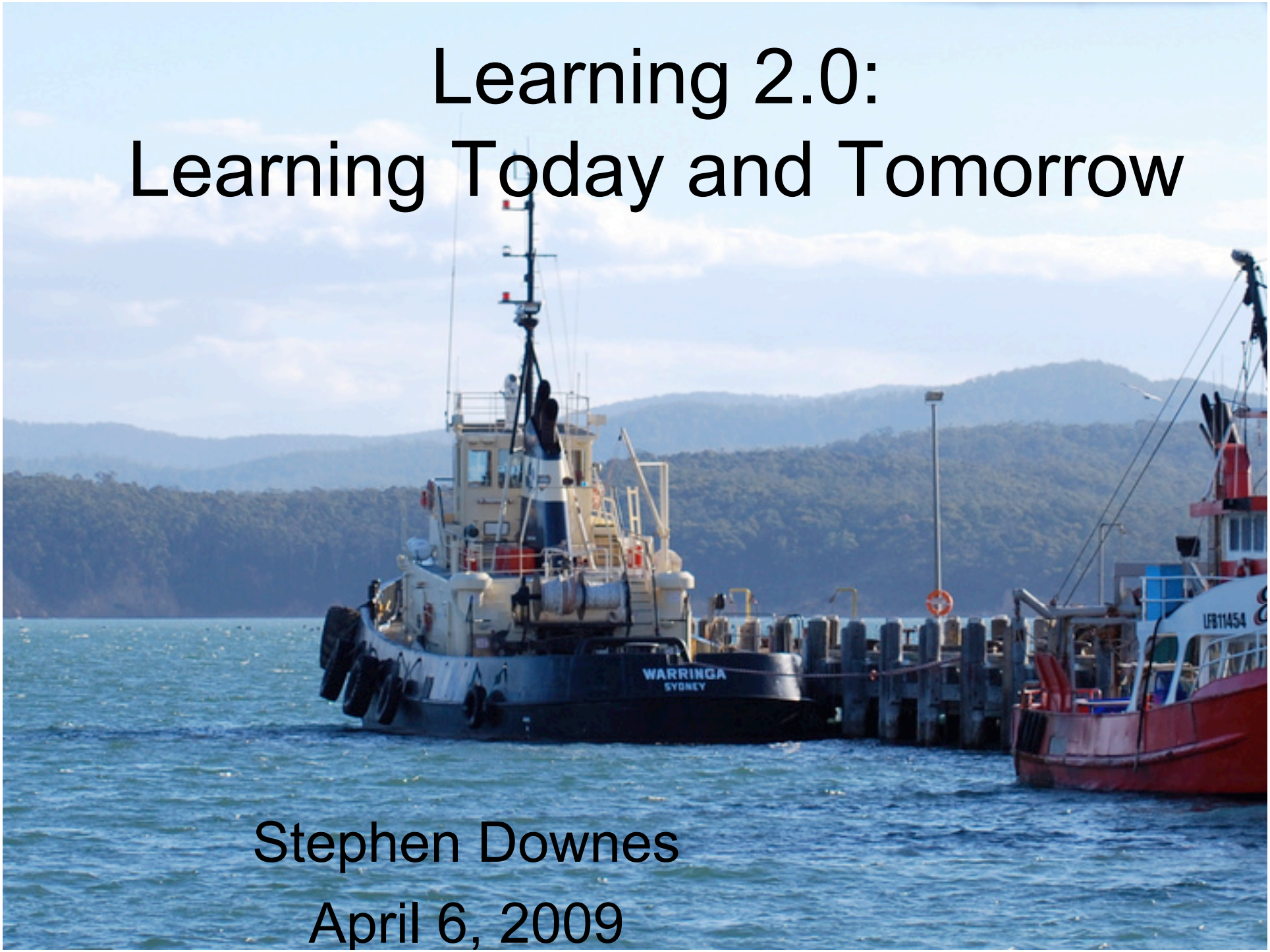
Learning 2.0:
Learning Today and Tomorrow



Stephen Downes

April 6, 2009

1. How We Learn (Online)
2. Online Community

   (break)
3. Designing Online Learning
4. Technology Assignment

1. How We Learn

Assignment: How Do You Learn Today?

Reflect for a moment on how you learn today:

- How do you learn new policies and procedures?
- How do you learn how to use new technologies?
- How do you keep up with events and announcements?

2. Online Community

Assignment: Forming Your Communities

How Will You Organize Yourselves?

Form 6 groups…

- If you can't leave your seat and meet personally, what will you do?
- Meet personally - how will you manage cooperation and collaboration?

3. Designing Online Learning

Assignment: Creating Learning

Over the break, organize your development plan.

- Each group will have its own assignment.
- Meet personally - how will you manage your development project?

Your Learning Tasks

Group 1

An airline based in Adelaide is deploying a new reservation system. The company has provided a simulation that students can practice on. You have been asked to provide the students with additional resources, to help them share what they've learned and to create their own lessons to help each other.

Group 2

Children in Broome has been given inexpensive laptop computers. These computers can connect to the internet. You have been asked to support this program by providing online literacy education.

Group 3

Your company has won a contract from an Australian university to support its online learning program in Malaysia. You have been asked to create a learning community that can organize events for itself in KL and support each other by sharing resources.

Group 4

There has been a number of serious accidents involving the improper use of lawn mowers. The government has contracted you to set up a safety program for people. You cannot use radio, television or newspapers (these are too expensive). Can you organize the community to create safety training programs?

Group 5

An author has published a new book, *The Art of Persuasion*. The target market is business professionals around the world. The publisher would like to to set up a community to help learners share stories. The publisher would also like to advertise training events and follow-up publications.

Group 6

Every high school in Australia has now been connected to the internet and the government would like students to take a course in Australian history. They would like students to create exhibits for a multimedia cultural fair based in Sydney in two years.

4. Learning Assignment

Assignment: Management Intervenes

Your manager has gone to a technology conference and has returned inspired.

- Each group must use a specific technology.
- You need to actually learn about this technology and plan how it will be used.
- You have 5 minutes

Assignment: Management Intervenes (2)

1. PHPWiki
2. Drupal
3. Ning
4. Edublogs
5. Wikispaces
6. Second Life

Presentations….

Personal Professional Development

This is not about how to teach other people

This is about *your* personal professional development

Three Principles:

- Interaction
- Usability
- Relevance

Methodology

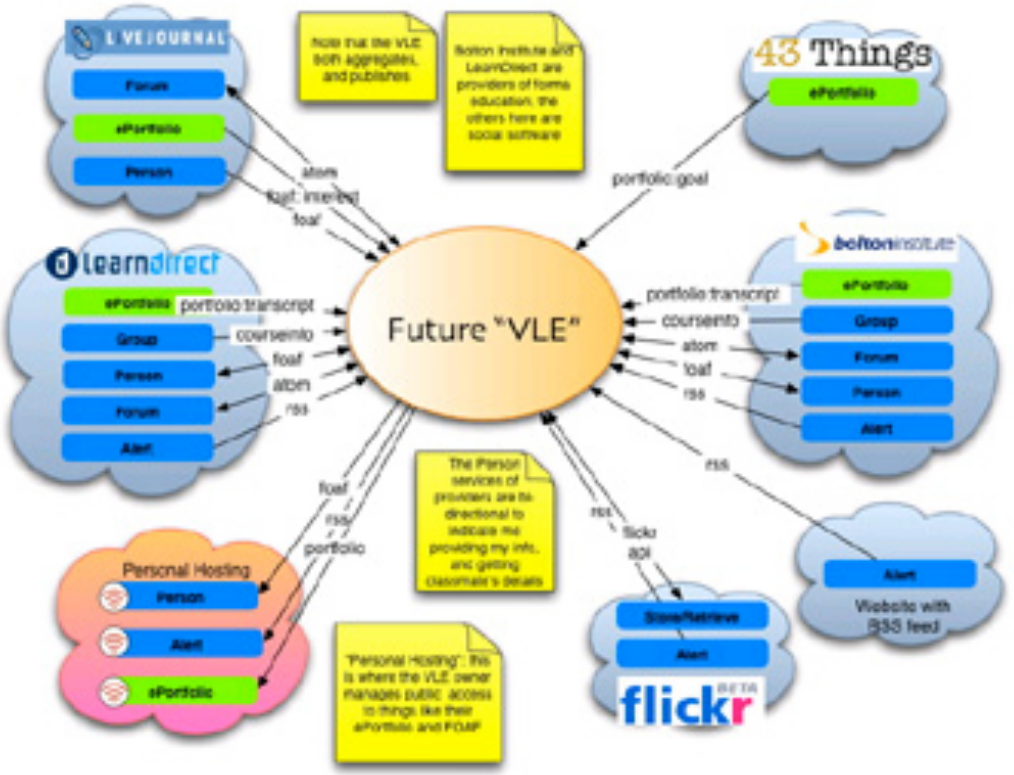
- What it is
- Why we want it
- How to get it
- About / Types
- Principles
- Guerilla Tactics

About Reality

- Principles and theories are not reality - they’re just heuristic devices
- Reality is *complex* - let it go
- Theories are just *ways* to describe reality, not reality itself

Interaction

- participation in a learning community (or a community of practice) (or a network)



Interaction:

"… the capacity to communicate with other people interested in the same topic or using the same online resource."

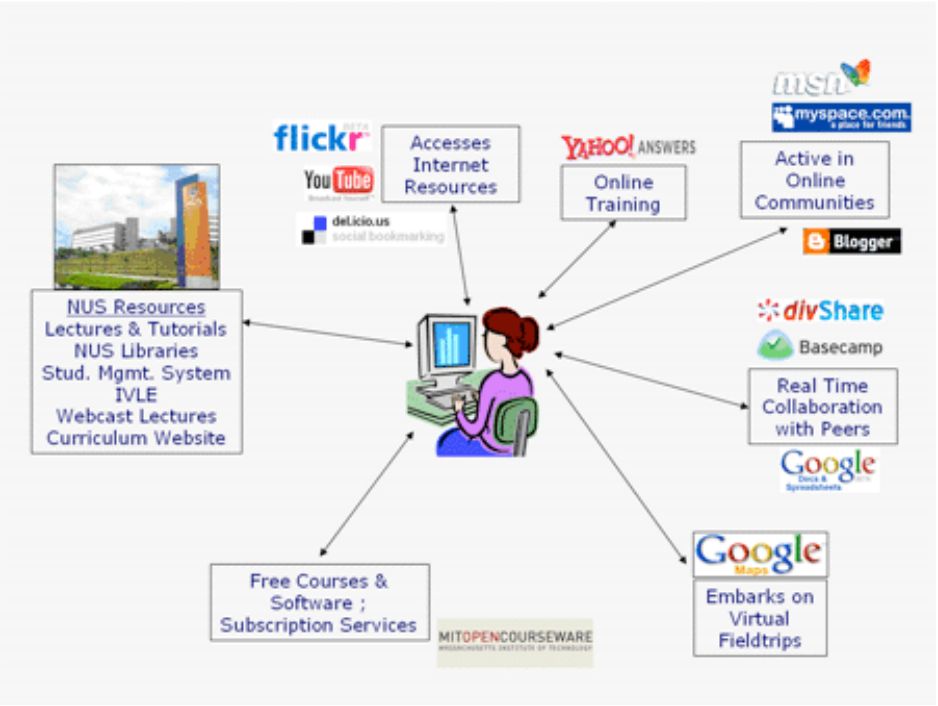
- *Why do we want it?*
  - **Human contact …** *talk to me…*
  - **Human content …** *teach me…*

Interaction: How to Get It

- You cannot depend on traditional learning for interactivity…
  - Most learning based on the broadcast model
  - Most interactivity separated from learning

Interaction: How to Get It

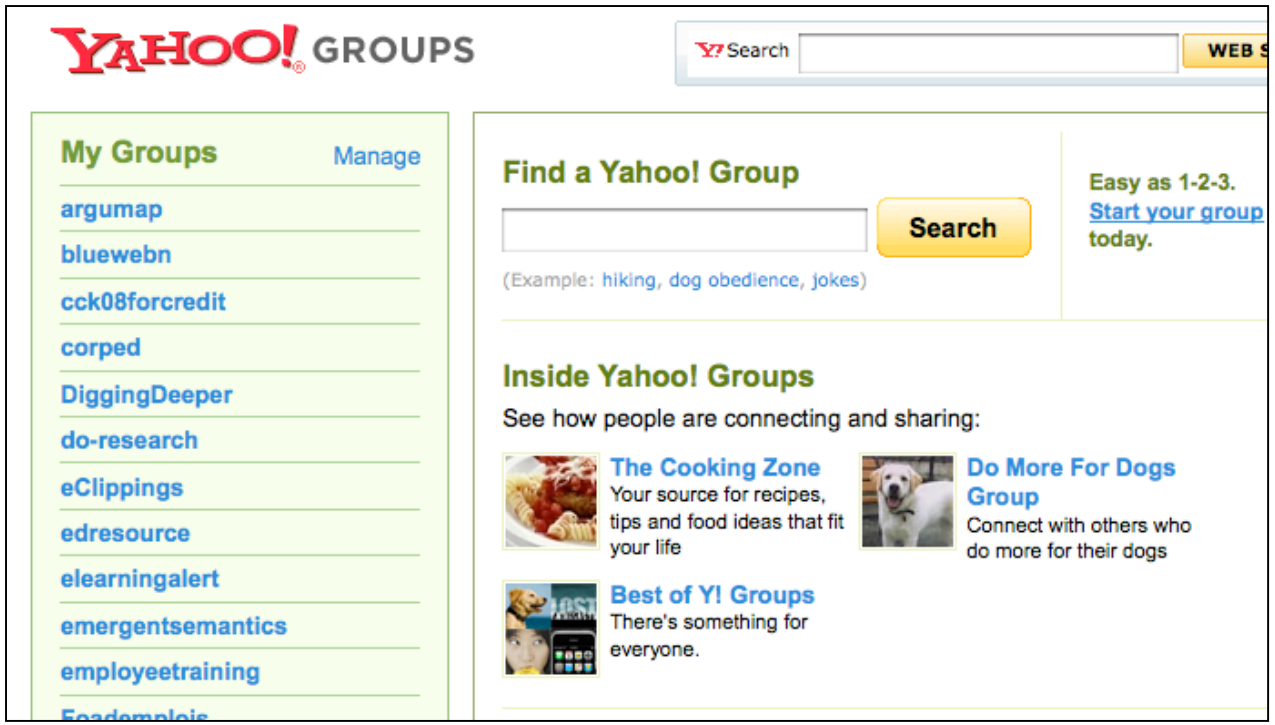
- Build your own interaction network
  - Place *yourself*, not the content, at the centre



https://edtechpost.wikispaces.com/PLE+Diagrams?f=print

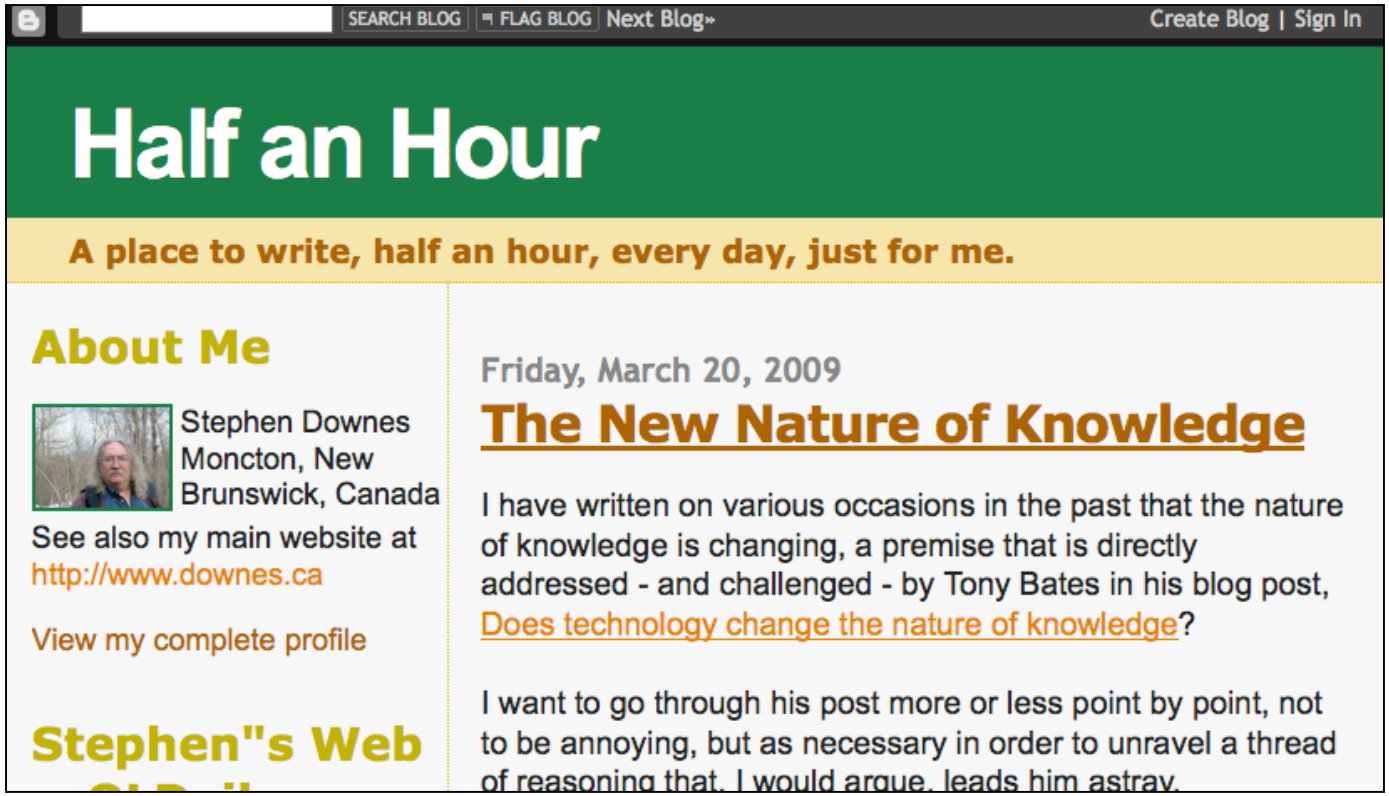
Interaction: Your Personal Network

- Email and mailing lists – eg., DEOS, wwwedu, ITForum, IFETS, online-news, RSS-DEV…



Interaction: Your Personal Network

- Weblogging – reading your subscriptions, leaving comments, longer responses in your own blog

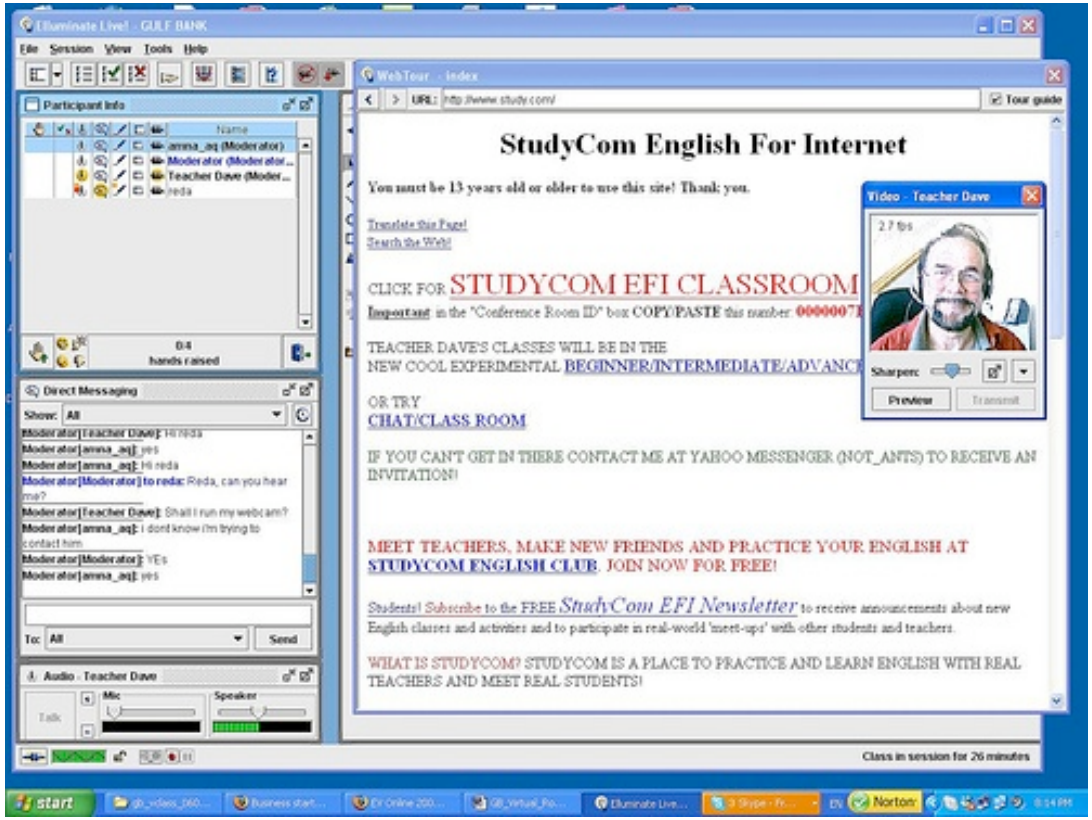


Interaction: Your Personal Network

- Personal communication – instant messaging, Skype, Twitter

Interaction: Your Personal Network

- Online Forums – Using, eg., Elluminate, Centra – examples, CIDER, Net*Working, EdTechTalk



Interaction: Principles

- Pull is better than push…
- Speak in your own (genuine) voice (and listen for authenticity)
- Share your knowledge, your experiences, your opinions
- Make it a habit and a priority

Interaction: Guerilla Tactics

- If interaction isn't provided, create it…
  - Eg., if you are at a lecture like this, blog it

Interaction: Guerilla Tactics

- If your software doesn't support interaction, add i
  - Eg., embed Javascript comment, RSS in LMS page

Network Formation

- Aggregate
- Remix
- Repurpose
- Feed Forward

Usability

simplicity and consistency

"… probably the greatest usability experts are found in the design labs of Google and Yahoo!"

- *Elements of Usability*
  - **Consistency …** *I know what to expect…*
  - **Simplicity …** *I can understand how it works…*

Consistency? As a Learner?

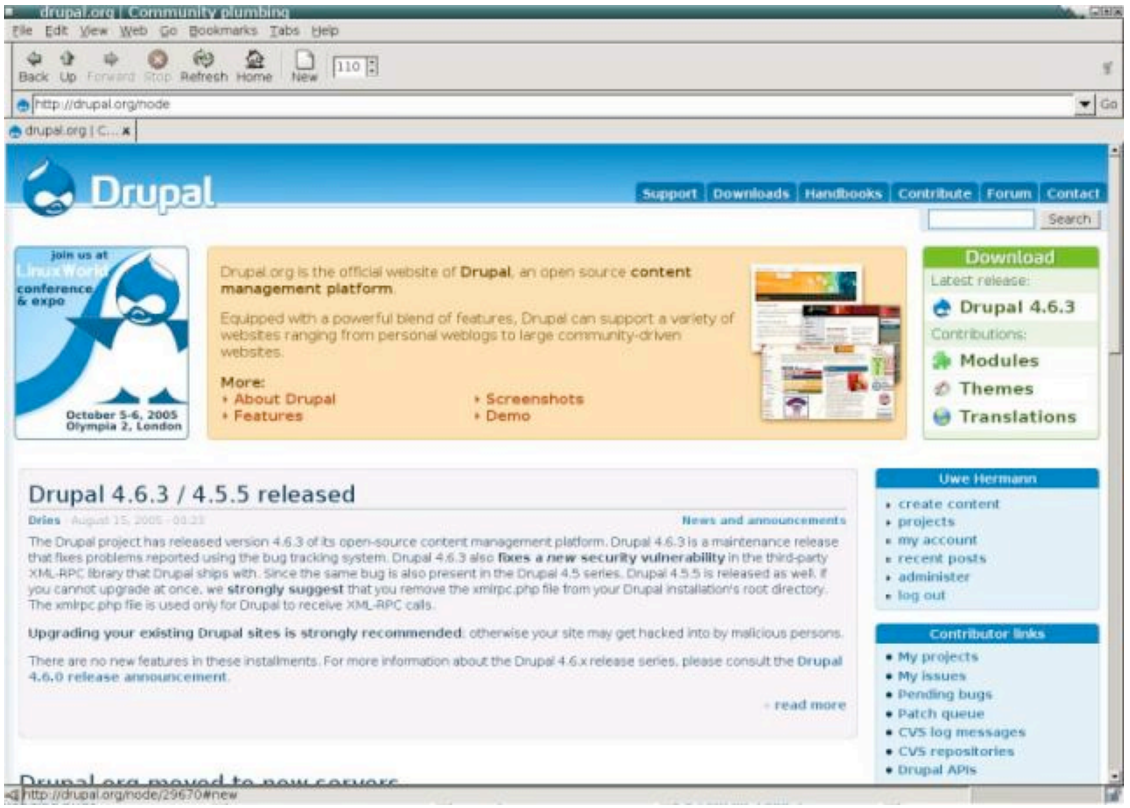
- Yes! Take charge of your learning…

Consistency? As a Learner?

- Clarify first principles…
  - for example, how do *you* understand learning theory? Eg. Five Instructional Design Principles Worth Revisiting

Consistency? As a Learner?

- Organize your knowledge
  - For example, build your own CMS (using, say, Drupal)



Simplify the Message

- Summarize, summarize, summarize
  - (and then put it into your own knowledge base)

Simplify the Message

- Use your own vocabulary, examples
  - *You* own your language – don't let academics and (especially) vendors tell you what jargon to use

Simplify the Message

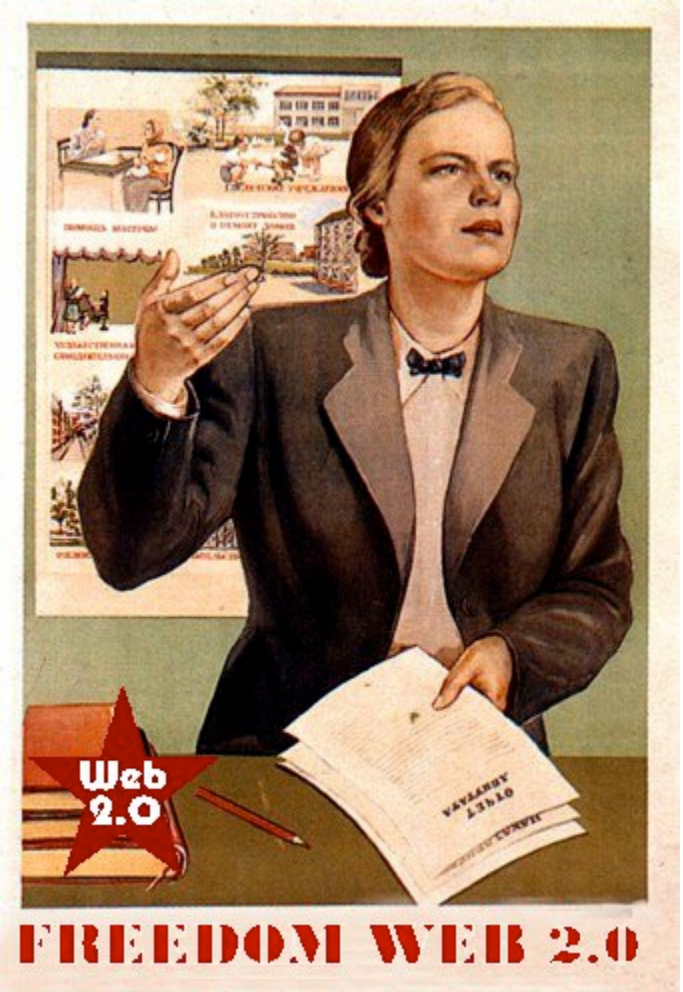
- Don’t compartmentalize (needlessly)

Usability: Principles

- Usability is Social:
  - Can you search your own learning?
  - Do you represent similar things in similar ways?
- Usability is Personal:
  - Listen to yourself
  - Be reflective – eg., is your desktop working for you?

Usability: Guerilla Tactics

- Important: your institutional CMS is almost certainly dysfunctional – create your own *distributed* knowledge management system…



Usability: Guerilla Tactics

– Create a blog on Blogger, just to take notes

Usability: Guerilla Tactics

- Store photos on Flickr

Network Learning

- Principles of associativity: Hebbian learning, proximity, back-propagation, Boltzmann
- To teach is to model and demonstrate
- To learn is to practice and reflect

Relevance

Relevance – or *salience*, that is, learning that is important to you, now

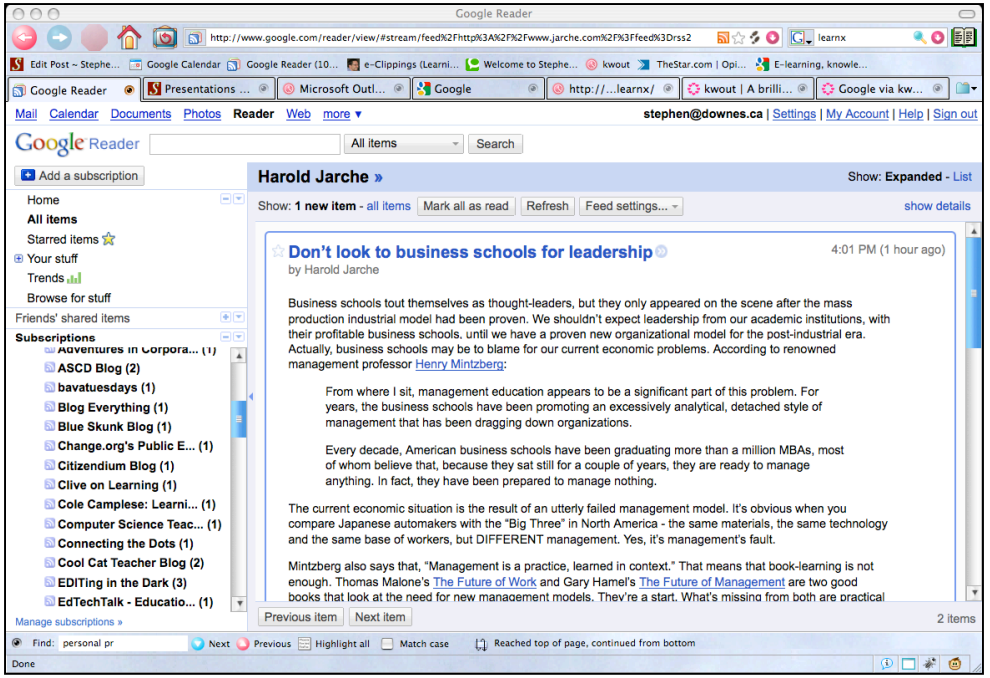
Relevance:

"… learners should get
what they want, when
they want it, and
where they want it "

- *<u>Generating Relevance</u>*
  - **Content …** *getting what you want*
  - **Location, location, location***…*

Getting What You Want

- Step One: maximize your sources – today's best bet is RSS – go to www.google.com/reader, set up an account, and search for topics of interest



Getting What You Want

- Step Two: filter ruthlessly – if you don't need it now, delete it (it will be online somewhere should you need it later)

Getting What You Want

- *Important*: Don't let someone else dictate your information priorities – only you know what speaks to you

Getting It Where (and When) You Want

- Shun formal classes and sessions in favour of informal activities

Getting It Where (and When) You Want

- *Do* connect to your work at home (and even on vacation) – *but* – feel free to sleep at the office
  - Most work environments are dysfunctional
  - Your best time might not be 9 to 5 …
  - Ideas (and learning) happen when they happen

Principles of Relevance

- Information is a flow, not a collection of objects
  - Don't worry about remembering, worry about repeated exposure to good information
- Relevance is defined by function, not topic or category
- Information is relevant only if it is available where it is needed

Relevance: Guerilla Tactics

- Develop unofficial channels of information (and disregard most of the official ones)

Relevance: Guerilla Tactics

- For example, I scan, then delete, almost all institutional emails (and everything from the director)

Relevance: Guerilla Tactics

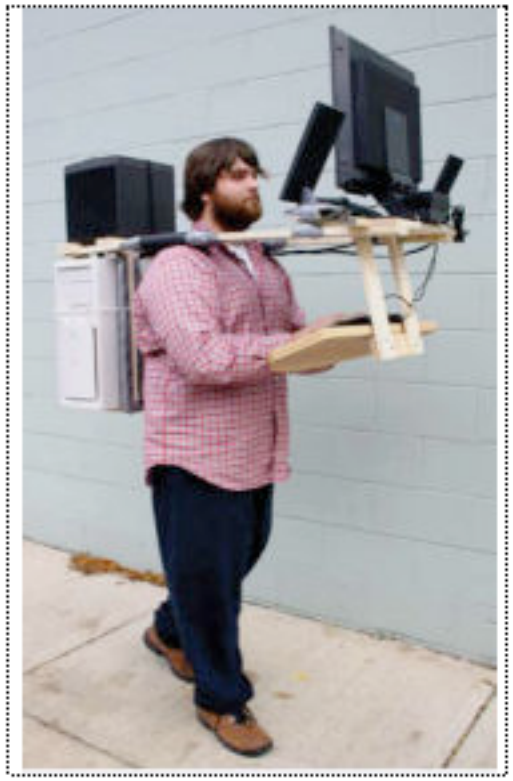
- Create ‘project pages’ on your wiki (you have a wiki, right?) with links to templates, forms, etc.

Relevance: Guerilla Tactics

- Demand access

Relevance: Guerilla Tactics

- Route Around Blocking



OR

Network Semantics

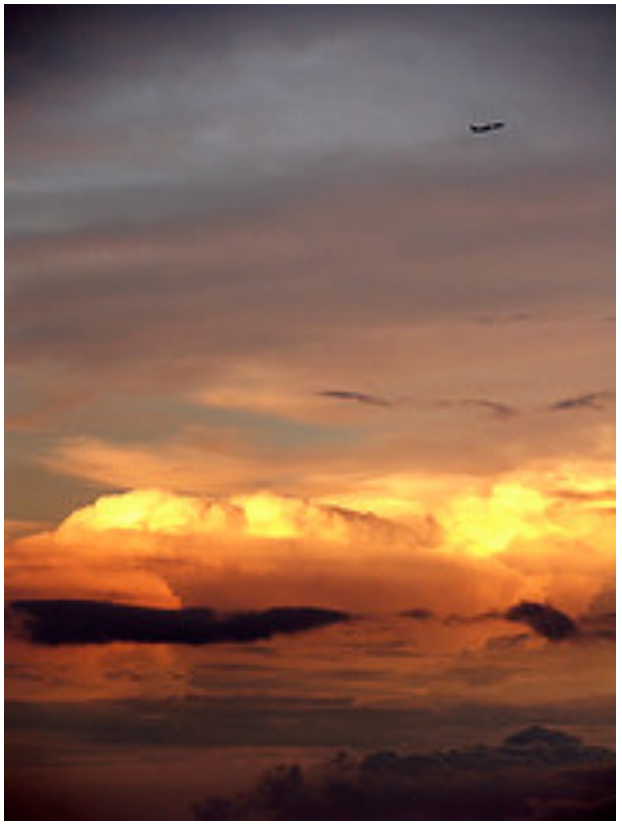
- Autonomy
- Diversity
- Openness
- Connectedness

What I'm *Really* Saying Here…

1. You are at the centre of your own *personal learning network*

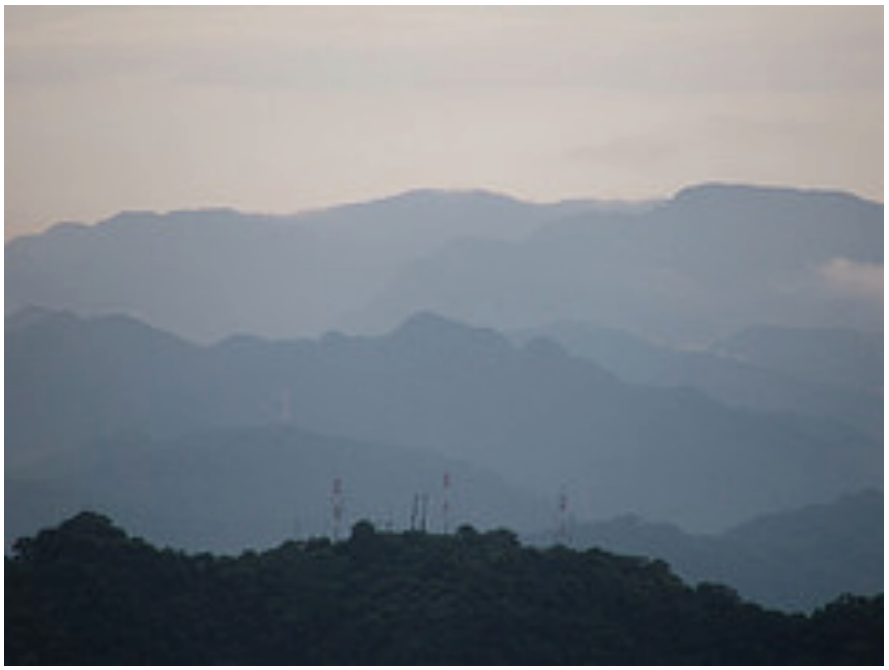
What I'm *Really* Saying Here…

2. To gain from self-directed learning you must *be self-directed*



What I'm *Really* Saying Here…

3. These principles should guide *how we teach* as well as how we learn



NRC CNRC
Institute for
Information
Technology
http://www.downes.ca
Science
at work for
Canada
National Research
Council Canada
Conseil national
de recherches Canada
Canada

The Connectivist Learning Model

Learning…

- Two major aspects:
- ‘knowledge’ is to be organized in a certain way
- - ‘knowing’ is like ‘recognizing’, ie., pattern matching

Vs. Cognitivism

- Cognitivism = the theory that knowledge consists of (propositional) models of reality
- Eg. ‘sentences in the brain’
- Examples: declarative knowledge, general principles, causation, categorization

Connectivism

- The theory that knowledge and learning can be described and explained using network principles
- ‘Learning’ is not to acquire a set of facts, but rather, to develop or ‘grow’ into a certain neural configuration

Knowledge…

- Is distributed….
- Is emergent…
- Is ineffable…

Connectivist Learning theory

- Based on principles of associationism
- Four major ways to learn:
  - Simple (Hebbian) associationism
  - Accidental association (by proximity)
  - Back-Propagation
  - Boltzmann learning

Connectivist Pedagogy

- To ‘teach’ is to model and demonstrate
- To ‘learn’ is to practice and reflect
- Both imply participation in what might be called ‘an authentic community of practice’

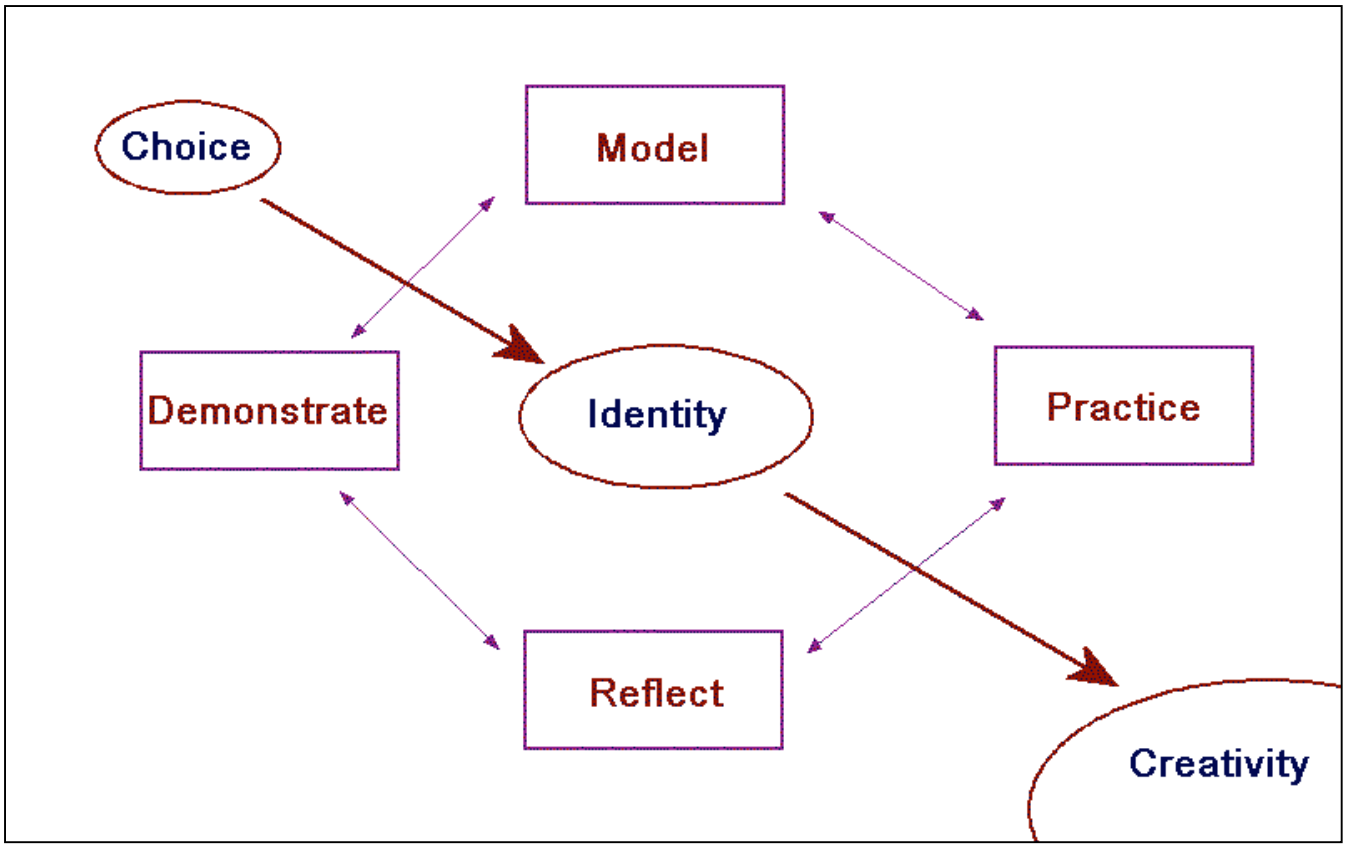
Role of the teacher

- To practice one's work in an open manner; to work transparently
- To 'work' is to engage in a community
- To be openly reflective, eg., to write about the work

Role of the Learner

- To attach oneself to an authentic environment
- To observe and emulate successful practice
- To be ‘reflective’, ie., to engage in conversation about the practice

The Connectivist Learning Model



Model

The question is – how to transport and represent models that are actually used?

- conceptual frameworks
  - wiki (wiki API, RSS)
  - concept maps (SVG, mapping format)
  - gliffy (SVG?)
- reference frameworks
  - Wikipedia
  - video / 2L 3D representation – embedded spaces

Demonstrate

Demonstrate
- reference examples
  - code library
  - image samples
- thought processes
  - show experts at work (Chaos Manor)
- application
  - case studies, stories

The question is, how can we connect the learner with the community at work?

Practice

- scaffolded practice
  - game interfaces
  - sandboxes
- job aids
  - flash cards, cheat sheets
- games and simulations
  - mod kits, mmorpgs

The question is, how can we enable access to multiple environments that support various activities?

Reflection

The question is, how can we assist people to see themselves, their practice, in a mirror?

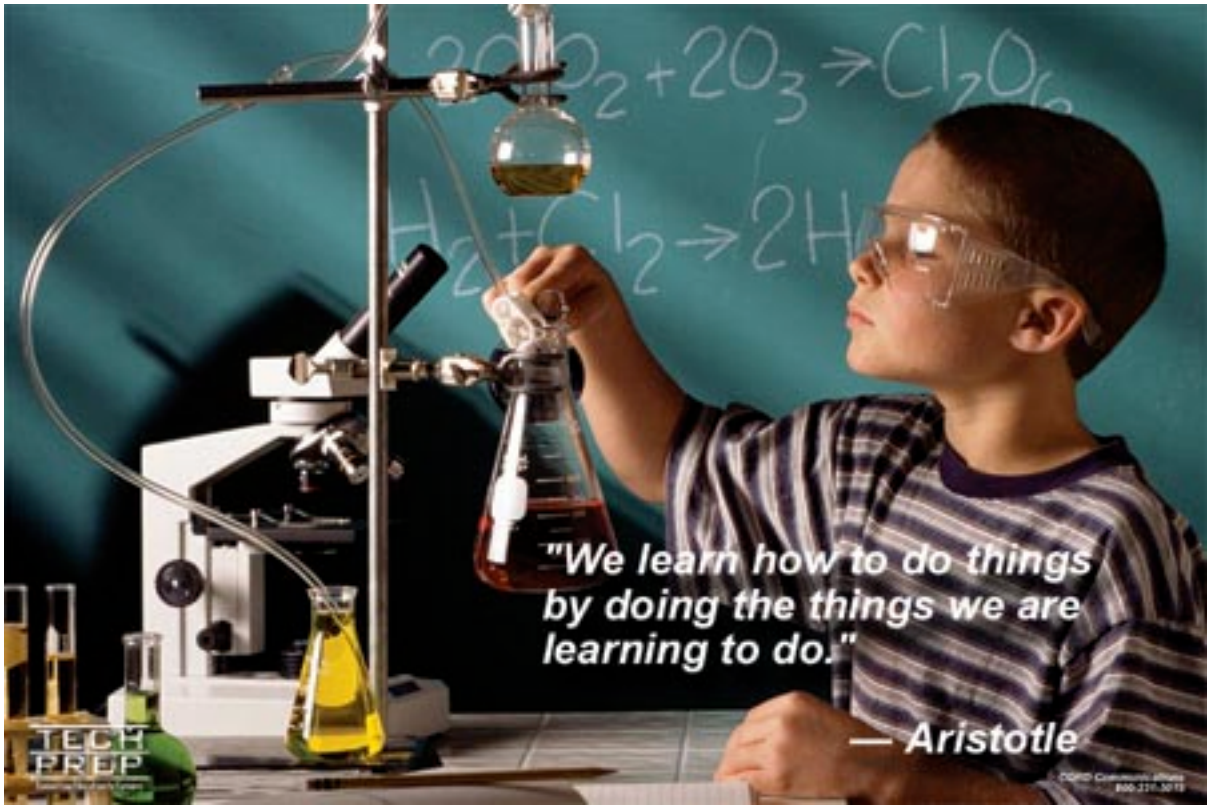
- guided reflection
  - forms-based input
  - presentations and seminars
- journaling
  - blogs, wikis
- communities
  - discussion, sharing

Choice – Identity - Creativity

- simulated or actual environments that present tasks or problems
- OpenID, authentication, feature or profile development
- Portfolios & creative libraries

People talk about ‘motivation’ – but the real issue here is *ownership*

What does personal learning mean for learners?



User generated Content

- Personal, opinionated

Connections, connections…

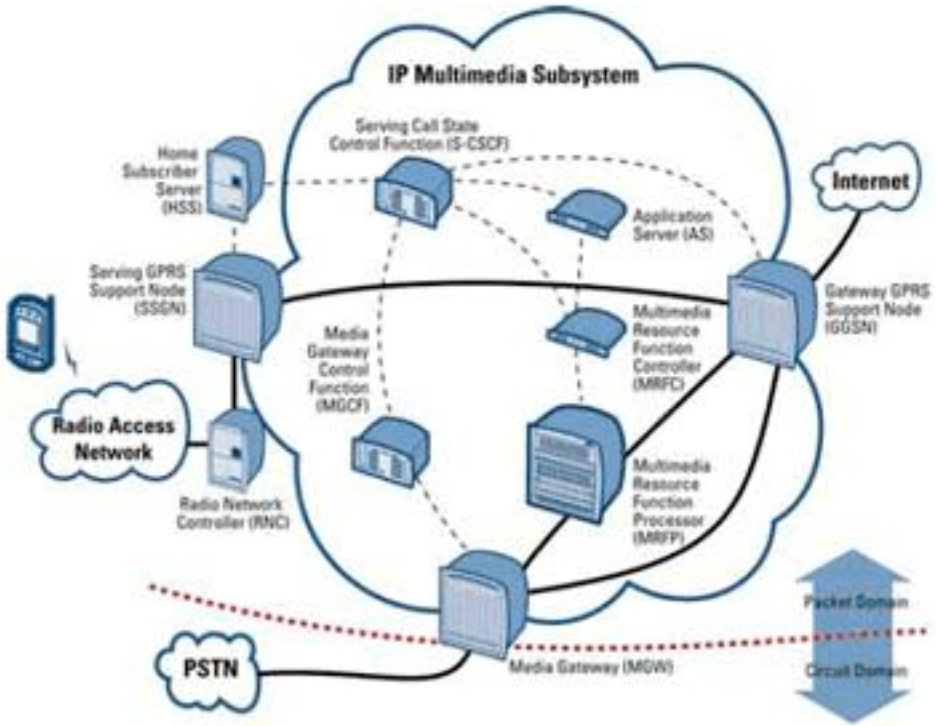


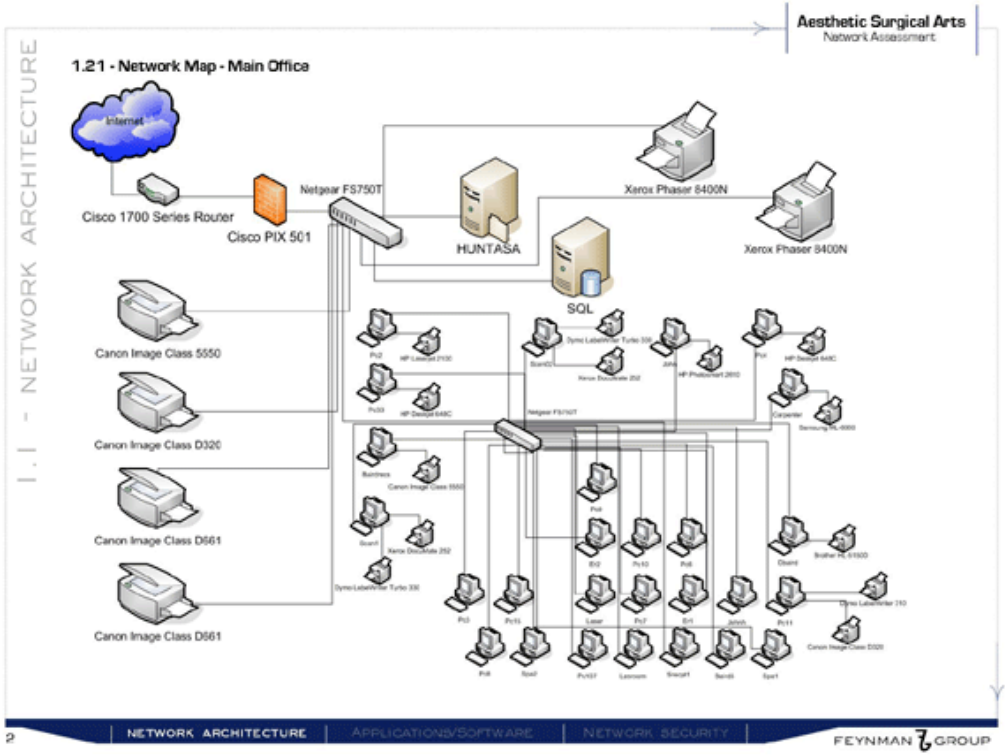
Figure 1: IP Multimedia Subsystem (IMS).

Immersive Learning

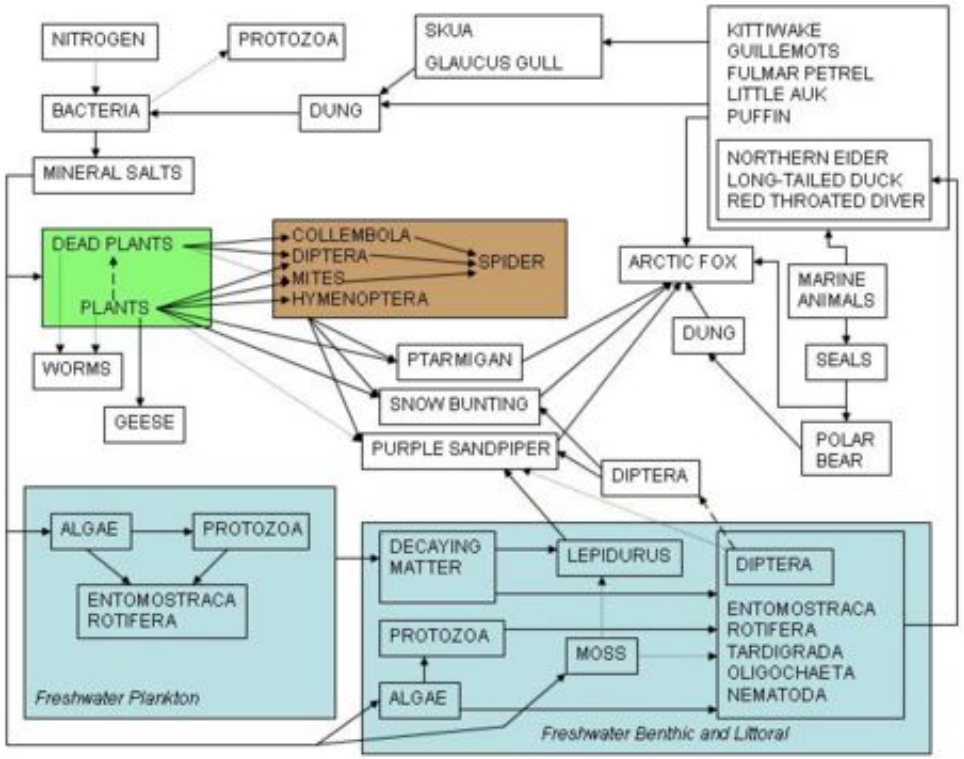
New Roles

- For students - as creators of learning
- For teachers - as coaches and mentors
- For the rest of us - as teachers

- Learning as a network phenomenon…

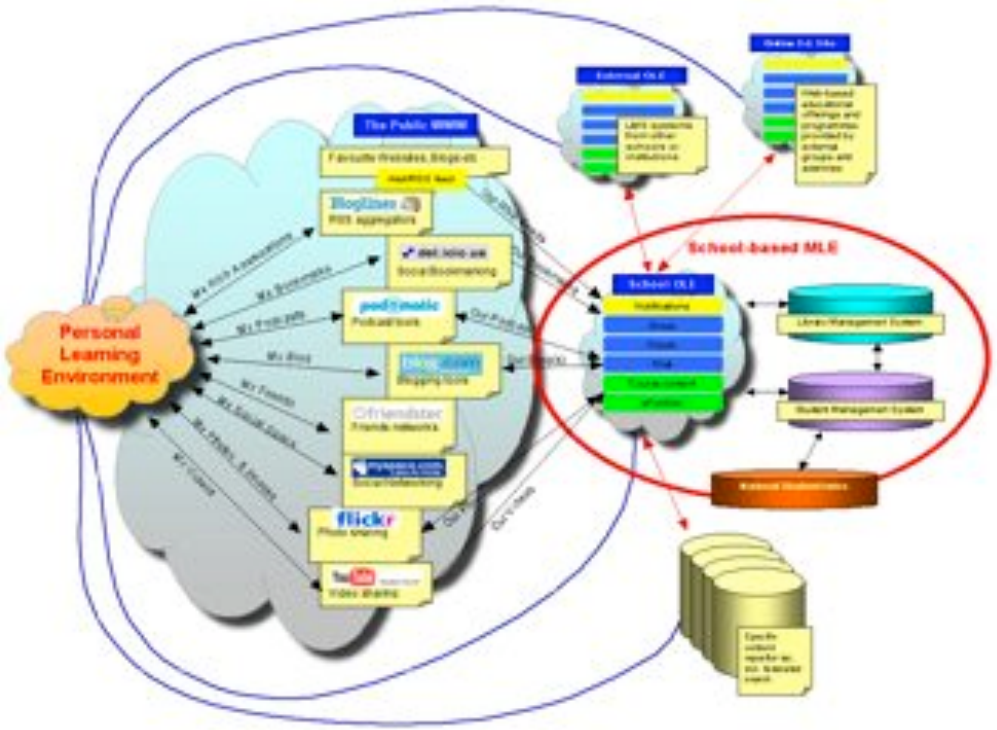


- Networks of interactions (aggregate, remix, repurpose, feed forward) – syndication



An ecology…

- The *personal* learning centre

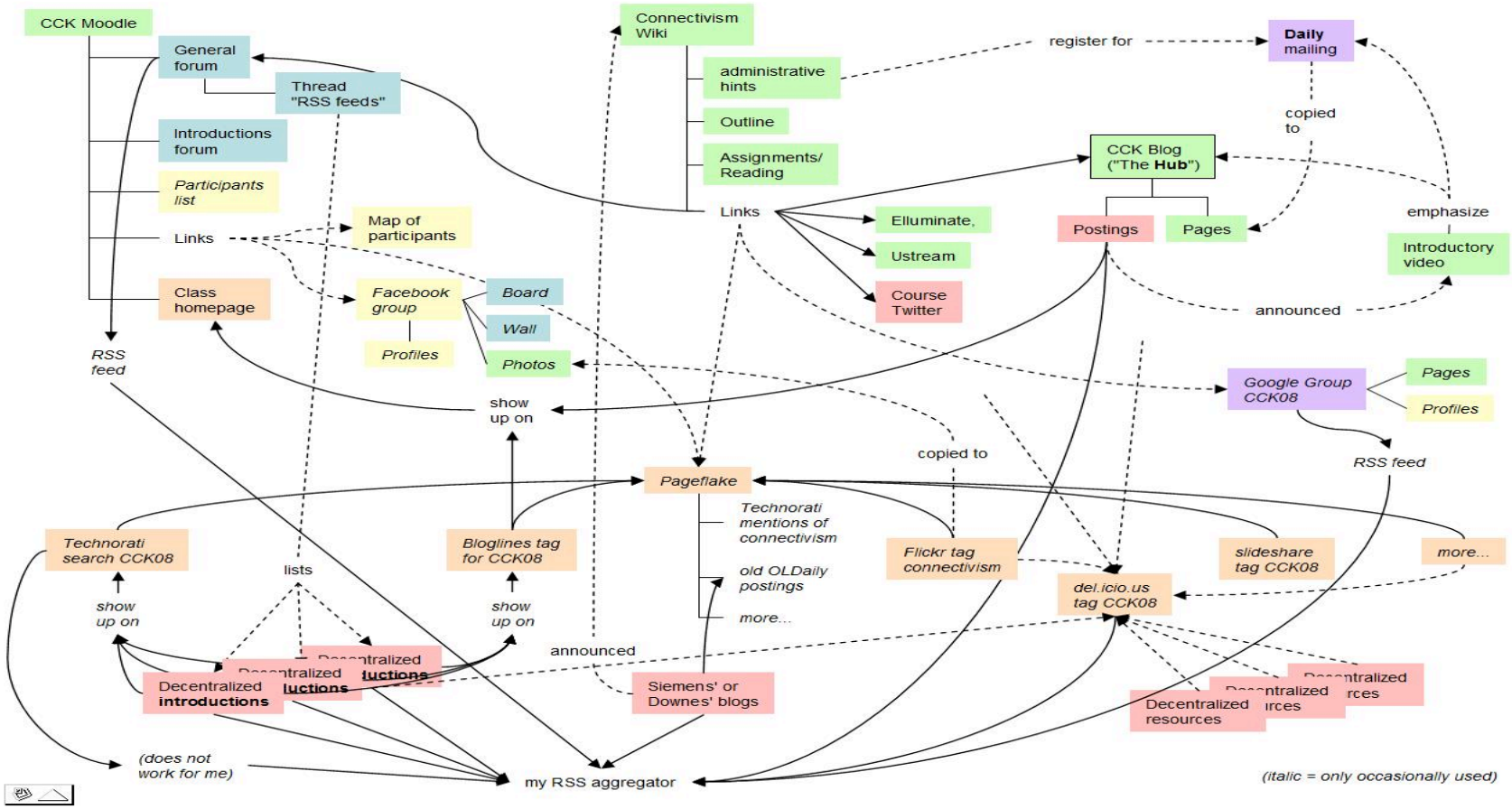


Autonomy

http://blog.core-ed.net/derek/2006/11/more_on_mles_and_ples.html

http://getfeedforward.org/

Connectivism & Connective Knowledge



The Best Example…

- 12 week course, readings, activities…
- The course on connectivism is probably the best (early) example of what we mean
  - We began with the course itself – what we wanted to cover
  - We then added communications tools
  - And then the students took over…

Overview…

- George Siemens and I ushered roughly 2200 students through a 12 week online course
- Some of these paid tuition and are getting credit, but most of them attended the ‘open’ course

The Course

- Offered through the University of Manitoba
  - 12 weeks long
  - credit in Certificate in Adult and Continuing Education and Certificate in Emerging Technologies for Learning
  - Explored the concepts of connectivism and connective knowledge

Connectivism

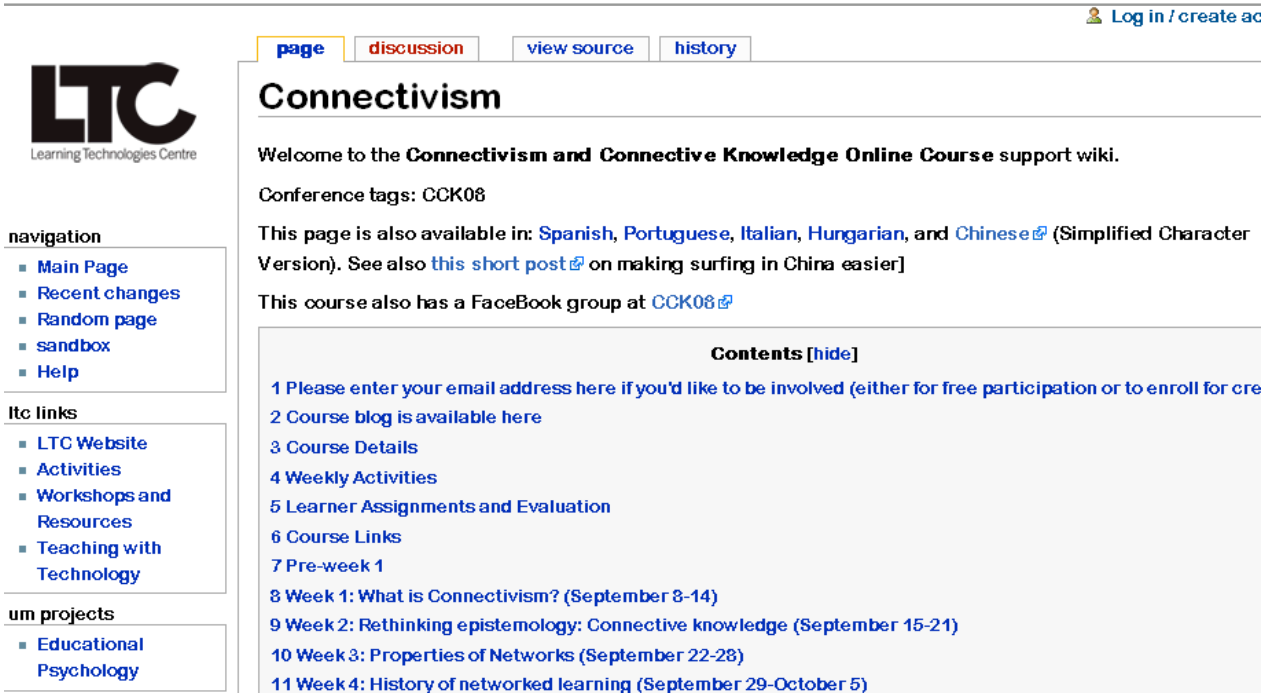
"At its heart, connectivism is the thesis that knowledge is distributed across a network of connections, and therefore that learning consists of the ability to construct and traverse those networks."

What Connectivism Is

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

Course Components

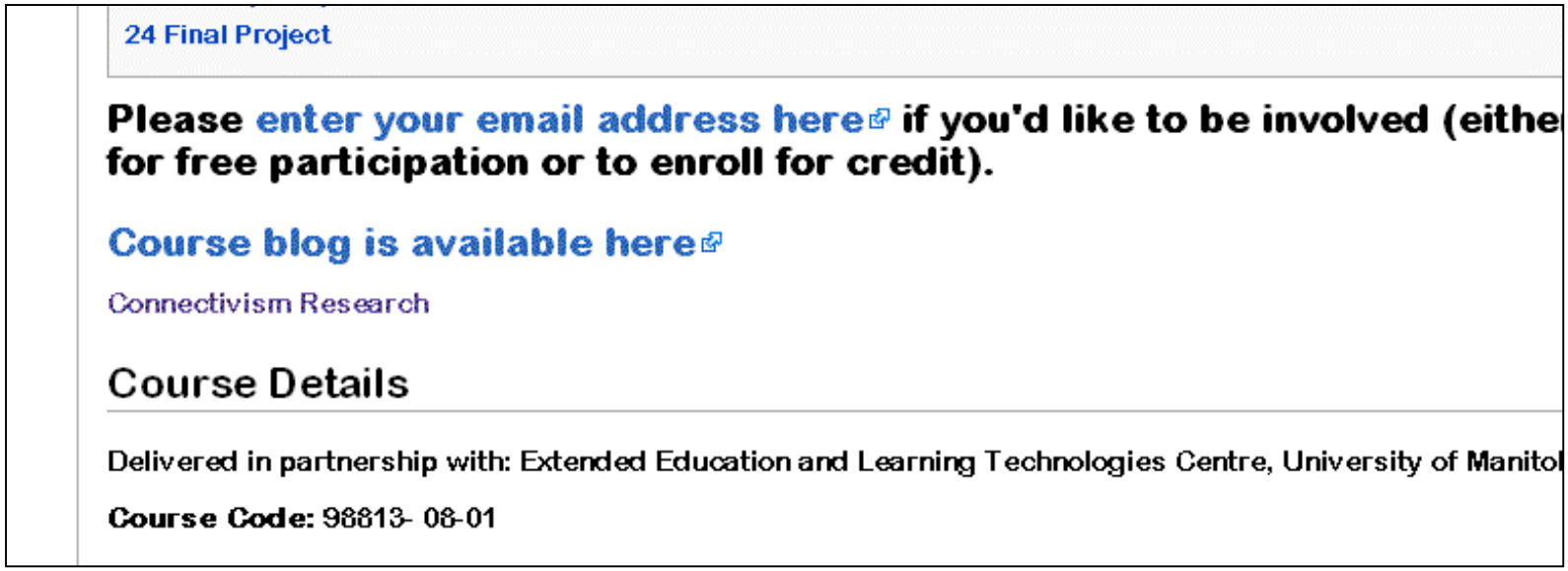
- The Wiki…



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

Course Components (2)

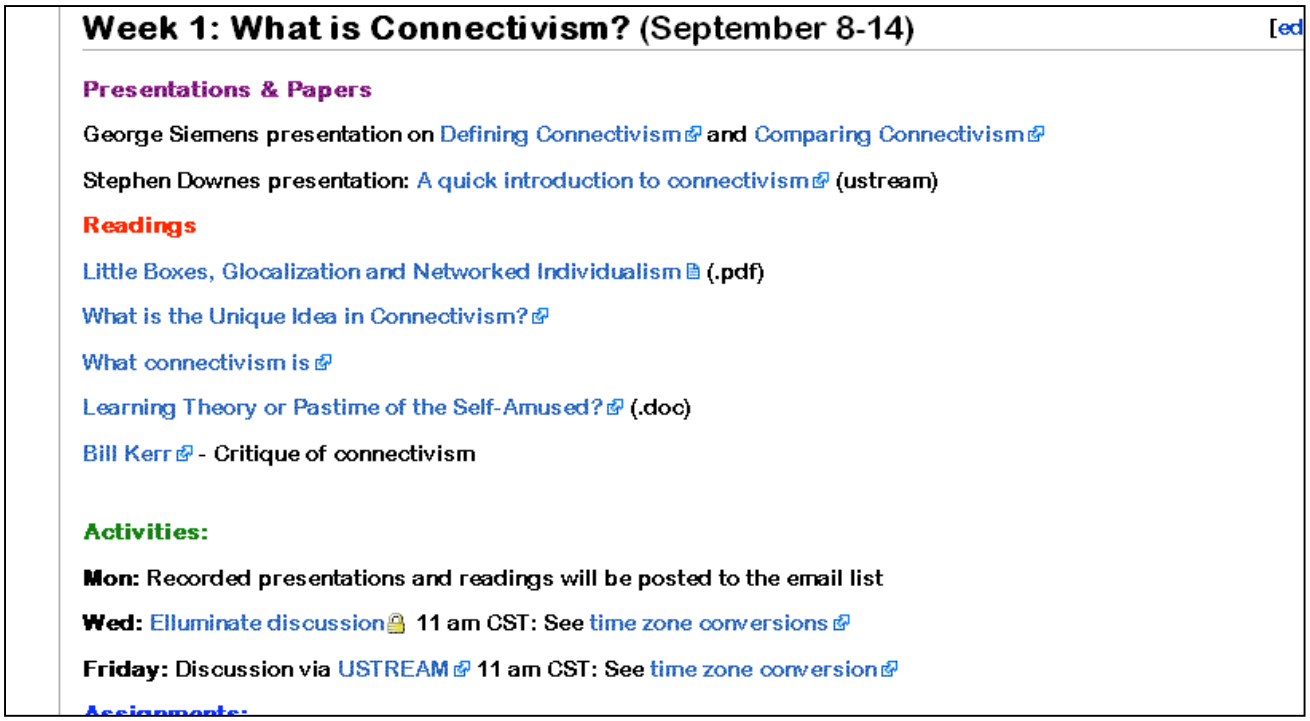
- Open Enrollment



- The course was advertised in both of our blogs…

Course Components

- Readings….



Week 1: What is Connectivism? (September 8-14) [ed

Presentations & Papers

George Siemens presentation on Defining Connectivism and Comparing Connectivism

Stephen Downes presentation: A quick introduction to connectivism (ustream)

Readings

Little Boxes, Glocalization and Networked Individualism (.pdf)

What is the Unique Idea in Connectivism?

What connectivism is

Learning Theory or Pastime of the Self-Amused? (.doc)

Bill Kerr - Critique of connectivism

Activities:

Mon: Recorded presentations and readings will be posted to the email list

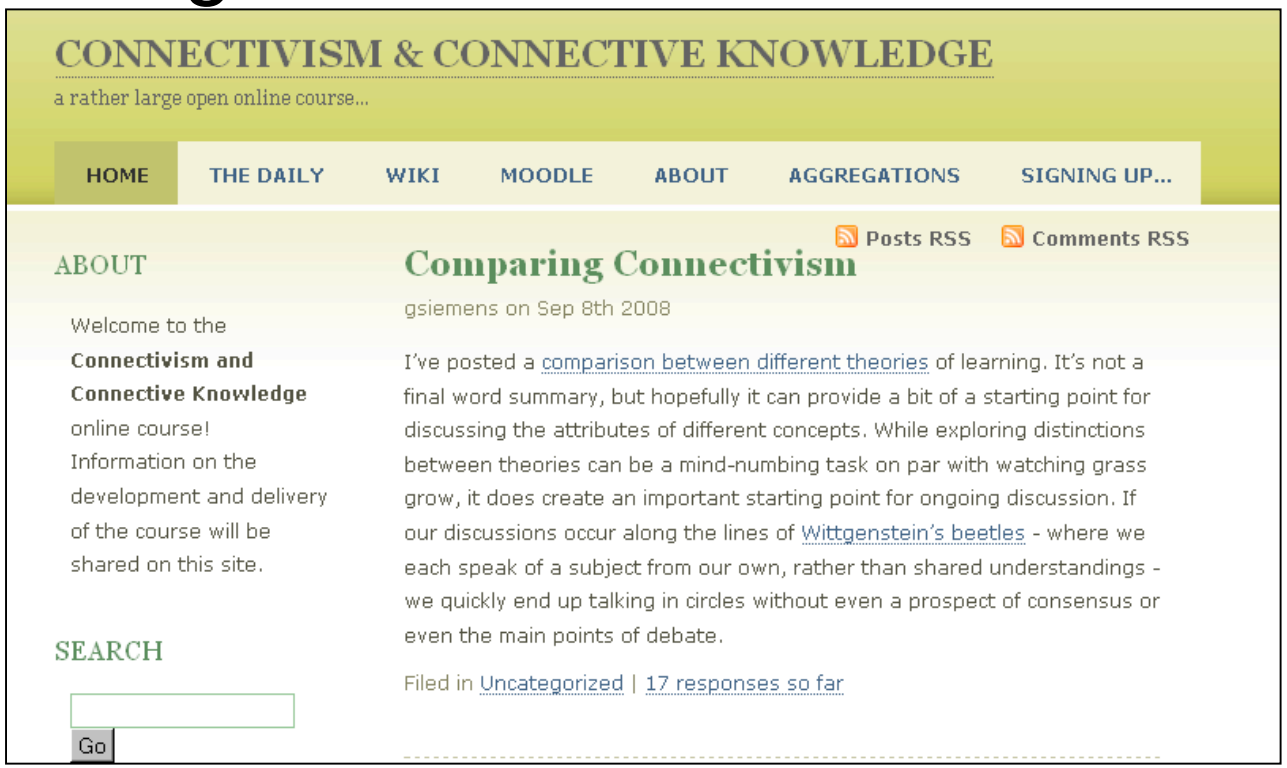
Wed: Elluminate discussion 11 am CST: See time zone conversions

Friday: Discussion via USTREAM 11 am CST: See time zone conversion

Assignments:

Course Components (3)

- The Blog



http://ltc.umanitoba.ca/connectivism/

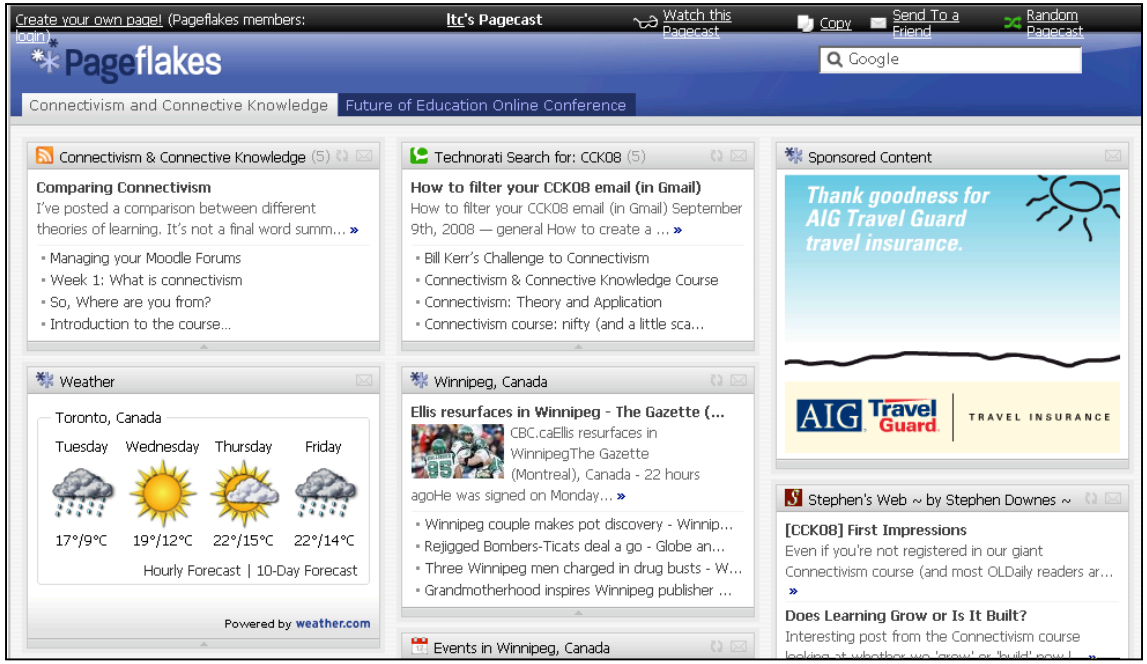
Course Components

- Course Moodle Forum

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

Course Components

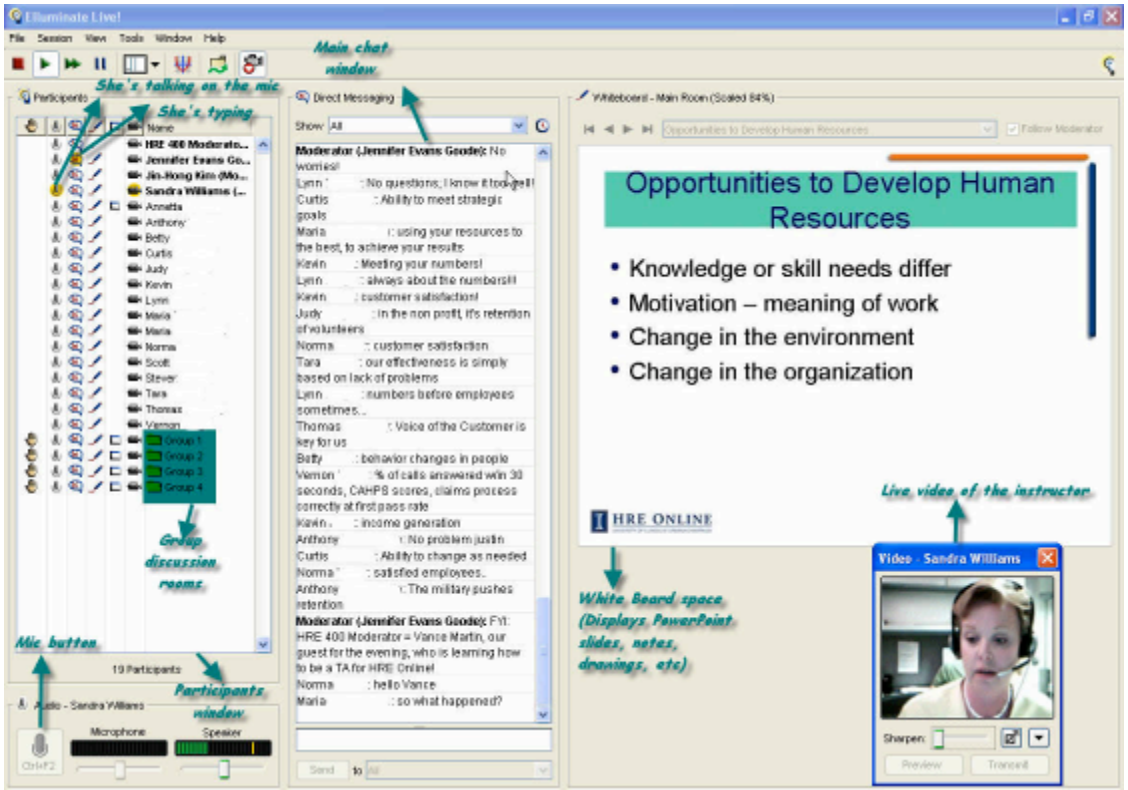
- Pageflakes Site



http://www.pageflakes.com/ltc

Course Components

- Elluminate Discussions (Wednesdays)



Course Components

- Ustream

http://www.ustream.tv/recorded/688902

Course Components

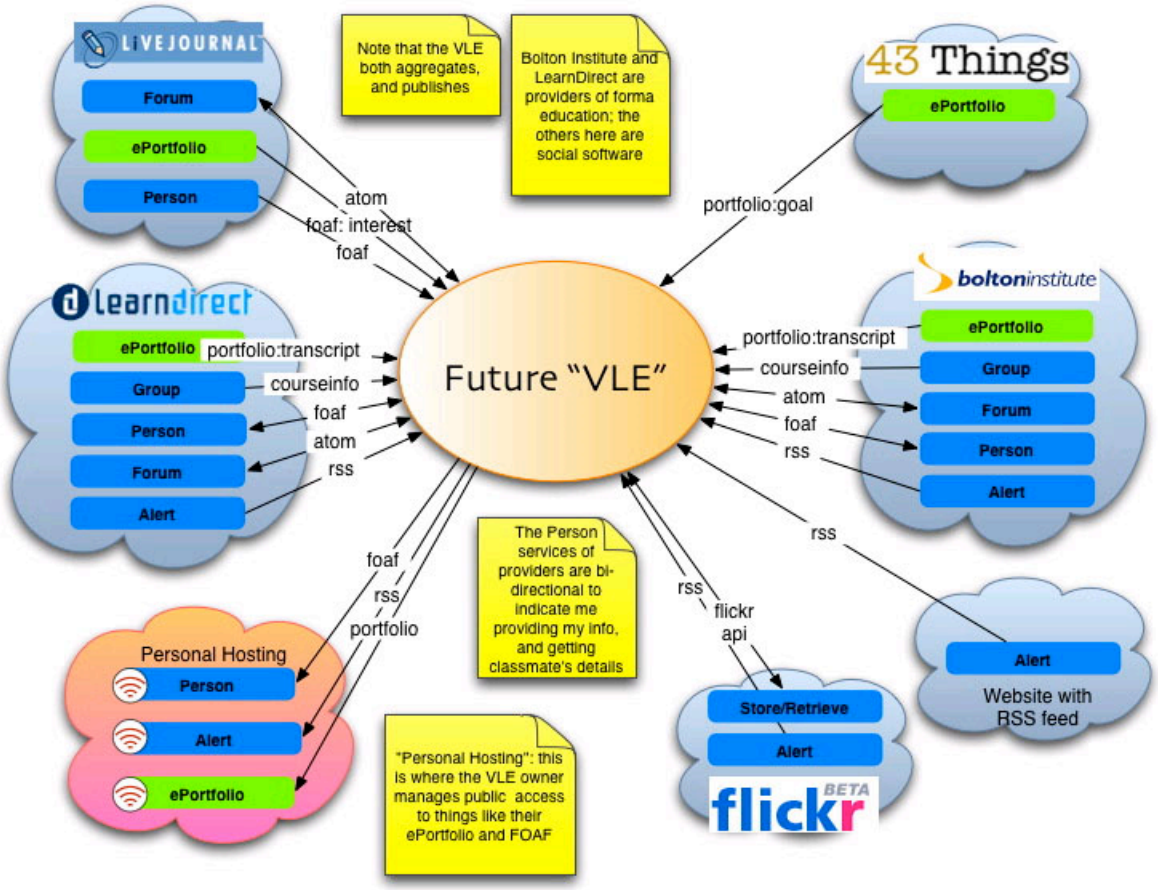
- Twitter…

http://twitter.com/cck08

Course Components

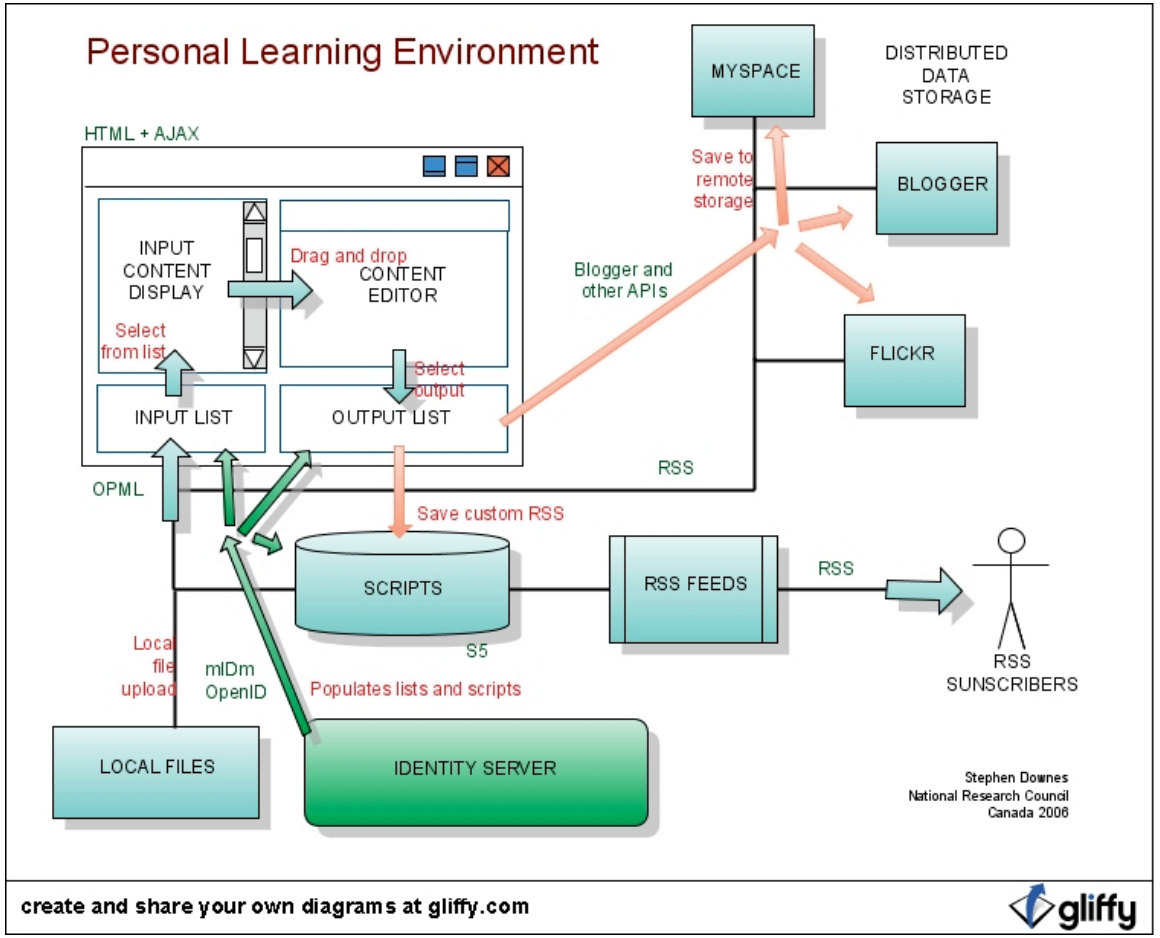
- gRSShopper…

The Main Idea



The web of the future isn't about visiting sites, it's about connecting resources.

Architecture

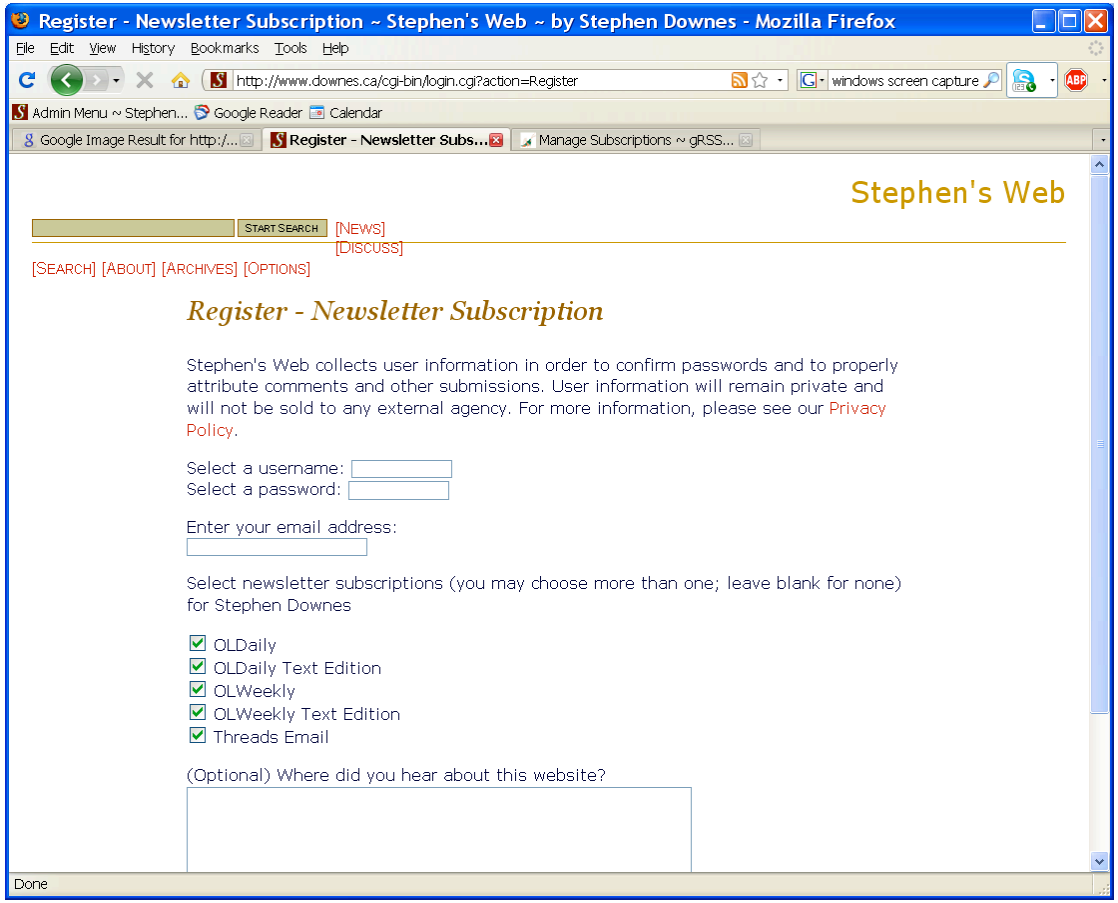


The application provides mechanisms to input, process, and distribute content.

Login

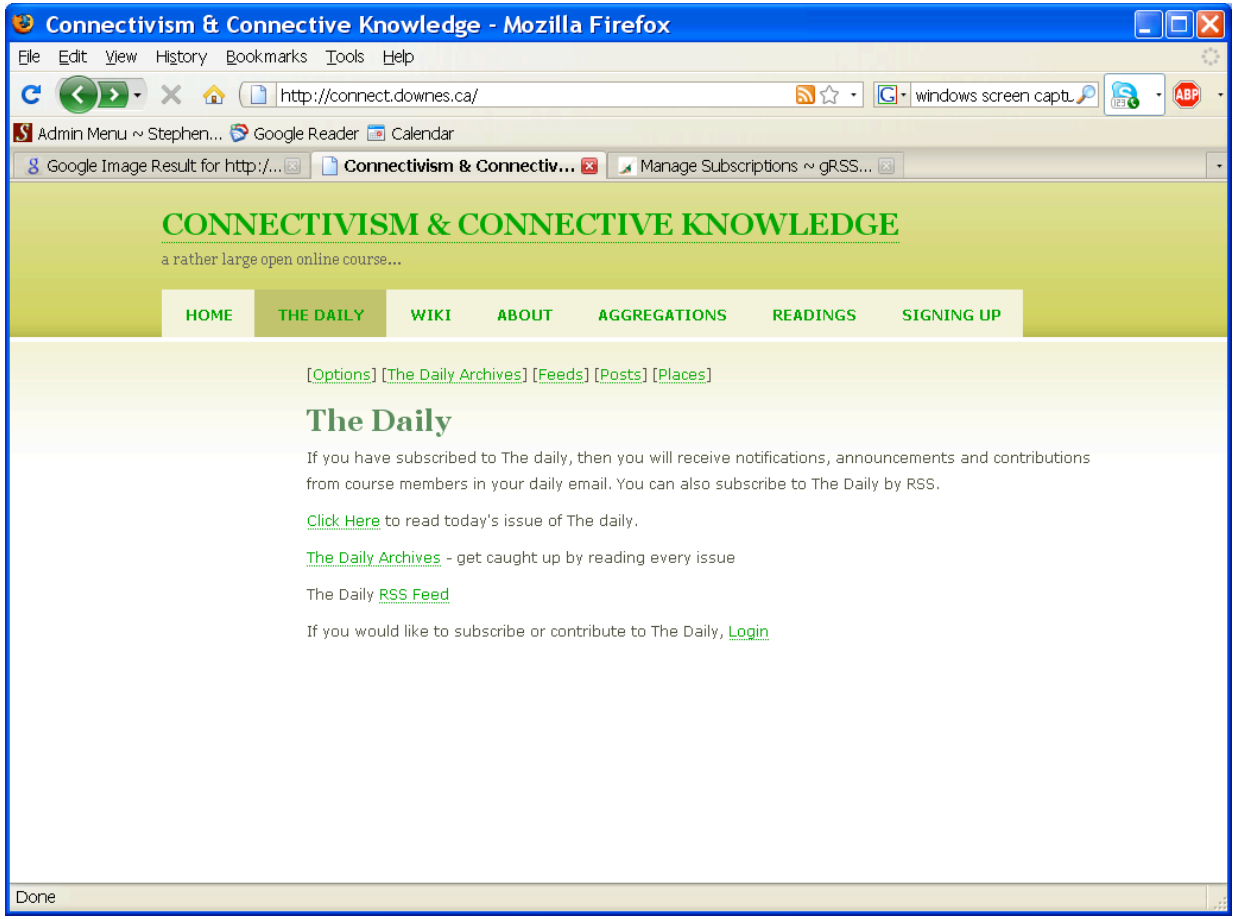
gRSShopper instances are *personal* sites intended to support single users or small groups (though visitors can sign in).

Subscriptions



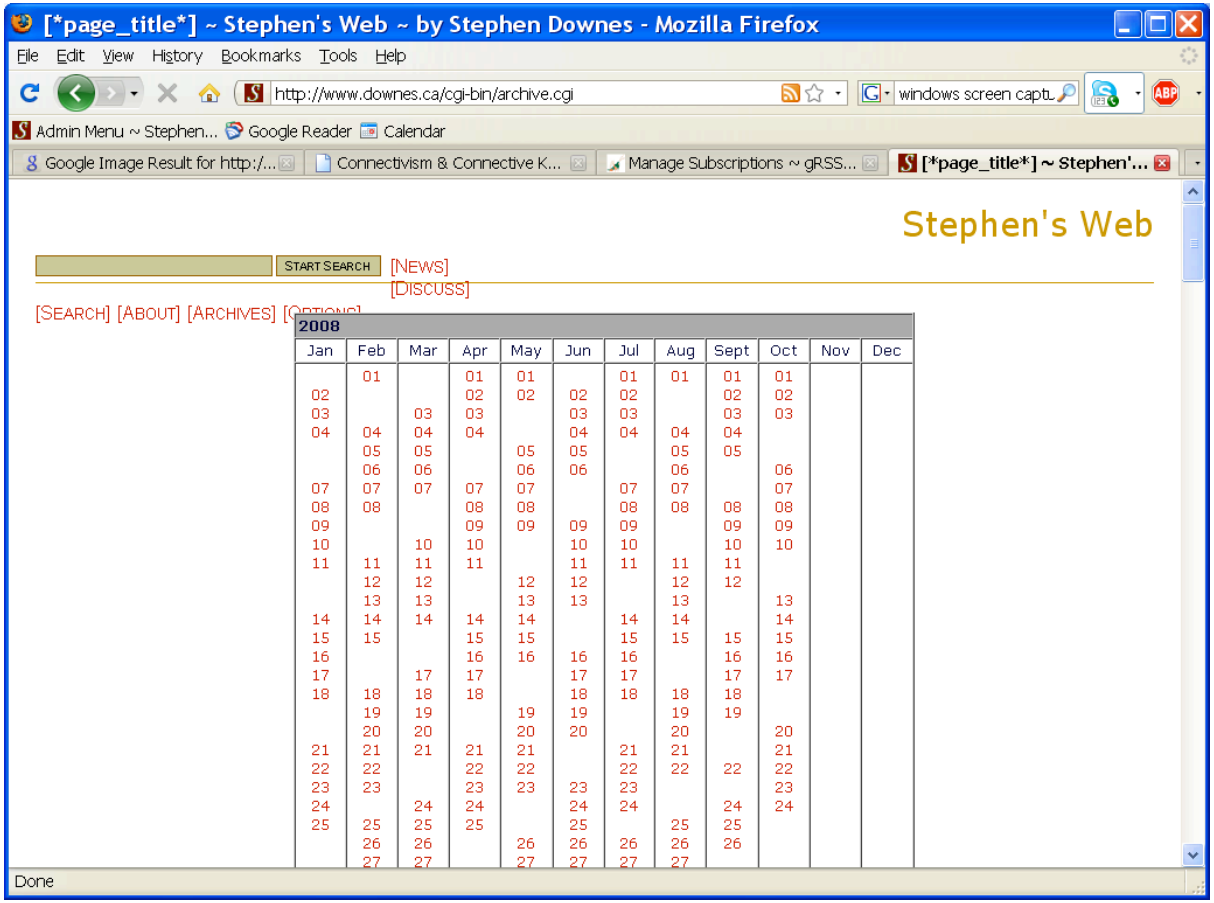
Visitors have a one-click way to subscribe to site newsletters (or they can sign up for RSS).

Custom Pages



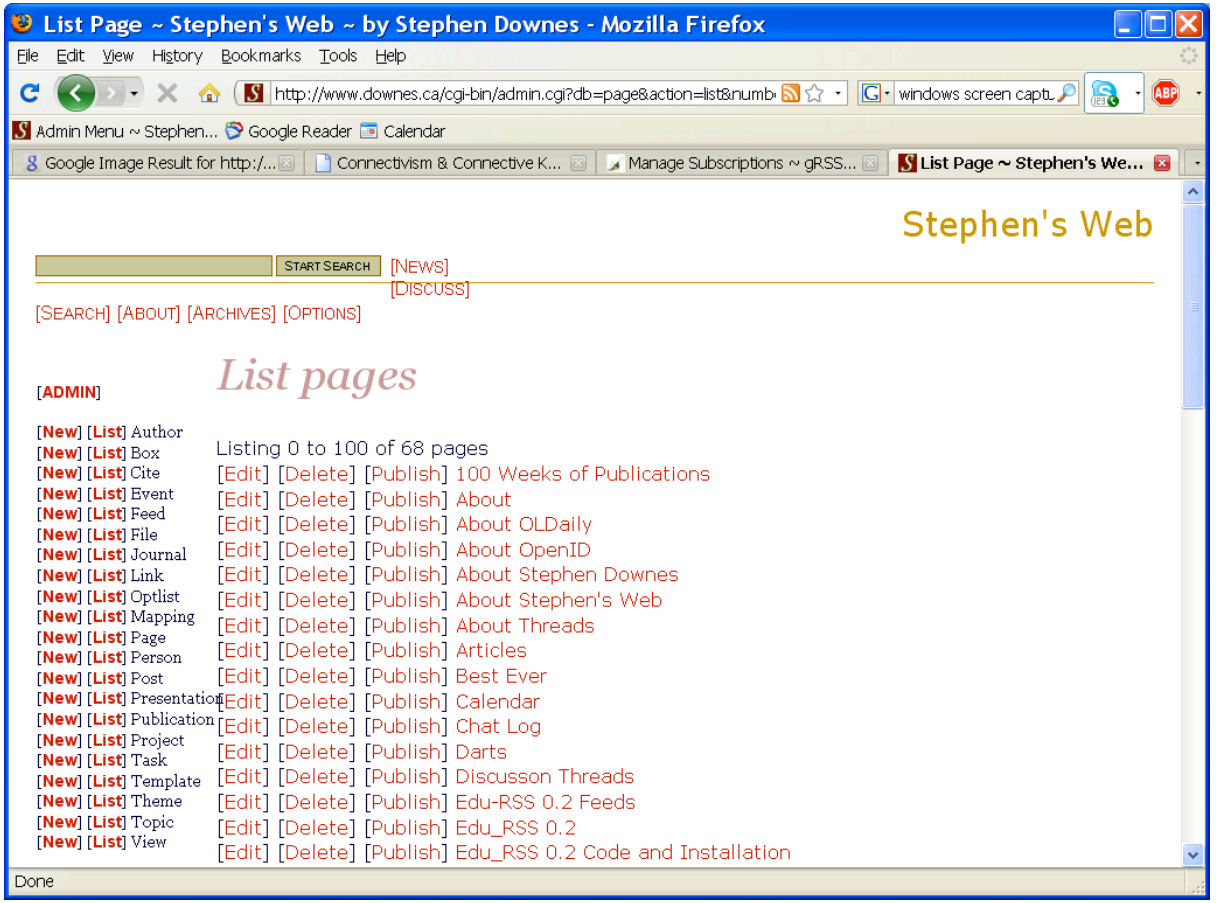
Content is organized into pages

Archive



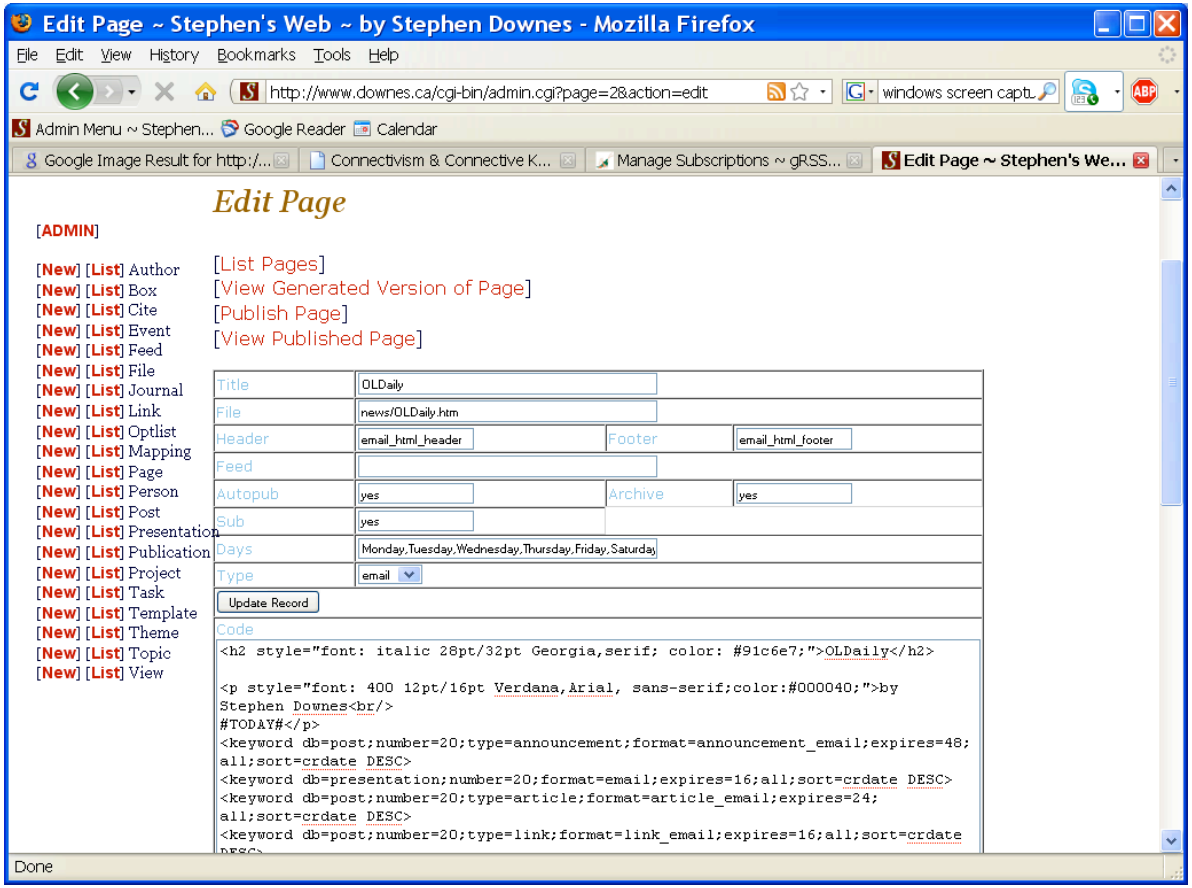
Pages auto-archive

Custom Pages



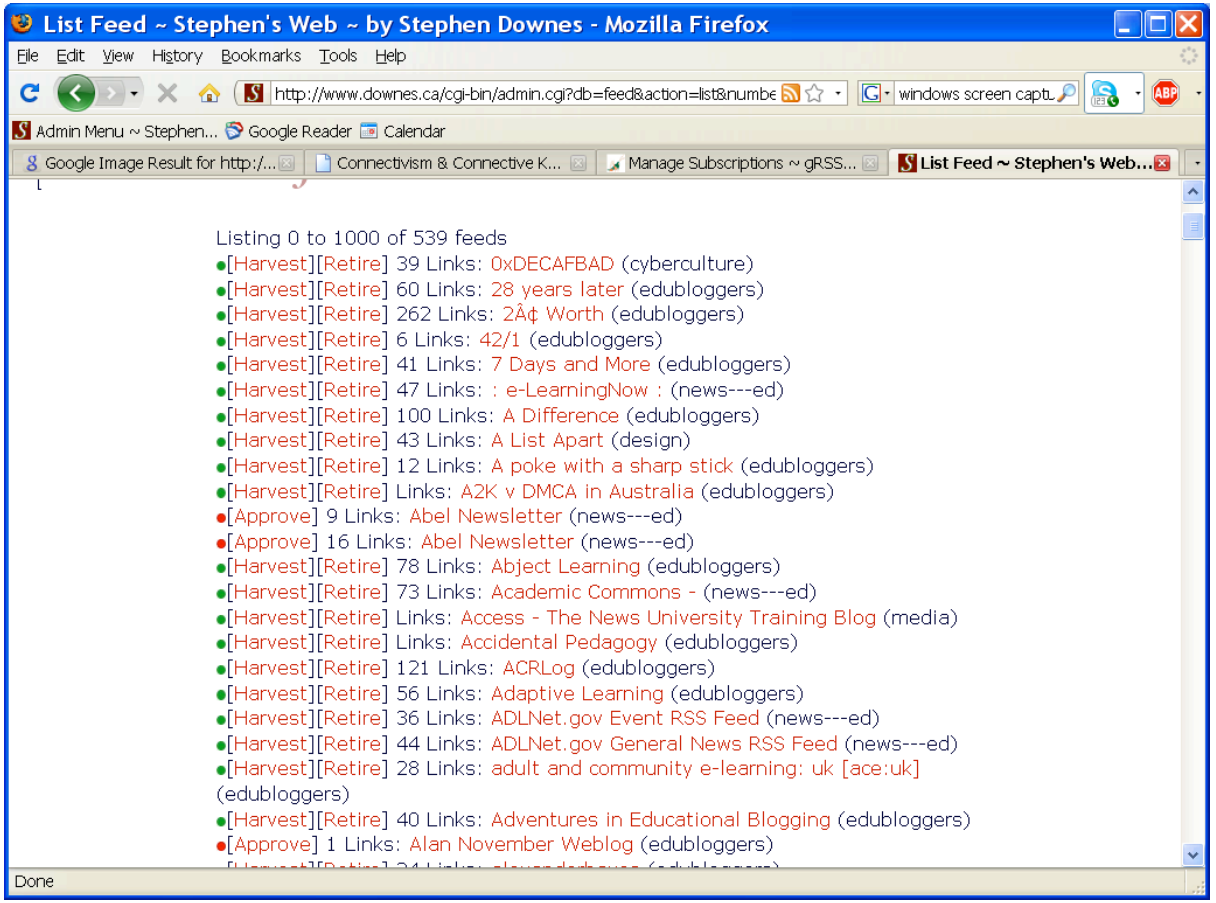
Multiple pages can be created; each page can be a newsletter (or not; you decide)

Page Creation



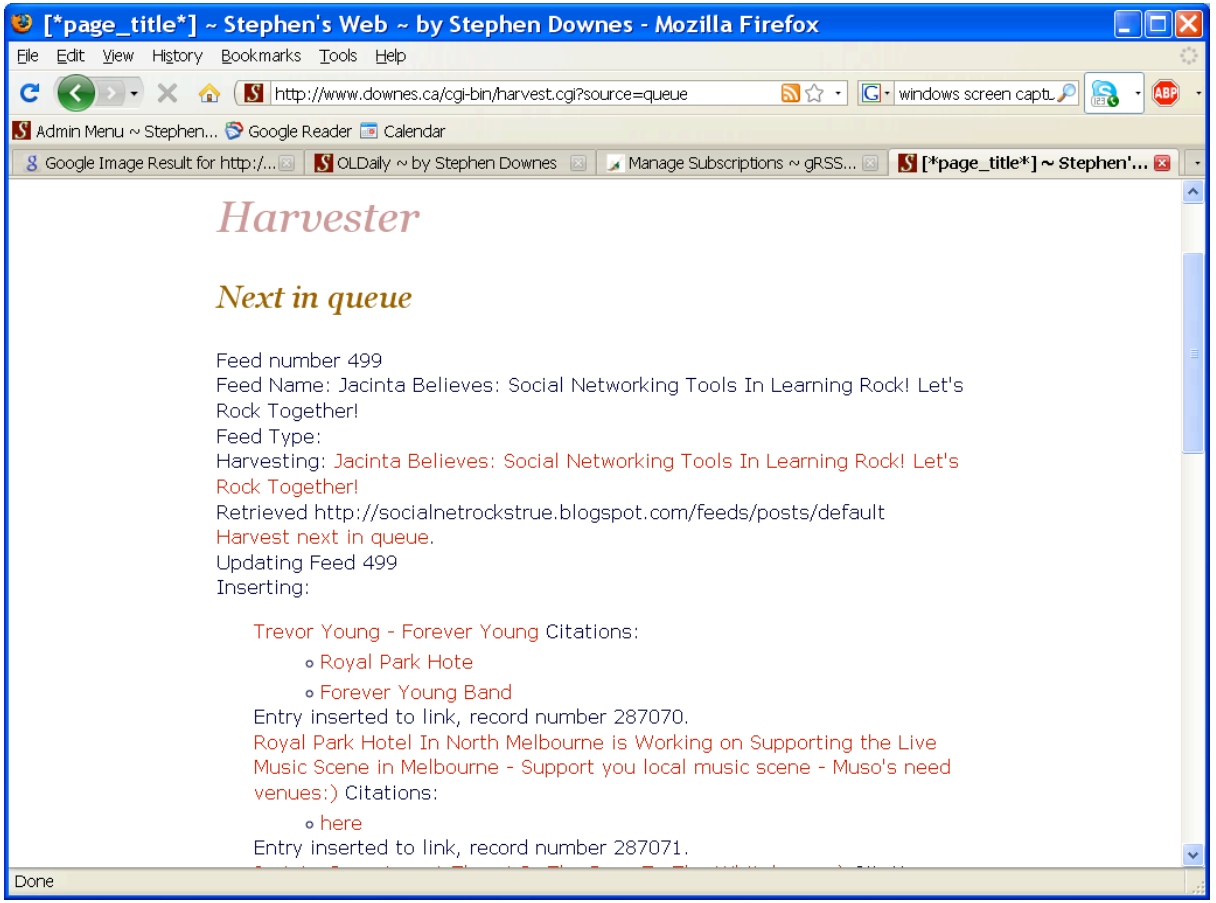
Pages are created automatically from a database of content types

Feed Management



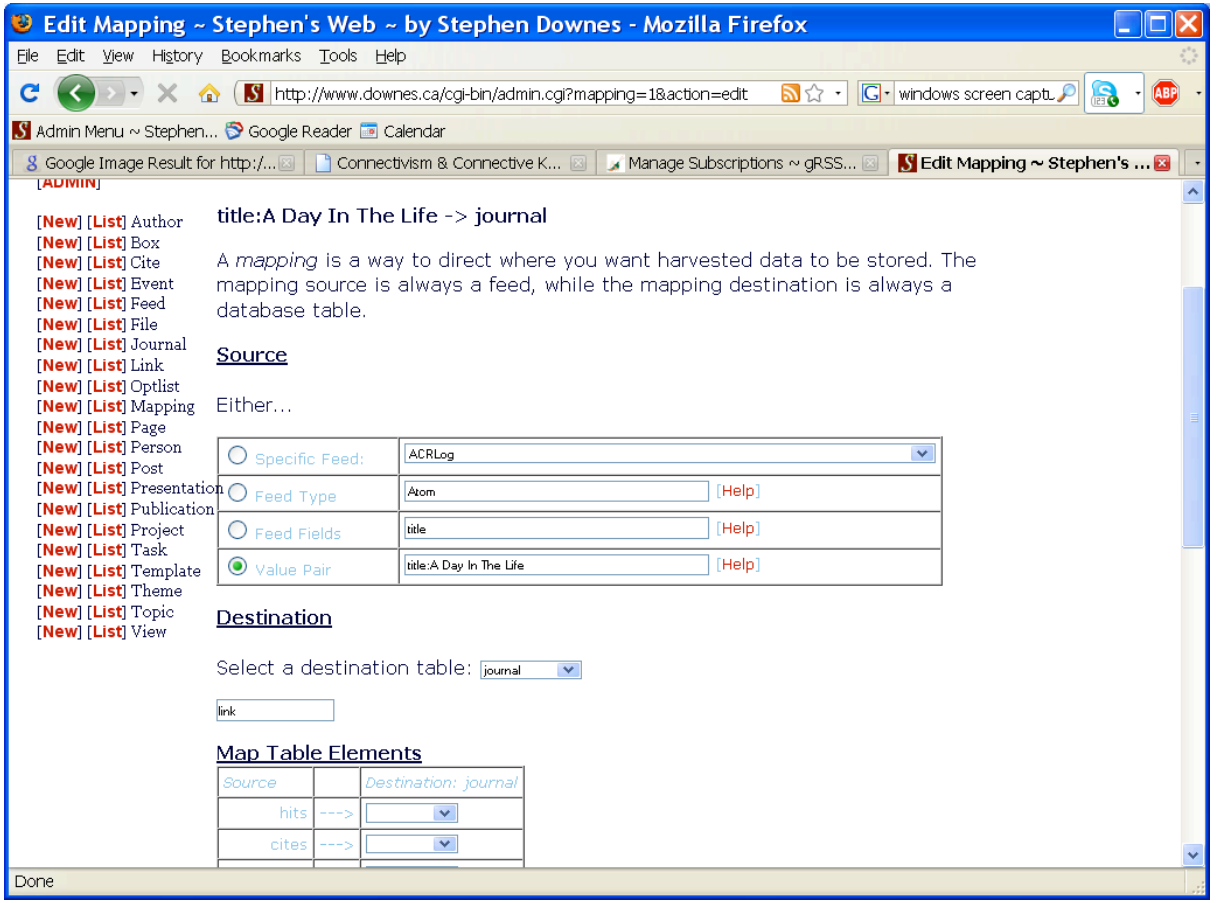
Content input comes from RSS feeds harvested by gRSShopper

Harvester



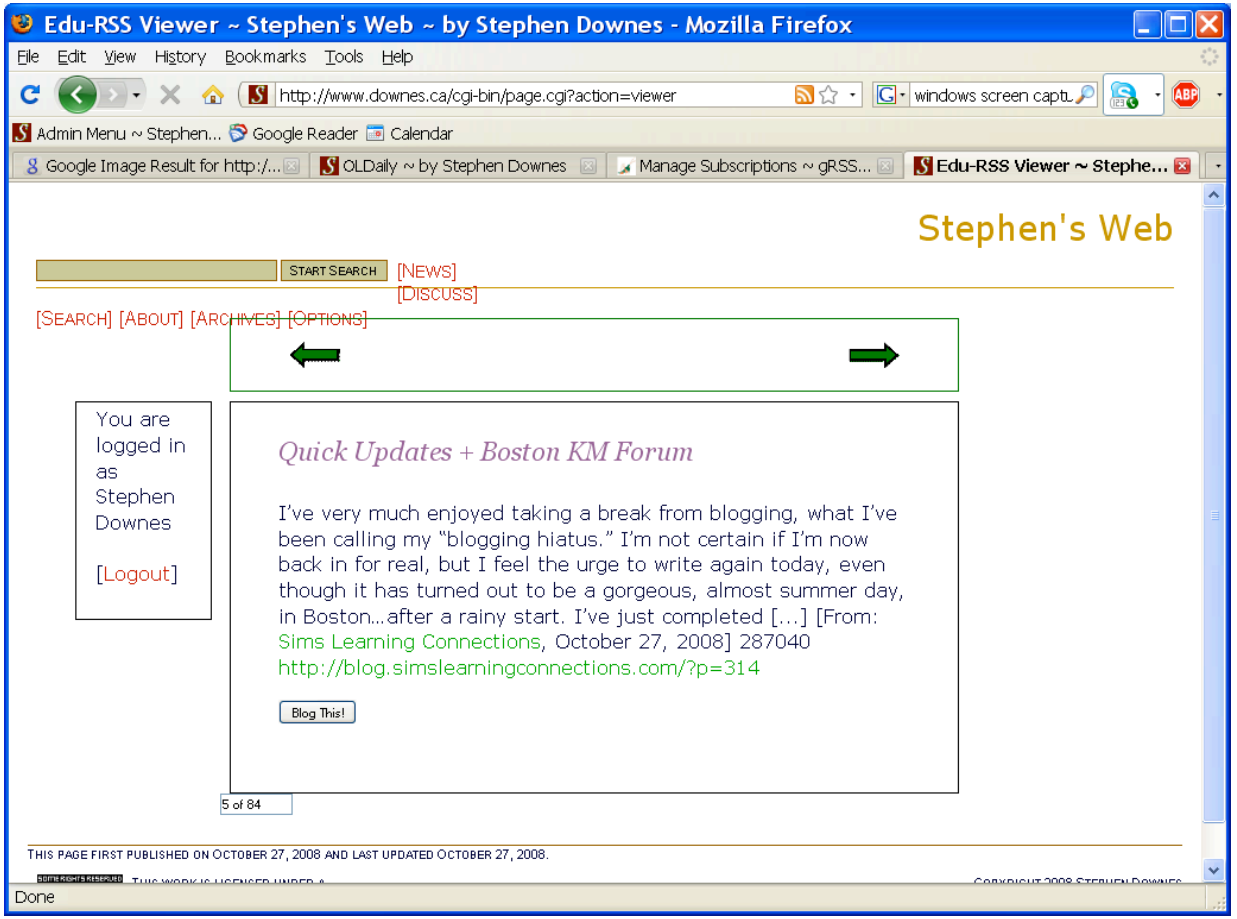
Harvester captures and analyzes incoming data (by topic, links, etc)

Mapping



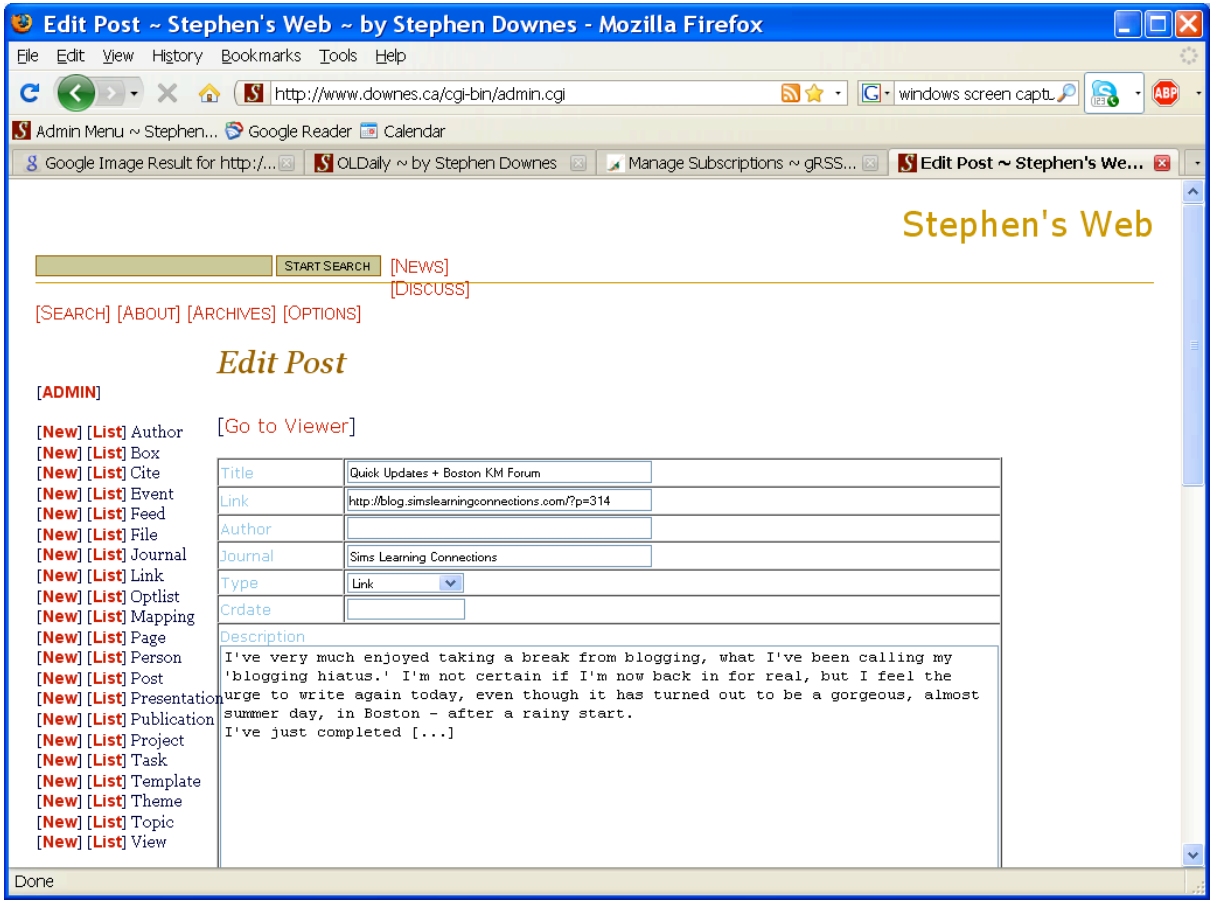
Incoming content can be mapped to any of a variety of data types

Viewing Harvested Content



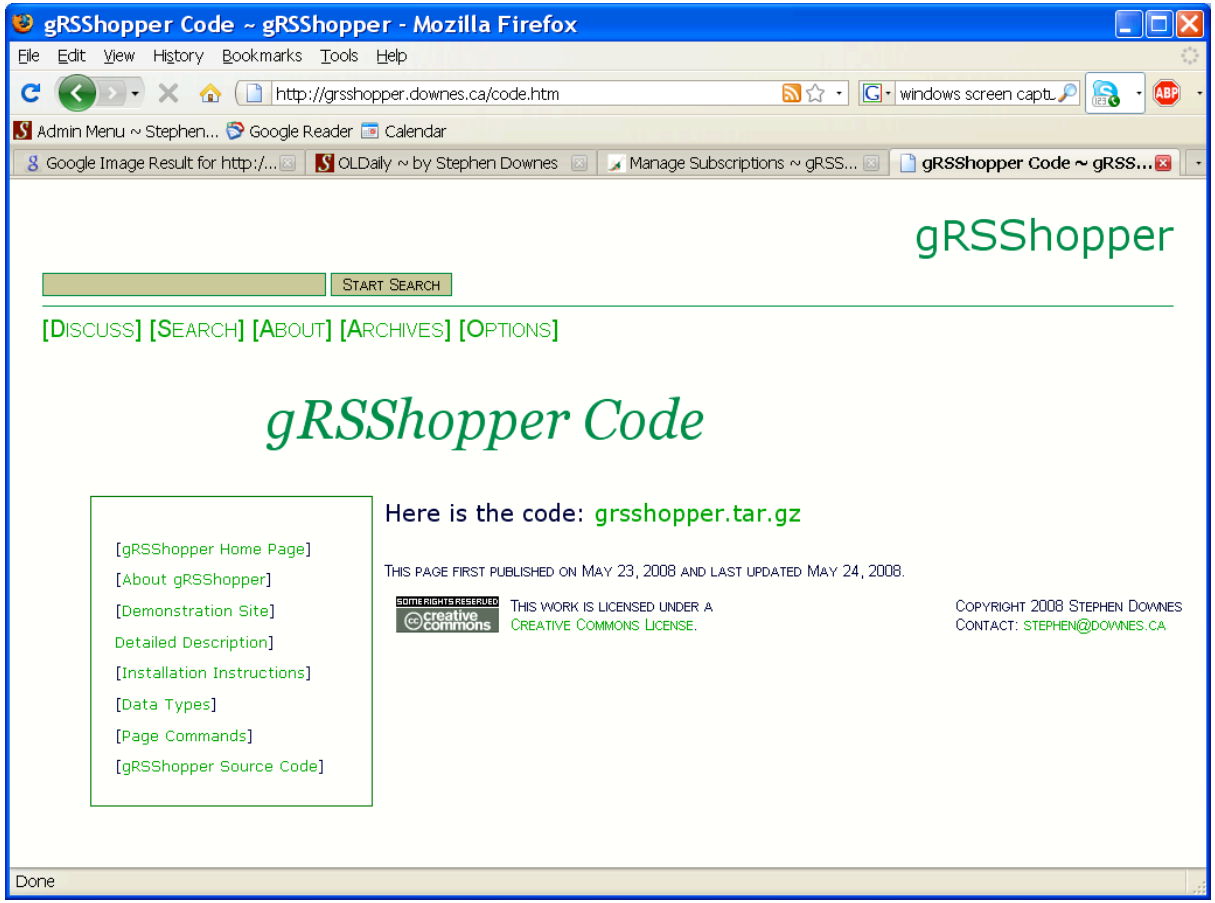
Harvested contents may easily be scanned in a viewer

Post Editor



Work with aggregated content to create new content

Open Source



gRSShopper code is available as an open source download

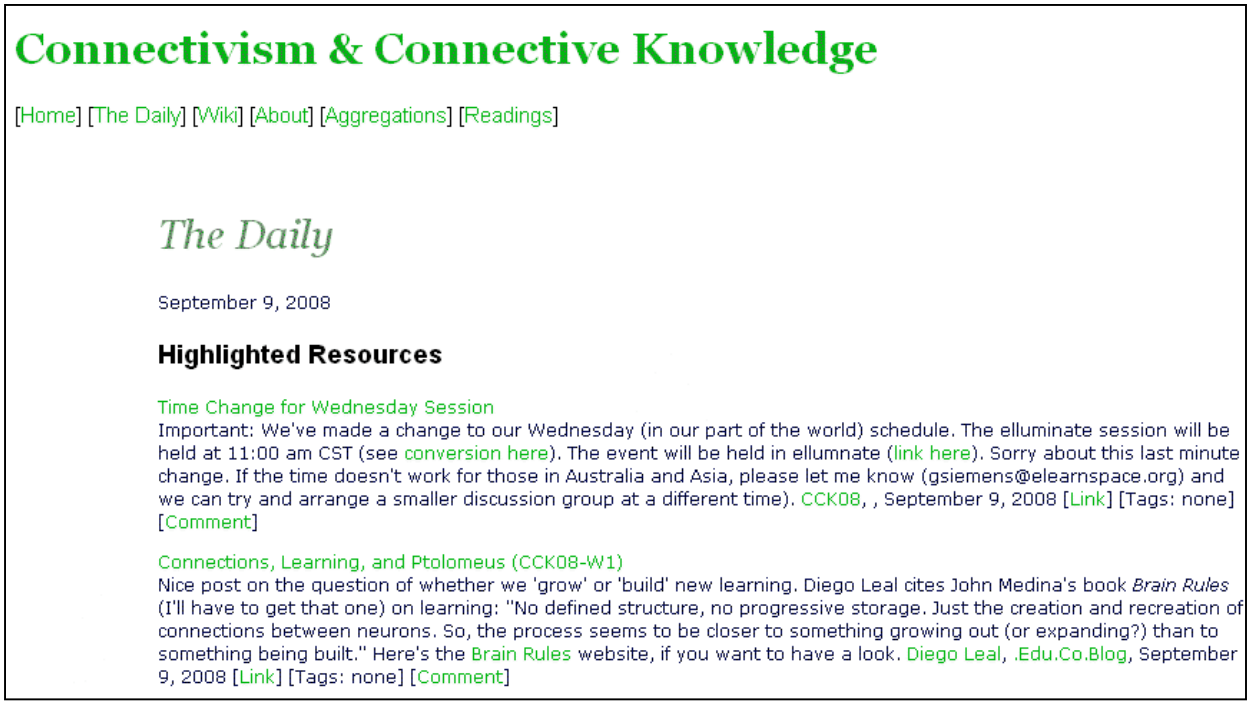
More

http://www.downes.ca

http://grsshopper.downes.ca

Course Components

- The Daily



Connectivism & Connective Knowledge

[Home] [The Daily] [Wiki] [About] [Aggregations] [Readings]

The Daily

September 9, 2008

Highlighted Resources

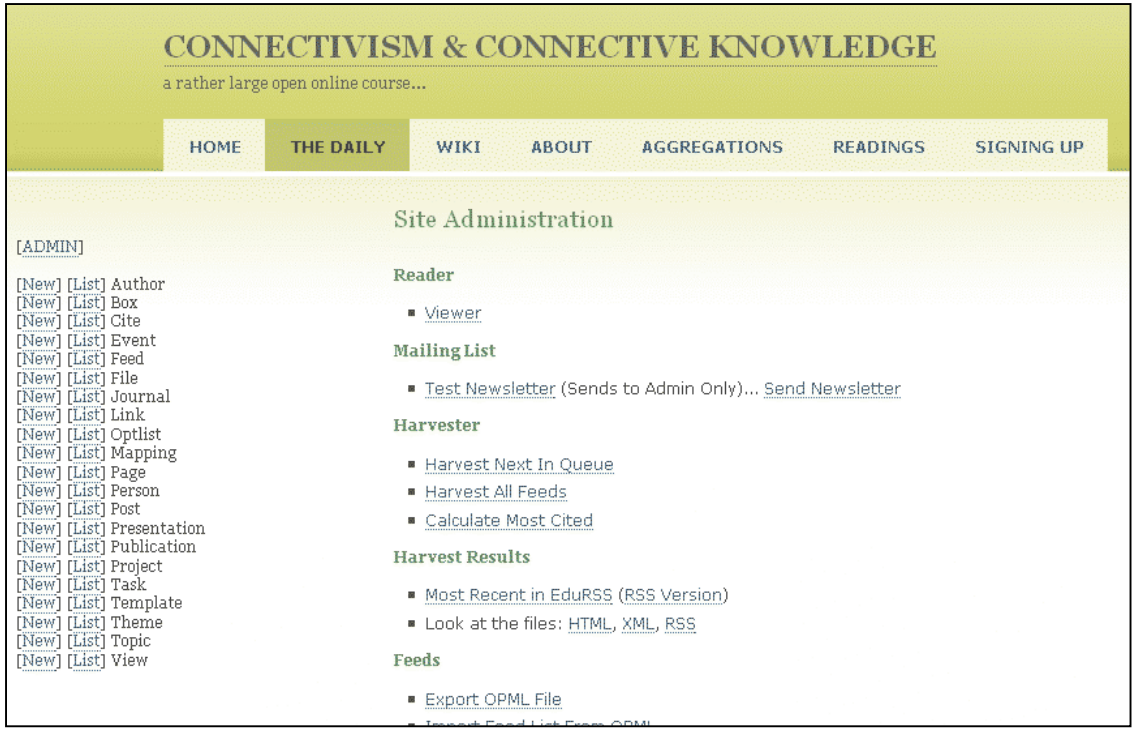
Time Change for Wednesday Session
Important: We've made a change to our Wednesday (in our part of the world) schedule. The elluminate session will be held at 11:00 am CST (see conversion here). The event will be held in ellumnate (link here). Sorry about this last minute change. If the time doesn't work for those in Australia and Asia, please let me know (gsiemens@elearnspace.org) and we can try and arrange a smaller discussion group at a different time). CCK08, , September 9, 2008 [Link] [Tags: none] [Comment]

Connections, Learning, and Ptolomeus (CCK08-W1)
Nice post on the question of whether we 'grow' or 'build' new learning. Diego Leal cites John Medina's book *Brain Rules* (I'll have to get that one) on learning: "No defined structure, no progressive storage. Just the creation and recreation of connections between neurons. So, the process seems to be closer to something growing out (or expanding?) than to something being built." Here's the Brain Rules website, if you want to have a look. Diego Leal, .Edu.Co.Blog, September 9, 2008 [Link] [Tags: none] [Comment]

http://connect.downes.ca/

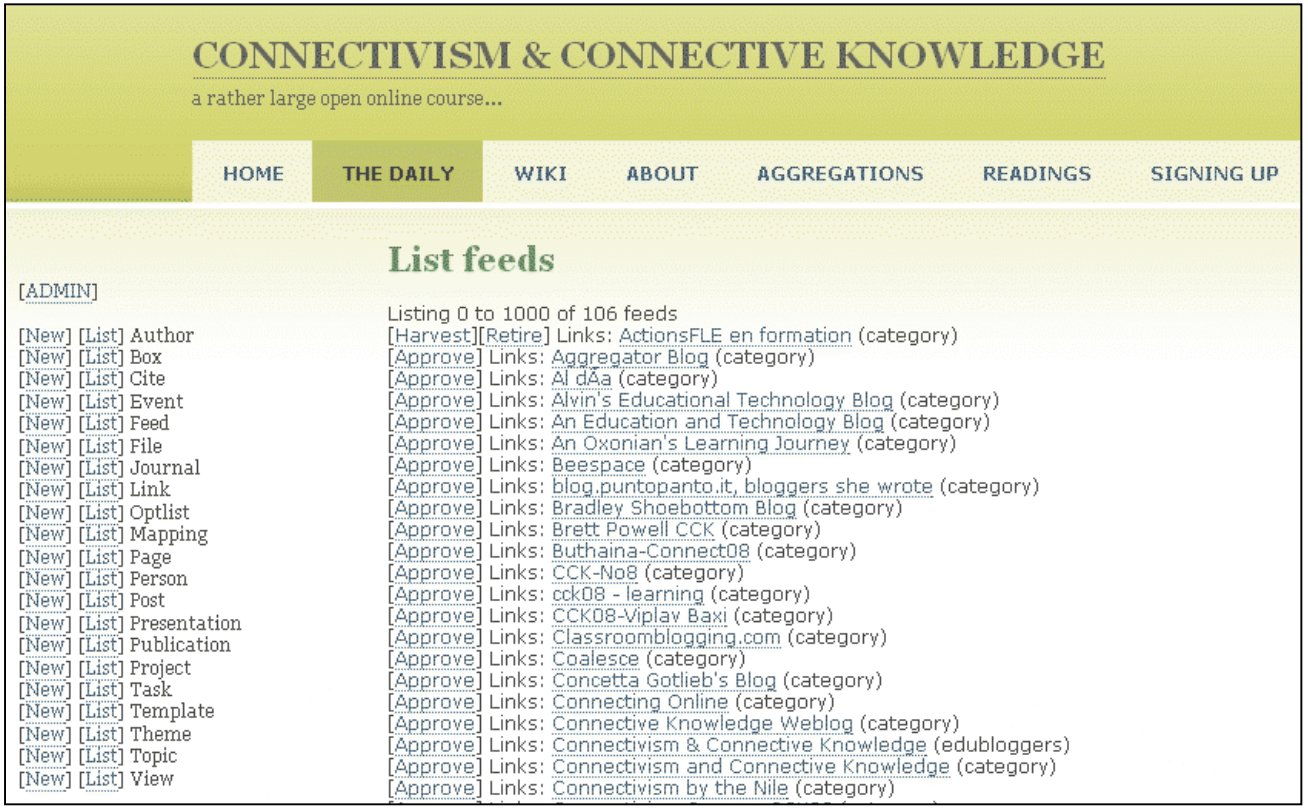
Course Components

- Managing Content



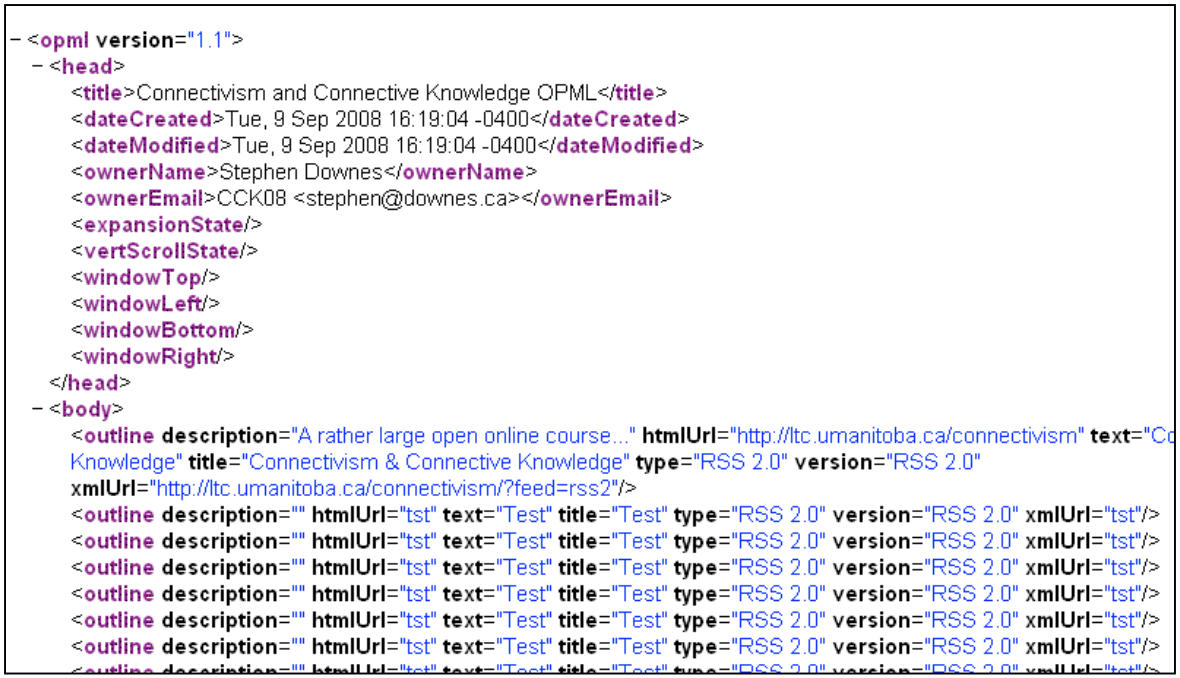
Course Components

- Feed Harvesting



Course Components

- OPML…



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      <ownerEmail>CCK08 <stephen@downes.ca></ownerEmail>
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  - <body>
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      xmlUrl="http://ltc.umanitoba.ca/connectivism/?feed=rss2"/>
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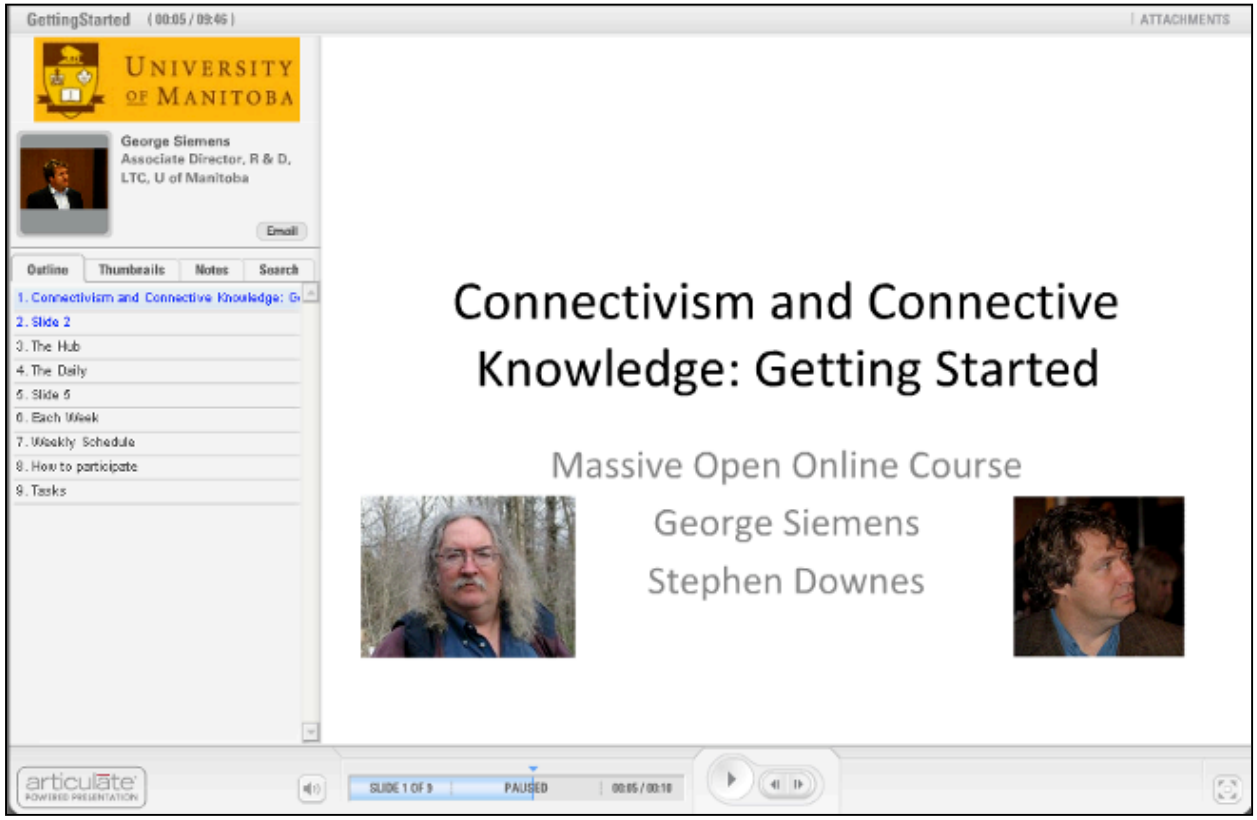
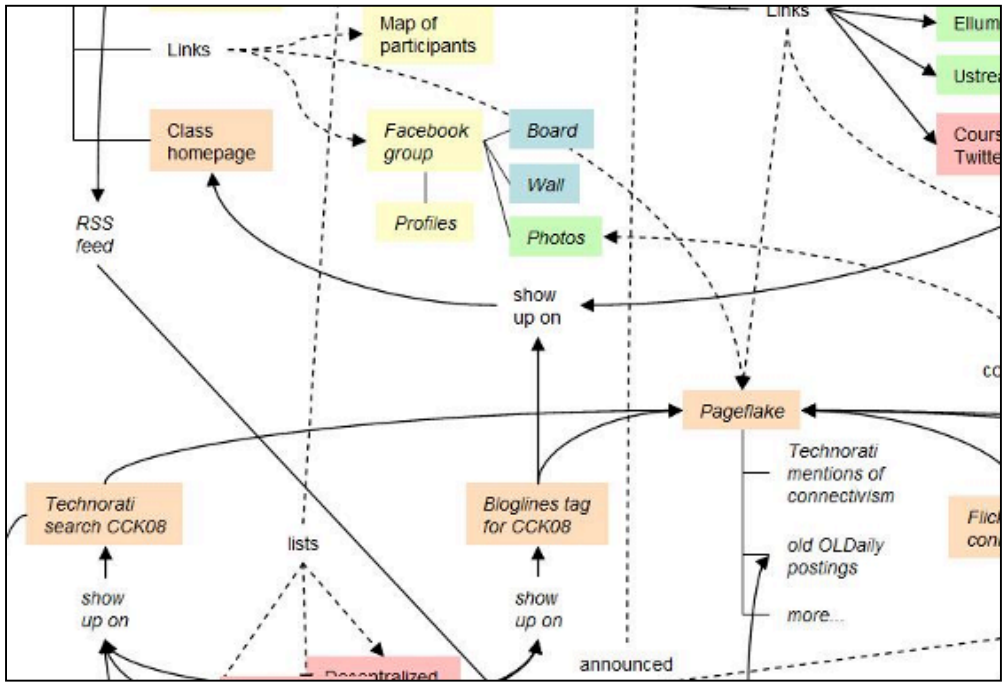
Course Components

- Intro…



The Students

- The Course Map…



http://x28newblog.blog.uni-heidelberg.de/2008/09/06/cck08-first-impressions/

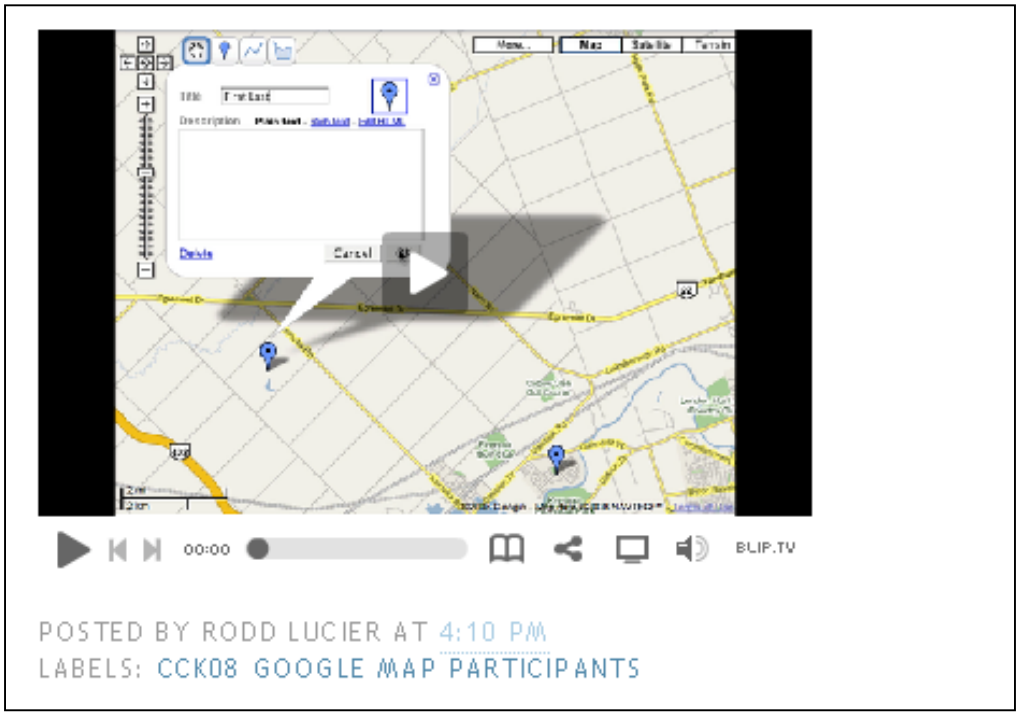
The Students

- The *Other* Course Map…

http://tinyurl.com/cck08map

The Students

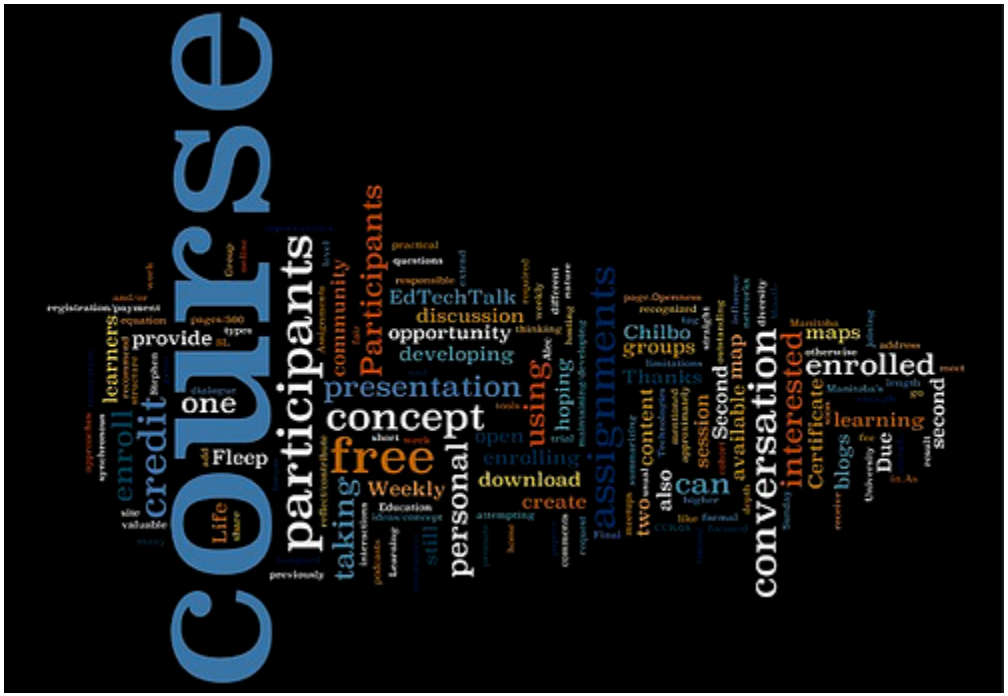
- Add to the Map - Video



http://thecleversheep.blogspot.com/2008/09/cck08-is-truly-global.html

The Students

- Wordle… 1

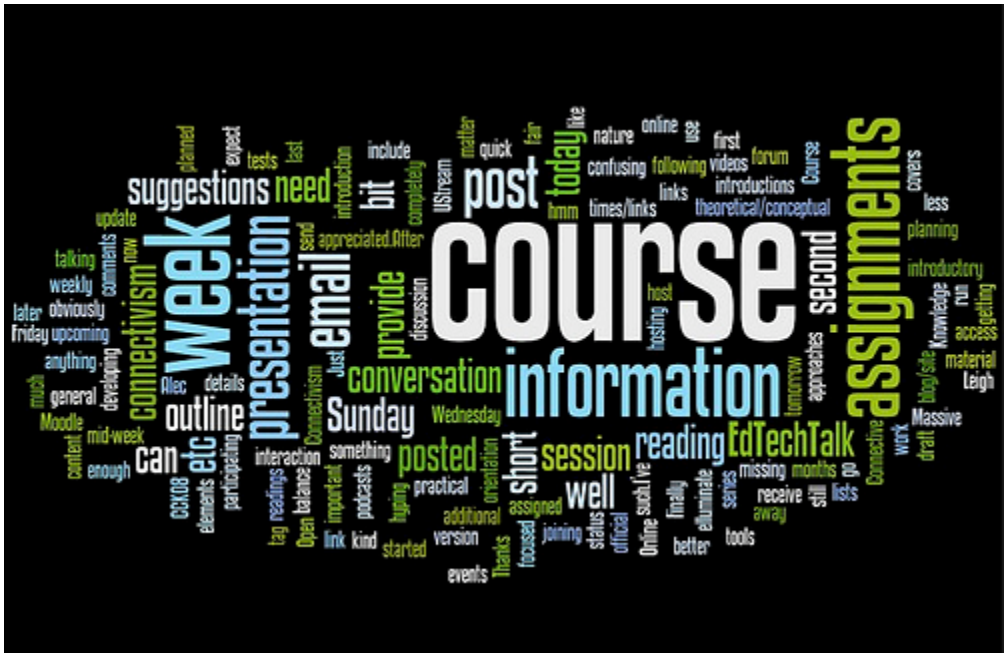


The Students

- Wordle… 2

The Students

- Wordle… 3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Knowledge
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etc
Moodle
Wednesday
provide
connectivism
outline

The Students

- Word of Mouth

http://fleeep.net/blog/2008/08/03/educators-cck08-connectivism-connective-knowledge-course/

The Students

- Google Groups

http://groups.google.com/group/connectivism

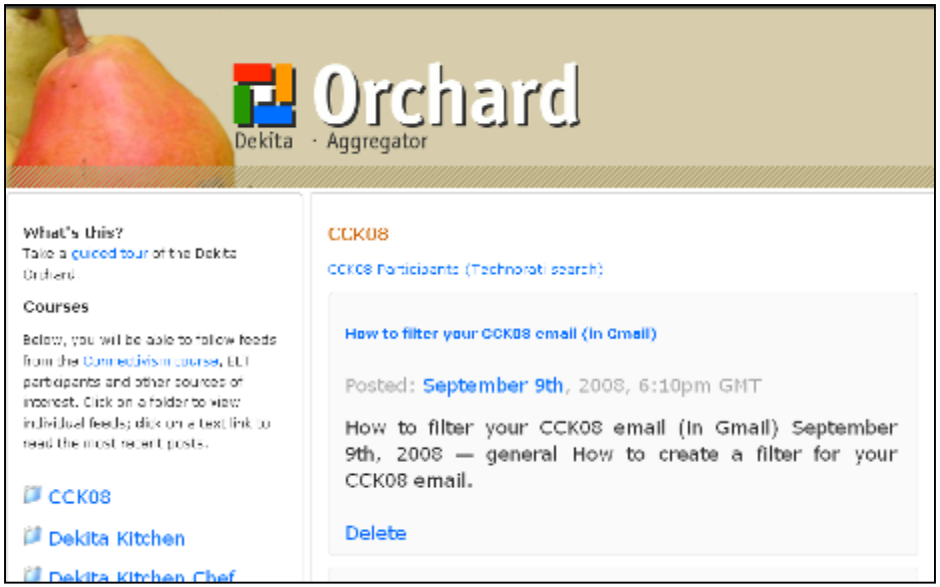
The Students

- Translations…

http://ltc.umanitoba.ca/wiki/Conectivismo_-_Curso_online

The Students

- Dekita…



http://dekita.org/orchard/CCK08_/

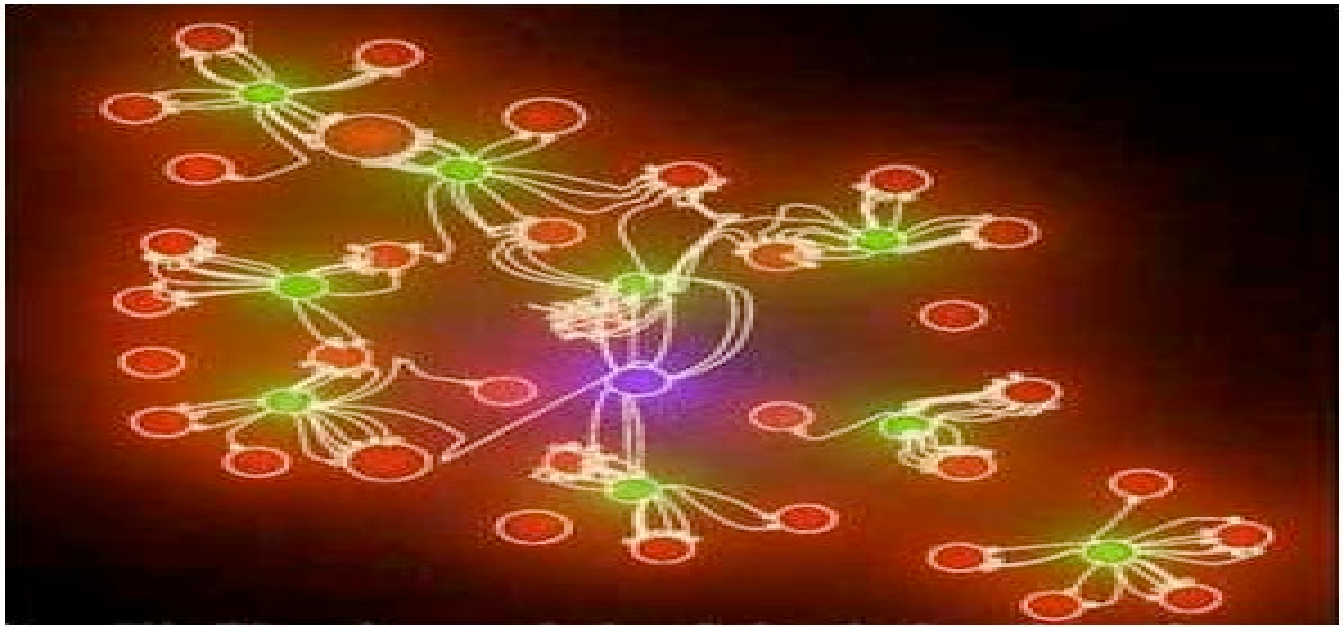
The Students

- Second Life…
- Diigo…
- de.l.icio.us
- WordPress…

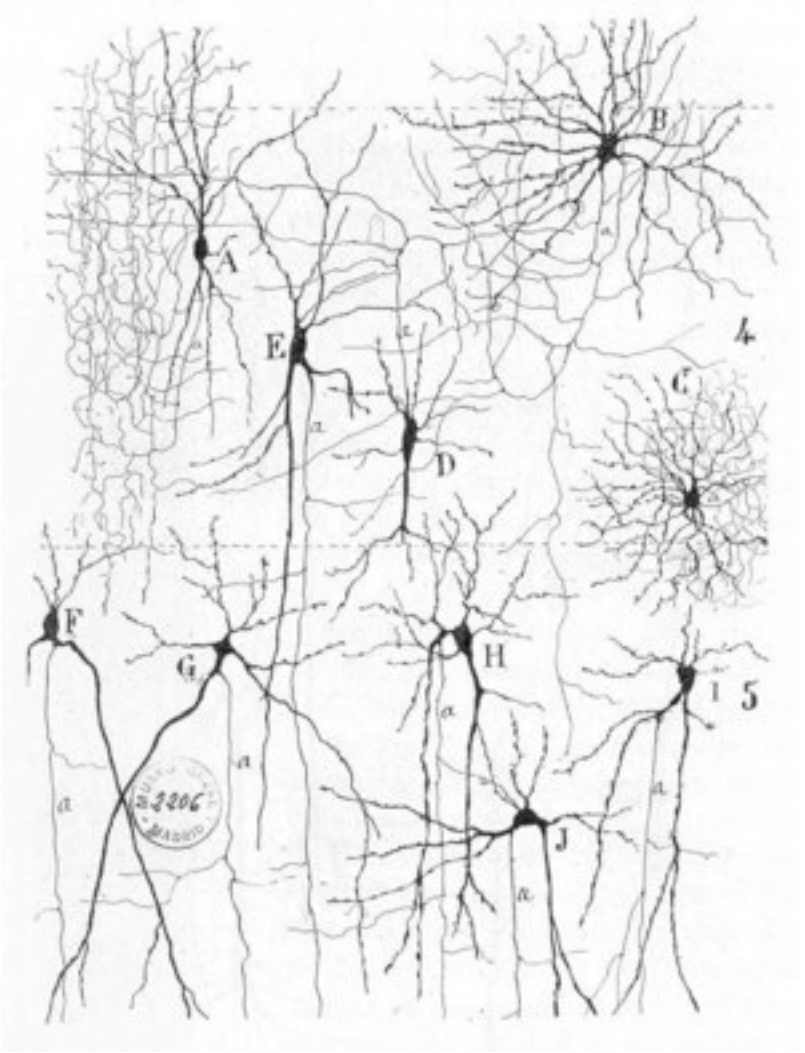
Free Learning and Network Learning

Free Learning

- The *picture* of learning you should have is one of a large set of connected nodes (like the neurons in a brain)



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



- The *learning* in such a picture happens in two ways:
- First, *society* learning as the network of connections between individuals takes shape
- Second, *individuals* learn as the process of being a node shapes connections in their own brains

- The *communications* between nodes were, in former days, text based (consisting of *language*)
- The *materials* used for such communications were *free* - the letters, the words, the grammar, the syntax
- Nobody *owned* language (though there are pressures to change that)

- Communications today are in the form of (what might be called) multimedia objects
- We send cultural artifacts back and forth to each other, as though the were words
- Example: lolcats, YouTube videos, Flickr images, the rest http://icanhascheezburger.com/

I want a guarantee of immunity before I tell any smashed flower pot story.
ICANHASCHEEZBURGER.COM

- Cultural artifacts, as the new language, need to be free - otherwise *we can't communicate* - otherwise, we are stifled, muted
- The free movement of cultural artifacts fosters learning - the hindered movement of such artifacts fosters control

- Al Gore - *The Assault on Reason* - clearly describes the consequences of this
- Gore: a society that used to *think for itself* (through reading) is now one that has its thinking done for it (through television)

Understanding ed delivery

- Today's dominant understanding of educational technology is as a *system*
- This needs to be contrasted (as before) with one based on *standards*
- By this I do *not* mean 'learning object metadata' (which is totally a publisher mindset)

- Educational institutions need to think of their offerings as entities that will be a part of, and interact with, the larger environment
- For example, again: the photo editor that connects to Flickr
- Think about what an *art appreciation* resource would do with Flickr photos

- Not just that - they need to *use* this data to form composite wholes
- Eg. The application that takes photos tagged ‘St. Peters’ to create an image built from thousands of Flickr photos
- (This is the fundamental understanding behind connectivism)

- Educational institutions need to:
  - *Make resources available* for use in other contexts (rather than having students come to them)
  - Such material will be offered to people automatically, in other contexts, and may or may not be used (deal with it)

- Resources will be offered:
  - Student-selected, from a ‘library’ (which you share with other ‘publishers’)
  - Event-driven, by the system, which will offer a resource at an appropriate time
  - Time-driven (think of Tony Hirst’s RSS-driven course)
  - Instructor (or mentor, or coach) driven - as in a blog offering or RSS feed

- These resources need to:
  - Be able to learn about the environment they are being offered in
  - Be able to learn about the student
  - And to get this information, not just locally, but from anywhere on the internet
  - Communicate state and other information to other (authorized) systems and services

Where we are

- Not ‘there’ yet…
- Institutions do not (yet) understand how to deliver to external systems
- But we are seeing first signs - eg., iTunes University
- We may see it inside ‘courses’ first - but the long-term trend is to open delivery

The Principles

1. Diversity

We want to encourage students to engage in diverse readings, diverse environments, diverse discussions

The Principles

2. Autonomy

We want students to chart their own course, to select their own software, to pursue their own learning

The Principles

3. Interaction / Connectedness

The knowledge in this course emerges as a result of the connections among the students and staff – and is not some ‘content’ shoveled from experts to recipients

The Principles

4. Openness

We don’t draw barriers between ‘in’ and ‘out’ – which means we can accommodate the full engaged, the partially engaged, and the rest – creating strong ties and weak ties

Thanks!

http://www.downes.ca