On Social Learning, Sensemaking Capacity, and Collective Intelligence

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My Space...

- Wicked Problems
- Collective Intelligence
- Sensemaking
- Learning
- Computer-Supported...
  - participatory inquiry
  - dialogue
  - deliberation
  - argumentation

http://media.photobucket.com/image/yinyang/penelopecassandre/Tao_YinYangEarth2.jpg
Why are these so important now?

- Wicked Problems
- Collective Intelligence
- Sensemaking
- Learning
- Computer-Supported...
  - participatory inquiry
  - dialogue
  - deliberation
  - argumentation
Transitional thinkers…

Tsunesaburo Makiguchi

Rudolf Steiner

Maria Montessori

John Dewey
...are needed for **transitional times**...

**Tsunesaburo Makiguchi**  
1871-1944

**Rudolf Steiner**  
1861-1925

**Maria Montessori**  
1870-1952

**John Dewey**  
1859-1952

Acknowledgements: Roy Leighton: “Building a curriculum with soul”
Keynote Address, Milton Keynes School Governors Conference 2010
http://prezi.com/3khu_wi1rn-a/milton-keynes-govs-roy-leighton
“It is time to hold up our hands and admit that our education system just isn’t working well enough.

Our emphasis needs not to be on proving the residual value of outdated curricula, tests and league tables, but on inspiring and challenging children so that they in turn can inspire and challenge us.”

Lord David Puttnam
Chancellor, Open University
Introduction to the Learning Futures Programme
www.learningfutures.org
“To put it very crudely, the habits of mind required, and therefore cultivated, by the 19th century curriculum of mass schooling were deference, unquestioning acceptance of authority, neatness, punctuality, accurate recapitulation and ‘sequestered problem-solving’”

Claxton & Lucas, 2009 UK National Inquiry into the Future for Lifelong Learning
“…adults and children alike see their worlds as complex, changing, uncertain and ambiguous, and are likely to get more, not less, so.

The obvious question, then, is: what are the epistemic mentalities and identities that will enable people to thrive in such a world? What do good learners do? What do they enjoy? How do they react when the going gets tough?”

Claxton & Lucas, 2009 UK National Inquiry into the Future for Lifelong Learning
“In one survey after another, business leaders complain that the majority of U.S. job applicants are ill-equipped to solve complex problems, work in teams, or communicate effectively.

“Hewlett envisions a new generation of schools and community colleges ... harness the deeper learning skills of critical thinking, problem solving, effective communication, collaboration, and learning to learn to help students develop a strong foundation in traditional academic subjects.”
Uncertain futures…

Learning in C21 requires living under increasing uncertainty (Manuel Castells: "informed bewilderment")

Uncertainty: authority is increasingly called into question

Uncertainty: digital revolution makes change the only predictable pattern

Uncertainty: societal and global challenges require new ways of thinking

Lifewide and lifelong learning presents complex personal, intellectual, and social dilemmas

Argument Map built using Open U’s Compendium: http://compendium.open.ac.uk
Challenge for the educational system...

- Educational system being called into question

  - Children, young people and adults must develop new capacities
  - Hagel et al: Symptomatic of the Push paradigm, shifting to the Pull paradigm: from stocks of information, to flows, via social interaction and social media platforms

"PULL" encapsulates a set of game-changing patterns

- It is increasingly HARD TO PREDICT THE FUTURE
- Knowledge in emerging, poorly understood fields is TACIT: it cannot be effectively transmitted symbolically
- Personal PASSION becomes critical: that’s what powers continual inquiry and learning

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(lots of data on corporate failure, and examples on how everyday life has changed due to the digital infrastructure)

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- Knowledge in emerging, poorly understood fields is TACIT: it cannot be effectively transmitted symbolically.
- It is increasingly HARD TO PREDICT THE FUTURE.

Tacit knowledge is shared person-to-person:

- In quality relationships, trust is critical.
- Apprenticeship is critical.

Authentic experience is critical: beyond "knowing that..." to "knowing how to be..." in a community.

Quality relationships require people who are self-aware: confidence and identity.

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What are the skills and dispositions for effective, self-motivated inquiry?
The Power of Pull
How Small Moves, Smartly Made, Can Set Big Things in Motion

John Hagel III
John Seely Brown
Lang Davison

Summary article in Harvard Business Review blog:
http://blogs.hbr.org/bigshift/2010/04/a-brief-history-of-the-power-o.html
Implication?

Sensemaking is a key literacy.
Based on analysing and mentoring many senior leaders, Palus & Horth recognise a new pattern of competencies in leaders who cope well with overwhelming complexity. CCL has developed practical tools to scaffold these competencies.

...how do we nurture these in ourselves, and the next generation?
Read this:

The Leader’s Edge
Six Creative Competencies for Navigating Complex Challenges

Charles J. Palus
David M. Horth

Summary article in Ivey Business Journal:
http://www.iveybusinessjournal.com/article.asp?intArticle_ID=582
Implication?

*learning to learn*

is a key literacy
How do we make the future learner-centric (but not an echo chamber where you’re never out your comfort zone)?

- Personalised information feeds and mobile tools
- Learner-selected peer network
- Personalised resource archives
- Learner-selected mentors
Learning to Learn: 7 Dimensions of “Learning Power”

Factor analysis of the literature plus expert interviews: identified seven dimensions of effective “learning power”, since validated empirically with learners at many levels. (Deakin Crick, Broadfoot and Claxton, 2004)

Being Stuck & Static ↔ Changing & Learning
Data Accumulation ↔ Meaning Making
Passivity ↔ Critical Curiosity
Being Rule Bound ↔ Creativity
Isolation & Dependence ↔ Learning Relationships
Being Robotic ↔ Strategic Awareness
Fragility & Dependence ↔ Resilience

Professional development in schools, colleges and business: ViTaL: http://www.vitalhub.net/vp_research-elli.htm
Learning to Learn: 7 Dimensions of Learning Power

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**Resilience**

**Definition**
Resilient learners like a challenge. They accept that everyone can find learning hard sometimes and are not frightened by finding something difficult. They have a high degree of ‘stickability’. They are not fragile and can tolerate the feelings of anger, fear, frustration and anxiety that sometimes accompany learning.

**Strategic awareness**

**Definition**
Strategic learners think about how they learn. They talk about how they will go about something and consider the habits, preferences, strengths and weaknesses they bring to the task. They are aware of their own feelings about learning and know how to manage them. They can talk about personal learning preferences.

**Critical Curiosity**

**Definition**
Effective learners in this dimension like to delve deeper to find out what is going on. They like to ‘get at the truth’ by asking questions such as Why? What? When? Where? How? etc. They are less likely to accept information uncritically or just because someone says so.

**Creativity**

**Definition**
Creative learners are playful, they like a challenge and are willing to take risks. They like to look at a problem from many different perspectives and will use their imagination, letting their mind ‘float free’ to find creative solutions. They listen to their intuition and follow hunches in their learning.
Learning to Learn: 7 Dimensions of Learning Power

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**Meaning Making**

**Definition**

Students who effectively make meaning can link information between subject areas and across learning contexts. They connect learning at home with learning in school and learning from previous years with learning occurring now. Effective learners in this dimension engage their own values and stories in learning and create personal relevance from information they learn.

**Learning Relationships**

**Definition**

Learners who have quality learning relationships find it useful and exciting to share thoughts and ideas with others, yet they can work equally effectively on their own. They make good use of adult sources of support and guidance at home and in the community. They draw on their community’s worldviews and traditions.

**Changing and Learning**

**Definition**

Learners who are strong in this dimension know that learning is learnable. They believe that through effort their minds can get bigger and stronger just as their bodies can. They gain pleasure and self-esteem from expanding their capacity to learn.
ELLi profile showing pre/post stretch following mentoring and targetted intervention

ELLi: Effective Lifelong Learning Inventory (Ruth Deakin Crick, U. Bristol)
A web questionnaire generates a spider diagram summarising the learner’s self-perception: the basis for a mentored discussion and strategic priorities

“It’s changed what I think I can do.”

“We targeted Critical Curiosity and Learning Relationships”

“It’s changed what I think I can do.”

ViTaL: http://www.vitalhub.net/vp_research-elli.htm
e-Science for Learning to Learn
Indexed archive of >30,000 anonymised ELLI profiles (and other validated tools) for mentoring, research and development

http://www.learningwarehouse.org
Is this “making sense” to you?

Heard anything exciting yet?

What if our online platforms understood learning power?

Take a minute to post a thought or question to the shared chat...
Did you know?...

citizenship education
Key skills fostered by Citizenship Education


Literature analysis concluded that Citizenship Education can foster generalisable abilities to:

- make a reasoned argument, both orally and in writing
- co-operate and work effectively with others
- appreciate others’ experience and perspective
- tolerate other viewpoints
- adopt a problem-solving approach
- use technology critically to gather information
- take a critical approach to evidence and seek fresh evidence
- recognise forms of manipulation and persuasion
- respond to and influence social, moral and political challenges
Pedagogical challenges for personalisation: Integrating the personal with the public through context-driven enquiry.


Why are these so important now?

Wicked Problems

Collective Intelligence

Sensemaking

Learning

Computer-Supported...

participatory inquiry

dialogue

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Software design for personalised inquiry and social learning

What principles should inform software tools to support personalised inquiry and social learning?

**SCIENTIFIC Requirement:**
Principles should be grounded theoretically and empirically in the learning sciences.

**VALUE PROPOSITION:**
Learner is in control, but challenged to think critically. Powerful tools to manage uncertainty and information overload.

**ONTOLOGICAL Requirement:**
The conceptual model should assume multiple perspectives and competing claims: discourse is at the heart of social inquiry.

**SOFTWARE Requirement:**
Tools should be open source, open architecture, and end-user extensible.
Projects span many disciplines, ranging from basic research to applications:

http://projects.kmi.open.ac.uk/hyperdiscourse
Social

Web
...tuned for knowledge-intensive work?
Hypermedia

- Hypertext Technique & Theory
- Annotation & Narrative
- Multi-Perspective Conceptual Modelling
- Relational Visualization

(Social)

Discourse

- Dialogue & Learning Conversations
- Argumentation Theory
- Sensemaking & Improvisation
- Cognitive Coherence Relations

Sensemaking for Collective Intelligence
Social learning technology: candidate dimensions of the *design space*

**everyday social media**

- “friends” like me
- 1-many from the start
- rapid information exchange
- no reflection required by the UI
- tag clouds
- generic web analytics
- recommendations based on navigation, ratings, purchases…
- myriad activity traces in the cloud

**social media tuned for learning?**

- + learning peers/mentors who both affirm and challenge
- + 1-1 mentoring
- + learning conversations
- + reflection encouraged by the UI
- + meaningful connections
- + learning analytics (= accreditation?)
- + recommendations based on learning profiles and activities
- + a secure e-portfolio to evidence learning
principles for social learning

trust • affirmation • challenge

personal passion

quality relationships

critical thinking
SocialLearn: key features

- aggregated user profile
- activity-based, user-defined toolkits
- look+feel of social media platform
- open and interoperable
SocialLearn: configuring my Gadget sets

Gadget sets ➜ Add gadgets ➜ Manage gadgets ➜ Templates ➜ Change theme ➜ Need help?
SocialLearn: configuring my Gadget sets
SocialLearn: accessing my Gadgets from the browser toolbar on any website
Embedding a SocialLearn gadget (People Recommender) in iGoogle
Embedding SocialLearn gadgets in a partner site
(the OU’s Cloudworks: www.cloudworks.ac.uk)
web annotation for sensemaking

(A winner in the Mozilla/MacArthur Foundation Jetpack for Learning Design Challenge)

http://cohere.open.ac.uk
seeing the connections people make as they annotate the web using Cohere


Visualizing all the connections that a set of learners have made between web resources — but this may also be confusing
Visualizing multiple learners’ interpretations of global warming sources

Connections have been filtered by a set of semantic relationships grouped as Consistency

“Semantic Google Scholar”:
Query: What is the lineage of this idea?

Nodes in the semantic network containing geolocation data can be visualized in Google Maps.
Nodes in the semantic network containing temporal data can be visualized in MIT Simile’s timeline.
Compendium

“it’s like Excel, but for knowledge”

http://compendium.open.ac.uk
http://compendium.open.ac.uk/institute
**Compendium:** visual hypermedia for managing the connections between ideas flexibly

Teaching teenagers evidence based scientific deliberation through Dialogue Mapping

Recall the sensemaking cycle comprising six new literacies:
Compendium to scaffold CCL’s C2 Competencies

2 images from Visual Explorer

http://cclve.blogspot.com

Compendium to scaffold CCL’s C2 Competencies

Cluster images and discussion in Compendium


Compendium to scaffold CCL’s C2 Competencies

Organise emerging issues for next phase of analysis

Compendium to map e-PhD supervision

This and other e-PhD tools: http://projects.kmi.open.ac.uk/e-phd
Making sense of group dynamics
Building collective intelligence about therapeutic group interactions

http://people.kmi.open.ac.uk/sbs/2010/03/compendium-mapping-group-dynamics/
Tool Poll! From what you’ve seen so far, which tool would you most like to try out?

- SocialLearn
- Compendium
- Cohere
- Visual Explorer

How might you use these tools in your context?

Have you had good or poor experiences with similar tools?

Take a minute to post a thought or question to the shared chat.
Ongoing research questions
Ongoing research questions

What is fluency?

Hypermedia Discourse Research Priorities?

What is the architecture of participation?

What are recommendation engines tuned for sensemaking?
Ongoing research questions

“Knowledge Art” & other user evaluations

Reading and Writing Ideas+Discourse as Networks:
What is the learning curve from beginner to virtuoso?

What is fluency?

What are recommendation engines tuned for sensemaking?

We need Analytics and Recommendation Engines tuned for learning and sensemaking. How do we embed learning theory into our tools?

Online Deliberation 2010; ESSENCE; SocialLearn

Structuring Deliberation to foster Reflection is harder work than tweeting or web–boards! What is the AoP for online environments such as these, esp. outside of formal learning?
Articles, books, news, movies, software, community...

http://projects.kmi.open.ac.uk/hyperdiscourse