

Connectivism in Practice: Critical Thinking as a  
Distributed Course

Stephen Downes

April 22, 2010

# 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

- Open Enrollment

<a href="#">24 Final Project</a>
<b>Please <a href="#">enter your email address here</a> if you'd like to be involved (either for free participation or to enroll for credit).</b>
<b><a href="#">Course blog is available here</a></b>
<a href="#">Connectivism Research</a>
<b>Course Details</b>
Delivered in partnership with: Extended Education and Learning Technologies Centre, University of Manitoba
<b>Course Code:</b> 98813- 08-01

- The course was advertised in both of our blogs...

# Course Components

- Readings and outline in the Wiki....



The screenshot shows a Moodle Wiki page titled "Critical Literacies Online Course 2010 support Wiki". The page includes a search bar, a "Jump to..." dropdown, and a "Reload this page" button. The main content area contains a welcome message and a list of 12 course components.

**Critical Literacies Online Course** Jump to...

[CL](#) > [Wikis](#) > [Critical Literacies Online Course 2010 support Wiki](#)

Search Wiki:  -- Choose Wiki Links -- ?

Welcome to the [Critical Literacies Online Course 2010 support wiki](#).  
Syllabus, weekly schedule, and speaker's list will be posted in May 2010.  
Course tags: CL10

[Reload this page](#)

**Critical Literacies Online Course 2010 support Wiki**

1. [Course Details](#)
2. [Weekly Activities](#)
3. [Learner Assignments and Evaluation](#)
4. [Resources and general information](#)
5. [Research in Personal Learning Environments](#)
6. [Week 1: Syntax \(May 31-June 6\)](#)
7. [Week 2: Semantics \(June 7-June 13\)](#)
8. [Week 3: Pragmatics \(June 14-June 20\)](#)
9. [Week 4: Cognition \(June 21-June 27\)](#)
10. [Week 5: Context \(June 28-July 4\)](#)
11. [Week 6: Change \(July 5-July 11\)](#)
12. [Recordings](#)

Downloads: [#10.ppt](#) Clear

<http://ple.elg.ca/course/moodle/mod/wiki/view.php?id=2>

# Course Components

- The Blog



The screenshot shows a web browser window displaying the homepage of the 'Critical Literacies Online Course Blog'. The browser's address bar shows the URL <http://ple.elg.ca/course/blog/>. The page features a header with the blog title 'Critical Literacies Online Course Blog' and a navigation menu including 'Home Page', 'About', 'The Daily', 'Moodle', 'Wiki', 'Research', and 'Recordings'. A search bar is located in the top right corner. The main content area includes a 'Welcome To Critical Literacies?' section with a post dated April 21st, 2010, discussing the author's experience with online learning and the course's focus on critical thinking. A sidebar on the right contains sections for 'Blogroll', 'Meta', 'Archives', and 'Recent Comments'. The footer contains licensing information and credits to the National Research Council Canada and the Learning and Collaborative Technologies Group.

**Critical Literacies Online Course Blog**

Home Page | About | The Daily | Moodle | Wiki | Research | Recordings

## Welcome To Critical Literacies?

downs April 21st, 2010

About 15 years ago I realized two things. First, I realized I needed to prove that it was possible to offer a worthwhile course online. My colleagues at Assinboine weren't convinced. Second, I realized that people learning online would need a good foundational knowledge of critical thinking.

So what I did was to post something called Stephen's Guide to the Logical Fallacies. Over the years, it has been my most popular work – much more popular than anything I've done in online learning. You can [find it here](#), in its relatively new home. I keep meaning to update it (and, in fact, I've just assembled the **whole thing** into a document).

This course in critical literacies builds on and expands that idea. It is at once a demonstration of a possibility of online learning, this time a connectivism course. And it is an attempt to articulate and demonstrate those critical thinking capacities that are needed in a new electronic multimedia world.

There's a lot more to come...

Category: Uncategorized | [Leave a comment](#) | [Edit this post](#)

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National Research Council Canada  
[Learning and Collaborative technologies Group - Plearn Project](#)  
Powered by WordPress & the Atahualpa Theme by BytesForAll. Discuss on our WP Forum

<http://ple.elg.ca/course/blog/>

# Course Components

- Course Moodle Forum

The screenshot shows a Moodle course page titled "Critical Literacies Online Course". At the top right, it indicates "You are not logged in. (Login)" and "English (en)". The page layout includes a "Main Menu" with links to "CL10 - Blog" and "CL10 - Wiki", and a "Courses" section listing "Critical Literacies Online Course 2010" with a link to "All courses ...".

The main content area features a central text block with a paragraph: "Technology has brought changes to the way people learn and some 'critical literacies' are becoming increasingly important. This course is about these critical literacies. Critical, as the course is not just about finding out how to use the latest technologies for learning, but to look critically at the Web and its underlying structures. Literacies, as it is more about capabilities to be developed than about the acquisition of a set of skills. It is all about learning what is needed to develop confidence and competence, and to feel capable of negotiating an ever changing information and media landscape. You can register to receive course information here." Below this text are two icons: a cluster of colored pencils labeled "Blog" and a person reading a book labeled "Wiki".

Below the main text is another paragraph: "We will open up the course so participants can take the course in any mode, space or direction that they find useful. Our goal is to provide a starting point for participants to build a distributed infrastructure for innovative conversations." At the bottom of this section is a link: "Critical Literacies Online Course 2010 support Wiki".

On the right side, there are two widgets: "Upcoming Events" which states "There are no upcoming events" with a "Go to calendar..." link, and a "Calendar" for April 2010. The calendar shows the following dates: Sun 4, Mon 5, Tue 6, Wed 7, Thu 8, Fri 9, Sat 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21 (highlighted), 22, 23, 24, 25, 26, 27, 28, 29, 30.

At the bottom of the page, it again says "You are not logged in. (Login)" and features the Moodle logo.

<http://lrc.umanitoba.ca/moodle/course/view.php?id=20>

# Course Components

- Pageflakes Site

The screenshot shows a Pageflakes user interface for 'ltc's Pagecast'. The top navigation bar includes 'Create your own page!', 'Pageflakes members: login', 'ltc's Pagecast', 'Watch this Pagecast', 'Copy', 'Send To a Friend', and 'Random Pagecast'. A search bar with 'Google' is on the right. The main content area is divided into several widgets:

- Connectivism & Connective Knowledge (5)**: A widget titled 'Comparing Connectivism' with a sub-header 'I've posted a comparison between different theories of learning. It's not a final word summ...'. It lists items like 'Managing your Moodle Forums', 'Week 1: What is connectivism', 'So, Where are you from?', and 'Introduction to the course...'.
- Technorati Search for: CCK08 (5)**: A widget titled 'How to filter your CCK08 email (in Gmail)' with a sub-header 'How to filter your CCK08 email (in Gmail) September 9th, 2008 — general How to create a ...'. It lists items like 'Bill Kerr's Challenge to Connectivism', 'Connectivism & Connective Knowledge Course', 'Connectivism: Theory and Application', and 'Connectivism course: nifty (and a little sca...'.
- Sponsored Content**: A large advertisement for 'AIG Travel Guard travel insurance' with a sun icon and the text 'Thank goodness for AIG Travel Guard travel insurance.' Below the ad is the 'AIG Travel Guard TRAVEL INSURANCE' logo.
- Weather**: A widget for 'Toronto, Canada' showing a 4-day forecast: Tuesday (17°/9°C, cloudy), Wednesday (19°/12°C, sunny), Thursday (22°/15°C, sunny), and Friday (22°/14°C, cloudy). It includes links for 'Hourly Forecast' and '10-Day Forecast' and is 'Powered by weather.com'.
- Winnipeg, Canada**: A widget titled 'Ellis resurfaces in Winnipeg - The Gazette (...)' with a sub-header 'CBC.caEllis resurfaces in WinnipegThe Gazette (Montreal), Canada - 22 hours agoHe was signed on Monday...'. It lists items like 'Winnipeg couple makes pot discovery - Winnip...', 'Rejigged Bombers-Ticats deal a go - Globe an...', 'Three Winnipeg men charged in drug busts - W...', and 'Grandmotherhood inspires Winnipeg publisher ...'.
- Events in Winnipeg, Canada**: A small widget at the bottom.
- Stephen's Web ~ by Stephen Downes ~**: A widget titled '[CCK08] First Impressions' with a sub-header 'Even if you're not registered in our giant Connectivism course (and most OLDaily readers ar...'. It includes a link 'Does Learning Grow or Is It Built?' and a sub-header 'Interesting post from the Connectivism course looking at whether we 'grow' or 'build' know...'.

<http://www.pageflakes.com/ltc>



# Course Components

- Elluminate Discussions (Wednesdays)

The screenshot displays the Elluminate Live! software interface. The main window is titled "Elluminate Live!" and contains several panes:

- Participants:** A list of 19 participants, including moderators and students. A green box highlights "Group 1" through "Group 4".
- Main chat window:** A central chat area showing messages from participants. A green arrow points to the "Main chat window" label.
- Whiteboard - Main Room (Scaled 84%):** A presentation slide titled "Opportunities to Develop Human Resources" with a bulleted list:
  - Knowledge or skill needs differ
  - Motivation – meaning of work
  - Change in the environment
  - Change in the organizationA green arrow points to the whiteboard with the label "Live video of the instructor".
- Video - Sandra Williams:** A small video window showing a woman wearing a headset. A green arrow points to the video window with the label "Live video of the instructor".
- White Board space:** A green arrow points to the whiteboard area with the label "White Board space (Displays PowerPoint slides, notes, drawings, etc)".
- Mic button:** A green arrow points to the microphone icon at the bottom left with the label "Mic button".
- Participants window:** A green arrow points to the participants list with the label "Participants window".
- Group discussion rooms:** A green arrow points to the "Group 1-4" box with the label "Group discussion rooms".
- She's typing:** A green arrow points to the "She's typing" status in the participants list with the label "She's typing".
- She's talking on the mic:** A green arrow points to the "She's talking on the mic" status in the participants list with the label "She's talking on the mic".



# Course Components

- Twitter...



The screenshot shows the Twitter profile page for user cck08. At the top, there is a search bar with the text "Name or location" and a "search" button, followed by a link to "Login / Join Twitter!" and a "Select Language" dropdown menu. Below this is a yellow banner with the text "Hey there! cck08 is using Twitter." and a "Join today!" button. The main profile area features a profile picture of a blue and white abstract image, the name "cck08", and a bio that reads "a rather large online course". A tweet from @MtnLaurel is visible, stating "hi - no sign up time, but i think the 11 am CST will be the busier of the two...". The "About" section on the right lists the user's name, web link, and bio. The "Stats" section shows "Following" (0), "Followers" (141), and "Favorites" (0).

twitter

Name or location search or [Login / Join Twitter!](#)

Select Language ..

Hey there! **cck08** is using Twitter.

Twitter is a free service that lets you keep in touch with people using the web, your phone, or IM. **Join today** to start receiving **cck08**'s updates.

[Join today!](#)

Already using Twitter via SMS or IM? [Finish signing up.](#)

 **cck08**

[@MtnLaurel](#) hi - no sign up time, but i think the 11 am CST will be the busier of the two...

about 7 hours ago from web in reply to [MtnLaurel](#)

**About**

**Name** cck08  
**Web** <http://tlc.umanit...>  
**Bio** a rather large online course

**Stats**

**Following** 0  
**Followers** 141  
**Favorites** 0

<http://twitter.com/cck08>

# 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 illuminate session will be held at 11:00 am CST (see [conversion here](#)). The event will be held in illuminate ([link here](#)). Sorry about this last minute change. If the time doesn't work for those in Australia and Asia, please let me know ([gziemens@elearnspace.org](mailto:gziemens@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

The screenshot shows the website for 'CONNECTIVISM & CONNECTIVE KNOWLEDGE', described as 'a rather large open online course...'. The navigation menu includes HOME, THE DAILY (selected), WIKI, ABOUT, AGGREGATIONS, READINGS, and SIGNING UP. The main content area is titled 'Site Administration' and contains several sections:

- [ADMIN]**
- Reader**
  - [Viewer](#)
- Mailing List**
  - [Test Newsletter \(Sends to Admin Only\)...](#) [Send Newsletter](#)
- Harvester**
  - [Harvest Next In Queue](#)
  - [Harvest All Feeds](#)
  - [Calculate Most Cited](#)
- Harvest Results**
  - [Most Recent in EduRSS \(RSS Version\)](#)
  - [Look at the files: HTML, XML, RSS](#)
- Feeds**
  - [Export OPML File](#)
  - [Import Feed List From OPML](#)

On the left side of the page, there is a list of content types, each with a '[New]' and '[List]' link:

- [New] [List] Author
- [New] [List] Box
- [New] [List] Cite
- [New] [List] Event
- [New] [List] Feed
- [New] [List] File
- [New] [List] Journal
- [New] [List] Link
- [New] [List] Optlist
- [New] [List] Mapping
- [New] [List] Page
- [New] [List] Person
- [New] [List] Post
- [New] [List] Presentation
- [New] [List] Publication
- [New] [List] Project
- [New] [List] Task
- [New] [List] Template
- [New] [List] Theme
- [New] [List] Topic
- [New] [List] View

# Course Components

- Feed Harvesting

## CONNECTIVISM & CONNECTIVE KNOWLEDGE

a rather large open online course...

[HOME](#) [THE DAILY](#) [WIKI](#) [ABOUT](#) [AGGREGATIONS](#) [READINGS](#) [SIGNING UP](#)

### List feeds


[\[ADMIN\]](#)


<a href="#">[New]</a> <a href="#">[List]</a> Author	<a href="#">[Harvest]</a> <a href="#">[Retire]</a> Links: <a href="#">ActionsFLE en formation</a> (category)
<a href="#">[New]</a> <a href="#">[List]</a> Box	<a href="#">[Approve]</a> Links: <a href="#">Aggregator Blog</a> (category)
<a href="#">[New]</a> <a href="#">[List]</a> Cite	<a href="#">[Approve]</a> Links: <a href="#">Al d'Àa</a> (category)
<a href="#">[New]</a> <a href="#">[List]</a> Event	<a href="#">[Approve]</a> Links: <a href="#">Alvin's Educational Technology Blog</a> (category)
<a href="#">[New]</a> <a href="#">[List]</a> Feed	<a href="#">[Approve]</a> Links: <a href="#">An Education and Technology Blog</a> (category)
<a href="#">[New]</a> <a href="#">[List]</a> File	<a href="#">[Approve]</a> Links: <a href="#">An Oxonian's Learning Journey</a> (category)
<a href="#">[New]</a> <a href="#">[List]</a> Journal	<a href="#">[Approve]</a> Links: <a href="#">Beespace</a> (category)
<a href="#">[New]</a> <a href="#">[List]</a> Link	<a href="#">[Approve]</a> Links: <a href="#">blog.puntopanto.it, bloggers she wrote</a> (category)
<a href="#">[New]</a> <a href="#">[List]</a> Optlist	<a href="#">[Approve]</a> Links: <a href="#">Bradley Shoebottom Blog</a> (category)
<a href="#">[New]</a> <a href="#">[List]</a> Mapping	<a href="#">[Approve]</a> Links: <a href="#">Brett Powell CCK</a> (category)
<a href="#">[New]</a> <a href="#">[List]</a> Page	<a href="#">[Approve]</a> Links: <a href="#">Buthaina-Connect08</a> (category)
<a href="#">[New]</a> <a href="#">[List]</a> Person	<a href="#">[Approve]</a> Links: <a href="#">CCK-No8</a> (category)
<a href="#">[New]</a> <a href="#">[List]</a> Post	<a href="#">[Approve]</a> Links: <a href="#">cck08 - learning</a> (category)
<a href="#">[New]</a> <a href="#">[List]</a> Presentation	<a href="#">[Approve]</a> Links: <a href="#">CCK08-Viplay Baxi</a> (category)
<a href="#">[New]</a> <a href="#">[List]</a> Publication	<a href="#">[Approve]</a> Links: <a href="#">Classroomblogging.com</a> (category)
<a href="#">[New]</a> <a href="#">[List]</a> Project	<a href="#">[Approve]</a> Links: <a href="#">Coalesce</a> (category)
<a href="#">[New]</a> <a href="#">[List]</a> Task	<a href="#">[Approve]</a> Links: <a href="#">Concetta Gotlieb's Blog</a> (category)
<a href="#">[New]</a> <a href="#">[List]</a> Template	<a href="#">[Approve]</a> Links: <a href="#">Connecting Online</a> (category)
<a href="#">[New]</a> <a href="#">[List]</a> Theme	<a href="#">[Approve]</a> Links: <a href="#">Connective Knowledge Weblog</a> (category)
<a href="#">[New]</a> <a href="#">[List]</a> Topic	<a href="#">[Approve]</a> Links: <a href="#">Connectivism &amp; Connective Knowledge</a> (edubloggers)
<a href="#">[New]</a> <a href="#">[List]</a> View	<a href="#">[Approve]</a> Links: <a href="#">Connectivism and Connective Knowledge</a> (category)
	<a href="#">[Approve]</a> Links: <a href="#">Connectivism by the Nile</a> (category)

# Course Components

- Intro...

GettingStarted (00:05 / 00:46) ATTACHMENTS

 UNIVERSITY OF MANITOBA

 **George Siemens**  
Associate Director, R & D,  
LTC, U of Manitoba



Email

Outline Thumbnails Notes Search

1. Connectivism and Connective Knowledge: G
2. Slide 2
3. The Hub
4. The Daily
5. Slide 5
6. Each Week
7. Weekly Schedule
8. How to participate
9. Tasks

## Connectivism and Connective Knowledge: Getting Started

Massive Open Online Course

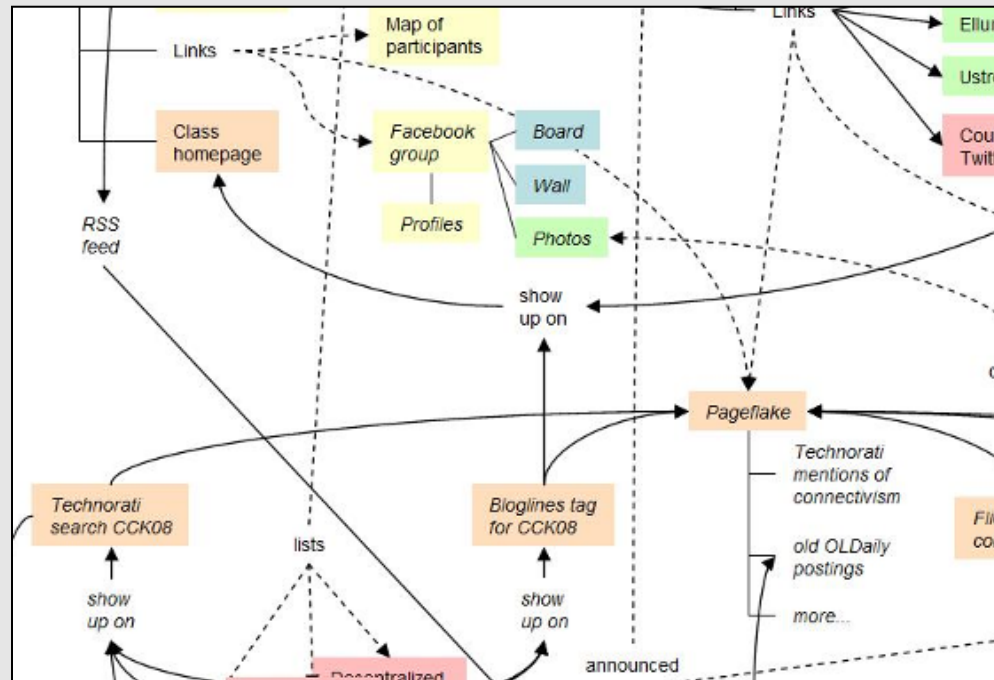
 George Siemens  
Stephen Downes 

articulate  
POWERED PRESENTATION

SLIDE 1 OF 9 PAUSED 00:05 / 00:10

# The Students

- The Course Map...



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



# The Students

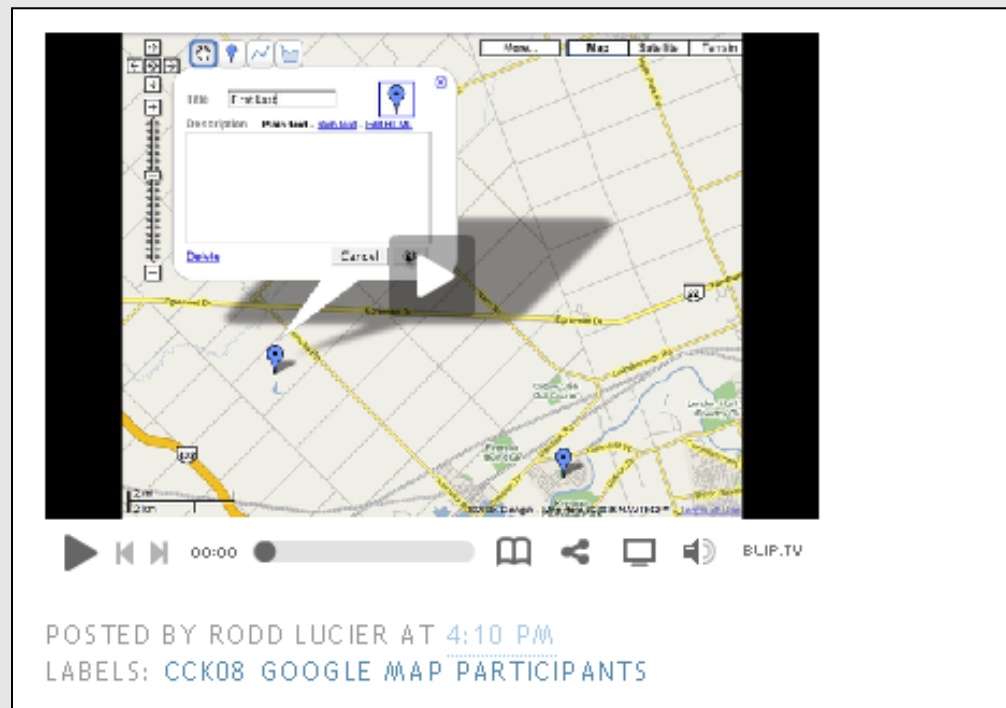
- The *Other* Course Map...



<http://tinyurl.com/cck08map>

# The Students

- Add to the Map - Video



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

# The Students

- Google Groups



The screenshot shows a Google Groups interface for the group "Connectivism and Connective Knowledge". The page title is "extending access of CCK08". The user "HelenaR" has posted a message asking for help with translating content into Portuguese. "MariaTeresa" has replied, suggesting translation is important for engagement. The interface includes search bars, user avatars, profile links, and options to reply or rate posts.

Google Groups stephen.downes.ca@gmail.com | [My Groups](#) | [Favor](#)

**Connectivism and Connective Knowledge**

**extending access of CCK08** [Options](#)

☆ 7 messages - [Collapse all](#)

**HelenaR** [View profile](#) [More options](#) Jun 22, 1:58 am

Is there a need to create a kind of regional help desks, in Portuguese for instance, to easy access to this course ? Can i help translating or co-translating the contents ?  
Helena

[Reply to author](#) [Forward](#) Rate this post: ☆☆☆☆☆

**MariaTeresa** [View profile](#) [More options](#) Jun 24, 4:35 pm

Very good idea Helena. Translation is important; even though the language of the course is english, to count with information on how to participante in several languages will help to engage readers in those languages, Maria Teresa

On 22 Jun, 07:58, HelenaR <ramoshelena...@gmail.com> wrote:

- Show quoted text -

[Reply to author](#) [Forward](#) Rate this post: ☆☆☆☆☆

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

# The Students

- Translations...

**LTC**  
Learning Technologies Centre

Log in / create account

[page](#) [discussion](#) [view source](#) [history](#)

## Conectivismo - Curso online

Bem-vindo ao wiki de apoio ao **curso online sobre Conectivismo e Conhecimento Conectado**.

Tag do curso: CCK08

Esta página também está disponível em [Inglês](#), em [Espanhol](#) em [Chinês](#) (Versão simplificada de caracteres) e em [Italiano](#).

Esta página também tem um grupo no FaceBook em [CCK08](#)

**Contents** [hide]

- 1 Por favor, se quiser participar, (seja de forma livre ou de uma forma formal para acreditação) insira o seu e-mail aqui
- 2 Blogue do curso
- 3 Detalhes do curso

um projects

[http://ltc.umanitoba.ca/wiki/Conectivismo - Curso online](http://ltc.umanitoba.ca/wiki/Conectivismo_-_Curso_online)

# The Students

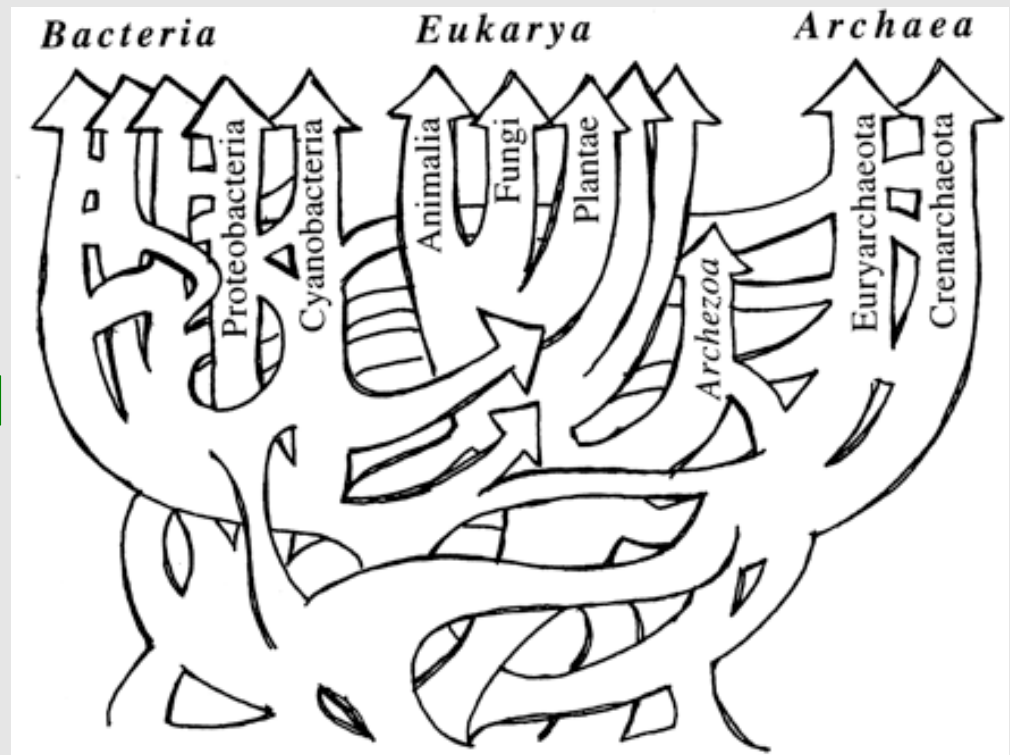
- Second Life...
- Diigo...
- de.l.icio.us
- WordPress...



Blogs about: Ccko8

# Social Construction

- Social construction is *at best* the collaborative creation of social artifacts (such as naming conventions)
- It can be:
  - Process driven
  - Results oriented
  - Consensus-based
  - Deliberative
  - Mechanical







# PLE as Exercise Machine

- A PLE is a tool intended to *immerse yourself* into the workings of a community
- Once immersed, you then *practice* being one of the people characteristic of the community
  - For example, you would learn philosophy by practicing ‘being a philosopher’ in a philosophical community
- Your personal growth develops as a consequence of the interactions with that community

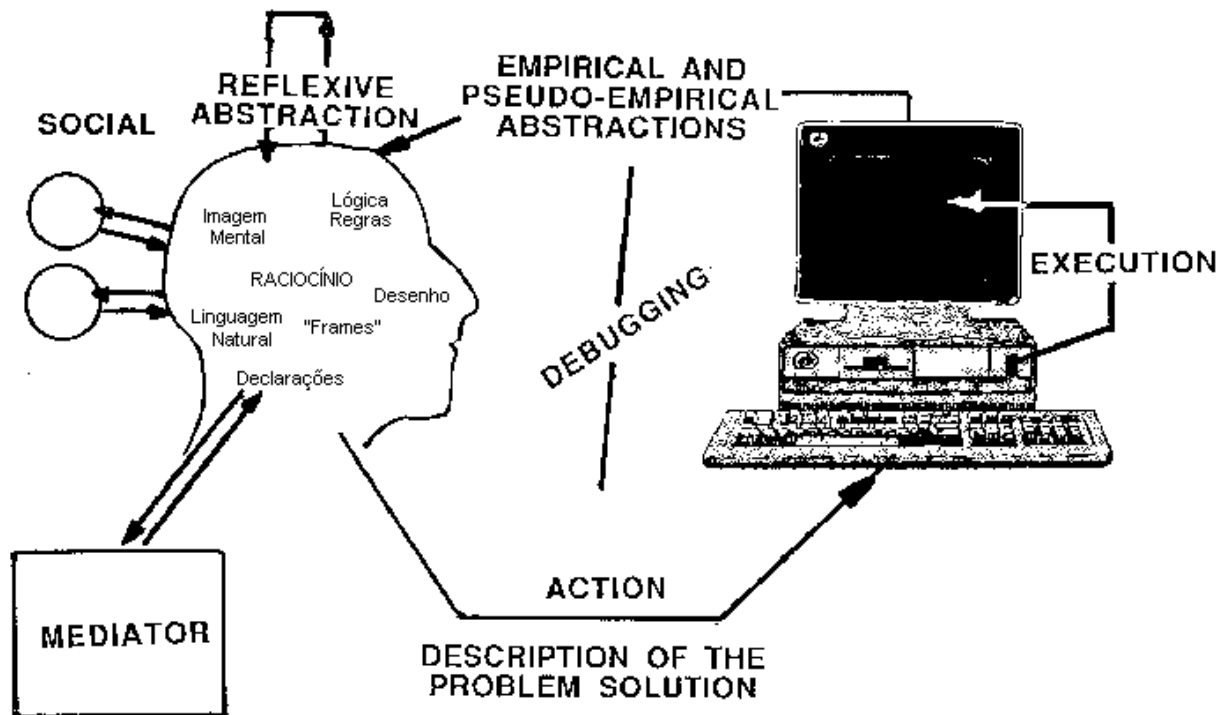
# Constructionism

- “the idea of manipulative materials to the idea that learning is most effective when part of an activity the learner experiences as constructing a meaningful product.”
- [http://en.wikipedia.org/wiki/Constructionism\\_%28learning\\_theory%29](http://en.wikipedia.org/wiki/Constructionism_%28learning_theory%29)  
“a philosophy of education in which children learn by doing and making in a public, guided, collaborative process including feedback from peers, not just from teachers.”

<http://wiki.laptop.org/go/Constructionist>

# Constructionism (2)

## CONSTRUCTIONIST APPROACH



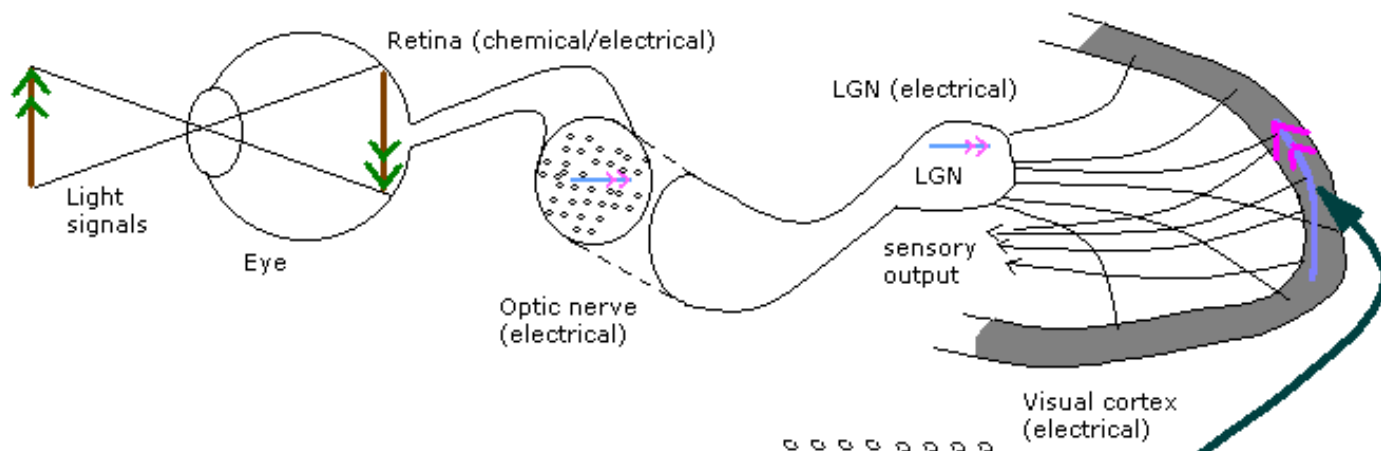
# Freire

- “Students, as they are increasingly posed with problems relating to themselves in the world and with the world, will feel increasingly challenged and obliged to respond to that challenge... Their response to the challenge evokes new challenges, followed by new understandings; and gradually the students come to regard themselves as committed.”

# The Learning in PLE

- The learning in a PLE is about developing *capacities* (not competencies, skills, etc.)
- The outcome of personal learning is engendered through *empowerment* (vs engagement, etc)

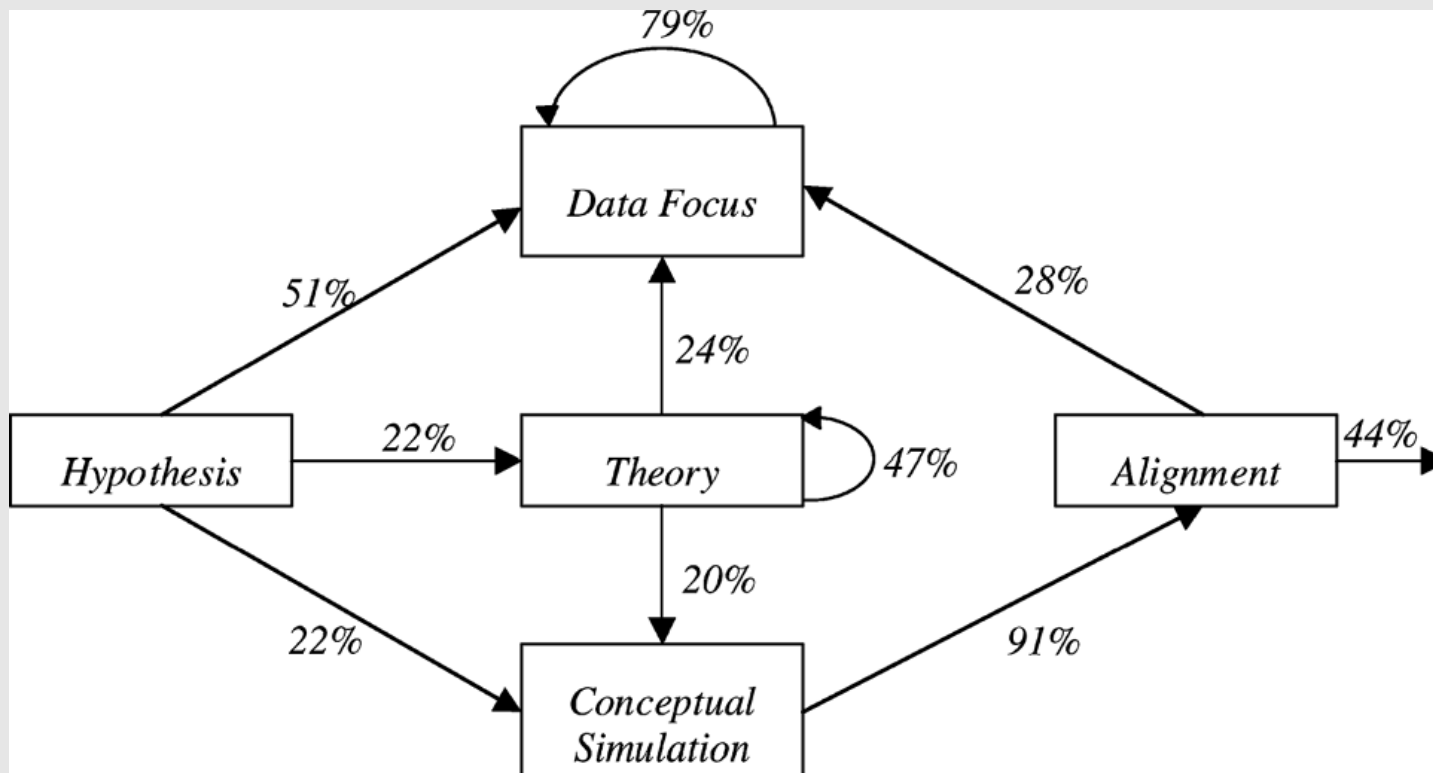
Information transfers in the nervous system





# Network Learning

- Science as language, learning as conversation, knowledge as inference

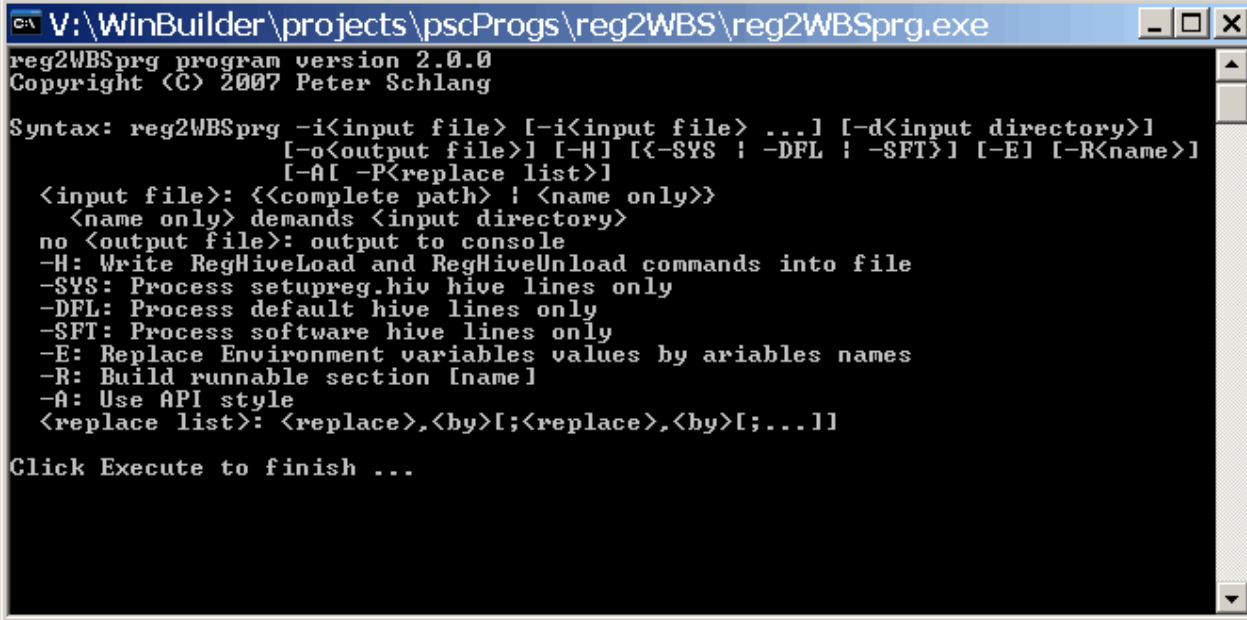


# A Frame For Critical Literacy

Syntax	Cognition
Semantics	Context
Pragmatics	Change

# Syntax

## Not just rules and grammar



```
C:\V:\WinBuilder\projects\pscProgs\reg2WBS\reg2WBSprg.exe
reg2WBSprg program version 2.0.0
Copyright (C) 2007 Peter Schlang

Syntax: reg2WBSprg -i<input file> [-i<input file> ...] [-d<input directory>]
        [-o<output file>] [-H] [<-SYS | -DFL | -SFT>] [-E] [-R<name>]
        [-A] [-P<replace list>]
<input file>: <<complete path> | <name only>>
<name only> demands <input directory>
no <output file>: output to console
-H: Write RegHiveLoad and RegHiveUnload commands into file
-SYS: Process setupreg.hiv hive lines only
-DFL: Process default hive lines only
-SFT: Process software hive lines only
-E: Replace Environment variables values by ariables names
-R: Build runnable section [name]
-A: Use API style
<replace list>: <replace>,<by>[;<replace>,<by>[;...]]

Click Execute to finish ...
```

Forms: archetypes? Platonic ideals?

Rules: grammar = logical syntax

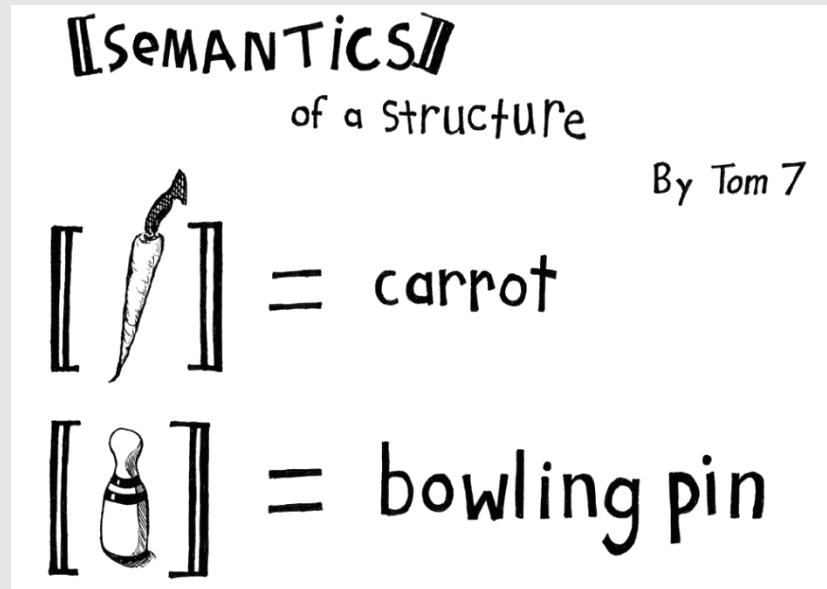
Operations: procedures, motor skills

Patterns: regularities, substitutivity (eggcorns, tropes)

Similarities: Tversky - properties, etc

# Semantics Semantics

theories of truth / meaning / purpose / goal



<http://www.cs.cmu.edu/~tom7/csnotes/fall02/semantics.gif>

- Sense and reference (connotation and denotation)
- Interpretation (Eg. In probability, Carnap - logical space; Reichenbach - frequency; Ramsey - wagering / strength of belief)
- Forms of association: Hebbian, contiguity, back-prop, Boltzmann
- Decisions and decision theory: voting / consensus / emergence

# Pragmatics

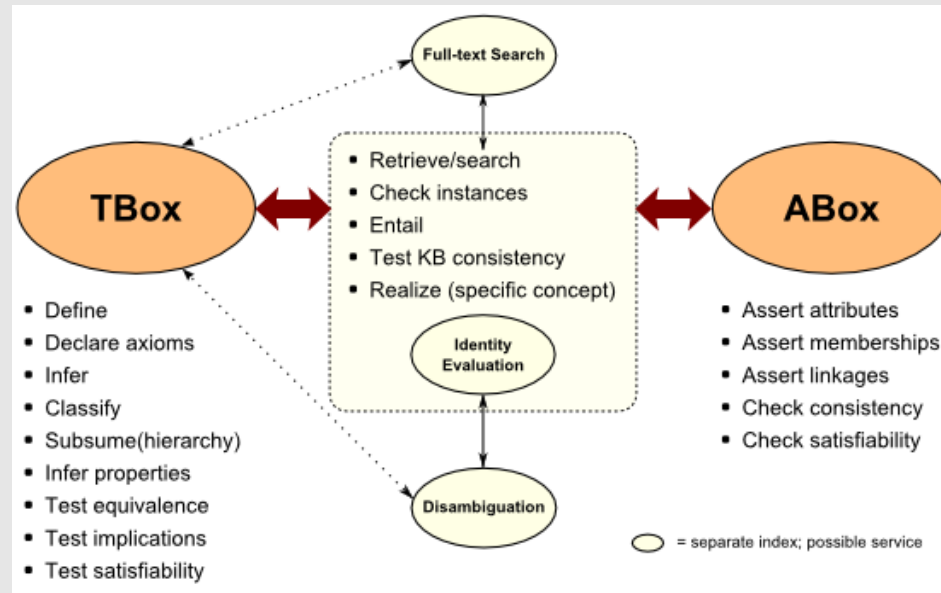
use, actions, impact



- Speech acts (J.L. Austin, Searle) assertives, directives, commissives, expressives, declarations (but also - harmful acts, harassment, etc)
- Interrogation (Heidegger) and presupposition
- Meaning (Wittgenstein - meaning is use)

# Cognition

## reasoning, inference and explanation



<http://www.mkbergman.com/category/description-logics/>

- description - X (definite description, allegory, metaphor)
- definition - X is Y (ostensive, lexical, logical (necess. & suff conds), family resemblance - but also, identity, personal identity, etc)
- argument - X therefore Y - inductive, deductive, abductive (but also: modal, probability (Bayesian), deontic (obligations), doxastic (belief), etc.)
- explanation - X because of Y (causal, statistical, chaotic/emergent)



# Context

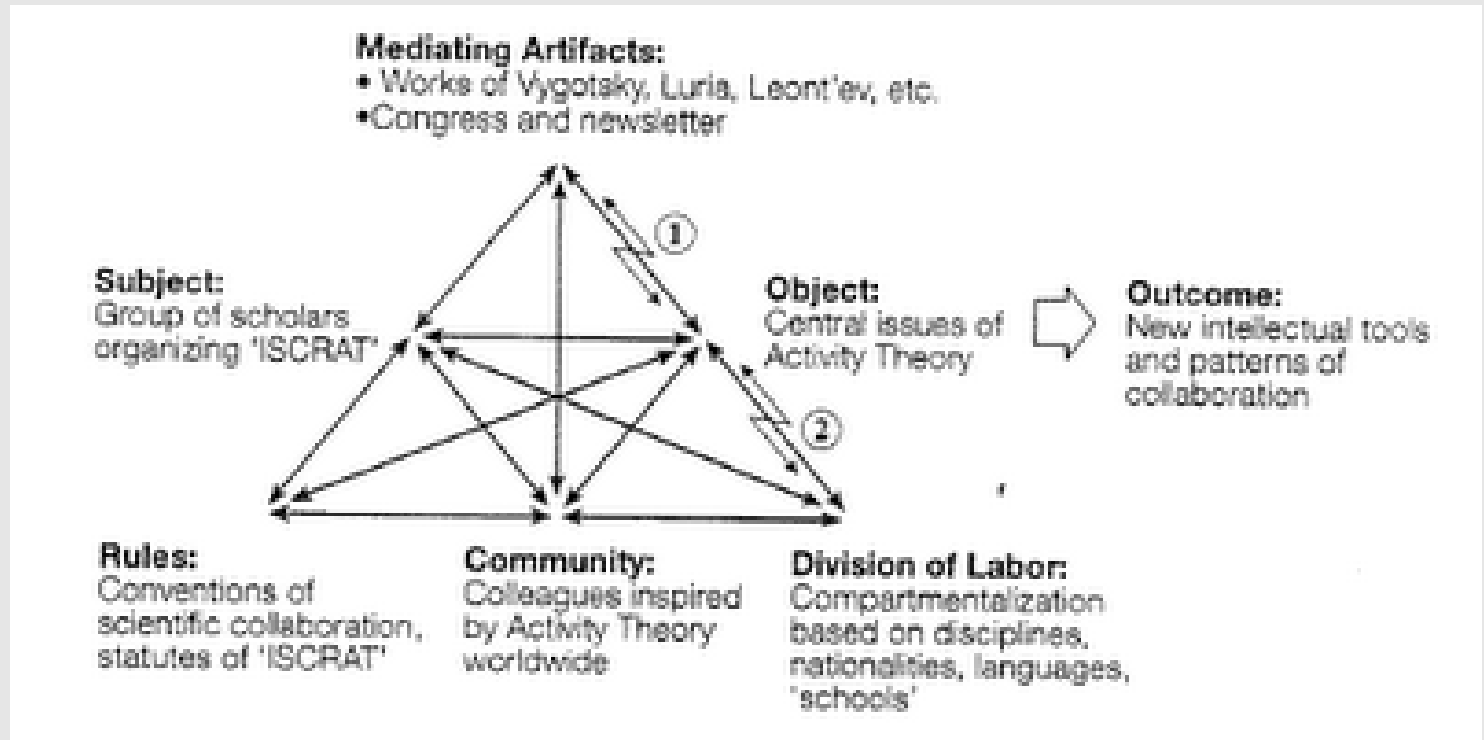
## placement, environment



<http://www.occasionbasedmarketing.com/what-it-is>

- explanation (Hanson, van Fraassen, Heidegger)
- meaning (Quine); tense - range of possibilities
- vocabulary (Derrida); ontologies, logical space
- Frames (Lakoff) and worldviews

# Change



- relation and connection: I Ching, logical relation
- flow: Hegel - historicity, directionality; McLuhan - 4 things
- progression / logic -- games, for example: quiz&points, branch-and-tree, database
- scheduling - timetabling - events; activity theory / LaaN

# 21<sup>st</sup> Century ~~Skills~~ Languages



[http://spotlight.macfound.org/btr/entry/new\\_media\\_literacies/](http://spotlight.macfound.org/btr/entry/new_media_literacies/)

The 'skills' described by Jenkins and others—*performance, simulation, appropriation, etc* - are actually *languages* and should be understood in terms of these six dimensions

# PLE Pedagogy

- The six frames are the *elements of language* used to communicate between individuals in a community
- Learning in a PLE involves *immersion in this community* and communication involving *reflective awareness* of these six frames
- *Pedagogy* in a PLE environment is the *modeling* of these skills and feedback along these frames

# Stephen Downes



<http://www.downes.ca>