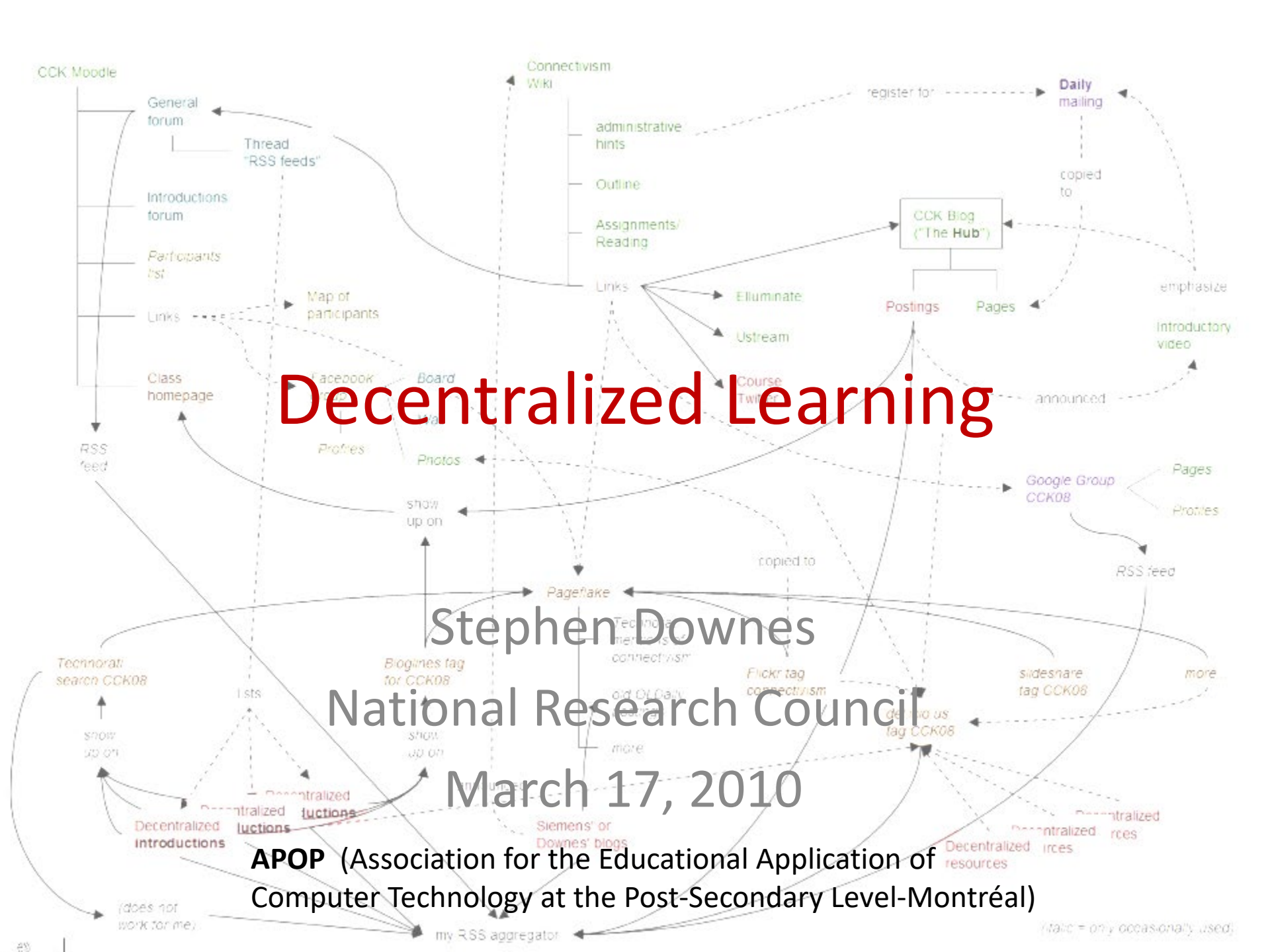

Decentralized Learning

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National Research Council

March 17, 2010

APOP (Association for the Educational Application of Computer Technology at the Post-Secondary Level-Montréal)

Decentralized Learning

The model, pioneered in such events as the Connectivism and Connective Knowledge course, revolves around the idea that there is no 'core' content which much be learned, but rather, a body of loosely related materials that different people explore in different ways in order to satisfy their own personal learning needs.

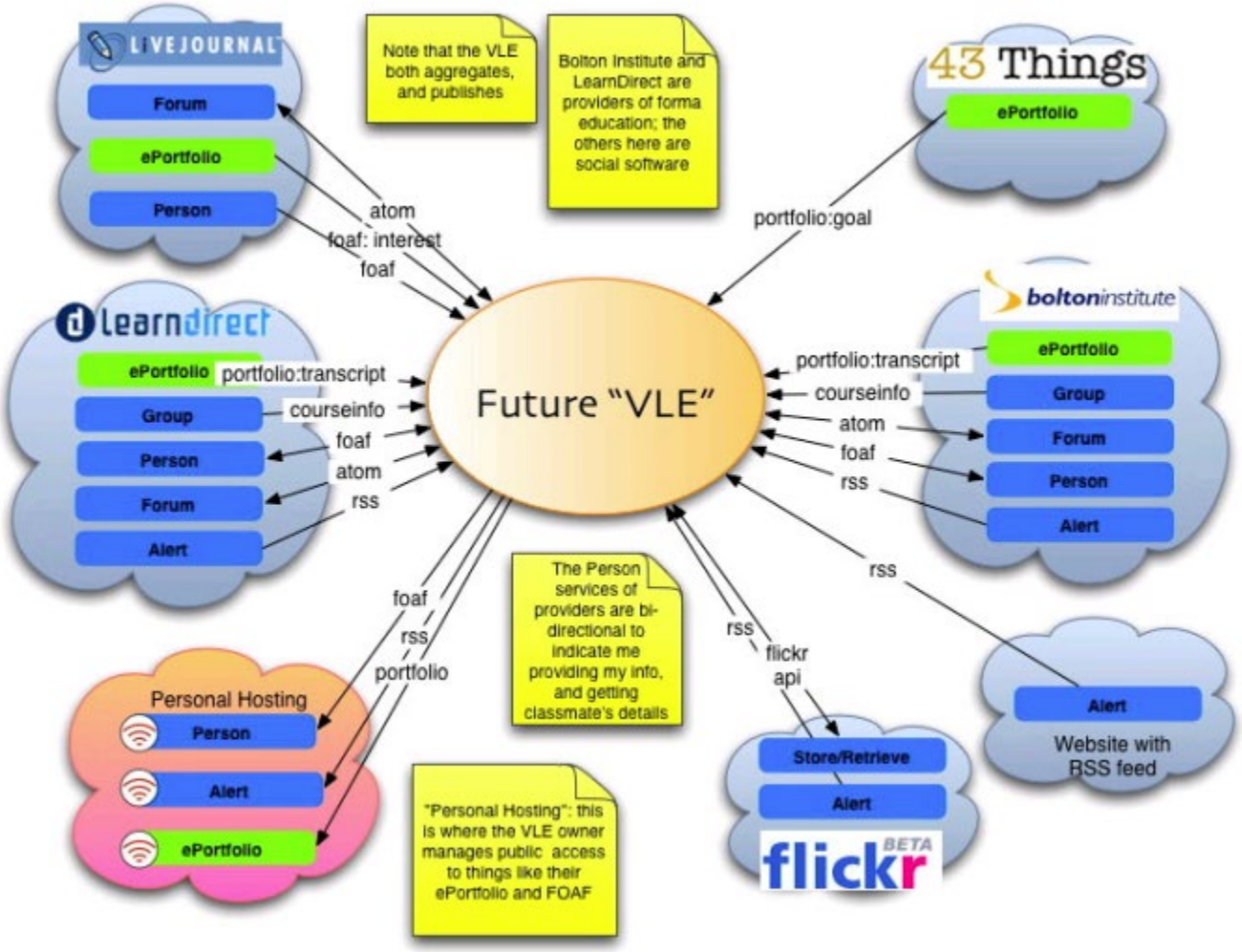
Decentralized Learning

- Physical Organization
- Epistemology
- Pedagogy
- Success Factors

Physical Organization

- The idea that a learning environment is distributed across a number of different sources
- The role of the student is to connect these sources and draw from them learning resources as needed

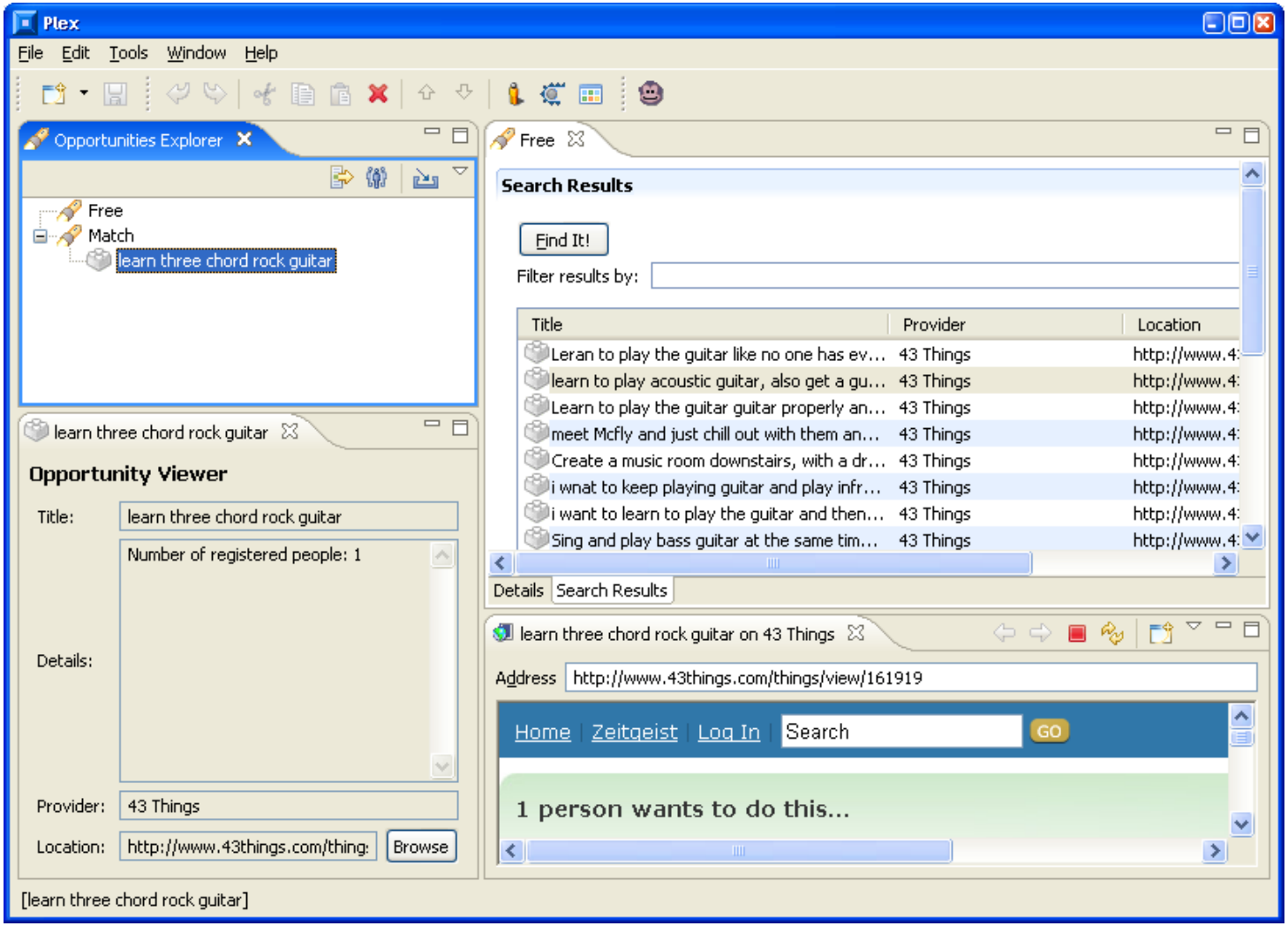
Physical Model



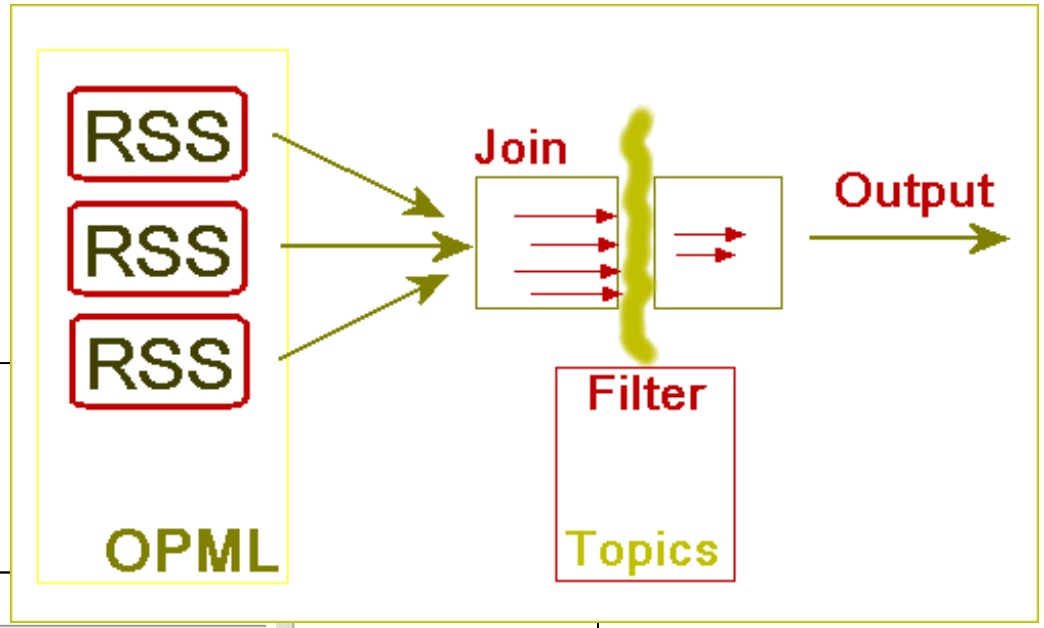
Personal Learning Environment

- Best thought of as an ecology in which learning takes place
- Is represented with the student thought of as being at the centre
- But is in fact a mesh or a web of interconnected students

PLEX – Example of an Early PLE



Aggregation and Remixing



MyGlu

By Stephen Downes

About

Force: 1

Harvesting http://del.icio.us/rss/Downes
Feedfile is: myglu/feedcache/del.icio.us_rss_Downes
No content. Harvesting from source.
URL: http://del.icio.us/rss/Downes
Parsing Feed=HASH(0x9f0f10c)

Harvesting http://www.downes.ca/news/OLDaily.xml
Feedfile is: myglu/feedcache/www.downes.ca_news_OLDaily.xml
No content. Harvesting from source.
URL: http://www.downes.ca/news/OLDaily.xml
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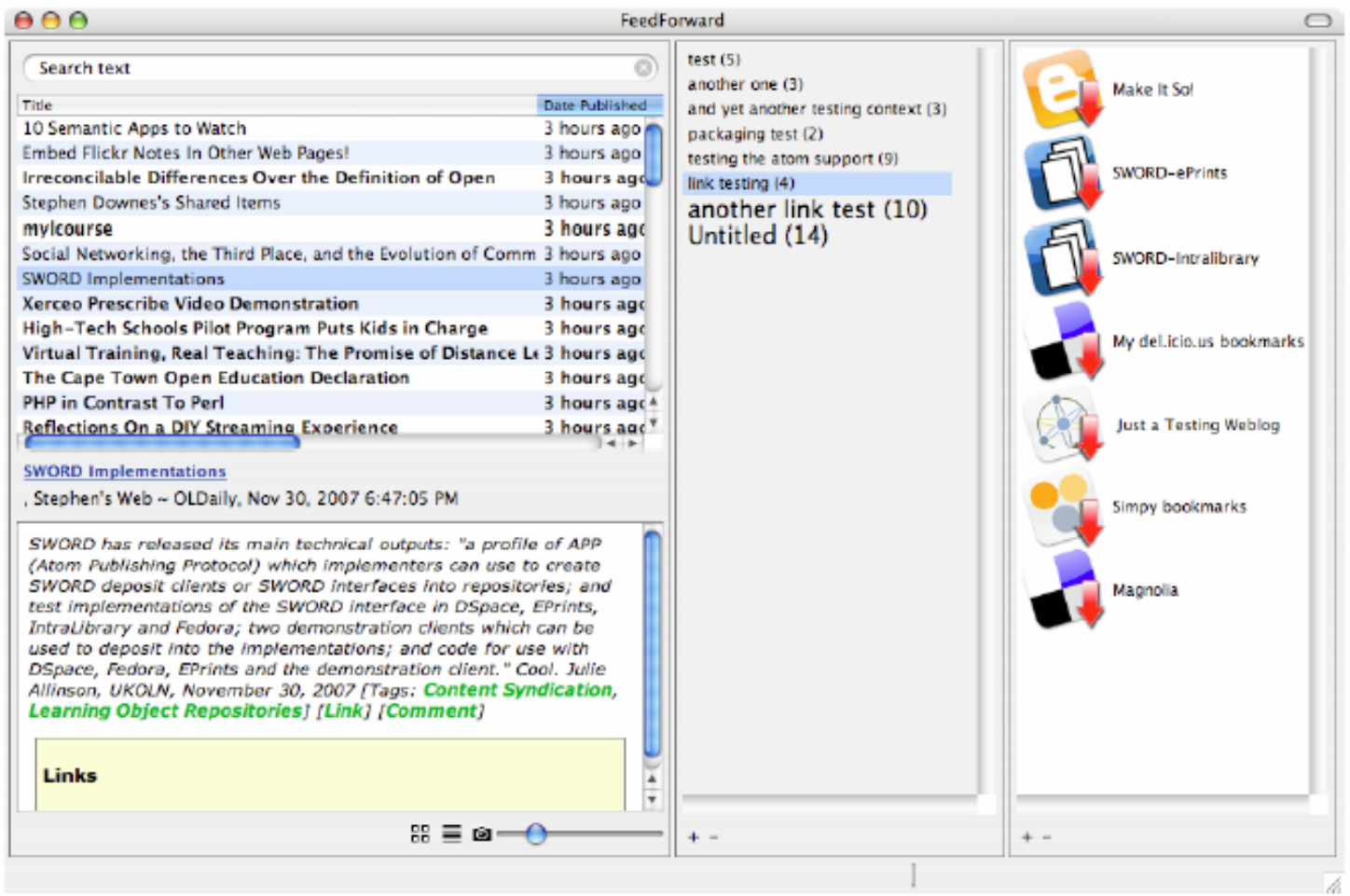
http://www.downes.ca/mygluframe.htm

Feed Forward



Connective Knowledge

- The knowledge created and shared by an interconnecting community of learners
- Knowledge is distributed
- Knowledge is created by conversation and interaction

Role of the Learner

- Participates and engages in a community
- Participation is guided by personal interest and motivation
- (Not staged, akin to Lave & Wenger, no hierarchy of interaction, akin to Salmon, Carr)

The Connectivism Course

- A good example of such a learning network
- There was no ‘right’ way to interact
  - No set of processes to master or undertake
  - No specific body of knowledge to assimilate
- The connectivist course is an example of open sharing

Connectivism

"At its heart, connectivism is the thesis that knowledge is distributed across a network of connections, and therefore that learning consists of the ability to construct and traverse those networks."

What Connectivism Is

http://halfanhour.blogspot.com/2007/02/what-connectivism-is.html

Course Components

- The Wiki…

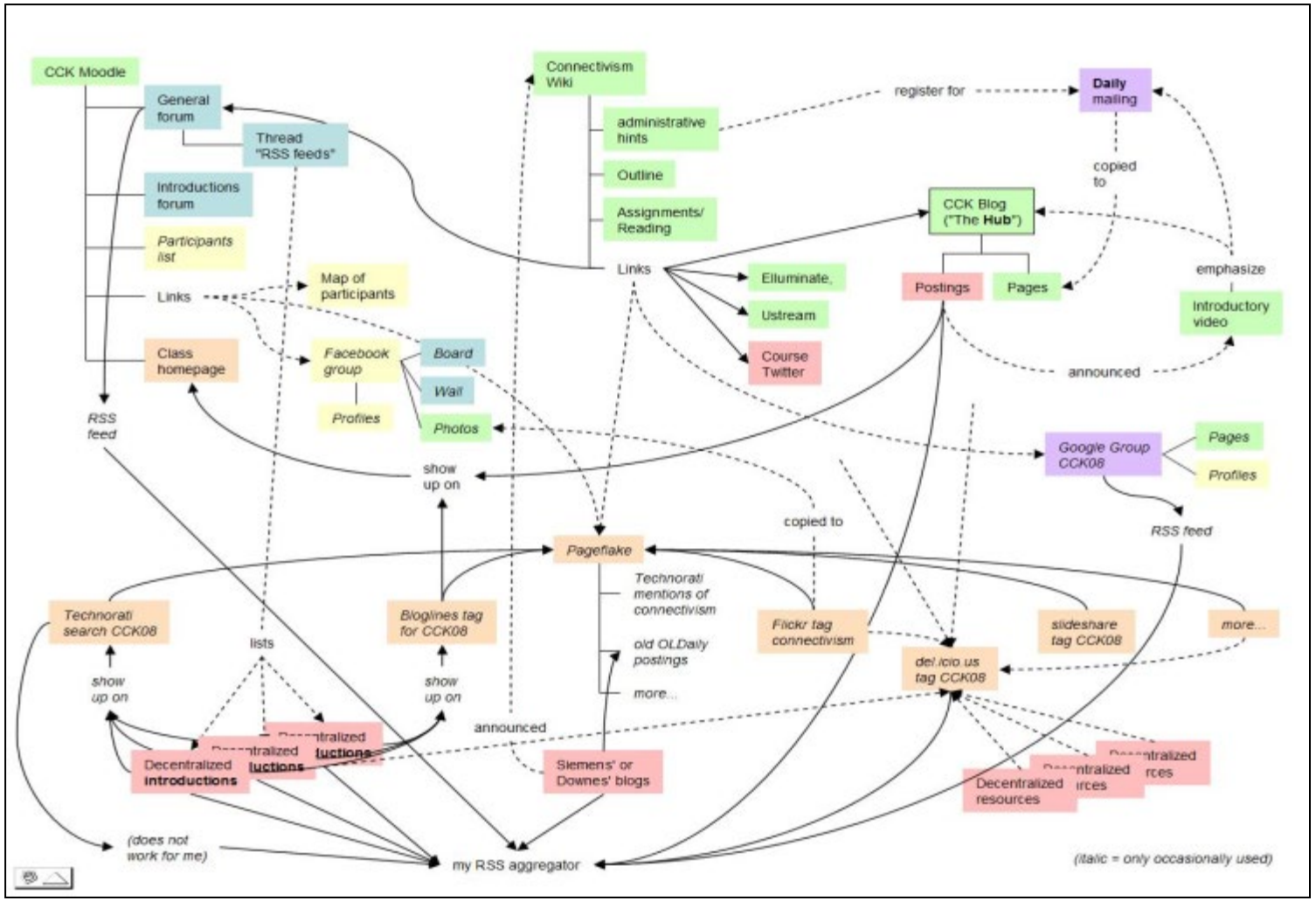
http://ltc.umanitoba.ca/wiki/Connectivism

Course Components

- Course Moodle Forum

http://ltc.umanitoba.ca/moodle/course/view.php?id=20

Connectivism as Mesh



Connectivism as Engagement

- There is no curriculum, no theory, no body of knowledge
  - (or, more accurately, the curriculum is the McGuffin)
- The product is not the knowledge, it is the *learner*
- It's not that there's nothing to learn, it's that it's *complex* and needs to be navigated…

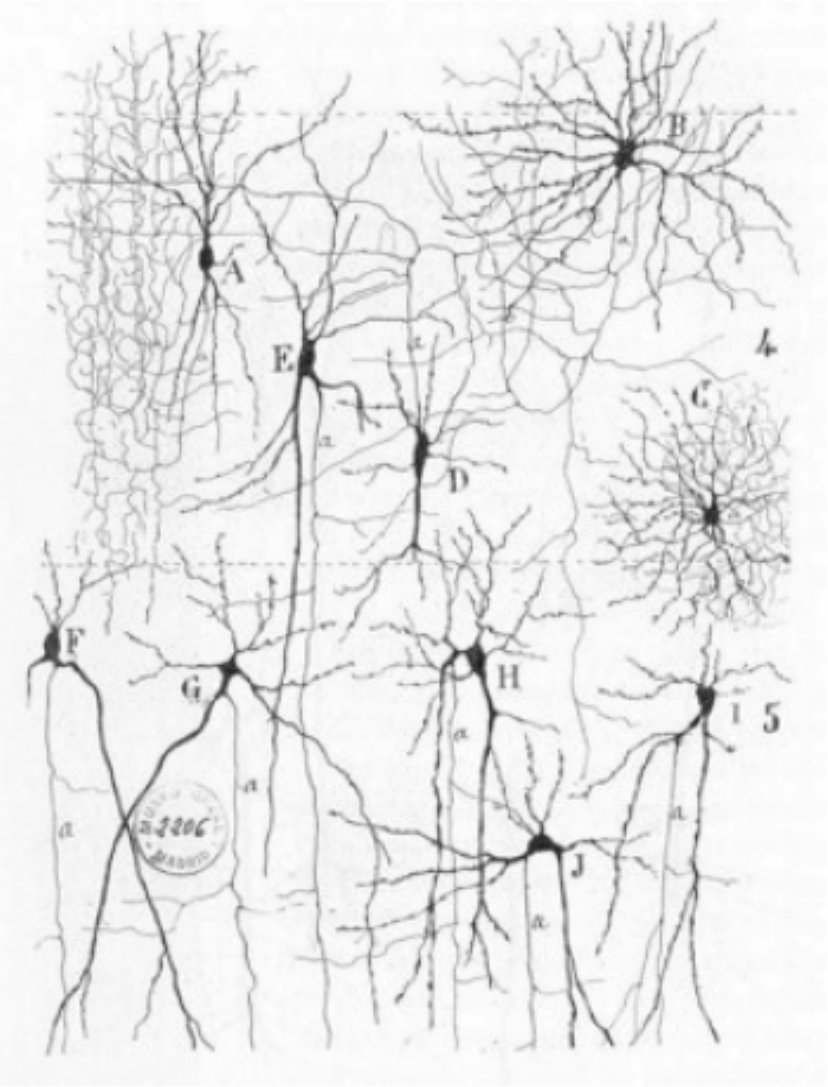
active engagement, not passive observation…

- a bit like ANT, but no presumption of commonality, translation…
- a bit like action research, but no presumption of a community of practice

http://carbon.cudenver.edu/~mryder/itc_data/ant_dff.html

http://www.emtech.net/actionresearch.htm

- Teachers are nodes, students are nodes
- Both teaching and learning consists of sending and receiving communications to other nodes

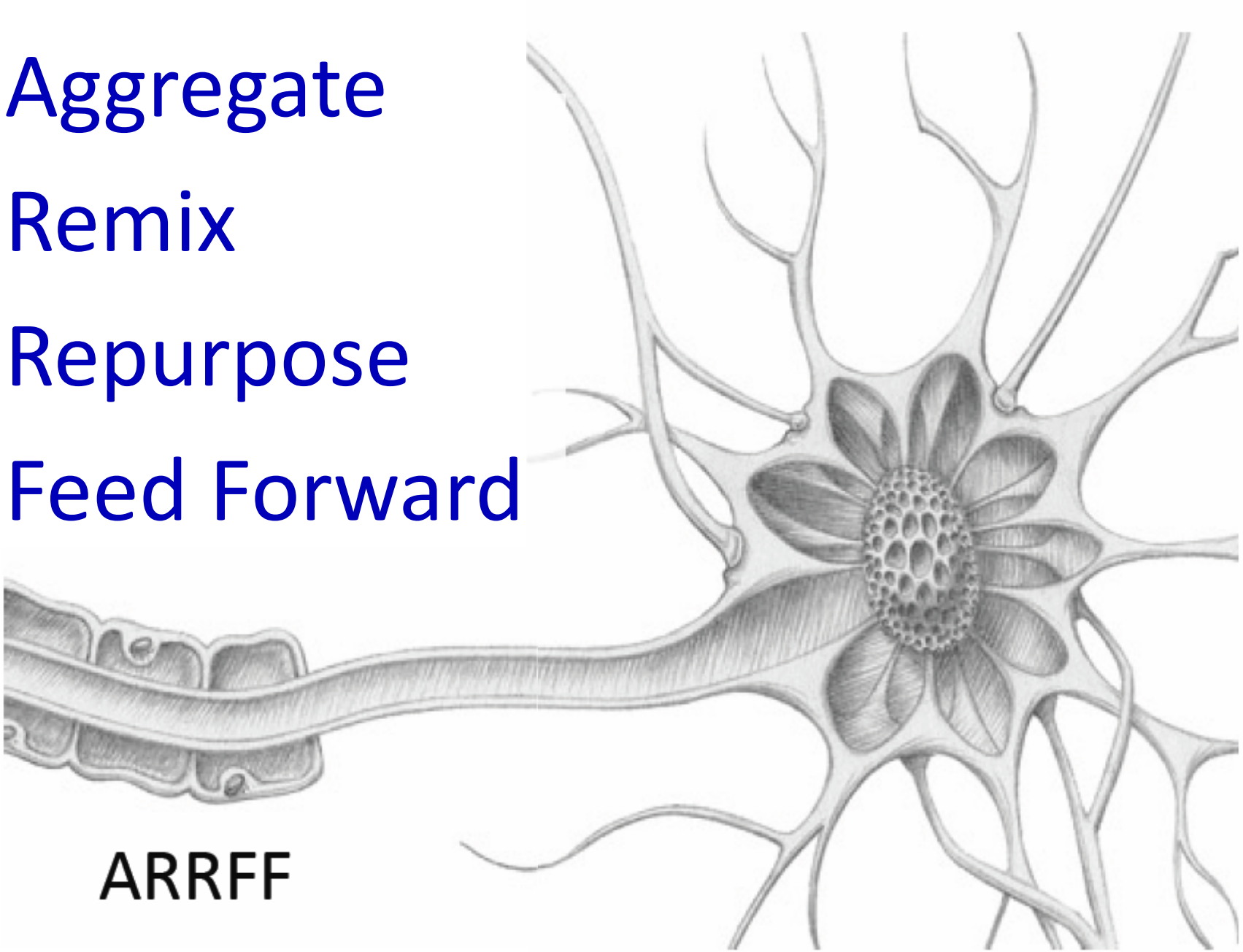


Aggregate

Remix

Repurpose

Feed Forward

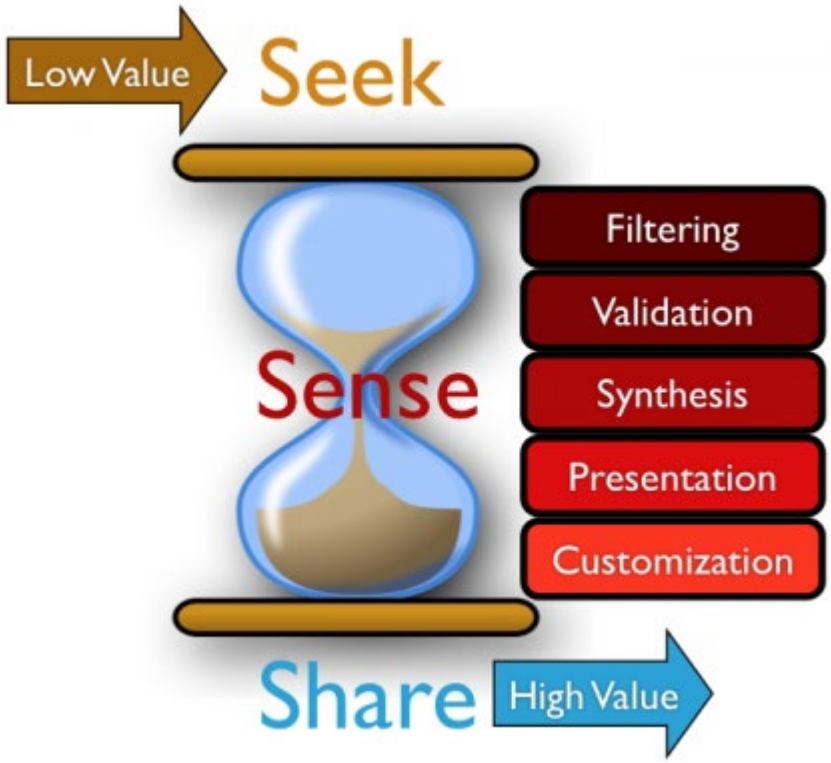


ARRFF

Epistemology

- Contrast between knowledge *transmission* and knowledge *production*
- The distributed model draws on learner-centered and constructivists models

Knowledge Production



http://www.jarche.com/2010/03/sense-making/

Knowledge Production As...

Mining

- data is like a raw material that is searched for and retrieved. It can be filtered, assessed and remixed
- You add value by creating more and more refined metals, alloys, compounds and materials out of what was there

Knowledge Production As...

Construction

- data is like a raw material, but you work with it with your hands, and create something new
- add value to it by giving it form and function. Knowledge construction gives you the ability to create abstractions, to treat raw materials as signs and symbols

Knowledge Production As...

Growing

- data is like a raw material that serves as a nutrient or growth medium
- The raw material nourishes and contributes to the growth of the organism, which in turn creates something new and unexpected

Different Emphases

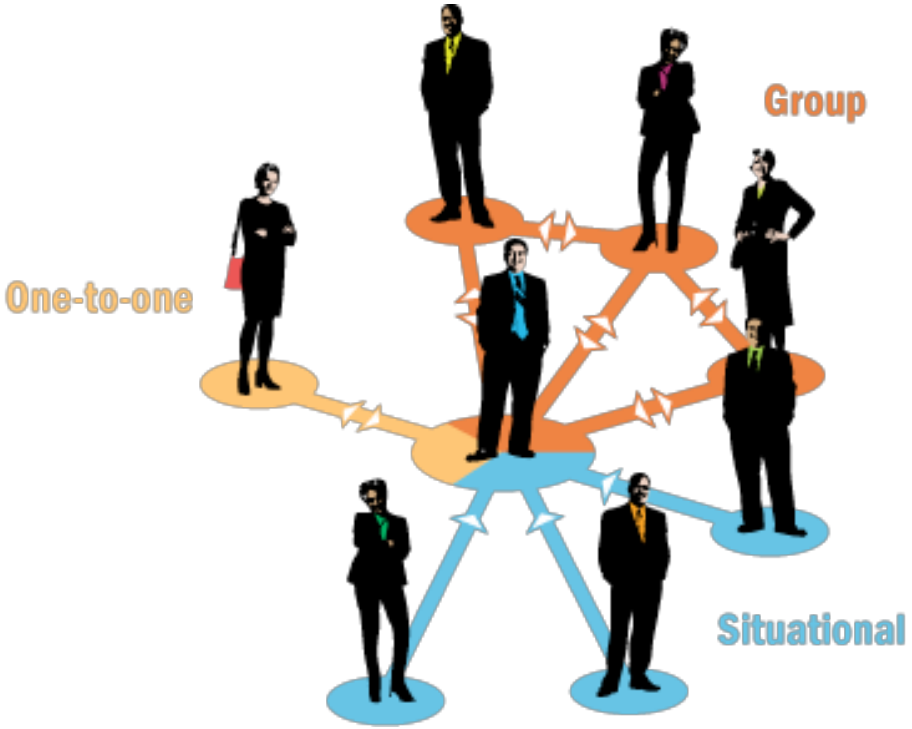
- Mining – accuracy and purity
- Construction – sameness and identity
- Growth – creation and creativity

Each depends in some way on the other

  - Filtering requires a sense of purpose
  - Constructing depends on being able to create
  - Growth requires filtering and selection

Pedagogy

- The next step in such a discussion is usually to describe a theory of social learning, depicting learning as an external process (or set of processes)



Some Forms of Social Learning

- Behaviourism / Instructivism
- Interaction & Interaction Theory (Moore)
- Social Constructivism (Vygotsky)
- Problem-Based Learning (Johnasson)

Image: http://ibis.tau.ac.il/twiki/bin/view/Zoology/Lotem/MyResearch

Aspects of Social Learning

- Externally-Based Definitions
  - Learning objectives, Body of Knowledge
- Externally-Based Processes
  - Learning activities, Processes and conversations
  - Interaction and communication
- External Systems
  - Classes, networks, groups, collaboration
- External Evaluation

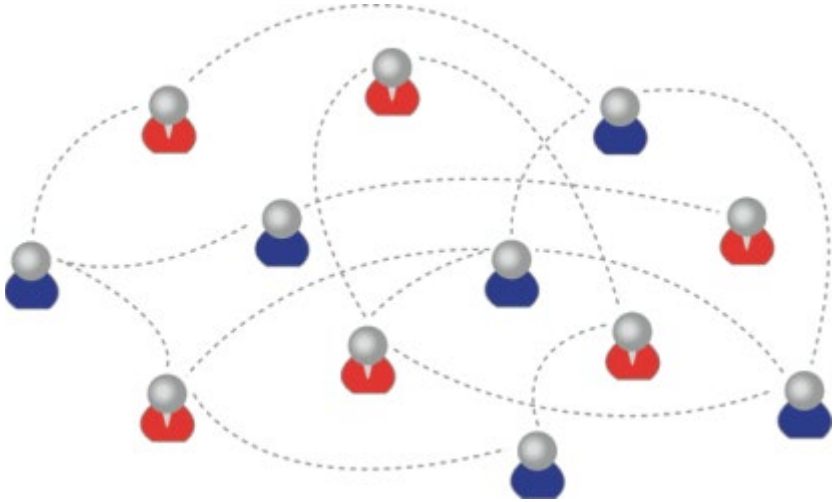
If Knowledge is Growth, Then...

Social knowledge is *not* personal knowledge

- Personal Knowledge management = Learning
- Social Knowledge Management = Research

The product of the educational system is not a *social* outcome (knowledge, skill, problem, community) but a *personal* outcome

Personal Knowledge



We are using one of these

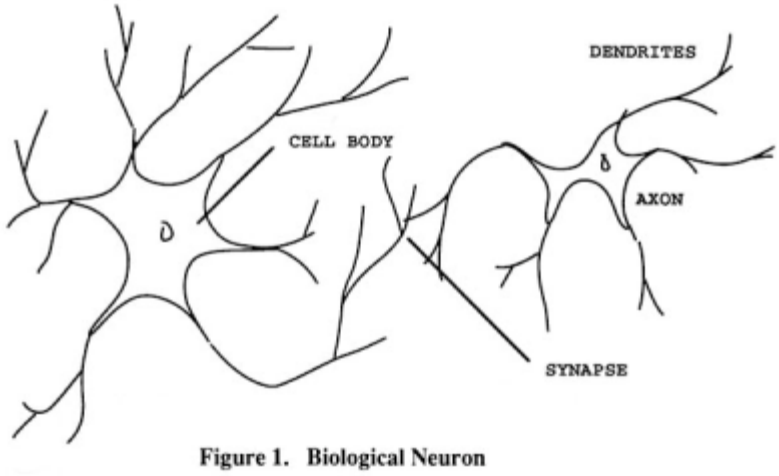


Figure 1. Biological Neuron

To create one of these

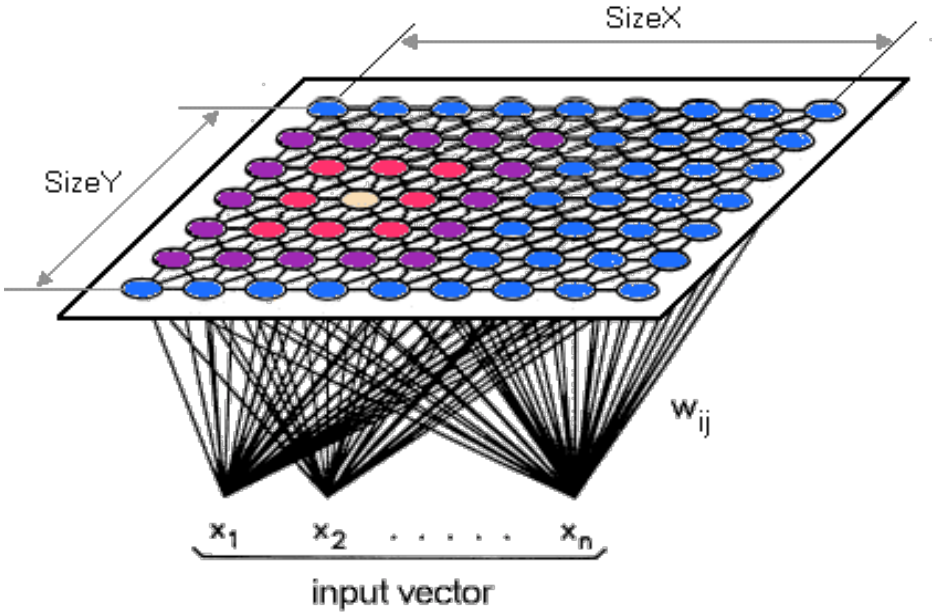
Personal knowledge consists of *neural* connections, not social connections

Learning Outcomes

Simple vs complex – text vs network

"Paris is the capital of France"

vs



Learning Outcomes (2)

It's the difference between:

- 'Knowing' that 'Paris is the capital of France' or even some sort of 'knowing how' (these are *external* definitions of this knowledge) and
- What it *feels like* to have geographical knowledge; what it *feels like* to be a speaker of a language

Learning a discipline is a *total state* and not a collection of specific states

Learning Outcomes (3)

- Learning a discipline is a *total state* and not a collection of specific states
- It is obtained through *immersion* in an environment rather than acquisition of particular entities
- It is expressed functionally (can you perform 'as a geographer'?) rather than cognitively (can you state 'geography facts' or do 'geography tasks'?)

Learning Outcomes (4)

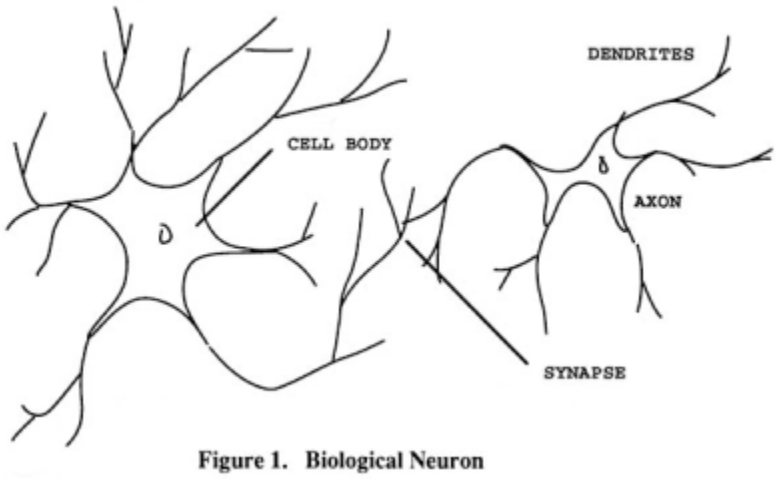
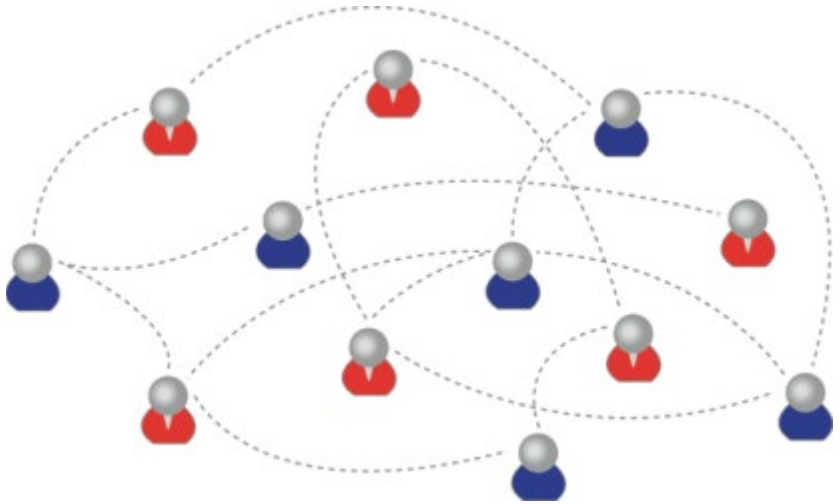


Figure 1. Biological Neuron

We recognize this



By perfomance in this

There are not specific bits of knowledge or competencies, but rather, personal capacities

(more on this later)

Success Factors

- What sort of decentralized network will best support learning-as-growth?

Diversity

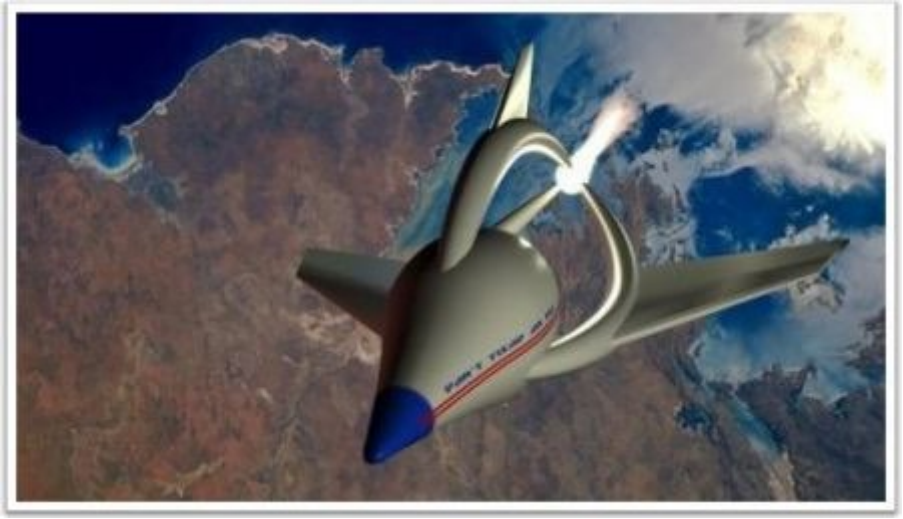
- You need a mixture of materials – you cannot grow organically from carbon alone, or water alone

Openness

- Closed systems become stagnant
- Raw materials are depleted
- The system becomes clogged with the ‘creative product’ of its members

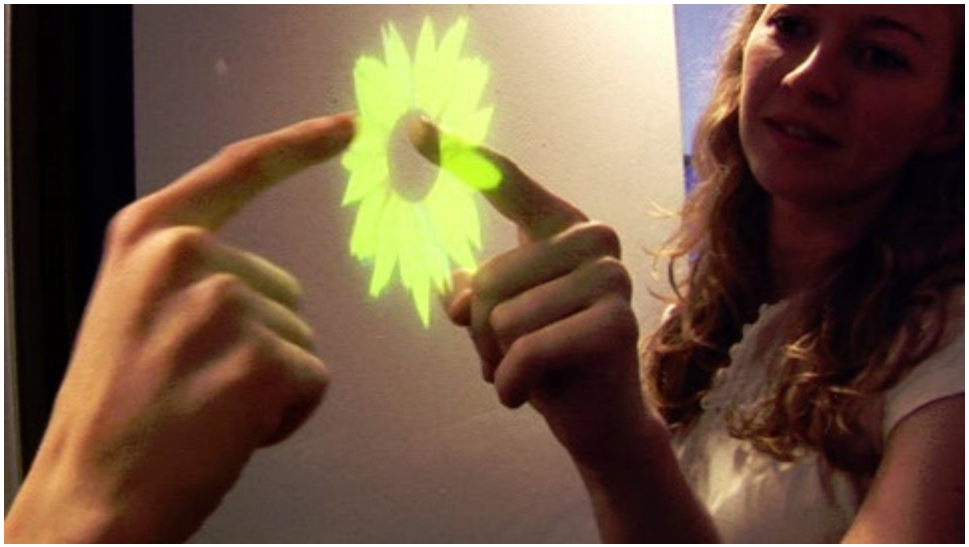
Autonomy

- The simple cloning of entities does not allow for progress or development
- Each individual entity must manage its own grown in its own way



Interactivity

- A system cannot grow unless its parts interact – flowers need bees, cows need grain, beavers need trees
- Growth is created not by accumulation but by *flow*, by constant activation and interaction



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