

## Facilitator's Guide

### **Title: Examining Beliefs and Defining Equity**

**Overview:** As educators wrestle with the challenge of providing mathematics and science that reaches all learners, it is essential that they understand that the implications of the phrase, "Providing for "all" learners" will require a deeper knowledge of the term equity and its associated practices. This workshop brings together the research and expertise needed to begin to build a common agreement among groups of educators and to develop a means for achieving excellence and equity in teaching and learning mathematics and science.

### **Objectives: Participants will:**

- Gain awareness about the beliefs and values of participants in the group.
- Examine their experiences and beliefs about equity.
- Facilitate the development of a common vocabulary around equity issues based on personal experience.
- Facilitate the exploration of changes in school and classroom practice that move toward the achievement of equity.
- Develop a vision within the group of equity and excellence in science and mathematics education.

**Time Frame:** 7 - 10 hours

### **Preparation Requirement/Materials Needed: See Section 1**

- Equipment:
  - Overhead projector, screen, and overhead pens
  - Easel
  - Multicolored markers, chart paper, posters (with a "magnetic word" written on each that will be either attractive or repellent to the participants in the session)
  - Copies of question "Did you know.." (cut into strips on cardstock paper and laminated)
  - Blank transparency
- Transparencies:
  - Pyramidal Process for Reaching Consensus
  - Equality
  - Excellence
  - Equity
  - Jigsaw Exercise
  - Simple Jigsaw

### **Handouts:**

- What are our Common Experience?
- "Did You Know.."
- "Did You Know.." Answers
- Pyramidal Process for Reaching Consensus
- Rules for Building Consensus
- The Equitable School Walk

- Awareness Survey
  - Awareness Survey Answers
  - Think-Pair-Share
  - Building on Urban Learners' Experiences
  - Sample Description of Promising Practices and Research
  - Review of National Council for the Reform of Mathematics and Science Education (NCRMSE)
  - Research: Equity in Restructured Schools
  - Equity in the Reform of Mathematics and Science Education: A look at issues and Solutions
  - What is Equity? The Struggle for Definitions and a Common Language
  - Journals for the Participants
- Background Readings:
  - Dealing with the Diversity: Casting off the Stereotypes (p.75)
  - The Name of the Game is Change (p.89)
- Case Studies:
  - Case 1: Concern Based Adoption Model (CBAM)

### **Program Outline/Sequencing**

- 1.1 "So What are our Common Experience?" (p. 5)
- 1.2 "When I see or hear..." (p.9)
- 1.3 "To us, equity means..." (p. 11)
- 1.4 "in an equitable school I'd see..." (p.23)
- 1.5 "Equity is more like..." (p.27)
- 1.6 "Survey says..." (p.29)
- 1.7 "Naive expectation or harsh realities..?" (p.35)
- 1.8 "When I was in school" (p.81)
- 1.9 "What would it feel like if...?" (p.85)

## FACILITATOR'S GUIDE submitted by Tiah E. McKinney

### Title: Reaching All Learners

**Overview:** Change in classroom instruction is critical if greater numbers of learners are to be reached. We know through research, that each learner constructs meaning and makes sense of the world by delicately balancing a network of neurological connections; integrating his or her own sociocultural identity; incorporating patterns of style; and calling on prior knowledge and experiences. The only way to really level the playing field is to create learning environments that have teachers who understand issues of equity and who often employ the researched-based strategies proven to raise achievement for all students. This workshop facilitates more in-depth understanding of factors that can help practitioners create learning environments that both honor the strength of all learners and nurture the areas where learners are challenged.

### Objectives: Participants will:

- Gain understanding of the relationship between learning styles, culture, brain theory and the significance these factors play in teaching all learners.
- Increase awareness of participants' individual learning preferences and how it influences their choice of the instructional approach and assessment strategies.
- Establish a common understanding of how learning takes place.
- Develop the necessary skills to create learning environments that are more learner centered.

**Time Frame:** 2 - 4 hours

### Preparation Requirements/Materials Needed: See Section 3

- Equipment
  - Markers, newsprint, easel, and 3x5 index cards
- Transparencies:
  - Elements Consistent With Educational Reform Standards
  - The Educator Challenge: A Pop Quiz
  - Quick-Response Question 1
  - Quick-Response Question 2
  - Learners Preference
  - The Layers in the Learning Process
- Handouts:
  - The Blind Man and the Elephant
  - Science The Supports the Emerging Natural Standards Is
  - Mathematics That Supports the Standards Is
  - Standards-Based Teaching and Learning
  - Personal Reflection
- Background Reading:
  - Teaching and Learning Section of the Michigan Curriculum Framework (1996). Lansing, Michigan. Michigan Department of Education
  - McCarty, B. (1997, March). A Tale of Four Learners: 4Mat's Learning Style. *Educational Leadership*, 54(6), 46-51 (Not included in Toolkit)
  - Sebge, P., Kliener, A., Roberts, C, Ross & Smith, B (1994). The Wheel of Learning. In *The fifth discipline fieldbook* (pp. 59-65). New York, N.Y. (Not included in Toolkit)

- Internet Links:
  - Constructing Knowledge in the Classroom  
<http://twwww.sedl.org/scimath/compass/vO1n03/welcome.html>
  - An Interpretation Construction Approach to Constructivist Design  
<http://www.ilt.columbia.edu/ilt/papers/ICON.html>
  - The Constructivism Page Links  
<http://carbon.cudenver.edu/~mryeler/de-data/constructivism.html>
  - Experiential Learning  
<http://www.educationau.edu.au/archives/cp/04f.html>
  - Learning Concepts <http://www.educationau.edu.au/archives/cp/05.html>
- Case Studies:
  - Case 1: The Science Reform: Mapping Progress
  - Case 2: Multiple Contexts of Influence

### **Program Outline/Sequencing**

3.1 From this Side: The Challenge to Reach All Learners (p.7)

3.2 Dimensions of Learning (p.23)

### **Follow-up Activities from Toolkit:**

## FACILITATOR'S GUIDE submitted by Tiah E. McKinney

### Title: Learning Styles

**Overview:** Culture significantly influences the way we gain knowledge. It creates the context out of which learners view the world. Culture serves as a sieve through which information is filtered. It sets into motion patterns of communication and style of behavior. This workshop allows participants to increase their knowledge base by exploring the influence that their own culture or social experience has had on their styles of learning and their way of learning. Consequently, participants will examine their most comfortable way of learning concepts and processing information.

### Objectives: Participants will:

- Identify barriers to successful learning.
- Increase participants' awareness of the influence that cultural and social experience have on learning and knowing.
- Examine teaching assumptions and practices from a multicultural perspective.
- Design a model to access and support the style and ability of visual and bodily/kinesthetic intelligent learners.

### Time Frame: 10 - 15 hours

### Preparation Requirement/Materials Needed: See Section 3

- Equipment:
  - Overhead projector, screen and overhead pens
  - Pens, newsprint, microscopes, hand lens, references and trade books, drawing paper, markers, crayons, colored pencils, mealworms
- Transparency:
  - Sharer/Listener/Gift Giver Role
  - Characteristics and Expressions of Style
  - Style Preference Map
  - Contrasting Institutional Styles of American Schools
  - Howard Gardner's Eight Multiple Intelligences
  - When Planning a Lesson: Ask the Right Questions
  - Toward Changed Practices: Model Diagram
- Handouts:
  - Think and Captive Journal
  - Characteristics of Expression of Style
  - Style Preference Map
  - Options for Learning
  - Toward Changed Practices: Learning Templates
- Background Reading:
  - Excerpt from the Prologue to Invisible Man by Ralph Ellison
  - Behavioral Style, Culture, and Teaching and Learning
  - Multiple Intelligence - Seven Ways to Approach Curriculum
  - Variations on a Theme: How Teachers Interpret MI Theory
  - The Greening of Learning: Using the Eighth Intelligence
  - Toward Changed Practice: A Mode and Strategy for Deep Understanding

- Internet Links: (include)

**Program Outline/Sequencing**

3.3 Do You See Me?: Musings of the Invisible (p.33)

3.4 Style: Mapping Preferences In Learning (p.41)

3.5 Providing Multiple Abilities With Multiple Options (p.59)

3.7 Ways of Knowing: Perspective in the Classroom (p.93)

**Follow-up Activities from Toolkit:**