

## **Evaluation Summit: Evidence-Based findings from the MSPs**

**Minneapolis, MN  
September 14-16, 2005**

**Wednesday, September 14, 2005**

### **Pre-conference Mini-Workshops (Pre-registration Required)**

*Statistical Multilevel Models for Evaluating the Impact of Science, Engineering, and Mathematics Programs on Student Learning.* Rob Meyer

This pre-session provides a comprehensive introduction to alternative statistical strategies for evaluating science, engineering, and mathematics programs and policies such as professional development and curriculum reform. Archetype evaluation models (with examples from ongoing MSP evaluations) are presented to eliminate the potential selection biases that may arise given different assignment/selection mechanisms such as unrestricted self-selection, matched-pair and random assignment, and other mechanisms. The evaluation models are presented within a unified framework that also includes value-added models and models of student longitudinal data. This framework thus supports both educational accountability and program evaluation.

*Evidence-Based Evaluation Findings Using Systems Change and Complexity Science Frameworks and Ways of Thinking.* Michael Q. Patton (abstract follows)

Systems Thinking and Complexity Theory (Nonlinear Dynamics/Chaos Theory) offer new opportunities – and new challenges – in evaluation. This workshop will focus on learning what these perspectives offer for alternative evaluation designs and uses in support of more sophisticated matching of an evaluation to the systems nature of the project and situation that are the focus of the evaluation. Systems change efforts can benefit from systems modeling and systems change evaluation. Emergent situations can benefit from complexity understandings and rapid, continuous, real time monitoring approaches. Mixed methods approaches bring multiple perspectives to bear in delineating systems dynamics. Qualitative evaluation methods can be adapted to provide in-depth systems understanding and emergence monitoring applications.

The field of evaluation has developed in diverse directions such that a rich variety of contrasting models, competing purposes, alternatives methods, and divergent techniques are available. Likewise, projects and organizational innovations vary along many dimensions: innovativeness, comprehensiveness, complexity, boundedness, integration, riskiness, and scope, to name but a few. The challenge, then, is to match evaluation to the nature of the initiative being evaluated. This means that when we are faced with systems change dynamics and initiatives that display the characteristics of emergent complexities, we need to have options beyond the traditional linear logic models, experimental designs, and goal/outcome-oriented evaluation. This workshop will explore these new directions and their implications for evidence-based interpretations. This workshop is based on a book that is near completion.

8:15-9:00 Coffee, juice, and sweetbreads

*9:00-noon* Morning session (breaks as needed)  
*Noon-1:15* Box lunch provided  
*1:30-4:00* Afternoon session (breaks as needed)  
Dinner on your own

**Thursday, September 15, 2005**

7:45-8:30 Coffee, juice, and sweetbreads

8:30-10:10 Opening plenary session

Welcome and introduction

*Findings from the MSP Monitoring System*

Joy Frechtling (Westat) & Jim Hamos (NSF)

*MSP Knowledge Dissemination Project*

Dan Heck (Horizon Research, Inc.)

10:10-10:30 Break

10:30-12:00 Breakout I

**Strand 1: Student Learning and Participation**

*Beyond Achievement: Motivation-related Evidence from a Partnership Between a Targeted Project (TASEL-M) and a RETA (MSP-MAP)*

A. Conley, S. Karabenick, J. Blazeovski, J. Friedel, D. Pagni

*The Impact of Student Discourse on the Mathematics Achievement of Students*

D. Weaver

*Using Data to "Make a Case" for Mathematics Reform Within a K-12 District*

B. Saylor, J. Apaza, M. Austin

**Strand 2: Teacher Change**

*PRISM Institute on the Teaching and Learning of Science and Mathematics*

R. Henry

*Comprehensive Evaluation of a Professional Development Program: Methods and Results in the PRMSP/AIACiMa Project*

J. Arce, M. Bravo

*Using Evidence from Teachers' Online Instructional Learning Logs in Evaluation and Decision-Making in an MSP*

D. Heck, M. Wickwire, J. LaMaster

**Strand 3: Institutes of Higher Education**

*PCMI and Districts Partner to Design Professional Development: Implementation Challenges and Evaluation Design*

G. Burrill, N. Kher

*Using Formative Evidence And Formal Collaboration To Evaluate And Improve The Efficacy Of An MSP/RETA Project*

J. Labov, J. Garton, N. Shapiro, P. Maloney

12:00-1:00 Lunch

1:00-2:30 Breakout II

### **Strand 1: Evidence-Based Design**

*Coordinating Research and Evaluation Activities in an MSP Institute Partnership Project*

S. Meyer, R. Heaton

*Variation And Change In MSPnet's On-Line Community: Early Developments*

J. Falk, B. Drayton, S. Lee, M. Ong

*Building Upon Partners' Assets to Improve Mathematics Learning for Vermont Students*

D. Harris, R. Quinn

### **Strand 2: Partnerships**

*Evaluation of the FOCUS MSP Partnership Component*

J. Frechtling, J. Winkler

*From Statehouse To Schoolhouse: Mapping The Form And Function Of A K-20 Partnership For Improvement Of Mathematics And Science Teaching*

M. Clifford, S. Millar

*Establishing Partnerships to Provide Evaluation Technical Assistance and Promote Evidence-Based Designs*

H.J. Chapman, C.A. Callow-Heusser, J. Dorward

### **Strand 3: Teacher Change**

*The Effects of Professional Development on Improving Mathematics and Science Instruction (MSP PD Study)*

R. Blank

*Evaluating Professional Learning Communities Using Mixed, Quantitative and Qualitative Methodology*

J. Monsaas, M.J. McGee-Brown

3:00-4:30 Breakout III

**Strand 1: Student Learning and Participation**

*Measuring the Effect of the Milwaukee Mathematics Partnership on Student Achievement*

C.M. Walker, J. Gosz, D. Huinker

*Using Participation Maps in the Evaluation of Participation*

J. Watson

*Curriculum Guides and Quarterly Benchmark Assessments for Improving Student Learning in Mathematics*

K. Hyde, V. Mann, C. Manrique, T. Shanahan

**Strand 2: Teacher Change**

*Teacher Change in High School Science: Findings from the First Three Years of the Vertically Integrated Partnership (VIP) K-16*

K. Raue, J. Frechtling, B. Hedges

*Inservice Elementary and Middle School Teachers' Understanding of Selected Light Concepts*

R. Atwood, J. Christopher, R. McNall

*Case Studies to Evaluate Teachers' Transfer to Classrooms of Learning Derived from a Professional Development Program: Methods and Results in the PRMSP/AIACiMa Project*

M. Bravo, J. Arce

**Strand 3: Evidence-Based Design**

*Impact of Instructional Materials on Student Achievement*

J. Apaza, B. Sayler, M. Austin

*Triangulating on Curriculum to Motivate and Inform Systemic Curricular Reform*

R.T. Houang, L.S. Cogan, J. Ferrini-Mundy, W.H. Schmidt

4:40-5:15 Large group discussion—successes and challenges of MSP projects

6:00-7:30 Reception

Dinner on your own

**Friday, September 16, 2005**

7:45-8:30 Coffee, juice, and sweetbreads

8:30-9:30 Opening plenary session

*Finding Value and Meaning in the Concept of Partnership*, G. Kingsley, M. Waschak

9:30-10:00 Break

10:00-11:30 Breakout IV

**Strand 1: Evidence-based Design**

*Evidence-based Design from the Mathematical ACTS MSP project at the University of California-Riverside*

K. Bocian, R. Torres

*Aspects of Minority Student Retention in STEM Disciplines and Evaluation of a Major Retention Program*

J. Altschuld, Y. Lee, J. White

*Using Evaluation as a Partnership Bridge*

C. Tananis, J. Pane, J., N. Bunt

**Strand 2: Changes in K-12 Institutions**

*Changes in K-12 Institutions*

C. Copolo

*Thinking About Mathematics Instruction: A Preliminary Investigation of Mathematics Leadership Content Knowledge of Principals in Ten MSP Sites*

B. Nelson, G. Johnson, K. Reed

*Assessment of Student Learning with Understanding: Evaluation and Professional Development Activities in the PRMSP/AIACiMa Project*

M. Aguirre, M. Bravo

11:30-12:30 Lunch

12:30-2:00 Closing Plenary Synthesis and Discussion, led by Breakout Session Discussants