



CENTER FOR THE APPLIED STUDY OF
COGNITION AND LEARNING SCIENCES (CASCLS)

Mind/Brain Myth-busters II: Back by Popular Demand!
June 12-13, 2008: Session Descriptions

GENERAL SESSION

**Mind/Brain 101 and Neural Network Activity: Conference Center, 3rd Floor Student Union
Dr. Deb Jensen, Teacher Education & Human Performance**

- A pictorial overview of basic gross (large) and fine (cellular) brain anatomy as a basis for the following sessions, along with an interactive activity illustrating how neurons in the mind/brain receive sensory information and make meaning from those inputs

SESSION BREAKOUTS

**The Neurology of Reading: Metigoshe Room, Conference Center
Dr. Tom Linares, Communication Disorders**

- This presentation will discuss the anatomy of the brain with respect to reading. The major functions of the lobes will be presented as each relates to reading. The effects of damage to the brain will also be presented.

**Visual & Kinesthetic Connections with Math Manipulatives: Main 104
Dr. Laurie Geller, Dept. of Mathematics**

- Learning and understanding mathematics requires student engagement. Mathematics is not a spectator sport, nor is it a series of rules to be memorized without understanding. Manipulatives can help children visualize, model, and make sense of the mathematical algorithms they learn and use throughout their lives. Come find out how manipulatives (virtual and physical) can enhance the teaching and learning of mathematics.

Brain and Body Cycles that Affect Learning: Dr. Clarine Sandstrom: Memorial 114

- Participants will explore brain and body cycles that affect the adolescent learner. Understanding aspects of body cycles gives an edge to both student and teacher performance. Finally, educators will engage in a Primacy-Recency Effect activity.

**Boosting Life-long Learning and Brain Health: Audubon Room, Conference Center
Dr. Terry Eckmann, Teacher Education & Human Performance**

- Discuss the impact of stress on lifelong learning. Identify personal and student stress triggers and the signals that indicate “distress” and affect learning. This session will span two hours with a break at the half-way point.

**GENERAL SESSION: Mind/Brain 102: Substance use and Adolescent Learning
Conference Center, 3rd Floor, Student Union**

Dr. Vicki Michaels, Dept. of Addiction Studies, Psychology, Social Work

- North Dakota’s statistics on youth alcohol use are higher than the national average. This session will give an overview of how substance use can impact an adolescent’s learning.

SESSION BREAKOUTS

Subtypes of Dyslexia in Relation to Motor and Visual Processing: Metigoshe Room Dr. Lisa Borden-King, Teacher Education & Human Performance

- This session will present research conducted during the 2007-2008 year focused on examining a subtype of dyslexia related to problems with visual processing and motor function in struggling readers. Although we can draw no conclusions regarding appropriate interventions yet, the research reveals fascinating profiles of students who struggle with reading, and more specifically for those who make reversals while reading.

Developmental Levels of Geometric Thought & the Math Curriculum, Main 104

Dr. Cheryl Nilsen, Dept. of Mathematics

- *From theory into practice –Planning for meaningful mathematical growth:* We often push our students to learn algorithms and procedures without helping them to understand their conceptual underpinnings. The learning theories of Jerome Bruner and Dina and Pierre van Hiele's can inform us in planning more meaningful and developmentally sound mathematical excursions for our students. In this session we will examine the development of operational algorithms for subtraction and division as influenced by Bruner's work and the development of a geometric concept as influenced by the work of the van Hiele's.

Emotion, Reason & Higher-order Thinking: Memorial 114

Dr. Deb Jensen, TEHP

- Have you ever been told that you must subdue emotion to think rationally? While this may be true in 'fight or flight' situations, new research on brain injury from Antonio & Hanna Damasio and other neuroscientists now shows emotion may actually be a critical player in higher-order thinking and decision-making. Learn how neural network connections, and just about everything from facial expressions to cortisol can affect our ability to think and motivation to learn.

INTERACTIVE TABLE SESSIONS ON MYTH-BUSTER QUESTIONS

Metigoshe and Audubon Rooms, Conference Center, 3rd Floor Student Union

- Process what you have learned so far with colleagues...generate/ask/answer questions. Please record feedback for us on your evaluation forms.
 - What have you found most intriguing or interesting (share this with table partners)?
 - In what ways do you think this information might be useful to teachers or parents?
 - What have you found most challenging to your former ideas, or the muddiest points?

GENERAL SESSION: Mind/Brain 103: Metigoshe Room, Conference Center

Plasticity: Can the Brain Change Itself, & Is Half a Brain Enough? Dr. Deb Jensen, TEHP

This session will explore how the brain becomes "modularized", and how much the individual and outside environment can change the actual physical structure (and thus functionality) of the mind/brain. Information for this session was drawn primarily from the following books on the seminar resource list: *Half a Brain is Enough/Battro*, *The Brain that Changes Itself/Doidge*, *Beyond Modularization/Karmiloff-Smith*, *The Mind Within the Net/Spitzer*, *The Art of Changing the Brain/Zull*, and *Cognitive Neuroscience/Gazzaniga*.

SESSION BREAKOUTS

Attention, Perception & Recognition: Memorial 114Dr. Shirley Cole-Harding, Psychology

- How does the brain "shift" attention among competing sources, separating the signal from the noise? We will use practical demonstrations to show how the brain is adept at recognizing patterns that are often incomplete, illustrating the principles of perception that help us to do so.

**Oh, Learning Curves, “How Good is that Intelligent Tutor?” Audubon Room
Dr. Adaeze Nwaigwe, Dept. of Mathematics**

- This talk will discuss how learning curves are used for evaluating the efficacy of a brand of computer tutors known as intelligent tutoring systems. How the learning curve technique can be extended to evaluating classroom instruction will be examined.

**Mind, Memory, and Metaphor: Brain-based Teaching Strategies: Main 104,
Dr. Margi Coxwell, Teacher Education & Human Performance**

- During this interactive session, participants will learn how the mind can benefit from specific teaching strategies involving memory and metaphor. Lesson examples will involve a variety of subject areas.

**The Power of Play: Play and Cognition, Main 104
Dr. Margi Coxwell, Teacher Education & Human Performance**

- In this hands-on presentation participants will learn about the cognitive benefits of including play activities for their elementary students.

**Cross-Curricular Applications in Teaching about the Brain, Memory and Learning:
Dr. Lars Helgeson: Metigoshe Room**

- Dr. Helgeson has been invited as a guest presenter from the University of North Dakota. Dr. Helgeson’s background in physics, biology, brain science and teaching and learning give him ample opportunity to focus on cross-curricular applications related to brain anatomy, memory and learning processes. This session will span two hours with a break at the half-way point.

**INTERACTIVE TABLE SESSIONS ON MYTH-BUSTER QUESTIONS
Metigoshe and Audubon rooms, Conference Center**

- Sharing Sources and Ideas
 - What are the best things you have heard?
 - What are your remaining questions?
 - What would you like to see next from the MSU CASCLS?
 - What might you add (things you have read, people you know who have expertise, resources)?

**Fact or fiction: Is the claim too good to be true? Memorial 114
Dr. Lori Garnes, Chair, Dept. of Special Education**

- This session will demonstrate several techniques you can use to evaluate whether claims made in articles, websites and seminars are based on “good science.” The session will help you become a healthy skeptic and an informed consumer of information.

Mathematics Strategies, MSU Graduate Student Research: Metigoshe Room, CC

- Graduate students in the MAT and M.Ed. Elementary/Middle School Math concentration will present information from action research in their classrooms.

**Self-regulation for Enhanced Skills in the Classroom, Audubon Room, Conference Center
Dr. Johnna Westby, Dept. of Special Education**

- Self Regulation concerns an entire range of factors that affect students’ performance. Interventions aimed at improving self regulation are one way for teachers to impact students’ lives.

**Research-based Applications for Enhanced Skills in the Elementary Classroom:
Audubon Room, Cindy Wilhelm, MPS**

- This session will include cross-lateral movement and music in the classroom and additional research-based classroom applications, with discussion of applications of this work in Minot-area classrooms.

**Motivation : Yes, you CAN make the horse drink! Main 104
Dr. Becki Anhorn, TEHP**

- Have you heard the old wives' tale, "You can lead a horse to water, but you can't make him drink?" The same is said about motivating students to learn. We have all heard people say, "you can't motivate students, they have to be motivated from within." That myth will be busted - based on brain and learning research in motivation. Yes, you can make them WANT to learn.

Reading/Language Applied Classroom Research: Metigoshe Room, Conference Center

- This session will feature presentations by three M.Ed. students or graduates, drawn from their research for their master's degree, and focused on reading and language. Come to hear practicing classroom teachers talk about their own research regarding oral storytelling, fluency, and classroom strategies!

**So...is what you learned about learning in Ed. Psyc. 10++ years ago still true? Main 104
Dr. Deb Jensen, TEHP**

- Developmental science has informed teaching practice for at least the last 50 years, so what has changed? How does brain-based learning relate to all that business about Piaget, Vygotsky and Kohlberg? Learn what new studies of the brain and behavior are telling us about 'critical periods' or stages, how these relate to social/moral development as well as cognitive development, and how 'plasticity' helps the brain adapt within its environment.

**Differentiated Instruction: Audubon Room, Conference Center
Dr. Becki Anhorn**

- Differentiated instruction allows a teacher to reach all learners in a single lesson. This session will entail using brain science in DI makes the process even more successful for all learners and their teachers.

**Fight or Flight: Why Traditional Discipline Is Ineffective for Oppositional Children:
Memorial 114, Mark Vollmer, Minot Public Schools**

- The natural response of the human brain is to either resort to "fight or flight" in high stress. The "Love and Logic" model approaches discipline from a whole new aspect. Learn how to discipline with dignity and get results you are seeking!

COURSE EVALUATIONS (in your last session room) & RECOMMENDATIONS FOR THE FUTURE: Thank you for attending; travel home safely!