Moving from Theory to Practice

In another white paper "MI Basics: The Theory" we introduced MI theory and the eight intelligences in contrast to existing unitary conceptions of intelligence. This paper bridges MI theory to practice by interpreting its key features into everyday classroom applications.

KEY FEATURES OF MI THEORY

At least seven distinguishing features of MI theory have implications for educational practice. Each is presented below.

A Definition of Intelligence Based on Real-World Intelligence.

MI theory's definition of intelligence sets it apart from the conventional understanding of intelligence: "Intelligence is a biopsychological potential to process information that can be activated in a cultural setting to solve problems or create products that are of value in a culture" (Gardner, 1999b, pp. 33—34). MI theory's definition of intelligence locates intelligence in real—world problem solving and product making and accounts for the cultural dimension of what counts as intelligence. In contrast to the"implied"view of intelligence of IQ tests, MI theory is based on an understanding of how people's intelligences really operate.

A Pluralistic View of Intelligence

There exists a plurality of intelligences, each with its own symbol system and ways of knowing and processing information. This is in distinct contrast to the traditional view of intelligence, which asserts the existence of one general intelligence that is put to use to solve any problem, no matter what the task or domain. Using the criteria out lined in the previous chapter, eight distinct intelligences have been identified.

All Eight (or More) Intelligences Are Universal

MI theory posits that intelligence originates biologically. The eight intelligences have been identified across all known cultures. As human beings, all individuals have potential in all of the intelligences. Indeed, this propensity might be considered a significant contributor to what makes us human. In practice, this feature reminds us that every student in every classroom brings to bear a collection of all eight intelligences, each to varying degrees of strength.

Intelligences Are Educable

As a constant interaction among biological and environmental factors, intelligences are educable; they change and grow. According to MI theory, the more time an individual spends using

an intelligence and the better the instruction and resources. The smarter the individual becomes in that area. Translated into practice, this key feature reads: "Ail children can learn." It also works against pigeonholing or excluding individuals according to certain intelligences.

Individuals Possess Unique Profiles of Intelligence That Develop and Change

Although MI theory claims biological basis for intelligence, it does not suggest that intelligence is purely genetic and inherited. From the perspective of'nature"in the nature-nurture debate, we are all at promise for all the intelligences. How and to what extent the intelligences manifest themselves depend to a significant degree on"nurture: An individual's intelligences develop and change based on interaction with the environment(people, resources, etc.)

Cultural, societal, and individual factors shape how much one sees of a particular intelligence and how it is manifested. For example, in the case of linguistic intelligence, writing might dominate in one context and story telling in another. A child in the first context whose mother is a reporter, and whose home is filled with books, a computer, and writing implements, might have better developed writing abilities than a child without those environmental supports.

Each Intelligence Involves Subabilities

No one is merely "musically" or "linguistically" intelligent. One's musical intelligence might be demonstrated through the ability to compose clever tunes or to hear and distinguish instrument parts in a song. In the case of linguistic intelligence, ability might emerge through the expressive language of a poem, the descriptive language of a presentation, or the closing arguments in a courtroom. These distinctions within intelligences are important for teachers to keep in mind when developing activities and assessments for their students (Hatch, 1997).

Intelligences Work in Combination, Not lsolation

In the form of context biopsychological potential, the intelligence is relatively autonomous. In their expression, however, the intelligence work together in the context of a domain or a discipline, which are social constructs. A domain is culturally organized and valued act ivy "in which individuals participate on more than just a casual basis, and in which degrees of expertise can be identified and nurtured" (Gardner, 1999b, p. 82). Computer programming, car mechanics, gardening, photography, historical research, archeology, speechwriting, and soccer are just a few examples of domain. The intelligences are the raw material we bring to bear in solving problem or fashion products. The domain or discipline is the context

that defines the problem and within which intelligences are brought together.

For example, a violinist needs musical intelligence to be successful, but only in combination with interpersonal abilities, such as communication with other musicians in the orchestra; intrapersonal abilities, such as translating the emotion of the piece; and bodily-kinesthetic abilities, such as the physical act of playing the instrument. Put simply, the musical do main generally requires high levels of musical intelligence, but other intelligences must be tapped in order to permit successful performance in this domain.

Similarly, no intelligence is isolated to a specific domain. For example, spatial intelligence is not used only in the visual arts. Particular intelligences are applied across many domains. In the case of spatial intelligence, these abilities come to the fore to the arts, as well as in sailing, gardening, and even surgery. An individual's strength in a particular intelligence may manifest itself in one (or more) domains and not mothers. Someone with a high level of spatial ability, for instance, may have little ability or interest in the artistic domain and may be attracted to more-scientific applications of spatial intelligence embedded in say, biology or topology.

IMPLICATIONS OF MI THEORY FOR PRACTICE

We have said that there is no "right" way to apply multiple intelligences theory. It is a descriptive theory of intelligence, not a pedagogical framework. Indeed, there is a sizable gap between MI theory as a psychological claim about how the brain works and any sorts of educational prescription (Gardner, 1995). Not surprisingly, then, the introduction of MI theory has resulted in numerous interpretations and applications

For many educators, MI theory confirms what they have always believed: Students posses a range of abilities that standard school fare neither acknowledges nor develops. Therefore, it was with enthusiasm that educators initially accepted the challenge of creating and implementing applications for MI theory. In the dozen years since the first application emerges, educators' enthusiasm has not waned; if anything, it has intensified. There are hundreds of MI-based programs in this country and many others internationally.

Much of the early work pertaining to MI theory was conducted at Harvard Project Zero, a research organization co-directed by Howard Gardner. One of its research endeavors, Project Spectrum, was a 9 year initiative that began in 1984 to investigate MI theory in early education (Chan, Krechevsky, & Viens, 1998; Krechevsky, 1991). Project Zero, and in particular Project Spectrum, has provided a research and development wing, and often a catalyst, for the many developing MI—based programs and"MI schools".

Most MI—based programs have been initiated to create opportunities for students across a range of intelligences or to create more

individualized or personalized education by addressing students' strengths. To identify students' particular areas of strength and interest, many programs create new, authentic forms of assessment that account for a broader spectrum of abilities (Chen et a1. , 1998; Kornhaber & Krechevsky, 1995).

Many MI-based programs have been conceived with a more specific educational purpose or programmatic goal in mind, such as reaching children in at-risk situations, justifying arts programs, promoting project—based or interdisciplinary curriculum, or developing school—wide talent enrichment programs (Gardner, 1993a; Kornhaber & Krechevsky, 1995).

Using MI—informed approaches usually involves an iterative process between curricular／instruction and assessment. MI theory helps teachers frame activities so that many entry points into the subject matter are available to students. Teachers use the knowledge they have accumulated about students' intelligences and preferences to inform subsequent instruction. Teachers who offer different pedagogical approaches and allow exploration of differing perspectives create the possibility of reaching more students more effective

We have said earlier that intelligences normally do not work in isolation; every task or problem requires competence in certain areas. It is in culturally defined domains that our unique combinations of intelligences are brought to bear. Therefore, intelligences are likely well used and best observed in the context of domains rather than intelligence-specific activities or curriculum. Domains, rather than single intelligences, become a useful tool for considering how to use and assess students' intelligences authentically in t11e classroom. To tap as well as assess students' logical-mathematical abilities, teachers might have students design a bridge and build a model (perhaps as part of a larger project-for example, creating a model of a city).

When assessing students' abilities, teachers using MI theory focus on student strengths and look at a broader range of abilities(Chen et a1. , 1998; Kornhaber & Krechevsky, 1995). Uses and goals of their assessments vary. For some, assessment involves informal or formal observations at learning centers, or specially designed performance assessments. Assessments take place during projects or other activities, or are themselves special events, such as presentations and exhibitions (Gardner, 1993d). Information culled from assessments is not only reported but also put to several uses: to build on student strengths in subsequent instruction and curriculum, to bridge to student weaknesses, to assign or group children in enrichment groups or for projects, and to celebrate student talent.

Assessment should be multimodal, tapping not only one context but several. For example, to assess linguistic abilities teachers may use a variety of real performances such as a story, report, or play, rather than a short-answer test. Likewise, assessment of spatial abilities may include domain—based activities such as reading and creating maps, designing bridges, doing a

photography project, or creating a mural. Using domains to think about integrating MI into assessment helps to keep the assessment authentic as well as "intelligence fair"; in other words, it assesses what it is claiming to assess.

Much like MI—informed curriculum and instruction, MI-informed approaches to assessment include using the theory to frame options by which student Carl demonstrate their mastery and understanding of the material. MI practices also have led to the use of standard and video portfolios as tools to demonstrate and report students' understandings (Faculty of New City School, 1994; Gardner, 1993a; Kornhaber & Krechevsky, 1995).

DEFINING OUR UNDERSTANDING OF MI THEORY

Although it is true that there is no single right way to apply MI theory, common theoretical, terminological, and practical pitfalls lead to misconceptions about and misapplications of MI theory. We address several of these concerns below.

Superficial or Limited Understanding of the Defining Tenets

In order to practice MI theory well, one needs to understand MI theory well. Conversely, superficial knowledge of the theory or outright misunderstanding can lead to applications that are contrary to those the theory might suggest. For example, while acknowledging a plurality of intelligence suggests enhancing instructional practices in some way to account for them, it is not a directive to teach everything in eight different ways. Understanding that intelligences do not work in isolation helps avoid separating intelligences in the classroom artificially or labeling students by one intelligence or the other.

Imposing Educational Positions onto MI Theory

Unfortunately, positions on various issues or educational practices have been erroneously ascribed to or closely associated with MI theory or Howard Gardner himself. MI theory does not incorporate positions on gifted education, special education, interdisciplinary curriculum, or other key educational issues (Gardner, 1995).

One such example is tracking. Multiple intelligences theory does not take any position on tracking; however, the existence of several intelligences that can be isolated in theory has led to the erroneous assumption that MI theory suggests grouping children by ability within specific intelligences. In actuality, many educators using MI are strongly opposed to tracking. A superficial understanding of MI theory, as well as confusing ostensibly MI—based practices with implications of the theory can easily lead to this type of misunderstanding.

Confusing MI: Based Practices with Other Practices

MI theory has been confused theoretically and used interchangeably with other, sometimes similar approaches and practices. Therefore, distinguishing MI theory from like—minded or complementary approaches a useful way to deepen one understands of the theory.

Learning style approaches in particular have been confused with MI theory. Yet the psychological construct of MI theory is fundamentally different from that of learning styles. Intelligence refers to our psychobiological potential to process certain kinds of information in certain kinds of ways. It is a capacity that resides in each person, and each intelligence can be used in a variety of domains (Krechevsky & Seidd, 1998).

Learning styles refer to how individuals take in information; and they have a variety of frameworks. Some describe organizational preferences (sequential versus random) or perceptual content (abstract ideas and feelings versus concrete experiences and objects). Others that are based on multi sensory styles refer to auditory, visual, tactile, and kinesthetic learners. Learning styles also refer to environmental preferences or variables such as light, sound, kinds of furniture, time of day, room temperature, and working together or alone.

In contrast to learning styles, the intelligences possess distinct developmental trajectories that lead to adult endstates--valued roles in the community. Thus, to nurture valued roles and domains, we nurture particular intelligences: "One can be a tactile transitory learner and still become an accountant or a botanist. However, if one has not developed strong logical-mathematical or naturalist intelligences, success in those professions will be limited" (Krechevsky & Seidel, 1998, p. 23).

Unlike learning styles, each intelligence is geared toward certain types of content. For example, musical intelligence is engaged when one hears music or picks up a clarinet and plays. However, musical intelligence is not summoned only through musical sounds; it can be activated, as well, by reading a score or watching the rhythmic movement of windshield wipers in the rain. We also can relate certain products to certain intelligences; a shell collection, a soufflé and an analysis of life in a desert all involve the naturalist intelligence.

To help distinguish between learning styles and intelligences, consider the example of having heard or read a poem. Learning style refers to how you received or took in the poem, auditory (hearing it) or visually (reading it). How you received the “information” (in this case, the poem) is distinct from how you used gone intelligences to process and understand it. To make sense of the poem, you may have drawn on one or more intelligences: linguistic intelligence in constructing meaning directly from the words; spatial intelligence, if the poem evoked a vivid image in your mind's eye; and/or intrapersonal intelligence, if the poem inspired an emotional response.

Both learning styles and MI theory are used to differentiate teaching and learning and can

work in complementary fashion. But one needs to be careful about applying MI—based labels in Stylistic fashion, such as saying, "He's my spatial learner." As typically used, learning styles cut across all content areas. However, there is little authority for assuming that an individual who evinces a style in one milieu or within one context will necessarily do the same in another.

Confusing Related Terminology

Since the term multiple intelligences can be confused with related, but not synonymous, terms, misapplications arise. The terms domain, subject area, and interest sometimes are used interchangeable with the intelligences.

An intelligence is the ability of the brain to deal with particular types of information, the biopsychic: logical potential we bring to bear on any given task or activity. A domain, or discipline, is an organized set of activities within a culture in which individuals participate on more than a casual basis and in which certain levels of expertise exist and others can be developed. Gardening, musical performance, chess, and dance are all examples of domains.

Any domain uses several intelligences, which, except for the rare anomaly, manifest themselves in combination rather than in isolation (Gardner, 1995). For instance, the domain of dance embodies bodily-kinesthetic intelligence, and it includes a great deal of spatial intelligence as well. Other intelligences that might be engaged include intrapersonal intelligence (in the dancer's interpretation) and interpersonal intelligence (in relating to the audience or other troupe members). Bodily-kinesthetic intelligence also comes to the fore in the domains of gardening, basketball, and surgery. When an intelligence is the intellectual cognitive potential, a domain is the sphere or activity where intelligences come together, where human beings engage their unique combinations of intelligences. This suggests that the intelligences employed depend also on the strengths and interests an individual brings to the task, in addition to the intelligences the domain is most likely to require.

Another term, subject area, refers to the familiar, school—designated separations between areas of study. Language arts, mathematics, social studies, science, and physical education are all subject areas. While each subject area might call on some intelligence more heavily than others, each does not represent or emphasize one intelligence. Nor should one particular intelligence be a subject area. (As noted previously, intelligences generally do not manifest themselves in isolation.) Moreover, a subject area can involve more than one domain. In short, a subject area is not an intelligence, and an intelligence should not be a subject area.

By definition, there is a difference between strength in an intelligence and an inertest. Intelligences are mental abilities that result in ways of thinking that come easily to individuals and in which they excel. Interests are activities to which individuals are drawn, but in which they do not necessarily excel. In practice, the eight

intelligences have been used as categories of individual interest or of strengths and interests, with no discrimination between the two.

How an individual pursues an interest most likely depends on his or her own profile of intelligences. Interest in stamp collecting maybe based on naturalist intelligence for some whose primary interests are collecting and organizing the stamps. The pursuit for those who like to examine the artwork and aesthetic designs of the stamps is of a more spatial bent.

From the perspective of the classroom, the issue of interest versus ability sparks a central consideration of assessment. Teachers assessing students"multiple intelligences" need to contemplate whether they intend to assess student ability, interest, or both. In some cases, the distinction matters little. For example, if a teacher's goals in using MI theory relate to giving children opportunities across different domains than assess hag students'MI strengths becomes less germane, as does the distinction between interest and ability. On the other hand, gifted education or talent development programs focus more on ability in specific domains, employing performance assessments or observation frameworks to assess level of ability. (Of course, among those talented students interest or passion underlies the motivation to develop their domain-based abilities.)

Considering MI as an End Rather Than a Means

Because the intelligences are defined by the types of things human beings puzzle over, make, and do, MI theory does have implications for the content of what is taught. However, in and of themselves the intelligences do not constitute a suitable goal of education for at least two reasons. First, intelligences are best thought of as the tools individuals use to engage in any activity or domain. Second, intelligences rarely work in isolation; therefore, teaching"spatial"or "bodily-kinesthetic" is an arterial separation of how intelligences actually operate.

For instance, it makes sense to have interest or ability groups set in domains, such as a photography mini course, a"World of Bugs"interest group, or a chess club, rather than to set aside"intrapersonal"time or a special"spatial intelligence"class. As another example, the interpersonal and bodily-kinesthetic intelligences might come to the fore during a community service project or a dance class, in combination with other intelligences extant in that domain or that individual students bring to the activity.

Multiple intelligences theory is a tool, a means that educators use to precede from their overarching goals to applications. Therefore, it is crucial to ask, "To what end and I using MI?" Addressing that question will help sort out a number of issues about what constitutes an appropriate MI—informed practice.

Confusing MI Theory with Practices Touted as "MI-Based"

Without both a careful reading of MI theory and at thoughtful analysis of one's purposes in using it, misapplications can ensue. Although most topics can be approached effectively in a number of ways, MI theory does not suggest that all concepts or subjects be taught by using all of the intelligences for every lesson. In fact, it is unlikely that all topics can be approached, practically, conceptually, or effectively, through all the intelligences, or need to be. A1so, almost any approach to teaching or instructional activity will involve more than one intelligence. Teaching about molecular change through a movement exercise, for instance, involves, at a minimum, spatial and bodily-kinesthetic intelligences.

In some cases MI theory has been applied very superficially. Random body movements or running about the classroom has been called part of a"hands—on MI program." Playing background music while children do mathematics also has been dubbed"doing MI." Still, unless one's focus and thinking is on the music—for example, following the contours of a melody—musical intelligence is not brought to bear.

Moreover, no single intelligence represents "doing MI." Weekly art activities do not constitute a multiple intelligences curriculum. Some"MI programs" consist of using materials of the intelligences; for example, drawing pictures and singing lists often are used as mnemonic devices. Like exercise or background music, mnemonic devices are fine ideas for the classroom, but they do not represent substantial engagement of the intelligences.

NO Definitive Profiles of Intelligence Exist (and There Is No Need for Them)

The practice of direct evaluation of students' intelligences, including grading them, as a"reading"of MI theory is particularly worrisome. There seems little point in grading individuals on how "spatial" or how"linguistic"they are. Such practice is likely to open the door to a new form of tracking and labeling children. Moreover, an individual may not be particularly gifted in any one intelligence; it is the particular combination of skills that stands out. If multiple intelligences are not the goals of education, than neither should their evaluation be.

It is also vital to remember that any attempt at assessing student intelligences is a "best guess" and no matter how comprehensive or rigorous, it should always be administered cautious and used judiciously. Why so? It is simply not possible to assess an individual's intelligences definitively and with reliability. All that we can assess with certainty is performance on some kind 0f task. We can assess a student's ability to play chess, but she still cannot be deemed "spatially intelligent." We can say she has demonstrated some spatial ability, but she may well have exploited other intelligences as well.

The more a range of tasks is assessed, the more valid a statement about strength becomes. Different individuals demonstrate different abilities with each intelligence. If a child demonstrates spatial abilities through chess,

while another child may be a skilled artist, the former child's spatial abilities will be over-looked by an assessment of spatial ability through art activities only.

Even if a representative sample of tasks for that intelligence was monitored, we could assume only that every task was solved using the particular intelligence in question. Perhaps some of the activities were not "intelligence fair" - that is, they did not call primarily on that intelligence for success. Or perhaps the individual found a way to solve the problem using other intelligences. Only carefully designed experiments - not a simple or clear-cut task-can result in accurate inferences about mind or brain mechanisms.

Perhaps more to the point, there is probably no need to generate definitive profiles of students' intelligences. This is not to suggest that teachers refrain from observing students with an eye toward their apparent strengths, but rather that they exercise caution with respect to characterizing students' intellectual profiles. Grading intelligences or tracking students according to intelligences seems particularly contrary to a classroom set up for a range of expressions. Such "personal stereotyping" may result in a narrow, limiting view of a child (Gray & Viens, 1994). Perhaps using eight labels is preferable to using one.

All the same, labeling can be harmful and should be treated carefully. Look for special strengths, but do not attach permanent labels (Hatch, 1997).

MI YESTERDAY, TODAY, AND TOMORROW

In what seem to be ever-increasing numbers and sophistication, MI theory is being applied in schools around the globe. Even so, many fear that it is just another educational fad that will go the way of "open classrooms" and "individual differences" Will MI theory be around tomorrow?

Most likely, we think; and our reasons are several. First, although MI theory was introduced 20 years ago, new MI resources and programs continue to appear. Second, MI theory has become an accepted theory of intelligence, while traditional conceptualizations are under increasing attack. Third, as a theory and not a prescription or recipe, MI theory is a vehicle for thinking adults to use in configuring their own educational settings. Therefore, it does not suffer from over reliance on one particular set of materials and approaches, which becomes old hat and finds itself on a shelf with other discarded materials.

MI theory continues to exist in the form of research and development as well. Researchers at Harvard Project Zero recently have conducted studies to look systematically at the development of MI practices and at schools using MI practices. The Adult Multiple Intelligences (AMI) Study is the first multisided MI research Project in adult basic education. Findings suggest that MI theory can be a generative tool for teachers of low-literacy adults as well as adults with limited

English skills (Kallenbach & Viens, 2002). AMI findings resonate with K—12 re-search suggesting that MI theory is a validating, useful, and flexible organizing framework for educators (Kornhaber & Krechevsky, 1995).

Project SUMIT (Schools Using Multiple Intelligences Theory) at Project Zero was a national study of schools that implemented MI theory for at least 3 years. It sought to identify, document, and promote effective models of MI application. Project SUMIT researchers identified several "Compass Points" for using MI theory effectively: a supportive culture, teacher readiness, and use of MI to foster high-quality student work (Komhaber Fierros, & Veenema, 2004).

MI theory continues to evoke and renew inspiration in both new and veteran teachers as (1) an articulation of how they think about students and (2) a valuable tool for teaching the way they want to teach. Over 20 years of MI research and practice, together with a great many initiatives in progress, have produced a plethora of ideas on which educators can draw for their own settings. Perhaps more important, there is a robust and ever-growing band of colleagues with whom to share the many possibilities for the application of multiple intelligences in the classroom.

SNAPSHOT: ONE TEAM'S JOURNEY

Lincoln Elementary School is located in Stratton, a mid-sized city in the northeastern United States. Its student population numbers 400 and includes a burgeoning population of English-language learners. The school's 4th—grade team includes the classroom teachers, Lillian Vega, Sandra Edwards, and David Barnes, who have been joined on their MI initiative by Felix Lopez, the ESL specialist; Jan Simon, the art teacher; Paul Evans, the music teacher; and Carol Rogers, a resource teacher.

At Lincoln Elementary MI theory has been in the air for some time. The 4th-grade team members are intrigued with the theory's potential for their classrooms and subjects and want to know more about what using MI theory would really mean. What would it look like? The team articulates its main questions as: What does MI mean focus? And is MI focus?

The group studied the theory and its educational implications over 6 weeks. They started by finding appropriate resources and assign themselves readings、which they shared and discussed at their meetings. They also read about and debated issues of translating MI theory to practice. These conversations moved them to review MI—based application in MI activity books.

The team found two activities particularly valuable in deepening their understanding of MI theory and its implications for their own classrooms. One was to consider their own "profiles of intelligences." use an informal reflection survey as a starting point (see the Supporting Materials section of this chapter). They were not surprised to realize how closely their teaching strategies seemed to align with their own strengths and preferences.

The second experience was called the Novice/Expert Activity (see Supporting Materials), which they conducted at a meeting of the full faculty. The teachers were asked to demonstrate their understandings of a particular topic in their selves described "novice" areas, and then in their "expert" areas. In effect, the teachers experienced how students might feel when asked to develop and demonstrate understanding in ways that do not come easily, versus ways in which students are competent and confident and feel comfortable learning and expressing themselves. The dramatic differences between their two final products-one completed in a strength area, the other in a novice area--gave the teachers pause regarding how they asked their own students to develop and demonstrate understanding.

This insight validated Ian's desire to build more art process into the regular classroom activities. The simulation, in combination with the self-assessment activities, helped Lillian see that, more often than not, she was asking students to understand through her intellectual preferences--writing and drawing not necessarily their own.

The teacher's felt strongly that MI theory validated how they conceptualized and understood intelligence and the diverse strengths students bring to bear in learning. From their conversations, implications and potential uses of MI theory emerged that connected with their goals for their students and for themselves as teachers. By its conclusion, the 6 — week experience was seen by the team as the first of many"outings" on their multiple intelligences journey.

BEFORE PUTTING THE PATHWAYS INTO ACTION: BUILDING UNDERSTANDING OF MI THEORY

There is no particular or necessary process for building deeper understanding of MI theory, although most groups or individuals pursue a combination of readings, discussion, and hands-on activities. Weekly meetings provided an ongoing context for the Lincoln Elementary team to begin their MI study. In any inquiry it is important to carve out a regular schedule to meet as mutually interested and supportive colleagues. Once MI theory emerges as important among a group of colleagues, a regular meeting place and time should be establish. Seemingly mundane issue of this sort becomes the backbone of sustaining work together in typically hectic lives.

THOUGHT QUESTIONS AND ACTIVITIES

Thought Questions

- What do you consider the most important features of MI theory? The most provocative features?
- How might using MI theory change your practices?
- Under lively debate is whether you should teach students about MI theory,

sharing with them the language of the theory and engaging them in activities such as MI self-reflection. What is your opinion? How might it help students or harm them? What goals could be addressed by using MI theory in this way?

Implementation Activity

The Novice/Expert Activity implemented by the Lincoln Elementary School teachers (see Snapshot section) is designed to help you consider what happens when individuals are allowed to communicate and learn in a manner that is aligned with an area of strength as opposed to an area of weakness. Instructions for the activity are available in the Supporting Materials section that follows. About 25 participants and a facilitator are needed, and the activity takes about 90 minutes. After completing the activity, consider the following questions:

- What does this activity reveal about learning and assessment?
- Can you predict which of your current students would appear "smarter" if they expressed or developed their understanding in alternative ways?
- What practical implications does this activity suggest for classroom use?

SUPPORTING MATERIALS

Novice/Expert Activity

(Baum, 1994)

This activity is designed to help you consider what happens when children are allowed to think, communicate, and learn in a manner that is aligned with their unique profile of intelligences. About 25 participants are needed, also tables and additional space where one of the groups can work. The directions are for the facilitator. Participants should not read the directions before engaging in the activity.

Discuss how each individual has preferred modes of solving a problem and developing products. Some individuals are at their best when they can visualize a solution and communicate it through the visual arts.

Others may prefer the performing arts, writing, or engineering and design. In this activity you will rate your self-efficacy, perceived ability, or level of development in each of the following domains: writing, drawing, performing arts, and engineering (model building). Each person ranks their level of talent or expertise in the above four domains, with "1" being most expert and "4" being most novice. A facilitator needs to record the number of responses for each group because this information will be needed to form groups later on. When the participants have finished their rankings, tally the information on a board or overhead. Record and share totals with the participants. You may choose to use a chart like the one shown in Figure 3. 1.

1. There are two parts to this simulation. The first involves grouping the participants into novice groups (#4, least-preferred domain). The second involves grouping

the participants into expert groups (#1, most—preferred domain). The ideal number of participants in each group is between four and ten. If a group is too large, consider splitting it in half or having some participants switch to the next least- or most-favored domain.

2. Tell the participants to imagine themselves in 5th grade working on group projects. The Class has been studying the Middle Ages, and each group 1s required to create a product that demonstrates four aspects of life in the feudal system. The object is to create a product that explains at least four of the feudal social classes and their relationships to one another.
3. The participants first work together in their novice or least-preferred domains (#4), using that form of expression to create their product (see Figure 3. 2). The group will pass the assignment if the rest of the class can recognize the four social classes of the feudal system it portrayed.
4. Assign an observer to each group. Observers can be recruited from groups that have large numbers of members. Allow each group 10 to 15 minutes to complete its product. The observer records the time spent on the task, the group dynamics, any avoidance behaviors, the level of enthusiasm, the group's standards for success, and any other observations.

Figure 3. 1. Novice/Expert Activity Tally Sheet

Expert(#1)	Total	Novice (#4)	Total
Drawing		Drawing	
Writing		Writing	
Building		Building	
Acting/Performing Arts		Acting/Performing Arts	

Figure 3. 2. Novice/Expert Activity Group Directions

Group	Materials	Product
Writing	Paper and pencil	Must be written down
Drawing	Transparencies, marker	Mist be illustrated without verbal explanations
Building	Lego bricks	Must build items that are recognizable without verbal explanation
Acting/ Performing Arts	Space outside the classroom	Must be performance

5. When the time is up, each group must share its product in the following way: The performing arts group performs in front of the audience, and the drawing group shares its transparencies on the overhead projector. Both of these groups must ask the audience to try to identify the four social classes in the feudal system as illustrated in their products. (The performing arts group may use words, songs, etc, in its performance.) A person from the writing group reads the written product, and the builders display their product at the front of the room with the audience identifying the aspects of the feudal classes. After the products are

presented, the observers from each group share their observations.

6. The group process is repeated. This time the participants are grouped into their most preferred or expert (#1) area. The instructions are the same. The observers remain with their initially assigned area so that they are able to compare the process when participants are working in an area of strength as compared with working as a novice or in a least-preferred area. More time may be needed. As the groups will tend to be more elaborate and have higher standards for success.
7. Upon completion of the products, have the groups shared their work and the observers present their findings, as in the previous group activity. This time the observers need to emphasize the differences between the novice and expert groups in terms of process and product.
8. Debrief the activity. It is crucial to conduct a discussion with the participants in which their experiences in both activities are compared. You may want to cover the following aspects: the role of the group, creativity, enthusiasm, time on task, noise level, quality of the product, level of detail, and 1evel of knowledge. Have participants share how they used their strength areas in both their expert and novice areas (e. g. Did the non-drawers spend much time talking before drawing? How much time did the expert drawers spend talking?).

Notes to the Facilitator: You are likely to find that the second set of products is superior to the first. It appears that the second group knows more about the feudal system than the first group. In reality, the knowledge level does not change. What does change is the avenue in which the participants are allowed to express their knowledge of the feudal system. In the first activity, the groups are restricted or constrained by their ability to draw, write, build, or perform. For instance, they may know that serfs plowed the fields, but do not know how to draw a plow or do not remember enough about a plow to sketch one successfully. In the Second group, however, the more talented artists can draw anything successfully.

In most cases, the role of the group is supportive in the first experience. The group will see the benefits of working with other novices when first learning or trying something new. In the second experience, the members of the group are more independent and confident, and may prefer to work on their own. Creativity is used differently. In the first activity it is used to avoid the task or to find clever ways to compensate for lack of talent. In the second experience, the creativity is demonstrated in the enhancement and quality of the product. Participant enthusiasm is usually much higher.

On occasion, participants in the second experience feel pressured to be perfect because they have admitted that they are“expert” in this area. In the first experience, they perceive the

expectations to be much lower, while in actuality the criteria for passing remain the same. As will become evident, the time on task increases greatly when students are working in their talent area. Likewise, the quality of the products in the second experience will be far superior to those in the first. In fact, all participants will seem exceptionally talented. Interestingly, because the participants feel more competent and knowledgeable, they will go beyond the minimal expectations of the assignment. You can use Figures 3. 3 and 3. 4 on the next page to guide the discussions.

FOR FURTHER STUDY

Gardner, H. (1993d). Multiple intelligences: The theory in practice. New York: Basic Books.

A collection of essays moving from the theory of multiple intelligences to implications for practice.

Gardner, H. (1999b). Intelligence reframed: Multiple intelligences for the 21st century. New York: Basic Books.

Gardner's most recent work about multiple intelligences theory. Related chapter titles include: Myths and Realities About Multiple Intelligences. Issues and Answers Regarding Multiple Intelligences, and Multiple Intelligences in the Schools. Also includes a valuable comprehensive listing of resources about MI theory.

Kornhaber, M. L. Fierros, E. G. & Veenema, S. A. (2004). Multiple intelligences: Best ideas from research and practice. Boston: Pearson Education.

Practical guide based on information from more than 40 schools. This Project Zero—based team identified six critical "Compass Point Practices" that relate to effective integration of MI theory in elementary school. Six case studies are used to illustrate the Compass Point Practices.

Figure 3. 3. Debriefing the Novice/Expert Activity

	Experience1	Experience2
Role of Group In which situation did you rely more on your group as a necessary support? In which experience did you feel more independent? What conclusions can you draw?		
Time on Task In which experience were you actively involved over time?		
Quality of Product Which condition resulted in the better product and showed more skill or talent?		
Elaboration Which experience resulted in a product and showed more attention to detail?		
Knowledge In which product did it seem the participants had more knowledge?		
Creativity In which case was creativity used to: Compensate for lack of skill or comfort? Enhance the quality of the product?		
Intelligences Used How were strengths used to compensate for weaknesses?		

How were strengths used in expert activities?		
Stress Which condition caused more stress for you? Why? What are the implications of this?		

Figure3. 4. Domain Expert Summary Sheet

Writers

Have no problem using language or words to communicate their knowledge of the topic. They can play with words in creative ways to achieve their desired goal.

Artists

Attend to and remember visual details and have no problem re-creating images on paper. Their knowledge and creativity are shown in the visual product. In short, they can use drawing to communicate what they know rather than just"tell"what they can draw.

Engineers

Notice naturally how things are put together and how they work. Have no difficulty getting their hands to create working models and prototypes. Their understanding of the content begins with this focus. Their creativity will find new methods of conceptualizing the problem, since they will not be limited to what they know how to build.

Performing Artists

Have enjoyment of and flair for the dramatic and have a natural stage presence. Understand how to use voice mood, dialogue, and timing to communicate their message to the audience. Their creativity allows them to find innovative ways to integrate music, dance, set design, and props to enhance their performance. Such additions reflect deeper understanding of the concepts they are dramatizing.