Montessori Education for Autism

MEfA

Out of Education - Into Employment

Workshop 2:

Five Essential Movement Patterns

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Neurological Development

- The development of the brain is dependent on the quality of physical activity and movement in the first few months and years of life;
- To accomplish the basic tasks of neurological development, sensory integration and coordinated movements of the body parts, five sets of movement patterns should be learnt by children.

Montessori: Education through Movement

- It is often said that Montessori is an aid to life, and that Montessori is education through movement.
- Sometimes, however, less emphasis is given in Montessori schools to helping children develop large muscles movements and therein lies the problem ..

Key Note: Vision is Intelligence

- Sight and vision are not the same;
- Vision problems can be learning problems;
- *Vision=comprehension=understanding= intelligence,* and is not dependent on sight;
- Seeing and vision skills are essential to reading skills.

The Five Key Movement Patterns which Develop Vision

1. General Movement Patterns:

- procedures for the development of spatial appreciation, spatial orientations, flexibility and posture; (open, closed, top, bottom, in front, behind, left, right. etc)

2. Special Movement Patterns:

- procedures for the development of manipulative skills;

To Develop a Child's Intelligence 2

3. Eye Movement Patterns:

– procedures for the development of visual inspection skills;

4. Vision-Language Patterns:

- procedures for the development of communication skills;

To Develop a Child's Intelligence 3

5. Visualization Patterns:

- procedures for the development of interpretation skills

Part 1: General Movement Patterns: Gross Motor Skills

Two primary aspects of human movement can be identified. These are said to be skills of survival:

- **Skills of mobility**
- **Skills of immobility**

Skills of Mobility

This is the process through which a child progresses to find out:

1. How to move;
2. What body part to move;
3. Where to move;
4. Why to move, and most importantly
5. *When* to move

Skills of Mobility 2

All these organisations of general movement (gross motor skills) become significant in responding to the many sensory stimuli that impinge upon a growing child:

(Not just the ‘5’ senses, but also heat, pressure, movement etc.)

Skills of Immobility

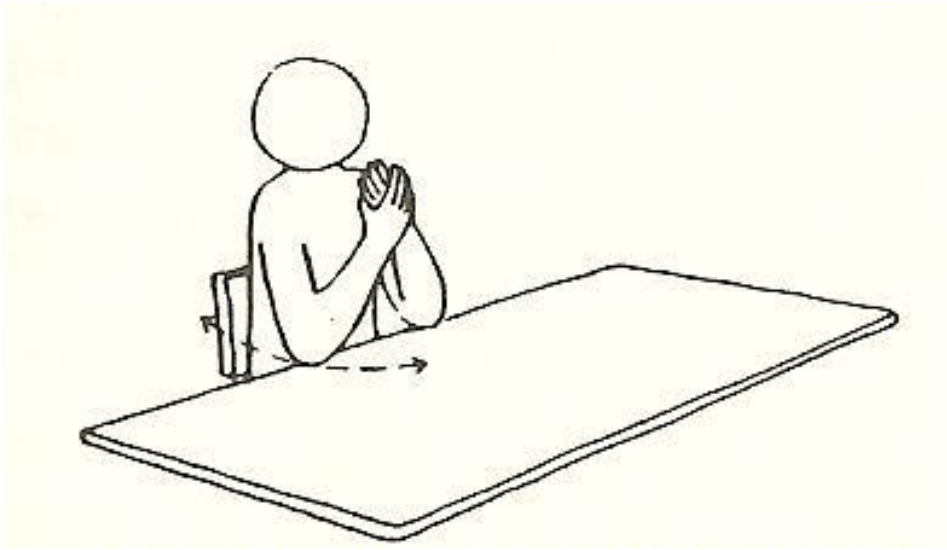
Of these five variables, the knowledge of *when to move* and *when not to move* becomes very significant, because the *skill of immobility* is also a basic survival function.

The skill of *not moving* is harder to achieve because humans are designed to respond to sensory stimuli, and to react as quickly as possible.

Special Note: Postural Warps

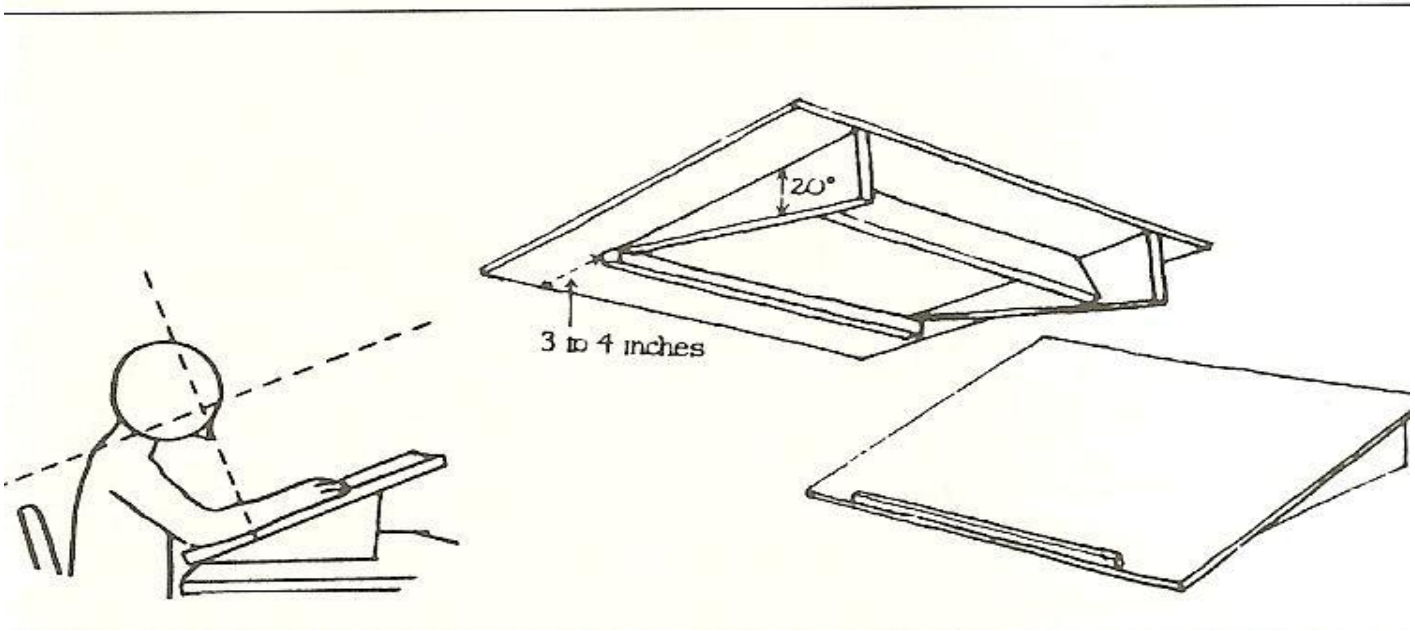
- Specific inadequacies in movement abilities can be the result of postural warps caused by chairs and desks too high or too low for the individual child.
- When the desk and chair are the correct height, and the child's orientation to the paper is correct, the child is less fatigued and can maintain the postural movements necessary for study.

Desk Height



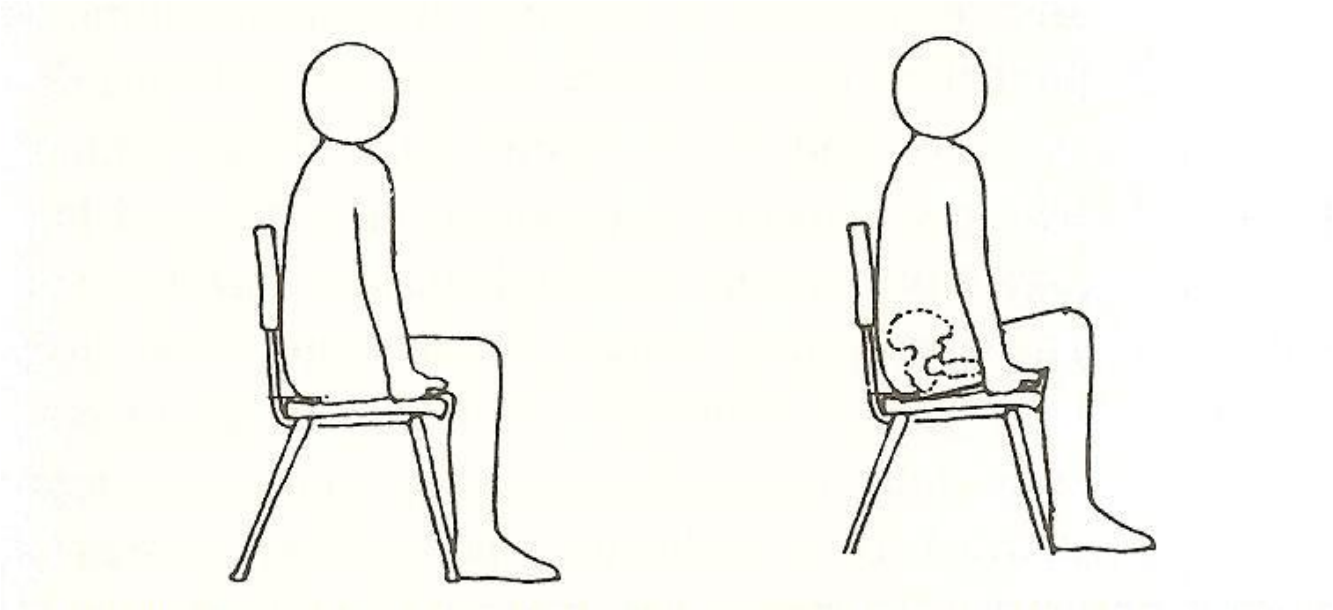
Desk height can be determined by laying one palm over the other as illustrated here. When the child swings his arms, his elbows should just clear the front edge of the table.

Sloped Study Surface



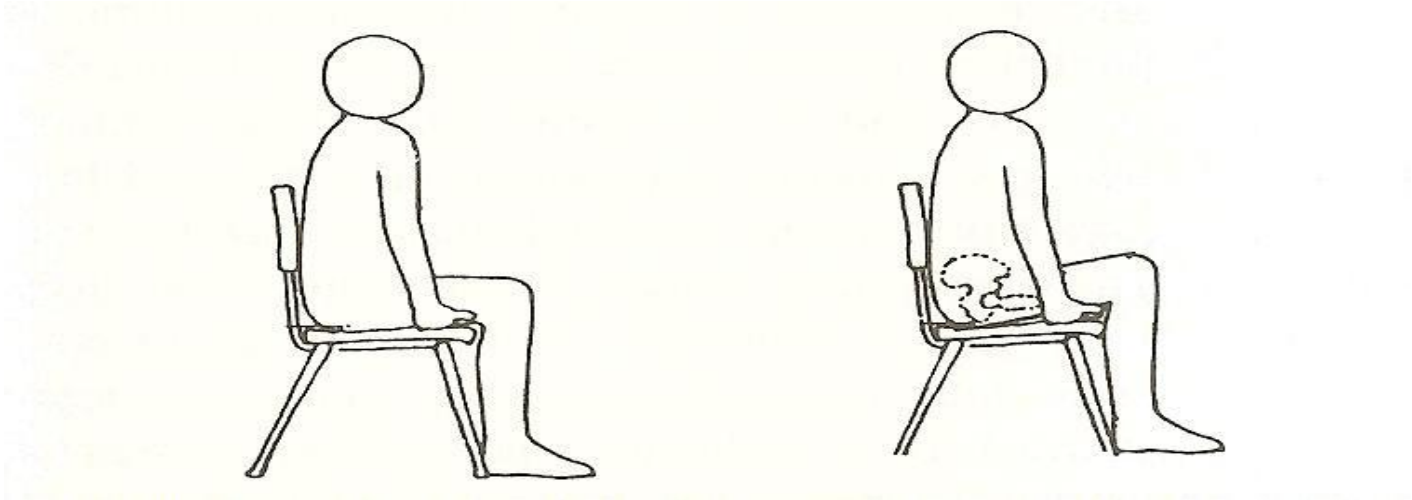
Dimensions: at least 30 cm x 60cm. Slope: 20 degrees
An overhang of the front edge permits easier access

Chair Height



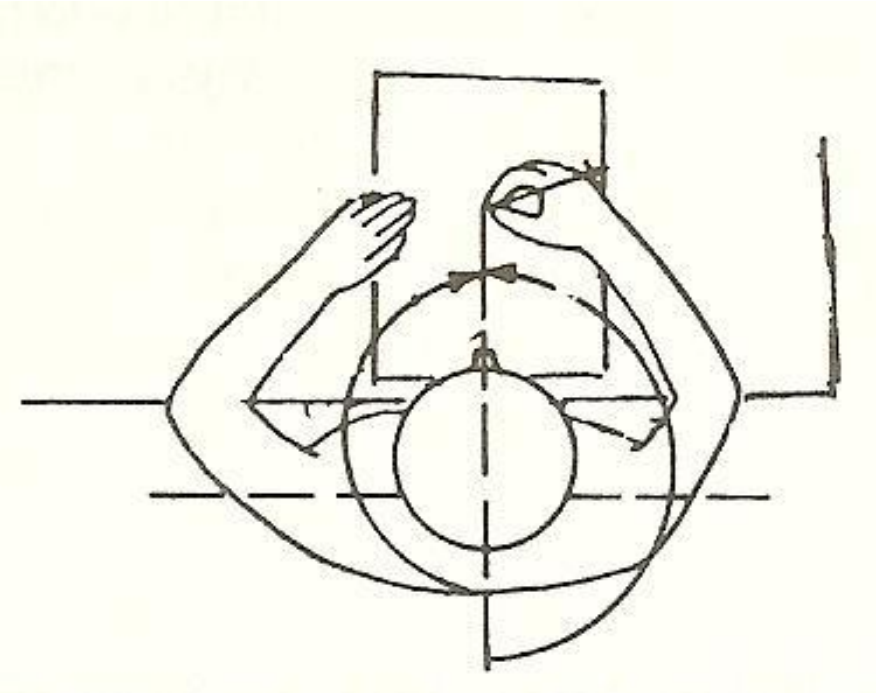
Position the child on the chair with both feet on the floor; you should barely be able to slip your flat hand under the child's thighs, just above the knees. This will give him the support he needs without the leg strangulation which will occur if his feet do not touch the floor.

Chair Height (2)



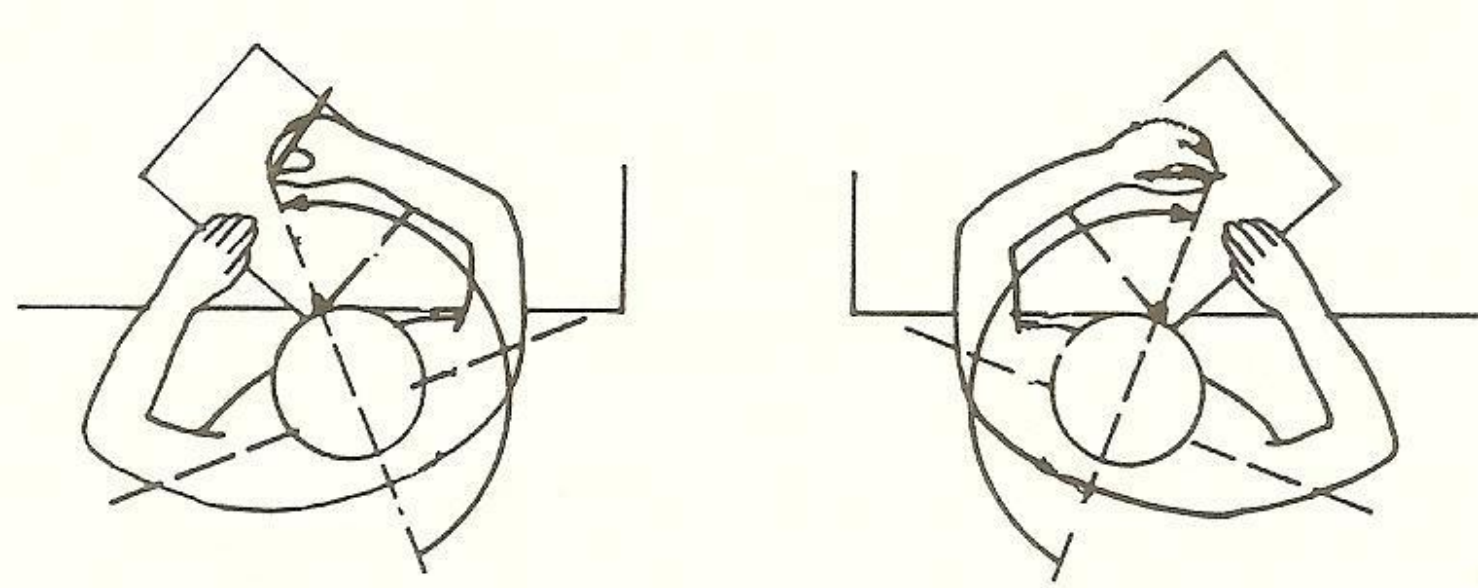
By contrast, if the chair is too low, the child's weight is thrown back onto the point of his buttocks and there will be discomfort and wriggling, with less ability to stay at his work. In this situation you will be able to put your entire hand under his thighs, just above his knees.

Incorrect Placement of Paper



This illustrates the usual, but incorrect, placement of the paper or workbook in front of the child. This situation creates fatigue which then reduces comprehension and productivity.

Correct Placement of Paper



The proper rotations of paper and workbook are illustrated here for both the right-handed and left-handed child. These paper positions can prevent the hooked left hand and the excessive fatigue, even in the right-handed child.

Hyperkinetic /Hyperactive

Many children are improperly diagnosed as hyperactive because they have *not* learned how *not to move.*

They have not learned the skills of relaxation, and how to ‘turn off’ their muscles.

The routines which follow provide excellent approaches to the skills of mobility and immobility.

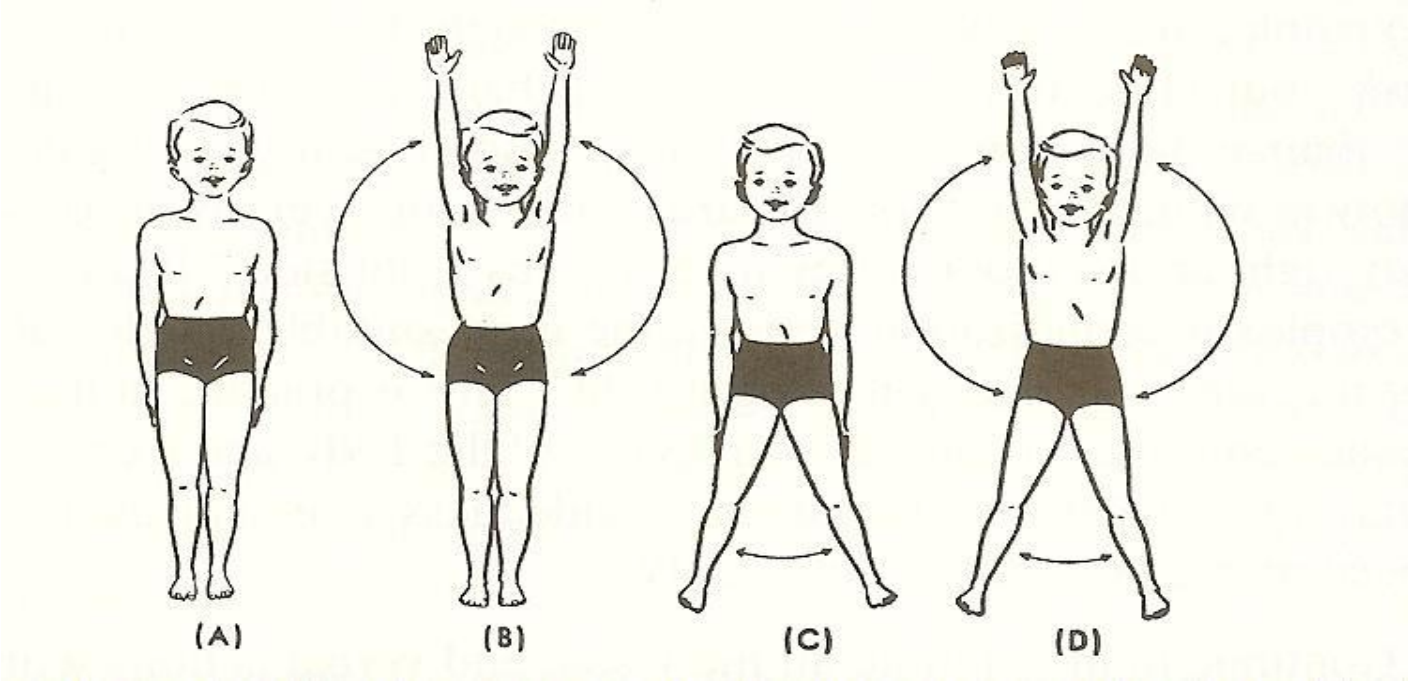
Basic Movements

The **primary purpose** of the **visual system** is to *serve as the guide for all our movements safely and effectively through our surroundings.*

Emphasis should be given here to creeping/crawling and its place in the sequence of development in all movement abilities.

Children of school-age need not return to infantile motor-organisation activities.

Angels in the Snow



The child lies flat on his back (supine position) and explores the movements of his extremities without having to maintain the gravitational balance of the upright position.

Roll and Rise

The child lies supine (face up) with legs straight and arms at the side. He rolls over and rises up onto hands and knees, facing the floor. Next, he rolls back to the supine position before repeating the roll and rise in the opposite direction.

Roll and Rise Extension Activity 1

Roll and Rise from Back to Hands and Feet:

- as before, but now the child comes to an all fours position instead of the hands and knees creeping posture. The legs are kept straight and there is more bending at the waist and hips.

Roll and Rise Extension Activity 2

- **Roll and Sit-up:**

- The child lies prone (face-down) on the floor with his hands palm downward as if doing push-ups. He then rolls onto his back and up into a sitting position, using hands and arms to give the thrust needed to raise the upper body. If the roll is to the left, the right arm pushes into the roll and both arms push into the sitting position, and vice versa. The child says: '*left*' or '*right*' to practice the concept of directionality.

Obstacle Course

- Draw round the child's own flat hand, feet and knees to make patterns for 'tracks' around the room.
- Tape the tracks to the floor for the child to follow: under chairs, over rolled mats, around furniture, through hoops etc.
- **Extension Activity:** Organise a visual sequence of movements for the child to follow.

Postural Stability, Bilaterality and the Integration of Vision and Movement

- Postural balance and bilaterality of body sides and extremities are closely related;
- Good balance in posture and movement is a product of body bilaterality
- The Obstacle Course activity encourages visual awareness and visual judgements which enhance the integration of vision and movement

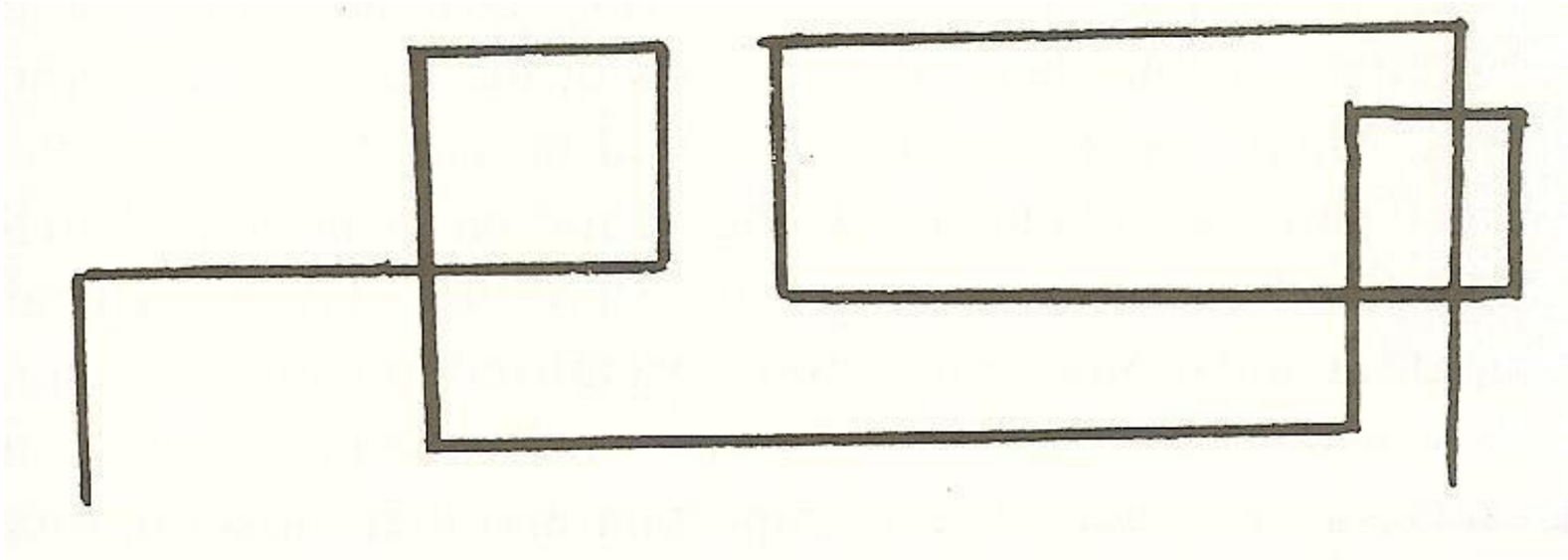
Rhythm

- Rhythm of movement is important to the efficiency of movement;
- Rhythmical activities include keeping time by clapping, beating or marching (Montessori Dance: see bibliography)
- There is evidence to show that a child who has not learned rhythm by the age of three will have difficulties at school where counting, writing, singing and poesy/poetry all require a sense of rhythm.

Start, Pause and Stop

- Learning how to get ready to stop is as important as actually learning to stop;
- Many children who have not achieved a sense of rhythm and the concepts of sequence have difficulty counting their steps as they walk across the room or climb stairs;
- Matching their voice to actions helps children inhibit inappropriate actions; they develop an awareness of *pause* as a waiting time before the next action, word or musical note.

Directionality



The masking tape maze makes a significant contribution to concepts of directionality. Here all the mysteries of ‘right’ and ‘left’ can be mastered before the classroom tasks can create any confusions or ‘reversals’.

Play Activities

- Children's developmental needs for many more directed general (gross) movement activities cannot be over emphasized;
- Too many children lead sedentary lifestyles and in addition are transported everywhere;
- Directional running and throwing games are vital to integrate vision with movement;
- Swimming is perfect for total body integrations of directed movement patterns.

Clinical Studies

There have been numerous clinical studies and researches which prove that postural balance, fluent bilaterality, and all of the movement skills which evolve, make significant contributions to intellectual development.

Clinical Studies 2

The contributions of **Dr Montessori** in the early 1900s, the elaborate benchmark studies of infant and child development by Gesell in the 1930s and 1940s, the insightful observation of Piaget in the 1940s and 1950s, and Smith and Smith in the 1960s all show, beyond any doubt, that the developmental inter-weavings of movement in the human have a direct influence on both physical and cognitive potentials.

Part 2: Special Movement Patterns

- Studies of pre-historic mankind show that the hands, steered by the eyes and vision, account for most of the progress of civilisation
- Studies of the human infant also show the importance of the hands in his growth and development toward productive individuality

Intelligence and the Hand, Chapter XIV The Absorbent Mind Dr Maria Montessori

- Although there are many special movement patterns that a child must master, the eye-hand patterns are chronologically and developmentally most significant

Fine Motor Control can only develop out of Gross Motor Control

- All movement skills come from a sequential development following visually directed movement practice at all levels of general and special motor actions.
- If general (gross) motor actions are lacking or inadequate, more specialised (fine) movements will be restricted or inefficient.
- This will be evident in difficulties such as cutting, colouring and pasting and writing.

Toys and Tools for Practical Life

Play things should always be learning things, and the learning fact must be assured by the provision of objects that fit the child's level of visual manual development.

Every child should have his own cupboard or drawer in the kitchen; no toy chest can compare with the endless visual search and manual reach opportunities of the pots, pans, trays stored there!

Looking and Feeling

- The young child spends most of his pre-school years looking and feeling, feeling and looking;
- Thus develops the skill that allows the visual system to make these judgements without needing to return to tactual manipulations for the information being sought;
- The developmental need for this exploratory experience is so great, and so often missed, there are now too many children arriving at school with fine motor skill deficiencies.

School Readiness

- The classroom puts a tremendously different demand upon a child's hands – suddenly he finds he is expected to use crayons and pencils;
- There is a sudden shift from reality to abstraction and the hand skills a child must have for success in this move from objects to symbols.

Wall Chalkboard

Some of the most effective guidance routines thus far devised for the development of all the hand-eye co-ordinations a child will need in the classroom require nothing more than a *large chalkboard* and the child's use of it;

If possible the chalkboard should be at least one metre wide, and wider if there is space for it.

A very acceptable substitute can be made using hardboard and blackboard paint.

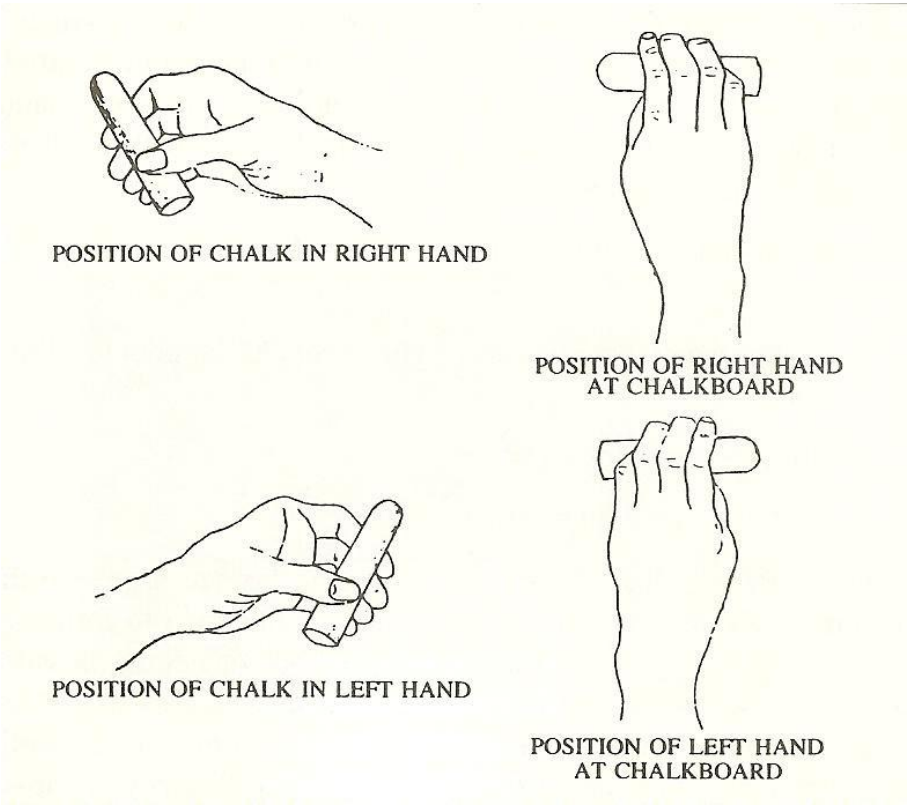
Wall Chalkboard 2

- Standing at the chalkboard enhances the freedom of arm and hand movements;
- The vertical plane of the board is conducive to full arm movements with the child's shoulder as the primary pivot for vertical, horizontal and diagonal lines;

Wall Chalkboard 3

- The elbow and wrist enter into the action for the extension and retraction of the hand as it moves over the chalkboard surface;
- Wrist rotations and finger motions in holding and manipulating the chalk complete the full sequence from gross whole arm to distinct finger control;

Holding the Chalk



The diagram shows a large size chalk which should be wrapped in masking tape so it can be gripped firmly and will not shatter if dropped

Basic Chalkboard Routines

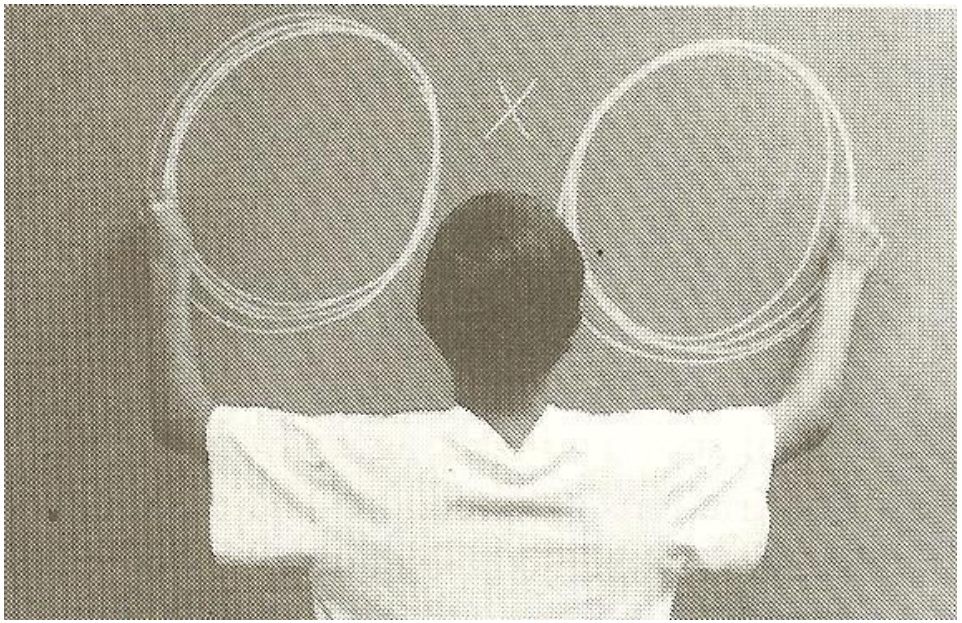
- The child's work at the chalkboard should be patterned on the sequence of development of movement control;
- The activities are in accordance with the expected trend and flow of the child through time-growth-maturation-learning sequence.
- This is in line with Dr Montessori's 'universal laws of child development'

Dr. Maria Montessori.....

"My experience of over forty years, with children of all races, of different religions, belonging to the most divergent social strata- from royal palaces to the worst slums – has shown me that the child obeys in his development **natural laws** which are identical for all."

The Absorbent Mind (1949)

Bi-Manual Circles



a) Right hand moving clockwise while left moves anti-clockwise

b) Left moves clockwise while right moves ant-clockwise

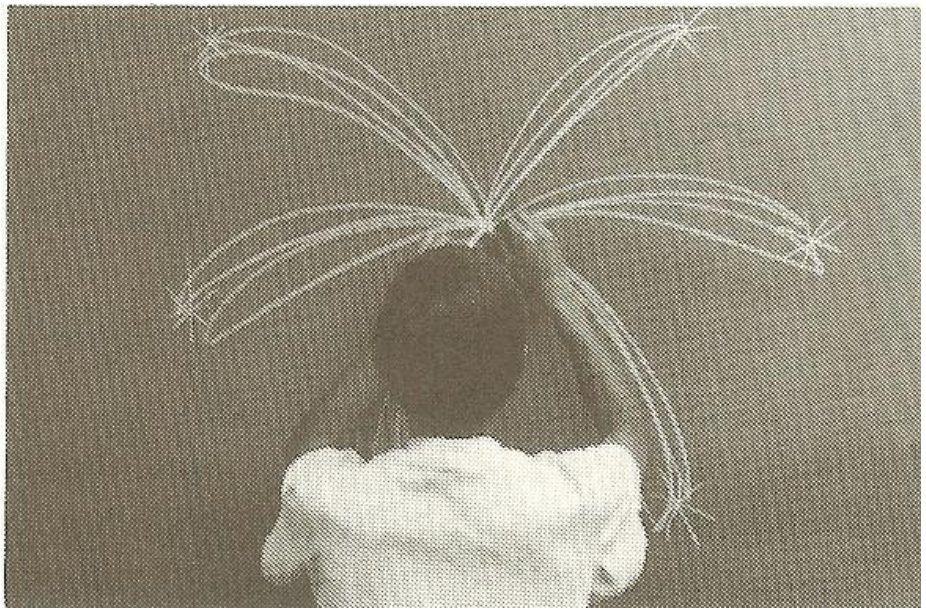
c) Both hand move clockwise

d) Both hand move anti-clockwise

Bi-Manual Circles 2

- The aim is to get all possible control of each hand and to emphasize each in the bi-lateral relationships;
- Hand preference comes as the child develops hand skills and results only from dexterity of movement;
- Development of both hands is prerequisite for the more discrete skills which lead to writing and refined manipulative actions.

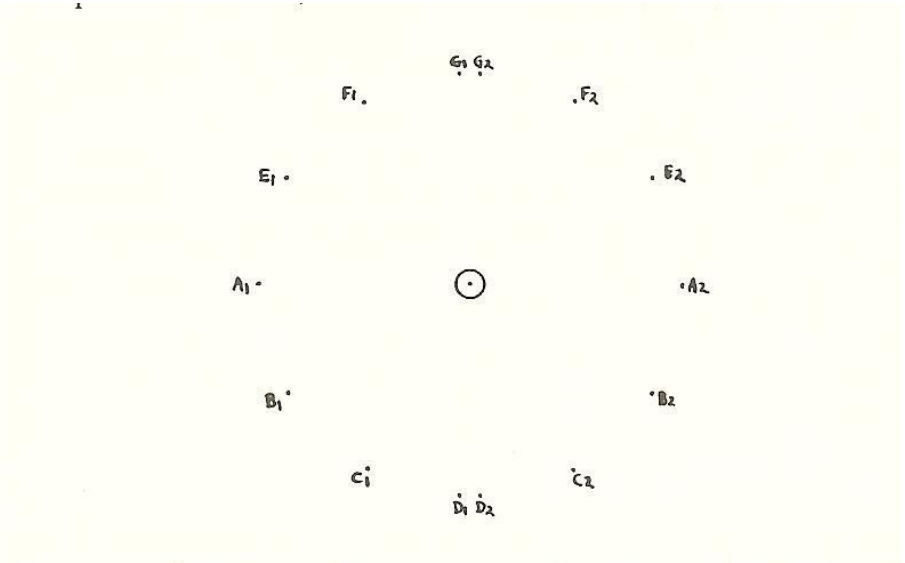
Bi-Manual Straight Lines



The child holds a piece of chalk in each hand and moves both hands at the same time in various patterns of movement as shown in the diagram

A child cannot fully perceive a straight line unless he can also draw a straight line. Bilaterally drawn lines on the chalkboard provide the opportunity to feel and see lines like those he will be drawing at school.

Bi-Manual Straight Lines 2



Bi-manual lines are made by the child to connect A1 and A2 with the centre spot; then B1 and B2 and the centre spot etc.

Note: A1 and A2 should be placed far enough apart on the chalkboard so the child can reach them with full arm extension while standing about 30cm in front of the chalkboard.

The movements of the hands are from the outside dots to the central spot and back again.

12-17 years at school

- Eye-hand movements (and all other movement patterns) just for the sake of movement are not enough;
- All movement skills should have the very real and important goal of greater success in the classroom because ..
- This is the 12-17 year occupation of most children.

Part 3. Eye Movement Patterns

- How well a child sees the world and the objects and tasks therein is determined by how well his visual inspection abilities have developed;
- This starts in infancy when a child visually locates and inspects (looks and feels, feels and looks) all those things found in the immediately surrounding space;

Visual Inspection Skills

- The child who lacks visual inspection skills cannot '*see at a glance*', and must spend additional time and effort in making visual judgements and visual decisions;
- Inadequacies in visual inspection skills result in jerky and restricted eye movements;
- If the two eyes do not synchronise, or move quickly and accurately school achievement is generally low.

Gestures

- Actions speak louder than words: when taking turns with an infant child, place your hand on your chest and then on his and say, “First me, then you,”; be sure to complete the task yourself before allowing the child to start.
- When asking the child to look at something, point to it, and look at it yourself;

Visual Inspection Activities

- Put six, eight or ten small objects onto a tray and show the child. Cover the tray with a cloth and remove one object. Remove the cloth and ask the child to say which object has gone;
- Make a practice of handing the child objects from either side to improve peripheral vision;
- Ask the child to look at you when you speak to him to develop strong eye contact;

Visual Inspection Activities 2

Attach a string to a ball (about 7 cm in diameter) so it can be hung, at the child's eye level, from a doorway or ceiling hook:

a) Swing the ball gently from side to side and encourage him to watch it closely: the eye tracking movements strengthen the eye muscles necessary for reading and writing;

b) With the child supine (laying on his back) on the floor, swing the ball in a circle and ask him to watch it carefully until it stops moving.

Part 4. Vision-Language Patterns

- The development of communication skills depends upon all of the interpretation abilities of both the sender and the receiver of the messages;
- Understanding body language is totally dependant on the visual discrimination of the child who must make judgements regarding the tone of the sender's voice and the emphasis of the facial expressions and/or gestures being used.

Language is a Visuo-Auditory Activity

- When the child is learning to control the muscles of the mouth, lips, tongue, throat and diaphragm for speech noises, he observes the facial movements and gestures of those around him;
- He learns his mother-tongue by imitation;
- He depends to a very great extent upon his audition to check the accuracy of his words.

Vision and Audition are a Team

- There cannot be too much emphasis put on the importance of reading to young children;
- The visual-language experience can be extended by using audio-books, action rhymes and songs which use words which the child already knows, and some which will extend his vocabulary;
- Young children adore new and *difficult* words, such as the names of dinosaurs.

Children Need to Talk to Themselves

- The early language of the child is not communicative at all, but is his own naming language;
- Its purpose is to attach a label which ‘packages’ the developing perception so it can be held where it is in order that the child may then go on to learn something else;
- He can then come back to the ‘package’, and by use of the label he has assigned to it, integrate the first perception with another for the formation of a new concept.

Children Need to Talk to Themselves 2

- Frequently, the young child is not interested in talking to anybody – he is talking to hear himself talk, and to practice those labels he has already put upon things he has seen or experienced.

Piaget, the Language and Thought of the Child

Part 5. Visualisation Patterns

- By the time the child reaches school age it should no longer be necessary for him to use his hands to touch, lift or measure the familiar objects he sees;
- Now he needs visual activities to assist him with dependable information regarding size, texture, approximate weight, shape, distance etc.;
- Only then will his hands be completely free to serve him as the tools of productivity.

Visual Interpretation Skills

a) Visual Comparison Skill
b) Visual Memory Skill
c) Visual Projection Skill

These skills do not occur as separate entities in a child's development

Jigsaw Puzzles

- There is a high correlation between the ability to complete jigsaw puzzles and reading ability;
- After a child has learned the shape and form of letters, he uses shape and form of words as one cue to their identity;
- The degree of sophistication achieved is acquired, just as cultural intelligence is acquired, by repeated practice.

Visual Interpretation Activities

1) I am thinking of something big and red, with four wheels ….;
2) Someone is wearing a pink dress today …;
3) There is a shop nearby which sells flowers …:
4) Tell me about your birthday party …;
5) How can I get from your house to the park? ;
6) Do you remember our last Christmas show?

Extra Special Reading Helps

- Ask the child to tell in his own short sentences accounts of his day, evening, weekend, holiday, favourite toys, films etc. while you scribe this for him;
- Ask him to read this back to you straight away, while it is fresh in his mind, helping him with words he stumbles on;
- Discuss the tricky words later in the context of the event, so that his concept of the word is complete.

Extra Special Reading Helps 2

- Most children love taking pictures! Let the child take a series of photographs of an event, such as preparing for lunch, an art activity or changing clothes;
- Print the photographs and ask the child to order them in sequence; as he sorts them ask him who/what is in the picture, what they are doing and all the relevancies he can describe, and what he thinks about it all.

Exercise Time!
- a second game by Ashok Kumar

Small Groups Session

- What are the implications for teaching and learning in your organisation?
- What modifications might you adopt to assist with transitions from education to training or employment?
- What difficulties do you expect to face when implementing these changes?

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Namaste!

Dyslexia, Dyspraxia, Attention Deficit Disorders, Down Syndrome, Asperger Syndrome, Autistic Spectrum Disorders, Sensory Issues and Coordination Disorders

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