Application of Multiple Intelligences Framework to Science and Math Instruction: A Reflective Peer Assistance Approach

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CRESPAR/Howard University
Talent Development Professional Development
It's Not How Smart You Are--

It's How You Are Smart!
Objectives of Workshop

• To provide a broader understanding and appreciation for learning style diversity among students in the classroom context.

• To understand the connection between students’ learning style preference(s) and classroom instructional practice.

• To develop an appreciation for diversity in student learning style preferences and modes in which particular students learn best to maximize their learning potential.
Workshop Goals

• provide an in-depth focus on the work of Howard Gardner, from Harvard, and his theory on the Multiple Intelligences

• provide information about the Multiple Intelligences, techniques and strategies for transferring that theory to the classroom, and how counselors may use these strategies to assist students in understanding their developed intellectual strengths and weaknesses
MULTIPLE INTELLIGENCES

Multiple Intelligences Survey
MULTIPLE INTELLIGENCES THEORY

Recognizing that different students have different ways to be smart, when a student “doesn’t get it,” we attempt to reach the student in a different way.

If there are many ways to be smart, there must be many ways to teach.
Traditional Definition of Intelligence

- Intelligence is a uniform cognitive capacity people are born with. This capacity can be easily measured by short-answer tests.
Traditional Definition of Intelligence

• Mathematical-Logical Intelligence—the ability to think conceptually and abstractly and the capacity to discern logical or numerical patterns
Traditional Definition of Intelligence

- Verbal-Linguistic Intelligence—well developed verbal skills and sensitivity to the sounds, meanings, and rhythms of words
Multiple Intelligences

• The ability to create an effective product or offer a service that is valued in a culture;

• A set of skills that make it possible for a person to solve problems in life;

• The potential for finding or creating solutions for problems, which involves gathering new knowledge.
Gardner's Theory of Intelligence

• We all are "smart" in different ways within each intelligence area;
• We are all unique in how our intelligences merge; and
• While we have multiple intelligences, we are often better in some intelligences than others.
CATEGORIES OF INTELLIGENCES

• The *language-related intelligences*, verbal/linguistic and musical/rhythmic, reflect the structures of individual languages. These two intelligences are "*object free,*" meaning that thoughts are represented through sound-based communication and symbolic representations of those sounds.
CATEGORIES OF INTELLIGENCES

- The second category, *personal relationships*, consists of interpersonal and intrapersonal intelligences. These are the people-centered intelligences. They reflect the personal vision of self, expectations of others, accepted norms of thinking and acting, and the cultural pressures that shape behavior.
CATEGORIES OF INTELLIGENCES

• The third category is *object-related intelligences*. These include bodily/kinesthetic, visual/spatial, and logical/mathematical. The designation of object-related means that the basic concepts and procedures are rooted in the physical manipulation of concrete objects that results in a defined product.
MULTIPLE INTELLIGENCE VISIONS

Howard Gardner (1993) indicates that the Multiple Intelligences (MI) Theory introduces new visions of what education CAN BE.
FIRST VISION FOR EDUCATION

• **Vision 1**
  – **MATCHING**
    • **Goal**: Maximize academic success.
    • **Method**: Match instructional strategies to students’ intelligences.
    • **Consequences**: Instruction is transformed.
    • **Vision**: Eliminate and reduce school failure by teaching with instructional strategies that match each student’s intelligences.
SECOND VISION FOR EDUCATION

• Vision 2
  – STRETCHING
    • Goal: Maximize development of all intelligences.
    • Method: Use instructional strategies that stretch ALL intelligences in ALL students.
    • Consequences: Curriculum is transformed.
    • Vision: Make each student more intelligent in all ways.
THIRD VISION FOR EDUCATION

• **Vision 3**
  – CELEBRATING
    • **Goal**: Understand our own uniqueness and that of others.
    • **Method**: Students discover MI through sharing.
    • **Consequences**: Understanding of self and others is transformed.
    • **Vision**: Create a renewed respect in teachers for students and in students for themselves.
Multiple Intelligences

- Verbal/Linguistic
- Logical/Mathematical
- Visual/Spatial
- Intrapersonal
- Bodily/Kinesthetic
- Interpersonal
- Naturalist
- Musical/Rhythmic
“IF we are to achieve a richer culture, rich in contrasting values, we must recognize the whole gamut of human potentialities, and so weave a less arbitrary social fabric, one in which each diverse human gift will find a fitting place.”

Margaret Mead
Multiple Intelligences

• The ability to create an effective product or offer a service that is valued in a culture;

• A set of skills that make it possible for a person to solve problems in life;

• The potential for finding or creating solutions for problems, which involves gathering new knowledge.
Howard Gardner’s Theory of Multiple Intelligences Theory

Focuses on the Question
“How Are You Smart?”
rather than
“How Smart Are You?”
MULTIPLE INTELLIGENCIES THEORY

Central proposition:
“There is not one or two ways to be smart – there are MANY ways to be smart.”

Spencer & Kagan (1998)
Verbal/Linguistic Study Tips

• Paraphrase what you have heard or read out loud.
• Form questions, find the answers, and speak them out loud.
• Discuss what you are studying with others.
Verbal/Linguistic Study Tips

- Ask a lot of questions.
- Read aloud dramatically—perhaps even with an accent, and use audiocassettes to record and listen to lectures or to record and listen to notes you read.
Bodily/Kinesthetic Study Tips

• Act out or role play what you are learning.
• Practice a skill as soon as it is learned—hands-on experience.
Bodily/Kinesthetic Study Tips

• Make notes by paraphrasing the material instead of just taking notes on what the author or teacher is saying.
Visual/Spatial Study Tips

• Create a learning map using key words, primarily nouns.
• Create a poster, cartoon, a video, or time line.
• Use symbols instead of words.
Musical Study Tips

• Write a song, jingle or rap.

• Play appropriate background music as you think about the topic. Try to choose music that represents what you are learning. Quiet classical music has proven to stimulate the emotional center of the brain.
Interpersonal Study Tips

• Discuss topics with someone else.
• Teach what you are learning to someone else.
• Compare notes with someone else taking the course.
Naturalist Study Tips

• What are the environmental implications of what you are learning?
• Does it have any implications for conservation of resources?
• Will it help or hinder social fairness?
• Does it have anything to say about solving any of the major social problems of our times?
Assessment of Multiple Intelligence Tasks

• The primary purpose of assessment is to further understanding

• Developing rubrics

• Understanding of “what will be assessed

• Choosing assessment criteria
Multiple Intelligence Assessment Ideas for Mathematics and Science

**Math**

**Verbal/Linguistic:** Analyze the linguistic structure of a problem to find clues.

**Logical/Mathematical:** Translate the steps of solving a problem into a symbolic formula.

**Science**

**Verbal/Linguistic:** Write reports and summaries of science experiments.

**Logical/Mathematical:** Classify inductively and deductively scientific processes and information.

Multiple Intelligence Approaches to Assessment (1994)
Benefits of an Infusion of a Multiple Intelligences Classroom Paradigm

• Provides opportunities for authentic learning based on your students' needs, interests and talents. The multiple intelligence classroom acts like the "real" world. Students become more active, involved learners.
Benefits of an Infusion of a Multiple Intelligences Classroom Paradigm

• Parent and community involvement in schools increases. This happens as students demonstrate work before panels and audiences. Activities involving apprenticeship learning bring members of the community into the learning process.
Benefits of an Infusion of a Multiple Intelligences Classroom Paradigm

• Students will be able to demonstrate and share their strengths. Building strengths gives a student the motivation to be a "specialist." This can in turn lead to increased self-esteem and heightened student classroom success.
Benefits of an Infusion of a Multiple Intelligences Classroom Paradigm

- When you "teach for understanding," your students accumulate positive educational experiences and the capability for creating solutions to problems in life.
Multiple Intelligences Workshop
Conclusion
In Summary,

- Multiple intelligences theory does not demand an overhaul of a curriculum; it merely provides a framework for enhancing instruction and a language to describe one’s efforts. Unlike most educational reforms, it is not prescriptive. Its broad view of human abilities does not dictate how and what to teach. Rather, it gives teachers a complex mental model from which to construct curriculum and improve themselves as educators.
Multiple Intelligences Workshop
Conclusion / Questions and Answers

We Applaud Your Participation
MULTIPLE INTELLIGENCES
WORKSHOP EVALUATION FORM