Why not give your students' brainpower a boost? Any class, any time, any professor can resonate with the voices of active minds and bodies. Active learning pedagogies, including whole brain teaching (WBT), team-based learning (TBL), and cooperative learning techniques can improve structure, increase student engagement, and add an element of fun to any class. This session is HIGHLY interactive and designed to share key elements of our research through the active learning process.

**Outcomes:**

Participants will understand how key elements of brain and learning research can support content delivery for effective use in a college classroom.

Participants will understand basic brain science pertaining to the limbic system, mirror neurons, and positivity.

Participants will understand the interplay of different pedagogies and how to maximize application to their content.

Participants will learn an group application exercise to enhance understanding and retention of key content.

Most importantly, each learner will analyze his/her current professional teaching practices, and then articulate to a peer a means to apply key concepts from the session to his/her teaching.

**Category: Application**

Describe the theory, approach, and revision that you applied in your course, curriculum, or program. Describe what you saw in your students', colleagues', or institution's behavior that you wanted to change. Describe the learning objectives you wanted
students or colleagues to better achieve as a result of your application. Understanding the value of inspiring students to become active partners in the classroom may lie in the value of understanding pedagogies that are a shift from a traditional model of learned professor and passive-receptor students. Various forms of cooperative and collaborative learning have been enhanced by techniques, methods, and increased application of brain-based teaching and learning. Requiring students to be active workers in the learning process increases knowledge acquisition (Doyle, 2013; Medina, 2008). Classrooms that foster collaboration between and among students create better learning opportunities. Our research includes insights of feminist pedagogy (hooks, 1997) and application of effective methods and techniques that can and do enhance other teaching strategies as simple as a think-pair-share, formal cooperative learning, and highly structured team-based activities (Barkley, Cross, & Major, 2004; Millis, 2010).

Humans learning with the whole body (Medina, 2008) and effective teaching can involve whole body activity. Students move, gesture, speak, listen, laugh, think, and mirror. They learn from each other, teach each other, and utilize techniques that enhance recommended processes of learning based on what is known about how the brain learns (Rekart, 2013; Sousa, 2011; Zull, 2002, 2011).

The primary purpose of this session is to facilitate a theory to practice interactions with individuals committed to the enhancement of college teaching and learning through application, interaction, and discourse.

This session will encourage participants to experience "scratchy" pushes on the status quo of their teaching. Referencing research regarding mirror neurons and the function of the limbic system (Doyle & Zakrajsek, 2013; Rekart, 2013, Zull, 2011; Sousa, 2011; Willis, 2006; Zull, 2002, Medina, 2008), participants will be asked to consider what current brain research can be tapped to create simple steps that produce a more brain-friendly learning classroom environment.

Describe the project's related course(s) or curriculum, its students, and its place in the curriculum or program.
At our institution, the session facilitators employ active learning pedagogies in several different graduate level courses: Legal and Ethical Issues, Philosophy of Education, Educational Psychology, Instructional Leadership, as well as being required to test strategies as part of online courses in that are part of the leadership/principal track. The students in these courses are primarily K-12 teachers seeking an MAED, leadership endorsement, or principal licensure. Many of these students conduct action research studies relative active learning strategies, often testing specific strategies from Whole Brain Teaching.

How is your application different from ones that others have tried?
The content of this session is a meta-synthesis of active learning pedagogies that are commonly practiced by many college teachers. Our research has widened to include Whole Brain Teaching (WBT) (Biffle, 2013) and a perspective of feminist pedagogy as defined by bell hooks (1994). Feminist pedagogy enlists the learner and teachers as active partners in the brain gain of the classroom. WBT infused with cooperative learning, TBL, PBL, and/or group discussion has indicated to be highly effective in producing increased student engagement, enjoyment, and content acquisition. The brain is a novelty seeker (Rekert, 2013; Sousa, 2011; Medina, 2008). Appropriately applied active learning methods are novel and interesting. Some techniques can add a little bit of silliness to challenging content, which leads to laughter. Researchers are clear that humor and positivity increase learning (Doyle & Zakrajsek, 2013; Rekert, 2013; Sousa, 2011, Median, 2008). In addition, our work includes techniques designed to create a safe learning zone in which mistakes are honored and effort is praised (Biffle, 2013; Dweck, 2006). Ultimately, strategies that produce positivity and can increase the release of the neurotransmitter dopamine (Willis, 2010).

As our research of the brain and learning evolves, study of how students prefer to express themselves has expanded to better understand this range. In a highly active classroom, awareness of student think-time, processing time, and rate of response are important factors. Our work moves beyond the labels of introvert and extrovert to consider the range, situation, and environment created in the classroom as a means to better understand the reflective learner (Cain, 2012). Rate of recall and rate of retrieval are independent of each other (Sousa, 2011). As such, collaborative learning design needs to make accommodation so that those who need more time to think can benefit from the learning activities.

**Assessment and baseline: Indicate how you determined the success and effectiveness of your application.**

Review of the literature regarding brain-based learning and active learning pedagogies, data collection in K-12 classrooms, and feedback from our graduate classrooms are the primary methods we are using to determine the success and effectiveness of various combinations of active learning pedagogies. The literature and application feedback indicates that the methods are effective in promoting learning, student engagement, fewer discipline problems, and happier students.

In addition, the researchers have presented to college teaching audiences multiple times over the past four years and have received very positive feedback. From session reviews of related content and follow-up communication with session attendees, we have learned that the methods, techniques, and strategies are effective in a wide array of applications and settings.

**References:**


Organization:
The session will be organized to simulate a collaborative learning environment. At minimum, participants will be paired. If space allows, the pairs could be expanded to larger groups. Participants will be active from the start to the finish practicing and learning how to apply the techniques to various content settings. The facilitators will model techniques as well as assisting participants to connect the techniques with related research as a foundation to adapt methods to their own specialty.
Keywords:

Active Learning
Brain-Based Learning and Teaching
Cooperative Learning
Faculty Development (not involving FLCs)
Learner/Student Centered
Team-Based Learning