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Movement in Learning: Revitalizing the Classroom

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Abstract

Movement is a vital part of our every day lives, and it is also important for a healthy brain. The following paper examines the shift from movement based learning to a more restrictive rote format, which often has adverse effects on learning. This work discusses the ways in which teachers are under pressure to "teach to the test" instead of creating student-centered classrooms. Some of the side effects of a test-centered approach are low self-esteem (from not meeting strict academic requirements) and behavioral problems in students.

Adding more movement to lessons can provide variation and relief from the rote-only system. Dr. Ratey (2000) said, "Movement is miracle grow for the brain." In the 1990s, neuroscientists discovered something called brain-derived neurotropic factor (BDNF), which nourishes neurons like fertilizer (p. 23). This substance increases with movement. Other leading research shows that movement enhances brain function by increasing communication between the cerebellum and the rest of the brain.

The final chapter explores ways that teachers can incorporate more movement into their classrooms without adding to their overall preparation time. In fact, these activities will save time in the long run because they can be recycled and modified. Adding movement and activities will also enhance the quality of the classroom, cut down on lecture time, and address behavioral problems caused by boredom. Finally, teachers can use Howard Gardner's "Multiple Intelligences" as a template to create a variety of activities that deal with different student learning abilities.

Chapter 1: How They Rote Education

The Inspiration of Kindergarten

Imagine that you are transported back to the time you were 5 years old. Your mother or father stood next to you like a giant tree, perhaps holding your hand, as they walked you into what was possibly your first educational experience outside of the home: kindergarten.

Next to you were other wide-eyed children, all looking around the vast expanse of an alien and colorful place that would be your home away from home for a year—also known as "forever" in the eyes of a 5 year-old. Perhaps you were nervous or scared. Perhaps you were excited. You most likely sat down in a circle on a carpet at the front of the room, where the teacher warmly welcomed you into the classroom because she or he knew that adjustments such as these are huge for a 5 year-old.

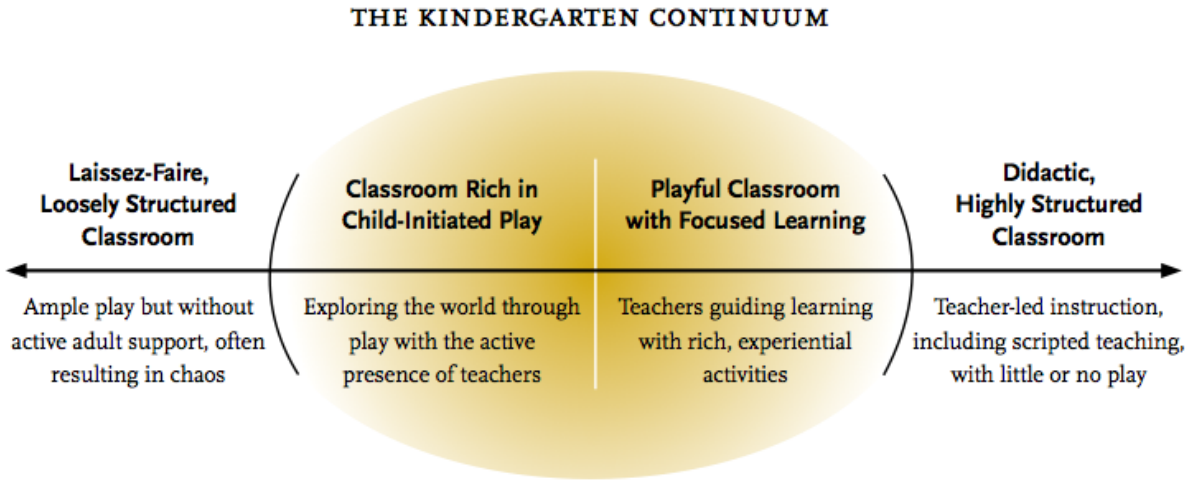
Then there were catchy songs, name games, and chants to help you recall the days of the week or the months of the years. From there, it was counting or ABC time. Young, pudgy fingers dipped into paint as you traced or drew shapes until you could read those few letters associated with your name. There were most likely more songs, rhymes and games to reinforce this new knowledge.

As Mitchel Resnick (2009) observes, "Ever since the first kindergarten opened in 1837, it has been a place for telling stories, building castles, painting pictures, making friends, and learning to share" (p.1).

This experiential format is also used in language learning situations. This type of learning allows young language learners to engage with English and make it their own. According to

Edward Miller and Joan Almon (2009), the model described in the opening states of this paper is optimal for student learning because it is a Playful Classroom with Focused Learning (Figure 1).

Figure 1: Ideal Activity/ Lesson Construct of a Kindergarten Classroom



Edward Miller and Joan Almon, *Crisis in the Kindergarten: Why Children Need to Play in School Copyright © 2009 by the Alliance for Childhood. All rights reserved.*

For over a century, movement in learning was the norm in these kindergarten classrooms. However, as Resnik later points out, the scene described above is rapidly disappearing from our educational system. He states, “In today's kindergartens, children are spending more and more time filling out worksheets and drilling on flash cards. In short, kindergarten is becoming more like the rest of school” (p. 1).

From Circles to Rows: Initiation into the Rote System

Please note: *While the rote method may be less prevalent in afterschool based ESL programs, where native speakers are often hired to teach students and hold their attention after a rigorous school day, the rote method is still readily used in many traditional academic settings that are not designed to make money and attract more students than their completion. For the purpose of this paper, I will be focusing on the American school system and other settings where rote is central and movement based learning is not the norm.*

Additionally, throughout this paper, I will also make reference to Taiwan because I lived there for seven years and taught all levels of ESL.

Historically, first grade is when the style of instruction begins to change for learners, but as stated above, the change may occur sooner. Students are no longer able to express themselves through play in the classroom. They are suddenly seated in hard individual desks, often arranged in rows. Gone are most of the songs and games that helped them learn at a rapid rate in kindergarten. Instead, students are subjected to countless hours of lectures, told to copy materials from the board, and handed numerous worksheets to complete. Most movement is essentially removed from the classroom. This is the introduction to the rote learning that most students experience for the rest of their educational lives. From elementary school and even on to the doctoral level, in some cases, the rote method is the accepted norm in current education models around the world ("Rote Learning", 2012, By nation and culture section, para.1)

According to Cambridge dictionary online (2012), rote is "learning something in order to be able to repeat it from memory, rather than in order to understand it." Mostly due to its popularity around the world, this method of learning is highly contested. According to an article

published in “The Independent”, “The Government's plans to reintroduce rote-learning maths teaching in primary schools are "seriously flawed" and will undermine attempts to raise standards, experts warn today” (Garner, 2012, para. 1). However, American editor Justin Snider makes the claim that rote, or learning by heart, may be getting the short end of the stick in America. He says, “is it possible that memorizing things is actually underrated in modern American society? Could one make a convincing case that it's not just useful but vital for people of all ages to memorize things? The answer to both of these questions, I believe, is yes” (Snider, 2011, para. 3-4).

While Snider (2011) does go on to make some good points, stating that learning by heart is a challenge and good exercise for the brain, I still share the belief that strict rote learning does not give students critical thinking skills, nor does it give them the physical exercise needed to stimulate full brain engagement in learning. It’s my belief that rote learning allows too many nuances of learning to slip through the cracks.

The strict adherence to rote learning becomes even more problematic in the language learning classrooms. When children are dealing with words and sounds that are outside of their area of familiarity, they may lose much valuable information when a teacher only uses the rote system. In addition, students in many countries are already subjected to long school days filled with rote-only format. As I observed while teaching in Taiwan, students sit at their desks from 7:30 am to 5:45 pm, and sometimes 9:30 pm if they have after school classes. This constant barrage of information can overload the learners and cause a great deal of stress.

In addition to lacking critical depth, this style of education that has learners tethered to desks can create behavioral issues in the classroom. From personal experience, I have found that when students are bored, they are more likely to act out. Carol Bainbridge, Board member of

Indiana Association for the Gifted, says students do not have the same outlets for dealing with boredom as adults do: taking breaks, changing their environment, etc. She continues that while adults deal with boredom for a few hours a day, children may be subjected to boredom in the classroom for 6 to 7 hours a day, 5 days a week, without recourse. She even goes on to state that some children are misdiagnosed as ADHD when they may be gifted children who are bored with the rote system (Bainbridge, n.d.).

John Holt, educator and prolific author of *Teach Your Own* (1981), *How Children Fail* (1982), and *How Children Learn* (1983) concisely echoes Bainbridge's thoughts. He says,

> "We ask children to do for most of a day what few adults are able to do for even an hour. How many of us, attending, say, a lecture that doesn't interest us, can keep our minds from wandering? Hardly any. But yet this is what we ask students to do day after day, week after week, and year after year " (Dodd, n.d).

Dr. Steve Perry, founder and principal of Capital Prep Magnet School in Hartford, Connecticut and author of *Push Has Come to Shove: Getting Our Kids the Education They Deserve* (2011), concurs that the current scholastic model is failing children more than it is helping them retain information. He exclaims, "Have you been to a school lately? Have you sat through the six hours and forty-five minutes of excruciating tedium we send our kids to every day? When we ask our kids, "What'd you do in school today?" and they mumble, "Nothin'," they're telling the truth" (p. 64).

Some Reasons the Rote Method Prevails

Teacher training.

Parker Palmer eloquently shares Carl Rogers' quote, "We teach who we are" (Palmer, 2007, p. xi). I would like to modify it slightly to say, "We teach how we were taught." Many teaching institutions use theory and book-based learning to instruct new teachers. If more experiential methods are not taught to teachers, they may simply perpetuate the teaching styles they observed as learners. Therefore, the cycle continues.

Another point that goes hand and hand with the theory that we mimic the way we were taught is that teachers are quite verbose. John Holt (2005) states, "Do we teachers talk too much? I am afraid we do… From the time we enter school in the morning, till we leave it at night, we hardly stop talking" (p. 34). He concludes that, as a result of this vast amount of teacher talk, students tune out. Holt (2005) continues, "One result of too much teacher talk is that children who, when they were little, were turned on full time, learn to turn themselves off or at least down. They listen only with a small part of their being, like any adult listening to a boring talk. If it goes on long enough they forget how to turn themselves up, to listen with all their attention. They lose the knack of it, and the taste for it. It is a great loss" (p. 34).

Testing.

Perhaps the largest contributing factor to the lack of movement and experiential learning in our classrooms is the rise of teaching to the test in the US and the tradition of testing in other places around the globe. In 2002, President Bush signed No Child Left Behind (NCLB) into law (Education Week, 2011). According to the US Department of Education (as cited by Education Week, 2011, No Child Left Behind section, para. 3) "At the core of the No Child Left Behind Act were a number of measures designed to drive broad gains in student achievement and to hold

states and schools more accountable for student progress. They represented significant changes to the education landscape" (para. 3).

However, as a result of NCLB, many teachers had to discard their creative curriculum for heavy coverage objectives to reach the goals of tests. As one story goes,

> "After the test was given, the teacher could relax and could start teaching about things in which she was interested. Her enthusiasm for these subjects was infectious. It brought the class alive and made it engaging and interesting. What a waste it had been that this fine professional had felt so frightened by the prospect of her class doing poorly on the all-important standardized test, that she had for a while pulled back from teaching what she loved, and had adopted a more tense affect" (Siegel, 2011, para. 1).

With NCLB, teachers, schools, students, and administrators had to adhere to the test scores or risk stiff penalties if their students and schools did not show improvements. "The law calls for the schools to restructure, and outlines scary-sounding options like replacing the principal, having the state take them over, or bringing in a private management company to run them" (Lankes, 2007, para. 4).

Furthermore, according to Brian Resnick of the *Atlantic* (2011), the Secretary of Education was no longer behind NCLB, as of 2011, because schools could not meet the heavy performance goals. He further states, "Performance gaps remain wide open. And the program's main goal, to get all schools to proficiency by 2014 seems to be a pipe dream. It's a mess" (Resnick, 2011, para. 7).

Fortunately for the schools that found it difficult to maintain the standards enforced by NCLB, the Obama administration has called for a restructuring of NCLB with *A Blueprint for Reform.* This releases states from the rigor of that policy. In it, President Obama states, "My

Administration's blueprint for reauthorization of the Elementary and Secondary Education Act is not only a plan to renovate a flawed law, but also an outline for a re-envisioned federal role in education" (Duncan & Martin, 2010, p. 2)

Standardized and proficiency tests have long been a thorn in the side of schools and educators alike, but NCLB made it worse. Perry makes the point that proficiency tests do not accurately gauge the correct level of students. He states,

> "To convince the community that the schools are in fact working, states and districts often focus on students' performance being 'proficient.' The problem is that to be categorized as 'proficient' is to be performing below grade level. Each state's standardized tests are typically scored on a scale from 1 to 5: 1 is 'below basic'; 2 is 'basic'; 3 is 'proficient'; 4 is 'at goal'; 5 is 'at or above goal.' Lauding proficiency is nothing short of accepting mediocrity" (Perry, 2011, p. 14-15).

The global ESL field shares many similarities with the current American educational system in terms of testing. In Taiwan, and in many Asian countries such as Japan and Korea, testing has often been the norm. There are tests for middle school, high school, and college. In some places, there are even tests to enter elementary school. As a result of this barrage of tests, I saw first hand, my students barely had any time to rest or let the information sink in. Students used their open books as pillows as they prepared for TOFEL, GEPT, ISELS and a host of other tests in Chinese language standardized tests.

These theories above clearly demonstrate the reasoning behind using a rote only system in the classroom. It may be the way that the teacher was trained; therefore s/he mimics that style. It may be due to the fact that we live in a world where tests determine the outcome of students'

futures, so teachers must forgo creativity to meet coverage objectives. Whatever the reason, teaching in a rote-only, test-based style can have adverse affects on students.

The Effects of a Rote-Only, Test-based Culture

Heightened sense of depression and despair.

In both the US and Taiwan, stress is on the rise for students due to continuous rote learning and pressure to pass tests. This highly competitive environment can have deadly results. In a 2010 study, the Taiwanese National Suicide Prevention Center (NSPC) reported a 2.4% increase in student Taiwan suicide rate over a 2-year period, while the national average dropped. ("Youth suicide rate on the rise," 2010, para. 1) In the USA, suicide is the third leading cause of death for people 15 to 24 years old ("Suicide Facts", n.d, number 9).

While it may seem extreme to draw a conclusion that the rote method directly affects the teen suicide rate, it is not completely off base. As the article "Why Teens Commit Suicide" (n.d) states, "Teenagers face the pressures of trying to fit in socially, to perform academically, and to act responsibly" (para. 4). What's more, if a teen has an undiagnosed learning disability, they are at higher risks for suicide. A Canadian study called 'Putting a Face on Learning Disabilities' found "learning disabilities made children less likely to succeed in school and made adults less likely to have graduated or be employed, and more likely to report suicidal thoughts, depression, or anxiety" ("Undiagnosed learning disabilities costly later", 2007, para. 21).

It is my belief that by adding more movement and variation to the classroom gives teachers the ability to touch on more learning styles than the rote system does. This can have positive effects on those who are dyslexic or have other disabilities that may make rote learning

difficult to digest. It may also give teachers a way to see if their students suffer more in one area than another.

Limited access to physical education and the onslaught of obesity.

Another side effect of a world that "teaches to the test" is that physical education (P.E.) is often the first class to be eliminated. Experts state that 15 minutes of exercise per day is the bare minimum for health benefits (Roberts, 2011, para. 6), and the World Health Organization (WHO) says, "obesity is a global problem" ("Obesity: preventing and managing a global problem", 2004). However, even in the face of abundant studies, schools are still putting P.E. on the back burner. In Taiwan, I witnessed this in the traditional private high schools where I taught. Students had P.E. just two hours a week. Then, they were allowed one elective like art or dance. This meant that children were in school for 45 hours a week with just 3 to 5 hours of P.E. or Art to break up the hard-hitting academic classes.

In the US, P.E. does not fair any better. There federal law requires teaching P.E. (Silverman, Ennis, 1996, p. 57), and the United States has the highest levels of child obesity, with up to 1 in 3 children considered to be obese (Fisher, 2010, para. 2). However, often to keep up with the strict standards of NCLB, schools are lessening or eliminating P.E. (Fainaru-Wada, 2009). Fainaru-Wada goes on to share some more troubling statistics:

> • 20 percent of U.S. children will be defined as obese next year, according to the Department of Health and Human Services. That's about four times what the rate was in the 1970s. Using the body mass index (BMI), which is a measure of one's weight in relation to height, obesity is defined as being at or above the 95th percentile based on standards established in the 1970s for kids who are the same age and sex.

• Between 1971 and 2006, the number of 6-to-11-year-olds considered overweight more than quadrupled -- from 4 percent to 17 percent, according to the Centers for Disease Control and Prevention.

• There's a 70-80 percent chance that an obese child will become an obese adult.

• $14 billion is spent annually on child obesity-related health care costs, American Heart Association president Dr. Tim Gardner said during a recent press conference. Overall, annual obesity-related costs total $117 billion. (Fainaru-Wada, 2009, para. 7-15)

Equally startling are the numbers reflecting the state of P.E. programs in public schools across the country:

• Only 3.8 percent of elementary schools, 7.9 percent of middle schools and 2.1 percent of high schools provide daily P.E., according to a CDC survey. A study published in the 2007 issue of *Health Economics* stated that daily P.E. for high school students declined from 41.6 percent in 1991 to 28.4 percent in 2003. (The survey did not have statistics for middle and elementary schools.)

• 22 percent of schools don't require kids to take any P.E.

• Nearly half -- 46 percent -- of high school students were not attending any P.E. classes when surveyed by the CDC. (Fainaru-Wada, 2009, para. 7-15)

Back to the Basics: Movement as a tool in Learning

It is clear to see that the rote learning method, teaching to the test, and eliminating P.E. from schools is not the answer. These methods do not stimulate proper knowledge absorption.

The brain is like a cup; it can only hold so much before it overflows. By constantly drilling the information into the students' heads, they miss key information. As a result, many students suffer from exhaustion and poor retention. Teaching to the test is also detrimental to students because it cuts down creativity and eliminates important classes such as P.E. and art.

The answer to some of the woes created by a test hungry culture is to incorporate more movement in learning. It would be unrealistic to ask teachers to completely abandon their learning objectives and ignore tests. However, teachers can still reach their coverage goals by changing some book-based activities into movement-based activities. Using some simple methods, teachers can improve their students' concentration, attention, and performance.

In the following pages, I will present some of the leading research in the area of movement in learning. In Chapter 2, I will discuss the mind body connection and how physical movement positively affects our brains and emotions. Then I will discuss how movement helps learners absorb knowledge. Finally, at the end Chapter 2, I will discuss the benefits of movement in the midst of a sedentary lifestyle.

I am aware that in the real world, teachers are saddled with tests, coverage objectives, limited or weak teaching materials and other factors that keep them from fully being able to explore experiential learning. Therefore, in Chapter 3, I will introduce creative ways for teachers to incorporate movement into their current lesson plans while still meeting their goals. I will discuss creative ways to introduce new material without adding much more prep time for teachers. Then, I will show some ways to bring review materials alive for learners. Finally, I will discuss how teachers can use the multiple intelligences as a template to incorporate variation into their lesson plans.

Chapter 2: The Benefits of Movement in Learning

He shoves a thick, silver gun against the side of your head. You can feel your heart beating through the cold metal tip. “What’s the root cause of this?” he asks, his thick breath laced with this morning’s black coffee. You search your mind for a clue as to what he could be talking about. But in its panic state, your mind wanders off instead to your favorite childhood vacation spot in woods next to a lake. You throw imaginary stones into the murky blue water. It’s beautiful here. It’s something out of a book. Or a painting. Or a—He presses harder and steps closer, yanking you back to this stinging reality. “I said, if the uneven bars float like the night air, what is the root cause of your illicit selling? Whining or not?” You glance up at the faceless man. His words are mumbled through shapeless lips. It’s a surreal moment. How did you get here? One moment ago you were reading a book under the bright florescent lights of the coffee shop, but now, you were here, answering the nonsensical questions of a lunatic.

“Do you know the answer?” He says, pushing the nozzle into the thin flesh of your skull. A red welt begins to rise on your skin beneath the round tip of his gun. “Uh, uh, uh.” You stumble as fear emanates from your chest. “Are you still with us?” He steps closer. “ Hey, hey, HEY!”

Your head snaps up, your eyes open, and you look around. You are still firmly seated at your desk. Now, your teacher and the other students are staring at you, waiting for the answer to a question you didn’t hear. At the front of the dimly lit room is a PowerPoint about something, but you can’t recall what it is. The teacher’s eyes are still on you, waiting for some type of answer or explanation. So you shrug your shoulders and say, “I don’t know.” You slink down into your

chair and look up at the clock. You are 30 minutes into a 3-hour class. How will you ever make it through?

If you have ever fallen asleep or gone into a marathon day dreaming session in the middle of a class that is not cognitively simulating, you are not alone. Dr. John Medina, a developmental molecular biologist, discusses this phenomenon on his website, Brainrules.net, a supplement to his *New York Times* bestseller, "*Brain Rules: 12 Principles for Surviving and Thriving at Work, Home, and School"* (2009). Rule #4 is called, "Attention: We don't pay attention to boring things." According to some peer reviews he conducted, people have a 10-minute attention span. He states, "After an amount of time disappointing to teachers and PowerPoint presenters everywhere, audience attention drops precipitously. You must do something emotionally relevant at each 10-minute mark to regain attention" (Medina, 2009, rule #4).

Medina's conclusion may give insight into why straight rote learning may not be the best method for retaining information. In the following chapter, I will highlight some relevant research on the topic of movement and why it's a positive edition to learning. I will touch on the mind, body, and emotions connection, experiential learning, and multi-sensory learning. Finally, I will discuss the benefits of active versus passive learning.

Benefits of Movement on the Brain

Movement enhances the mind, body, and emotion connection.

For years, centuries even, the mind, body and emotion have been treated as separate entities. In his lecture based on his book, *The Kinesthetic Classroom*, Mike Kuczala explains, "The brain and body have unfortunately been separated for both medical and educational purposes for far too long. The body is simply an outward extension of the brain. Using the body

to learn is a simple, readily available, and efficient for way for students to learn and remember content" (Kuczala, 2010, p. 8).

Another important factor that is simple but still over looked is that the brain is housed in the body; therefore, the actions of the body directly affect what happens in the brain. Movement sends more blood and oxygen to the brain. We can conclude that since we use our brains for learning, this increase in oxygen and blood flow, which enhances brain activity, also enhances learning.

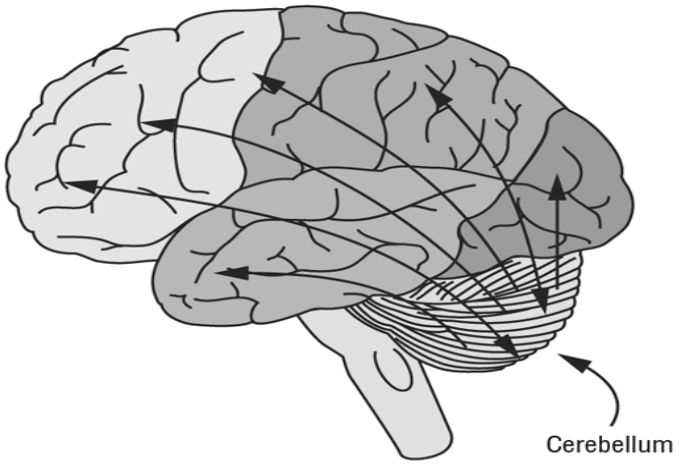
Learning is also an emotional experience. Therefore, the emotional state of the learner must be taken into account. Kolb addresses this in his research of the experiential learning cycle. He says, "Indeed it appears that feelings and emotions have primacy in determining whether and what we learn. Negative emotions such as fear and anxiety can block learning, while positive feelings of attraction and interest may be essential for learning." Simply stated, "To learn something that one is not interested in is extremely difficult." (Kolb, 2005, p. 16) This statement supports Medina's previous findings that we do not pay attention to boring things. Adding movement to a classroom setting can create positive feelings of excitement, suspense, interest, and comfort, thereby addressing the emotional needs of the learner.

Movement stimulates brain growth and communication.

In *Teaching with the Brain and Mind, Second Edition* (1998), Eric Jenson discusses the function of the cerebellum and its close relation to movement and learning. The cerebellum, also known as the 'little brain' is the center of motor control. It's one-tenth of the brain by volume, but it contains nearly half to of all its neurons. Neurons are specialized to transmit information throughout the body. The cerebellum also has 40 million nerve fibers that feed information to

and from the cortex to the cerebellum (Ivry & Fiez, 2000 as cited by Jenson, 2005, p. 84). This is important to note because most of the neural circuits from the cerebellum are "outbound," influencing the rest of the brain (Middleton & Strick, 1994, as cited by Jenner, 2005, p. 84).

Figure 2: The cerebellum's signals are mostly outbound



Information travels to and from the cerebellum, the brain's center of motor control, and other parts of the brain involved in learning, but most of the neural circuits are outbound.

Jenson, Eric, Teaching with the Brain in Mind, 2nd Edition
http://www.ascd.org/publications/books/104013/chapters/Movement-and-Learning.aspx

Jenson states that Peter Strick at the Veteran Affairs Medical Center of Syracuse, New York, made another link. "His staff has traced a pathway from the cerebellum back to parts of the brain involved in memory, attention, and spatial perception. Amazingly, the part of the brain that processes movement is the same part of the brain that's processing learning" (Jenson, 2005, p. 84).

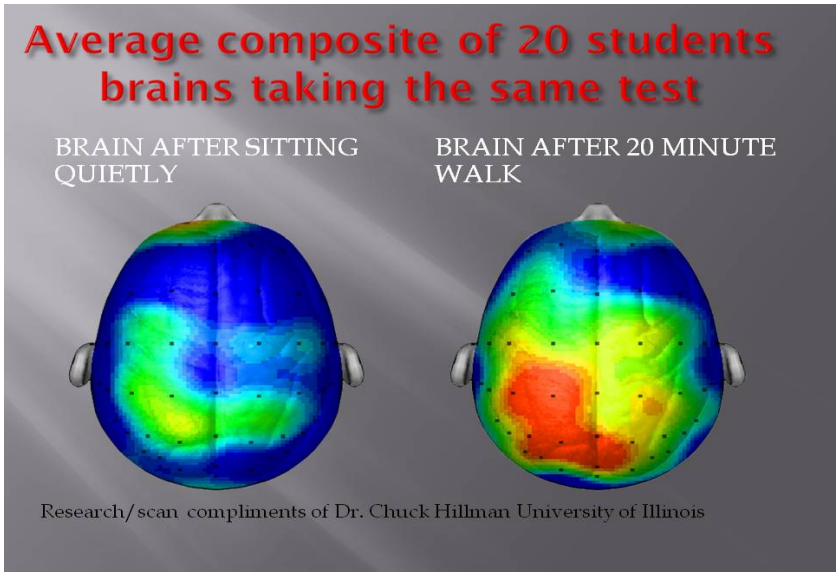
Jenson (2005) also mentions that at a 1995 Annual Society of Neuroscience Conference, "Nearly 80 studies were mentioned that suggest strong links between the cerebellum and memory, spatial perception, language, attention, emotion, nonverbal cues, and even decision

making. These findings strongly implicate the value of physical education, movement, and games in boosting cognition" (p. 85).

The benefits of movement on the brain do not stop with the cerebellum. According to John Ratey, MD (2000). "Movement is miracle grow for the brain." In the 1990s, neuroscientists discovered something called brain-derived neurotropic factor (BDNF), which nourishes neurons like fertilizer. This substance is present in the hippocampus, which is related to memory and learning (p. 23).

It is also important to note that BDNF increases with exercise, thus adding more reasons why movement is effective in increasing learning. According to a study conducted in Ireland, the facial recall and memory of normally sedentary men improved significantly after strenuous cycling, whereas the men who did nothing for 30 minutes showed little or no improvement (Reynolds, 2011). The findings were confirmed by research conducted by Chuck Hillman at the University of Illinois (Fig. 3).

Figure 3: Scan of two brains: one after 20 min walk and other after sitting quietly



Source: “The Effects of Acute Treadmill Walking on the Cognitive Control of Attention and Academic Achievement in Pre-Adolescent Children”

http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2667807/

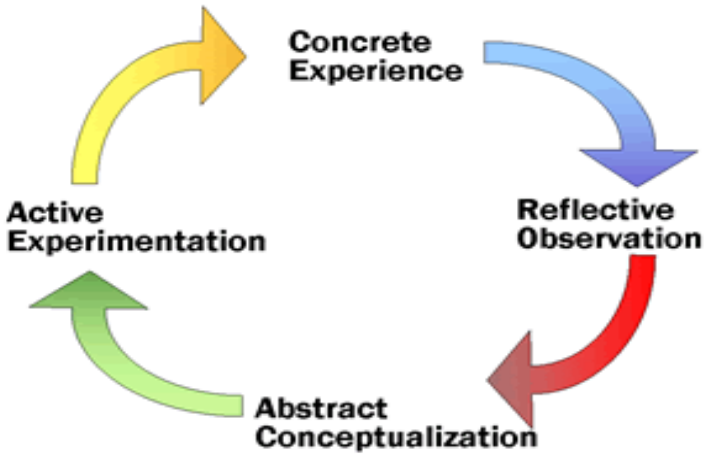
Benefits of Movement on Learning

Movement in learning is experiential.

By its nature, movement in learning is experiential. Kolb's Experiential Learning Theory defines experiential learning as "the process whereby knowledge is created through the transformation of experience. Knowledge results from the combination of grasping and transforming experience" (Kolb, 1984, p. 41). Learning in the experiential way is to learn by observing, reflecting and doing.

Kolb's Experiential Learning Theory presents a cycle of four elements. (Fig. 4)

Figure 4: Kolb’s Experiential Cycle



Source: Starting Point: Teaching Entry Level Geoscience

http://serc.carleton.edu/introgeo/enviroprojects/what.html

Oxendine, Robinson, and Willson explain it well in their 2004 article, *Introduction to Emerging Perspectives on Learning, Teaching, and Technology,*

> "Experiential learning is a cyclical process that capitalizes on the participants' experiences for acquisition of knowledge. This process involves setting goals, thinking, planning, experimentation, reflection, observation, and review. By engaging in these activities, learners construct meaning in a way unique to themselves, incorporating the cognitive, emotional, and physical aspects of learning" (Oxendine, Robinson and Willson, 2004, para. 1).

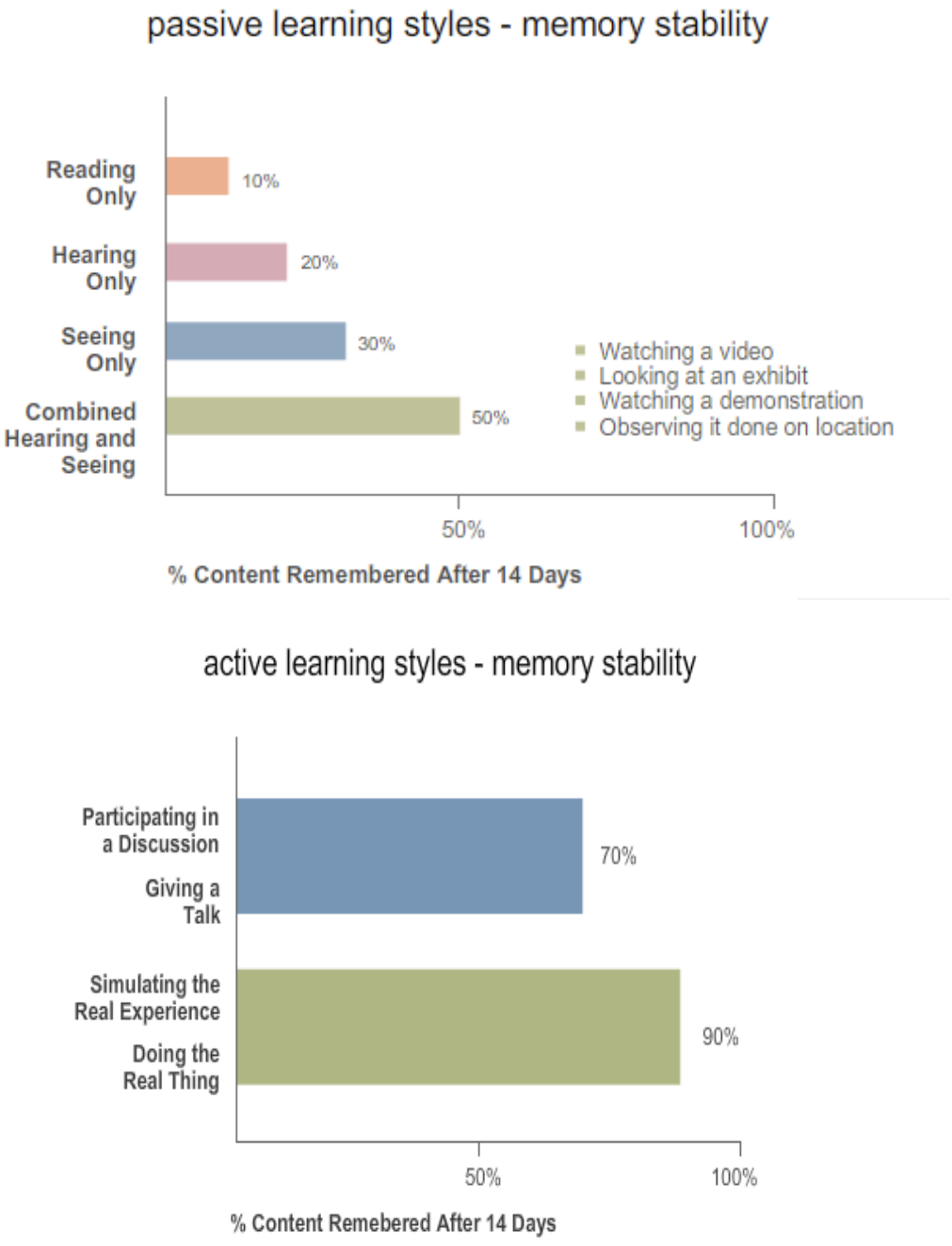
The experiential learning cycle can also be a tool to monitor student-learning styles. According to Dr. Susan Barduhn (1998), "One can also look at an individual trainee's experience of that course, and note how his/her individual learning styles impact on different parts of the cycle to enable some aspects to provide a richer experience than others" (p. 26-27). When the teacher or instructor uses a more experientially based style, they are immediately inclusive of more learning styles than the traditional rote system. This allows students to shine in different ways, and gives teachers more ways to discover latent talents or areas that may need improvement.

Stimulates more of the senses.

Another reason movement in learning is effective is that it stimulates more of the senses. According to neurologist John Medina (2009), students learn much better in multisensory classrooms. He also states that passive learning is good, but active learning is great (Medina, 2009). One can clearly see from the figures below that when students more fully participate in

class and actively participate in what they are being taught, there is a 40% increase in retention after two weeks (Fig. 5). This is also inline with Kolb's research of experiential learning.

Figure 5: Comparison of Memory Stability using Passive and Active Learning

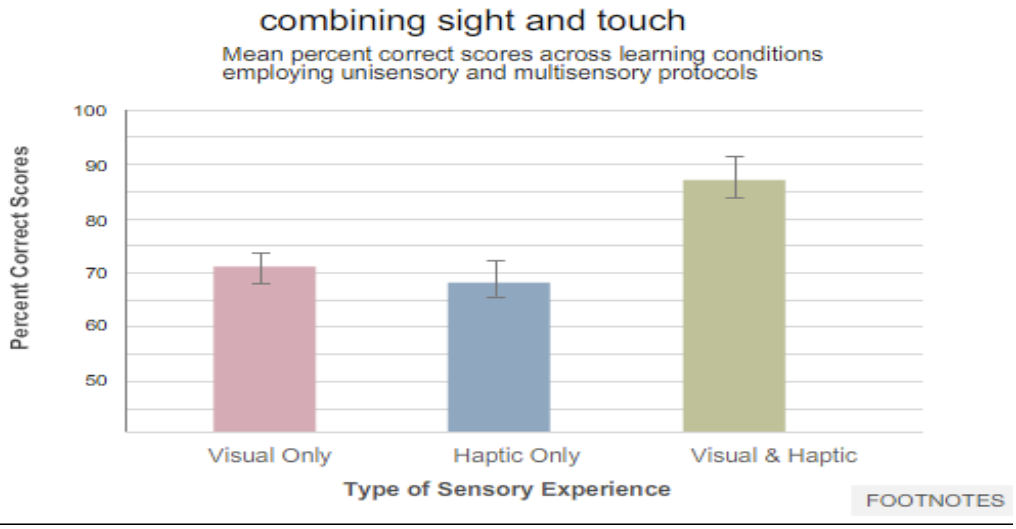


Source: BrainRules.net http://www.brainrules.net/sensory-integration?scene

Figure 5 discusses the increased retention of "doing the thing" (Medina, 2009). However, Figure 6 below shows the effect of combining sight and touch to a particular activity. This doesn't explicitly say that each activity is movement based, but certainly, movement falls into the category of sight and touch. Medina also goes on to say that multi-sensory lessons increase learners' problem solving abilities (Medina, 2009).

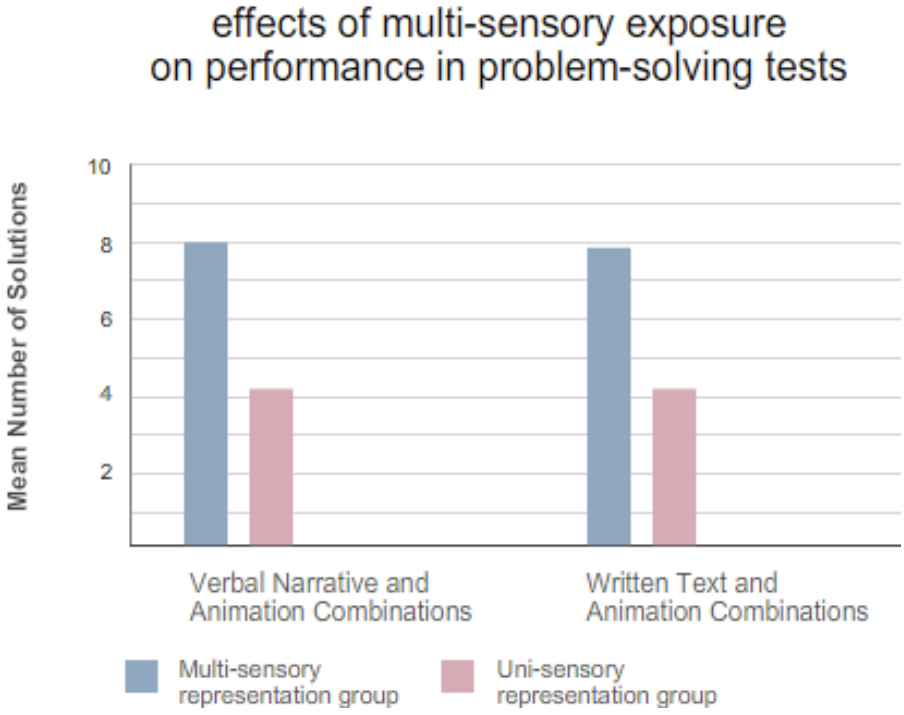
Richard Mayer of the University of Santa Barbara supports Medina's findings. In a 1998 study, Mayer found, "Students who received coordinated presentation of explanations in verbal and visual format (multiple representation group) generated a median of over 75% more creative solutions on problem-solving transfer tests than did students who received verbal explanations alone (single representation group)" (p. 1). Mayer goes into further detail with what he calls the "consistent evidence for a contiguity effect" (p. 12). Students who were given instructions while actively doing the task that was being explained in that moment (i.e. putting together a model step by step while someone explained it to them) came up with 50% more creative solutions than those who were given the instructions first and tasks later (i.e.. they were told how to put the model together, then they had to do it from memory rather than step by step) (Mayer, 1998, p. 12). Both Medina and Mayer's examples illustrate that the hands on approach is beneficial to student creativity. By nature, adding more movement-based activities are hands on and enhance the multi-sensory nature of the classroom.

Figure 6: Effects of combining sight and touch into learning



Source: BrainRules.net http://www.brainrules.net/sensory-integration?scene

Figure 7: Effects of Multisensory learning on problem solving skill



Source: BrainRules.net http://www.brainrules.net/sensory-integration?scene

Addresses discipline problems caused by boredom.

Boredom, which is defined as ‘‘a state of relatively low arousal and dissatisfaction which is attributed to an inadequately stimulating environment’’ (Mikulas & Vodanovich, 1993, p. 3, as cited by Bruursema, Kessler, & Spector, 2011, p. 94) is an attributing cause for misbehavior in multiple settings, namely in those that engage in repetitive tasks. (Bruursema et al., 2011, p. 93). From employees misbehaving in the workplace (Bruursema et al., 2011) to the military engaging in drug use due to boredom (Beary, Mazzuchi & Sharon, 1983), many children and adults alike misbehave when they lack proper mental stimulation.

Educator Michael Linsin thoroughly discusses the link between boredom and misbehavior in class in a series of articles written for the educational website, “Smart Classroom Management”. In one piece of writing, he retells a personal story of a class he took for his second master’s degree. He started with high hopes, sitting near the front of the room. However, he rapidly worked his way to the back of the room when he realized his teacher’s lack of engagement with students. There, he began to pass notes with his fellow classmate, who was also a teacher. While he did feel guilty for doing this, he could not help himself; the slow pace of the class drove him to it. Later, he discovered that his other classmates felt the same way. They, too, were playing games and passing notes just to get through it. He concludes his anecdote by saying, “It didn’t matter that we were adults. None of us, 8 years old or 80, is immune to the force of boredom, which can make us do things we know we shouldn’t. The only difference between my classmates and a group of fifth graders was that we were more covert in our bad behavior” (Linsin, 2009, para. 13). Dr. Thomas J. Lasley concurs with this statement in his article, *Misbehavior: Challenging, Coping with the Classroom System* (1979). He states, “Most student misbehavior is either a way of challenging or coping with the classroom system” (Lasley, 1979, p. 48).

In another piece of writing on the subject of boredom and misbehavior, Linsin lists several leading teacher actions that may cause students to become disinterested in lessons. Some of his observations include:

1. Students are sitting too long. It's good to increase stamina for paying attention, but it's also important to get students up and moving.

2. Teachers talking too much causes students to tune out. They need some room to breathe.

3. Teachers make the simple complex. Some explanations are too verbose for students to follow when simplifying can be more effective.

4. Making the interesting, uninteresting. The subject matter is normally, by nature, interesting. However, students automatically think it's boring due to a past history of boring instruction.

5. Failing to adjust. It is vital to notice your students receive the material and adjust accordingly (Linsin, 2012, para. 7-13)

Each one of the reasons above are related to behavioral problems in the classroom and can be alleviated by adding more movement based activities to lessons. Linsin suggests that something as simple as letting students stand up and walk around just to say hello to their friends may alleviate some of the boredom induced by lessons (Linsin, 2009).

Providing "brain breaks", a term coined by Kuczala and Lengel (2010), is another simple way to break up a particularly lengthy lesson. The purpose of brain breaks is "to give the mind time away from academic content" (Lengel & Kuczala, 2010, p. 57). A brain break would be something like doing a coordinating movement like patting your head while rubbing your belly.

The research provided by Linsin, Lasley and others shows that boredom in class can lead to misbehavior. By nature, more exciting, movement-based lessons much faster paced than traditional ones. This alone, may be enough to curb most idle misbehavior by providing fewer opportunities for boredom to set in.

Promotes fitness and improved test scores.

Naperville Junior High School is a trendsetter. Located in Illinois, a state where "roughly one in three children is overweight or obese, which ranks 10th-highest for youth ages 10-17 in the country according to the advocacy organization Trust for America's Health" (Blue, 2010), P.E. instructor Paul Zientarski set out to improve student health and fitness while changing the way they learn. This was accomplished with a program called "Learning Readiness P.E." (LRPE). The research, which was started in response to studies that exercise improves brain functions, has had major success. "Kids who took P.E. before they took the math class had double the improvement of kids who had P.E. afterward," Zientarski said ("Exercise Gives The Brain A Workout, Too", 2009, para. 5).

Not all schools will be able to se the LRPE model, but this shows clearly that there is a strong positive correlation between movement and learning. It is my hope that the USA will stop cutting P.E. in the name of testing. It is also my hope that this type of research gains wide spread attention and helps us ebb the rapidly growing obesity rates around the world.

Chapter 2 Conclusion

It is clear to see from the research provided above that movement is a vital element of effective learning. Research from Jenson, Ratey, and Hillman clearly shows a positive correlation between increased movement and learning, namely in the cerebellum and hippocampus. It is also

clear from Kolb's explanation and study of the experiential learning cycle that students learn much better when they have concrete experiences. Medina clearly illustrates that multi-sensory classrooms yield better results for learners. Then, Linsin and Lasley discuss how boredom in the classroom can lead directly to misbehavior, while Linsin and others specifically name movement as a means to quell boredom and misbehavior. Finally, I introduced Naperville High School's LRPE program, which promotes fitness and increases test scores for under performing students by giving them P.E. before class.

In the next and final chapter, I will discuss some specific situations to incorporate movement into the classroom and present some issues movement can address in the classroom. I will also introduce some simple activities to incorporate into existing lesson plans. These activities require little preparation. Finally, I will discuss how to use Howard Gardner's 'The Multiple Intelligences' as a template to plan interactive lessons.

Chapter 3: Movement in Learning in the Classroom

She's not the type of student who raises her hand often, asks questions, or frequently participates in discussions. She's also not a class clown, chronic doodler, or defiant challenger of the status quo. Plainly stated, she doesn't stand out in a classroom, so most teachers rarely notice her at all. She is the student who gets lost. As teachers, we do not mean to miss this student. Mostly, we are busy putting out fires caused by the naughty ones, answering the questions of the constant hand raiser, or having discussions with the students who are brave enough to speak out. But how do we find a way to reach this student and still have time for the rest? Inserting more movement into the classroom is a way to do it.

Incorporating movement into our classrooms gives teachers more time to be observers. It helps teachers to reach more students by cutting down the amount of lecture time. An exciting and active lesson allows students to take a break from the lecture and practice what was taught.

Purposes of Movement

According to Kuczala (2010), there are six purposes for incorporating movement in the classroom:

Preparing the Brain -- The developing brain needs to activate this system adequately so movement and cognitive growth can develop (Jensen, 2000).

Providing Brain Breaks-- Brain breaks are useful for giving necessary content breaks, managing the emotional state of the classroom, incorporating fun into a lesson, and re-focusing attention.

Supporting Exercise and Fitness -- Aerobic exercise really is the best defense from everything from mood disorders to ADHD to addiction to menopause to Alzheimer's

(Ratey, 2008).

Developing Class Cohesion-- These activities serve to build cooperative and relationship skills, teamwork, and a sense of belonging in a fun, movement oriented atmosphere.

Reviewing Content Using Movement-- Activities allow students to review information in an enthusiastic and playful manner.

Teaching New Content Using Movement-- Information can be easily accessed and readily available for later use because of its implicit nature. This strategy can be used in all classrooms in nearly all-content areas.

(Kuczala, 2010, p. 6-9)

Some other purposes of movement in the classroom may include: breaking up long lessons into manageable pieces, staving off boredom, transitioning between parts of a lesson during the same class, and giving students a break. When I introduce activities later in this chapter, I will tell which purpose each one serves.

Adding Movement Saves Time

When one examines the lives of teachers, she or he can most likely deduce that educators are buried under mountains of work. A 2006 survey of 574 teachers in Lawrence, Kansas found that 61% felt they did not have enough non-instructional time in their jobs, and 98% said they spent time on school-related activities outside their regular school work day (Toplikar, 2007).

Considering the afore mentioned, asking teachers to take the time to try new approaches or develop new materials can be akin to asking them to run a half marathon each morning before classes. It is not that the work itself is strenuous: it is the fact that teachers are already so stretched for time that any new requests can seem like a massive burden. Therefore, when

introducing these new methods to teachers, one must be careful to consider obstacles involving time restraints, coverage objectives, and testing schedules.

Another aspect to consider when suggesting active lessons is that the teacher may not have training in experiential learning, so they may believe preparing these materials will be far too time consuming. However, these arguments regarding time constraints can be countered. Evidence presented in the last two chapters shows that adopting these new methods can be a time saver in the long run by cutting teacher lecture time and increasing student involvement. Furthermore, teachers can prepare a handful of activities that can be recycled or modified multiple times, saving valuable time in the long run.

In addition to saving preparation time, teachers will save time on discipline in their classrooms as well. A composite of several studies on movement and learning put out by U.S. Department of Health Centers for Disease Control and Prevention (2010) found that there are "positive associations between classroom-based physical activity and indicators of cognitive skills and attitudes, academic behavior, and academic achievement" (p. 6). Overall, adding more movement to lessons will free up teachers' time to do other activities and monitor students' progress.

German philosopher Nietzsche once said, "Everything is hard before it is easy." When teachers take risks and incorporate more movement into their lesson plans, it may be difficult at first. However, it will ultimately better his or her classroom for everyone involved.

Ways to Incorporate Movement into Current Lesson Plans

I have compiled some activities I developed or adapted over my years as an ESL instructor in Taiwan. They may require some extra time for teachers to set up in the beginning,

but they can be added to the teacher's overall arsenal of available activities, and these can be recycled again and again. Teachers can also make variations to these activities. I will include three activities for introducing and reviewing material.

Introducing New Materials

Having students look at material on a page and simply read it out loud may not be the most effective way to introduce new material. It may not inspire students to want to learn about the subject—especially if it is an obscure topic that they already consider to be boring. Using movement when introducing new materials is a good way to build creative lessons that students will remember. Kuczala also adds, "This way, I know the information can be easily accessed and readily available for later use because of its implicit nature" (Kuczala, 2010, p. 9)

By incorporating some simple activities when introducing new materials, teachers can help stimulate the hippocampus, the part of the brain that processes new materials, and activate the right and left hemispheres in preparation for learning. Finally, adding more movement to lesson plans can foster an interest in materials that may otherwise be uninteresting to students.

The Activities

1. Match the meaning.

This is an excellent activity to introduce new vocabulary. The aim is to stimulate students' previous knowledge and also test their recognition of English roots in words. It makes uses of the whole classroom and allows students to be up from their desks, moving around the space.

Kuczala Six Purposes for movement: teaching new content using movement, supporting exercise and fitness.

Time: 40 min to 1 hour

Level: appropriate for all

Number of Students: up to 50 students.

Materials:

- Vocabulary words
- notebook or handout
- 8 1/2 x 11 paper with simple definitions. Each one should also have a letter to correspond with each definition. This will make the activity go much faster, and it will also allow students to correct mistakes more quickly (see Figure 8).

Instructions:

Start out by giving students the new vocabulary. You may choose to give them pre-made lists, or you may invite students to write the words on the board. I prefer the method of having students write them on the board because it saves paper and gives students a chance to make the brain/ hand connection by having them write the words in their notebooks. You can give them the empty worksheet for the activity (see Figure 8) or you can have them copy it into their notebooks. Doing the latter, again, will save preparation time and resources.

Figure 8: The template students will fill in with the words and definitions. Number of rows will depend on how many words you have.

Match the Meaning: Write the letter of the definition you think best matches the vocabulary word.

1 Vocabulary Word	2 Your Answer	3 Correct Answer	4 Definition

After all of the words are written down, ask students to paste the papers with the definition/ synonyms on them around the room (see Figure 9). Then give students 10 minutes (depending on your number of vocabulary words) to walk around the room and put the letter of the meaning next to the word they feel it corresponds with (see columns 1 and 2 on Figure 8). For example, if the word is 'ostentatious' and a student thinks the definition is " D. it is beneficial to you" the student would simply write down the "D" and move on to the next word. Students continue this until they guess for all the words or until time expires. ***Important: Students should NOT write down the definition. They will write down the letter only. The definition will be written later in this activity.***

Figure 9: The 8 ½ x11 definition sheets students will hang on the walls. <u>One definition per sheet.</u>

A.
Working in a well-organized and effective way.

B.
Talented in many areas.

After students have returned to their desks, check the meanings together as a class. If they guessed incorrectly, ask her/ him why they selected the answer they did. This will give you insight to their perceptions of the words. After that, have students write down the letter of the correct definition into column three (see Figure 10). Finally, give students 10-15 minutes to walk

around and write the correct definitions in the box next to the words. If they do not finish, they will need to take the list home to complete it. ***Make sure to assign it as homework, and check it in the beginning of the next class.***

Figure 10: Example of completed worksheet in the students' notebooks or worksheet.

Match the Meaning: Write the letter of the definition you think best matches the vocabulary word.

1 Vocabulary Word	2 Your Answer	3 Correct Answer	4 Definition
Efficient	B	A	Working in a well-organized and efficient way.
Multifaceted	A	B	Talented in many areas.

2. The writing's on the walls.

This is generally used as a pre-reading activity for a story, article, etc. However, it can be adjusted to fit other types of activities. It can also be used to review previous materials. The set up is simple and it allows students to find the answers for themselves. This can be played in two ways: as a partner race or as an individual activity.

Kuczala Six Purposes for Movement: teaching new content using movement, supporting exercise and fitness, developing class (peer) cohesion.

Time: 30 min

Level: appropriate for all

Number of Students: up to 50 students.

Materials:

- Questions and statements specific to reading
- Chart with only the Questions
- Answers or statement completions cut into strips
- Teacher's answer sheet

Special Note:

Due to the nature of competition, movement, and other factors, some students may feel intimidated by this activity, so it is best to set up an environment of trust in your classroom by reviewing all the material first. This insures students have an idea of what they may be looking for. In addition, make sure that students abide by all safety matters. It's best to watch students carefully throughout this activity to see that levels of frustration do not rise if they cannot find the correct answers. Lastly, make sure students do not take the answer strips so others can't find them.

Instructions:

Give out the question worksheet (see Figure 11.1). You may pre-cut or ask a student to help you cut the large font answer strips (see Figure 11.2). This is what students will write in response to each question. Next, ask students volunteer to paste the large font answer strips around the room. Once all strips are out, count them to make sure all can be found. Students love to put the strips in creative places like under desks, behind open doors, etc. However, it is important all answers can be found. Make sure you make your own master answer sheet with all of the correct information filled in (see Figure 11.3).

Figure 11.1: The Writings on the wall student worksheet

Student Worksheet

Cross Cultural Difference

Why is encountering a person from another country difficult?	
What do different cultures place varying emphasis on?	
In Turkey it is not possible to do business until there is a....	
In Turkey haste...	
In European countries, where do people find it easier to build work relationships?	
Where do people build lasting work relationships?	
What also varies in some cultures?	
He expected his presentation to start a lively discussion, but what happened instead?	
What did he realize after getting to know Thai ways better?	
In his culture, what makes him uncomfortable?	
In other cultures, how do people understand what is happening?	
What do Germans tend to do?	
What do the British say about the Germans? Why?	
How do people from different parts of the world differ?	
How can a multicultural environment be a wonderful learning opportunity?	

Figure 11.2: Answer strips to be cut up and placed around the room

Answer Sheet to Cut and Past on Walls

Cross Cultural Difference

From the beginning, people may send the wrong signals or ignore the signals from another person.
They place varying emphasis on the importance of relationship building.
...relationship of mutual trust
...equals rudeness.
They find it easy to build work relationships in social settings.
In cafes or restaurants—not at the office.
Talk and silence varies in some cultures.
Instead, there was an uncomfortable silence.
I realized that the staff thought I

was talking too much.
Silence makes him uncomfortable.
They understand what's happening and sometimes think too many words are unnecessary.
They tend to get down to business more quickly.
They say Germans are rude and overbearing because Germans make decisions and start discussions more quickly.
People from different parts of the world have different values
It can be a wonderful learning opportunity if we understand and appreciate our difference.

Figure 11.3: Master answer sheet with all of the correct information

Complete Answer Sheet

Cross Cultural Difference

Why is encountering a person from another country difficult?	From the beginning, people may send the wrong signals or ignore the signals from another person.
What do different cultures place varying emphasis on?	They place varying emphasis on the importance of relationship building.
In Turkey it is not possible to do business until there is a....	...relationship of mutual trust
In Turkey haste...	..equals rudeness.
In European countries, where do people find it easier to build work relationships?	They find it easy to build work relationships in social settings.
Where do people build lasting work relationships?	In cafes or restaurants—not at the office.
What also varies in some cultures?	Talk and silence varies in some cultures.
He expected his presentation to start a lively discussion, but what happened instead?	Instead, there was an uncomfortable silence.
What did he realize after getting to know Thai ways better?	I realized that the staff thought I was talking too much.
In his culture, what makes him uncomfortable?	Silence makes him uncomfortable.
In other cultures, how do people understand what is happening?	They understand what's happening and sometimes think too many words are unnecessary.
What do Germans tend to do?	They tend to get down to business more quickly.
What do the British say about the Germans? Why?	They say Germans are rude and overbearing because Germans make decisions and start discussions more quickly.
How do people from different parts of the world differ?	People from different parts of the world have different values
How can a multicultural environment be a wonderful learning opportunity?	It can be a wonderful learning opportunity if we understand and appreciate our difference.

Next, decide if this will be an individual activity or a partner activity. If it is an individual activity, students will be responsible for finding their own answers. If the teacher decides to make it into a partner activity, split the questions in half. Person A will find the first set of answers while Person B writes. Then Person B will find the second half of the answers while Person A writes. The person/ team who completes the worksheet the fastest wins. Make sure to go over the answers together as a class. When you go over the information, also check in with students to see how they felt while they were participating in the game. This will give you ideas on how to adjust this activity to better suit students' needs.

3. Sparkle sentence reading.

This is an activity I found in a long forgotten activity book some years ago. It is a simple way to allow students to practice reading out loud.

Kuczala Six Purposes for Movement: teaching new content using movement, developing class cohesion.

Time: 10 min

Level: appropriate for all

Number of Students: two to 50 students.

Materials:

- Reading Material (book, article, etc)

Instructions:

Students read one sentence each. When a student reaches the period, they must say 'sparkle'. If a student loses their place or fails to say 'sparkle', they must read the rest of that paragraph or the whole next paragraph, if it is the last sentence. At any point during the game, the

teacher may say, “SWITCH”, and all the students must quickly scramble and find another place to stand. They must also remember the position that read last and the word that comes next.

This activity makes students have to pay attention to what is being read at all times. It also breaks up the monotony of whole class choral reading where individuals can simply mouth as if they are reading. It also enhances the teacher’s ability to monitor pronunciation and reading skills on an individual basis.

Reviewing Material

Much of teachers’ time spent on review may look something like this: “Okay class, open your book to Chapter 15, page 201. Now, let's read from the first paragraph…” This can immediately diminish student attention and cause some of the boredom-based misbehavior discussed in the previous chapter. Adding movement and action-based activities to review materials can stimulate the cerebrum, which controls thoughts, actions, and long and short-term memory (*“Brain Structures and their Functions”,* 2012). Action-based review lessons can give students some associations that will make it easier for them to recall materials during a test.

The Activities

1. Flash card race.

Flashcards are ubiquitous in the language-learning classroom and for good reason. According to a study of forty-two below average readers, between 7-10 years old, those given flashcard training on vocabulary words had higher levels of comprehension and could more accurately decode words in context (Tan, Annette, Nicholson, Tom, 1997).

The following flashcard activity puts the responsibility of making the cards into the hands of the students, so they can create more associations through exploiting the hand-mind connection. Teachers can then be free to monitor students' activities.

Kuczala Six Purposes for Movement: reviewing content using movement, providing brain breaks, and developing class cohesion.

Time: 40 min to 1 hour

Level: appropriate for all

Number of Students: three to 25 students

Materials:

- 8 ½ x 11 sheets of paper. The number of sheets will depend on how many words you have. It can be recycled paper as long as students have enough free space to write on both sides of the flashcards they will make.
- Scissors
- Pens or Pencils
- Vocabulary list

Instructions:

Since this is a review activity, students are already familiar with the vocabulary from previous lessons. Start out by having students get into groups of three or four. Smaller groups work better because they give each student ample practice time for the vocabulary. Students should take out their vocabulary lists. Give students some 8 ½ x 11 sheets of paper. The amount will depend on the number of words you have. For example, if you have 20 words, give students two pieces of paper. Students fold the paper in half and then fold it four additional times, alternating the folds from one side of the paper to the other—in an accordion style. (See link for

folding instructions: http://www.youtube.com/watch?v=CQUKEre15BQ&feature=youtu.be). This will yield 10 flashcards per sheet of paper.

Next, students cut or gently tear on the creases so the flashcards are all separate squares. Then, students write their vocabulary words in both English and their native language on one side of the square of paper. They write the word in their native language to give them more ways to associate the word with meaning; this step will also come in handy when playing the game. Then they write the definition in English on the other side of the paper.

One person is the reader and the rest of the people in the group are players. They start by putting the flashcards out with the vocabulary word facing up. The reader then reads the definition and the players need to be the fastest one to collect the correct word. The reader continues until all words have been captured. The player with the most cards wins that round.

The students put the cards back down, but this time, the definition is facing up. The reader can either read the word in English or in their native language. The players must again capture the correct card. Once more, the player with the most cards wins.

This game can be played in a number of ways: read native word with English definition, read native definition with English words, or simply read the vocabulary word as it appears to practice simple word recognition. You can also write the native word on one side and the English word on the other side to further help with comprehension. Overall, students find this to be an exciting game and often make variations of their own.

2. Cross it out.

This is another vocabulary review activity, but it can be modified to use concepts for comprehension as well. It's an activity that allows students to release some pent up energy and also work on their reflexes and word recognition.

Kuczala Six Purposes for Movement: preparing the brain for learning, reviewing content using movement, providing brain breaks, developing class cohesion, and supporting exercise and fitness.

Time: 10-15 min

Level: appropriate for all

Number of Students: four to 50 students (larger class sizes: see Caveats and Space Variations)

Materials:

- Vocabulary words or concepts
- Two dry erase markers or pieces of chalk

Instructions:

First, ask students to write each word or concept on the board. It's best if they are written at random so they do not memorize the order from previous lists. Break class into two groups. Ask students to number off in the groups so there are two #1s, 2s, etc. Like numbers will compete against one anther. The teacher reads the definition to the word or concept and then calls out a particular number. The students with that number must then race to the board to be the first to cross out the word or concept. The game continues until all words or concepts have been crossed out. The team with the most points wins.

Caveats and Space Variations

Since this is a fast moving game, it is important to make sure all pathways to the board are clear. Students must be especially aware of safety. They should walk to the board instead of

run, and they should never push or hit each other. If a teacher has space constraints in the classroom, this activity can be done by having the students stand in front of the board while the teacher reads the definition. The rest of the activity continues in the same way.

3. Trivia relay race.

This is a good activity to test simple reading comprehension and get students moving.

Kuczala Six Purposes for Movement: reviewing content using movement, providing brain breaks, developing class cohesion, and supporting exercise and fitness.

Time: 10-15 min

Level: appropriate for all

Number of Students: four to 50 students (larger class sizes can use a modified version)

Materials:

- Dry erase markers or chalk
- Trivia questions—they can be student or teacher generated.

Instructions:

First, the teacher should review the material with the class. After the material is reviewed, split the class into groups of five. Have each group make a line in front of the board. Give the first person in each group a marker/ piece of chalk. If you have a class of 20, you will have four groups of five, so you will need four markers/ pieces of chalk.

The teacher (or selected student helper—this works great for classes with odd numbers) reads the question. The person with the marker must quickly write the answer to get a point. The game continues until the predetermined point value is reached or the questions are all read. Like the activity above, be sure to use caution and safety.

Some of the activities listed above take very little prep time and can replace some of the more traditional read and recall approach that are ubiquitous in most classrooms across the globe. These activities also promote brain stimulation by incorporating movement. Finally, they are student centered, so the teacher has more time to monitor progress.

Using the Multiple Intelligences as a Template to Create Activities

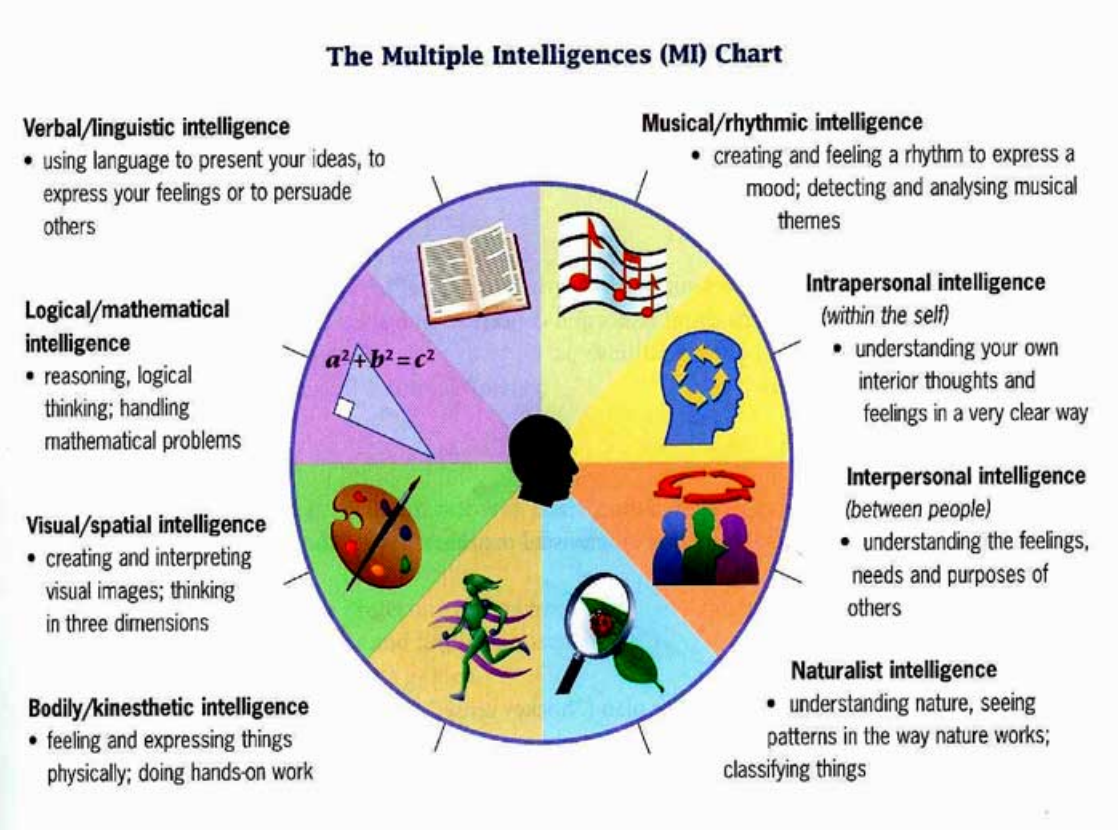
In 1983, Howard Gardner changed the education world for good with his book, *Frames Of Mind: The Theory Of Multiple Intelligences* (1983). In it, Gardner "posited his theory that there are seven[1] intelligences as opposed to the limited skills gauged by IQ tests" (Kantrowitz, 1993, p. 46). Researcher Barrington states that using the multiple intelligences in higher education "allows students to use their own strengths and not be marginalized by having to focus on traditional ways of learning. This is especially important to consider in the context of the increased diversity of students now involved in post-secondary education" (Barrington, 2004, p. 423).

With this type of positive impact on the American educational system and beyond, Gardner's multiple intelligences are a powerful teaching tool. Newsweek journalist Kantrowitz (1993) states, "Teachers say he has liberated them from one-size-fits-all pedagogy and given them a framework to help children develop individual strengths - as artists, scientists or just good citizens" (p. 46). The intelligences are a break from the linguistic/ logical only approach to our education system. That approach is what ultimately made rote learning the norm.

[1] In the mid 1990s' Professor Howard Gardner added an eighth intelligence: naturalistic intelligence, or nature smarts, to his Multiple Intelligence Theory (Wilson, 1997).

What are the Multiple Intelligences

Figure 12: Multiple Intelligences Explanation Pie Chart



Source: Goodwin Career Studies
http://www.careernotes.ca/unit1/4-multiple-intelligences/

At a Glance:

- **Linguistic:** has skilled use of language, sensitive to the order and meaning of words.
- **Logical/mathematical**: is good with abstract patterns and relationships, problem solving.
- **Musical**: notices non-verbal sounds, sensitive to pitch, melody, rhythm and tone.
- **Visual/spatial**: has strong sense of visual world, remembers best by visualizing.
- **Bodily/kinesthetic**: has good hand-eye coordination, good with tools.
- **Interpersonal**: understands and relates well to other people.

- **Intrapersonal**: is self-motivated, conscious of own motives and feelings.
- **Naturalistic**: understands and relates to natural world, has good pattern identification.

(Barrington, 2004, p. 423)

The teacher's pinguo: Multiple intelligences in action.

The following activity is one that I developed to exhibit how the multiple intelligences can be incorporated into the classroom to create movement and variety. This is a model that teachers can use to teach other subject matters including vocabulary, test material. In this example, I teach students the Chinese word for apple, "Pinguo" but this activity can be expanded to teach any subject or concept. For example, if someone is teaching about Chinese History, they can have students draw the first thing that comes to mind when they think of Chinese History (artistic). They can discuss this with classmates (interpersonal). Then, they can learn an old Chinese chant or song (musical). The possibilities are endless when we use the eight intelligences as a template to create lessons.

Artistic/ Visual and Linguistic

First, have students take out a piece of paper and draw a pinguo on it. After that, they should write down as many words they can associate with it.

Interpersonal and Intrapersonal

Next, they should take a minute to think about a significant memory associated with a pinguo. When they have their memory, they will stand and share it with 2-3 other students. They should be sure to use the word "Pinguo" in place of "apple" when telling their stories.

Musical

While students are still standing, have them sing the following chant:

Pinguo in the morning

Pinguo at night
Pinguo everyday got me feeling all right

They may move freely around the classroom while completing this chant.

Kinesthetic/ Bodily

With students still standing, have them break up into pairs. Give each pair an apple. Have them toss it back and forth to each other while saying "pinguo".

Mathematical/ Logical

Students return to their seats. Put the following word problem on the board or PowerPoint and have students quickly solve the problem. You may put the word "pinguo" to replace the pictures, or leave it as is.

The Teacher's Ping Guo

The teacher had two on her desk. Bill gives her two more. Samantha gives her one. Then, Malik gives her two more. The teacher is hungry, so she eats two. She sees that Kim doesn't have any lunch, so she gives Kim two. At the end of the day, she takes one home.

How many are left on her desk?

Naturalistic

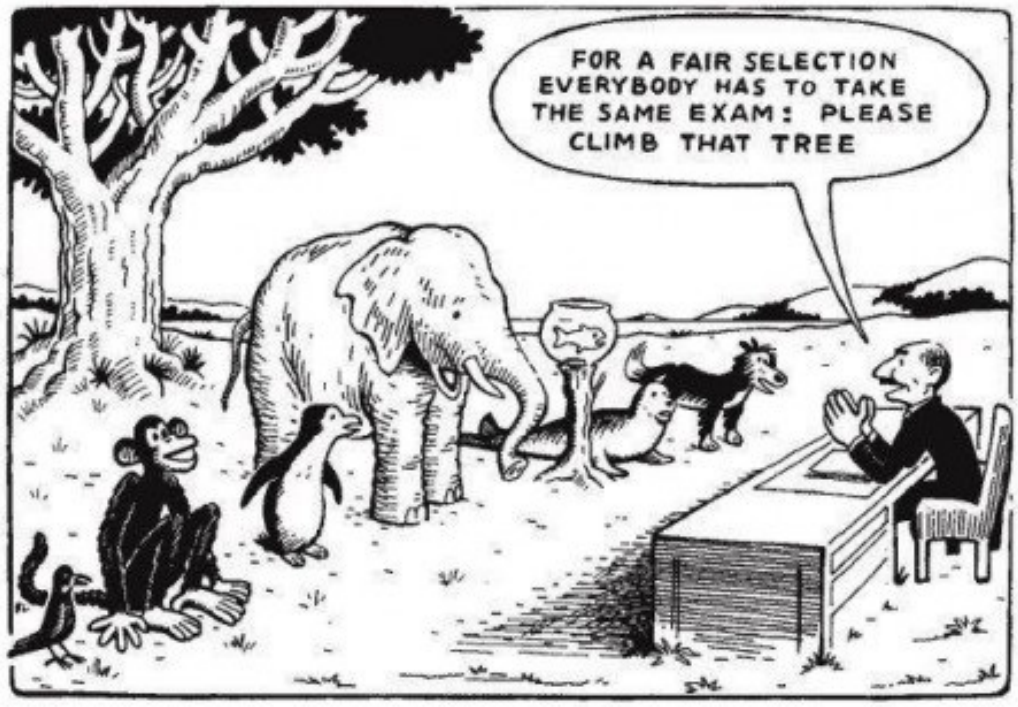
Finally, give each student a piece of pinguo and have them pay close attention to the texture and taste. Have them imagine the trees and earth from whence they came. The idea here is that they will be connected to the natural aspect of the pinguo.

The above activity, which applies Gardner's Multiple Intelligence framework to teaching a vocabulary word, is fairly simple and requires very little preparation time. The types of activities associated with each of the eight intelligences can be varied by subject matter and space restraints. Ultimately, using the framework is a way to generate multiple ideas and possibilities for adding movement into the classroom.

Conclusion: A Moving Classroom is a Happy Classroom

You are standing in front of your class, watching students move freely about the room. There is a sense of excitement in the air. One young woman calls out an answer to her partner as she darts from wall to wall, finding key and relevant information for the upcoming test. No one is pushing or shoving. No one is passing notes, doodling, or affixing a glassy stare at some distant, imagined object. For the first time this year, your students are in control of their information. A kid, whom you'd previously thought was slow, is excelling at this activity. He and his partner are almost finished. This is just the first activity of a new movement-based classroom, but you can already see the benefits of this model displayed on the faces of students who are happy to be in class.

Figure 13: Commentary about the limits of education systems



Source: The Educational System Comic: http://weknowmemes.com/2011/10/the-educational-system-comic/

Throughout this paper, I showed the benefits of movement in learning. In part one, I discussed how the stationary rote system harms student learning, causes boredom, increases teacher lecture time, and decreases student involvement. In part two, I provided evidence from leading research that showed how movement in learning enhances brain function and physical health, stimulates multiple senses, and quells boredom. Finally, in part three I provided some ways to transform normally stationary activities into movement based activities.

Movement in learning is a way to capture students' imaginations and boost their confidence in class. In our current system that teaches to the test and emphasizes just a few learning strengths, it may be difficult for some students to gain that necessary sense of confidence to excel. However, when teachers incorporate movement into their lesson plans, they give students more opportunities to shine. They give students who may normally fall through the cracks the chance to show different skills and knowledge that may have previously been untapped, therefore, awakening a fire in that pupil. This is important because instilling a joy for life-long learning is the best gift a teacher can foster. Movement in learning is a way to engage students; it is a way to inspire teachers and bring more lightness into the classroom.

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