



Stephen Downes  
Guayaquil, Ecuador  
November 13, 2015

# Personal Learning in Virtual Environments

# 1. What I've Learned About Ecuador





# The Ecuador Project



## 2. Learning Through Practice





# Medical Simulations



<http://www.army.mil/article/127148/>



<http://www.83degreesmedia.com/features/camls011012.aspx>

# Flight Simulators



<http://www.cae.com/World-s-first-AW189-full-flight-simulator-ready-for-training/>



<http://www.aiac.ca/canada-aerospace-industry/success-stories/cae-nh90-helicopter-simulator/>

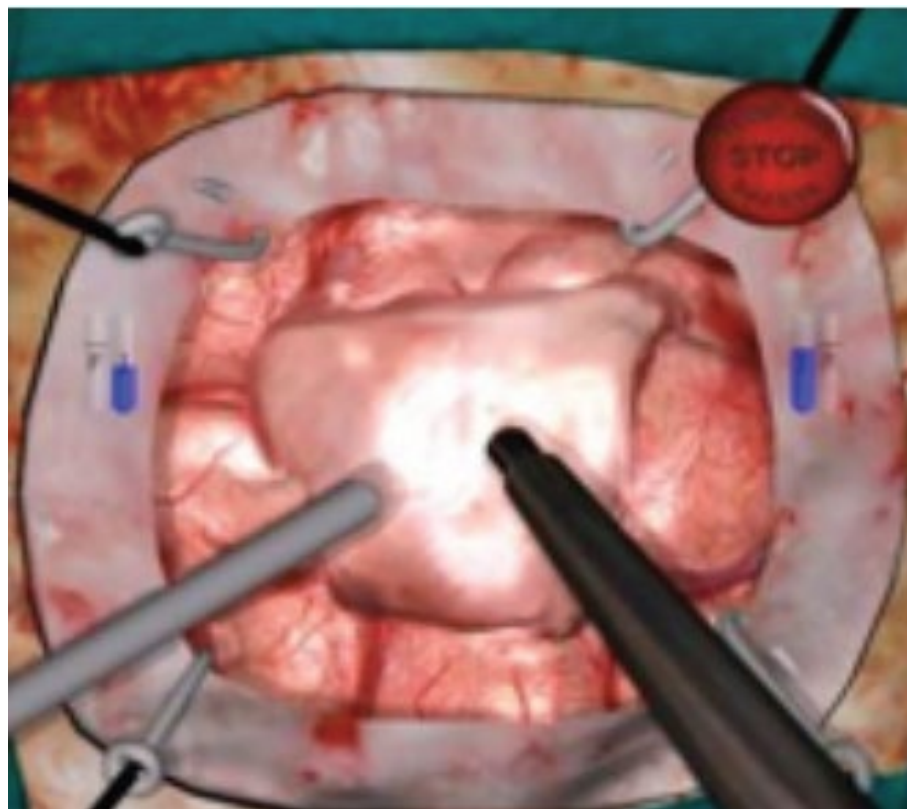


# MINT - Mobile INteractive Trainer



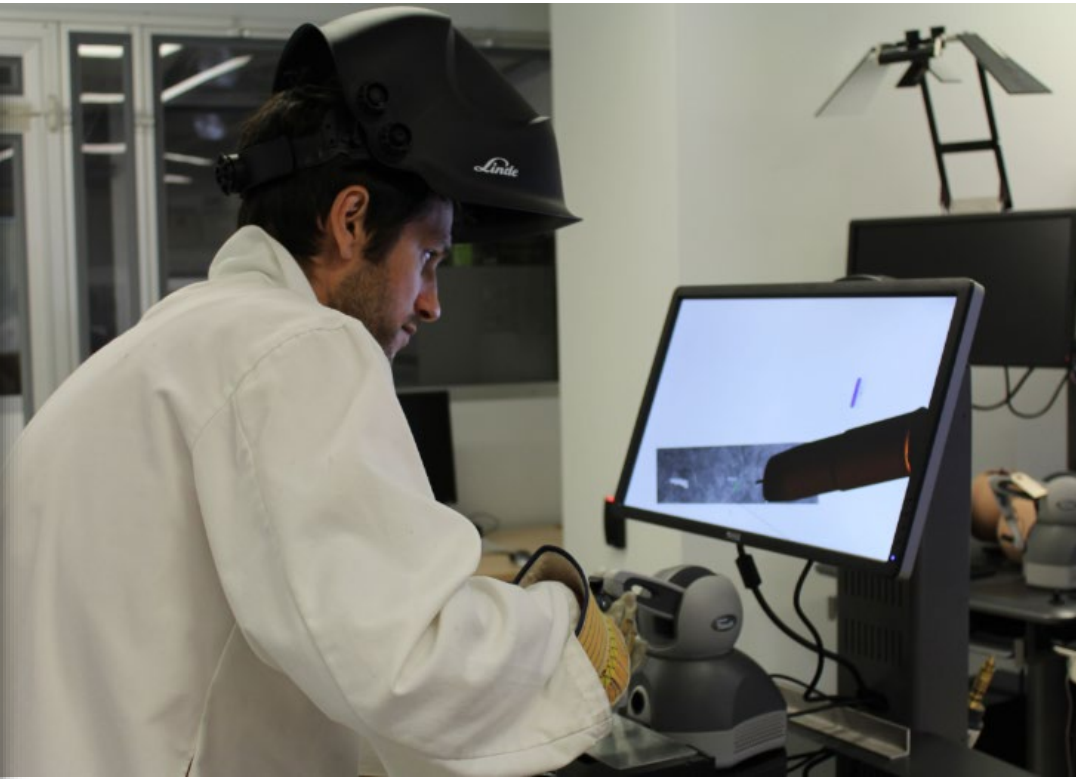
<http://www.downes.ca/post/59876>

# NeuroTouch Simulator

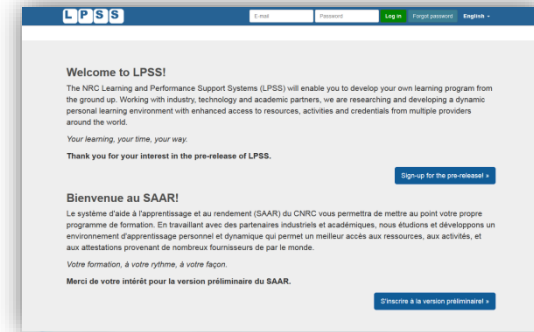
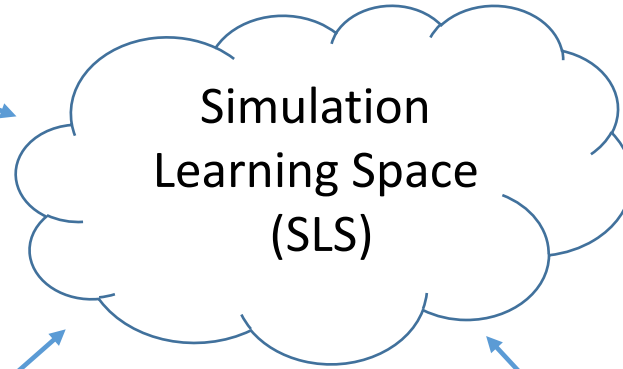




# Sim-Welding



# LPSS-Sim Project Overview





# Combining Experiences

One place for all simulation experience

The image displays a web application interface for a simulation learning space. On the left is a dark sidebar menu with the following items: Instrument Handling (with a close icon), Suction (with a plus icon), Ultrasonic Aspirator (with a close icon), Ultrasonic Aspirator 102 (with a close icon), two dates (2015-02-11 13:40:33 and 2015-04-10 15:52:12), Bipolar (with a plus icon), Microscissors (with a plus icon), Fundamental Skills (with a plus icon), and Spine Surgery (with a plus icon). A grey arrow points from the 'Suction' item in the sidebar to the main dashboard. The main dashboard is titled 'Simulation Learning Space' and contains a 'Scenarios' section with a sub-menu for 'Instrument Handling', 'Fundamental Skills', and 'Spine Surgery'. The 'Scenarios' section shows 'Scenarios' and 'NT Account' in the top right. The main content area is divided into two panels. The left panel, 'Scenarios' History', displays details for 'Exercise: Suction 101' by 'User: admin' on 'Date: May 25 12:37:30 2015', with a 'Previous Attempt' on 'May 25 10:23:08 2015'. It includes a 'Image Not Found' placeholder, an 'Overall Score History' line graph showing a score of 50% on two attempts, and a table of metrics:

Metrics	Value	Grade
Blood remaining	0.14 cc	0%
Tissue removed	0.0 cc	0%
Time LH excessive force	0.0 s	0%
Time RH excessive force	4.02 s	50%

The overall score is -50/100. The right panel, 'Recommendations', shows a preview of a 'NeuroTouch Courseware' simulation.

All performance results no matter where and when they were carried out

# 1. Content Knowledge vs Practice





# Criticisms of a Focus on Content...

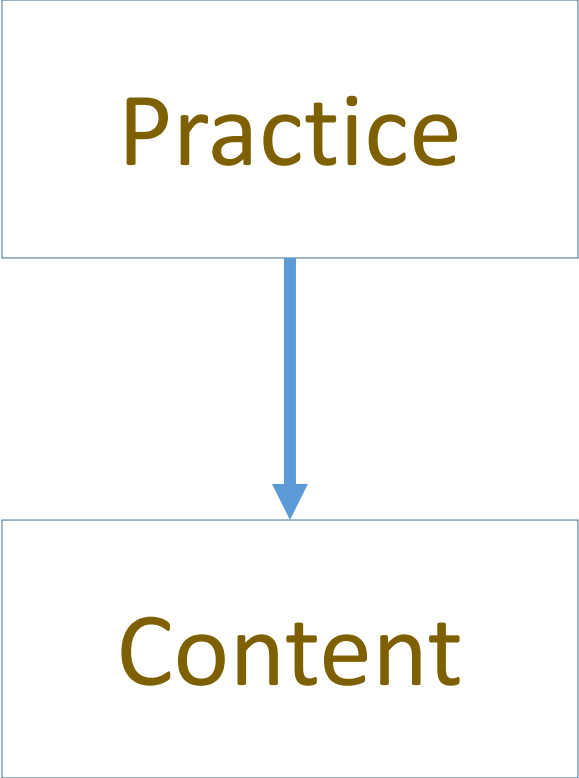
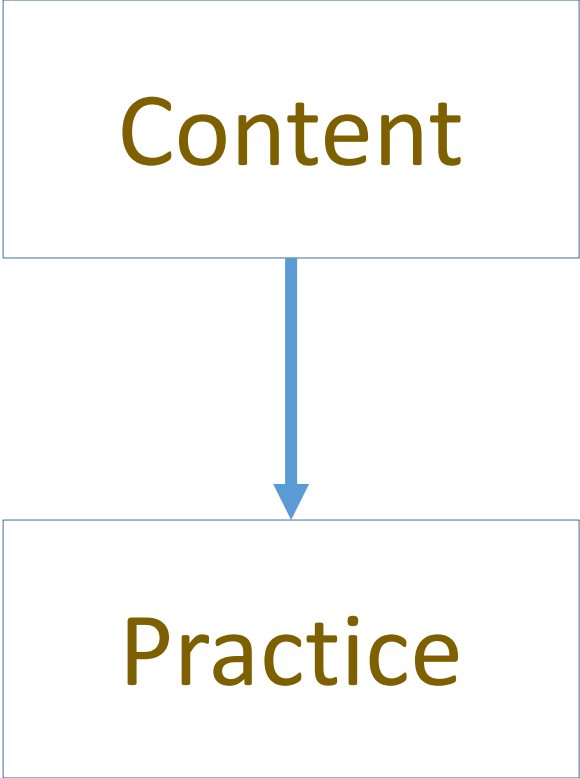
- “research should move beyond a narrow focus on the ‘know–do gap’ to cover a richer agenda...”
  - **situation-specific** practical wisdom (phronesis)
  - **tacit** knowledge shared among practitioners  
(‘mindlines’)
  - **complex** links between power and knowledge; and
  - macro-level knowledge **partnerships**

# Immersive Environments...





# Two Approaches...



# Two Approaches...

Defines an ideal state

Content



Practice

TEST

Person tests you

Defines a desired state

Practice

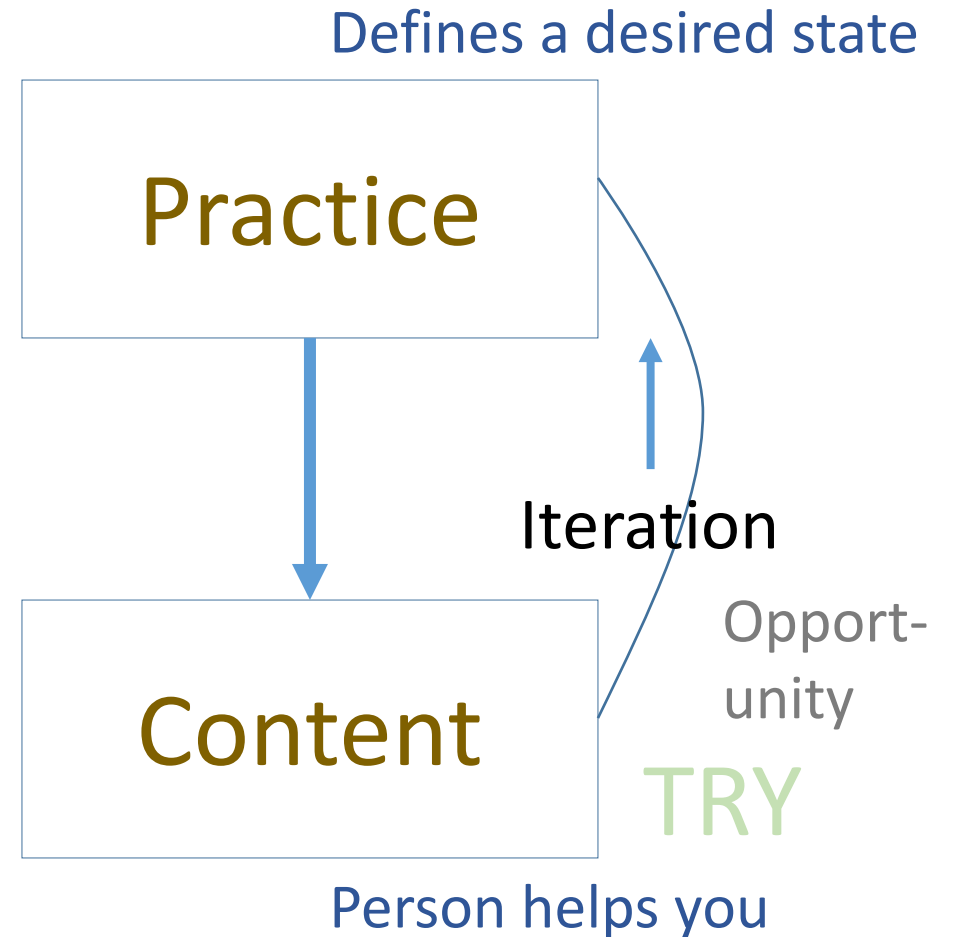
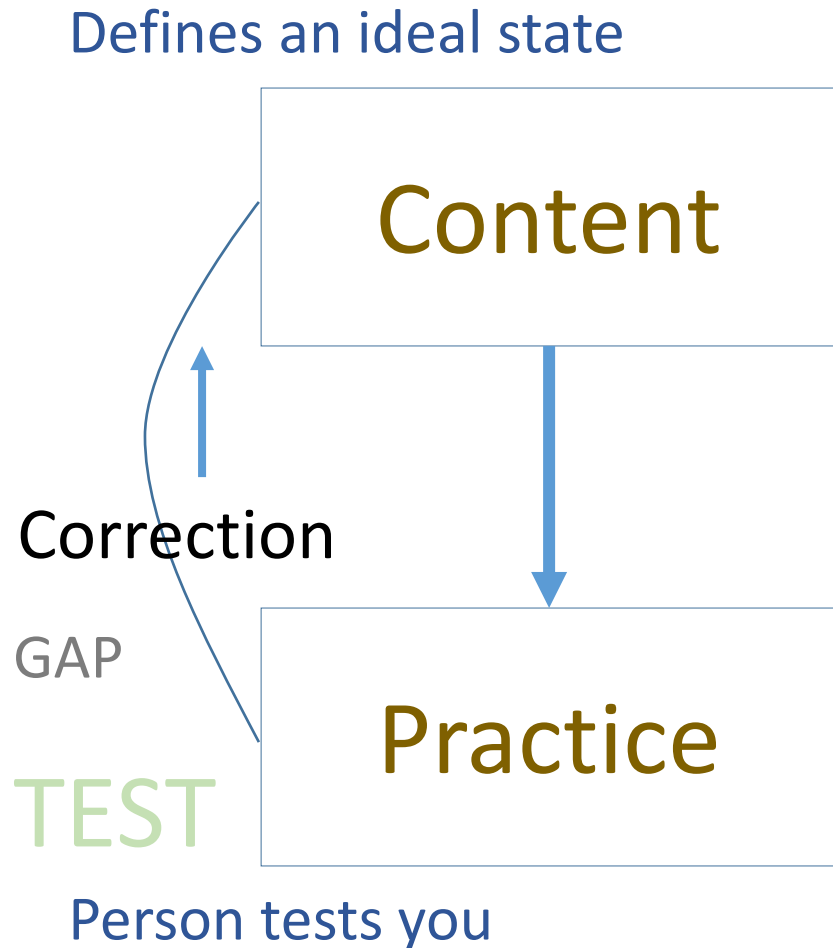


Content

TRY

Person helps you

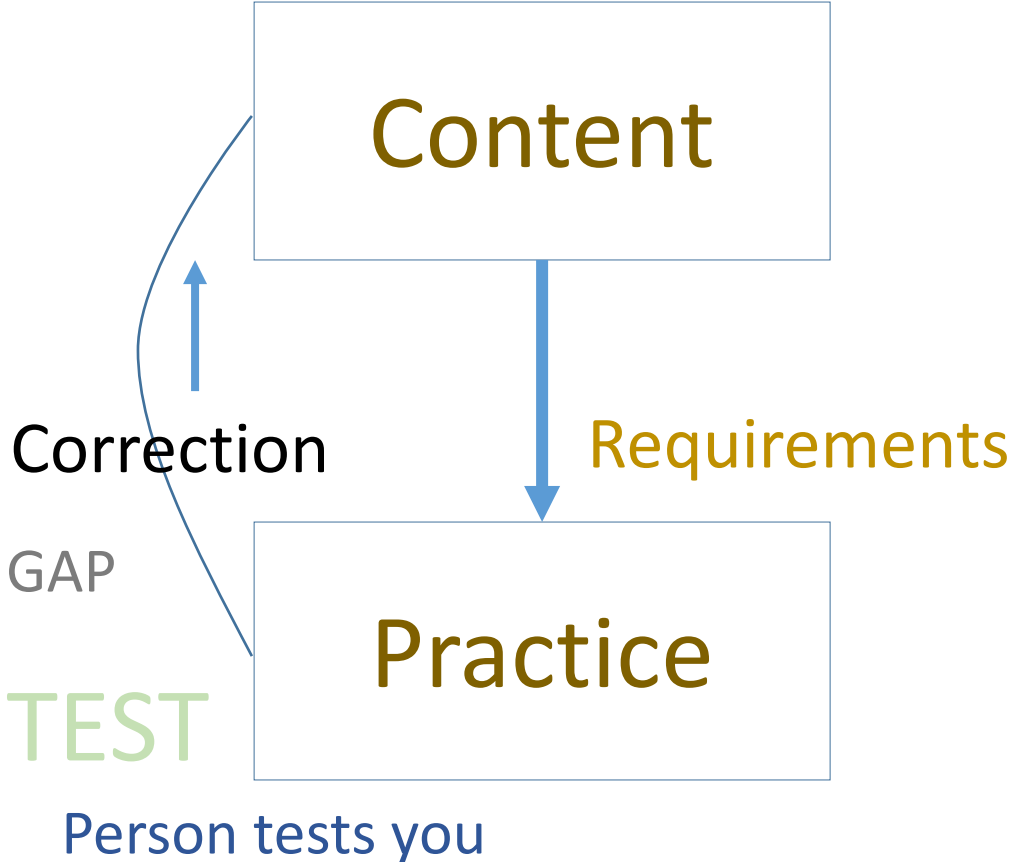
# Two Approaches...





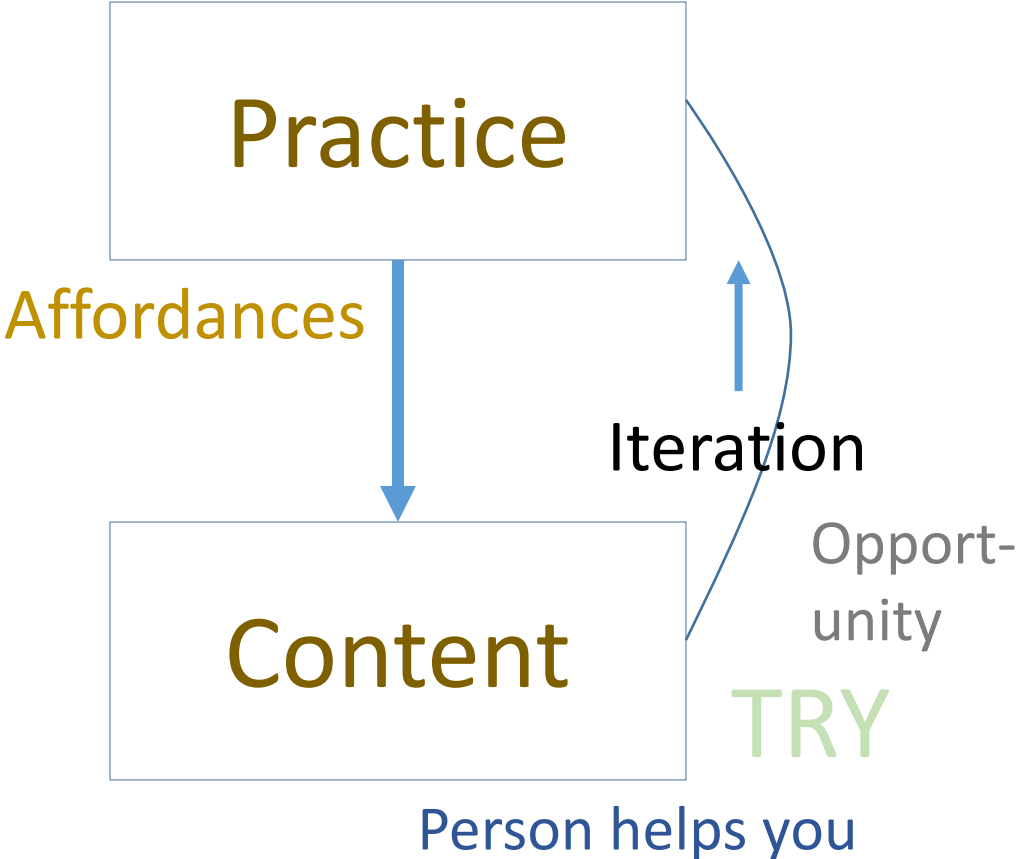
# Library

Defines an ideal state



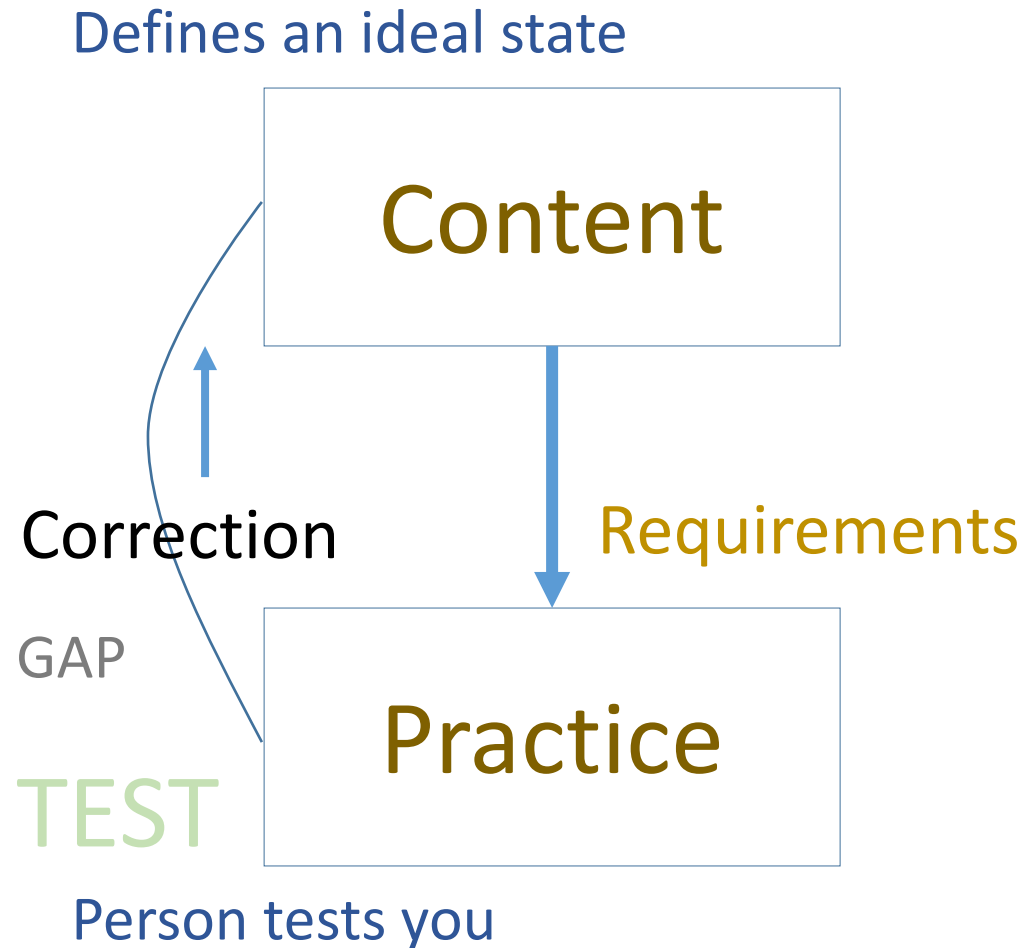
# Environment

Defines a desired state



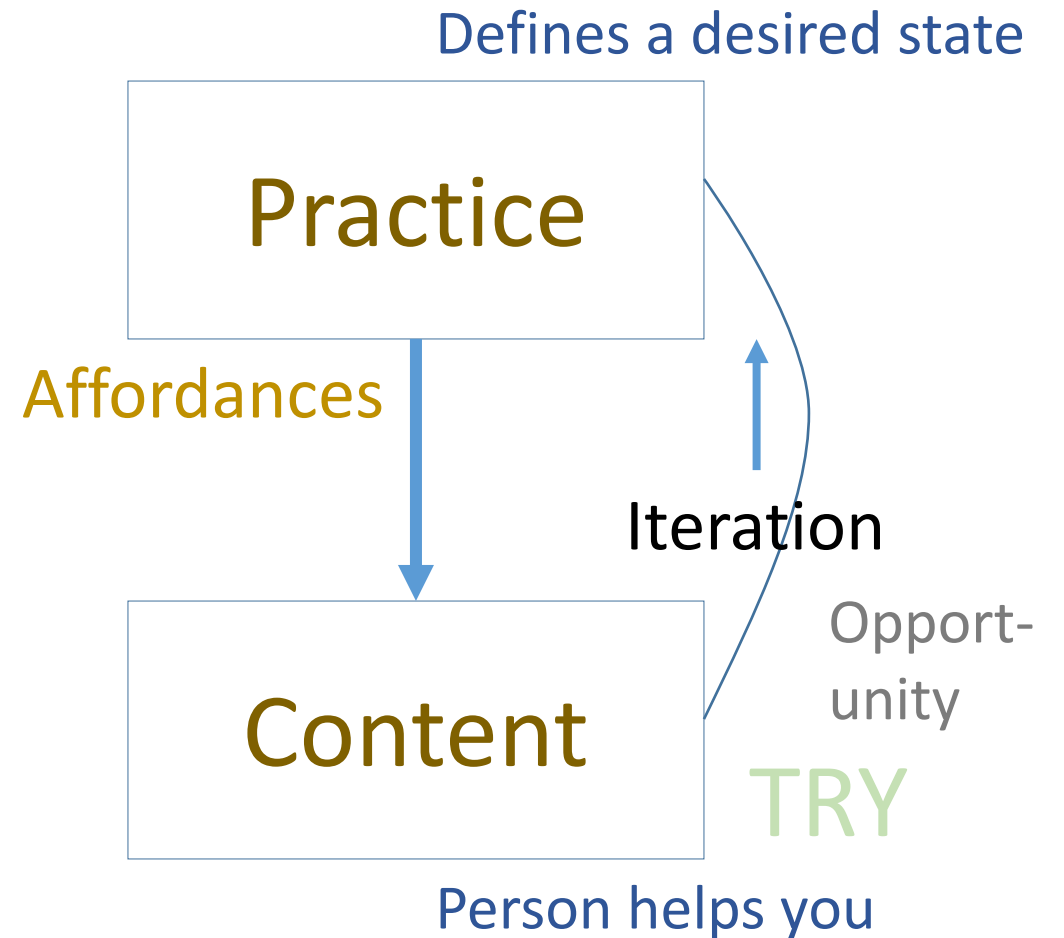
# Personalized

We do for you



# Personal

You do for yourself



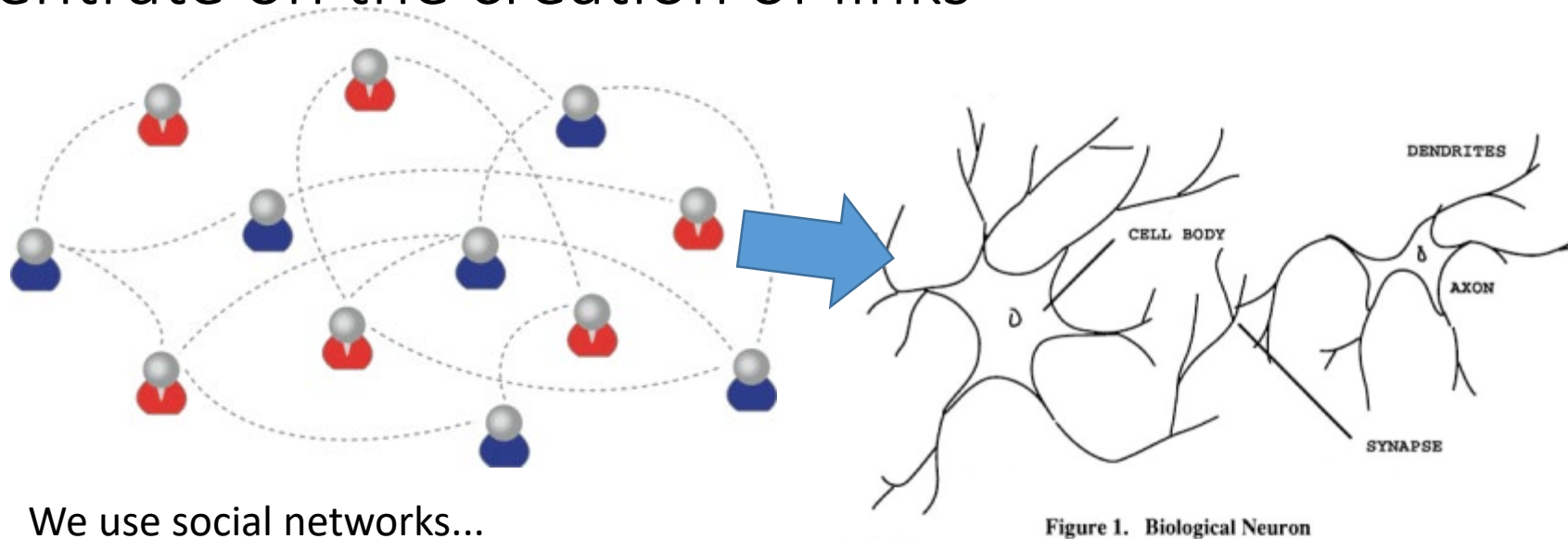
### 3. The Case of the cMOOC





# How to Create a cMOOC

- It's like creating a network
- Don't centralize
- Concentrate on the creation of links



We use social networks...

Figure 1. Biological Neuron

... to create personal knowledge

# Primary Course Components

- Wiki – to assist in planning, topics, guests, etc
- Email list – for announcements and mass communications
- Course Blog – for daily posts
- Synchronous Communications + Video

# MOOC Design

- Course structure – a series of topics
  - The instructors will not ‘teach’ the topics, they ‘investigate’ or ‘work through’ the topics (model and demonstrate)





# Additional Course Components

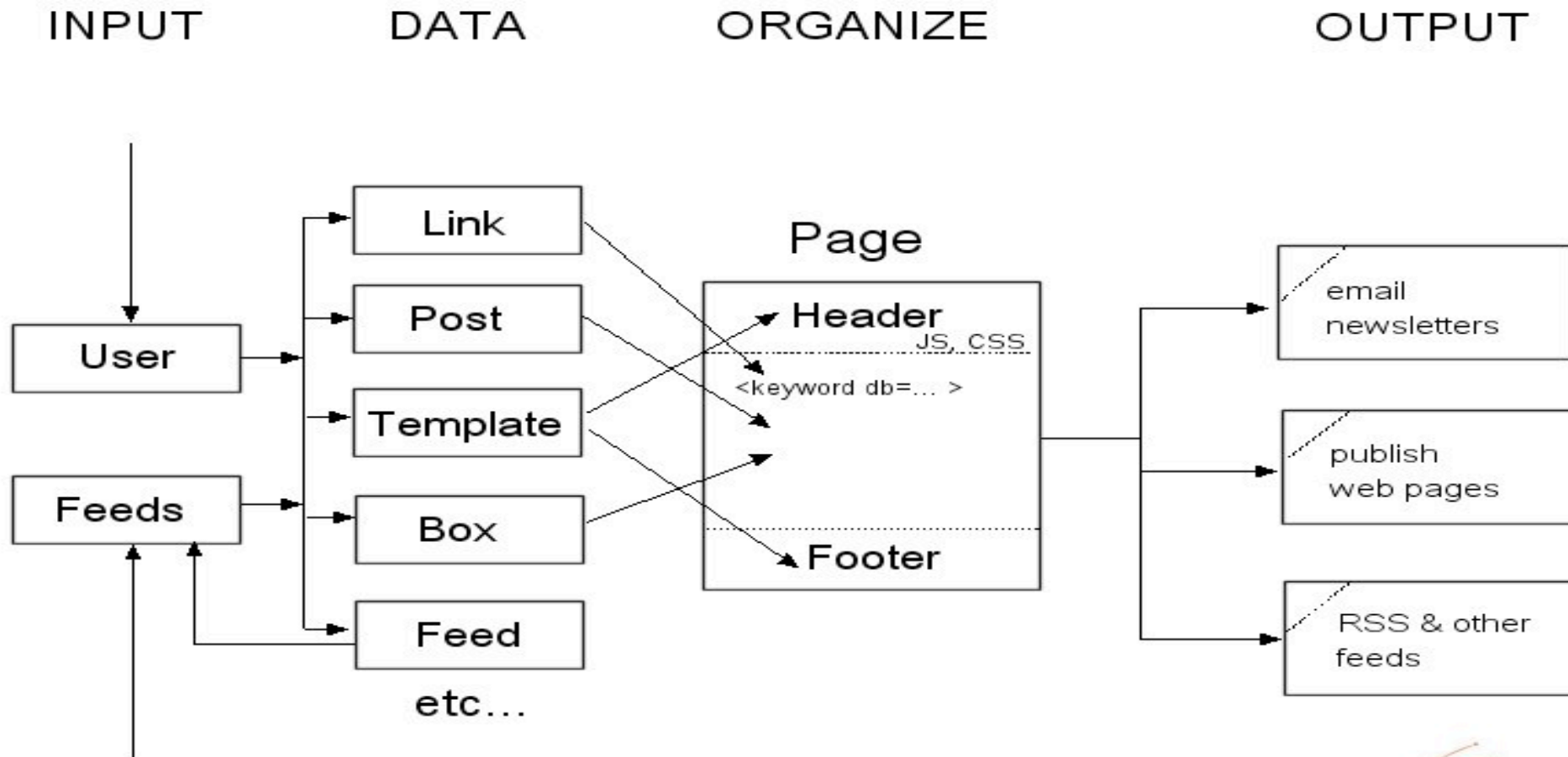
- For Students – *any* online communications system, including
  - Blogs – Blogger, WordPress, Tumblr
  - Social Network – Facebook, Twitter, Google+
  - Content site – Google Docs, Flickr, Instagram
  - Aggregator – Feedly, OldReader, (new) Bli RSS

# Process

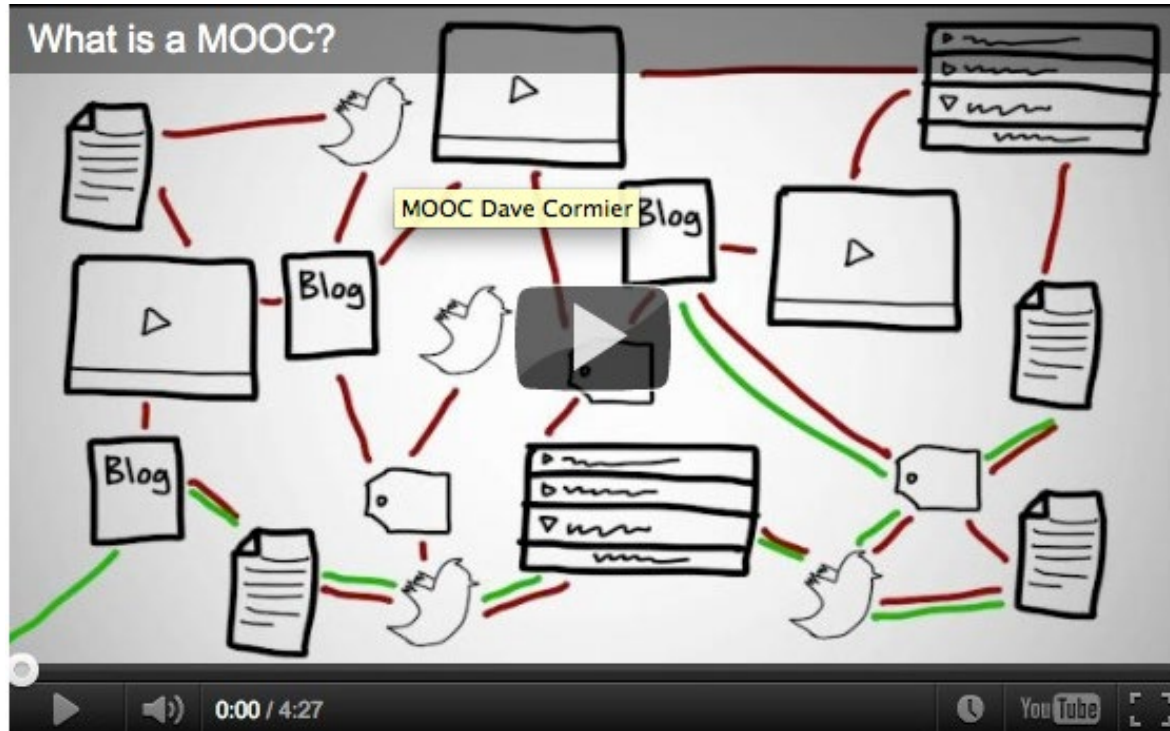
- Each Week
  - Conversation or activity with guest
  - Discussion and reflection
- Each *Day*
  - Aggregate student content
  - Share via web site & newsletter



# gRSShopper



# How to Learn in a cMOOC



Learning is a process of immersion into a knowing community

<http://www.tonybates.ca/2012/03/03/more-reflections-on-moocs-and-mitx/>

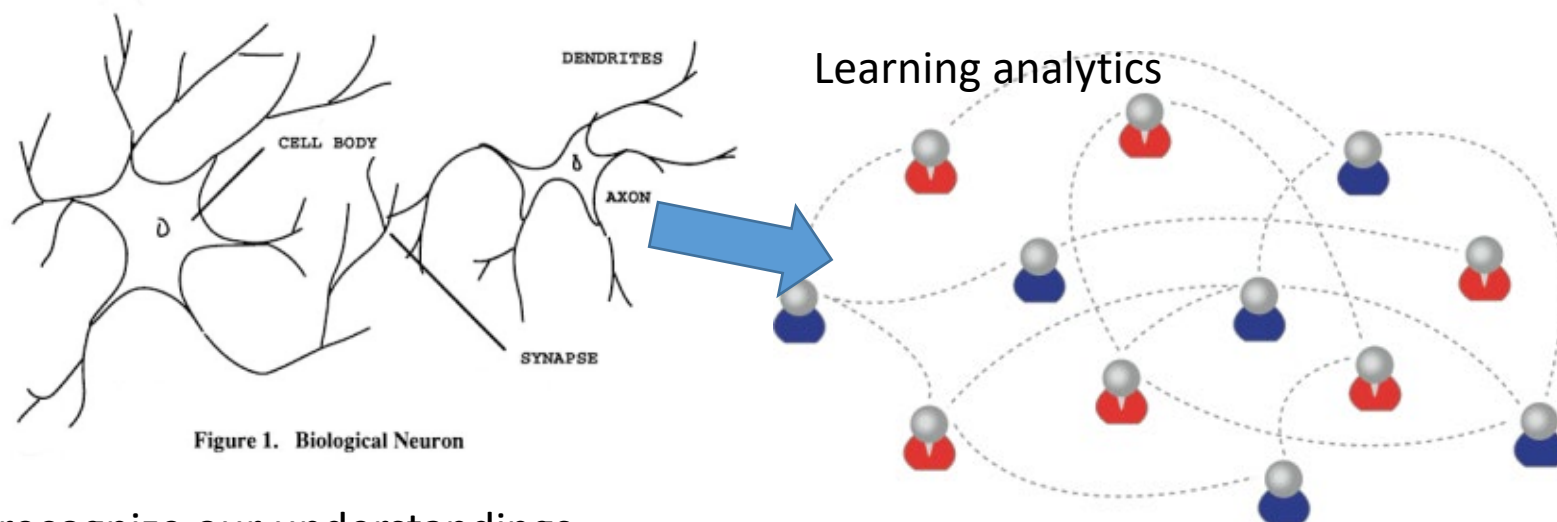




Learning is a process of *recognizing* and *growing into* or *becoming* an instantiation of those values...

# How to Evaluate Learning

- Learning is not possession of a collection of facts, it's the expression of a capacity
- Learning is recognized by a community of experts in a network



We recognize our understandings...

...by the way we use them in our social network

# xLearning vs cLearning



contents

engagement

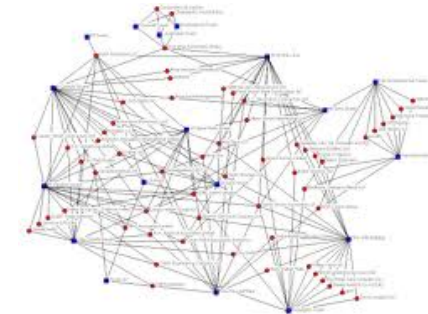
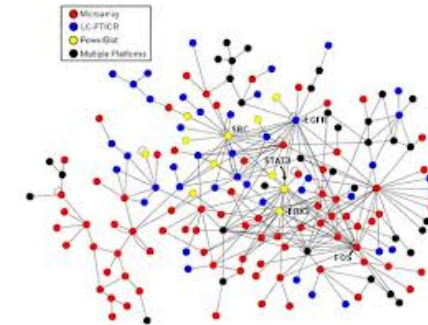
networks



<http://www.corestandards.org/>



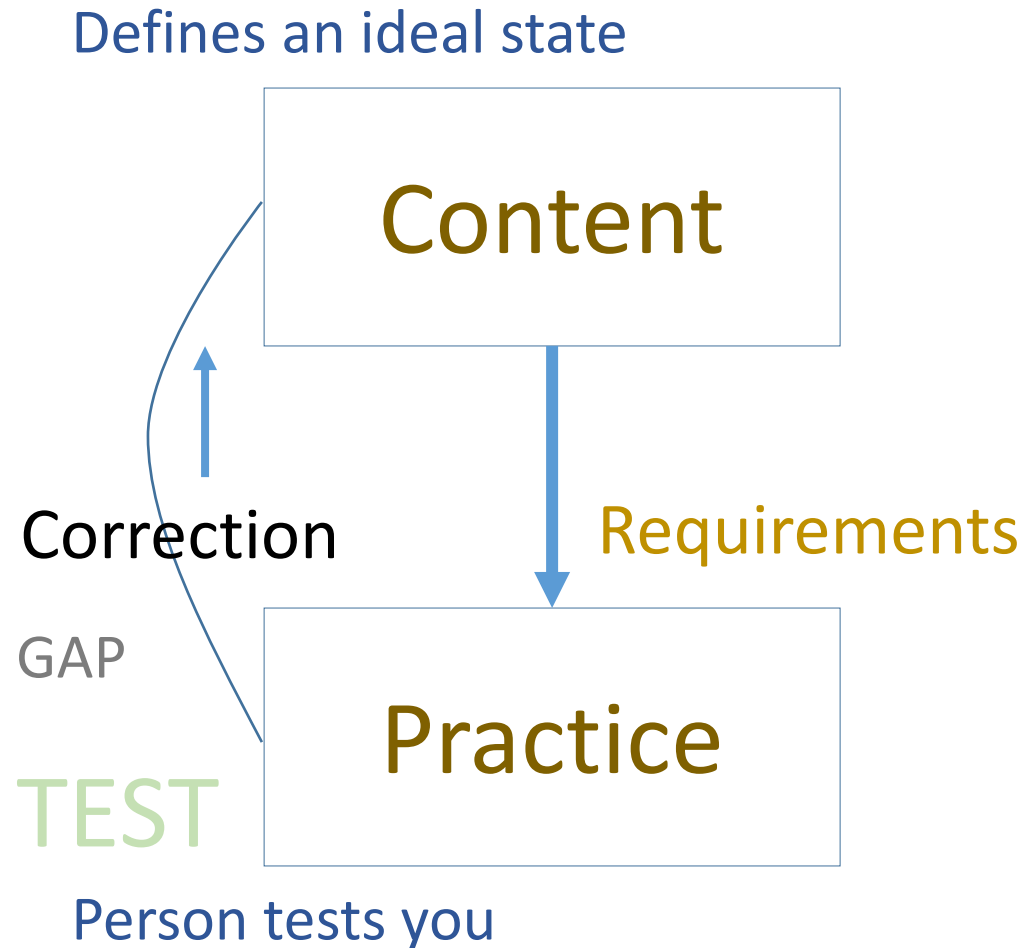
<http://www.magnet.edu/>



<http://lisahistory.net/wordpress/2012/08/three-kinds-of-moocs/>

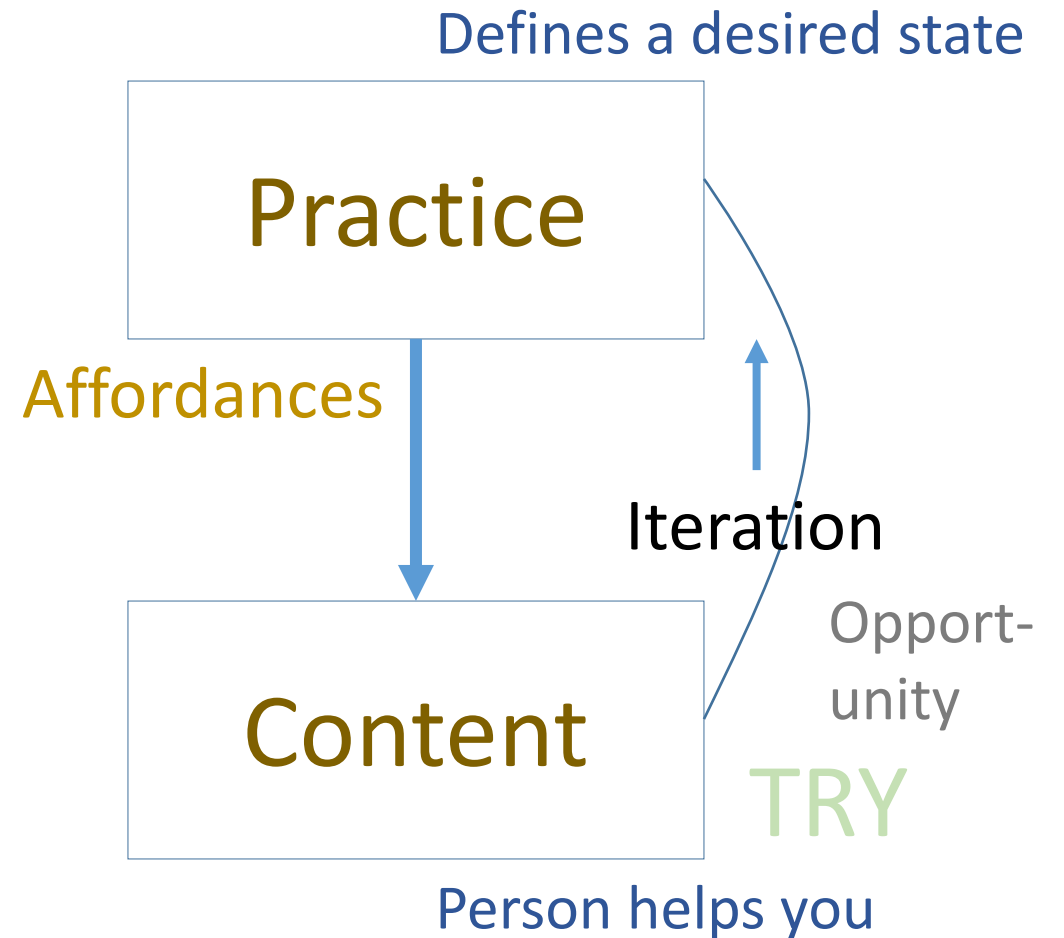
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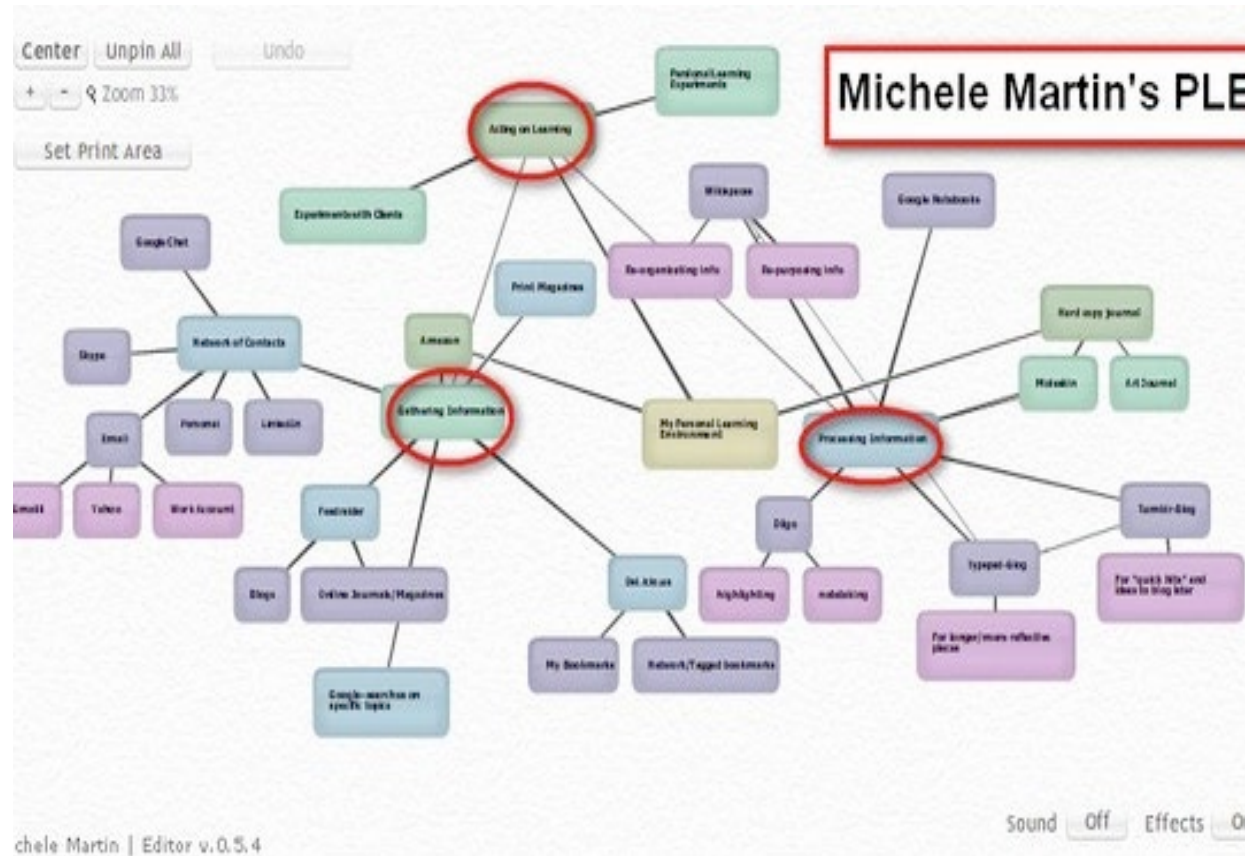




## 4. Personal Learning Environments



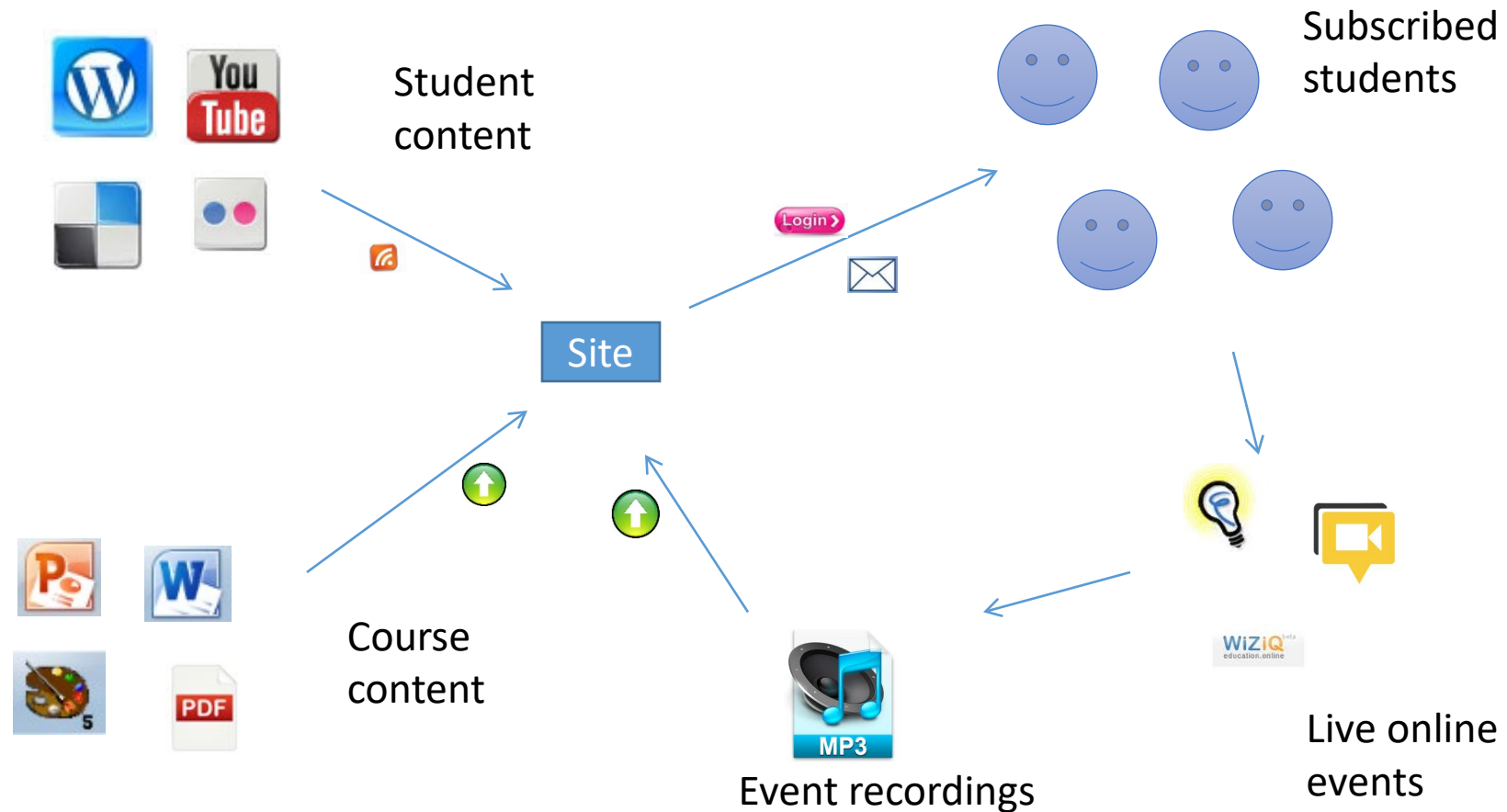
# Personal Learning Environments



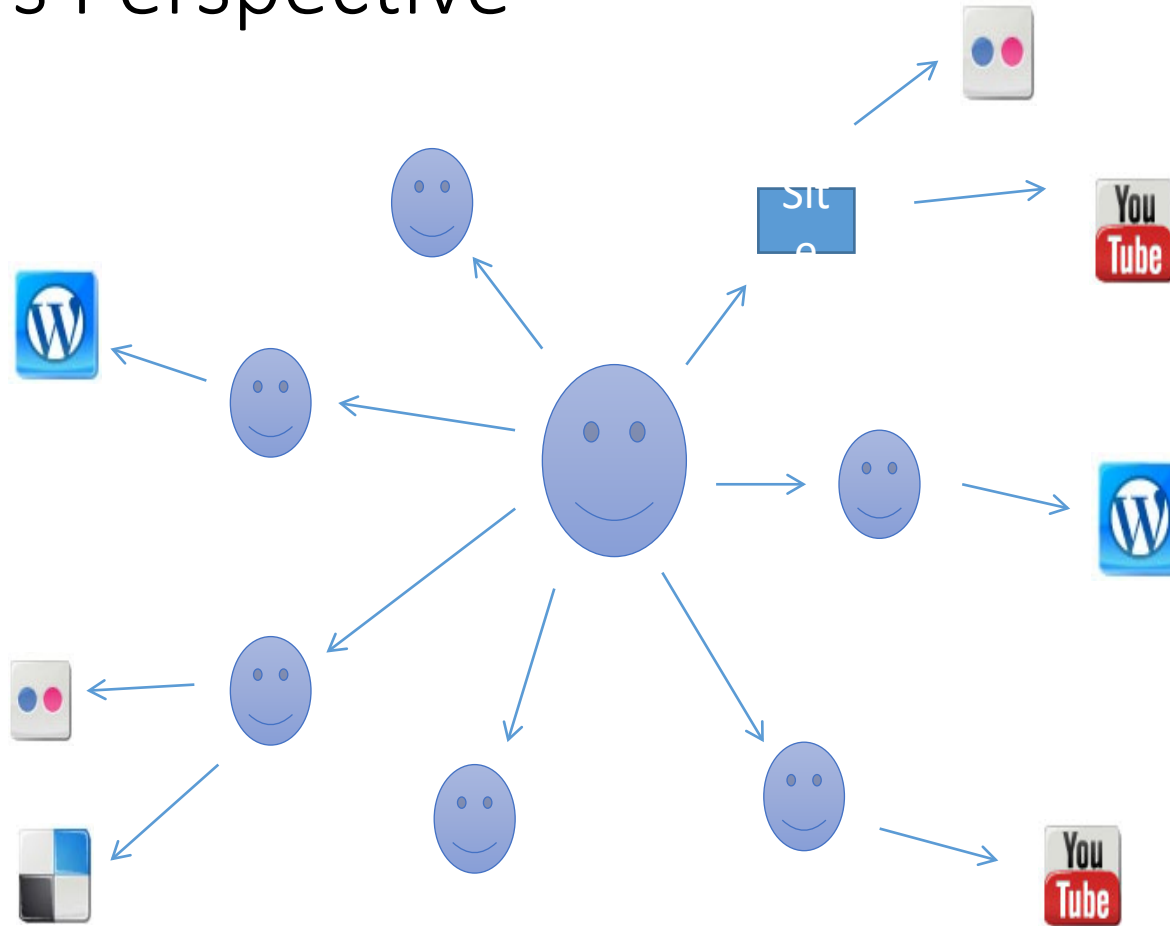
<http://dmlcentral.net/blog/howard-rheingold/diy-u-interview-anya-kamenetz>

<http://www.downes.ca/post/58150>

# Course Provider Perspective



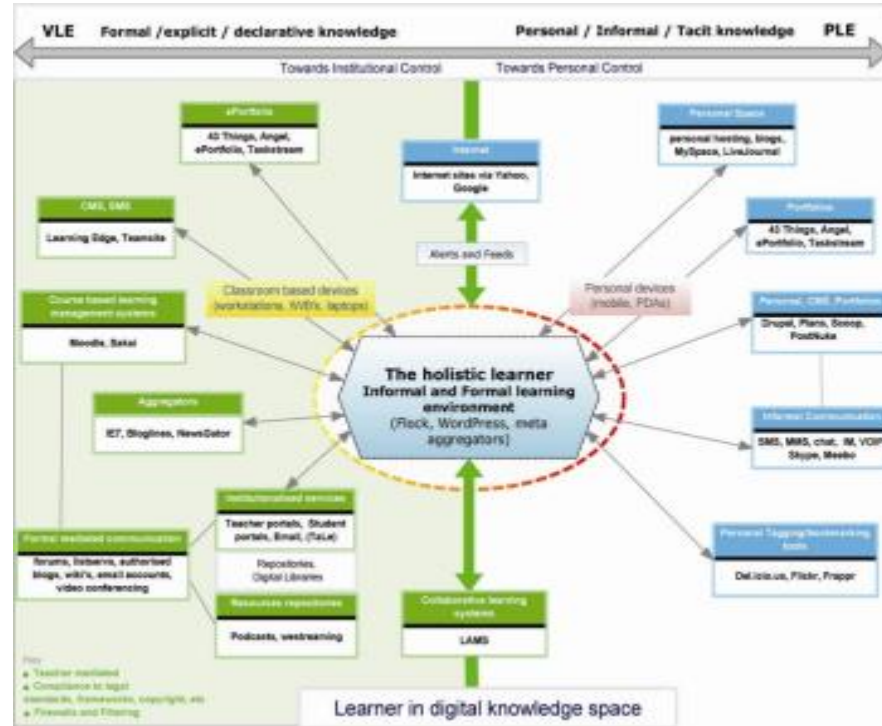
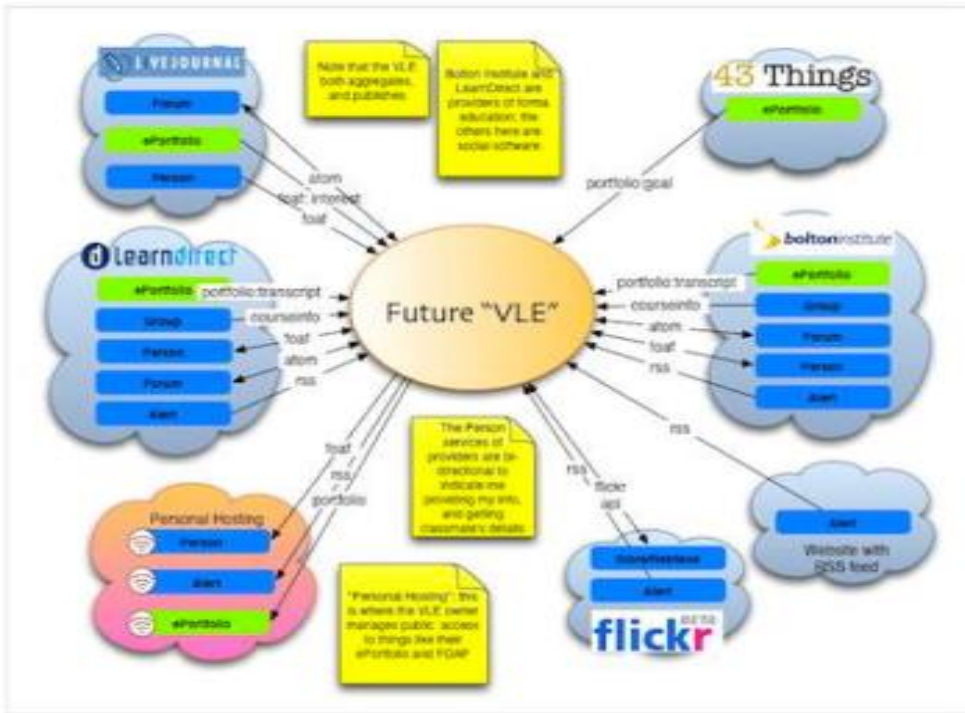
# The Student's Perspective



A range of different resources and services



# The design is based on putting the learner at the centre



Scott Wilson (left), Tim Hand (right)

<https://www.google.com/search?q=ple+diagrams>

[http://www.edtechpost.ca/ple\\_diagrams/index.php/mind-map-3](http://www.edtechpost.ca/ple_diagrams/index.php/mind-map-3)

# 5. Learning and Performance Support Systems



# LPSS is Built Around the Personal Learning Record

This is a *new* type of data – we call it the *personal graph*.

Each person has their own *private* personal graph.

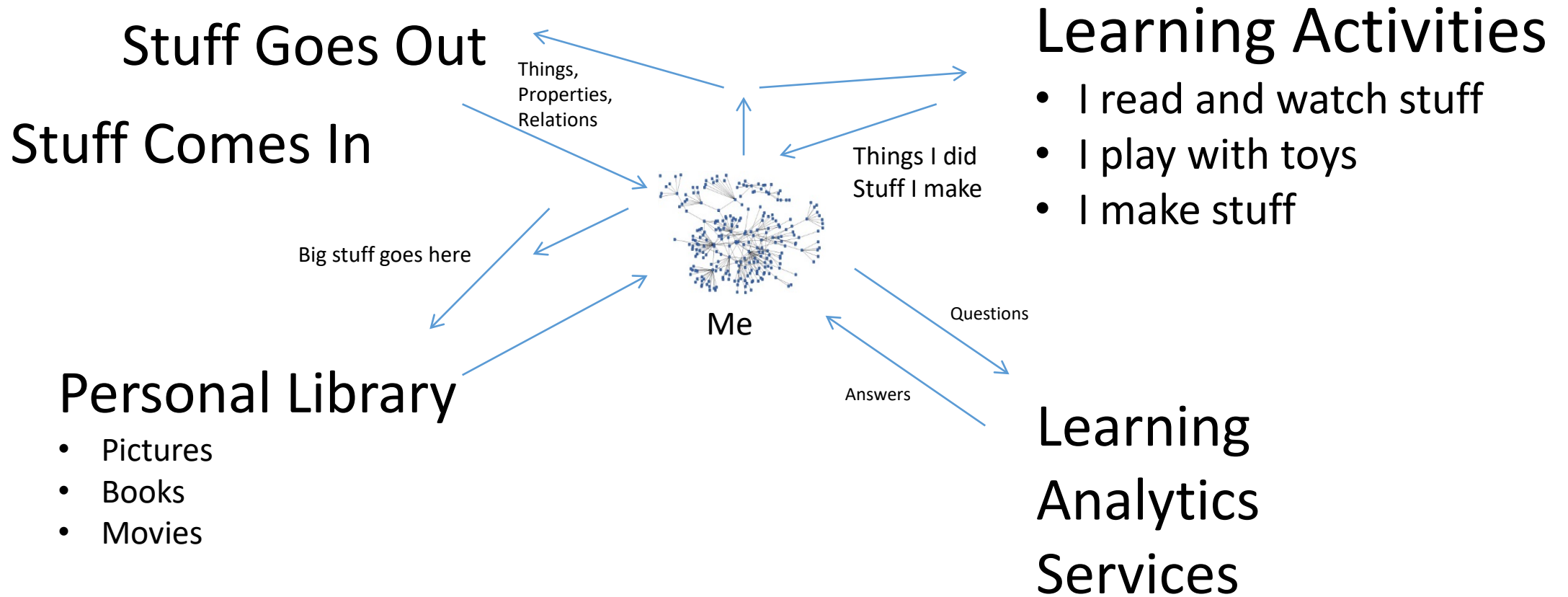


Me

The PLR contains all a person's learning records, including:

- certificates, badges and credentials
- activity records, test results, scores
- Assignments, papers, drawings, things they create

# LPSS is Built Around the Personal Learning Record



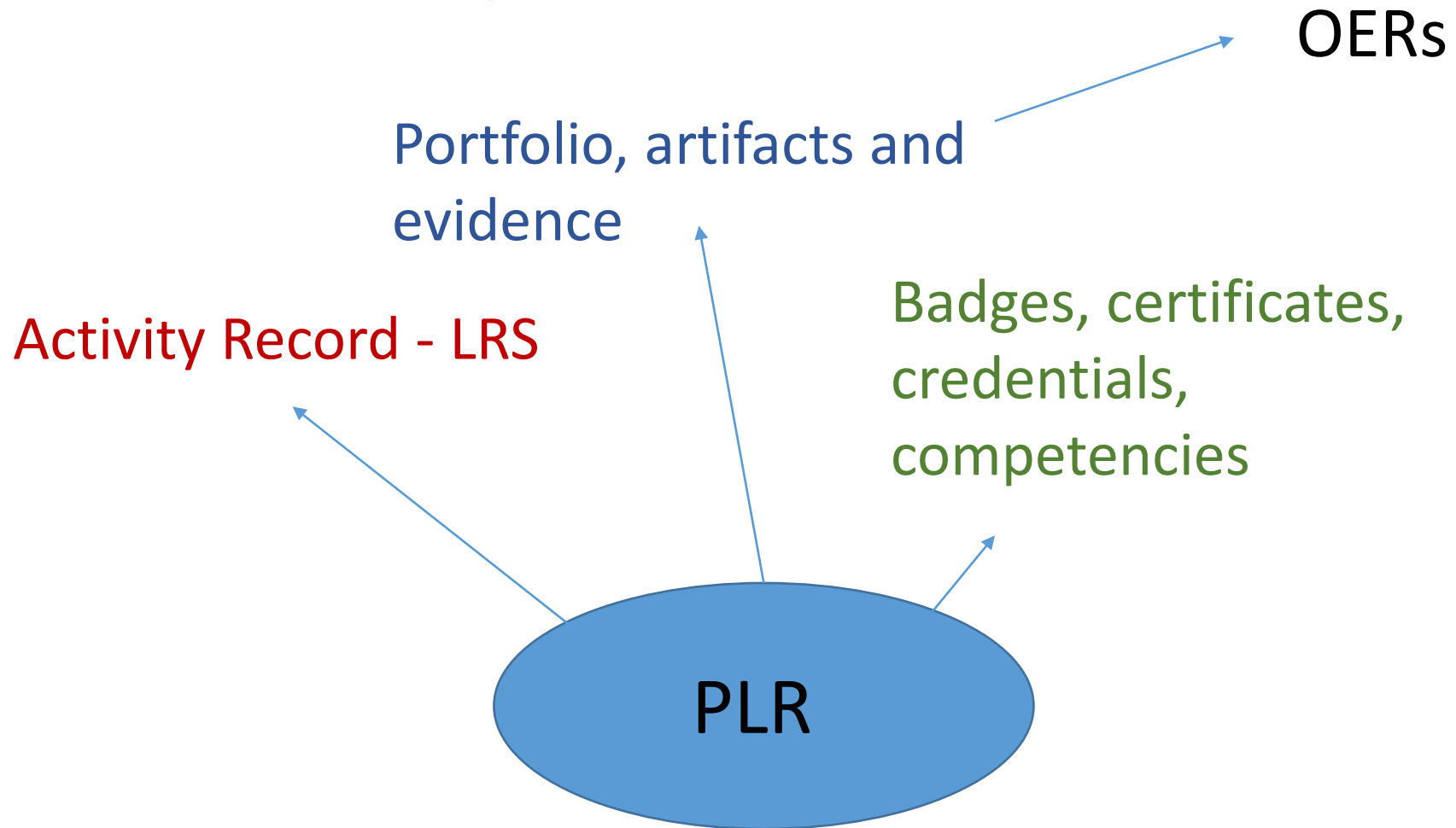


# Personal Learning Record

The Personal Learning Record – data owned by the individual, shared only with permissions



# Personal Learning Record

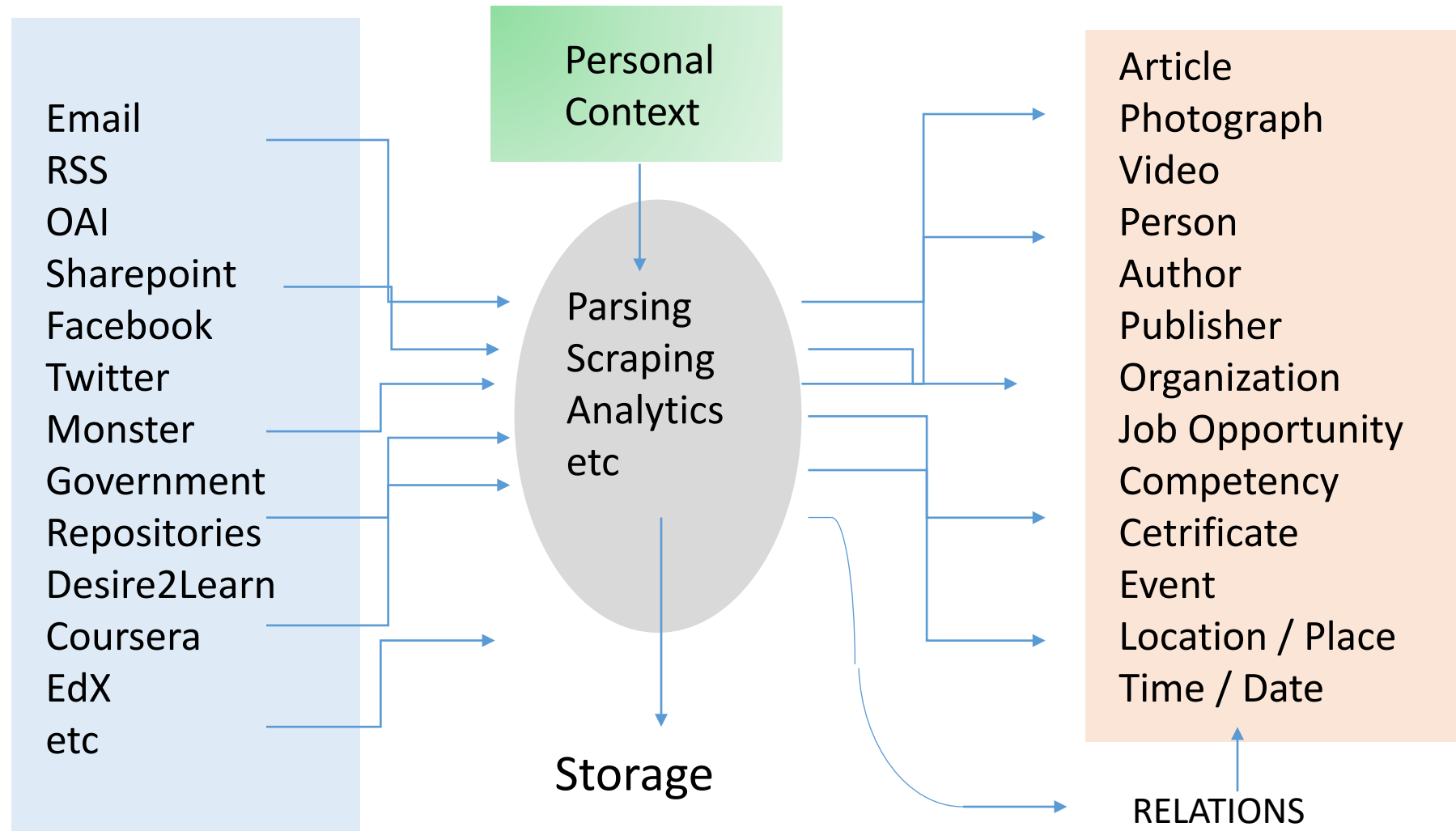


# Resource Repository Network



- Manage and discover list of sources and resources
- Maintain authentication and credentials
- Support APIs and metadata standards
- Gather, analyze and sort resources and/or metadata

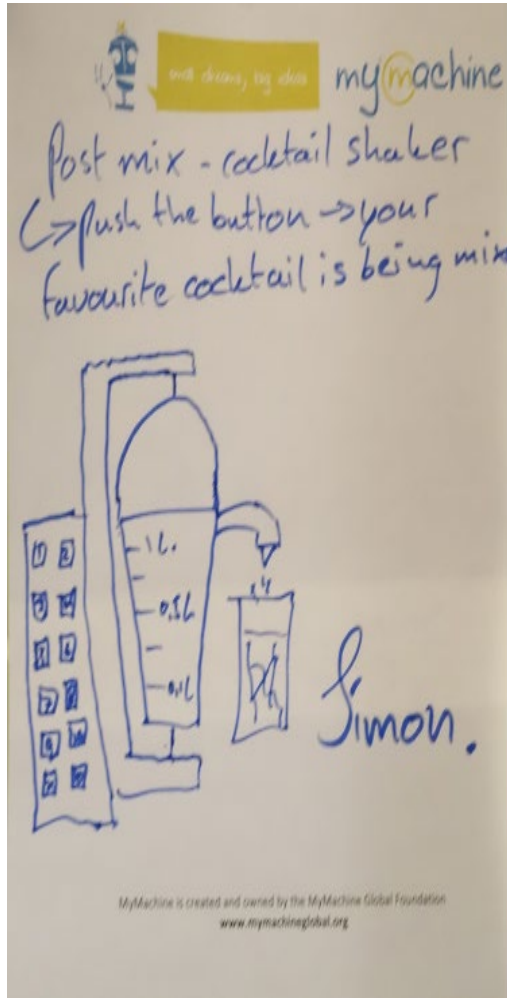
# RRN Aggregation and Storage





# Personal Learning Assistant

Projection of learning services into multiple platforms

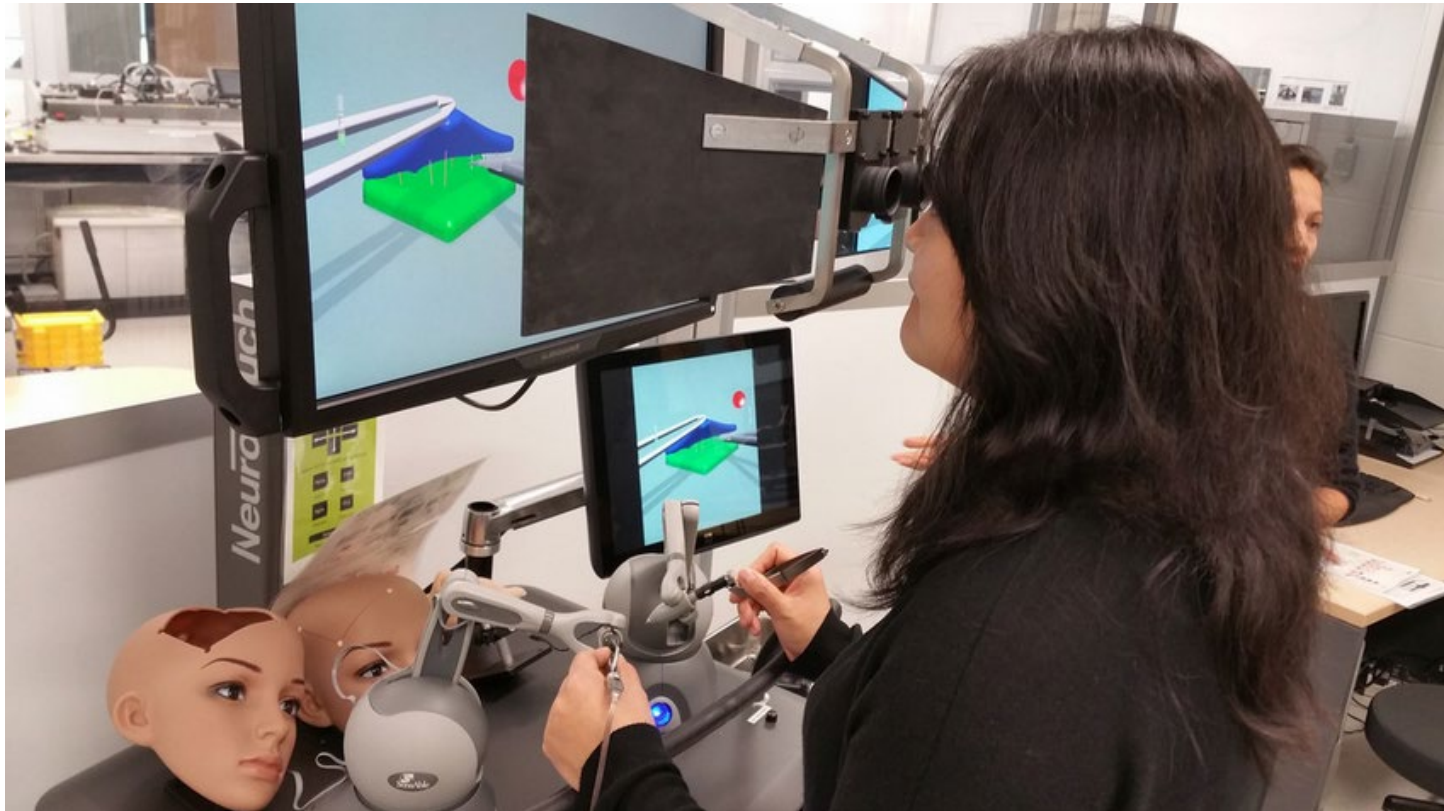


# Personal Learning Assistant



- Collect contextual information for system
- Display resources of various formats, including SCORM, LTI, etc.
- Support (scaffolded) authoring environments
- Project LPSS capacity into external software and devices

# PLA: Collecting xAPI from Med Sims



[https://www.flickr.com/photos/stephen\\_downes/15710336207/](https://www.flickr.com/photos/stephen_downes/15710336207/)

<http://www.nrc-cnrc.gc.ca/eng/rd/medical/>



# Personal Analytics



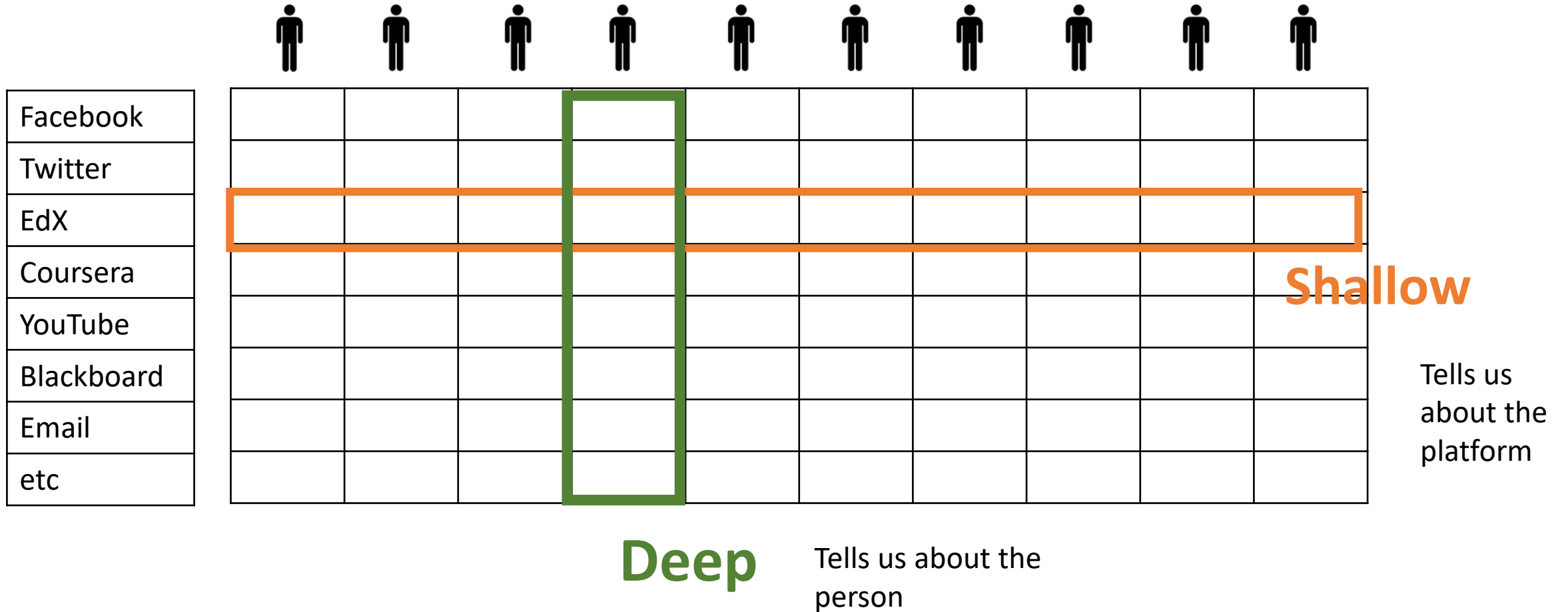


# Automated Competency Recognition and Development

- Import or create competency definitions
- Analyze interactions for skills and learning gaps
- Support development of learning plans
- Provide resource and service recommendations



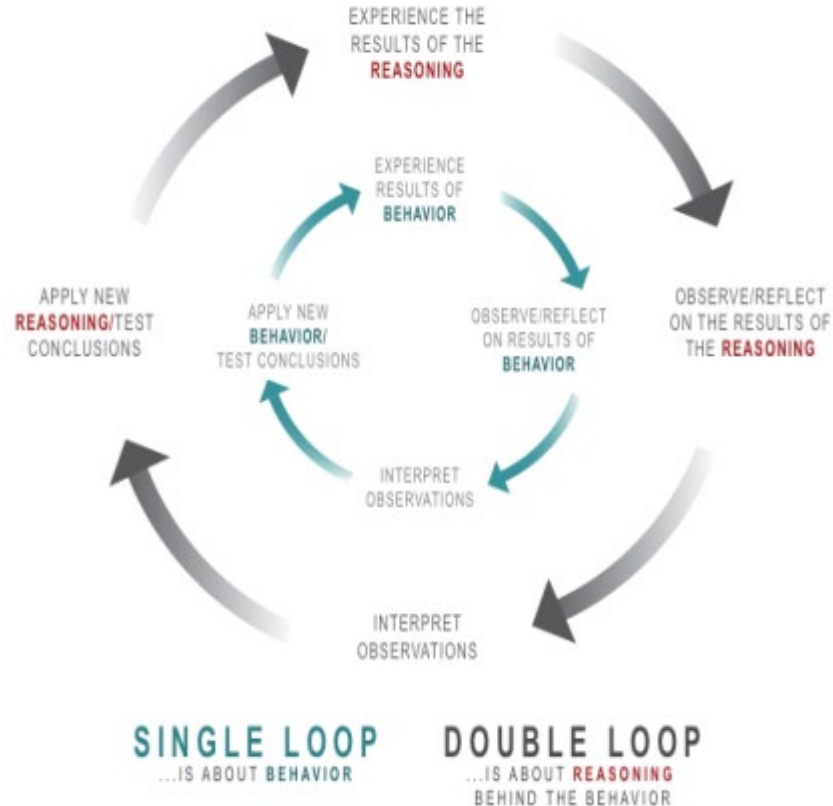
# Analytics and Big Data



## 6. Expanding LPSS



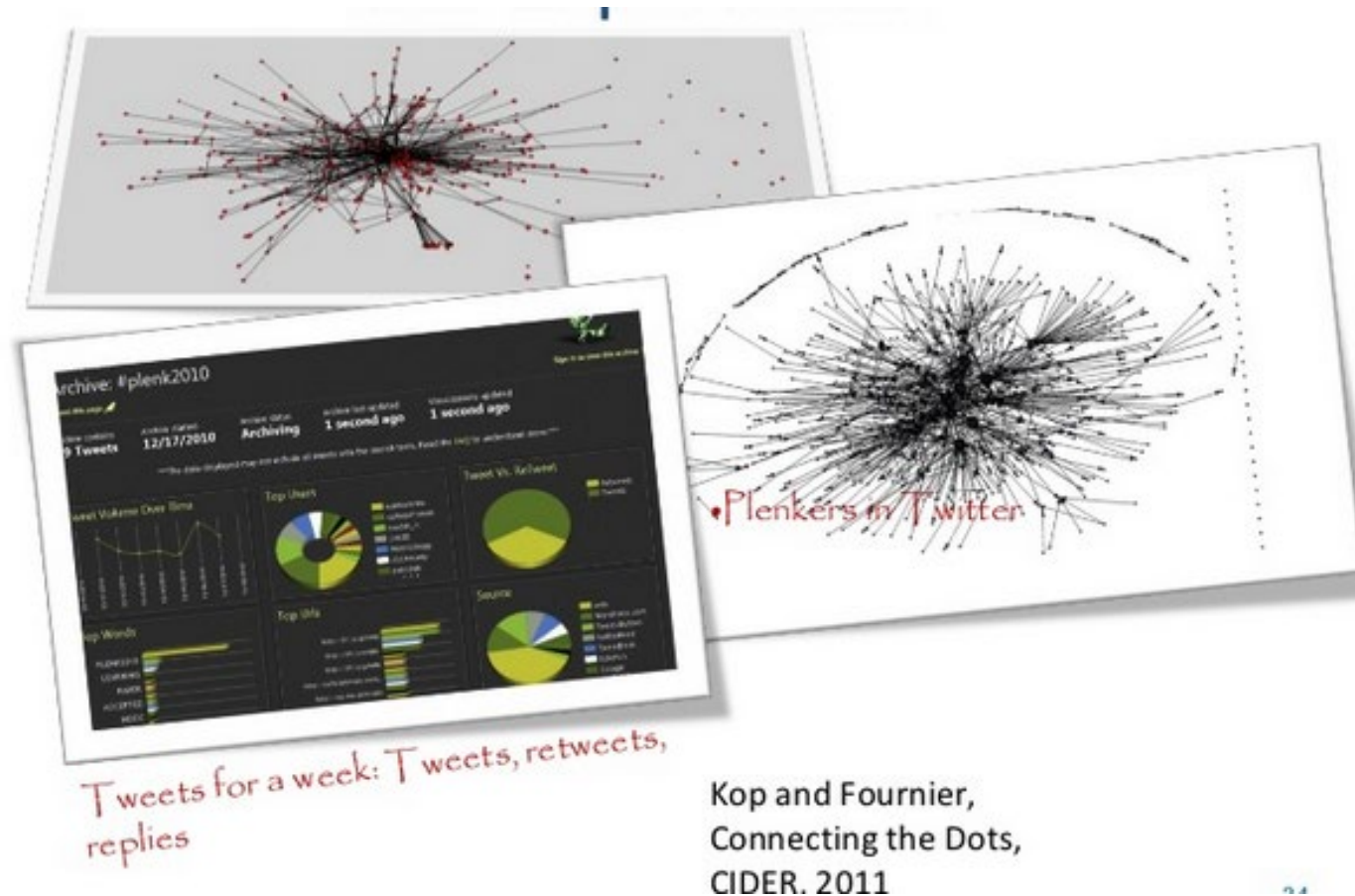
# Implementation Projects



Ultimately, the objective is to support individual learning in a network

<http://integralleadershipmanifesto.com/manifesto/making-subject-object/>

# Plearn – Importance of the Graph



<http://www.slideshare.net/Downes/after-moodle>

<http://www.slideshare.net/Ritakop/kopfourniercanadianinstitutedistanceeducationresearchple>



# OIF – MOOC-REL

The screenshot shows the website for the REL 2014 MOOC. At the top, there is a dark blue header with the title "REL 2014 - Pour une éducation libre" in white. Below the title is a navigation bar with several menu items: "ACCUEIL", "VOTRE COMPTE", "COMPTES RENDUS", "PARTICIPER", "SYNDICATION RSS", and "ARCHIVES". A secondary bar below the navigation indicates the user is not logged in, with links for "[Connexion]" and "[Inscription]".

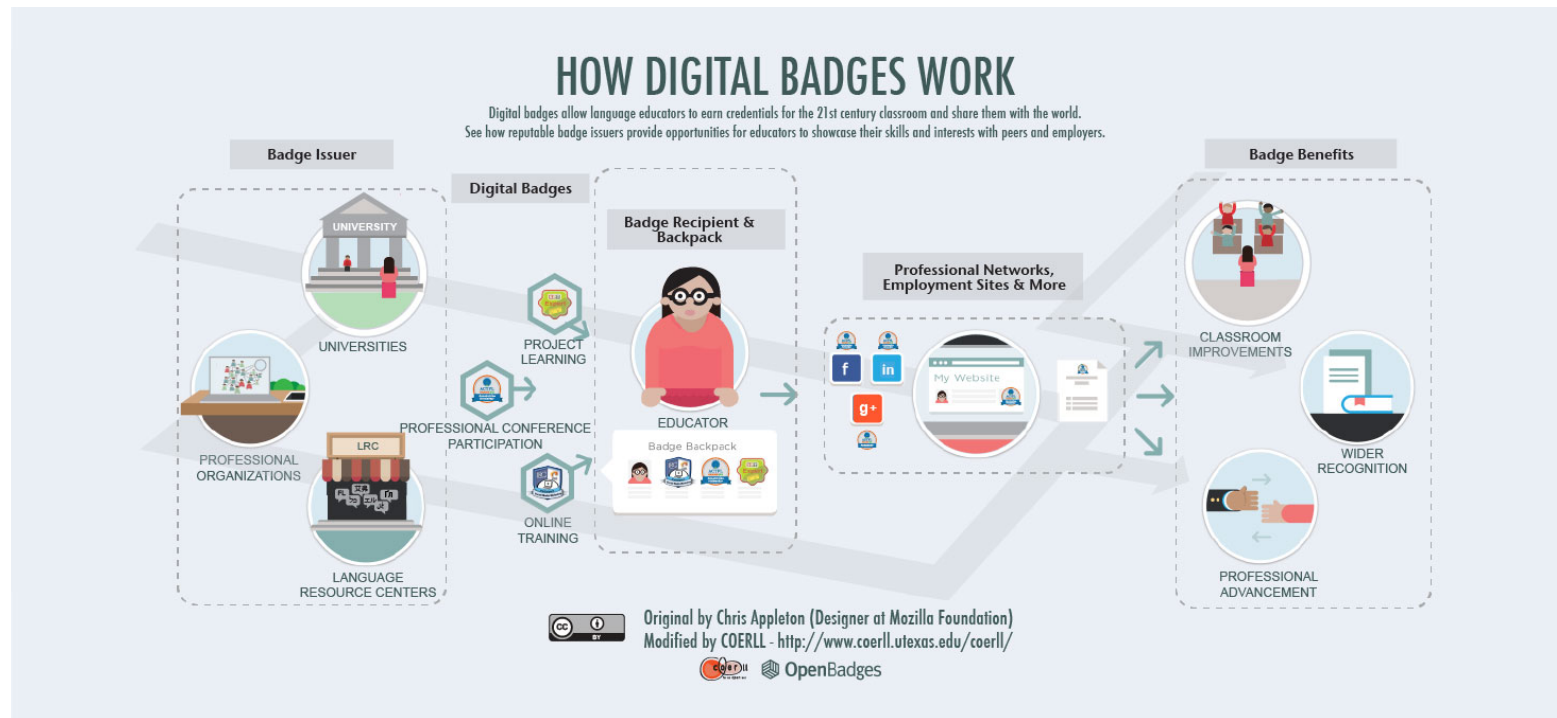
The main content area features a large graphic on the left with the text "Réutiliser, retravailler, recombinaer, redistribuer" and icons representing people and documents. To the right of this graphic is the main heading: "Réutiliser, Retravailler, Recombiner, Redistribuer – 4R des REL pour une Éducation libre". Below the heading is a welcome message: "Bienvenue à votre Cours en Ligne Ouvert et Massif (CLOM) de l'Organisation internationale de la Francophonie portant sur les ressources éducatives libres (REL).".

Below the welcome message is a paragraph: "Le cours débute le 3 mars 2014 et dure neuf semaines consécutives. Si vous n'êtes pas déjà inscrit(e), faites-le tout de suite pour recevoir le Bulletin de nouvelles quotidiennes et bénéficier du droit de commentaires/discussion dans le site." Below this is the sub-heading "Introduction au CLOM REL 2014". At the bottom of the visible content, there is a partial sentence: "Vous trouverez ci-dessous une courte vidéo qui explique le contexte du présent cours. Nous vous".

On the left side of the main content area, there is a vertical menu with the following items: "INTRODUCTION", "1. DU CLOM CONNECTIVISTE ET FONCTIONNEMENT DE CE COURS".

<http://rel2014.mooc.ca/>

# PCO Badges for Learning



<http://www.downes.ca/post/63738>

# ONGARDE



<http://www.journal.forces.gc.ca/vol14/no2/page70-eng.asp>

# ALECSO – Capacity Building



<http://www.downes.ca/presentation/337>

# Concierge OMS

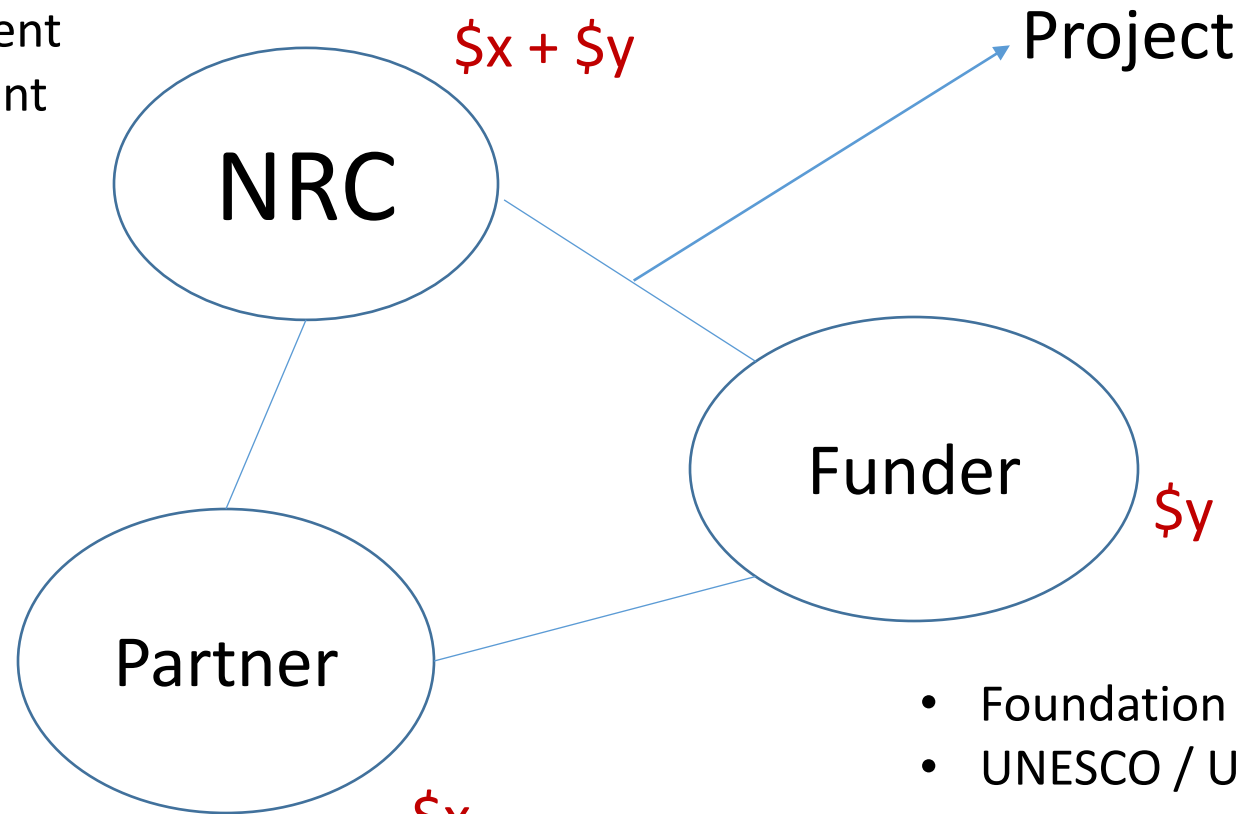
The screenshot shows the top portion of the Concierge Service website. At the top left, there is a logo for the Government of Canada in both English and French. To the right, navigation links for 'Canada.gc.ca', 'Services', 'Departments', and 'Français' are visible. The main header features the 'Concierge Service' title, a large red maple leaf, and the 'Canada' logo. Below this is a search bar and a navigation menu with options like 'Home', 'About us', 'Find programs', 'Find facilities', and 'My concierge'. A secondary navigation bar includes 'Register' and 'Log in' buttons. The main content area starts with a breadcrumb 'Home → Your guide to innovation' and a heading 'Your guide to innovation'. A sub-heading reads 'Helping Canadian enterprises find and access programs and services that support business innovation.' Below this is a large image of a person in a suit holding a glowing lightbulb, with a search bar overlaid that says 'How can we help you?' and a 'Go' button. To the right of this image is a smaller image of a golden key on a background of binary code, with the text 'Create an account to get the benefits to support you & your business!'. At the bottom right, there is a small image of three people clapping. A blue button labeled 'Find a program that meets your needs' is located at the bottom left of the main content area.

<https://concierge.portal.gc.ca/>



# Expanding LPSS

- \$20 Million Investment
- NRC Technologies
- Development Environment



- University
- Government
- Development Agency

- Foundation
- UNESCO / UN
- Corporate Partner

# Possible Projects...

- OERs, Repositories, Marketplaces
- Badges, Credentials, Recognition
- Simulations & Workplace Support
- Matching People to Opportunities

<http://LPSS.ME>





Stephen Downes

<http://www.downes.ca>