Montessori

Children on the move ...

International Montessori Schools and Child Development Centres
Brussels, Belgium

Bodily Kinesthetic Intelligence

Lower Primary Tervuren unrolling their longest long addition

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A unique set of Intelligences

The foundation of a personality is made up of two parts. On one side there is nature and on the other side there is nurture. Life experiences and opportunities assist children in developing their multiple intelligences. Consequently everyone has a different set of developed intelligences and enters every situation with the related strengths and challenges.

Howard Gardner developed this theory from 1983 onwards, and provided a lot of research that helps us understand how children learn differently. Intelligence is not a single ability. Montessori realised this and developed a carefully planned learning environment with optimal conditions to help develop a wide range of cognitive abilities and skills.

Intelligences 'influence' each other. Therefore, each intelligence needs to 'have a place' in the learning environment with plenty of opportunities to develop.

Bodily-Kinesthetic Intelligence

Children with a high bodily-kinesthetic intelligence love to move. They use movement to acquire knowledge about themselves, their physical and mental abilities and about their surroundings.

It is very easy to identify these children. They enjoy and are often successful in sports, games, constructing, dancing, hands-on tasks, working with scientific materials and arts and crafts. These activities involve precision, swiftness and physical coordination by using their mind and their fine and gross motor skills.

The body is now widely acknowledged as a knowing, conscious, and wise organism that has a multifaceted relationship to other human faculties. Unconscious and conscious brain functioning such as memory and emotions are linked with highly specific muscular patterns. Therefore the mind and the body are intricately related and influence each other.

Strengths particular to this Intelligence

Children with Bodily Kinesthetic Intelligence love activity and movement. Their body is their tool for learning, experiencing and expressing. They generally tend to be good at:

- Gross motor activities: a natural sense of how the body should act and react in a demanding physical situation
- Good overall physical coordination
- Physical control, balance, agility, grace, suppleness, speed
- Outdoor activities, dancing and sports
- Fine motor activities involving one's fingers and hand-eye coordination
- Performing actions in an ordered manner
- Using their body in highly differentiated and skilled ways for a goal-directed purposes
- Creating things with their hands
- Enjoyment of exhilarating experience

These types of learners typically have the following traits:

- Learn and remember by "doing", rather than hearing or seeing
- Explore independently with objects or tasks versus listening about the object or task
- Work and create with their hands
- Learn best through movement and experimentation
- Use their instincts and follow their 'gut feelings'

Possible career choices

- Builder, carpenter, crafts person, firefighter
- Sculptor, actor, choreographer, dancer
- Athlete, recreational worker, coach, physical education teacher
- Farmer, forest ranger, gardener, mechanic, jeweler, designer
- Paramedic, surgeon, physical therapist, osteopath

Connection Memory and Body

In order for a person to remember something long-term, it must be hung on something he/she already knows or has experienced. This background knowledge gives a framework to which the new information is added. Once integrated, understanding happens and long-term memory is built up.

When one hears something new, it enters the short-term memory. When the person does not do anything with that information or it doesn't relate to something known, it will be pruned away. Our language use also describes the process. We need "to do' something with the new information, thus understanding involves active interaction.

For the child this is more relevant than for adults. Due to their short life span, they have limited life experiences and therefore have less 'hooks' to hang new information. Research says that to learn something totally new, the average person has to hear the information at least six times, before it makes it past the barrier between short-term and long-term memory. This is why in traditional education concepts need to be repeated many times.

However, when a concept is poured into a concrete experience that involves other senses besides listening, the knowledge is integrated much quicker and much deeper. The manipulation with the hands helps information move into the long-term memory.

Additionally it provides long-term connections between mind and body. The two cannot function independently.

The Concrete Montessori Classroom

The Montessori classrooms offers varied learning experiences. Children who are strong at the bodily-kinesthetic level will feel at home due to the fact that they can use fine and gross motor skills during the course of the day. They are not required to sit still for the majority of the day, thus avoiding the creation of issues related to concentration and behaviour. Children who are born to move, need to have that opportunity, otherwise all sorts of blockages and issues can develop. By means of teachers offering an individualised balance of freedoms and boundaries, children are channeled towards constructive movement, thereby helping the child to connect thinking and movement. Within this environment, children have the opportunity to become purposeful movers.

Learning by doing during Infancy

During early childhood, movement is an important sensitivity for all children, as it is the vehicle to obtain experiences. Based upon these experiences, the brain structure is formed by means of neuro pathways.

Movement, intelligences and will develop parallel to each other during the first three years of life. This is why a Toddler can say "no" to many questions, even to the ones where he/she would love to say "yes". The will is not yet connected to the intellect. Due to limited life experiences the child cannot compare, analyse and synthesise; this level of abstract thinking comes at a later stage. It evolves slowly from approximately six years onwards and is built upon the many experiences the child has had up until that point.

Movement is important from birth onwards. Babies need the opportunity to move freely on a mat or carpet, so that they can practice pushing up, rolling, going on all fours, crawling, cruising and eventually walking. Once this gross motor mechanism is established, the fine motor skills start to develop. The child's fingers and mind need activities for hand-eye coordination, such as activities related

to dimensions, shapes, sizes, and depth. They love to put objects in and out of containers and rings around dowels. These sensorial objects are necessary to further develop the hands and consequently the brain. The hands are the tools of the brain.

Learning by doing is the only way for these young children. Building up life experiences is the base for language development but also for thinking skills, social awareness and emotional maturation.

After having had the opportunity to interact with the environment on a concrete basis and simultaneously having had interaction with other children and adults, the personality of the child slowly integrates towards the third birthday. When this happens, we can even hear this in the child's own language, as this is the period where the word "I" surfaces.

A child with an integrated personality becomes aware of their own needs, but simultaneously becomes conscious about the fact that other people have needs too. This is a huge step in the social development, since now the child becomes aware of the fact that mum is not an extension of him/herself, but a person in her own right. The child will also slowly start to share, knowing now that the object is not 'taken away' but is just temporary in use by someone else. The child is becoming aware of separate identities and their needs. This is the basis for the next level in becoming a social being in a group.

Concrete, constructive and meaningful activities are therefore the base for the development of the personality. It is also the base for the development of social awareness, respect and empathy. Therefore baking, cleaning, watering plants, setting the table, doing the dishes, craft, music, painting, puzzles, wooden construction materials and so on, together with the right mix of freedoms and boundaries are essential during the early years of life.

Concrete activities in the Children's Houses

In the Children's Houses, the activities offered move the child slowly from concrete experiences to abstract understanding. Language, mathematics, biology, history and geography are all offered by means of attractive equipment that help develop the child's motor memory. Since long-term memory is intricately linked to the body, the academic concepts presented have an element of kinesthetic movement and action.

A nice example is found in the learning of written language. The child acquires the letters of the alphabet through sandpaper letters that can be seen, traced and named. All senses are involved, thus stimulating integrated learning and preventing learning delays such as dyslexia to develop. Each lesson contains some letters the child knows and some unknown. Thereby making the link in the brain between something known to which new information can be hooked onto. The brain is an organ that likes to be organised. It builds networks of neuro connections based upon the experiences the child has had. The dendrites transport the information. When a child can hook new information to the old, the dendrite already exists and information can travel, be stored and consequently remembered easily.

When new information is given to a child without a related previous experience there is no easily accessible neuro connection to store the new information. It takes more time to find a purpose and place. In other words, the child does not remember it, not until it has been repeated many times, which is rather inefficient.

Therefore in the Montessori classroom all aspects 'taught' are experienced. We teach songs, but 'teach' very few concepts. The adults are not teachers but directresses and directors, directing the children to the right experiences that help build up their mind through experience based learning.

The hands-on classroom at Primary level

Traditionally, once the child enters primary, the 'age of sitting still' has arrived. However, when implementing the full implications of the bodily-kinesthetic intelligence, a vibrant, active learning community is the outcome.

Instead of listening, reading or watching a lesson, with kinesthetic learning the child actually performs the lesson. The directress or director work with small groups of children at a time, so that the level can be geared exactly to those children present and variations can be offered as required. There is no 'teaching to the average' as this slows the learning process down. It can also create frustrations for those who can go faster and those who need a bit more time. By involving every child at their particular level, they become interested and motivated.

Gross motor activities are built-in in the day as the child needs to move between groups, collect the materials, discuss his work with someone else, go outside for something he needs for his project and so on. Children can spend their energy whilst academically engaged and can integrate information whilst they move.

Fine motor skills are becoming more and more refined, since the child uses his pincer grip not only for pens, but also for manipulating all sorts of objects like bead bars, skittles, bead frames, geometric shapes for constructing formulas, tools for experiments and so on.

Lets take botany as an example. Children learn the names of plants and leaves already from Children's

House age onwards. They also have 'real life experiences' by performing Ikebana, collecting specimens in the school garden or in the park, working in the vegetable garden, watering the plants indoors and outdoors, drawing the parts of the plants, writing descriptions and answering classification questions.

Some examples of Classification Questions in the Primary Class:

What is the life cycle of the plant?

- It has to be planted each year (annual)
- It grows back every year (perennial)
- It grows every two years (biennial)

How does this plant reproduce?

- By means of spores
- By alternation of generation
- By cell division
- By means of seeds
- By other means

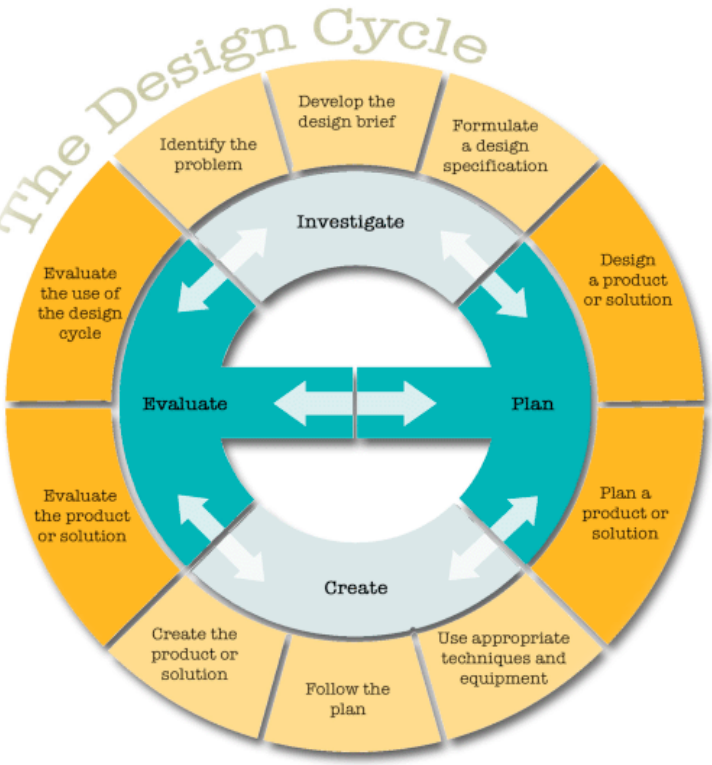
Additionally they learn about the parts of the plants by means of dissection, classified cards, representing the plant through art or craft, making posters, classifying according to mono and dycotyledons and so on. A kinesthetic classroom in action! And chances are, regardless of the children's learning style, they are truly benefiting.

Research has shown that the least effective way to learn something is to hear it. Reading or seeing the information helps visual people a little, but not much either. If there is something in the person's memory already that the new information can attach to it, it will be a lot easier to learn. The Montessori curriculum completely incorporates these characteristics of brain functioning.

Let's look at the botany classification questions again. The child receives knowledge in an interactive and multi-sensorial way, which is later on used to build upon. The work done a while ago with the isolated question 'How does this plant reproduce?', now pops up again. Classification becomes more sophisticated and children learn in Upper Primary that plants that reproduce without seeds are called Pteridophytes and those that do reproduce with seeds are divided in two categories; the Gymnosperms and the Angiosperms. These categories are then in its turn studied. They find examples in the gardens, read books, make posters and presentations and indoor plants are categorized. However, the work was never seen as 'difficult' or 'boring', because the child already had previous knowledge to which the extended information could be added.

In other words 'hands-on' at all times, which stimulates understanding, processing, interest and joy of learning!

The Kinesthetic experience for MYP students



Listening and seeing information are at the bottom of effective learning practices. These processes use the front part of the brain that is attributed with short-term memory. Hence, in typical schooling, students will forget the information they have learned easily and eagerly. Research has shown that students learning for a test in a typical manner will forget most details within the first week after that test. This is shocking, why waste all that energy and adrenaline?

So also at MYP level it is necessary to involve the other senses and the body as a whole. For instance, a hanging mobile sorts through the characteristics of the protagonist and antagonist in an assigned novel. What appears to be arts and crafts are really opportunities for the child to build frameworks to which future knowledge on the subject can be added.

Speech also assists in information integration. When speaking, one uses a middle portion of the brain that is far closer to long-term learning. Therefore an interactive relationship with the mentors and the other students is highly important at this age. Collaborations and discussions are an integral part the school day.

Children use the Design Cycle when studying and implementing specific topics. This cycle aids the development of logical thinking and simultaneously involves mind and body, thus helping for information to integrate. The large steps are: planning, investigation, creation and evaluation. Each section is divided in different components, depending on the topic. By implementing the Design Cycle, students experience the connections to real life. This is highly necessary during the teenage years. The developmental sensitivity here is to become part of society. It is a rebirth. First it was birth into the family, now it is birth into the world. They want to know how society functions and what place he or she will take in the future?

There is a large drop out happening at traditional education at this age range; one of the biggest reasons is that students have no idea why they are learning all the information presented. They do not see the connection to the real world. In other words, the 'body component' has not been added to the learning process, resulting in lack of motivation and interest.

Academic education needs to be related to real life in order to make sense to young adolescence. The 'Guiding Questions' used within the MYP framework help connect the information given in the different subjects. Currently the research done by the students of the MYP is connected with the question: What is an adolescent? What are their needs? When did this concept appear? The following overview of a part of the curriculum shows how different topics are studied, yet are related:

Subject	Content	Area of Interaction
Language A English		
Years1-2	The Solitaire's mystery- Jostein Gaarder Young people's magazine	Why do adolescents have the need to have philosophical questions?
Years 3-5	Romeo and Juliet-Shakespeare	What are the needs of adolescents?
Language A French		
Years 1-2	Le mystère de la patience- Jostein Gaarder Description de soi et des personnages	Why do adolescents have the need to have philosophical questions?
Years 3-5	Le songe d'une nuit d'été- Shakespeare. Débat sur l'adolescence et ses besoins	What are the needs of adolescents?
Language B		
French / Dutch / German / English	Various texts about adolescents, debates and discussions	What are our interests as adolescents?
Humanities		
Years 1-2	Timeline of the adolescence. When does the concept appear? 19th century, Rousseau.	When did the concept 'adolescence' appear?
Years 3-5	Development of the consumer society after the Second World War. Consequences for young people	What link is there between adolescence and economy?
Technology		
Years 1-2	Create the business	How can an adolescent become responsible?
Years 3-5	'Be Green, rent a tree' and related management	
Sciences		
Years 1-2	Transformation of the human body	How does an adolescent develop?
Years 3-5	Reproduction - puberty	

Academic learning, combined with real work, stimulates integration. Teachers collaborate with each other and ensure that all different forms of learning take place. Lab experiments, projects, presentations, excursions are all part of the learning process. Visiting the Maison de Repos, catering at events and related planning, preparation, clean up and bookkeeping, help students see what the world looks like. It gives them the framework and importance of study.

Outdoor activities such as sports, games and 'pure play' are also important integration activities. Teenagehood does not need to be equivalent to the period of 'hanging around'. When students find themselves in a small group, where being different is the norm, they build up a good self-esteem and do not worry about exposing themselves. They will still play games and be the "monkey in the middle". The play stimulates social interaction, respect and empathy through physical integration.

The world is their classroom

In order to strengthen the Body-Kinesthetic development, a multitude of activities are added to the classroom experience such as:

- Field trips, excursions
- Curriculum related outings – 'Going Out program
- Outdoor Play
- Games
- Performing Arts; drama, dancing,
- Sports
- Musical Instruments and concerts

Integrating mind and body results into a harmonious person who can think logically. During the process it is important that the child receives a multitude of experiences that include logical limits. It is through physical and logical boundaries that the body and mind adjust to the world around them.

At home

Marketing mechanisms and consequent promotion of "cool-factors" ensure nowadays that many children are inside and entertain themselves by means of screen related activities; TV, videos, consoles, iPads, phones take up a lot of children's spare time. Of course computer skills are necessary, the child does not need to be deprived of these. Nor should young children be deprived of real child oriented activities that stimulate their complete development!

Please find here some ideas children can do to further develop and enjoy their Body-Kinesthetic intelligence:

- Play outside in nature: build a hut, dam a stream,
- Build castles in the sandpit, on the beach
- Try woodworking, knitting or other crafts
- Build model airplanes or boats,
- Play family games with parents and friends
- Play games such as ping-pong, basketball, volleyball, darts
- Learn to juggle, ride a monocycle,
- Do gardening, build birdhouses
- Wash the car, fix things around the house
- Join a sports team
- Take dance lessons

Body Kinesthetic Intelligence is being used in advertising

Please be aware that advertising researchers have measured certain physical changes caused in viewers when watching commercials such as changes in pulse rate, blood pressure, formation of saliva in mouth and use these when creating their ads. Advertisements are specifically created with the body experience in mind, so that the viewer gets a positive impression/emotion and will be 'hooked onto' the product.

- The beautiful textures of 'junk' food,
- The creative and cool messages whilst showing a new phone
- Smiling people on a fun holidays,
- Use of music to exhilarate heart beat, and so on

Young children are particularly vulnerable. Since their life experiences are still limited, they will not be able to involve their logical thinking to compare and decide. They will 'want' things based on how they are feeling when viewing the advertisements.

Learning to listen to our body is about learning to listen to our selves. Our emotional intelligence is rooted in kinesthetic awareness. Our body can tell us about our feelings. It helps us to become aware and act accordingly. Therefore the development of the kinesthetic intelligence is a very important tool that contributes to a happy harmonious life!

For further reading please enjoy:

Books:

- Inside the Brain by R. Kotulak
- The mind of your newborn baby by D. Chamberlain
- Talented Teenagers; the roots of success and failure by M Csikszentmihalyi
- Failure to connect by Jane M. healy

Internet:

- http://www.dirjournal.com/guides/understanding-kinesthetic-intelligence/
- Learning by doing is the best way for your child to learn by Rebecca Garland