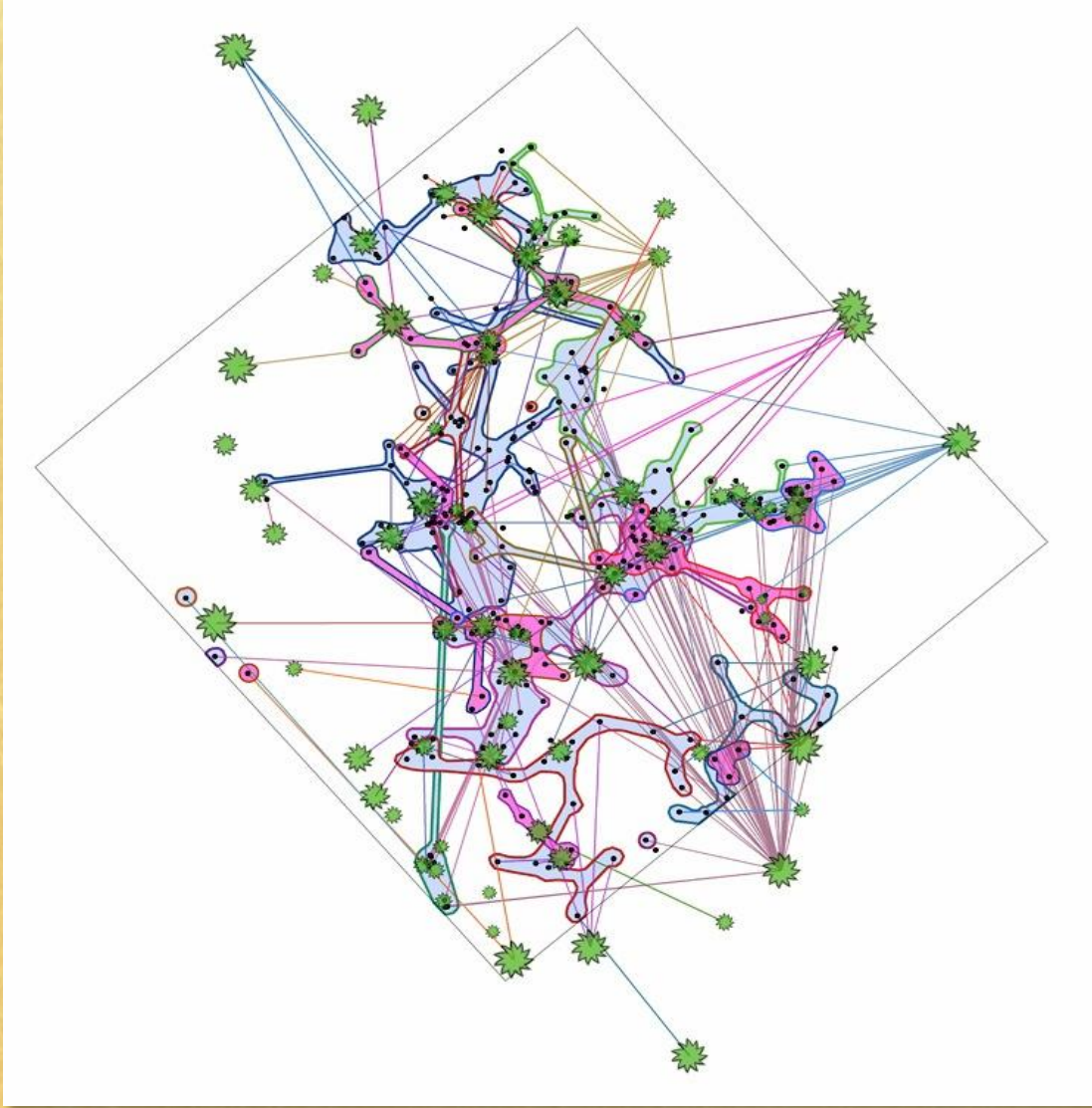


Emergent Learning in the New Learning Ecologies

Roy Williams, Regina Karousou, Jenny Mackness

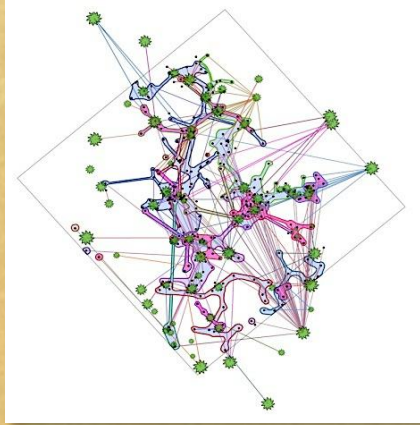




**Resource Sharing
Tree-Network ...**

**Mycorrhizal Fungi &
Douglas Firs**

(Kevin-Beiler)



Some thoughts on Emergent Learning ...

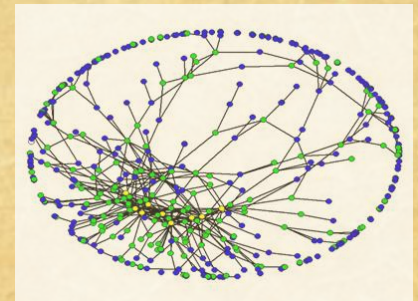
- ◆ The Internet provides new opportunities for taking initiative in learning.
- ◆ This provides new affordances for teaching, learning, and collaborating.

..... But we need new frameworks to help us to understand and respond to these changes.
- ◆ What is 'emergent learning', and can it form the basis for a new framework?
- ◆ Questions and discussion.

New opportunities for people to *take the initiative* in learning

The Internet makes it possible for people to:

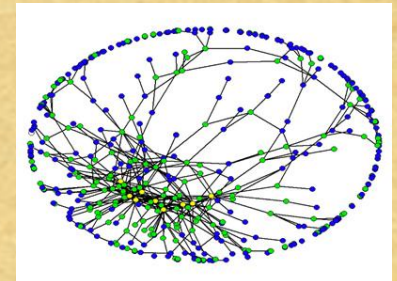
- ◆ Access people and content
- ◆ Create and distribute content
- ◆ Create and participate in networks
- ◆ Explore virtual identities and worlds



Social Network Analysis

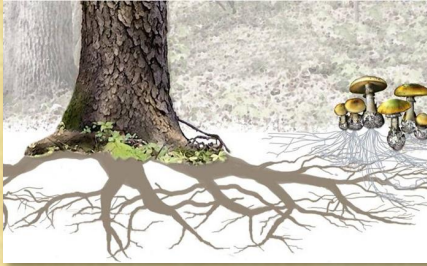
This provides New Affordances

- ◆ Particularly in Web 1, 2, and social media.
- ◆ New ways to interact, and organise your own learning, resources, and networks.
- ◆ But ... is self-organised learning different from 'learner centred' and 'constructivist' learning?



Social Network Analysis

New Affordances ?



Some examples ...

- Reflection and sharing
- Recorded conversations
- Threaded discussions
- Chat (text, audio, video)
- Applications sharing – and discussion
- Constructing knowledge
- Mash-ups of all the above
- Mobile space
- Virtual space
- Poly-synchronous interaction
(a hybrid of a/synchronous)

We need new frameworks to help us to:

- Understand these affordances
- Facilitate them
- Find ways to benefit from them – i.e. to match particular affordances with particular learning contexts.

Note: This assumes that there will always be other affordances that are appropriate for other learning contexts – see for example the section on **Prescriptive Learning** in the IRRODL paper.



Emergence

To start with, emergent learning is unpredictable, and is likely to arise ...

- Where learning is substantially self-organised, and adaptive.
- From frequent interaction
- Between a large number of people and resources (micro-agents)
- Where no-one is able to see (or monitor) everything that is happening
- Where participation is as open as possible

Emergence is ...?

Self-organizing



Adaptive

Unpredictable

... frequent interaction ...

... between many people & resources ...

...with no-one able to follow all everything.

with open participation

Case Studies ...

Wikipedia

Emergence - Wikipedia, the free encyclopedia - Windows Internet Explorer

http://en.wikipedia.org/wiki/Emergence

File Edit View Favorites Tools Help

W Emergence - Wikipedia, the free encyclopedia

Log in / create account

Article Discussion

Read Edit View history Search

WIKIPEDIA
The Free Encyclopedia

Main page
Contents
Featured content
Current events
Random article
Donate to Wikipedia

Interaction
Help
About Wikipedia
Community portal
Recent changes
Contact Wikipedia

Toolbox
Print/export
Languages
العربية
Bân-lâm-gú
Català
Česky
Deutsch
Español
Esperanto
Français
Galego
Italiano
Latina
Magyar
Nederlands
日本語
Norsk (bokmål)
Norsk (nynorsk)
Polski
Português
Pycckий
Suomi
Svenska
Türkçe
Українська
中文

Emergence
From Wikipedia, the free encyclopedia

For other uses, see *Emergence* (disambiguation).

This article needs additional citations for verification. Please help improve this article by adding citations to reliable sources. Unsourced material may be challenged and removed. (June 2011)

See also: *Emergent* (disambiguation), *Spontaneous order*, and *Self-organization*

In philosophy, systems theory, science, and art, **emergence** is the way complex systems and patterns arise out of a multiplicity of relatively simple interactions. Emergence is central to the theories of integrative levels and of complex systems.

Contents [hide]

- Definitions
- Strong and weak emergence
- Objective or subjective quality
- Emergence in philosophy, religion, art and human sciences
- Emergent properties and processes
- Emergent structures in nature
 - Non-living, physical systems
 - Living, biological systems
 - Emergence and evolution
 - Organization of life
- Emergence in Humanity
 - Spontaneous order
 - Economics
 - World Wide Web and the Internet
 - Architecture and cities
 - Computer AI
 - Language
 - Emergent Change Processes
- Emergence in political philosophy
- See also
- Notes
- References
- External links

Definitions [edit]

The concept has been in use since at least the time of Aristotle.^[1] John Stuart Mill^[2] and Julian Huxley^[3] are just some of the historic luminaries who have written on the concept.

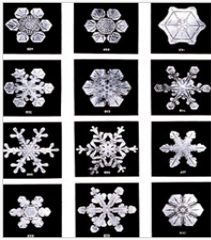
The term "emergent" was coined by the pioneer psychologist G. H. Lewes, who wrote:

"Every resultant is either a sum or a difference of the co-operant forces; their sum, when their directions are the same -- their difference, when their directions are contrary. Further, every resultant is clearly traceable in its components, because these are homogeneous and commensurable. It is otherwise with emergents, when, instead of adding measurable motion to measurable motion, or things of one kind to other individuals of their kind, there is a co-operation of things of unlike kinds. The emergent is unlike its components insofar as these are incommensurable, and it cannot be reduced to their sum or their difference." (Lewes 1875, p. 412)(Blitz 1992)


Jeffrey Goldstein in the School of Business at Adelphi University provides a current definition of emergence in the journal, *Emergence* (Goldstein 1999). Goldstein initially defined emergence as: "the arising of novel and coherent structures, patterns and properties during the process of self-organization in complex systems".

Goldstein's definition can be further elaborated to describe the qualities of this definition in more detail:

"The common characteristics are: (1) radical novelty (features not previously observed in systems); (2) coherence or correlation (meaning integrated wholes that maintain themselves over some period of time); (3) A global or macro "level" (i.e. there is some property of "wholeness"); (4) it is the product of a dynamical process (it evolves); and (5) it is "ostensive" (it can be perceived). For good measure, Goldstein threw in *surveillance* -- downward

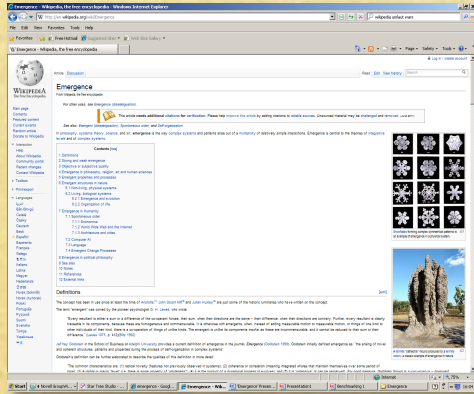


Snowflakes forming complex symmetrical patterns is an example of emergence in a physical system.



A termite "cathedral" mound produced by a termite colony; a classic example of emergence in nature.

Start 4 Novell GroupWi... Star Tree Studio - ... emergence - Googl... Emergence - Wik... Emergence' Presen... Presentation1 Benchmarking 1 Emergence 75% 16:04



Wikipedia

Self-correcting?

(External) Validity?

Is it too big? Too constrained? (editorial rules have changed recently).

Does anyone edit Wikipedia pages?

(Roy recently met someone who has responsibility for 54 Wikipedia pages!)

Case Studies ... MAMLL
MA Management Learning and Leadership (Lancaster)



A. Van Dijk, ISC Websites



MAMLL

The students negotiate the curriculum. They are self-organising and self-correcting. To some extent they co-create the institutional structure. The barrier is assessment and the University assessment regulations

- Open syllabus.
- Self-managed, learning.
- Co-constructed negotiated curriculum.
- Unpredictable, surprising, creativity..
- Learner autonomy and control.
- Diversity and difference. Collaborative assessment.

Dynamic, adaptive system.

Case Studies ...

Hole in the Wall / SOLE's



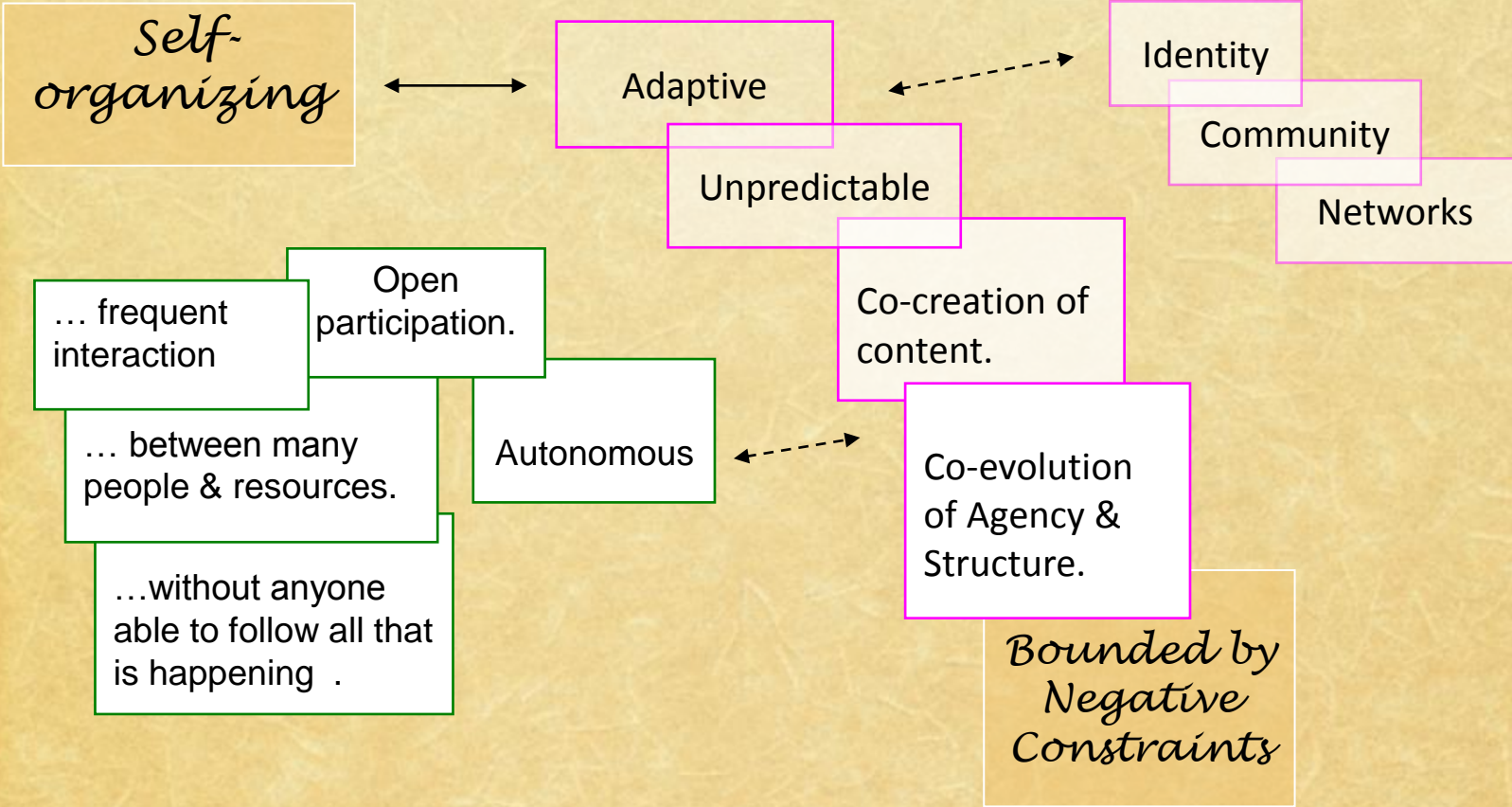


Self-Organised Learning Environments / HIW's

Sugata Mitra's radical experiments in:
Minimally invasive teaching /SOLE's.

- How much can you remove?
- Are the slum children self-organising?
- Granny Clouds?
- Teachers? Walls?
- Curriculum?

Emergence is...? (2)



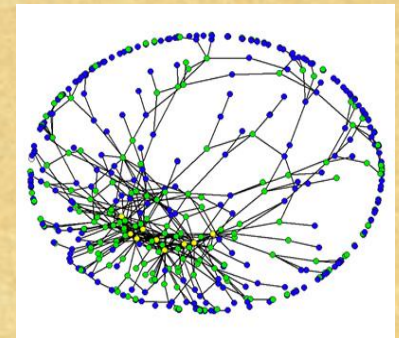
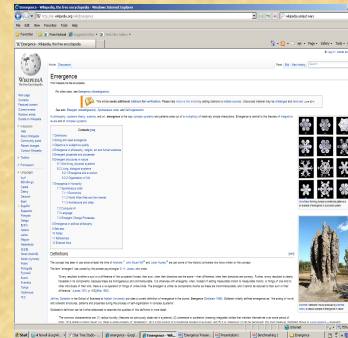
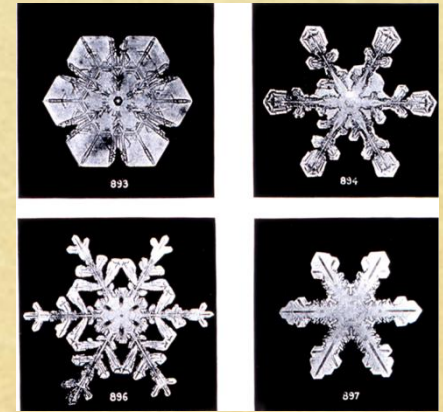
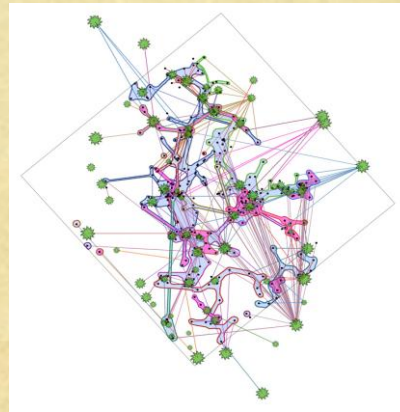
Future Research

- ***Descriptions / visual analysis of emergence in practice ... to create better practice and better strategic frameworks, for ...***
- Designing and using learning spaces / architectures (for co-evolution of agency and structure)
- Facilitating emergence < > constraints
- Benchmarking emergent learning
- Certifying emergent learning
- Integrating emergent learning into broader learning practices/ ecologies. (e.g. Mathematics: Kumon, Montessori, LOGO, Problem-based learning, etc).
- Relationship to broader ecologies of learning/ knowledge creation/ accumulation/ distribution

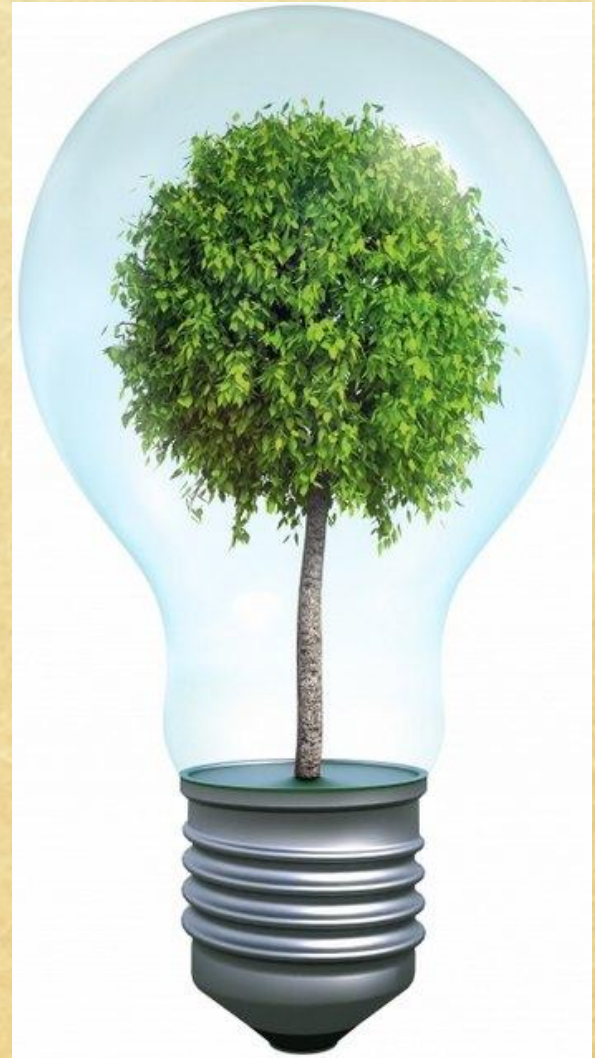


Questions

1. Does emergence require constraints?
2. Are 'learning events' compatible with emergence?
3. Can emergent learning be assessed?
4. Can we integrate emergent learning with other kinds of learning?
5. Are there examples of learning/events in which emergence could/should play no role at all?



Many thanks ...



Modes of Learning

Domains of Application

Types of Knowledge

Organisation

Modes of Production

Validation & Self-Correction

Pre-
scriptive
Learning
Systems

Predictable,
Objects &
Events

Predictive
control

Hierarchy,
Institutional
Control

Centrally
pre-
determined
for users.

Scientific
Method,
Objectivity,
Elite Peer
Review.

Emergent
Learning
Networks

Complex-
Adaptive
Organisms
& Events

Retrospective
coherence

Collaboration
Self-
Organisation

Open &
distributed.
Created at
scale
by users.

Openness,
Interaction
Scale,
Constraints,
Ethics.

Learning Ecologies



The End ...