Walking the Walk: Multiple Intelligences in Educator Professional Development

~ by Walter McKenzie, The One and Only Surfaquarium

Over the past twenty-five years, educators have embraced Dr. Howard Gardner's theory of multiple intelligences as a framework for integrating all the paths to learning into instruction. Gardner's asset model empowered teachers to build on the strengths of all learners, promoting a more complete array of instructional strategies to foster student success. Over the years, affirming multiple intelligences has become as popular as clean air and water. What's not to like? Like most popular ideas, multiple intelligences theory has settled in to the popular psyche, rendering it a recognizable piece of real estate on the education landscape.

That having been said, how is it as we approach the conclusion of the first decade of the twenty-first century, multiple intelligences theory has not taken pervasive hold in educator professional development?

Taking Professional Development to the Next Level

The benefits of utilizing multiple intelligences theory in educator professional development are multifold:

- it emphasizes the process of learning in delivering desired outcomes
- it promotes thoughtful consideration of training delivered in a variety of diverse modalities
- it generates a broad survey of experiences across grade levels and disciplines
- it encourages development of strategies beyond the strengths and interests of the trainer
- it provides a varied pacing of activities throughout the training experience
- it fosters authentic, real-world experiences that promote deeper understanding
- it corresponds well with the many technologies available for training, teaching, and learning
- it allows for varied kinds of formative and summative assessment during training
- it creates a context for on-going professional growth long after the precipitating training event has concluded

Still, it is an age-old truism that teachers tend to teach the same ways that they themselves were taught as students. While lecture, discussion, and some level of interactivity were the norm in industrial age education, today's educators require training experiences that are rich and meaningful in developing high levels of instructional and technical skill. When it comes to multiple intelligence theory, we have been talking the talk for twenty-five years. It's time educators start walking the walk in our own professional growth and efficacy.

Considering Each Path to Learning

When discussing multiple intelligences, it's important we all agree on a common language and understanding of the theory. Each intelligence is an authentic path to learning. An intelligence is not a talent or a gift or a learning style; it is an ability to problem solve and create that is valued within the school community:

Visual/Spatial – learning visually and organizing ideas spatially. Seeing concepts in action in order to understand them. The ability to "see" things in one's mind in planning to create a product or solve a problem.

Verbal/Linguistic – learning through the spoken and written word. This intelligence was always valued in the traditional classroom and in traditional assessments of intelligence and achievement.

Mathematical/Logical – learning through reasoning and problem solving. Also highly valued in the traditional classroom,\ where students were asked to adapt to logically sequenced delivery of instruction.

Bodily/Kinesthetic – learning through interaction with one's environment. This intelligence is not the domain of "overly active" learners. It promotes understanding through concrete experience.

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Musical/Rhythmic – learning through patterns, rhythms, and music. This includes not only auditory learning but also the identification of patterns through all the senses.

Intrapersonal – learning through feelings, values, and attitudes. This is a decidedly affective component of learning through which students place value on what they learn and take ownership for their learning.

Interpersonal – learning through interaction with others. Not the domain of children who are simply "talkative" or "overly social." This intelligence promotes collaboration and working cooperatively with others.

Naturalist – learning through classification, categories, and hierarchies. The naturalist intelligence picks up on subtle differences in meaning. It is not simply the study of nature; it can be used in all areas of study.

Existential – learning by seeing the "big picture": "Why are we here?" "What is my role in the world?" "What is my place in my family, school and community?" This intelligence seeks connections to real world understandings and applications of new learning.

Consider these observable actions for each intelligence:

Intelligence	Observable Actions
Verbal	Read, write, speak, tell, ask, explain, inform, convey, report, articulate, address, confer, request, recount, lecture, present, announce, narrate, debate, discuss, converse, recite, quote, describe, clarify
Logical	Solve, resolve, question, hypothesize, theorize, scrutinize, investigate, experiment, analyze, deduce, prove, verify, decipher, determine, predict, estimate, measure, calculate, quantify, simplify
Visual	Observe, symbolize, draw, sketch, draft, illustrate, paint, color, contour, outline, rearrange, design, redesign, invent, create, conceive, originate, innovate, imagine, picture, envision, visualize, pretend
Kinesthetic	Build, construct, erect, assemble, make, manufacture, structure, craft, imitate, play, perform, walk, run, jump, dance, collect, gather, compile, fashion, shape, duplicate, dissect, exercise, move, transport
Musical	Listen, hear, infer, audiate, note, pattern, sing, clap, chant, model, repeat, replicate, reproduce, copy, echo, imitate, impersonate, mimic, compose, harmonize, dub, rap, orchestrate, resonate
Intrapersonal	Express, imply, support, sponsor, promote, advise, advocate, encourage, champion, justify, rationalize, characterize, defend, validate, vindicate, assess, evaluate, judge, challenge, survey, poll
Interpersonal	Share, lead, guide, direct, help, mediate, manage, conduct, collaborate, cooperate, interview, influence, persuade, campaign, convince, compromise, role play, improvise, ad-lib, referee, reconcile
Naturalist	Sort, organize, categorize, compare, contrast, differentiate, separate, classify, detail, align, order, arrange, sequence, inventory, catalogue, group, file, index, chronicle, log, map, chart, graph
Existential	Reflect, contemplate, deliberate, ponder, summarize, synthesize, associate, relate, recap, encapsulate, elaborate, appreciate, appraise, critique, evaluate, assess, speculate, explore, dream, wonder

Given an understanding of each of the intelligences, how does each relate to instructional technology and professional development?

The last thirty years have changed the landscape of technology and, indeed, society. The advent of the microcomputer introduced a whole new level of effectively, efficiently interacting with our environment. Early on the emphasis was on peripherals that would help us use the microcomputer to accomplish traditional tasks. Light pens, touch pads, and touch screens were meant to allow us to input information to the computer using familiar utensils. At the same time, software developed was linear in nature, favoring word processing, and math and science applications over more open-ended activities. Simulations had their place in science and social studies software, but the applications tended to be limited by the technology of the time.

Productivity packages offer a different approach to technology use. By combining word processing, spreadsheets, databases, and multimedia production software in one suite of digital tools, users are able to apply software to their unique needs. The explosion of the Internet is probably the single event that boasted the ushering in of the digital age. No longer was the computer able to be categorized as the domain of business or the luxury of math and science scholars. Sud-

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denly everyone could communicate and access data using a phone line. The industrial age limits of time and space were broken by a single keystroke, and everyone could appreciate how this new technology exponentially improved the quality of life at work, school, and home. Today when you say the word "technology" to someone born since 1980, s/he immediately conjures up images of web sites, instant messaging and electronic mail.

As schools try to change with society and provide teachers and students with the skills they will need in the digital age, they have purchased the hardware and infrastructure necessary to begin integrating digital technology into the industrial classroom. Labs have been set up, and acceptable use policies have been put in place to promote the use of these new technologies. Software has been purchased and local area networks built to try and keep up with the quickly changing digital world. Schools are truly on the technology bandwagon.

But where is that bandwagon headed, and how willing are educators to stay on for the ride if there isn't a sound educational destination? Technology for technology's sake has a shine that loses its luster quickly. School systems have stashes of hardware and software that are no longer in use because they didn't live up to their billing. That, coupled with how quickly technology changes, makes investing in digital technology seem like a very risky business. The only way to help ensure that technologies purchased and implemented are going to be successful in the classroom is to make sure that they are well grounded in instructional and learning theory, thoughtfully implemented and then reflected upon. No theory is more capable of matching technology to learners than Gardner's model.

Consider how technologies map to each of the nine intelligences.

Intelligence	Technologies
Verbal	Textbook, pencil, worksheet, newspaper, magazine, word processing, electronic mail, desk top publishing, web-based publishing, keyboard, speech recognition devices, text bridges
Logical	Lecture, cuisenaire rods, unifix cubes, tangrams, measuring cups, measuring scales, ruler/yardstick, slide rule, graphing calculators, spreadsheet, search engine, directory, FTP clients, gophers, webquests, problem solving tasks, programming languages
Visual	Overhead projector, television, video, picture books, art supplies, chalkboard, dry erase board, slide shows, charting and graphing, monitor, digital camera/camcorder, scanner graphics editor, html editor, digital animation/movies
Kinesthetic	Construction tools, kitchen utensils screw, lever, wheel and axle, inclined plane, pulley, wedge, physical education equipment, manipulative materials, mouse, joystick, simulations that require eye-hand coordination, assistive technologies, digital probes
Musical	Pattern blocks, puzzles, musical instruments, phonograph, headphones, tape player/recorder, digital sounds, online pattern games, multimedia presentations, speakers, CD ROM disks, CD ROM player
Intrapersonal	Journals, diaries, surveys, voting machines, learning centers, children's literature, class debate, real time projects, online surveys, online forms, digital portfolios with self-assessments
Interpersonal	Class discussion, post-it notes, greeting cards, laboratory, telephone, walkie-talkie, intercom, board games, costumes collaborative projects, chat, message boards, instant messenger
Naturalist	Magnifying glass, microscope, telescope, bug box, scrap book, sandwich bag, plastic container database, laserdisc, floppy drive, file manager, semantic mapping tools
Existential	Art replica, planetarium, stage drama, classic literature, classic philosophy, symbols of world religions, virtual communities, virtual art exhibits, virtual field trips, MUDs, blogs, wikis, virtual reality, simulations, social networking

The human variable in integrating Multiple Intelligences theory into instruction is perhaps the most important. Many new approaches to instruction have come down the road with great fanfare, only to continue traveling right out of town until they disappeared on the horizon. Ask a veteran educator what he or she thinks about the latest and greatest innovation in education, and he or she will tell you stories of similar approaches that were touted fifteen or twenty years ago. What goes around comes around in education. There is rarely anything new under the sun.

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Many educators entered the profession long before the microcomputer appeared in the schools. Technology has been thrust upon them as one more requirement they never agreed to when they first entered the classroom. How do educators respond to the challenge of integrating technology into their existing instructional practices? Scott Noon of Classroom Connect examined this question and came up with a four-tier model of educator training in technology. Each tier of the model demonstrates an identifiable stage in technology proficiency. The model holds implications for how we learn to use technology and the journey they make in the process:

Stage	Description	Samples
Preliterate	Not yet making use of technology for personal or instructional means.	Traditional media and materials.
Technocrat	Experimenting with technology but unsure of its overall dependability and usefulness.	Demonstration station with LCD projector, computer lab, learning station with computer.
Technotraditionalist	Uses technology proficiently to accomplish traditional classroom tasks	Word processing lesson plans and reports, electronic grade book, email, and digital slide show.
Technoconstructivist	Uses technology to completely change approaches to teaching and learning in the classroom.	Online projects, Virtual Field Trips, WebQuests, Digital Portfolios, Virtual Classrooms.

To further explore this, let's examine Multiple Intelligences theory in light of Noon's model. How does an educator make use of multiple intelligences with technology in any of the first three tiers? Perhaps by the technotraditionalist level one can argue teachers are capable of at least accommodating several intelligences at once, perhaps without even realizing it. While I would concede that point, I would counter by asking, "Is this what we want for good instruction, hitting on effective strategies without possibly even realizing we have done so?" No, good instruction has always been a well-honed craft with reflective practitioners meeting their objectives. Why settle for a hit and miss model of learning when Gardner and Noon give us such practical, empirical models to use? In order to integrate multiple intelligences theory and technology into instruction, one must aspire to become a technoconstructivist. It is only at this level that teachers can truly realize the full potential of every student in their charge.

The question we each must ask ourselves is, "Is technology just another tool for instruction?" If the answer is yes, then it is no more than any other piece of equipment in our classrooms. The potential for making full use of technology only takes place when we hear ourselves saying "No, technology is not just another tool for instruction!" because at that moment we are willing to let go of all our preconceived notions and see all the possibilities for our students. This is why we have not seen research evidence to support the role of technology in instruction, as of yet. We need to allow technology to fulfill its role in the information age classroom. It cannot do so superimposed upon a model of teaching that faded with the end of the last century.

For the majority of educators, the choice to use technology in instruction is made in individual classrooms. Based on availability of technology, sufficient training in using what's available, and the value a teacher places on technology as an instructional tool, students receive as much access to technology as each teacher warrants on a classroom by classroom basis. The typical teacher wants to incorporate technology as s/he sees fit. This leaves a wide open technology playing field, but limits student use of technology to applications that are evident to the teacher. Gardner's theory can help provide the bridge between these everyday realities and our common goal of helping all children learn and succeed. This is the opportunity to be capitalized upon in professional development experiences.

To begin planning such training experiences, consider that:

- Do not expect any single activity to successfully incorporate all nine intelligences at once.
- To accommodate an intelligence effectively, the activity must utilize the identified intelligence to achieve an observable learning objective.
- Any formative or summative assessment task should have a direct connection to the learning objective and map to the identified intelligence(s) for the activity.

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The first step in developing an MI-based professional development activity is to brainstorm the possibilities for connections across the intelligences. This can be especially fruitful when a team of educators work together, creating a dynamic in which each suggestion stimulates further thinking and the generation of additional possibilities. Start by placing the training topic or theme in the middle of a page and arranging each of the nine intelligences around its periphery. Focusing on one intelligence at a time, name as many ideas as you can that relate to your topic. In this process there is no need to give detailed descriptions. The best brainstorming sessions are "lightning rounds" in which ideas are rattled off without hesitation. There is time later to decide which of these ideas warrant further consideration.

Consider these varied professional development activities by intelligence:

Intelligence	Activities
Verbal	Lecture, reading, writing, reporting, presenting, reciting, discussing, desktop and Web-based publishing, online discussion
Logical	Problem solving, brainstorming, hypothesizing, investigating, experimenting, Socratic method, online searching, programming
Visual	Observing, symbolizing, drawing, outlining, conceiving, imagining, visualizing, slide show or digital video presentation
Kinesthetic	Building, imitating, performing, dancing, pantomime, improvisation, using digital probes, using assistive technology
Musical	Listening, patterning, mirroring, chanting, repeating, replicating, harmonizing, dubbing, rapping, multimedia presentations
Intrapersonal	Supporting, advising, advocating, characterizing, defending, evaluating, judging, challenging, creating digital portfolios
Interpersonal	Sharing, leading, helping, managing, collaborating, influencing, campaigning, reconciling, team building, videoconferencing
Naturalist	Categorizing, contrasting, classifying, organizing, mapping, charting, graphing, building databases, semantic mapping

Once you have generated a variety of ideas, you have the luxury of picking and choosing which activities would benefit your staff the most. For one activity, target at least three but no more than five intelligences. For a day-long event, plan activities that will stimulate all nine intelligences.

Where do you go from here in planning effective technology professional development? Use the tools Gardner has given you to accommodate the paths to learning of all of your staff. What has been so remarkable about Howard Gardner's work from the beginning is that Gardner did not try to package MI theory to mass produce teaching kits for a profit, nor did he come to educators promising it would revolutionize the way they look at teaching and learning. Instead, educators approached Gardner asking what the application of his theory could mean for the schools. In his disarming, unassuming way, Gardner has responded that he leaves it up to the education professionals to answer those questions. After all, he reasons, they are the experts.

And so using MI theory in education has been a grass roots movement from its inception. Educators have responded enthusiastically to the potential of this new model for instruction. Yet the ramifications go much farther than we may realize. You can't tout the legitimacy of Gardner's work and in the same breath ask if there is a prepackaged MI curriculum or a series of MI volumes containing reproducible activity sheets. If you do, you are missing the far-reaching implications of Gardner's model. If multiple intelligences exist, then all bets are off on everything that has become so standardized about education. If multiple intelligences exist, then we need to find a new model for teacher professional development. If the human mind has an operating system, Gardner's model is the manual that attempts to explain how it runs. ▲▼