

**SIG: Chaos & Complexity Theories**  
AERA Annual Meeting, April 3-7, 2014  
Philadelphia, PA

**Praxising Complexity**

Thursday, April 3, 2:15 to 3:45pm

Convention Center, 400 Level, Terrace IV (Roundtable Session)

Abstract

In this symposium, we take a critical look at our own models and metaphors to ask how might the theoretical mosaics of chaos and complexity theories help us make sense of contemporary school practices and the educative experiences of students, teachers and administrators. How might such theories serve as a theoretical backdrop for more complex understandings of contemporary constellations of systemic inequities as well as a chaotic, pedagogical praxis whose purpose is to generate fairer, more useful and interesting curricular relationships of self, knowledge and the world?

Chair: Laura Jewett, The University of Texas - Brownsville

Papers:

The Complex Conversation of Professional Development School - Sarah Smitherman Pratt, University of North Texas

The Complex Pleasures of Curriculum Design - Laura Jewett, The University of Texas - Brownsville

A Pedagogical Approach to Complex Curricula - Justin Esparza

Cognizing in the Classroom: A New Teacher's Reconceptualization of the Curriculum Based on Systems, Complexity, and Cognition - David Barshes, Mt. Adams School District

**Chaos and Complexity Theories SIG Business Meeting**

Thursday, April 3, 6:15 to 7:45pm

Marriott, Fifth Level, Grand Ballroom G

Abstract

Following the business at hand, we will engage in a panel discussion about school as a complex organization, with an examination of school - in terms of teachers, leaders, curriculum & technology - and complex organizations - described as physical, biological (including human), and social.

Officers: Sarah Pratt, Chair; Bernard Ricca, Secretary/Treasurer; Michelle Jordan, Program Chair

Panel Discussion:

Leonard Waks, Temple University

Deborah Seltzer-Kelly, Southern Illinois University

William Doll, The University of British Columbia

Donna Trueitt, The University of British Columbia

Sarah Smitherman Pratt, University of North Texas

## **Conceptualizing Educational Change through the Lens of the Complex Adaptive System: An Exploration in Quantifying the Metaphor**

Friday, April 4, 8:15 to 10:15am

Marriott, Fourth Level, 414 (Symposium)

### Abstract

This session utilizes the “complex adaptive system” (CAS) model to conceptualize educational change—viewing schools as systems of interacting elements that can enact CAS features to learn and adapt. In so doing, we aim to go beyond the metaphorical value of this heuristic. Specifically, we first present a qualitative overview of CAS elements which are quantified through a rubric we designed. We then examine three case studies, each highlighting aspects of the model: the role of disequilibrium in promoting change; networking school personnel to distribute control; and balancing system features to remain on the “edge of chaos.” Session attendees will have the CAS rubric and can apply that to a reform they are familiar with.

Chair: Patrick McQuillan, Boston College

Discussants: Brian Beabout, The University of New Orleans; Donald Gilstrap, Wichita State University

### Papers:

Systems Change: How and When Does It Occur? - Patrick McQuillan, Boston College

Coming to See the World Differently: A Three-Sector Experience - Valerie Spencer

Distributing Leadership, Creating Networks, Promoting Relational Trust - Kavita Venkatesh, Boston College

Balancing a Complex System: Transformative Change in a Catholic School - Brad Kershner, Boston College

At the Brink: The Capacities and Capabilities of a Statewide Charter School System - Eugene Gary Kowch, University of Calgary; Dianne Gereluk, University of Calgary

## **Exploring Learning Processes and Assessment through Complex Systems Theory**

Friday, April 4, 12:25 – 1:55 pm

Marriott, Fourth Level, Franklin 6 (Paper Session)

### Abstract

The papers in this session explore learning processes and assessment from various complex systems perspectives. Multiple research methods associated with complexity theory are represented and will be discussed in conversation following the presentations.

Chair: Joan Osa Oviawe, Washington State University

Discussant: Bernard Ricca, Saint John Fisher College

### Papers:

Innovation as Idea Generation: An Emergent Perspective - Rachel Lam, Arizona State University

The Symbolic Dynamics of Self-Regulated Learning: Exploring the Application of Orbital Decomposition - Joanna Garner, Old Dominion University; Daniel Russell, Old Dominion University

Complex Rubrics for Teaching Complexity: Catalyzing Autopoiesis in Graduate Student Innovation for Ecosystem Sustainability - Marna Hauk, Institute for Earth Regenerative Studies and Prescott College

Complexity in Education: Challenges and Possibilities for Quantitative Empirical Research - Matthijs Koopmans, Mercy College