

2 0 0 6 S P R I N G E D I T I O N

CHAOS AND COMPLEXITY THEORIES *in Education*

Newsletter

A Special Interest Group of the American Educational Research Association

*In this
edition*

President's Message

page 1

*Ton Jorg's Report
of the First Euro-
pean Conference on
Complex Systems*

page 2

*Course in Chaos and
Complexity Theories*

page 3

*2006 Schedule of
SIG Sessions*

page 4

Officers of the SIG

page 5

The President's Message

In a time

where a wave of evidence and scientifically based research
washes over educational research.

In a time

where educational research becomes comparable
with randomized experiments
adequate to support the general findings.

In such a time

it seems of importance to direct attention to
what many educational researchers take for granted
namely that the most questions of interest in educational research
are of such a complex nature that only a limited part of them
if any

can be examined in a satisfying way with the proposed kind of
rigorous, systematic and objective procedures.

In such a time

the needs for development of methodology and research designs
that are able to match the complexity of educational problems
are bigger than ever.

One among other endeavours for the SIG: Chaos and complexity
has been and will still be to develop concepts, theory and methods
for the description and understanding of chaotic, complex, non-linear phenomenon
and processes in teaching and education.

Jens Rasmussen

Report of the **First European Conference on Complex Systems (ECCS'05)**

From Ton Jörg A.G.D.Jorg@ivlos.uu.nl

The organizers of the conference

The European Complex Systems Society (ECSS) organized a conference from 14-18th of November 2005 in Paris with the next theme: "Towards a science of complex systems".

The organizers were French scientist: Paul Bourguine, François Képès, and Marc Schoenauer who were also the editors of the Program and Abstracts Book (see below).

The meetings were in a historical place: Maison International at the Cité Internationale Universitaire de Paris, an international university founded and made possible financially in the twenties of the last Century by the famous American Rockefeller, as a post-war initiative for peace-keeping between nations after the First World War. You see buildings, traditional and modern, of many different countries from over the whole world as part of and constituting this international university.

The Conference was officially organized by the ECSS, after a preliminary upstart in Torino (Italy) in 2004. It was also in this Italian city that the ECCS started as a European organization on complex systems. The push for such an organization came from the different projects of the programmes which are sponsored by the European Commission. Projects of like "Genopole", "Epigenomics project", supported by the Future and Emerging Technologies of the "Information Society Technologies" programme of the European Commission. One of the main interests of this Commission is the fostering of innovation in Europe, and the founding of a solid Knowledge Economy.

The focus of the conference

The focus of study is on complex systems and the building of a (new) science of complex systems from an interdisciplinary perspective, striving to be general enough to be of value for all kinds of studies and disciplines. In the practice of this conference it meant, however, that the focus was on the complex systems which we know already from the fields of study of the different participants. The focus was mainly on the topics of the complex systems, of the so-called 'hard sciences' like math, physics, biology, and the study of all different kinds of networks and the modelling framework of such networks. So there were different strands, like 1. Complex systems Methods; 2. Biological Modelling; 3. Network Modelling; 4. Social Modelling; Bio Inspired Methods; 6. Information Techn. Modelling; and 7. Cognition Modelling.

The focus was more on computational than dynamical complexity (see Mainzer, 2005).

On Thursday and Friday Different Satellite Workshops, with different more specialized presentations were part of the program, with different presenters on special topics of interest.

As a visitor you could follow only a (small) part of this program for 5 days.

Although it was not really a surprise for me, because I also visited the conference in Torino in 2004, it was still very disappointing that almost no attention has been given to the topic of the complexity of learning and education in the program. Social sciences in general were actually not really a part of the program of this conference. So the conference seems an example of the gap between the two historical cultures: of the social and the hard, natural sciences. There is some talk about the need for interdisciplinary perspectives. Yet, my impression was that it seems beyond recognition for the participants that the two cultures may learn from each other. E.g. when educationalists like Jerome Bruner (1996) speaks about learners who may 'bootstrap each other' in small (sub) communities. So, it *seems* we may learn of those speaking about 'bootstrapping' in research projects like "New Ties" (New and Emergent World models Through

Individual, Evolutionary, and Social learning). It *seems* possible to connect with their focus on three types of learning, their mutual effects and their way of modelling learning processes like 'bootstrapping' as generative processes. Thinking in metaphors seems dominant for all. It is confusing when the people of this project speak about "emergence and complexity in socially-inspired *artificial* systems". It is not only confusing. Their experiments with robots and their modelling of language and communication of such robots in an artificial environment seem even a kind of paradoxical to me when they talk about collective minds of agents cooperating and 3 communicating. To my mind they create their own world without questioning the relation with the real world: their epistemic horizon. They simply defer that (epistemic) question to the future in their texts: the future will tell!

I really missed some people with a more critical, philosophical stance, like the Klaus Mainzer from Germany and Edgar Morin of France.

My own (poster) presentation was about "A Generative Complexity Theory of Minds. Minding Minds in Human Interaction". For those interested, you may get my paper and poster on request.

In the program of the ECCS 2005, available at the Internet, you may find not only the program but in the program you can search for the abstracts as well.

The Program of ECCS 2005, including the Satellite workshops of ProgramECCS2005 on Thursday and Friday, available at:

<http://complexite.free.fr/ECCS/files/contents/agenda.htm#thursday>

Course in Chaos and Complexity Theories at LSU

Jayne Fleener and William Doll are co-teaching a doctoral seminar on Chaos and Complexity Theories--theoretical and applied--this spring at LSU. The course is using as seeds Jayne's book, *Curriculum Dynamics* (Lang, 2002) and the book Jayne and Bill, along with Donna Trueit and John St.Julien did called *Chaos, Complexity, Curriculum and Culture* (Lang, 2005). After the seed germinates a while (one month), the seminar will break into work projects studying in-depth (and hopefully applying) some aspect of either/both theories.

One interesting feature of the course is the makeup of the "class." In addition to the nine students registered there is another LSU professor, a professor from another university, a Chinese professor doing research at LSU, the Russian wife of another LSU professor, and one advanced graduate student who has defended her dissertation. Among the registered students there are a number of Chinese and Korean students. This eclectic mélange provides for rich conversation.

Last week, Mary Doll, professor of humanities at the Savannah College of Art and Design, came from Georgia to give a talk on how she viewed Penelope Lively's book, *The Photograph*, through chaos and complexity lenses. Emails in the form of Bill's recursive reflections go out to various people around the world, including one to a high school principal in Tasmania who will join the class later this semester.

Chaos and Complexity Theories in Education SIG of the American Educational Research Association

In case anyone is wondering, yes we do strive to bring rigor to this quite amazing network of ideas and people. We all, akin to y'all, would be happy to have others share how they are approaching chaos and complexity ideas.

Bill Doll

2006 AERA Annual Meeting Program Sessions for SIG: Chaos and Complexity Theories

<u>Session #1</u>	<u><i>A Complex Conversation on Teaching and Learning</i></u>	<u>Participants</u>	<u>Chair & Discussants</u>
	<ul style="list-style-type: none"> • Creating Spaces for Learning to Teach: Nonlinear Unfoldings as Methods • Creativity, Chaos, Complexity and Classrooms: A Journey • Research That "Walks Through a Maze": Fluid Educational Spaces in Public Interest • Learning, Learning Environments, and Complexity Theories: Domains of Applicability 	Jayne Fleener & Kerri Richardson Clydia Forehand & Jayne Fleener Wolff-Michael Roth & Lyubov Laroche Bernard Ricca	C: Sarah Smitherman
<u>Session #2</u>	<u><i>Charles Peirce: Complexity Thinking and the Logic of Learning</i></u>	Inna Smetsky	C: Francis Feng D: Donna Trueit & Tony Whitson
<u>Session #3</u>	<u><i>A Reiteration of Anh Linh's Shapes</i></u>	David Jardine, Patricia Clifford, & Sharon Freisen	C: John St. Julien D: David Kirshner & Ton Jörg
<u>Session #4</u>	<u><i>SIG: Chaos and Complexity Theories Roundtables</i></u>		
	1. Finding connectedness through phenomenological reduction: Recursive methods for interpreting leadership narratives	Donald Gilstrap	
	2. From Order to Chaos: The Impact of a New Educational Reform on Teacher Education in Israel	Shlomo Back	
	3. Progressivism in Education and its Future Possibilities	Jens Rasmussen & Helle Mathiasen	
	4. Schools as Complex Adaptive Systems: Reconsidering Traditional Strategies toward Retaining Teachers in High-Poverty Schools	Sue Mutchler	
	5. Toward a Perfect University, Part 1: Corporate Reality or Cartesian Dilemma?	Blane Dupres	
	6. Value Complexity in Health Education – System Theoretical Contribution for Value Clarification	Soren Kruse & Karen Wistoft	
	7. Recovering the Spirit(ual) in Education Symposium	Sherrie Reynolds, William Doll, Donna Trueit, & Daniel Scott	
<u>Session #5</u>	<u><i>Business Meeting for the SIG: Chaos and Complexity Theories with an Invited Address</i></u>	<i>Invited Speaker</i> (TBA)	C: Jens Rasmussen D: Fran Huckaby & Sarah Smitherman

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