



TEACHING THE THREE Rs THROUGH DANCE

by Anne Green Gilbert

Why bother to teach reading, math, science and social studies through dance and movement when we have been doing just fine with our more traditional pencil and paper methods? But have we been doing just fine? Why has the illiteracy rate increased? Why has the dropout rate increased? Why has the violence in our schools increased? Can we really fall back on our traditional rote methods of teaching when our schools are filled with so many students who don't speak English, who come from single parent families, who grow up on the streets, who become involved with drug and alcohol at an earlier and earlier age? I don't think so!

Twenty years ago, in my third grade classroom, I started using movement and dance as a tool to help my students learn, because they didn't seem to be learning through the methods I had been taught in graduate school. I have danced since I could walk. As a child, I soon discovered that I was most engaged in my schoolwork when I was physically involved. If I was making something, moving something or manipulating something, I could learn. When the teacher started talking to me, I was lost. It is true that I had a hearing loss until the age of seven and perhaps I naturally sharpened my kinesthetic and visual senses, but how many other children like me are in your classes - children who do not understand the language or children who for one reason or another learn better through the kinesthetic or visual senses? There are many! There were certainly many in my third grade classroom and when we started to dance, they started to learn. The change was phenomenal and I quickly became a passionate believer in dance and the others arts as the strongest teaching tools we have.

Almost fifteen years after I started using movement in my classroom, Howard Gardner

published *Frames of Mind: The Theory of Multiple Intelligences*. At last we had proof that the kinesthetic/bodily intelligence existed - that many people not only learn through movement but learn better when engaged in physical activity. The mind and the body, and the spirit for that matter, cannot be separated. Fortunately, science has finally proven that the mind and body are undeniably interconnected. They work in conjunction to create an intelligent human being.

Unfortunately, our educational system primarily reinforces and rewards only the linguistic and logical/mathematical intelligences. Current research shows that this may be why the schools are failing. The cry from parents and teachers alike, that something must be done, has become so strong that education is undergoing a major restructuring. One of the most significant restructuring efforts underway in American schools is the renaissance of the arts. With our new knowledge of the neurological functions of the brain and our enhanced understanding of human intelligence and learning, the arts are beginning to claim their rightful place in American education.

Why bother to use movement and dance as a teaching tool? In 1977, I conducted a research project in the Seattle Public Schools. Third grade students studied language arts concepts through dance activities. The students involved in the study increased their MAT scores by 13% from fall to spring, while the district-wide average showed a decrease of 2%. This is but one example of how **movement and dance integrate neurological functions** as described by Nobel Prize winner, Roger Sperry, who concluded that when left and right hemispheric processes are used together, learning and retention increase.

Dr. Marion Diamond's work demonstrates that the structure and abilities of the brain's cerebral cortex are changed by enriching the learning environment. An enriched environment is multi-sensory, interactive and provides a variety of challenges. Solving academic problems through movement involves the kinesthetic, visual, auditory and tactile senses; often involves interaction between students as they work together to solve problems and because of the

creative aspect, provides a great variety of challenges. Students in my study increased their test scores because **movement and dance enhance the learning environment** and consequently student learning and achievement were increased.

The vertical model of the brain, proposed by Dr. Paul McLean of the National Institute of Mental Health, supports the idea that cognitive functioning is determined by the emotional state of the brain. We learn what we want to learn. When the students in my research study were asked why their test scores increased when they learned through movement and dance, the most common response was, "It's fun! I feel good doing it and I just remember things better." **Movement and dance generate self-esteem and a positive emotional response to learning** and because of their emotional involvement, students learn.

There has been extensive research concerning different learning styles. Some students are visual learners while others are auditory or kinesthetic learners. Some students learn globally, some analytically, some learn in a random fashion, while others learn sequentially. **Movement and dance engage a variety of learning styles.** The kinesthetic learner obviously gains a great deal when learning through movement, but the Seattle study also showed that visual/spatial and musical learners increased their test scores. One student said after learning division through dance, "I enjoyed learning through movement because I **saw** how a whole was divided into parts and I understood math better." Students had to visually discern letters, numbers, antonyms, synonyms and homonyms made with body shapes. While the visual learners were very good at this, the students with other learning styles increased their visual ability. As the students moved through space, they increased their spatial awareness. Much of the movement was done to rhythm and music, which the musical learners greatly enjoyed, and which helped the other learners increase their musical intelligence. When learning through movement and dance, a variety of learning strengths are tapped and the result is increased achievement.

It is clear by these examples and the many more found in numerous articles recently published, that learning through movement and dance enhances student learning and

achievement. In fact, the top two schools academically in this nation are schools that focus on learning through the arts. Part of our educational restructuring, however, is to move away from a test score only approach to learning and assessment. Many school districts and PTSA's are changing their educational goals. They want their students to not only understand and apply the basic concepts of math, science, social studies, the arts and humanities but to also be good communicators, responsible community members, collaborative workers, and critical and creative problem solvers. These are attributes which cannot be assessed by the MAT, CAT or SAT tests! These are attributes which are learned and strengthened through dance and the other arts.

Why bother? If you are not convinced by research and words, try action! Try some of the following activities in your classroom. You will be amazed, as I was twenty years ago and still am today, of the results! Yes, test scores will improve, but more importantly the quality of life in your classroom will improve. You and your students will want to come to class. Teaching and learning will be fulfilling and fun!

LANGUAGE ARTS

1. **SPELLING/VOCABULARY:** Spell vocabulary or spelling words with letters formed using the whole body. Letters can be made on different levels, with varying size and with partners. Act out the meaning of the word with actions or a body shape. Write the words in space using different body parts as a pencil. Emphasize the vowel, silent letter, double letter, etc. by making those letters larger than the others. Always say each letter as you form or write it and say the word when you are finished.

2. **WORDS:** Students mold each other into shapes that rhyme with a key word such as "might" (night, light, fight, tight, bright, slight, etc.). The class guesses the shapes and writes a list of rhyming words. Change roles. Repeat with different key words. Variation: instead of rhyming words, have sculptors mold adjectives, adverbs, verbs, emotions, occupations, antonyms, compound words, etc. OR one person could mold the other into a letter shape and

then the letter can mold the partner into an object beginning with that letter: A for airplane. It doesn't matter whether the students guess the shapes correctly. It is only important that they call out the type of word on which you are focusing (verbs, homonyms, prepositions). This is a great way to brainstorm lists of words for creative writing because the visual sculptures stimulate much new vocabulary.

3. SYLLABLES/VOCABULARY: Students put the same number of body parts on the floor or desk as the number of syllables in a word (watermelon - 4 parts on the desk). Think of an action for each syllable and do it as you say the word. The action may be the same for each syllable or different:

wa ter mel on,

jump-jump-jump-jump

wa ter mel on

jump-turn-punch-stamp

Put groups of words together to form movement combinations. Say the syllables as accompaniment for the movement:

tel e scope, gal ax y, con stel la tion, star

leap-leap-leap turn - a - round run - run - run - run stretch into star shape

4. PARTS OF SPEECH: Pairs act out nouns and verbs or simple subjects and predicates: the noun dancer makes a frozen shape (tree) while the verb dancer does movement in self space to describe the verb (falling). The class guesses the noun and verb. A quartet can create a longer subject and predicate: number one is a frozen shape describing an adjective (huge), second is a noun shape (monster), third person is a moving verb shape (stomping), the fourth is a moving adverb shape (quickly). The subject group might stand slightly apart from the predicate group. Example: fat robot walks slowly, tall candle flickers brightly. Create even longer sentences with prepositional phrases (over the log). You could add more adjectives and adverbs. Also have students scramble their shapes, then have the class figure out the words and put them in the right order.

5. PREPOSITIONS: "Shape Museum" - have half the students make frozen body sculptures scattered around the room. Have the other half explore the sculptures using prepositions: move **through** the shapes, **over, under, around, beside, between, in, out**, etc. Stop and relate to a statue, using a preposition and say the preposition you are using (in, under, over, etc.). When a dancer makes a preposition shape in relation to a statue, that statue comes alive and moves around the other statues to form another shape in relation to a new statue. The statues will be continuously changing.

6. VOCABULARY: Partners - one dancer follows the other dancer, copying his or her movement as they move through space together. When the music pauses, the teacher names a word such as "wide". The leader makes a wide shape and the follower has to make the opposite shape - "narrow". Change leaders, dance through space, pause and try a new pair of antonyms such as "over" (and "under"). The leader forms the shape of the word the teacher calls out and the follower has to think of the opposite word and form that shape. Instead of antonyms, try compound words (each dancer forms a root word) or homonyms (see/sea).

7. OTHER IDEAS: a.) Create poems such as cinquains and haiku and create dances instead of pictures to illustrate them. b.) Putting dance words together into movement combinations helps develop sequencing, memory and ordering skills (walk, run, turn, stretch, melt). c.) Form punctuation marks with body shapes and describe different sentences through movement: sentence ending in a period moves with plain, simple movement; sentence ending in a question mark moves with light, smooth, searching movement; sentence ending with an exclamation point moves with strong, sharp movement.

MATHEMATICS

1. STRETCH AND CURL SUMS: Have students think of two numbers that equal 12 (3, 9). Ask them to stretch into a big shape as they count to three and then curl into a little shape as they count to nine. Discuss the size or length of the numbers (three is short and nine is long).

Stretch and curl all the possible combinations of 12 and then try other sums. Students can form the number twelve with their body at the end of each sum.

2. MATH IN PAIRS: Give a math problem such as $4+3$. One person in the pair puts four body parts on the floor. The other person puts three body parts on the floor. Together they count seven parts on the floor and then form the number seven with a body shape. Use fingers and toes plus other body parts when working with higher numbers. For subtraction ($12-8$), have the pair put a total of twelve parts on the floor. Then remove eight parts and see that the answer is four. For multiplication (3×2), they can put three sets of two parts on the floor - a set of elbows, a set of knees and a set of feet. This activity is good for arm and shoulder strength and balance along with practicing math skills.

3. 16 COUNTS: In pairs, one person dances in self space while the other dances in general space. The pairs dance for a specified number of counts determined by the math problem given by the teacher: 4×4 would be sixteen counts of movement. Each time a math problem is given the dancers reverse places (self and general space). Count out loud as the dancers move. Try many different operations. You might want to direct the movement by saying "9 + 4 with hopping movements" or "45 - 20 while dribbling the ball".

4. FRACTIONS: Challenge the dancers to dance with $\frac{1}{4}$ of their body while freezing the other $\frac{3}{4}$. Dance with $\frac{2}{4}$, dance with $\frac{3}{4}$. Dance with $\frac{1}{3}$, $\frac{2}{3}$. Dance with $\frac{8}{24}$ ($\frac{1}{3}$), $\frac{75}{75}$ (whole body). Play lively music as you call out the fractions.

5. GEOMETRY: Form geometric shapes with body parts or props (stretchybands, elastic, string, streamers). Simple shapes can be formed by young dancers (circle, triangle, square), while more complicated shapes can be formed by older dancers (pentagon, parallelogram, equilateral triangle). Have trios form right triangles and ask the hypotenuse to dance away. Then have the right angle dancers form an acute angle and have the hypotenuse bisect the angle. Using the song "Seven Jumps", have the dancers dance during the music as they draw shapes and lines through space with their bodies or props. During the "hums", the dancers

can form specified geometric shapes in groups or alone. Another idea is to give groups of students postulates. Have them act out the postulate and have the class guess them. For example: one and only one straight line may be drawn through any two distinct points.

SCIENCE

1. MACHINES: Each person makes a shape with one body part moving to describe a simple machine (pulley, wheel, screw, lever, etc.) The shapes connect one to another to form a big or small machine. Try adding sounds. Try a machine that moves smoothly or sharply, slowly or quickly.

2. ELECTRICITY: a.) pairs demonstrate cause and effect - touch partner's shoulder and partner moves. b.) groups demonstrate cause and effect through movement: blow up a balloon and it pops; push domino and all fall down; water flowing makes wheel move. c.) groups show how electric current works by forming with body shapes and movements a battery, wire, switch and bulb (or bell, vacuum, toaster, etc.) Groups might describe through movement a normal current, an overloaded circuit and a loose connection and the effects.

3. CINQUAIN: Create a poem about a science concept or vocabulary word such as *magnet*, *protozoa*, *typhoon*, etc. The concept must be described in only eleven words. This is an excellent way to synthesize information. Read the poem as the dancers describe the words and concepts through movement. Sounds may be added when appropriate. Use this form:

noun	Electricity
adjective, adjective	Direct, Alternating
verb, verb, verb	Lighting, heating, magnetizing
four word sentence	Current flows through circuits
noun or synonym	Volts

4. **BODY SYSTEMS:** Have groups create dances describing different systems of the body - respiratory, digestive, cardiovascular, nervous. Ask the students to show what happens to the systems when they become infected or drugs are used.

5. **OTHER IDEAS:** a.) describe the movement of molecules in solid, liquid and gas through movement; show through a dance what changes occur in size, relationships and quality of molecules as something (glacier) changes from a solid to a gas. b.) describe through movement the plant growth in a rain forest using the concepts of level, shape and size c.) show predator and prey relationships between animals. d.) form atoms and molecules using body shapes and formations. e.) describe eclipses using groups of moving bodies.

SOCIAL STUDIES

1. **WORLD MUSIC:** Play short selections of music from many countries. Talk about the different rhythms and styles before or after the dancers have improvised movement to the music. How did the music make them move? Did they move in ways that were different from their normal movement patterns. Discuss the climate, clothes, religion and work habits of the different cultures and how these may effect their music and movement styles.

2. **EASTERN AND WESTERN DANCE:** Show films, videos or photos (available at libraries or universities) of dances from Asia and then ballet dance from America or Western Europe. Discuss the differences with your students: Eastern dance is more grounded, primarily performed in self space, does not change levels, focuses on upper body and axial movements and dancers do not touch other dancers. Western dancers use general space, change levels, focus on leg movements and do a lot of partnering. After the discussion, ask dancers to explore movements to music from Asia that are similar to those seen on the video or talked about in discussion. Repeat with Western movements. Dancers might choreograph movement to a haiku using primarily self space and arm movements and then choreograph a Western folk or square dance to country music focusing on general space, leg movements and partnering.

3. CINQUAINS: Create cinquains (see Science) with social studies vocabulary and concepts.

4. OTHER IDEAS: a.) describe events in history through moving tableaux. b.) practice mapping skills by creating movement maps. c.) show through movement the characteristics of different regions in America - flat plains; high, sharp mountains; rounded Appalachians; flowing rivers; flooding deltas. d.) describe through movement natural disasters such as fires, earthquakes, tidal waves, volcanoes, etc.

HELPFUL HINTS FOR USING MOVEMENT IN THE CLASSROOM

Remember! When students sit quietly for over thirty minutes, their heart goes into resting rate and the brain receives messages to slow down. Start your class with energetic moving to wake-up the brain and do movement activities for short periods throughout the day **to keep the brain alive and receptive.**

Use movement to **introduce** a new academic concept such as antonyms or addition.

Use movement (activities such as spelling with body parts and 16 Counts) to **reinforce or drill** concepts.

Use movement activities, such as cinquains or group choreography, as a way to solve problems, to **look at academics in a new way that is involving for all students**, and to work with an academic concept in more depth.

Use quiet movement activities - slow mirroring, stretching, breathing - to **control your class and to relieve your own stress.**

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