



# Three generations of Distance Education Pedagogy: Past, Present and our Networked Future

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Athabasca University   
Canada's  Open University™

# Overview

- Technological Determinism in Flexible Education
- Generations of Flexible Learning Pedagogy
- A Network and Connective future for Flexible Learning

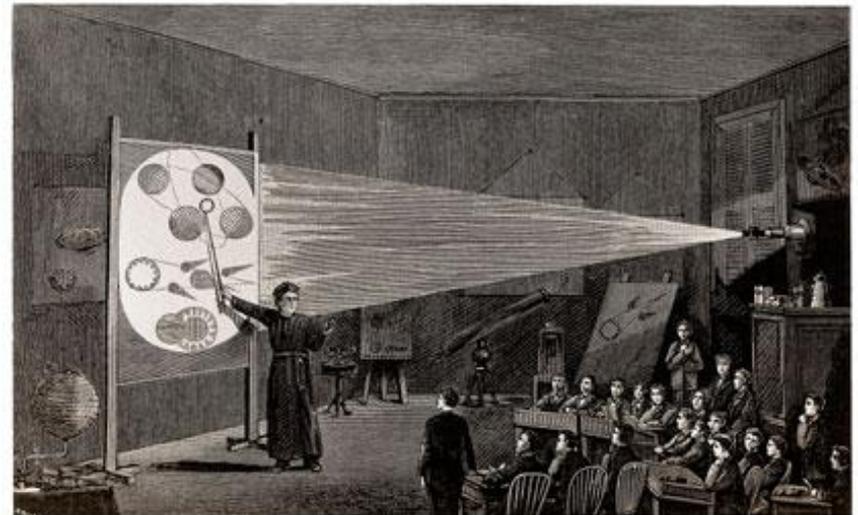
# Values

- We can (and must) continuously improve the quality, effectiveness, appeal, cost and time efficiency of the learning experience.
- Student control and freedom is integral to 21<sup>st</sup> Century life-long education and learning.
- Current educational models do not scale for lifelong learning for all residents of our planet.

# Dealing with Distance Education Technological Determinism



*The Man with the Magic Lantern,*  
a tribute to educator Ned Corbett



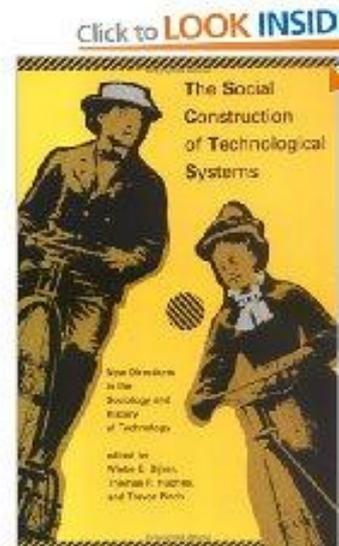
# Social Construction of Technology

**Distance Education is, by definition, technologically mediated and thus is influenced by technological determinism.**

BUT....

- **Interpretative Flexibility**
  - each technological artifact has different meanings and interpretations
- **Relevant Social Groups**
  - many subgroups of users with different applications
- **Design Flexibility**
  - A design is only a single point in the large field of technical possibilities
- **Problems and Conflicts**
  - Different interpretations often give rise to conflicts between criteria that are hard to resolve technologically
    - (Wikipedia, Sept, 2009)

Bijker, W. (1999). *Of Bicycles, Bakelites and Bulbs: Towards a Theory of Sociotechnical Change.*



# Three Generations of Flexible Learning Pedagogies

- 1. Behaviourist/Cognitive**  
– *Self Paced, Individual Study*
- 2. Constructivist** – *Groups*
- 3. Connectivist** – *Networks and Collectives*



**3 Generations Plaque**

# 1. Behavioural/Cognitive Pedagogies

- “tell ‘em what you’re gonna tell ‘em,
- tell ‘em
- then tell ‘em what you told ‘em”

Direct Instruction



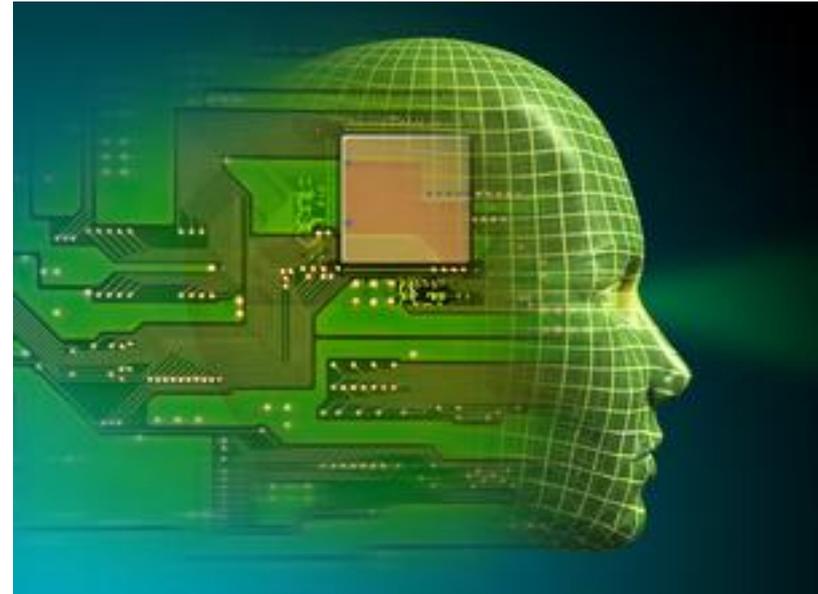
# Gagne's Events of Instruction (1965)

1. Gain learners' attention
2. Inform learner of objectives
3. Stimulate recall of previous information
4. Present stimulus material
5. Provide learner guidance
6. Elicit performance
7. Provide Feedback
8. Assess performance
9. Enhance transfer opportunities



# Enhanced by the “cognitive revolution”

- Chunking
  - Cognitive Load
  - Working Memory
  - Multiple Representations
  - Split-attention effect
  - Variability Effect
  - Multi-media effect
- (*Sorden, 2005*)



“learning as acquiring and using conceptual and cognitive structures” Greeno, Collins and Resnick, 1996

# Focus is on the Content and the Individual Learner



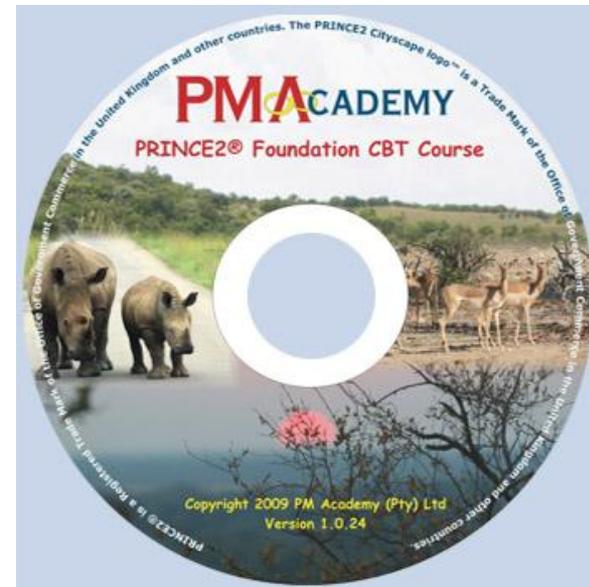
# Behaviourist/Cognitive Knowledge Is

- Logically coherent, existing independent of perspective
- Context free
- Capable of being transmitted
- Assumes closed systems with discoverable relationships between inputs and outputs

# Behaviourist/Cognitive Technologies



Content is king



# The End of Content Scarcity

- Massive Global decrease in costs, complexity and collaboration,
- Massive Increase in convenience and access



**OPEN EDUCATIONAL RESOURCES**

# New Content Providers - iTunes U

The screenshot displays the iTunes U interface. On the left is a sidebar with a 'Genres' dropdown menu and a list of categories. The main area shows a grid of content providers, each with a cover image, title, and provider name.

**Music** Genres

Movies  
TV Shows  
Music Videos  
Audiobooks  
Podcasts  
Latino  
iTunes U  
iPod Games  
App Store

**CATEGORIES**

Business  
Engineering  
Fine Arts  
Health & Medicine  
History  
Humanities  
Language  
Literature  
Mathematics  
Science  
Social Science  
Society  
Teaching & Education

Image	Title	Provider
	Public Figures	Cornell University
	Technology in Science In...	Florida Department of Educ...
	Invisible Wounds of War	UCTV
	NT Pod	Duke
	The Great Depression an...	Gilder Lehrman Institute of ...
	Baylor Business Review	Baylor
	Creativity Conversations	Emory University
	Sounds harmonious	Open University
	History of Jazz	Georgia State University

- “iTunes is not simply a repository of more than 8 million songs, audio books, videos and 70,000 or so iPhone applications.
- It also has the **world's largest, constantly available, free educational resource**” — iTunesU.

# Value of Good Canned content

## “The Great Courses” - \$69-\$199 (Canadian)



The screenshot shows the homepage of The Teaching Company. At the top, the company logo is on the left, and navigation links for Shopping Cart, Your Account, Gift Certificates, Libraries, and Help are on the right. Below this is a green navigation bar with links for Home, Courses, Professors, Our Guarantee, About Us, FAQ, and On Sale. A search bar is located on the right side of this bar. On the left, a vertical menu lists various course categories. The main content area features a large banner with a man wearing headphones and the text "The Joy of Lifelong Learning Every Day™". Below the banner is a paragraph describing the company's offerings. A yellow bar contains three call-to-action buttons: "Great Professors", "Great Courses", and "Guaranteed". Below this, a "New Releases" section displays three course thumbnails with their respective titles and savings.

**THE TEACHING COMPANY**

SHOPPING CART YOUR ACCOUNT GIFT CERTIFICATES LIBRARIES HELP  
1-800-TEACH-12 (1-800-832-2412)

HOME COURSES PROFESSORS OUR GUARANTEE ABOUT US FAQ ON SALE SEARCH:  GO

**BROWSE COURSES:**

- NEW RELEASES
- BEST SELLERS
- SPECIAL SET OFFERS
- BUSINESS & ECONOMICS
- FINE ARTS & MUSIC
- HISTORY - ANCIENT & MEDIEVAL
- HISTORY - MODERN
- LITERATURE & ENGLISH LANGUAGE
- PHILOSOPHY & INTELLECTUAL HISTORY
- RELIGION
- SCIENCE & MATHEMATICS
- SOCIAL SCIENCES
- HIGH SCHOOL

**The Joy of Lifelong Learning Every Day™**

The Teaching Company brings engaging professors into your home or car through courses on DVD, audio CD, and other **formats**. Since 1990, great teachers from the Ivy League, Stanford, Georgetown, and other leading colleges and universities have crafted over 250 courses for lifelong learners like you. It's the **adventure of learning** without the homework or exams.

**GREAT PROFESSORS >>**  
How we choose the top 1 in 5,000 professors...

**GREAT COURSES >>**  
Why course satisfaction averages 8.97 out of 10...

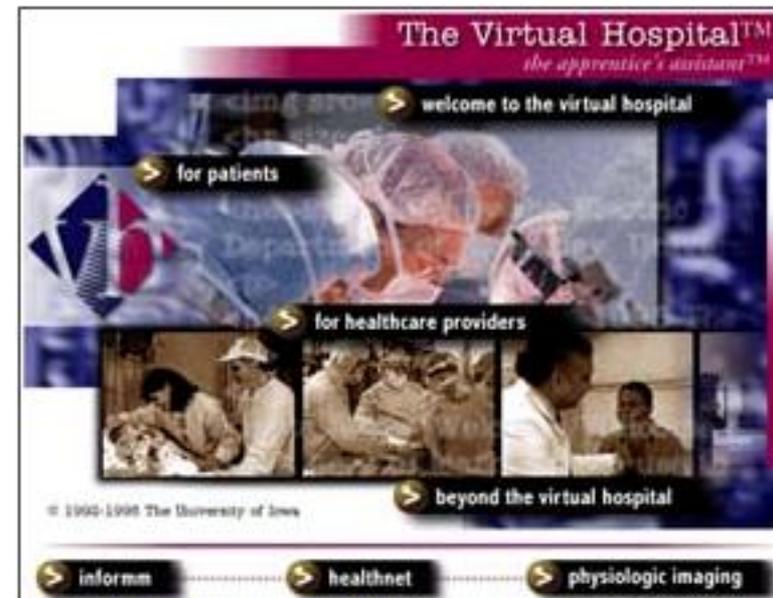
**GUARANTEED >>**  
Why we offer a lifetime satisfaction guarantee...

**New Releases** [more >](#)

-   
**Save Up To \$390**  
[War and World History](#)
-   
**Save Up To \$275**  
[Exploring the Roots of Religion](#)
-   
**Save Up To \$185**  
[Discrete Mathematics](#)

# New Information Competitors

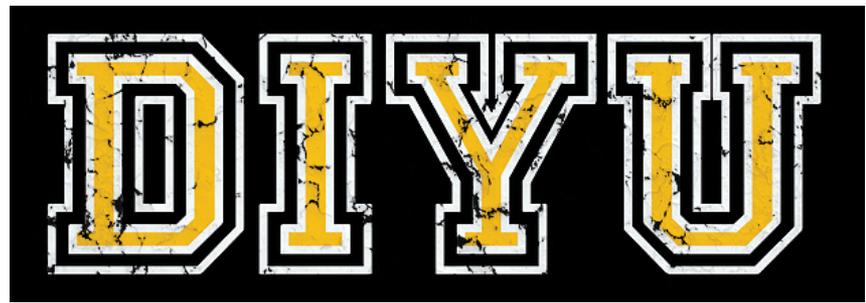
- Publishers as full meal deal providers
  - Web sites; mobile quizzes, audio and video podcasts, interviews, online and mobile versions, Powerpoint slides, testing
- Professional & Academic
  - full service web sites
  - accreditation



*The Virtual Hospital provides an electronic library of information including patient education material, multimedia textbooks, and drug interaction information.*

# New Developments in First Generation Systems

- Reflection Amplifiers
- Social Indicators
  - Digital footprints
  - Archives
  - Competition and games
- Multiple Representations
- Student modeling and adaptation



- What is the role of postsecondary institutions in a world where content is available for free for everyone?
  - Teaching what/how?
  - Examining and credentialing?
  - Prior learning assessment?
- Do Behaviourist/Cognitive Pedagogies adequately guide learning designs that meet today's student needs?

Behavioural/cognitive learning is necessary but not sufficient for quality education.



## 2. Constructivist Pedagogy of Flexible Learning

- New knowledge is built upon the foundation of previous learning,
- The importance of context
- Errors and contradictions are useful
- Learning as an active rather than passive process,
- The importance of language and other social tools in constructing knowledge
- Focus on meta-cognition and evaluation as a means to develop learners capacity to assess their own learning
- The importance of multiple perspectives - groups
- Need for knowledge to be subject to social discussion, validation and application in real world contexts
  - (from Honebein, 1996; Jonassen, 1991; Kanuka & Anderson, 1999)

# Constructivist Knowledge is:

- Socially constructed
- Arrived at through dialogic encounter
  - (Bakhtin, 1975)
- “Dialogic as an epistemological framework supports an account of education as the discursive construction of shared knowledge”
  - (Wegerif, R., 2009)

# Where does Constructivist learning Happen?

- “learning as located in the contexts and relationships, rather than merely in the minds of individuals”
  - Greenhow, Robelia, & Hughes, (2009)
- The Context of the our age is increasingly online

# Assessing students using Constructivist Learning

- *“What is important is the process of knowledge acquisition, not any product or observable behavior.”*
  - Jonassen, 1991



# Constructivist Evaluation

- the frequency with which students participate in activities that represent effective educational practice, is a meaningful proxy for collegiate quality and, therefore, by extension, quality of education.
- What are effective practices?
  - Level of academic challenge
  - Active and collaborative learning
  - Student-faculty interaction
  - Enriching educational experiences
  - Supportive social interaction. (*National Survey of Student Engagement, 2003*)

# Constructivist learning is Group Learning

- Motivation
- Feedback
- Alternate viewpoints

# Taxonomy of the 'Many' – A Conceptual Model

Dron and Anderson, 2007

## **Group**

Conscious membership  
Leadership and organization  
Cohorts and paced  
Rules and guidelines  
Access and privacy controls  
Focused and often time limited  
May be blended F2F

**Metaphor :**  
**Virtual classroom**

# Why Groups?

- “Students who learn in small groups generally demonstrate greater academic achievement, express more favorable attitudes toward learning, and persist ...
- small-group learning may have particularly large effects on the academic achievement of members of underrepresented groups and the learning-related attitudes of women...”
  - Springer; Stanne, & Donovan, (1999) P.42



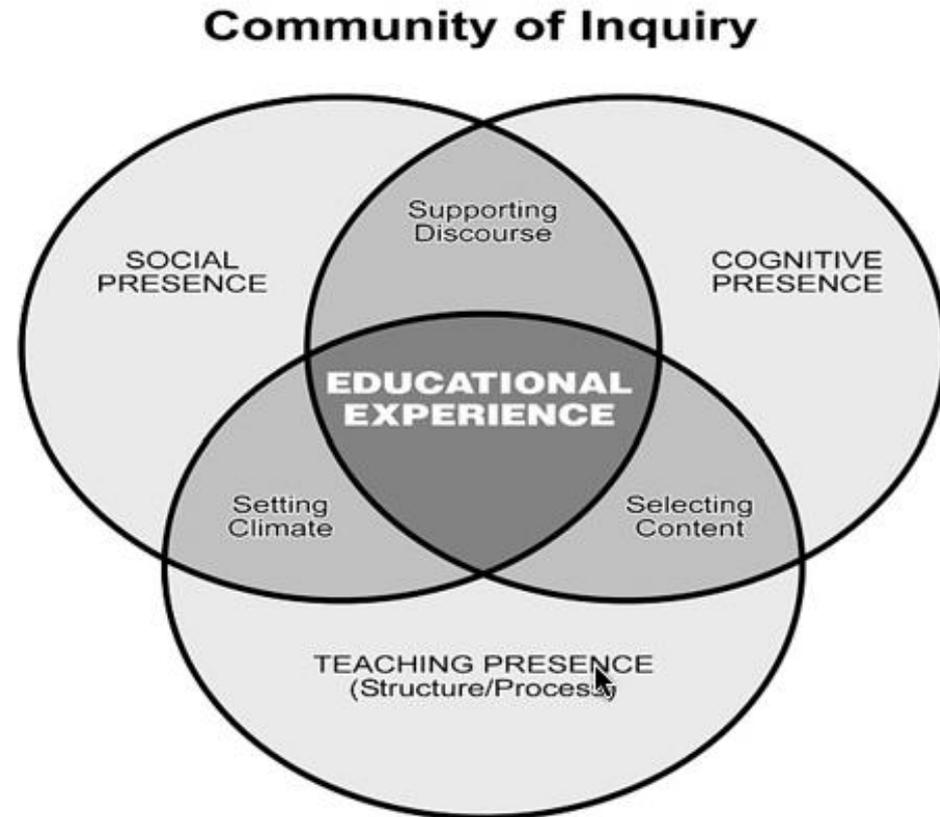
# Why Groups?

- Athabasca University's learner-paced undergraduate courses averaged 63.6% completion rates for the 2002-2003 academic year. Completion rates for the same courses offered in seminar format (either through synchronous technologies or face-to-face) averaged 86.9% over the same period (Athabasca University, 2003, p.12)



# Constructivist Learning in Groups

- Long history of research and study
- Established sets of tools
  - Classrooms
  - Learning Management Systems
  - Synchronous (video & net conferencing)
  - Email
- Need to develop face to face, mediated and blended group learning skills



Garrison, R., Anderson, T., & Archer, W. (2000). Critical thinking in text-based environment: Computer conferencing in higher education. *The Internet and Higher Education*, 2(2), 87-105.

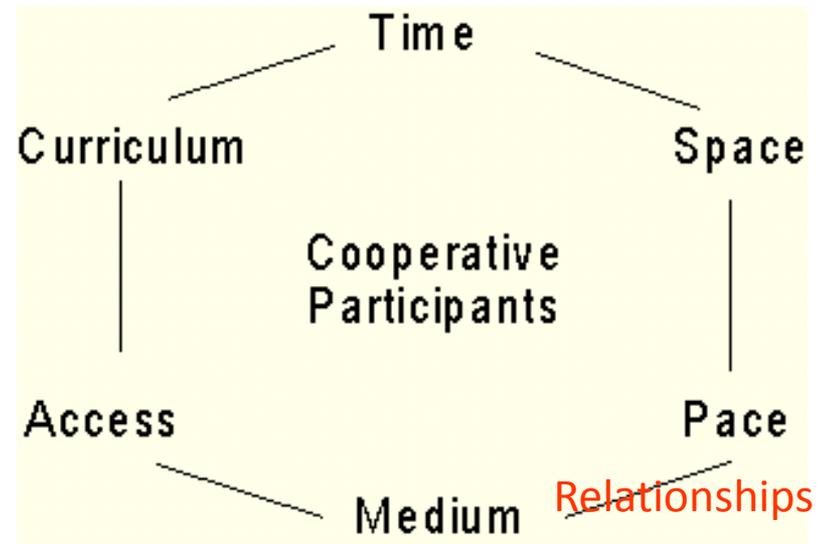
# Cohort Communities of Practice

- Wenger's ideas of Community of Practice
  - mutual engagement – synchronous and notification tools
  - joint enterprise – collaborative projects
  - a shared repertoire – common tools, Moodle, resource and doc sharing



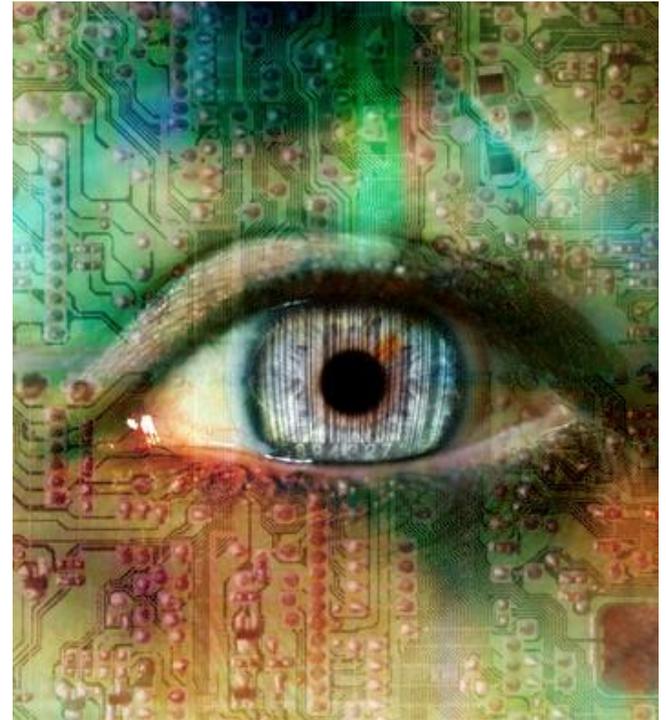
# Problems with Groups

- Restrictions in time, space, pace, & relationship - NOT OPEN
- Often overly confined by leader expectation and institutional curriculum control
- Usually Isolated from the authentic world of practice
- “low tolerance of internal difference, sexist and ethicized regulation, high demand for obedience to its norms and exclusionary practices.” *Cousin & Deepwell 2005*
- “Pathological politeness” and fear of debate
- Group think (Baron, 2005)
- Poor preparation for Lifelong Learning beyond the course



Paulsen (1993)  
Law of Cooperative Freedom

- Groups are necessary, but not sufficient for advanced forms of learning.



### 3. Networked Learning using **Connectivist Pedagogy**

- Learning is building networks of information, contacts and resources that are applied to real problems.



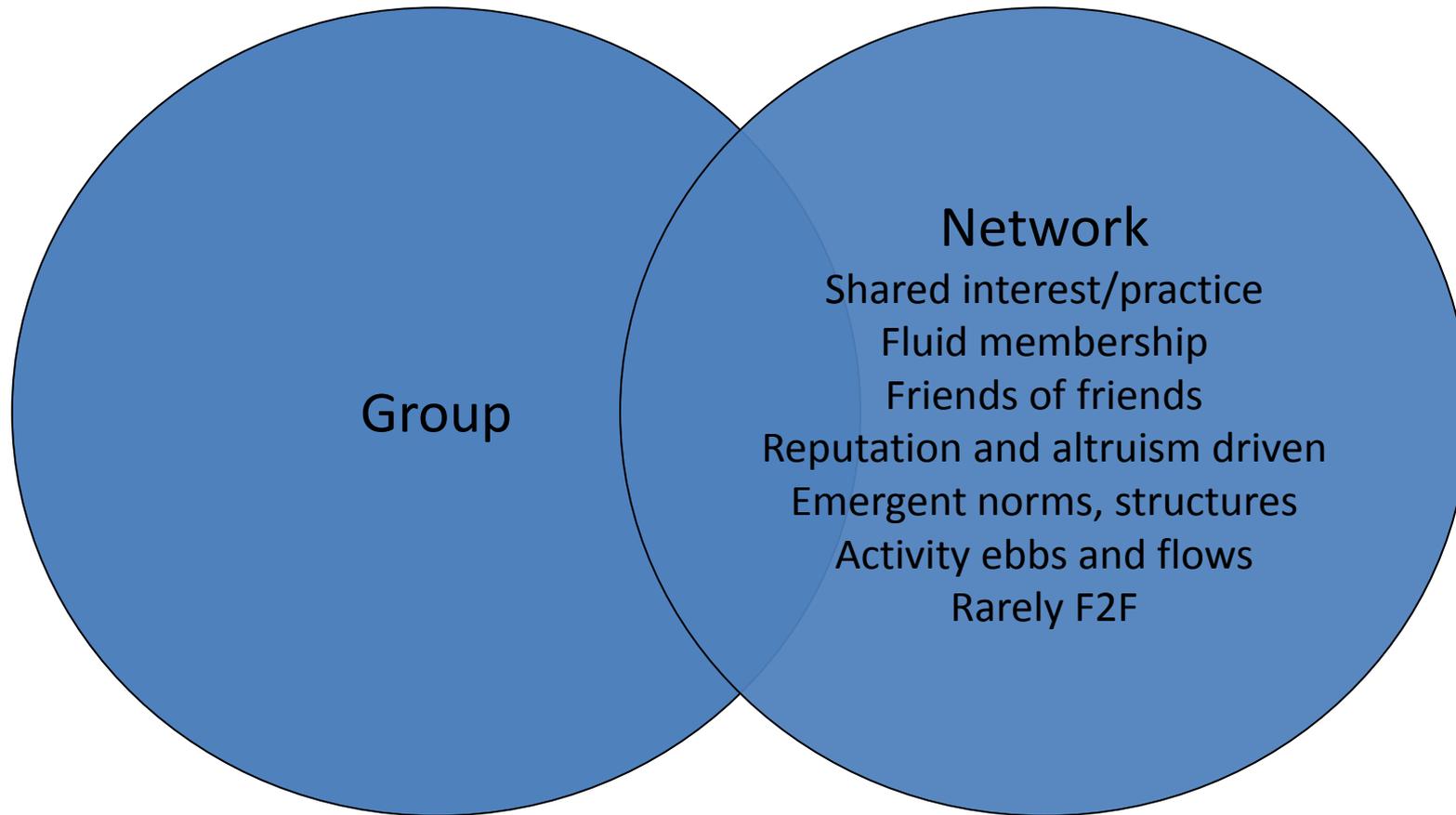
# Connectivist Learning Principles

George Siemens, 2004

- *Learning and knowledge rests in diversity of opinions.*
- *Learning is a process of connecting specialized nodes or information sources.*
- *Learning may reside in non-human appliances.*
- *Capacity to know is more critical than what is currently known.*
- *Nurturing and maintaining connections is needed to facilitate continual learning.*
- *Ability to see connections between fields, ideas, and concepts is a core skill.*
- *Currency (accurate, up-to-date knowledge) is the intent of all connectivist learning activities.*
- *Decision-making is itself a learning process.*



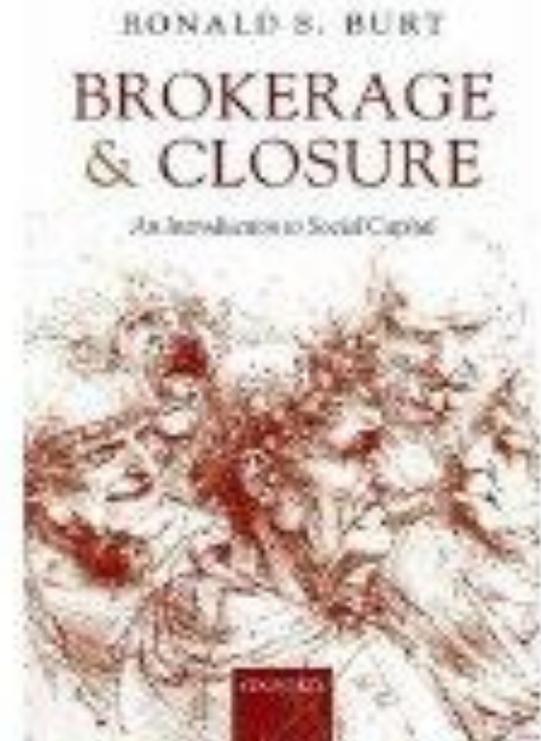
# Connectivist focuses on Networks - - not Groups



**Metaphor: Virtual Community of Practice**

# Networks Add diversity to learning

“People who live in the intersection of social worlds are at higher risk of having good ideas” Burt, 2005, p. 90



# Networks of Practice

- Distributed
- Share common interest
- Mostly self organizing
- Open – Learning beyond the course
- No expectation of meeting or even knowing all members of the Network
- Little expectation of direct reciprocity
- Contribute for social capital building, altruism and a sense of improving the world/practice through contribution.

# Related Pedagogies

- **Participatory Pedagogy** (Bruns, A. (2008). *Blogs, Wikipedia, Second Life, and Beyond: From Production to Prodsusage.* )
  - Students as content co-creators
- **Complexity** Davis, B., & Sumara, D. (2006). *Complexity and Education*
  - the unfinished course
  - Learning in environments in which activities and outcomes emerge in response to authentic needs creates powerful learning opportunities
  - Learning at the “edge of chaos”
  - [Complicity: An International Journal of Complexity and Education](#)
- **Transparency** (Dalsgaard, C., & Paulsen, M. (2009). Transparency in Cooperative Online Education. *International review of Research in Open and Distance Learning, 10(3)*

See the [Networked Student](#) by Wendy Drexler

# How do we Build Networks of Practice ?

- Motivation – marks, rewards, self and net efficacy, net-presence
- Structural support
  - Exposure and training
  - Transparent systems
  - Wireless access, mobile computing
- Cognitive skills – content + procedural, disclosure control
- Social connections, reciprocity
  - Creating and sustaining a spiral of social capital building
    - Nahapiet & Ghoshal (1998)

# New Yorker Cartoon

by Alex Gregory



Creating  
Incentive to  
Sustain  
Contribution  
to Networks

*The New Yorker* September 12, 2005

# Connectivist Tools

The screenshot displays the Go2Web20 website interface. At the top left, the title "Web 2.0 Tools and Applications" is shown in green. To the right of the title is a navigation bar with numbered tabs (1, 2, 3, 4, ..63) and a search icon. The main content area is a grid of 42 tool icons arranged in 6 rows and 7 columns. The tools include: FanFeedr, screenr, redanyway, mygazines.com, loggel, TicketFlow, KiDEOS, eventWax, raveable, zoodak Beta, loopthing, Snailmailr, WIKITUDE, ALOQA, mikoGo, ReeClever, everlater, SignApp Now, AVARTIZE, BookRix, Thy News, InspireMix, dingbee BETA, mobclix, SMAK NEWS, Chirps, REDUX, snapatar, lifeblob, corbis, ChatterBOX, CastRoller, VULEVU.com, LooGix, and swoopup. On the right side of the page, there is a vertical sidebar with a purple background. It starts with the text "Here's a tag to start" and a "MOST-POPULAR" button. Below this is a list of tags: PHOTO, MUSIC, VIDEO, E-LEARNING, GAME, COLLABORATION, DESIGN, TWITTER, BLOGGING, TRAVEL, MOBILE, WIDGET, COMMUNITY, FUN, BUSINESS, and MONEY. Each tag is preceded by a small icon.

<http://www.go2web20.net/>

# Connectivist Technology

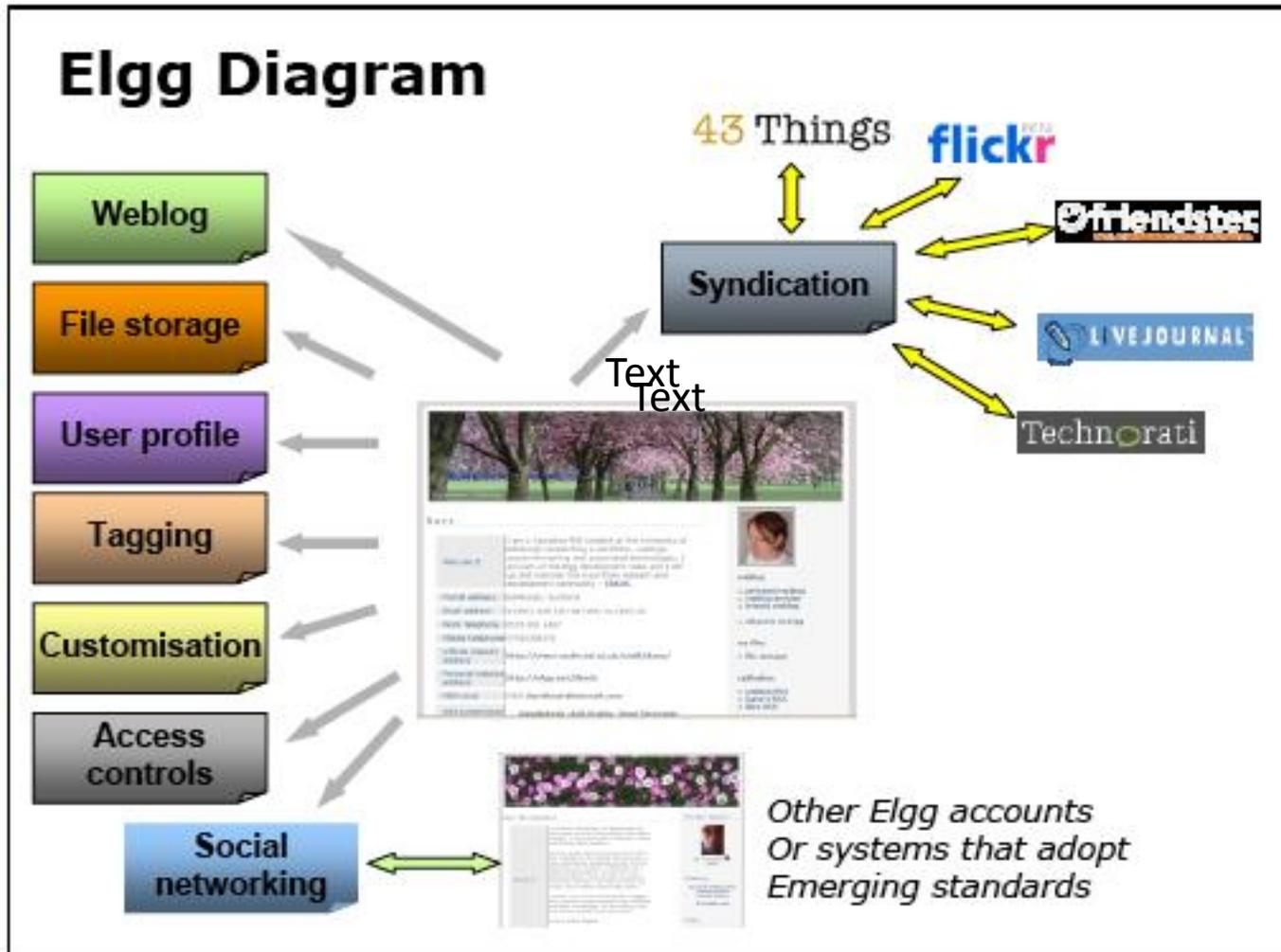
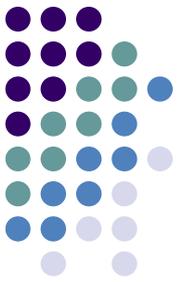
## Examples from Athabasca

- Elgg – [Landing.athabascau.ca](http://Landing.athabascau.ca) – Social networking
- Easy M-Cast (Podcast, videocasts, screen casts)
- Tutor “office hours” & recorded via Elluminate
- Athabasca presence in immersive worlds ie Second Life
- AU on FaceBook
- AU on RateMyProfessor
- Media Lab at AU – Communication tool chests
- New Pedagogical Model for AU self-paced courses

# Challenges of Connectivist Learning Models

- Privacy
- Control
- Institutional Support
- Sustaining motivation and commitment
- Dealing with disruptive change

# Network Tool Set (example)



# Access Controls in Elgg

The screenshot displays the 'Edit blog post' interface in Elgg. At the top, a navigation bar includes 'Landing', 'My Dashboard', 'Help', 'Feedback', 'My Account', and 'Admin'. A user profile picture and name are visible on the left. The main content area is titled 'Edit blog post' and contains several sections:

- Publish:** Includes a 'Preview' button, a 'Save draft' button, and a message 'Draft last saved: 16:39'.
- Access:** A dropdown menu is open, showing the following options:
  - Public (selected)
  - Private
  - Friends
  - Logged in users
  - Public (highlighted)
  - Group: CDE Community
  - Group: MDDE 605
  - Group: MDE 663 Winter 2009
  - Group: EDDE 802
  - Group: Friends of the Landing
  - Group: Centre for Distance Education (CDE)
  - Group: Landing Research Group
  - Group: Web Conferencing
  - Group: Design-Based Research
  - Group: EDDE804 Capstone Group
  - Group: E-lab Advisory Group
  - Group: EdD Commons
  - Group: Student Blogging Tutorial
  - Group: The Landing Operations Group
- Title:** The title of the post is 'Participatory Culture'.
- Blog text:** The text area contains the following content:

How to embed youtube videos [Embed My File /](#)

the idea of the Landing is to spawn and support a participatory culture at Athabasca. We have been trying to do this with faculty and talking (but doing little) to encourage this with tutors and students. Nothing at all to allow the majority of our self-paced learners to engage and participate in our academic culture.

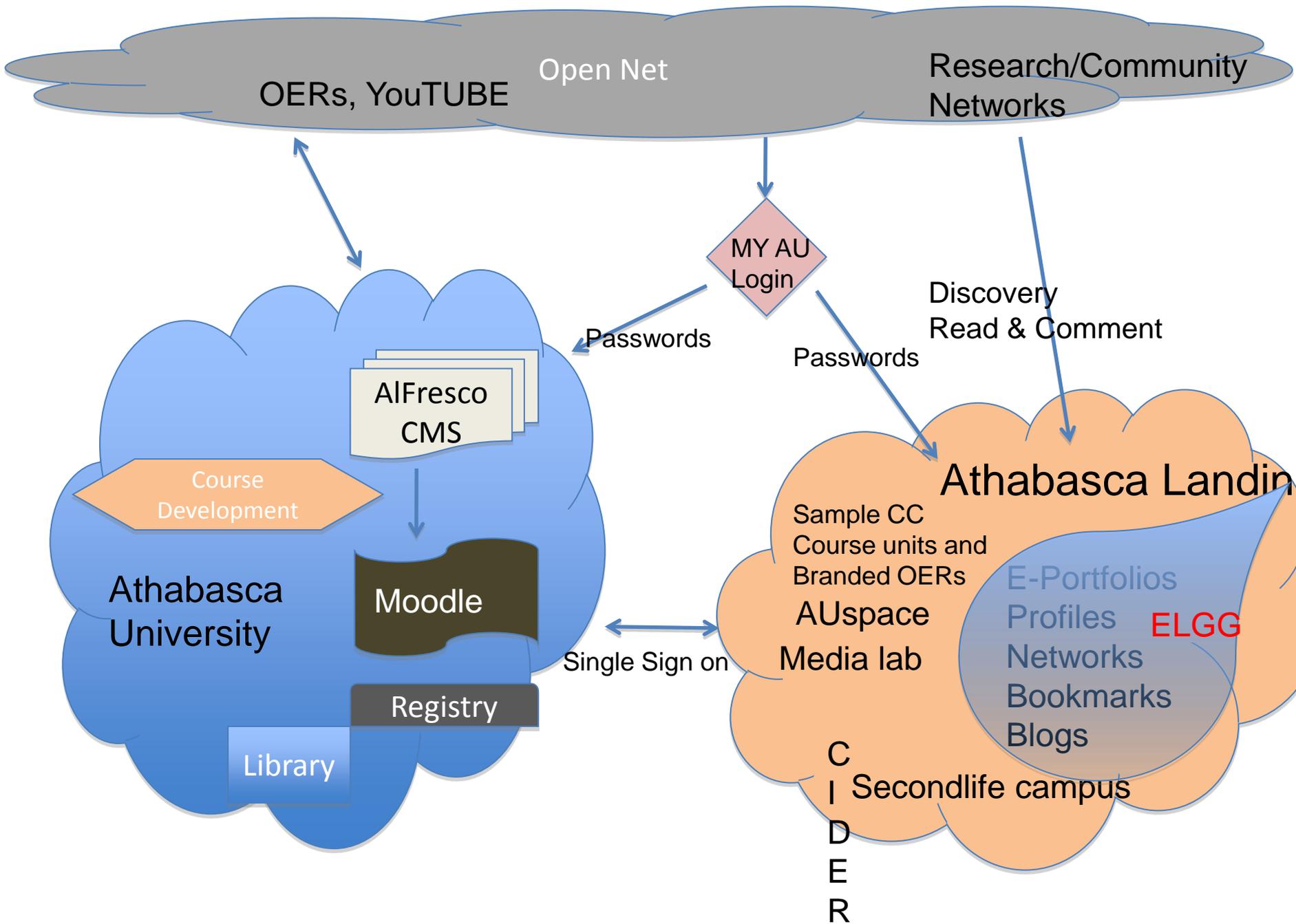
Penkins et al. (2009) describe a participatory culture as one:

  - . With relatively low barriers to artistic expression and civic engagement
  - . With strong support for creating and sharing one's creations with others

with: [Add/R](#)

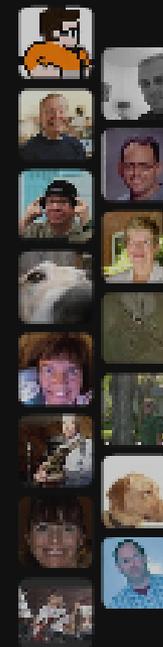
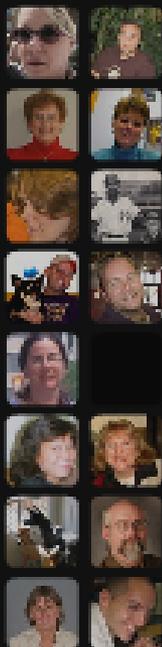
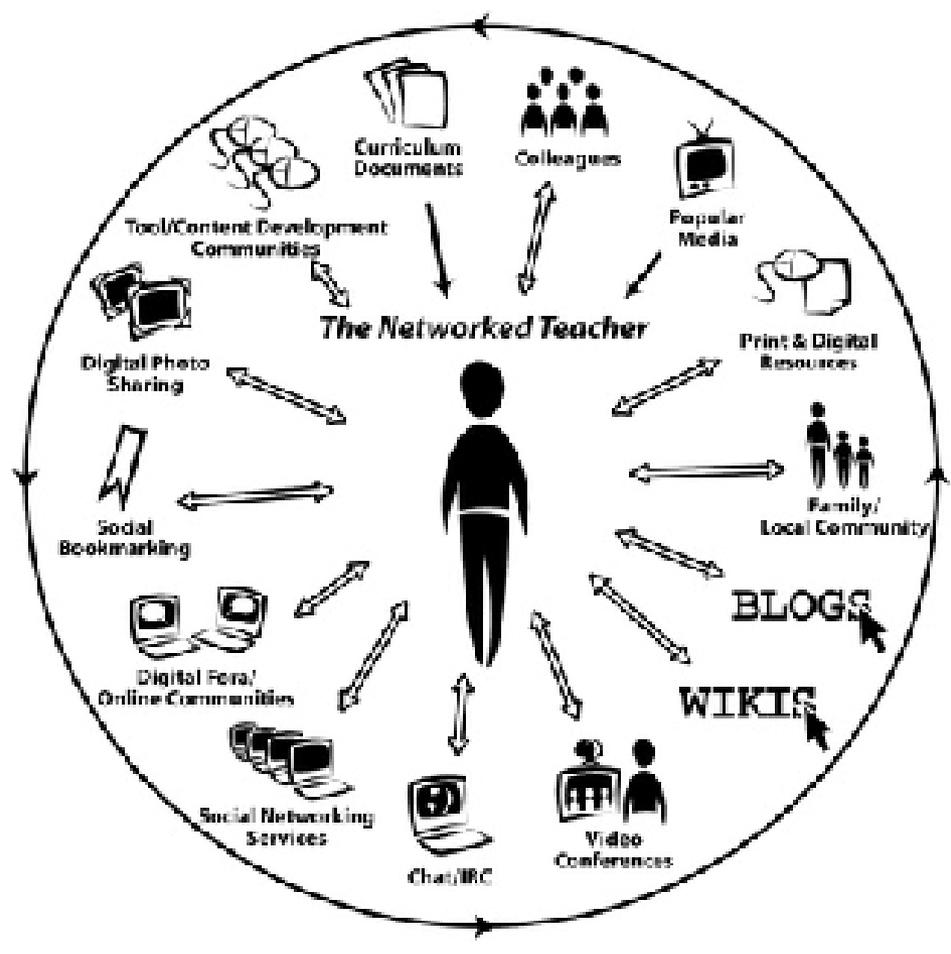
Tags: Participatory culture

At the bottom of the page, a 'Spotlight' section contains the text: 'For help with Blogs, please click [here](#).'





# What Does the Network Mean To You?



sign in  
or  
register

comment



# Conclusion

- Behavioural/Cognitive models are useful for memory and conceptual knowledge
- Constructivist models develop group skills and trust
- Connectivist models and tools introduce networked learning and are foundational for lifelong learning in complex contexts
- All of us need to develop our personal learning networks

**"He who asks a question is a fool for five minutes;  
he who does not ask a question remains a fool forever."**

**Chinese Proverb**

**Your comments and questions most  
welcomed!**

**Terry Anderson [terrya@athabascau.ca](mailto:terrya@athabascau.ca)**

**Blog: [terrya.edublogs.org](http://terrya.edublogs.org)**