sequencing, and fine motor speed and accuracy (Davis & Matthews, 2010). Fine motor skills often also involve the incorporation of visual stimuli from the environment (Korkman, Kirk, & Kemp, 2007). Whenever children grip a pencil, tie their shoes, or write their names, they are relying on their fine motor skills.

In a school setting, fine motor skills can become quite complex when children must perform tasks such as copying images, letters, or numbers in pencil-and-paper tasks, as this requires them to use visual information from the environment in combination with small muscle control to reproduce an image or figure (Carlson et al., in press; Sorter & Kulp, 2003). Such tasks involve processing visual input, creating a mental representation of that information, and then accurately reproducing that image (Sorter & Kulp). Carrying out fine motor tasks in the classroom is likely to place heavy cognitive demands on young children, as many of the processes described above are complex and often not practiced. Fine motor skills in general are often measured using drawing, copying, and block-building tasks, which capture the various ways that fine motor skills, may come into play in a classroom setting.

2.4 Fine motor skill development

Teacher Resource, Education Dept., Western Australia (2004), explained fine motor skills as the collective skills and activities that involve using the hands and fingers and movement patterns that involve different body parts such as the legs, arms, trunk and head, and include such skills as running, hopping, catching, throwing, striking and balancing. International Conference - Team-Teach (2009), Bangalore, also defined fine motor skills as a coordination of small muscle movement which occurs in fingers in coordination with the movement of eyes. Fine motor skills are also smaller actions, such as holding an object between the thumb and a finger or using the lips and tongue to pronounce words and syllable. Skill Builders (2002), referred to fine motor skills as those skills that require the small muscles of the hand to work together to perform precise and refined movements. Fine motor skills are the manner in which we use our fingers, hands, and arms. They include reaching, grasping, manipulating objects and using different tools like crayons and scissors.

Fine motor skills therefore are broadly defined as the manual dexterity involved in coordinating muscle movements in the fingers and primarily rely on the prefrontal cortex (PFC) and cerebellum, (Diamond, 2000). Manual dexterity is the ability to accurately manipulate the hands and fingers for neat handwriting, drawing, typing skills. Simple activities such as writing, drawing, buttoning, faster clothing etc, involve a refined use of the small muscles controlling the hand, fingers and thumb. The abilities which involve the use of hands, such as holding an object or catching a ball involve precise hand to eye coordination. Fine motor skills can be developed with time and practice.

Davis & Matthews (2010) also stated that fine motor skills is a basic control of small muscle movements, which govern such abilities as finger dexterity, motor sequencing, and fine motor speed and accuracy. Fine motor skills often involve the incorporation of visual stimuli from the environment and whenever children grip a pencil, tie their shoes, or write their names, they are relying on their fine motor skills. (Korkman et al, 2007).

Fine motor skills typically develop in a reasonably consistent and predictable pattern in the early years of childhood (from birth through to mid primary school) Exner, (2001). The process begins in infancy when a 2 to 3 month old baby first bats at a toy, then progresses to grasping, releasing, and transferring objects between their hands (Case-Smith & Shortridge, 1996; Edwards, et al 2002;). They then progress to using fingers to manipulate and explore things, stack blocks, self-feed, and dress, and as time goes by, during the early childhood years, use 'school tools' such as scissors, markers, crayons, pencils, and glue. By the time a child enters primary 1, there are a number of fine motor skills that they generally demonstrate in a spontaneous and well-integrated manner. Depending on the child's previous experience and exposure to different activities, the quality of these skills vary. However, with ongoing experience, and practice, the rate and quality of each child's fine motor skills continues to develop throughout childhood with time and practice.

According to Skill Builders (2002), just as gross motor skills begin to develop on the first day of life, so do fine motor skills. However, one must remember that how newborns, infants, and toddlers are individuals with some learning new skills quicker than others so are children with intellectual disabilities. During the infant and toddler years, children develop basic grasping and manipulation skills, which are refined

during the preschool years. The preschooler becomes quite adept in self-help, construction, holding grips, and bimanual control tasks requiring the use of both hands. When people think of the child's growth and development they can remember the ages at which the child first rolled, crawled, or walked. How many can recall the age at which they picked up small items between their thumb and index finger, or transferred objects from one hand to another?

Children need daily experience with developmentally appropriate fine motor activities so they can build the confidence and skills they will need later in life (Bredekamp & Copple, 2009). In a high-quality preschool, teachers provide ample opportunities for children to participate in drawing, cutting, gluing, stringing, and manipulating objects with their hands. In some basic schools in Ghana, children further refine their fine motor skills as they participate in handwriting, computer keyboarding, science experiments, and more complex art projects. In a school setting, fine motor skills development can become quite complex when children must perform tasks such as copying images, letters, or numbers in pencil-and-paper tasks, as this requires them to use visual information from the environment in combination with small muscle control to reproduce an image or figure (Sorter & Kulp, 2003). Sorter and Kulp further explained that such tasks involve processing visual input, creating a mental representation of that information, and then accurately reproducing that image. Carrying out fine motor tasks in the classroom is likely to place heavy cognitive demands on young children, as many of the processes described above are complex and often not practiced or automated for kindergarteners. Fine motor skills in general are often measured using drawing, copying, and block-building tasks, which capture the various ways that fine motor skills, may come into play in a classroom setting.

Research by Teacher Resource, Education Department Western Australia, (2004), found that children are hindered by low motor skills and is major barrier to participating in physical activities and drop out from organized sports and others, because they cannot perform the tasks well enough. Children who develop confidence with their fine motor skills may enjoy many benefits. Those who have a positive attitude to physical activity may have higher self esteem, improved health and well being, good social skills, are more willing to take risks and are also more likely to maintain an active and healthy lifestyle. The study further stated that, children with low motor skills can be at risk of reduced self-esteem and choose to avoid physical activity. This may lead to compromised muscle and bone density, reduced fitness and fewer opportunities for social development.

However, none of these fine motor skills can develop smoothly without the concurrent development of gross motor (large muscle) skills. In fact, typically, development proceeds in a cephalo-caudal (head to toe) and proximal-distal (moving from the body parts closest to the trunk to those furthest away) pattern. That is why it is important to include things like 'tummy time' for infants, to encourage development of their trunk, shoulder, and hip musculature. In simple terms, this means that development of stable shoulders and upper arms provides a solid base for the development of skills such as self-feeding and using scissors and writing tools.

Fine motor skills include:

Ocular Motor control: The ability of the eyes to follow and focus on an object in the field of vision as required.

Hand-eye coordination: The ability to execute activities with hands, guided by the eyes requiring accuracy in placement, direction and spatial awareness.

Manual dexterity: The ability to accurately manipulate the hands and fingers for neat handwriting, drawing, typing skills etc.

Sterognosis: The ability to recognize unseen object using the sense of touch.

Tactile perception: The interpretation of information transmitted via the fingertips to the brain.

Fine motor skills and abilities

Fine motor skills are basic for individual development, and their absence would render the attainment of a number of milestones in early child socialization unthinkable. The fine coordination of small muscle groups, above all those in the hand, is essential for a variety of activities. Among these are dressing and undressing; tying shoes; the utilization of eating utensils; holding and guiding pencils, paintbrushes and rulers; using scissors; turning the pages of a book; and piecing together Lego tiles or jigsaw puzzles. In fact, fine motor skills correlate consistently with general as well as specific cognitive abilities. Relationships have been confirmed with optical differential abilities, reaction speed (Voelcker-Rehage, 2005) and intelligence (Baedke, 1980; Wassenberg, R., Kessels, A. G. H., Kalff, A. C., Hurks, P. P. M., Jolles, J., Feron, F. J. M., 2005). Further studies confirm correlations between fine motor skills and scholastic performance up through, at the very least, the end of primary school, (Baedke; Beilei, Lei, Qi, & von Hofsten, 2002).

The ability to precisely manipulate and adjust objects in one's hands is linked with efficient, mature, and effective fine motor skills (Case-Smith, 2002; Cornhill & Case-Smith, 1996; Exner, 1990), and rapid manipulation of the pen or pencil depends on intrinsic and extrinsic muscles as well as sensory feedback. (Amundson, 2001).

Fine motor skills and cognition

Numerous empirical studies have examined the relationship between fine motor skills and cognitive abilities on the one hand and between fine motor skills and academic achievement on the other hand. Overall, evidence for links between fine motor skills and both general and specific cognitive abilities is particularly clear for preschool-aged children, (Davis, Pitchford, & Limback, 2011; Dellatolas, Braga, Souza, Filho, Queiroz, & Deloche, (2003); Grissmer, Grimm, Aiyer, Murrah, & Steele, 2010).

Specifically, cross-sectional work has established links between fine motor skills and the embedded figures test and semantic fluency Dellatolas et al., (2003) as well as between fine motor skills and crystalline intelligence, memory, and fluid reasoning (Davis et al, 2011). Recently, in longitudinal studies, Martzog and Stoeger (2011) found links between fine motor skills and cognitive processing skills one year later; and Grissmer and colleagues (2010), found links between fine motor skills and cognitive processing skills such as receptive vocabulary and attention skills. Overall, it appears that links between fine motor skills and cognitive abilities are stronger for young children and weaken as children age Martzog & Stoeger, (2011). The above indication goes to prove why the need to develop fine motor skills, which help in the total development of human being.

Those who lack fundamental fine motor skills are likely to experience frustration and difficulty in learning more advanced skills, reducing their enjoyment of sports and other activities, because tasks such as printing, colouring and cutting are not emphasized until a child is of preschool age, fine motor skill development is frequently overlooked when the child is an infant or toddler. Fine motor control requires awareness and planning to complete a task. It also requires muscle strength, coordination and normal sensation. Tasks such as stacking blocks, cutting out shapes

with scissors, drawing lines or circles, tearing paper, buttoning a button, and holding and writing with a pencil can occur only if the nervous system matures properly. Fine motor development is a very important part of the physical skill set. A child needs to learn to use his / her hands competently in order to manipulate toys and to acquire self-help skills such as feeding and dressing.

2.5 Creativity in children and the Creative Process

Encarta (1993) defines “creative” as the use of imagination to form new ideas or things while “creativity” is the ability to use the imagination to develop new and original ideas or things. In other words, creativity is making something new or improving what is already in existence to give it a new look or additional function. It also means re-arranging old things in new forms or making things a little different from what they used to be. It is in line with this meaning that the study developed activities which would motivate young pupils to be creative or original in their thinking and also be able to use new methods in carrying out creative projects that can unearth their hidden talents. Ward, Finke and Smith (1995) also believe that creativity can be best defined in terms of the products made, the differences in people, the pressures that motivate, and the processes behind creativity. This means the products made should be new and fresh. This makes it possible to consider some people to be more creative than others; there are some who are driven to create while others seek guidance and dialogue to create. This implies that teachers should always be vigilant in identifying pupils who are lagging behind the others and give them the necessary guidance through dialoguing to be creative.

Creativity is a continual process of rejecting and accepting, making and destroying or revising and adding, failing and succeeding, in a productive life as well as creating

artworks. It involves imagination and originality found in individual's way of life, as well as in creating art. This description of creativity shows that the creative process takes time, because it involves carefully thought out activities and manipulation of tools and materials.

According to Bogen and Bogen (2003), there are four stages in the creative process which are preparation, incubation, illumination, and verification. These stages are described as follows.

a. Stage of Preparation It involves all experiences in life. It also includes specific types of preparation for each work. It is the period for gathering information and techniques.

b. Incubation Stage This is the time when the creative person faces difficulties in his activities. He or she just goes away from the problem to do something else, but does not give up altogether, but comes back after giving it a critical thought.

c. Illumination Stage This is the feeling the creative person get when he is struggling with a thoughts and cannot quite put his finger on what is missing. The creative person left the work he or she was creating when faced with difficulty. All of a sudden, the answer to his or her problem comes to mind. He or she rushes back to continue the work. This can take days, weeks or even months, but he is hopeful and does not give up.

d. Stage of Verification At this point the creative person works harder with great joy. He aims at finishing the work, and may show the work to friends or experts for appreciation or criticism. It is obvious from the foregoing that at each stage, teachers must engage pupils in real life experiences to interact with tools, materials and processes creatively and always endeavour to spur the pupils on through praise, words of encouragement and forms of motivation such as prizes, special treats and

excursions to art exhibitions or fairs. This also means all noticeable withdrawal attitudes should be addressed to instill positive learning habits, in pupils. Finally, works of pupils should always be appreciated and exhibited for others to see and admire as this invariably boosts the morale of the pupils.

Conditions for Creative Growth

According to Rubin (2005), freedom is one way of thinking about facilitating conditions for growth necessary to help people actualize their creative potentials. This implies that the provision of a favorable environment would make it possible for each pupil to become him or herself. Therefore, teachers have to honour the child's quest for learning by offering experiences which reveal the art in our heritage.

Rubin (2005) share the view that A child is a dynamic being and art becomes for him a language of thought. If it were possible for children to develop without interference from the outside world, no special stimulation for their creative work would be necessary. Every child would use his deeply rooted creative impulses without inhibition, confident of his own means of expression. It can be inferred from / assertion that children develop progressively in artistic expression in a free environment and that children freely express their inner creative abilities in an atmosphere devoid of obstacles. This implies that teachers have to provide a congenial atmosphere, which will motivate children to continuously experiment to find new ways of doing things. Also children need not be restricted but rather be given the freedom to explore and experiment with materials and tools which will lead them to the discovery of skills and cherished values. Furthermore, Rubin (2005) is of the notion that for pupils to discover their styles and selves, teachers must accept and value whatever they do or say that is genuinely and truly theirs. Thus, individuality,

uniqueness and originality should be affirmed. This implies that teachers should love the child's art for what it is as their own expressions and also love those undeveloped scribbles and those poorly proportioned symbols as a stage in the child's maturation as a creative being.

2.6 Artistic Development and Growth in Children

Rubin (2005) asserts that children progress through certain stages of development in their art making. Each stage is identified by certain characteristics that show up repeatedly in their art works. Rubin claims that age ranges are nothing more than extremely approximate guidelines so far as the child's artistic development is concerned. Some of the growth stages that are discussed by Rubin are as follows.

- 1. Scribble Stage (2-4 Years)** At this stage, the child begins to scribble disordered uncontrolled markings that could be bold or light depending upon the personality of the child. At this stage the child has little control over motor activity but as they mature, they gain increasing control over their movements and begin to take more deliberate charge of what happens when using crayons or clay. The children practice and soon demonstrate their control over materials by repeating motions or activities, drawing longitudinal or circular scribbles which are controlled, or rolling and flattening clay. They start to consciously vary manipulation of materials to first make dots and then lines, or lines and then masses, and then make frantic efforts to squeeze materials to build in a way that is more than just putting up and putting down. This stage comes to the peak when the child begins to tell stories about the scribble which means the child moves from a kinesthetic thinking in terms of motion to imagination thinking in terms of pictures (Rubin 2005,)

- 2. Pre-Schematic State (4-6 Years)** Drawing at this stage depicts circular images with lines which are seen to suggest human or animal figures. Schema (visual ideas) is developed. At this stage children draw what they know, not what they see. This means that the children make representations of those things they know about an object that seem important to them at that moment. They explore different ways of doing, of making and of saying things. There is little understanding of space and objects are placed in a haphazard way throughout their pictures. Their use of colour is emotional rather than logical (Rubin 2005, p.38). It means that children at this stage cannot discover naturally that there is a relationship between colour and object. They cannot categorize, to group things in classes and to make generalization as “What colour is the sky?” to bring out the answer “The sky is blue” or to answer “What colour is grass?” as “The colour is green”
- 3. Schematic Stage (7-9 Years)** At this stage, children begin to find preferred ways of drawing and tend to repeat them. Children’s drawings have a kind of logic which they use for a period but which varies from child to child. Other observable changes in their drawings include:
1. Children’s demonstration of the awareness of the concept of space. In representing space, the child now draws his environment more objectively.
 2. Objects in their drawings have a relationship to what is up and what is down
 3. A definite base and sky line is apparent.
 4. Items in their drawings are all spatially related.
 5. Colours are reflected as they appear in nature. Thus, the child’s choice of colour is no longer determined by the emotions but now discovers naturally that there is a relationship between colour and object. It follows that the child begins to categorize, to group things in classes and make generalization such as “What

colour is the sky?” “The colour is blue”. “What colour is grass?” “The colour is green” (Lowenfield & Brittain, 1988: p.164).

6. Shapes and objects are easily definable.

Rubin (2005) also says children at the schematic stage also use the following techniques.

a) Exaggeration: A drawing in which things children cherish most are given prominence among others (drawn boldly, taller or bigger).

b) Folding over: Drawing in which objects are drawn perpendicular to the base line. Sometimes the objects appear to be drawn upside down.

c) X-ray picture: In an X-ray picture, the subject is depicted as being seen from the inside as well as the outside.

The Creative Arts

The Creative Arts is a comprehensive curriculum of instructions meant to teach creativity in the primary schools in Ghana. The curriculum is integrated and encompasses Visual Arts, Sewing and Performing Arts (CRDD, 2007). The inclusion of drawing, weaving, modeling, casting, carving and painting, music, dance and drama confirms Kindler's (2008) assertion that Creative Arts encompasses art and craft, music and dance. The Creative Arts is described by the Teaching Syllabus (2007) as a practical subject with no vocational objective but which emphasizes creativity, skillful and efficient handling of tools and materials, skills and techniques to accomplish specific tasks and responding to artworks. According to Alter, Hays and O'Hara (2007), the scope of Creative Arts is broad based which teachers consider to be beyond their skills and knowledge. Agyeman-Boafo (2010) also says that the

nature of the Creative Arts in the Ghanaian primary school is such that it will take a teacher, who has been specifically trained in all the aspects of the subject, to be able to teach it effectively since it covers a wide range of subject areas in visual, performing and literary arts. The relevance of teaching Creative Arts is to inculcate in pupils problem solving, creative and critical thinking skills to enable them grow up and help in the technological advancement of the country. The main focus of Creative Arts is critical and creative thinking which will enable citizens to solve societal problems (CRDD, 2007). This means that teachers of the subject must be concerned with equipping pupils with the

2.7 The use of drawing and painting for developing fine motor skills of children with severe intellectual disabilities.

Hope (2008) defined drawing, as a form of meaningful mark making that tends to satisfy people for different purposes, which suggests that it provides people with different visual presentations depending on how they view it. Hope (2008) further emphasised that the term drawing can be used to describe a product and a process at the same time. By a product, she refers to the end result of mark making and process refers to the on- going drawing activity. It also confirms what many researchers, including Hope, Anning and Ring (2004), have noted, that, children use drawing to develop, create, communicate and record their thoughts.

Drawing as cognitive development

Children's ability to draw and portray their intentions has a relationship to their intellectual development. The kind of drawing activities that children are engaged in, help in developing their cognitive abilities through the discussions and reflections

they make on the various drawings. Brooks (2003) confirmed this when she emphasized that, having a dialogue with children whilst they are drawing, plays an essential role in promoting the mental function of children and therefore it becomes a powerful meaning-making tool. This obviously suggests that, when children are able to think deeply about what they have drawn and share their understanding, it enhances their intellectual abilities and various drawing activities of children are a reflection of their cognitive competence.

Brooks (2003) opines that drawing can be used to explain a concept thereby increasing children's understanding since it serves as a tool for remembering, and discussion about a drawing helps children to retrieve their memories from the drawing and children's engagement with art-making may give an essential balance of the child's intellect and emotions.

Painting

Painting is the art of creating pictures by applying color to a surface. Paintings can record events; capture a likeness of a person, place, or object; tell stories; decorate walls; and illustrate texts. Paintings can express emotions and ideas, or simply be enjoyed for their beauty.

Drawing and painting is one key exercise that is used in the development of fine motor skills of children with intellectual disabilities. Drawing is about capturing a picture by means of lines on a surface using any writing object such as a pencil, crayon, charcoal and others. Painting on the other hand is an activity of using paint or colours to create a picture. Even though there are many ways of developing fine motor skills, with children with severe intellectual disabilities, drawing and painting have stood the test of time proving as one of the best ways of fine-tuning the level of

coordination among children with severe intellectual disabilities. According to Hurlock (1978), the method a child uses to develop his or her fine motor skills is critically important to the kind of skill the teacher intends to impart. Hurlock (1978) further notes that while any method may in time enable the child to develop a skill, some methods are far more efficient and result in better, quality skills than other methods. He stressed that the strategies used in developing a child's fine motor skills must be varied for better result. In support Mayesky (2002), postulated that drawing and painting provide an environment which nurtures the development of a positive sense of self and good self-concept in the child. Further, Maylock (2002) stated that, drawing and painting need to be learned in such a way that it will give the child a chance to grow and develop fine motor skills. In line with the above, drawing and painting should be planned around the developmental needs of the children with intellectual disabilities.

To draw and paint, one requires tools and materials and the basic ones available are charcoal, crayons, pencils, pens, slates and paper. Raines and Isbell, (2003) have listed teaching tools and materials that may be required for drawing and painting such as, crayons, knife and paper. Wolf (1994) also listed some basic tools for drawing and painting as:

- ❖ *Crayons, felt pens, pastels, water-colour*
- ❖ *Paint knife*
- ❖ *Brushes and brush washer*
- ❖ *Painting surfaces*
- ❖ *Palette*
- ❖ *Razor blade scrapper*

- ❖ *Coloured stocks*
- ❖ *Erasers and sharpeners and many others*

The following tools and material were also stated by Hobart and Frankel (2002); old newspaper, a floor mop and bucket, facilities for drying paintings, paints, acrylic and oils, paper, dried materials and clean water.

Another critical consideration to be adhered to during drawing and painting is the precaution that teachers would have to ensure on their children. Children can cause damage to their bodies for instance when using sharp-pointed pencil if not guided. Children can also smear paints on their bodies and can even chew eraser which can cause illness. Raines and Isbell (2003) explain that, the best way to use tools and materials for drawing and painting is to consider children's safety. For example, considering the nature and ability of the children, they need to be watched closely to make sure they do not eat the paint since most paints are colorings with sweet fragrance.

Though children need constant care and control during drawing and painting lessons, they should be allowed to do things on their own. Some children may smear paints and colours in their aprons and mess up the learning but they should be given the space. Provision will be made for them at the end of the lesson to clean up the mess and possibly wash their clothing which still helps to improve their fine motor skills.

Finally, Hobart and Frankel (2002) were of the view that children with intellectual disabilities should be encouraged to use varied tools and materials that will make them think of additional items to be used in their drawing and painting.

2.8 Strategies for Developing Fine Motor Skills for Children with Severe Intellectual Disabilities Using Drawing and Painting.

Developing fine motor skills takes time and a lot of practice, so also does developing a skill for drawing and painting require that the teacher engages children in series of exercises like demonstration and role play which help the child to catch the concept with ease.

Brereton and Broadbent (2007) explained that children's fine motor skills are typically developed when the child participates in activities such as drawing and painting, cutting and pasting, and threading beads. Presenting these activities in interesting and different ways can increase the likelihood that the child with intellectual disabilities will choose to participate and develop their skills. Once these skills are well developed, other traditional activities will be easier for them to do and the child is far more likely to fully participate.

Brereton and Broadbent (2007) further stress the need to always consider the child's developmental level when choosing drawing and painting activities, keeping the activities very simple, short and interesting. According to Hobert and Frankel (2002), the three steps that can be used to improve a child's fine motor skills using drawing and painting are:

Supplying children with paper or sketchpad, coloured pencils, markers, pain and brushers.

Encourage children to experiment and play with colours, shapes and designs they can create.

They should continue to practice their drawing and painting on things they are interested in, and must be appreciated for that as to urge them on.

Gilbert (1995) agrees to the trend of allowing children to experiment and play with their colours, shapes, lines and designs that they can create. He believes that as it improves their skill development, more sophisticated water colour activities or oil painting activities should be used to guide and enhance their manipulations.

According Hummingbird Educational Resources (2009), children should be given the chance to make paints on their own, using the necessary tools and materials, and in the process of making paints, the children can combine powder colours with some amount of cold water in a small bowl, adding starch or glue with water colours, stirring colours and starch to mix up, till thickened and smooth. After that process, with the use of brushes, sponge and foams, children can bring out their own design and imaginative painting.

Hummingbird Educational Resources (2009), continued with an activity that allows children to put a paddle of liquid starch or glue on a paper directly on the table or any smooth surface, children can put a tablespoon of powder tempera, or a squirt of liquid tempera directly on starch. There should not be exact measurements, but children should be aware that with less paint, they get a transparent look and a little difficulty with paintings. Afterwards, children can use brushes, pens, pencils, felt pens, foam net and other tools and materials to paint on surfaces.

Hummingbird Educational Resources (2009), also propose the third activity that concentrates more on skills in drawing. The first step is to ask children to sort out tools and materials for drawing and painting, that is, crayon, pencils paper etc. Then next step is, the child can draw lines, shapes, and patterns using their pencils, the brushes dip into the paint and paint in between the lines, shapes and pattern.

Another activity according Hummingbird Educational Resources (2009) is “Finger Painting Fun”. In this activity, children who may be frustrated using drawing and painting tools can be helped to use their fingers to paint directly on serving trays using any paints or colours provided. Children should be asked to press a sheet of finger-paint paper onto the painted design on the tray and carefully lift up the paper.

Also Brereton and Broadbent (2007) suggest the following drawing and painting activities for children with intellectual disabilities in developing their fine motor skills as:

Providing children with spray bottle with different coloured liquids to make a picture.

Give out drawing tools and materials.

Children should be instructed and guided to draw and paint vertical surface to increase wrist extension and arm strength.

Children to use the spray bottles provided to spray vertical surface of drawing and painting done to bring out interesting picture.

Brereton and Broadbent (2007) also identified other activities which are stated in the following steps:

Provide children with tray.

Ask children to put sand, salt or shaving cream provided.

Children should spread their sand, salt or shaving cream to cover the tray.

Children should finger draw any interesting pattern or design.

There should always be a demonstration lesson before children are given the free range.

Lesson can be repeated by each child using the items provided (put sand, salt or shaving cream)

According to Evans (1998), on his part explained another strategy in developing the fine motor skills of children with intellectual disabilities as, the teacher first of all supplying the child with paper and or a sketchpad, coloured pencils, marker and drawing book. Again the child is provided finger-paint and water colours with appropriate paper and paintbrushes, next the child is allowed to experiment and play with colours, shapes and designs that he/she can create. Finally, children should be encouraged to move toward more sophisticated water colour activities or oil painting activities whilst learning is done on repeated levels by making lesson fun and interesting.

Furthermore Evans (1998), states that, children must be keenly observed on which hands he/she uses. They should be stopped whenever there is frustration and another task introduced until fine motor activity is improved.

Benbow (1999) also suggested that sitting posture is very important in improving children's fine motor skills. In drawing and painting, positioning is very important for engagement in fine motor tasks. According to Benbow (1998), children's seat should allow them to sit comfortably with feet placed firmly on the floor. Children's hips, knees and ankles should be at 90° angles with the torso slightly forward. The desk height should be approximately two inches above the elbow with his/her arm at rest at his side, if the child's chair is tall, leaving the feet dangling, a make footrest should be made out of old telephone books, bound together with masking of strong tape should be created to improve added stability for good mobility of the arms, hands and fingers.

Calder (2006) noted that children often use pencils, crayons, and markers before their hands are ready for these items. This can result in the learning of efficient pencil grasps that may become problematic. To encourage the development of proper grasp patterns, children should be given writing tools that promote the development of fine motor skills such as short crayons, egg-shaped chalk, charcoal and markers with horizontal and vertical lines.

There is the need for an efficient grasps techniques that student need to have

There are three widely accepted efficient grasps:

1. Dynamic tripod grasp (a grasp that is emerging in children at this age) - the pencil rests against the middle finger, the index finger and thumb pinch the pencil. The ability to control the movement of the printing tool using only finger movement (as opposed to the wrist or whole hand) develops throughout a child's fifth year.
2. Quadra pod grasp – the pencil rests on the ring finger, the middle finger, index finger, and thumb support the pencil.
3. Adapted tripod grasp – the pencil rests between the index and middle fingers, the thumb and index finger support the pencil. Efficient grasps have:

- Wide open web space
- Wrist and elbow are stable to support arm movement across the printing surface
- Fingers do the moving of the printing tool.

Some examples of inefficient grasps are the:

- Thumb wrap – the thumb rests or wraps over the index finger. This often occurs when the hand strength is not developed
- Left-handed hook – the left hand is bent forward or flexed at an awkward angle.

This grasp often occurs when the student is unable to see what is being written on paper. Teachers should check to ensure that the angle of the paper is aligned with the student's arm and have the student hold the printing tool 1-2 cm higher up the shaft of the pencil (SOC, 2011).

Structured learning experiences such as developmental play and learning centers are opportunities for teachers to provide a range of activities, which will help develop the fine motor skills of children. These will often include materials such as paper, pencils, crayon, paints, Lego, play dough, pegboards, clothing, sorting materials, construction toys, bottles and lids, and any other media utilizing the fingers, including computer-based technology (SOC, 2011).

2.9 Benefits of Fine Motor Skills Development for Children with Severe Intellectual Disabilities

The development of motor skills is critical for children with severe intellectual disabilities to move independently and to interact with their environment meaningfully and usefully.

Researchers and educationist have recognized that children with severe intellectual disabilities can perform simple daily living skills when their fine motor skills are developed. This makes it possible for them to integrate well into the society and reduce the workload they would have unburdened teachers and family members around them. Children who develop confidence with their fine motor skills may enjoy many benefits such as feeding and clothing themselves, brushing their teeth, opening a door or pointing to an object, which are daily activities needed for children to lead independent lives as adults later in life.

. Those who have a positive attitude to physical activity may have higher self esteem, improved health and well being, good social skills, are more willing to take risks and are also more likely to maintain an active and healthy lifestyle, Ackerson. (2010).

According to Ford (2002), children who may develop fine motor skills after a long period of constant practice with drawing and painting may generally demonstrate quite amazing interest in other abilities in hand dominance, pencil grasping and tripod grasping.

Megabrandts (2009) stated that, acquisition of fine motor skills gives the child the opportunities to benefit from muscle movement and hand-to-eye coordination. According to Megabrandts (2009), developing fine motor skills also requires patience and determination, however when well developed, children with intellectual disabilities become creative and imaginative, able to reason and solve problems, focused and attentive. Developing children with intellectual disabilities fine motor skills gives them the confidence and self-esteem and develop the skill in writing.

Megabrandts (2009) outlined some detailed benefits for developing fine motor skills of children with intellectual disabilities fine motor skills as follows:

Creativity and Imagination

When children become creative and imaginative as a result of developing their fine motor skills, they acquire the ability to see, move, notice, cut, paste, tie, snap, carry, open, hold, touch, sit, stand, feel, jump, bounce and chorography.

Reasoning and Problem-Solving

A well developed fine motor skills according to Megabrandts (2009), affords children with intellectual disabilities the ability to be mentally active and interpret sensory

information while playing expands their ability to reason and solve problems. Also, children with intellectual disabilities are encouraged to move accurately and combine interpretation with prior knowledge, thereby discovering learning and executing strategies to produce desired effects.

Focus and Attendance

The simple process of play induces children to become engrossed in sequential tasks and planning of an activity at hand. This type of attention builds in children in every challenge they encounter in life, making their mind to stay focused and attentive although they have short attention span Megabrand (2009).

Colour and Shape

In terms of colour and shapes, Megabrand (2009) contended that children with intellectual disabilities perceive shapes and colours through observation, touch and taking objects into their hands. This enables them to discover, experiment, build, shout, clap and the ability to express them descriptively.

Confidence and Self-Esteem

Confidence and Self-Esteem according to Megabrand (2009) encourages children with intellectual disabilities to engage in activities that bring to light their ability to act independently, assume responsibility and take pride in their accomplishments. The benefits are to be active and curious, grow, search, learn and triumph over challenges.

Reading and writing

Development of fine motor skills allows children with intellectual disabilities to develop picture reading abilities, stimulates their scribbling and writing skills and the benefits involve the ability to repeat, mimic, mark, print, read, experiment, pay attention, role-play, scratch, question, erase, listen, and laugh.

Fine motor skills and cognition

Numerous empirical studies have examined the relationship between fine motor skills and cognitive abilities on the one hand and between fine motor skills and academic achievement on the other hand. Overall, evidence for links between fine motor skills and both general and specific cognitive abilities is particularly clear for children with intellectual disabilities (Davis, et al., 2011; Dellatolas et al., 2003; Grissmer, et al., 2010). Specifically, cross-sectional work has established links between fine motor skills and the embedded figures test and semantic fluency (Dellatolas et al.) as well as between fine motor skills and crystalline intelligence, memory, and fluid reasoning (Davis et al). Recently, in longitudinal studies, Martzog and Stoeger (2011) found links between fine motor skills and cognitive processing skills one year later; and Grissmer and colleagues found links between fine motor skills and cognitive processing skills such as receptive vocabulary and attention skills. Overall, it appears that links between fine motor skills and cognitive abilities are stronger for young children and weaken as children age (Martzog & Stoeger, 2011).

Fine motor skills and academic achievement

In terms of academic skills, numerous studies, some of which were longitudinal, have identified connections between fine motor skills and mathematics achievement as well as between fine motor skills and reading achievement (Grissmer et al., 2010; Luo,

Jose, Huntsinger, & Pigott, 2007; Pagani, Fitzpatrick, Archambault, & Janosz, 2010). Moreover, fine motor skills measured in early childhood continue to have some predictive relevance for academic achievement through to fourth grade, at least. Overall, studies show that the links between fine motor skills and mathematics achievement are considerably stronger than those for fine motor skills and reading. In light of these predictive relations across the entire primary-school period, it seems plausible that deficits in fine motor skills could also play a role in underachievement during primary school

Powell (1991) affirmed that empowering children with intellectual disabilities with skills acquisition, leads to societal benefits through their activities, greater self sufficiency and is less dependent on government. According to Powell (1991) children with intellectual disabilities may have increased freedom to pursue their own activities and finally stressed family will have the opportunity to see their loved ones being independent.

The importance of fine motor skills in children enables them to perform a variety of important functional tasks. These include:

- tying shoes
- Zipping and unzipping.
- Buckling and unbuckling.
- Writing legibly and without significant muscle fatigue.
- Playing games that require precise hand and finger control.
- Drawing, painting, and colouring.
- Manipulating buttons and snaps.
- Putting small objects together such as beading or working with beads.
- Doing puzzles.

- Making crafts.
- Using scissors.
- Manipulating small objects such as coins.
- Opening and closing objects.
- Picking up and holding onto small objects.
- Developing and maintaining an effective and proper pencil grip.
- Pinching objects between fingers.
- Using locks and keys.
- Being able to isolate finger movements (i.e., using one finger at a time, such as in playing the piano or typing).
- Turning things over or turning pages of a book.
- Holding and using utensils properly and effectively.
- Screwing and unscrewing and
- Doing anything that requires small precise hand and finger movements.

Children's fine motor development is a very important part of their physical skill set. The children need to learn to use their hands competently in order to manipulate toy sand to acquire self-help skills such as feeding and dressing. Acquisitions of fine motor skills sufficiently help in complete writing, dressing, and feeding tasks. Children will now have enough bilateral coordination, eye-hand coordination, and dexterity to complete cutting and writing tasks. Children will continue to develop and improve these skills, but the groundwork needs to be developed and established. This is why children will need toys, games, and activities such as drawing and painting to perform and improve their fine motor skills. Fine motor skills are important in most school activities as well as in life in general. Weaknesses in fine motor skills can affect a child's ability to eat, write legibly, turn pages in a book, and perform personal

care tasks such as dressing and grooming. Properly developed fine motor skills are important to everyday living. Building fine motor skills in children can be fun for both the child and the attending adult. Play dough, silly putty, tearing paper, beading, dressing dolls, painting, and any other thing you can possibly think of to get those fingers moving. Fine motor skills development contributes to the development of communication skills in children. It affects their ability to manipulate their environment, create a sculpture or draw a picture; all of which are forms of communication. (Ackerson, 2010).

2.10 Summary

This chapter provides summaries of work in the intersections of some distinct areas: motor skills development, Fine motor skills development, Creativity, drawing and painting. It presents findings that integrate strategies for developing fine motor skills and finally benefits of fine motor skills for children with intellectual disabilities. In conclusion, the literature has provided detailed evidence to support the claim that drawing and painting has a great impact on children's manipulative skills development and their development as a whole (Anning & Ring, 2004; Brooks, 2003; Gentle, 2005).

CHAPTER 3

METHODOLOGY

3.1 Introduction

This study was done to investigate the role of drawing and painting in aiding the development of fine motor skills of children with severe intellectual disabilities' and to identify the teacher's role in them develop those skills. This chapter discusses the various methods used in collecting data for the study. It involves the research approach, design, population, sample size, sampling techniques, description of instruments, and data analysis.

3.2 Approach of the study

This study focused on developing the manipulative skills of children with severe intellectual disabilities, in Dzorwulu Special School using drawing and painting. To determine a direct response, a qualitative approach was used to conduct the research. Qualitative approach is a way to gain insights through discovering meanings by improving our comprehension of the whole. Qualitative research explores the richness, depth, and complexity of a phenomenon. According to Strauss & Corbin, (2000), qualitative research, broadly as defined, means any kind of research that produces findings not arrived at by means of statistical procedures or other means of quantification.

Using the qualitative approach was an attempt to increase an understanding of why the need for fine motor skills development and the use of drawing and painting to develop the manipulative skills of children with severe intellectual disabilities. This approach offers the opportunity to develop explanations of drawing and painting as a

tool for developing the manipulative skills of children with severe intellectual disabilities, very flexible, and also enable the researcher make adjustment during data collection to suit the emerging trend. In addition, the goal of the approach is to capture the richness and complexity of behaviour that occurs in natural settings and analyze inductively the data to generate findings. On data collection, Frankel and Wallen (2003), state that qualitative researchers use three main techniques to collect and analyze their data: observing people as they go about their daily activities and recording what they do; conducting in-depth interviews about ideas, opinions and experiences and analyzing documents.

3.3 Design

A research design refers to plan for selection subject, sites, data collection procedure to answer proposed questions. The researcher used an action research design. Action research which is also known as Participatory Action Research (PAR), community-based study, co-operative enquiry, action science and action learning – is an approach commonly used for improving conditions and practices in a range healthcare environments. The purpose of undertaking action research is to bring about change in specific contexts, as Parkin (2009) describes it.

This action research examined the impact of drawing and painting on developing fine motor skills of children with severe intellectual disabilities. A pretest / posttest design was used to determined subject growth. The children were informally assessed by asking them to draw and paint using pencils and crayon on sheets of paper (Appendix A) and the use of drawing and painting assessment sheet (Appendix B). The boxes and pictures the children painted (Appendix C). The Likerty survey completed by the four teachers (Appendix D). These helped me to determine whether the study was

beneficial. The treatment took place over a six-week time frame at Dzorwulu Special School, Accra.

3.4 Population

The populations of the study consist of special educators and pupils of Dzorwulu Special School, estimated to be 50 people. (15 special educators and 35 children with severe intellectual disabilities).

3.5 Sample

The sample of the study was eight (8), made up of four (4) special educators and four (4) children with severe intellectual disabilities. The four (4) special educators were selected from the art class. The four (4) children were selected from classes which were classified as pre-vocational classes.

3.6 Sampling techniques

The purposeful sampling technique was used to select the sample size for the study. This sampling technique helps to select people or sites that can best help to understand a phenomenon and provide useful information. According to Marlow (2001) purposive sampling allows the researcher to handpick the sample according to the nature of the research problem and the phenomenon of the study. Teachers who have stayed in the school for more than six years were presumed to have enough knowledge and experience about educating children with severe intellectual disabilities using drawing and painting, hence were purposefully selected for the study.

Purposeful sampling is both expedient and less costly, and was chosen because it enabled me to identify, knowledgeable classroom teachers and the children from the

Dzorwulu Special School. These participants were typical of the person who would be able to discuss the conditions prevailing in the school pertaining to the use of drawing and painting to develop the fine motor skills of children with severe intellectual disabilities. The study used eight (8), people, made up of four (4) special educators and four (4) children with severe intellectual disabilities.

3.7 Subjects

This study took place in a group 2 class of 10 children with severe intellectual disabilities. The subjects came from a diverse socioeconomic background. Each child was identified as an individual with severe intellectual disabilities, had been in the class not less than three years and could scribble when first assessed.

Subject A was in his third year in the class. He was short for his age 15 years and demonstrated strong readiness skills at the beginning of this study. He could neither draw nor paint.

Subject B was in her fourth year in the class. She found it a bit difficult grabbing, drawing and painting tools and was self conscious about it. She was of average height and could not draw nor paint properly.

Subject C was in his second year in Group 2. He had multiple disabilities. Due to his physical responses he required a one-on-one associate. He could do some drawing and painting.

Subject D was in her third year in the entering class. He had some difficulty following instructions and can do some drawing and painting.

3.8 Instrumentation

At the beginning of the first week of my study, I talked to the four teachers and also I observed the children in the art class as they worked to determine their level in fine motor skills development and experience in drawing and painting. I also observed lesson in daily living skill on the topic combing of hair and lacing of shoes. The information from the four teachers and the outcome of their lesson made me to identify their strength and weakness which helped me in this study.

At the end of the study a Likert survey (Appendix D) was given to the four teachers. The result of the survey helped to determine the effectiveness of the study.

Each of the four subjects was informally assessed throughout the study using picture tracing method (Appendix A).

Each subject was given a sheet of paper to join the broken lines to bring out the picture. The results were recorded on a chart. This exercise was done three to four times a week to reinforce their ability to draw on a line. The drawing activities consisted the ability to grab pencil appropriately, scribbling, and joining of broken lines. After each individual treatment, subject's performance was recorded on a chart (Appendix B). The chart was used to track subject's performance over the six-week implementation period.

In addition, each subject was given a pretest consisting of sheet of paper with a box to be painted (Appendix C). The subjects then painted within the box until the boxes are fully painted. On some occasion the researcher needed to point to the box, and then encouraged them to paint in the box. The researcher recorded his observation of how the subject completed the test. At the end of the study, the pretest was compared to the

posttest to see if the subject is able to join the lines on sheet 1 and painted within the space provided on sheet 2.

3.9 Procedures

During the first week of my study, I started by talking to the four teachers and I also observed the children in the art class as they were working to determine their level in fine motor skills development and experience in drawing and painting. From the information I gathered from this observation, I took the four teachers through one day training on how to teach children with severe intellectual disabilities drawing and painting so that they can help me during the lesson and be able to teach it on their own. I then collected subjects data that included an informal assessment with a join broken lines, an uncoloured picture with broken lines (Appendix A), and a coloured sheet (Appendix B) completed by subjects with minimal assistance. The following results were scored at the pretest stage:

Table 1. Pretest Scored Out Of 25

SUBJECT	PRETEST SCORED OUT OF 25
Subject A	6
Subject B	5
Subject C	4
Subject D	7

Field work data 2014

Each student was assessed using the sheet with broken lines and an uncoloured picture with broken lines. The sheet was given to the student with pencil to join the

lines to bring out the picture. The way subjects grab the pencil, the movement of the hands, and the daily living skills activities after class were observed. This was done throughout the study. The subject's performance was recorded on a chart after one-on-one session (Appendix B).

Each subject was later given a sheet with 2 boxes drawn on it (Appendix B). Each box had a colour word written in the box. The subject was given the direction to look at the colour word in the box, find the crayon that matches the colour word and paint inside the box. I needed to point to the colour word for the subjects. After the subjects found the colour, I encourage them to paint the box.

Over the six-week study a different activity was performed depending on the skills acquired each week. On the first two days, I introduced the students to straight broken lines and joining the broken lines. I drew the broken lines to one direction. After each lesson, the broken lines were extended for the subjects to join. Throughout the weeks lessons the subjects were joining the broken lines. Three to four times a week the subjects worked one-on-one with the teachers on joining the broken lines to make a complete line. During this time it was determined if the subject had enough finger exercise and grabbing skills to join the broken lines, or if they needed to just focus on the joining of the broken lines.

On days two and three, the researcher again introduced the same broken lines for the subjects to join. But this time, the broken lines were in different directions. Throughout the week's lesson the subjects were joining the broken lines of any kind and to any direction.

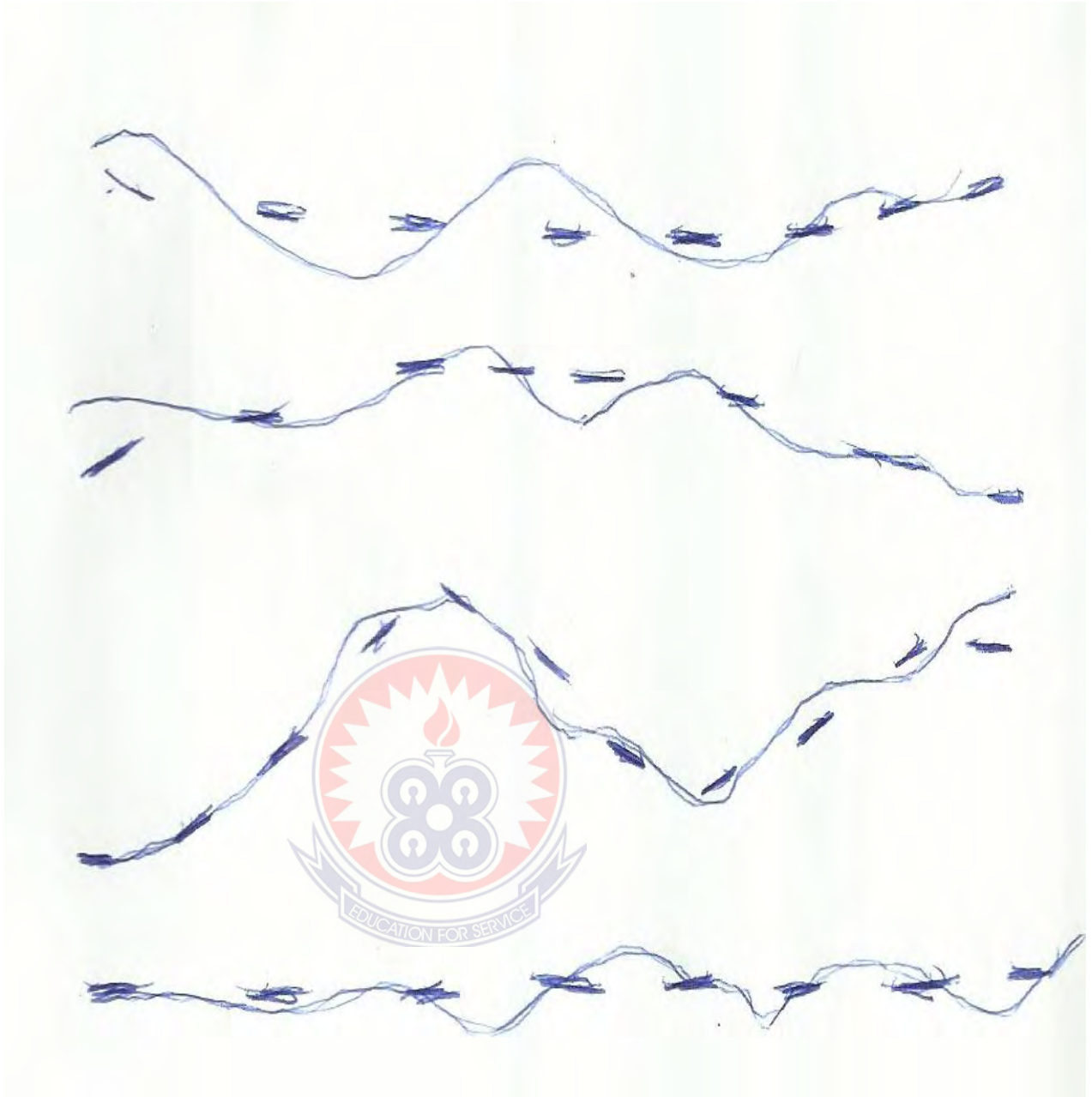


Figure 1. Joined Broken Lines - Field work 2014

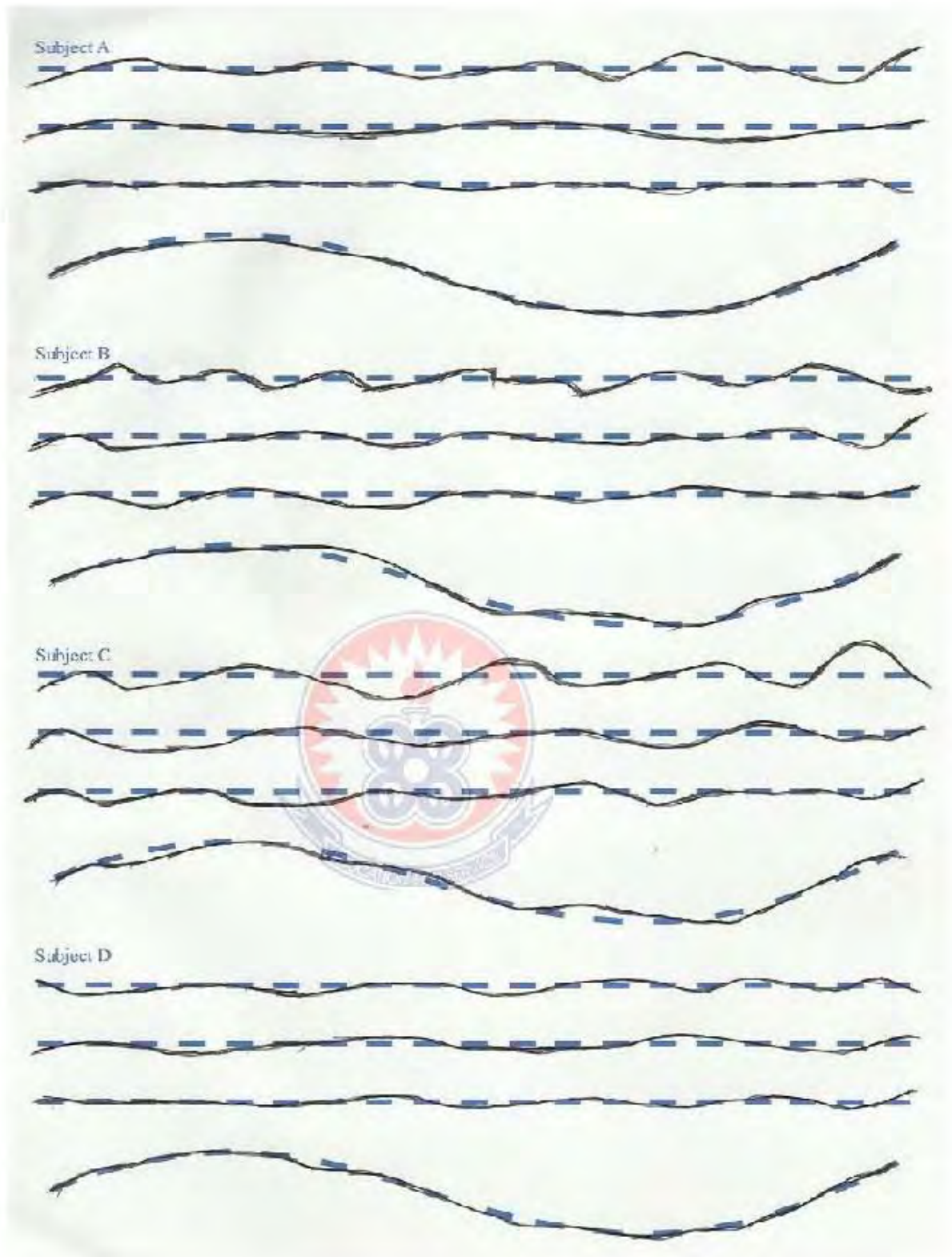


Figure 2. Improved Joined Broken Lines - Field work 2014

Day four continued with the rest of the class members on the same joining of broken lines to different directions. However, on that day, after the first round of joining broken lines, I mixed up the broken lines of different directions to examine if the subjects could figure out the broken lines and join them according to the direction.

During the second week, the researcher again introduced the same broken lines for the subjects to join. But this time, the broken lines were in circle, curve and other shapes depending on their motor skills. However, at the last day of the second week, the researcher again mixed up the broken lines to examine if the subjects could figure it out and join the lines accordingly. Also the subjects and I did some finger and hand exercises, eye and hand coordination before we started the exercise.

From the third week we started with joining the broken lines of an uncoloured picture to bring out the picture. Different types of broken lines of an uncoloured picture were joined with each subject receiving one-on-one instruction and guidance on joining broken lines. We sang songs as way of creating comic relief as we did hand and finger exercises before we start every lesson.

From the fourth week we started with painting of boxes and pictures with the colours of subjects choice which was like fun to them (Appendix C). This is a simple activity which helps the children learn with fun. It facilitates the child about the color concept, imagination skill and in recognizing the shapes. It develops eye- hand co-ordination precisely. This activity was done three to four times a week depending on the learning speed and interest of the subjects. We started by singing songs with hand and finger exercises before the painting. Each subject received one-on-one instruction and guidance as they paint.

The next two weeks followed the same implementation for a new broken lines and picture to paint each week and reinforcement of skills developed. Each subject

received one-on-one joining and painting instruction on the joining, painting and hand and finger exercise three to four times a week. After each intervention with the teachers, the subject's performance was recorded.

At the end of the six weeks, each subject improved his or her manipulative skills with the help of drawing and painting. The subjects were able to at least join lines and painted within the given space in the study and improved their daily living activities like brushing of teeth and securing three out of five bottoms of a shirt. At the end of the study, the four teachers completed a Likert survey (Appendix D) which helped me to determine the effectiveness of this study.

3.10 Limitations of the Study

Though the exercise went well, there was a potential confounding problem with this study.

The teachers were not interested in teaching the drawing and painting as such wrong teaching method.

The researcher addressed this limitation by demonstrating to the teachers the best methods and process of teaching children with severe intellectual disabilities drawing and painting. However there were other confounding problems that were to be expected and were also addressed.

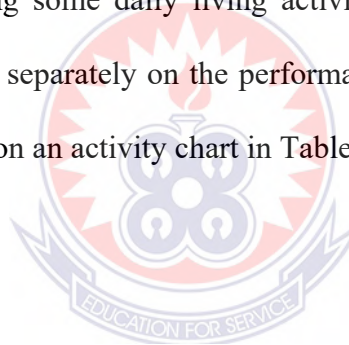
For those with physical disabilities, the researcher provided drawing and painting tool that are a bit bigger in size for the subjects to be able to grab and take part in the lessons. The researcher modified the drawing and painting procedure for those with serious delay with the fine motor skills. The teachers were also encouraged to be taking subjects through a lot of hand and finger exercise before and after lessons. The other factors were hard to have a set intervention at the beginning of the study, but were address as they arose.

CHAPTER 4

DISCUSSION OF FINDINGS

4.1 Findings

The primary question in this study was would drawing and painting improve the development of subject's fine motors skills? To determine the effectiveness of using drawing and painting to development fine motor and manipulative skills, three methods were used namely, joining broken lines, painting within an area and doing some hand and finger exercise with daily living activities. The first data source was joining broken lines method. Subjects were encouraged to join broken lines, paint within an area and doing some daily living activities. During the exercise period, weekly report was made separately on the performance of each subject at each stage and recorded as showed on an activity chart in Table 2.



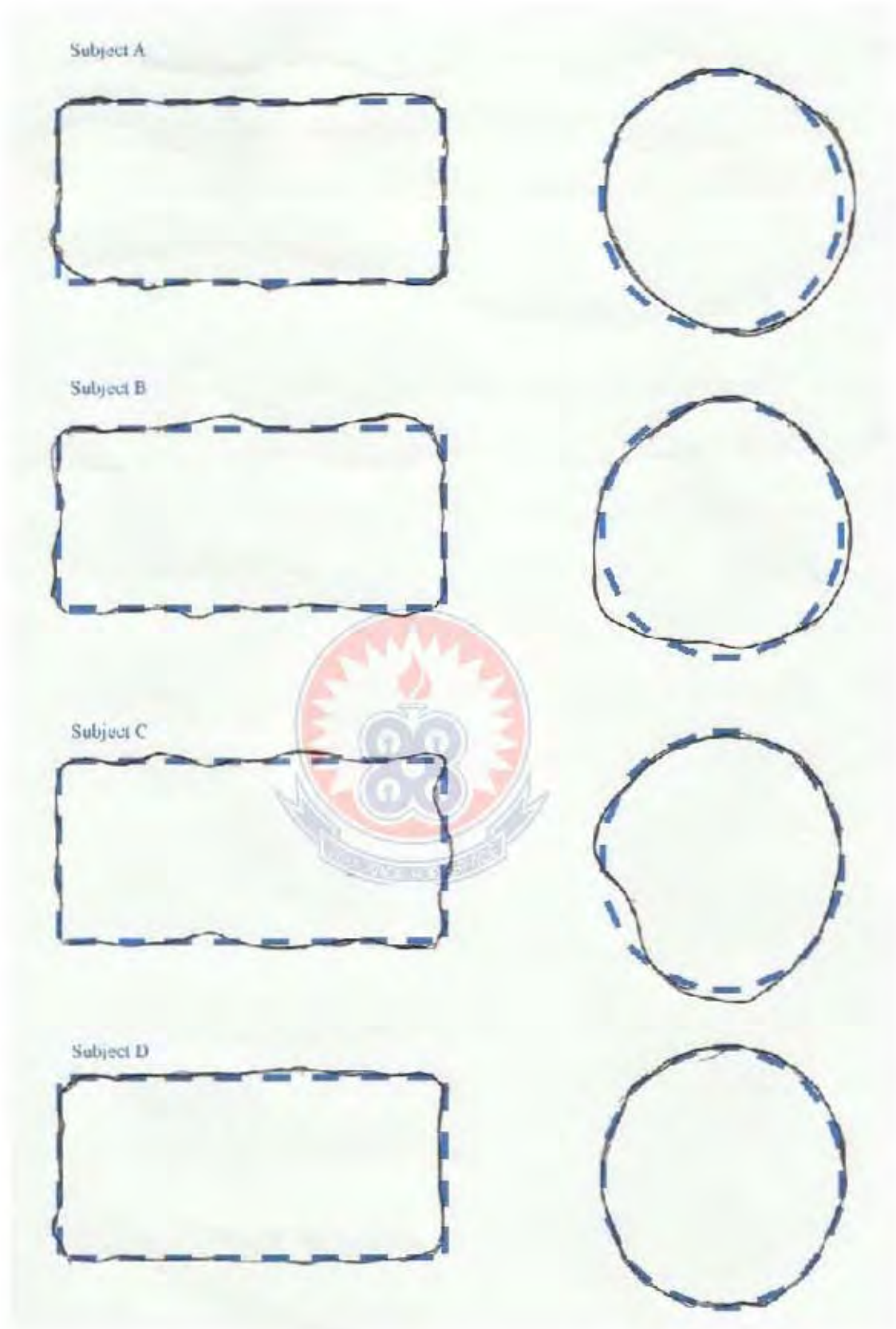


Figure 3 Posttest Jointed Broken Lines – Field work 2014

In table 1, on the joining of line pretest subject A could not hold the drawing tool appropriately. He also could not join the broken lines. The posttest result showed he was able to grab the drawing tool correctly, join broken lines and at least bottom two bottoms correctly.

According to the pretest result in table 1 subject B did not demonstrate knowledge of drawing and painting let alone joining broken lines. The posttest result for the joining of lines showed the following: she could grab pencil and crayon correctly, join broken lines and that of uncoloured pictures and comb the hair at one direction.

In table 1 subject C demonstrated the following pretest results: He knew how to do some simple drawing and painting but could not join broken line correctly. Posttest results indicate he can grab drawing tools appropriately draw well and join broken lines to bring out the pictures.

As indicated, the joining of lines pretest and posttest results in table 1 for subject D were almost the same. He knew how to do some drawing and painting but has difficulty following instructions.

The next method of pretest and posttest assessment was a colour worksheet (Appendix C). This method was used to assess painting within a space in an abstract way. For three subjects I had to point to the area of the box or uncoloured picture for them to focus on the test.

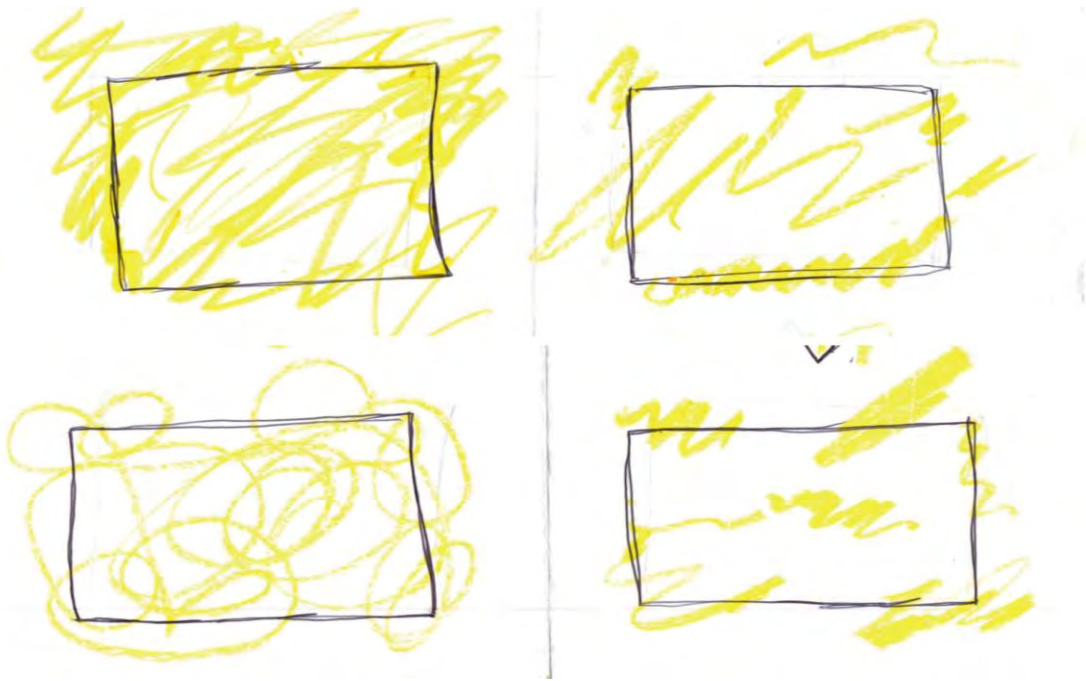


Figure 4 Pretest Painting 1- Field works 2014

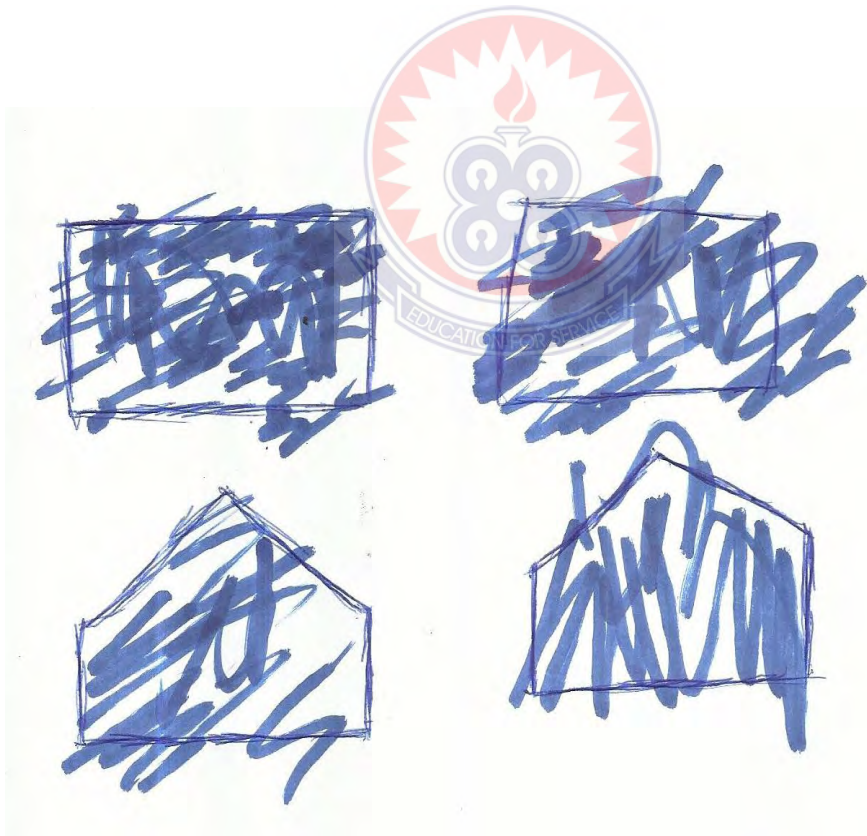


Figure 5 Pretest Painting 2- Field works 2014

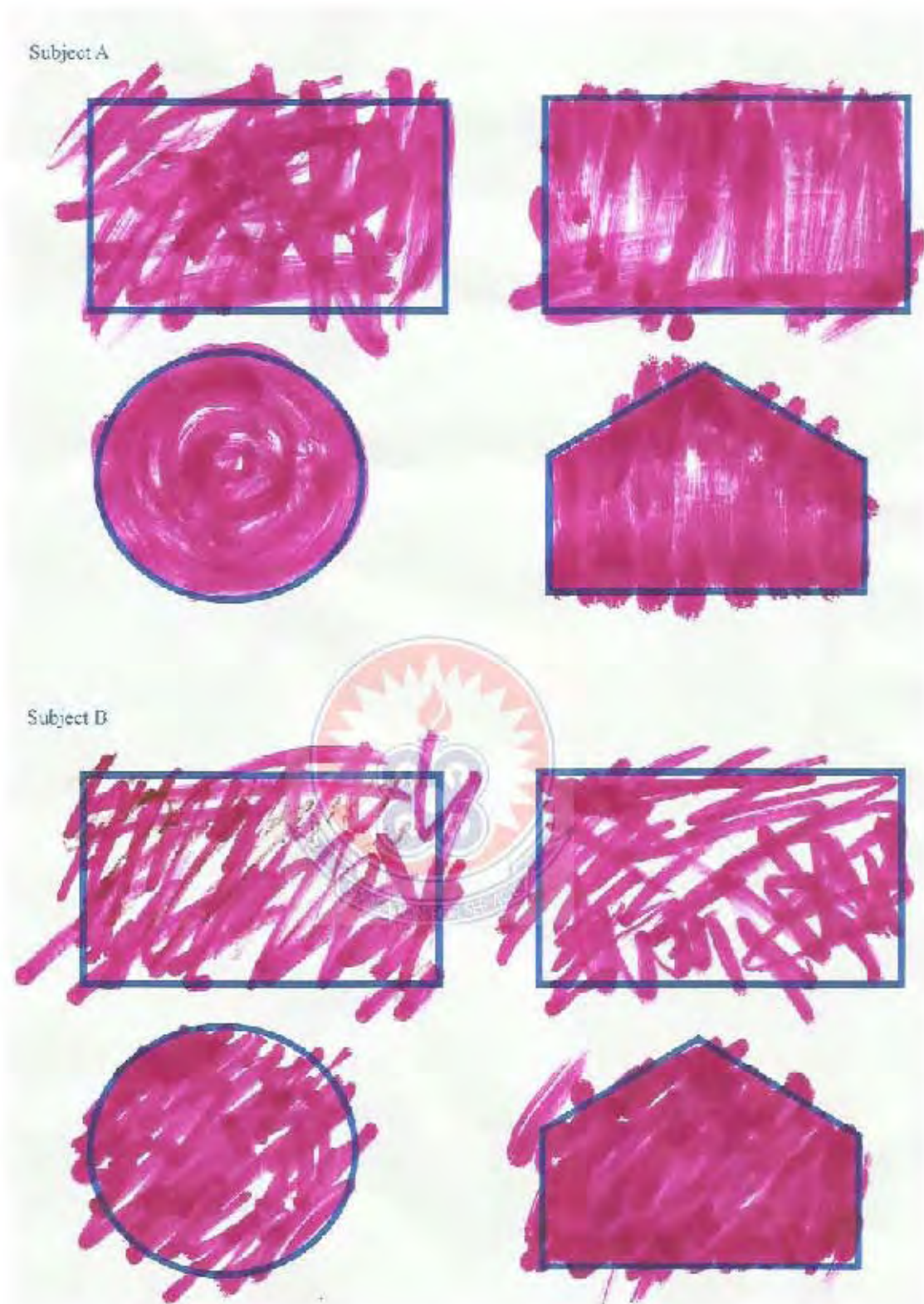


Figure 6 Improved Painting- Field work 2014

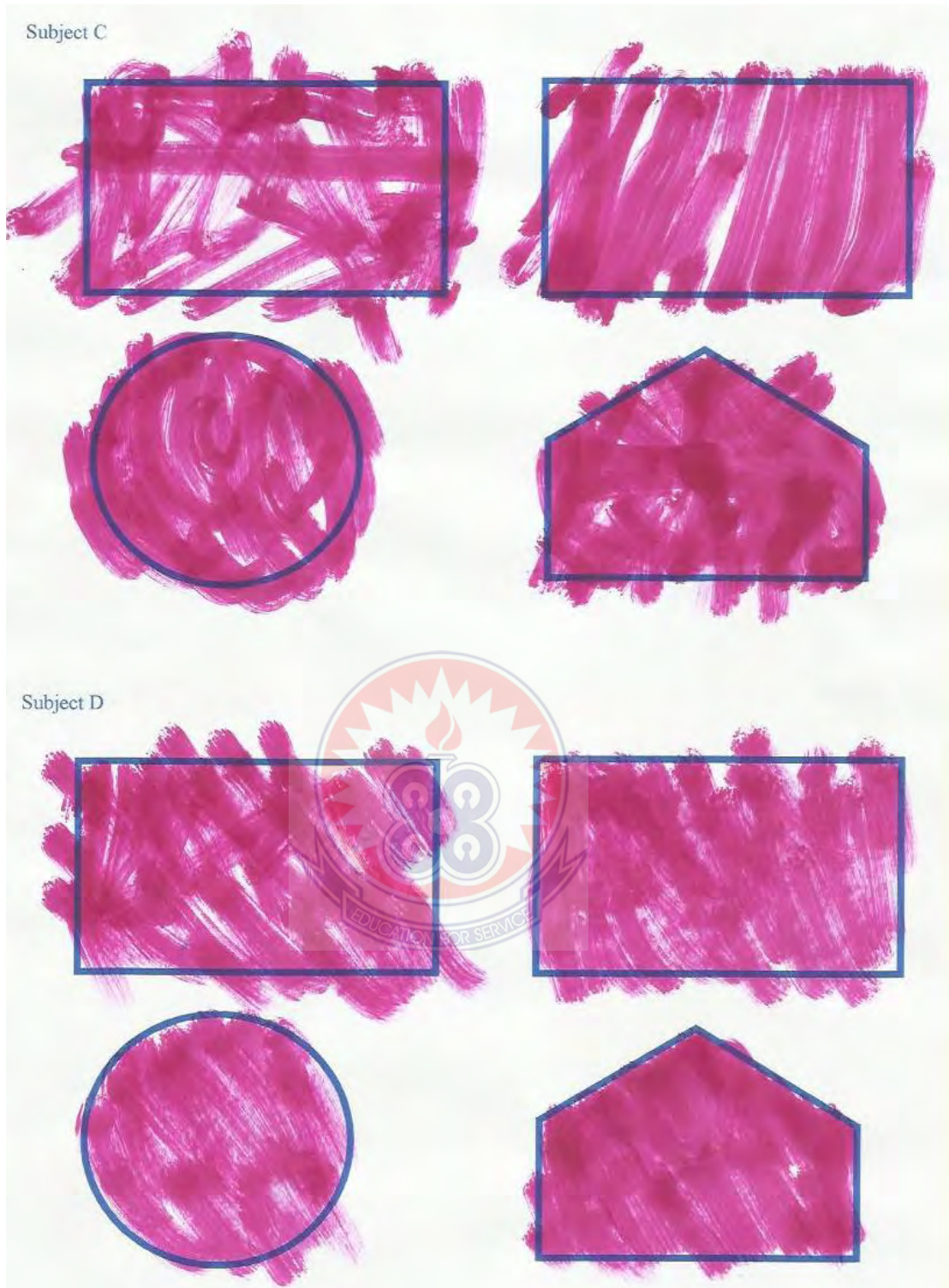


Figure 7 Improved Painting - Field work 2014

On the pretest subject 'A' did not colour any box correctly; however on the posttest he coloured four boxes correctly as I pointed to each, but he had a little problem with the uncoloured picture. Subject B on the pretest coloured three boxes correctly, while on the posttest she coloured all the four boxes including the uncoloured picture correctly. Subject C on the pretest coloured two boxes correctly, however on the posttest subject C coloured four boxes correctly but not the uncoloured picture. Subject D, on the pretest coloured none of the box correctly. On the posttest he coloured all the boxes and the uncoloured picture correctly.

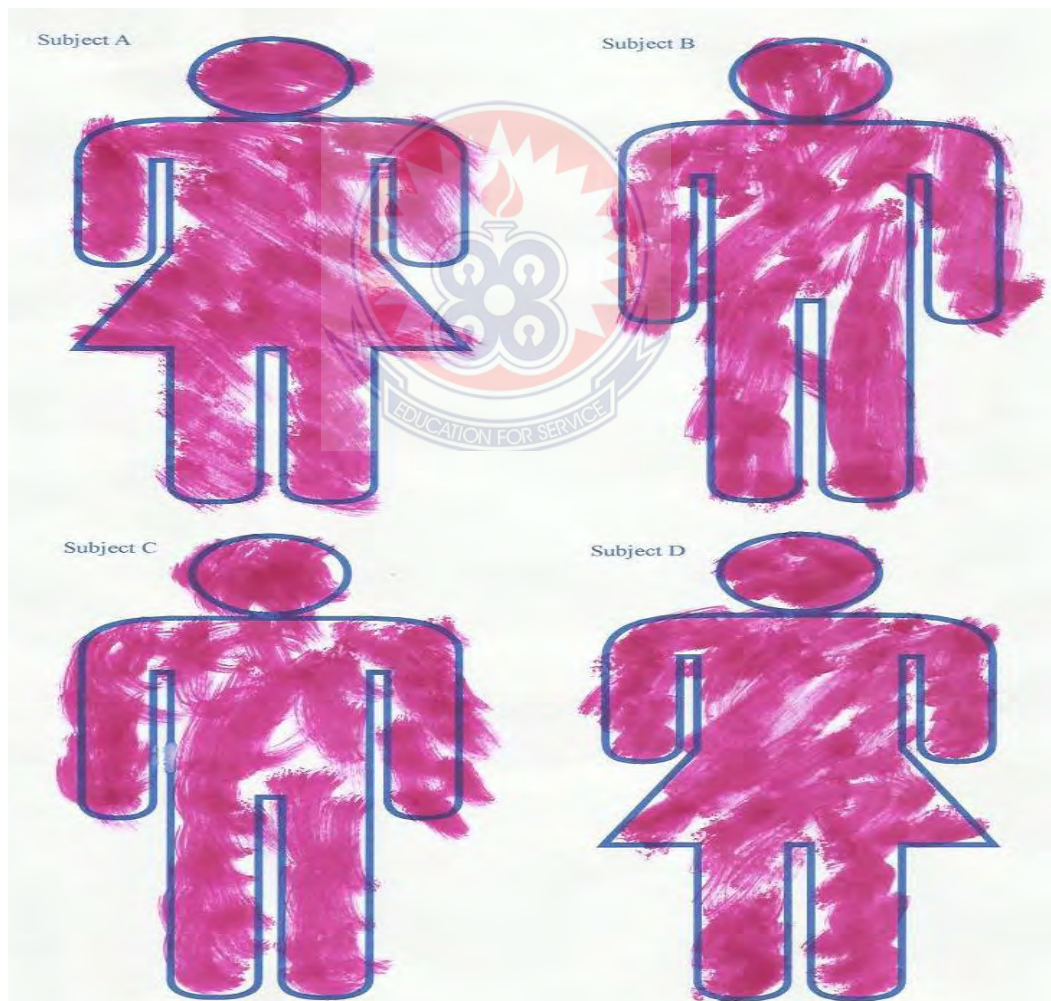


Figure 8 posttest painting 3- Field work 2014

At the end of the painting exercise the results were as follows: Subject A scored 20 out of 25, Subject B scored 23 out of 25, Subject C scored 20 out of 25 and Subject D scored 22 out of 25. This is shown in table 1.

Table 2: Performance Chart

Subject	Wk 1 Pretest	Wks 2&3	Wks 4&5	Wk 6 Posttest	Total	Average Perf.
Subject A	6	10	15	20	25	12.5
Subject B	5	13	19	23	25	15.8
Subject C	4	11	16	20	25	13.25
Subject D	7	12	17	22	25	14.5

Field work 2014

After the 6 weeks exercise, the feedback results of the subject's performance at pretest and posttest stage are shown on the bar chart below:

SUBJECT A

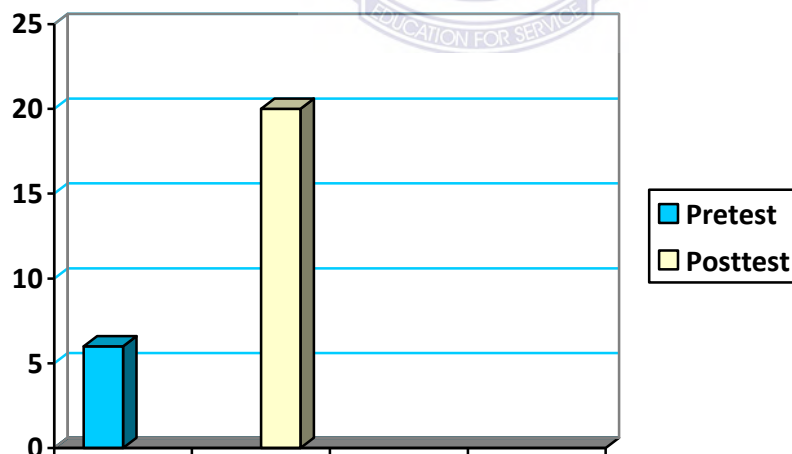


Figure 9 result of pretest and posttest of Subject A Field work 2014

SUBJECT B

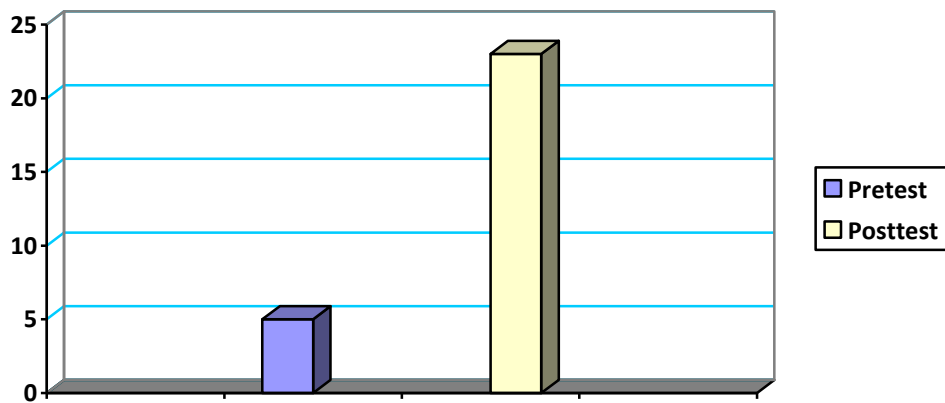


Figure 10 result of pretest and posttest of Subject B Field work 2014

SUBJECT C

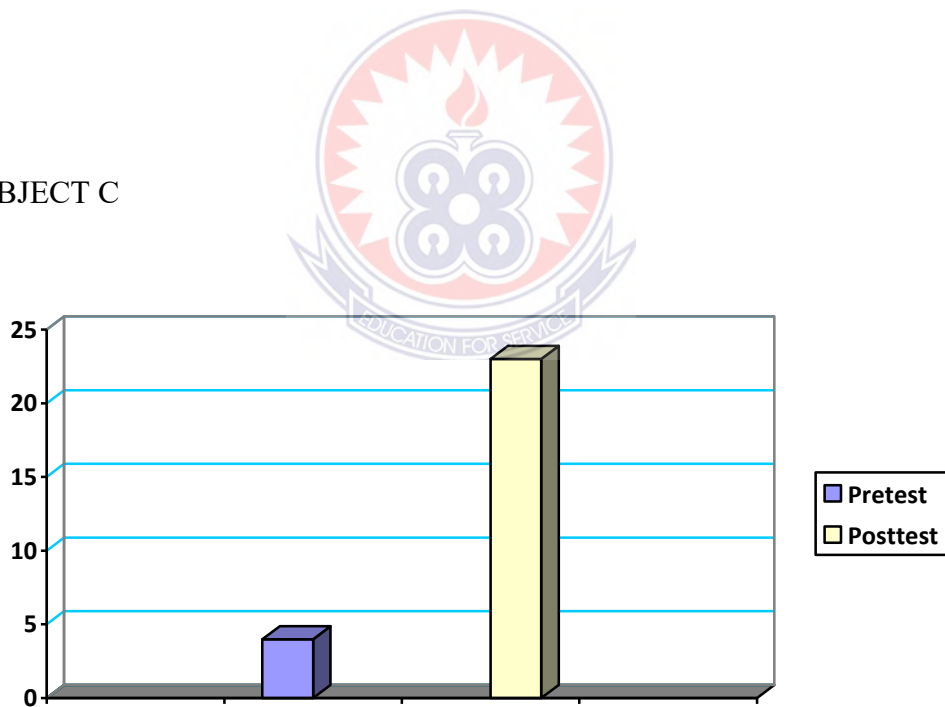


Figure 11 result of pretest and posttest of Subject C Field work 2014

SUBJECT D

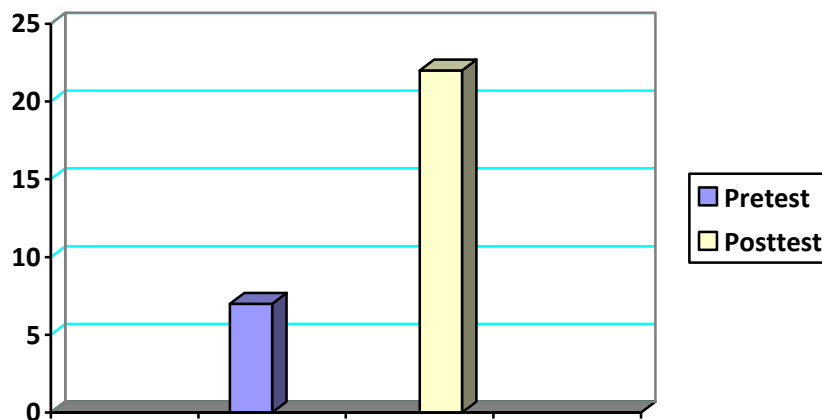


Figure12 result of pretest and posttest of Subject D Field work 2014

4.2 DISCUSSION OF RESULTS

The results of the study show that the performance of subjects improved considerably at the posttest stage as compared to the pretest stage. This improvement came as a result of the drawing and painting activities as in joining of broken lines and painting boxes. During pretest activities which were the joining of broken lines and painting of boxes subjects scored 5, 8, 6 and 7 out of 25 respectively but improved along the line and at the posttest stage scored 23, 20, 20 and 22 out of 25. The final data source was a survey completed by the teachers. Table 3 shows the results of the survey.

Table 3: Manipulative Skills / Fine Motor Skills Survey Results

	Strongly			
	Agree	Agree	Undecided	Disagree
Strongly				
Disagree				
1. Drawing and painting improved student fine motor skills.	3		1	
2. Student had the fine motor skills to draw and paint.		4		
3. Twenty minutes daily of individual one-on-one instructional to reinforce fine motor development was enough time.	1	2	1	
4. Incorporating fine motor skills developments into instruction is beneficial to students	3	1		
5. Drawing and painting should be planned around the developmental needs of the children with intellectual disability.	3	1		
6. Fine motor skills development increased freedom of children with severe intellectual disabilities to pursue their own activities and finally stressed family will have the opportunity to see their loved ones being independent.		3	1	

Field work 2014

Analyses of the survey responded by the teachers showed that drawing and painting improved subject's fine motor skills. In deed three of the teachers commented as strongly agree to the fact that drawing and painting improved subject's fine motor skills. In support, Brereton and Broadbent (2007) also explained that children's fine motor skill are typically developed when they participate in activities such as drawing and painting, and other colouring work. There was however one teacher who could neither agrees or disagree to the fact that drawing and painting improved subject's fine motor skills.

On the point that subjects had the fine motor skills to draw and paint, all four teachers agreed that every subject has the basic draw and paint ability that needs to be improved.

Analyses on the survey on twenty minutes daily of individual one-on-one instructional to reinforce on fine motor development was enough time showed that the four teachers in Dzorwulu Special School were in conformity with the statement. In deed three of the teacher commented as follows; T1 “Strongly Agreed”, T2 and T3 “Agreed”. From the evidence the teachers believed that twenty minutes daily one-on-one instructional on fine motor development would be very helpful. Maylock (2002) also supported by stating that drawing and painting needs to be learned in such a way that it will give the child a chance to grow and develop fine motor skills. There was however one teacher who was undecided.

Analyses the response of the teachers showed that incorporating fine motor skills developments into instruction is beneficial. In deed three of the teachers commented as strongly agree to the fact that incorporating fine motor skills developments into instruction is beneficial to children with severe intellectual disabilities. In support, according to Ford (2002), children who may develop fine motor skills after a long period of constant practice with drawing and painting may generally demonstrate quite amazing interest in other abilities in hand dominance, pencil grasping and tripod grasping. There was however one teacher who agrees with the fact but not strongly as the other teachers.

On whether drawing and painting should be planned around the developmental needs of the children with severe intellectual disabilities, three of the teachers commented as strongly agreed to that fact, however there was one who just agreed.

The analyses of the responds by the teachers showed that fine motor skills development increased freedom of children with severe intellectual disabilities to pursue their own activities and finally stressed family will have the opportunity to see their loved ones being independent. Three of the teachers indeed agreed to that statement by Megabrandts (2009), which stated that, developing fine motor skills also requires patience and determination, however when well developed, children with intellectual disabilities become creative and imaginative, able to reason and solve problems, focused and attentive. Developing children with intellectual disabilities fine motor skills gives them the confidence and self-esteem and develop the skill in writing. There was however one teacher who was undecided.

After analyzing the joining of broken line sheep (Appendix B), the researcher observed growth for all four subjects. The main goal of joining lines was to develop subjects' fine motor skills. Subjects drawing and painting improved significantly. It also observed that one subject painted a box and made sure the colour did not go outside the box. As the researcher watched him do this the researcher thought, at least he has the skill to paint within the box. The researcher believes drawing and painting has helped those Subjects develop their fine motor skills. An important question is: Would the Subjects have developed their fine motor skills without the use of drawing and painting? Further study will have to be conducted to examine this problem.

Overall, the surveys indicated that drawing and painting are beneficial to subject's fine motor skills development. All responses from the four teachers on most of the statements were "strongly agree" or "agree" with the exception of two that was undecided. One comment on the survey stated "I have used the drawing and painting

for many years and found it to be very beneficial in helping subjects to develop their fine motor skills.

From the data, it is clear that fine motor skills of children with severe intellectual disabilities were developed with the use of activities such as drawing, painting, colouring, tracing, cutting and pasting, writing coupled with filling bottles with water as well as washing cups.

Drawing and painting are useful in the development of fine motor skills of children with severe intellectual disabilities. Even though there are many ways of developing fine motor skills, with children with severe intellectual disabilities, drawing and painting stood to the test of time proving as one of the best ways of fine-tuning the level of coordination among children with intellectual disabilities. In support of this position, Mayesk (2002) pointed out that drawing and painting provide an environment which nurtures the development of a positive sense of self and good self-concept in the child. Further, Maylock (2002) continue that drawing and painting needs to be learned in such a way that it will give the child a chance to grow and develop fine motor skills. In line with the above analysis, drawing and painting should be planned around the developmental needs of the children with intellectual disabilities.

Ford (2002) agreed that, children who may develop fine motor skills after a long period of constant practice with drawing and painting may generally demonstrate quite amazing interest in other abilities in hand dominance, pencil grasping and tripod grasping. Ford also talked about the importance of using combinations of different strategies to teach the concept of fine motor, the benefit which is muscle movement and hand-to-eye coordination.

Megabrandts (2009), added that, developing fine motor skills requires patience and determination, however when well developed, children with severe intellectual disabilities become creative and imaginative, able to reason and solve basic problems.

Developing fine motor skills of children with severe intellectual disabilities fine motor skills gives them the confidence and self-esteem. It is also recognized that children with severe intellectual disabilities can perform simple daily living skills when their fine motor skills are developed. Developing fine motor skills makes it possible for them to integrate well into the society and reduce the workload on their teachers and family members around them. Due to individual learning styles a teacher has to approach teaching from many techniques to allow students learn in their own unique way.

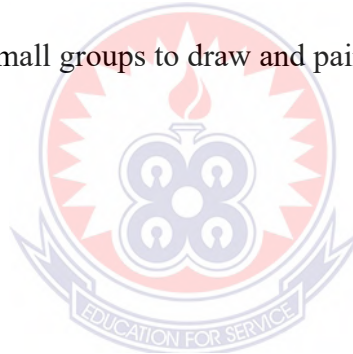
4.3 Limitations

One of the limitations was the physical feature of one subject. To help this student I provided him with an improvised drawing and painting tools which are sizable enough to enable him have a full grab of the tool and work with. The second limitation was having an experienced Art teacher. Throughout the study, the teacher had difficulty implementing all of the fine motor skills activities. The third limitation was the fine motor abilities of the subjects. Each subject was encouraged to follow the broken lines as close as they could. They all attempted to paint a box. Another limitation was having an agitated subject who would not concentrate on the activity. Eventually I had to let a teacher work with the agitated subject and I had to continue with the other students with the drawing and painting activities.

There were a couple of limitations I had not consisted prior to the study. One was not having enough time to implement all parts of the study daily, which reduced the amount of practice for the subjects. The other limitation was that, the four subjects came from different classes with one subject unable to attend in the group for more than five minutes. As a result of his behaviour, other subjects were distracted during instructional time.

4.4 Action Plan

Overall, the use of drawing and painting improved subjects fine motor skills hence their manipulative skills. I will continue to use drawing and painting for fine motor skills development in my classroom. I will also create opportunity for subjects to work individually or in small groups to draw and paint.



CHAPTER 5

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5:1 Introduction

The purpose of this study was to examine how drawing and painting can be used to develop the manipulative skills of children with severe intellectual disabilities, hence fine motor skills development. To also find out the categories of children with severe intellectual disabilities and the strategies teachers used to teach drawing and painting in developing fine motor skills of learners with severe intellectual disabilities. The study again sought to uncover the challenges teachers face using drawing and painting for the development fine motor skills of learners with severe intellectual disabilities. The study used a range of method; observations, drawing and painting and Likert scale to gather data.

5.2 Summary of findings

The aim of this study was to find out the strategies teachers use to teach drawing and painting to develop the manipulative skills of children with severe intellectual disabilities at Dzorwulu Special School. The design used was action research. The sample size was 8 participants from pre-vocational classes of Dzorwulu Special School. This included 4 special educators and 4 children with severe intellectual disabilities. Purposive and simple random samplings were used for selecting the samples. Five research questions were raised and the following major findings came up.

Among challenges subjects with severe intellectual disabilities face, is the inability to grab drawing and painting tools due to the nature of their hands and fingers hence they find it very difficult participating in most of the drawing and painting exercises.

It was again revealed that subjects with severe intellectual disabilities lacked the needed support in terms of availability of the appropriate drawing and painting tools.

Concerning the strategies teachers use to teaching drawing and painting subjects with severe intellectual disabilities, it was revealed that due to the number of subjects in a class, taking learners one on one was difficult hence group teaching is used.

Finally it was revealed that subjects with severe intellectual disabilities are not taken through any form of exercise to arouse their interest before they start with the days drawing and painting lessons.

5:3 Conclusions

The two sets of data collected indicated that drawing and painting helped in the development of fine motor skills children with severe intellectual disabilities. The survey also supported the positive role fine motor played for the subjects. This is to perform simple daily living skills, and to interact with their environment meaningfully and usefully. An important point to remember when considering the result of this study was subjects in severe intellectual disabilities classroom need several repetition of the same concept in order to master the concept. A careful analysis of the study showed interesting results. Subjects who before the study showed least performance later showed significant growth and those who could not join lines, after the treatment were able to do so.

Due to individual learning styles a teacher has to approach teaching from many techniques to allow students learn in their own unique way. Also it is significant to note that developing fine motor skills of children with severe intellectual disabilities gives them the confidence and self-esteem. It is also recognized that children with severe intellectual disabilities can perform simple daily living skills when their fine motor skills are developed.

Finally developing fine motor skills makes it possible for them to integrate well into the society and reduce the workload on their teachers and family members around them.

5.4 Recommendations

Based on the findings of the study the following recommendations:

- Drawing and painting lesson should begin with hand and fingers exercises.
- The government and stakeholders of special education should provide special school with appropriate tools and materials needed for teaching drawing and painting.
- Teachers in Special School should be committed to the teaching of drawing and painting and development of fine motor skills of students with severe intellectual disabilities.
- Teachers should take subjects through activities that would arouse and sustain their interest before lessons are started.

5:5 Suggestions for further study

A further study must be conducted on the evaluation of using drawing and painting in developing the fine motor skills of students with severe intellectual disabilities in Ghana. Also resource rooms for Art lessons should be made available for subjects and teachers in the Special school. Then, teachers for art lesson should be for those who have undergone training in Art education.



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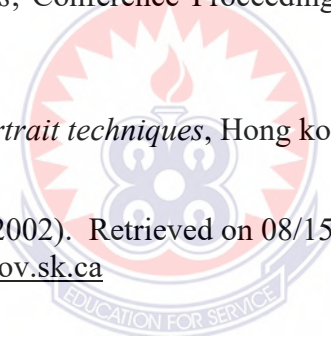
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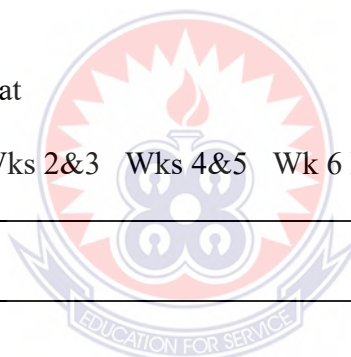
APPENDICES

Table 1: Performance Chart

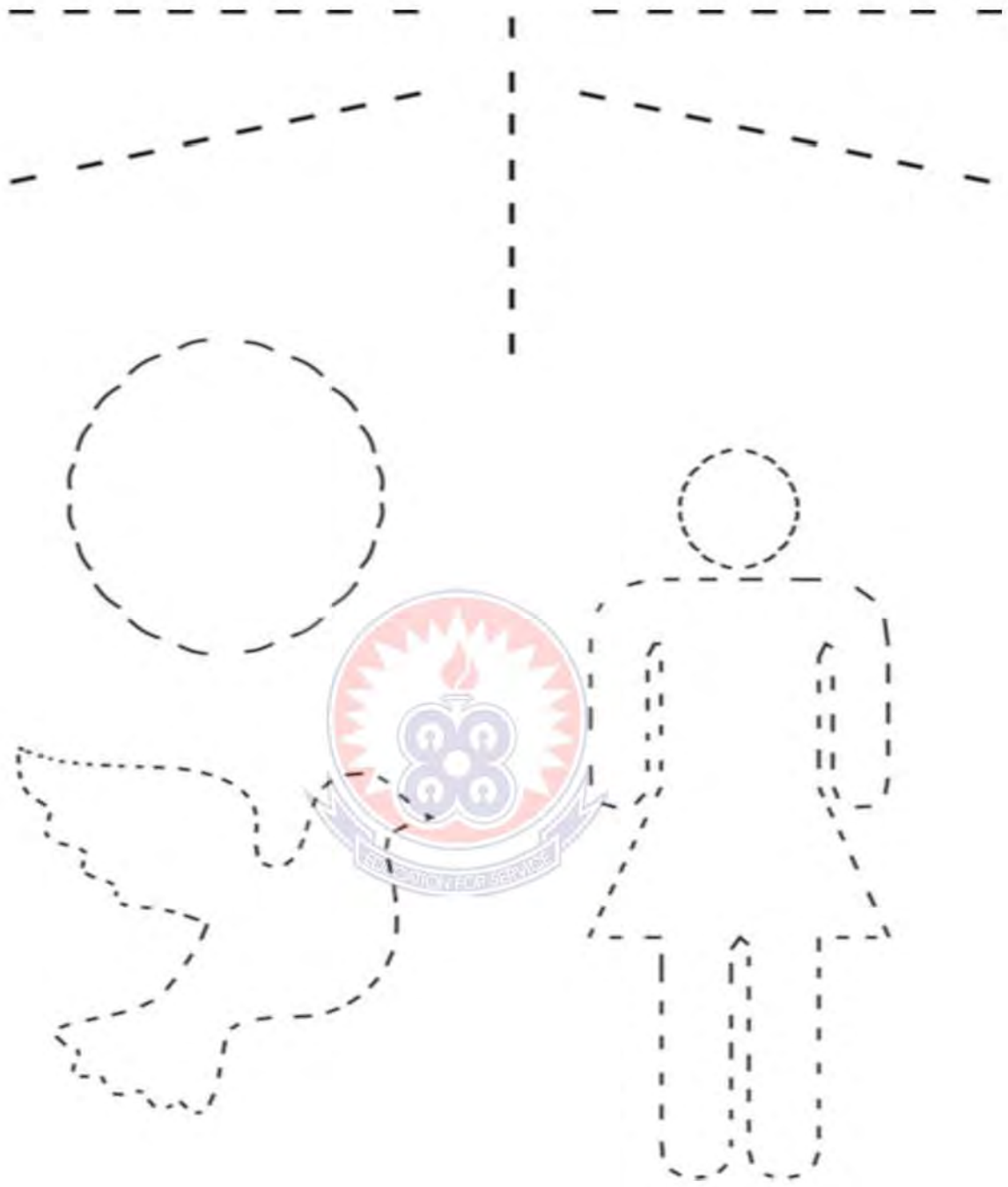
SUBJECT	PRETEST SCORED OUT OF
Subject A	
Subject B	
Subject C	
Subject D	
Field work 2014	

Table 2: Performance Chart

Subject	Wk 1 Pretest	Wks 2&3	Wks 4&5	Wk 6 Posttest	Table	Average Perf.
Subject A						
Subject B						
Subject C						
Subject D						
Field work 2014						

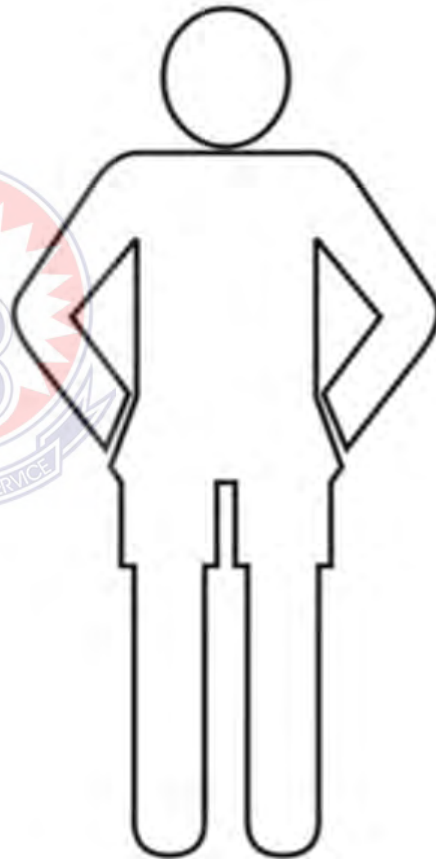
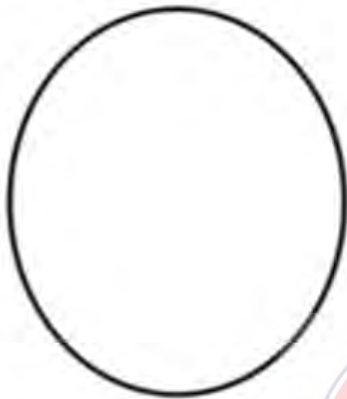


Types of Broken Line



Field work 2014

Boxes and Pictures to Be Painted



Field work 2014

Table 3: Manipulative Skills / Fine Motor Skills Survey Results

	Strongly Disagree	Disagree	Agree	Agree	Undecided	Disagree	Strongly Agree
1. Drawing and painting improved student fine motor skills.							
2. Student had the fine motor skills to draw and paint.							
3. Twenty minutes daily of individual one-on-one instructional to reinforce fine motor development was enough time.							
4. Incorporating fine motor skills developments into instruction is beneficial to students							
5. Drawing and painting should be planned around the developmental needs of the children with intellectual disability.							
6. Fine motor skills development increased freedom of children with severe intellectual disabilities to pursue their own activities and finally stressed family will have the opportunity to see their loved ones being independent.							

Field work 2014