



# Transforming How We See Classroom Learning: Thinking about Thinking

Center for Education in Small Urban Communities  
SPRING 2009 PROFESSIONAL DEVELOPMENT WORKSHOP SERIES

## *Enhancing Student Achievement Through the Use of Non-Linguistic Representations*

**FOR:** Grades 2-5 Educators

**INSTRUCTOR:** Rebecca Chairs, Elementary Literacy  
Teacher Collaborator

**DATE:** January 21, 2009

**TIME:** 4:30–6:30 P.M.

**LOCATION:** Innovation Room, I-Hotel and  
Conference Center, 1900 S. First Street,  
Champaign

**ENROLLMENT:** Maximum of 25

**COST:** Free to local educators

In literacy research and teaching, one instructional strategy shown to have a high probability of enhancing achievement for all students in all subject areas at all grade levels is non-linguistic representation. Graphic organizers are perhaps the most common way to help students generate non-linguistic representations. Have you ever wondered if we are confusing struggling readers by using dozens of different graphic organizers? This workshop will introduce four of eight “Thinking Maps” developed by Dr. David Hyerle. Teachers, students, and administrators have reported that learning about and using Thinking Maps over time has led to increased memory of content knowledge when reading, deepened conceptual understanding, heightened metacognition, and transfer of thinking processes across disciplines and settings. These outcomes are supported by test results in reading, writing, and mathematics. The Thinking Maps introduced will assist students with representing and brainstorming ideas, comparing and contrasting characters, identifying main idea and details, and organizing their thoughts during writing instruction. Come out and learn how creating non-linguistic representations can help students understand content in a whole new way!

## *Using Function Investigations to Engage Students in High School Algebra*

**FOR:** Grades 8-12 Educators

**INSTRUCTOR:** Susan Gregson, Secondary Mathematics  
Teacher Collaborator

**DATE:** Thursday, February 26, 2009

**TIME:** 4:30–6:30 P.M.

**LOCATION:** Robeson Pavilion Room B,  
Champaign Public Library

**ENROLLMENT:** Maximum of 25

**COST:** Free to local educators

While more students enter high school having been exposed to reform-oriented curricula designed to help them develop the capacity to think algebraically, engaging every student in algebra continues to be a challenge for high school math teachers. One obstacle may be that the vision of function-based algebra experiences put forward for grades 9-12 in Principles and Standards for School Mathematics (NCTM, 2000) has yet to be meaningfully integrated into the most commonly used Algebra I textbooks. Given this reality, how should the thoughtful teacher proceed? Is there evidence that function-based approaches benefit students and if there is, how might teachers bring such experiences to students in tandem with the curricula available to them?

This session will focus on the use of function investigations as one approach to engaging students in high school algebra. We will discuss the characteristics of effective function-based activities and their potential to engage students in light of the most current research on teaching and learning. Participants will gain hands-on experience with function-based activities and have an opportunity to share successes or challenges they may have had with similar activities in their own practice. Links to additional resources will be provided.



**COLLEGE OF EDUCATION**

UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

## Empowering Math Through Literature: Using Children's Books as a Frame for Meaningful Mathematics Instruction



**FOR:** Grades K-5 Educators

**INSTRUCTOR:** Bradley Thompson, Elementary Mathematics Teacher Collaborator

**DATE:** Wednesday, March 4, 2009

**TIME:** 4:30–6:30 P.M.

**LOCATION:** Robeson Pavilion Room C, Champaign Public Library

**ENROLLMENT:** Maximum of 25

**COST:** Free to local educators

Have you ever asked yourself: “What is math really?” To students, and even some adults, mathematical knowledge can appear to be a laundry list of disconnected skills that teachers are asked to pack into students’ brains. Unfortunately, this view sells the potential power of math short. What is a more powerful conception of math? A clear answer is to view mathematics as a sense-making tool. How we can impart this conception to our students? Specifically, placing mathematical concepts and skills in context where children engage with them as means for purposefully making sense of and negotiating real and potential situations. A powerful tool for helping children re-conceptualize mathematics is children’s literature. Children’s books provide engaging, personally relevant lesson frames that invite children into the instruction and clearly provide a purpose for making sense of and applying their math skills (e.g., by helping the books characters negotiate the issue(s) they confront). In our workshop we will (1) discuss how to select a children’s book as a meaningful frame for mathematics instruction; 2) experience a demo lesson of math instruction framed with children’s literature; 3) share and brainstorm useful literature resources for this purpose; and 4) begin the planning process for teaching a lesson, series of lessons, or a unit that is contextually framed with a children’s book.



## Moving Students from Symbol Illiteracy Lessons to Symbol Literacy in Mathematics

**FOR:** Grades 6–12 Educators

**INSTRUCTOR:** Jacqueline Bunn, Secondary Mathematics Teacher Collaborator

**DATE:** Thursday, April 30, 2009

**TIME:** 4:30–6:30 P.M.

**LOCATION:** TBD

**ENROLLMENT:** Maximum of 25

**COST:** Free to local educators

As math teachers, we have all experienced students who have seen “ $3\sqrt{6}$ ” and have said “3 divided by 6” or those who looked at “ $x^5$ ” and said “x five.” As teachers, we might have corrected quickly, by saying “Actually, that is 6 divided by 3” in response to the first confusion, or, in the latter case, “No, that is read ‘x to the 5th.’” Then, we moved on with our teaching. These seemingly simple mistakes, however, actually indicate a very deep difficulty with mathematical literacy. The problem of symbol illiteracy is silently shared by a great portion of our students in all of our classrooms. Symbols are part of the vocabulary in mathematics. We know that cognitive development and understanding in every content area are



woven together inextricably by vocabulary. Students’ ability to build a solid framework of mathematical understanding will be greatly impaired if they cannot “read” mathematical equations. If their mathematical literacy is left unaddressed, the most we can hope for is students who have ability to move symbols around on paper—possibly successfully, but with little or no understanding of what they are doing and why. During this session, the presenter and teachers will address developmental steps of acquiring symbol competence, identify many common symbol misunderstandings, discuss ways to identify students with this problem, and learn strategies for creating symbol-literate classrooms.

### CPDUs AVAILABLE

FOR WORKSHOP REGISTRATION, PLEASE VISIT THE CENTER ONLINE

AT [www.ed.uiuc.edu/smallurban/workshops.html](http://www.ed.uiuc.edu/smallurban/workshops.html) or CALL 217.333.4687



ILLINOIS