

## **Brain Gym**<sup>®</sup>

Tom Maguire, Catalunya, Spain

### Abstract

*Brain Gym is a series of exercises designed to help learners coordinate their brains and their bodies better. This holistic approach to learning also enables students to find an equilibrium between both sides of the brain and the body. When well-learned, it is a tool for life-long learning.*

### Part 1

‘Children can learn almost anything if they are dancing, tasting, touching, hearing, seeing, and feeling information.’

In 1990 Azasha Lindsey set up a Brain Gym program in Camp Gonzales, a young offenders detention centre in California. She was in charge of 23 young men whom the centre described as "unable to stay out of solitary confinement." Over a period of weeks she worked with the group teaching them a Brain Gym class. Although the class was only once a week, they showed remarkable improvement in their academic learning. What most impressed the learners themselves was their growing self-control, especially increasing command over temperamental outbursts. By the time Azasha had finished her course with them none were in solitary confinement and all but two of them were home.

Dr. Carla Hannaford is a neurophysiologist and educator with more than 28 years of teaching experience. In her best selling book "Smart Moves", Dr. Hannaford states that learning is not an isolated "brain" function but very much part of our whole body. Every nerve and cell is a network contributing to our intelligence and our learning capability.

On one occasion Dr. Hannaford was invited to work with a football team of boys aged 14-16 who wanted to win the state championship. They were good players but all too often they lost their self-control during games, were penalised and so lost. She had the team focus on one goal: "We're calm, cool and collected and will win the state championship." Until the championship game came round she also had them drink lots of water and do specific Brain Gym exercises like Cross Crawls, Brain Buttons, and Hook-ups before each practice and game and also at the intervals. There was a marked improvement in their game, so much so that they qualified for the state championship

quarter-finals in Honolulu. There, they won their way through to the semi-finals and made it to the final. Tension mounted during this last game since the championship was so near yet so far. Patience was difficult to control and tempers began to fray during the match. At half-time the boys grouped together and lay down on the field to do hook-ups while the coach, parents and everyone else looked on in amazement. Finally they stood up and won the state championship.

Any goal must have the body and mind working together. That's what Brain Gym all about. Breakdown in performance is frequently a breakdown between the mind and body. Brain gym helps bridge that gap.

This holistic approach has proved successful in education too, according to the study done by Cecilia Freeman and Joyce Sherwood on Brain Gym and its effects on reading scores.

The researchers worked with teachers and students at Saticoy Elementary School in Ventura, California, over the 1998-1999 school year. Twelve teachers of grades K, 2, 3, 4 and 5 took Brain Gym instruction once a week for an hour after school during the school year. In these sessions they learned how to determine which Brain Gym movements and activities were most appropriate for various academic situations, and how to guide the students in doing them.

The teachers then taught the children in their classes how to decide for themselves which Brain Gym movements they needed to implement at any given time. The children became quite skilled in the use of Brain Gym movements for self-help. Each class also did a minimum of 15 minutes of Brain Gym per day. Additionally Cecilia and Joyce gave classroom presentations and initially provided individual instruction for the children who were having most difficulties in school.

Reading achievement in California is assessed on a standardized format called the Stanford 9 test. Cecilia and Joyce's study compared the children's reading percentage scores from May 98 (the end of the previous school year), to those of May 99 (the end of the "Brain Gym" school year). They also compared the scores of students from control classes with the scores of students from "Brain Gym" classes. The results are a percentage score which shows the comparative standing of the child relative to others. It

works this way: If a child scores 30% this means they scored higher than 30% of the other children at their grade level (in schools across the country), and lower than the other 70%.

The results of the study were impressive. During that year, the reading scores of the "Brain Gym group" had got better, rising from 55 to 89 percentage points, while the scores of the control group that received no Brain Gym support improved 0 to 16 points.

However a more subtle and perhaps more important change noted by all the participants who included teachers, parents and school administrators, was the shift in self-esteem and attitude toward school that came along with the children's developing abilities. Cecilia comments that recently when she visited the school, almost a year after her last student contacts there she saw children here and there doing Brain Gym movements as a spontaneous and natural support for their learning process. She is confident that as children integrate Brain Gym throughout their days, they will take on the experience of personal wholeness and self-esteem that will support them throughout their lives. (Cecilia Freeman can be reached by e-mail at [cecilia@jetlink.net](mailto:cecilia@jetlink.net). Her website is [www.iamthechild.com](http://www.iamthechild.com))

Brain Gym<sup>®</sup> is a registered trademark of the Educational Kinesiology Foundation a developmental movement program established by Paul E. Dennison, Ph.D., an expert in child motor-development. In their book "Brain Gym Simple Activities for Whole Brain Learning", Paul Dennison and his wife Gail explain that Brain Gym promotes efficient communication among the many nerve cells and functional centres located throughout the brain and body. Blocks occur, they say, when information cannot flow freely among these centres.

Dennison graduated from Boston University and moved to California to teach elementary students in the Los Angeles public schools. There he assisted in the implementation of Dr. Constance Amsden's Malabar Reading Programme, an innovative approach to teaching reading.

In 1969 Dr. Dennison himself established his first clinic to treat people with learning problems. After having tested and prescribed remedial programs for hundreds of "learning disabled" students at his learning centres, Dr. Dennison came to the conclusion that most students experiencing difficulty in school were sufficiently intelligent

for the tasks required of them. The deficits he found were in their physical/perceptual abilities, that had often plagued the child's development, uncorrected, since infancy. Spatial awareness, a concept of wholeness and closure, the ability to focus attention and perceive an organization or a structure, are requisite learning skills, easily taught yet often not available to the children who need them. He discovered that these skills depend upon an innate understanding of our bodies and how they move in space. Children only repeat those movements which are comfortable or familiar. It is as if the person considered "learning disabled" lacks permission to move in an integrated and coordinated fashion. Dr. Dennison's Brain Gym® and Laterality Repatterning procedures were developed as he explored processes to encourage his students to discover new ways to move that were more functional and coordinated. His educational therapy builds the student's self-esteem, trusting the learner to work through mental aspects as physical blocks are released. The teacher's role becomes that of facilitator of the process of learning. The teacher models how to learn and presents the curriculum. She helps the student to notice what makes learning easier or what interferes with learning. The child has control of the process by which he internalises information.

Brain Gym consists of simple movements similar to the movements that are natural in the first three years of life to accomplish important developmental steps for coordination of eyes, ears, hands and the whole body. The Brain Gym movements have been shown over years of clinical experience, in field studies, and in published research reports, to prepare recipients with the physical skills needed to improve reading, writing, and other goals. The ultimate goal of the use of Brain Gym itself is to create a fully functioning mind/body system, also called an "integrated" state.

The Dennisons Brain Gym model is based on their knowledge of how the brain works. They describe brain functioning in terms of three dimensions - laterality, focus, and centring:

- Laterality is the ability to coordinate one side of the brain with the other, especially in the visual, auditory, and kinesthetic midline, the area where the two sides overlap. This skill is fundamental to the ability to read, write and communicate. It is also essential for fluid whole-body movement, and for the ability to move and think at the same time.

- Focus is the ability to coordinate the back and front areas of the brain. It is related to comprehension, the ability to find meaning, and to the ability to experience details within their context. People without this basic skill are said to have attention disorders and difficulty in comprehending. At a deeper level, focus allows us to interpret a particular moment or experience in the greater context of our lives or to see ourselves as unique individuals within the larger framework of our society.

- Centering is the ability to coordinate the top and bottom areas of the brain. This skill is related to organization, grounding, feeling and expressing one's emotions, a sense of personal space, and responding rationally rather than reacting from emotional overlay.

The Brain Gym movements interconnect the brain in these dimensions, allowing you to learn easily through all the senses, to remember what you learn, and to participate more fully in the events of your life. You are able to learn with less stress, and to express your creativity using more of your mental and physical potential. The movements also assist in clearing emotional stress that can effect you both mentally and physically. Reported benefits include improvements in such areas as vision, listening, learning, memory, self expression, and coordination in children and adults. Teachers typically report improvements in attitude, attention, discipline, behaviour, and performance in tests and homework for all participants in the classroom

(More information: The Educational Kinesiology Foundation e-mail: [info@naturalhealth.co.za](mailto:info@naturalhealth.co.za))

Dr. Dennison's initial interest lay in reading skills and in his work with dyslexia he discovered three areas that are all necessary to be a successful reader: crossing the visual midline, oral reading and reading comprehension. Dennison and his wife Gail report in "Brain Gym® Teacher's Edition Revised" (1994), that the many skills of reading can be summarized within these three areas:

- "Crossing the Visual Midfield, that is moving the eyes across the page without inhibiting the receptive brain. The development of visual skills for reading begins with the ability to move both eyes in tandem from left to right across the midline of the page and across the corresponding visual midfield. For reading, one eye must be dominant for focusing, the other eye for blending. Although both skills are available to each eye, stress in learning the tasks of focusing and blending for

reading may cause visual disorientation.

- Oral Reading - Expressive reading with emotion and interpretation. The reader must discover that he or she is telling a story and communicating ideas through reading. One must have the concept of verbal code in order for true reading to be possible. In Western languages, the code includes an auditory as well as visual and motor component. All three of these must be used together for reconstruction of the code to take place.

- Reading Comprehension - Focused reading involving anticipation and internalisation of language. Reading is an active reconstruction by the reader of the author's message or code. There's nothing inherently meaningful about the code itself. The success of the communication depends upon the writer encoding something meaningful and the reader recoding it, making it his or her own. Thus, communication through the written word depends on the reader's active recreation of the work as he or she reads it."

In gathering this information, the Dennisons created and refined Brain Gym® movements and activities that stimulate brain function in general. They found that the blocks which people experience in reading are due to an inability to move through the stress and uncertainty of a new task. It was through dealing with these reading blocks that they also discovered a way to deal with learning blocks in general.

They based the unblocking process on four concepts:

- Physical movement to stimulate the brain. The 23 Brain Gym movements are designed to activate such functions as communication, comprehension, memory and organization.

- Avoidance of stress, which inhibits learning. Brain Gym movements encourage the learner to use the whole brain, thereby relaxing the fight or flight response in favour of keeping the memory and reasoning centres of the brain switched on.

- Activation of the whole mind-body system to release learning blocks through movement.

- Setting up a personal feedback loop. The learner takes responsibility and control of his own learning by noticing what works and what doesn't as a particular skill is being mastered. The learner can enhance observation through Brain Gym movements to improve performance, thus increasing self-esteem.

Paul Dennison summarises his basis for Brain Gym by saying, "Movement is the door to learning."

On a more practical level : how can Brain Gym be used in the classroom?

Brad Robertson's who is principal of Westvale Public School in Waterloo says that Sharon Robertson, an elementary school headmistress in Waterloo Region, uses Brain Gym exercises with her staff and students. Teachers in Sharon's school are adapting Brain Gym activities into their daily routine. She firmly believes that movement through Brain Gym activities enables her students to access parts of the brain previously inaccessible to them. She has also found that the changes in learning are often immediate.

The teacher may start the day off by engaging her students in specific physical movements like cross crawls (crossing the arms to touch the knees), brain buttons (applying pressure on specific points near the neck to stimulate blood flow to the brain) and hook-ups (crossing the arms and legs in a way that automatically induces calm). Teachers who use these techniques often report that their classes are more manageable and ready to learn each day.

Brain Gym is different from many other learning support programmes in that it prepares learners to learn. It enhances, rather than replaces other programs or curricula. Until now schooling has been based on the premise that learning is a mental activity. The physical components of learning - the visual, auditory, fine motor, and postural skills - have been almost entirely ignored by educators. A student who has difficulty in the early grades rarely does better later unless the physical cause of the stress is somehow addressed. Moreover, since learning is measured by results rather than process, stressful compensations are often acquired and carried throughout a learner's life.

Despite all the good news, Normand Frenette, associate professor at OISE/UT,

cautions that there is no magic science to teaching and learning. He says brain-based learning can be very seductive to teachers, who may rush to incorporate as many strategies as soon as possible. Frenette says long-term studies are needed to authenticate the value of the explosion of research on how the brain learns. Nevertheless, many teachers like the ones cited are responding to brain-based educational innovations in the way good teachers have always done – they’re reading, learning, experimenting and using whatever works well for them and their students in the classroom.

### Brain Gym<sup>®</sup> (Part 2)

In Part 1 of this article we talked about the background to Brain Gym and the success stories that it has made possible in sport and education. In this article we want to give you the references and tools to enable you to try out Brain Gym for yourself.

In her review of the literature on Brain Gym in a study done for Strathclyde University, Scotland, (<http://www.xtec.es/~jmaguire/teachers.htm>) Margaret Dunn states that Brain Gym consists of simple movements similar to the movements which in fact are natural in the first three years in life. She says we can consider it a useful tool in a classroom situation because it does not require sophisticated pieces of equipment or large areas of space.

Dunn says that Levine (1987) affirms that writing is, still, an important method of learning and expressing knowledge in schools and that the motor act of writing involves a broad array of fine motor and visual-motor skills. Furthermore, Arter et al. (1996, p26) state:

*“No child will be able to produce the fine motor movements for writing with a pencil until he or she is able to control ..... larger movements.”*

Likewise, Thomas (1997) noted that the Physical Education curriculum in France plays an important part in the teaching of handwriting and P.E teachers use physical activities which are closely linked to the teaching of handwriting.

Rosenbaum, (1998) also suggests that studies of the development of children with disorders of motor functions afford opportunities to understand the importance of motor function to overall child development

Ms. Dunn’s study concludes that normal classrooms depend on activities which utilise verbal or analytical intelligence but that when a child is allowed to use the body, it encourages the brain to make use of a variety of intelligences including rhythmical and visual-spatial intelligence. Further, long-term recall also seems to be enhanced by this kind of practice.

Dr. Dennison was the person who discovered the empowering effects of Brain Gym movements One of the basic references of his model is that of Laterality. This is the ability to coordinate one side of the brain with the other, especially in the visual, auditory and kinesthetic midline, the area where the two sides overlap. The vertical midline of the body is the necessary reference for all bilateral skills and midline coordination is fundamental to the ability to read, write and communicate. It is also essential for fluid whole-body



movement and for the ability to move and think at the same time.

To ensure coordination in this crucial midline area Dennison developed The Midline Movements which help to integrate binocular vision, binaural hearing, and the left and right sides of the brain and body. Many learners beginning school are not developmentally prepared for the bilateral, two-dimensional skills of near-point work required in reading and writing, for example. Sometimes a student is coordinated for play or sports activities (which involve three-dimensional space and only demand binocular vision beyond arm's length), yet is not ready to use both eyes, ears, hands, and brain hemispheres for near-point work, such as reading, writing and other skills involving fine-motor coordination. Other students show coordination for academic skills or near-point activities, yet are not ready for whole-body coordination on the playing field. The Midline Movements enable learners to integrate fine-motor and large-motor skills.

Cross-motor activities have been used to activate the brain since our understanding of laterality began over a century ago. Noted authorities such as Orton, Doman, Delacato, Kephart, and Barsch have used similar movements successfully in their learning programs. Dr. Dennison drew from his knowledge of these programmes in developing the Midline Movements series. Some of them have also been adapted from behavioural optometry activities used to increase brain-body coordination. Others are borrowed from sports, dance, or exercise programs. Others are totally unique to Edu-Kinesiology and are the innovations of Dr. Paul Dennison.

Whole Brain Integration Edu-K, helps people of all ages to experience more integrated learning, body co-ordination, sports performance and daily living. The importance of movement across the midline of the body is the focus of Whole Brain used to quickly and easily correct homolaterality – the lack of left/right brain integration,. In order to read fluently and with comprehension; to write creatively; to spell and remember; to listen and think at the same time; or to perform at our athletic peak, we must be able to cross the midline which connects the left and right brain.

It's interesting to note that among the population identified as "learning disabled" we find that 80% or more fall into the homolateral category. Living in a homolateral state leads to frustration and the need for extreme effort, often resulting in "acting-out" behaviours. Academic achievement is very difficult. Brain Gym® movements help repattern both brain hemispheres to work simultaneously and cooperatively, creating the smooth neural functioning that leads to emotional ease - and academic effectiveness.

A recent study (Dr. Robert Eyestone, 1990) found that more than 95 percent of individuals in groups labelled as "at risk" (teen mothers, juvenile detention, ADD/ADHD, in learning disabilities classes, drug rehabilitation, alcohol support groups) were operating in a homolateral state, as compared to eight to 13 percent in random groupings.

As we saw in the first part of this article dramatic changes in behaviour are seen when this homolateral state is addressed and an integrated neural state is achieved. Whole Brain Integration can help this group to join the laterally integrated population, which is able to learn with the whole brain more easily. Being integrated helps us to remain calm and alert, even in stressful situations (exams, job interviews, performances, etc.). When we are relaxed and calm we make better decisions, we feel better about ourselves, and those we interact with, and we are more productive.

If you feel that Brain Gym could enable your students and would like to experiment by

building Brain Gym exercises into your own classroom practice Ruth Schmid has a practical proposal. She recommends you start with the Brain Gym Mini-Menu below. For best results she advocates doing them twice each day in the order outlined below.)

#### Water.

Drink a glass of water. This increases energy, improves production, concentration and test taking ability.

#### Brain Buttons.

This exercise stimulates the blood flow through the carotid arteries to the brain to "switch on" the entire brain before a lesson begins. The increased blood flow helps improve concentration skills required for reading and writing. It also increases overall relaxation.

Make a 'C' shape with your thumb and index finger and place at either side of your breastbone, just below the collar bone. Gently rub for 20 or 30 seconds while placing your other hand over your navel. Then change hands and repeat.

#### Cross Crawl.

This exercise helps coordinate right and left brain by exercising the information flow between the two hemispheres. It is useful for spelling, writing, listening, reading and comprehension. It also improves left/right coordination.

While standing, alternatively touch your left knee with your right hand then the right knee with the left hand. Continue for 10 to 15 repetitions. (Variation 1 - touch opposite elbow to knee. Variation 2 - reach hand behind back to opposite foot.)

#### Hook-ups

This works well for nerves before a test or special event such as making a speech. Any situation which will cause nervousness calls for a few "hook ups" to calm the mind and improve concentration. Diffuses stress; improves self-esteem; establishes a positive orientation; promotes clear listening and speaking; aids in ability to function calmly in test taking; improves typing and computer work; helps reading, writing and spelling.

Sitting on a chair with legs outstretched, cross one ankle over the other, stretch your arms forward with the backs of your hands facing one another, thumbs down lift one hand over the other (now palms face one another) and interlock the fingers roll the locked hands straight down and in toward the body so they eventually come to rest on the chest rest your tongue on the roof of your mouth behind the teeth (the hard palette).

(This position connects emotions to the limbic system with reason in the frontal lobes of the cerebrum thus giving integrative perspective from which to learn and respond more effectively.)

Another way of introducing Brain Gym into a classroom routine is through balances. A balance is a five-step learning process that models the lesson plan most often used by effective teachers. A short balance can be completed in just minutes; a longer balance may take an hour or more.

A balance involves:

1. Getting ready to learn,
2. Setting a goal or intention,
3. Pre-activities which playfully identify aspects of the learning that need more focus for integration,

4. A way to integrate the learning into physical movement (in this case, through the Brain Gym movements),
5. Post-activities to identify the new learning.

The final, unnumbered step is to "celebrate the new learning." This is the step of play, exploration, innovation and implementation that is essential to creative learning, yet often omitted in the classroom, where learners are pressed to begin a new task before even acknowledging the skill with which the previous one has been accomplished.

There is a variety of Brain Gym movements which you can use to integrate learning through movement. The following are descriptions of how to put them into practice with indications as to the way in which they can influence your students' learning.

#### Lazy-Eights (or Double Doodle)

Helps with: reading, speed reading, writing, hand/eye co-ordination.

Extend one arm in front of your face. With one thumb pointing upwards, slowly and smoothly trace the infinity sign (∞) in the air. Keep your neck relaxed and your head upright, moving only slightly as you focus on the thumb and follow it around. This relaxes the muscles of the hand, arms and shoulders and helps visual tracking.

#### Thinking caps

Helps with: spelling, self awareness, short-term memory, listening ability, abstract thinking skills.

With your thumb and index finger, gently pull and unroll the outer part of the ear, starting from the top and slowly moving to the lobe. Pull the lobe gently. Repeat the whole exercise three times.

#### Calf pumps

Helps with: concentration, attention, comprehension, answering questions, imagination and the ability to finish tasks. This exercise removes the sense of being held back and not being able to join in. It stimulates the reptilian brain.

Stand, arms length away from a wall and place your hands (shoulder-width apart) against it. Extend your left leg straight out behind you so that the ball of your foot is on the floor and your heel is off the floor and your body is slanted at 45 degrees. Exhale, leaning forward against the wall while also bending your right heel and pressing your left heel against the floor. The more you bend the front knee, the more lengthening you will feel in the back of your left calf. Inhale and raise yourself back up while relaxing and raising the left heel. Do the movement three or more times, completing a breath with each cycle. Then alternate to the other leg and repeat.

#### The Elephant

This activity activates all areas of the mind/body system (highly recommended for children with ADD (attention deficit disorder))

Place the left ear on the left shoulder extend the left arm like the trunk of an elephant with knees relaxed, draw the infinity sign (crossing up in the middle) in front of you switch arms after three to five signs.

#### Energy Yawn

A great stress reliever. Massage the muscle around the TMJ (temporal-mandibular joint) at the junction of the jaws.

## Positive Points

Since much stress is held in the abdomen this deactivates the fight or flight response and allows accessibility to a new response to a situation by stimulating the neurovascular balance points for the stomach meridian. Thus it releases memory blocks, relieves stress, and clears thinking and increases speaking abilities and organization skill.

Lightly touch the point above each eye halfway between the hairline and the eyebrow with fingertips of each hand. Close your eyes and breathe slowly and deeply.

## Drink Water

As Carla Hannaford says, "Water comprises more of the brain (with estimates of 90%) than of any other organ of the body." Having students drink some water before and during class can help "grease the wheel". Drinking water is very important before any stressful situation - tests! - as we tend to perspire under stress, and de-hydration can effect our concentration negatively.

All the electrical and chemical reactions of the brain and central nervous system are dependent on the conductivity of electrical currents between the brain and the sensory organs, facilitated by water.

Did you know that

- psychological or environmental stress depletes the body of water, leaving cells dehydrated?

- water is essential to proper lymphatic function (the nourishment of the cells and removal of waste is dependent on this lymphatic action)?

- all other liquids are processed in the body as food, and do NOT serve the body's water needs?

- water is most easily absorbed at room temperature?

- excessive water taken less than 20 min. before or one hour after meals may dilute digestive juices?

- foods that naturally contain water, like fruits & vegetables, help to lubricate the system, including the intestines (their cleansing action facilitates absorption of water through the intestinal wall)?

- processed foods do NOT contain water, and, like caffeinated drinks, may be dehydrating?

(Thanks to Brain Gym® teacher, Evelyn Moniram RGN SCM at The Art of Health, 280 Balham High Road, London SW17 7AL. 020 8682 1800. The information of the effects on the brain were provided by Bill Tschirhart of the Canadian Curling Association based on Carla Hannaford's research)

-----  

## Bibliography

Arter, C., McCall, S. and Bowyer, T. (1996) Handwriting and children with visual impairment. British Journal of Special Education, 23(1), p25 –29.  
Brain Gym Journal. Published three times a year by the Educational Kinesiology

Foundation. (<http://www.BrainGym.org>)

Cherry, Godwin, Staples, (1989) *Is the Left Brain Always Right?: A Guide to Whole Child Development*.

Dennison, Gail and Paul, and Teplitz, Jerry. (1980), *Switching On: A Guide to Edu-Kinesthetics*.

Dennison, Paul and Gail. (1994). *Brain Gym: Teacher's Edition Revised*. Ventura, CA: Edu-Kinesthetics, Inc.

Hannaford, Carla. (1995). *Smart Moves: Why Learning Is Not All In Your Head*. Arlington, VA: Great Ocean Publishers.

Hannaford, Carla. (1997). *The Dominance Factor: How Knowing Your Dominant Eye, Ear, Brain, Hand & Foot Can Improve Your Learning*. Arlington, VA: Great Ocean Publishers.

Hartley, L. (1995). *Wisdom of the Body Moving*.

Kranowitz, C.S., *The Out-of-Sync Child*, 1998.

Levine, K. (1987) *Developmental Variations and Learning Disorders*. Cambridge, Massachusetts: Educators Publishing Service.

Leviton, R., *Brain Builders*, 1995.

Margaret Dunn (2000) *An Investigation of the Effects of Practising Hand-eye and Other Co-ordination Activities on Handwriting.*, Department of Special Educational Needs, University of Strathclyde. (<http://www.xtec.es/~jmaguire/teachers.htm>)

Promislow, Sharon. (1998). *Making the Brain/Body Connection*. Vancouver, BC: Kinetic Publishing.

Rosenbaum, P. (1998) *Physical Activity in Children with Disabilities: A Neglected Opportunity for Research?* Child Development, 69(3), p 607 – 608

Thomas, F. (1998) *Une question de writing: a comparative study*. Support for Learning, 13(1), p43 - 45