

# A Model of Personal Learning



Stephen Downes  
Mexico City  
May 16, 2017

- What does personal learning look like? Stephen Downes demonstrates the model he has developed over fifteen years of research on education technology and learning design. Based on gRSShopper – the software developed to run his newsletter and a series of Massive Open Online Courses (MOOCs) - Downes looks at the day-to-day routine of a personal learner with examples from his practice and a live demonstration of learning activities. Through the presentation Downes will explain the philosophy of Connectivism, a learning approach based on developing and growing personal learning networks, and will describe the ARRFF (Aggregate Remodel Repurpose Feed Forward) model of learning activities. Finally, he will offer insights regarding some key technologies on the horizon, such as server virtualization and augmented reality, and offer thoughts on the future of online learning.

# A Note About Models

- With models, the answers are determined before the system or simulation is ever run...
- Eg. “Carnegie Mellon University received a two-year grant for research on and development of MOOCs platforms '*intelligent enough to mimic the traditional classroom experience*'.”

<http://unescochair.blogs.uoc.edu/blog/2014/06/25/a-goal-for-google-and-carnegie-mellons-mooc-research/>

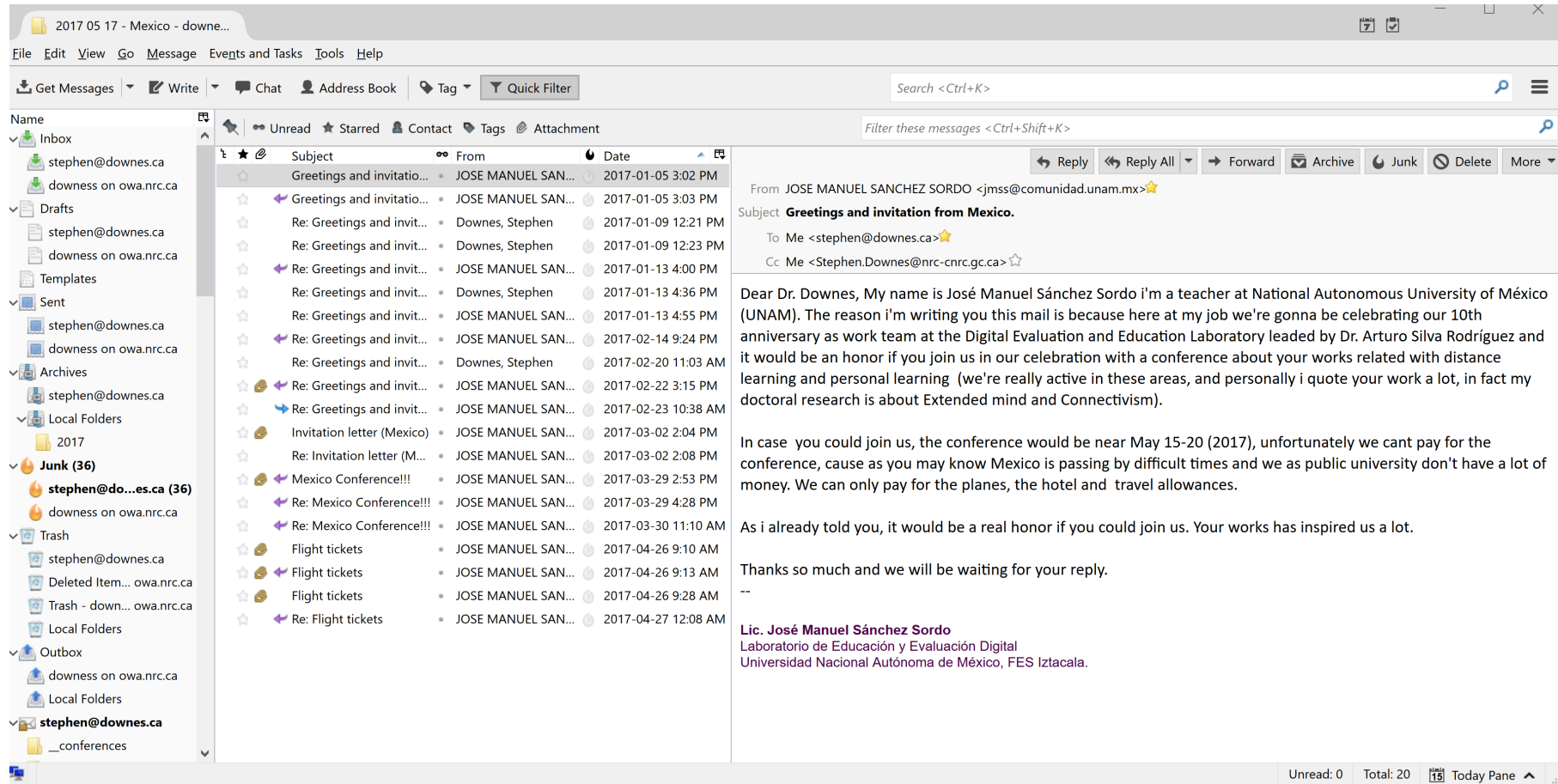


What's missing in the standard-based models-based approach is what we used to think of as BAD

- **Bricolage** – the doesn't allow or cater for bricolage.
- **Affordances** – leverage the technology to improve learning and teaching.
- **Distribution** – implications for the institutional practice of e-learning."



# A Day in the Life?



# A Day in the Life?

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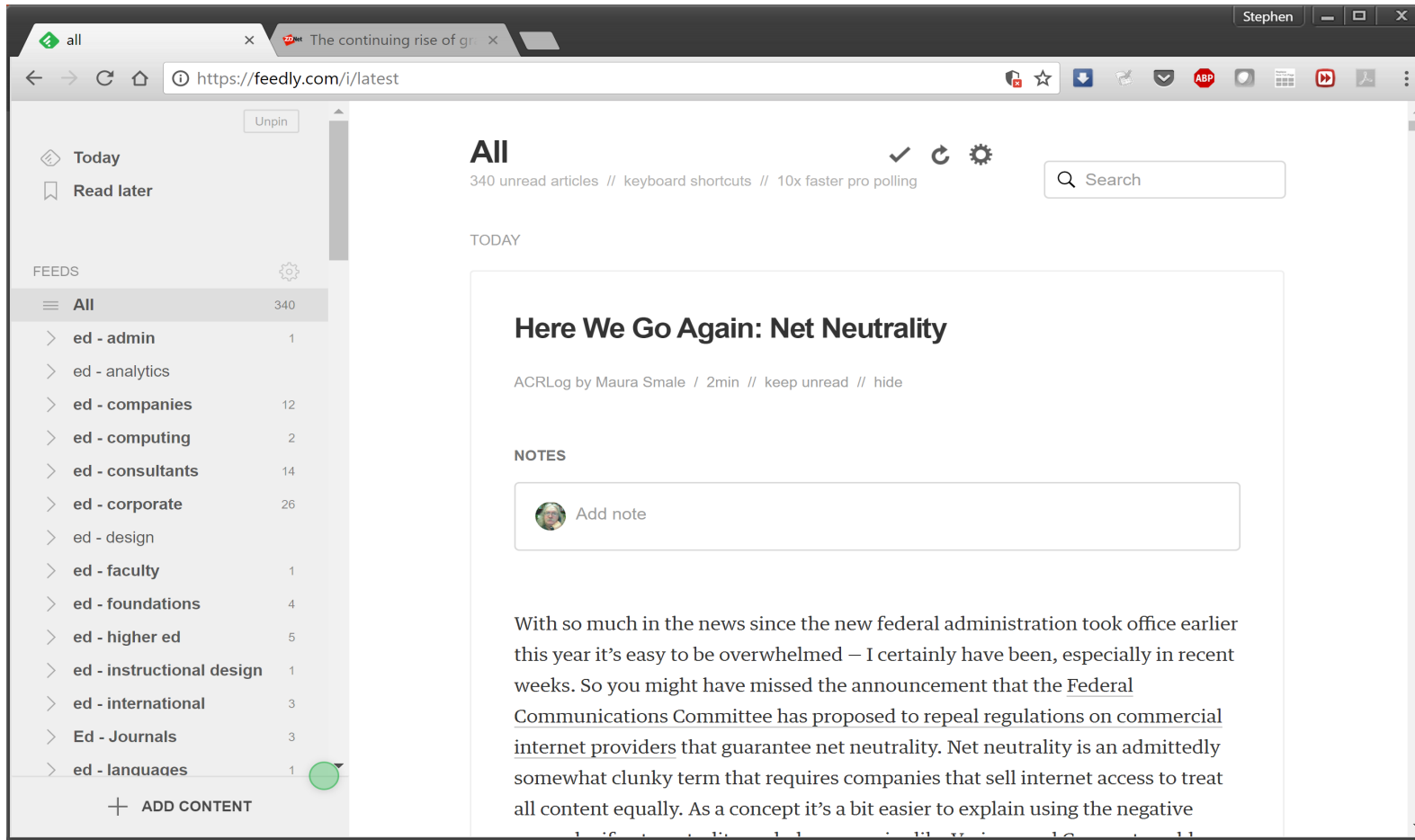
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```
MATCH (a:Character {name:'The Doctor'},  
       -[:APPEARED_IN]->(ep:Episode),  
       (a:Character {name:'Felix Rey'})  
       -[:APPEARED_IN]->(ep:Episode)  
WITH ep  
MERGE (c)-[:CREATED_IN]->(ep)  
(c)-[:REPEATED_IN]->(ep)
```

zdnet.com

Compliance is Not the End Goal of Education

EE	Quick Definition Statements	What it looks like	The Simon Sinek Scale (Why?)	Exam statements to the us Twitter Professors Learn
yllant	Learning because I have to.	Have little to no interest in learning material but doing as I am asked to do.	Seeing the "how" and the "what" but not understanding relevance for learning.	"Why are we this?"
pagel	Learning because I am interested.	Have an interest in what is being shared and can see relevance.	Starting to see "why" from someone else's perspective and seeing relevance to learning.	"That is a pretty cool perspective and thought of that we"
overed	Learning because I want to and see value in creating a difference for myself and/or others.	Creating, making, and connecting learning that is meaningful to the individual. Learning is becoming intrinsically valued.	Starting to create their own "why" and connecting to real life, eventually creating something of value.	"I started on and saws others the really clear way I do this class"

georgecouras.ca

A Delphi study of effective practices for developing competency-based learning models in higher education

Competency-Based Education

distance-educator.com

Sharing some stuff from my open EdTech road show

clintialonde.net

OER-Enabled Pedagogy

Over the last several weeks there has been an incredible amount of writing about open pedagogy and open educational practices (samples collected here by Maha). There have been dozens of blog posts. Countless tweets. There was a well-attended (and well-viewed) conversation via Google Hangout.

opencontent.org

One business case for OER examined

OpenLearn Free Learning from The Open University

tonybates.ca

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Just arrived to Canada from Syria. First @BlueJays game. First time tasting popcorn. BIG fans of both! ❤️🍿 #LetsRise #KidsUpFront

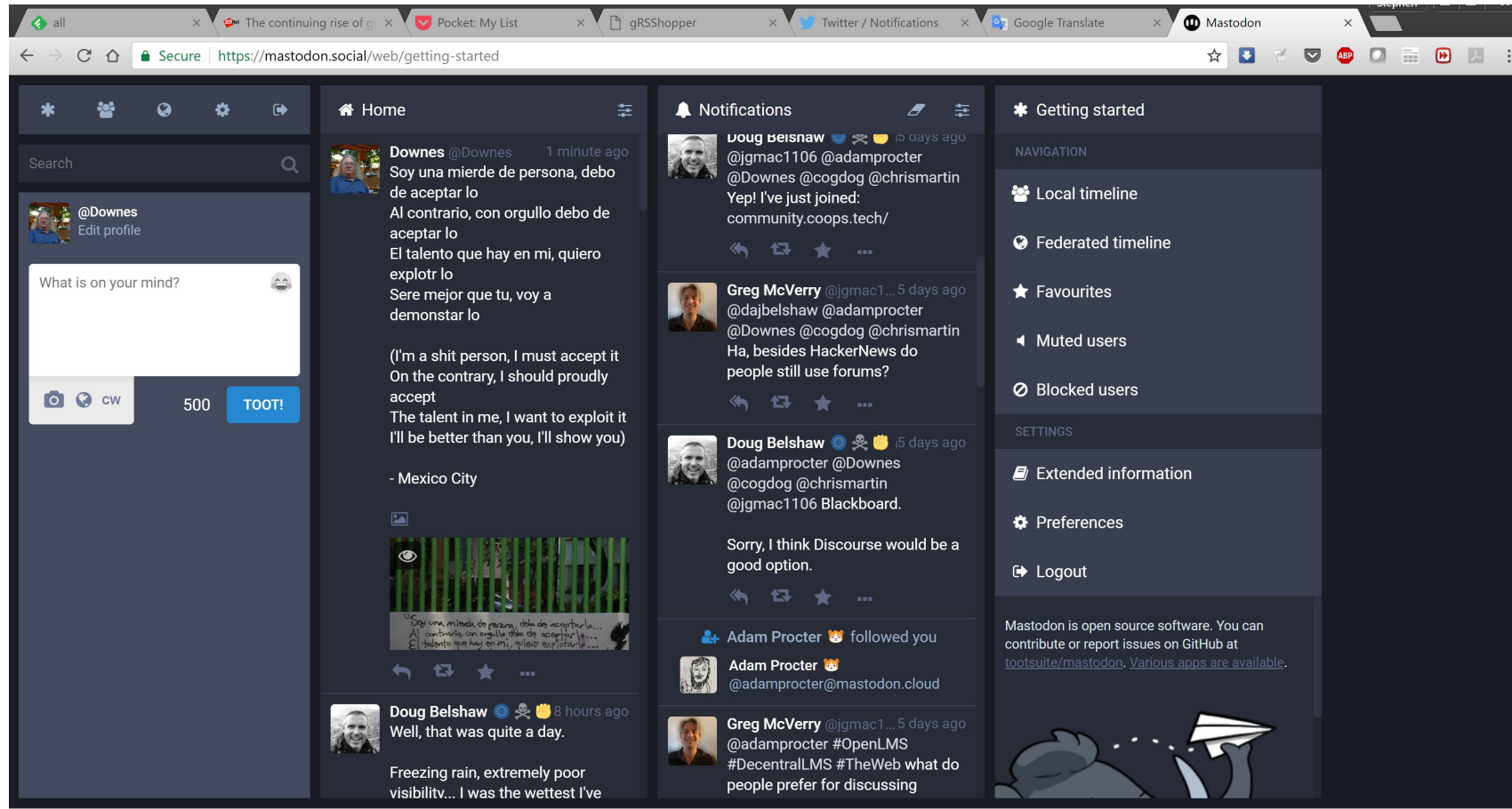


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<https://www.codecademy.com/learn>



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*Preview:*

**New post**

2017/05/15

Today: Total: [\[Edit\]](#) [\[Delete\]](#)[\[Spam\]](#)

post_id	<a href="#">66715</a>
post_type	<a href="#">Link</a>
post_pretext	<a href="#">Empty</a>
post_title	<a href="#">New post</a>
post_link	<a href="#">Empty</a>
post_author	Author List: <a href="#">Enter author name:</a>

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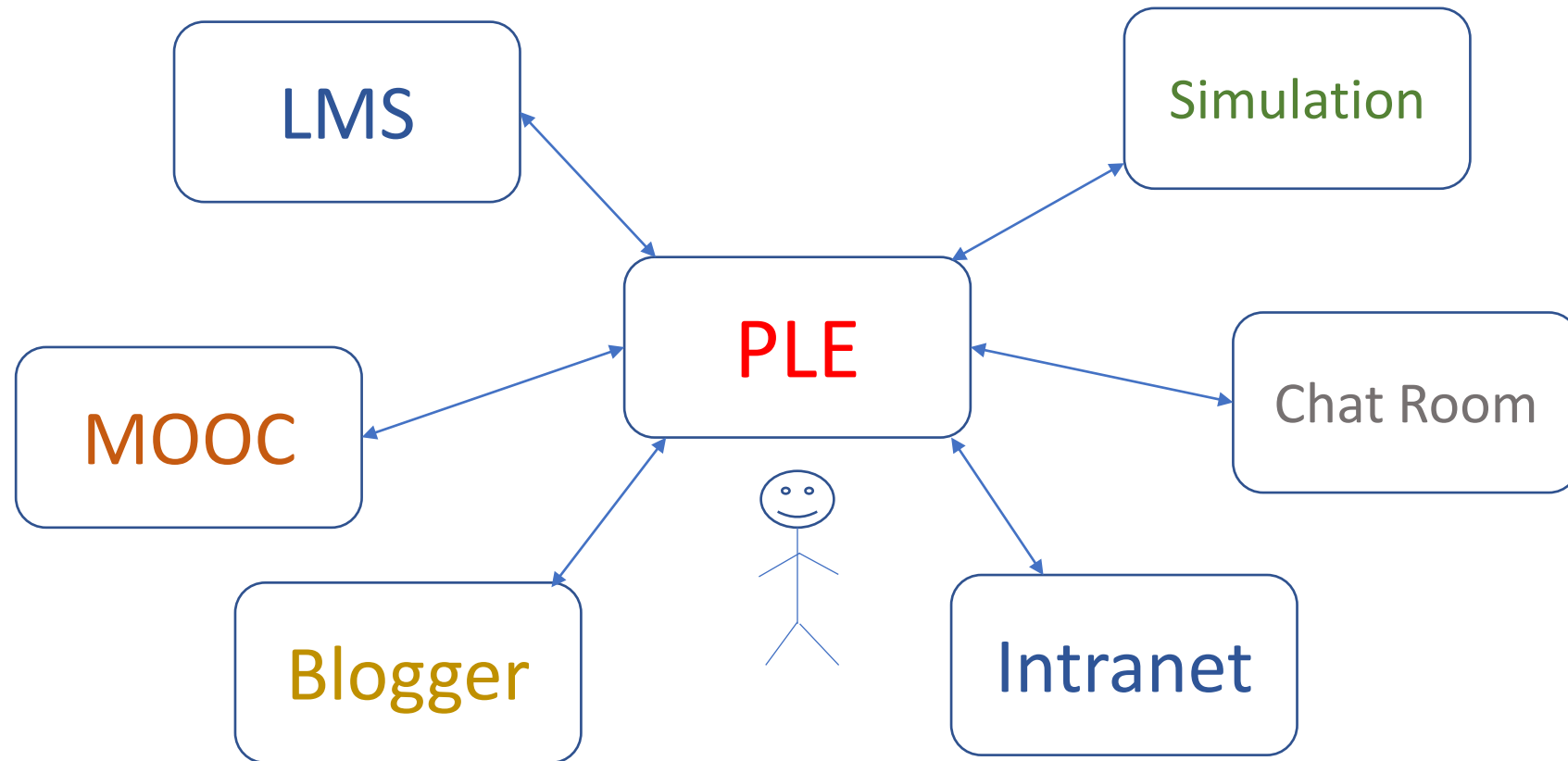
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2 -- article, 22 Feb 1996 -- [Censorship My Way](#)  
3 -- article, 26 Apr 1996 -- [Logical Fallacies: Index](#)  
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8 -- article, 23 Dec 1996 -- [Part Two: Christmas Marketing Style](#)  
9 -- article, 3 Jan 1997 -- [Existing Virtual Communities](#)  
10 -- article, 3 Jan 1997 -- [Almost Correct?](#)  
11 -- article, 7 Jan 1997 -- ['Trees' and other Putative 'Facts'](#)  
12 -- article, 17 Feb 1997 -- [I Support Universal Access](#)  
13 -- article, 4 Mar 1997 -- [Electronic Textbooks](#)  
14 -- article, 10 Mar 1997 -- ['Professional' Web Course Design](#)  
15 -- article, 26 May 1997 -- [Katz is Right, but for the Wrong Reasons](#)  
16 -- article, 9 Jun 1997 -- [Looking for the Better Side](#)  
17 -- article, 9 Jun 1997 -- ['Channeling'](#)  
18 -- article, 8 Jul 1997 -- [Multimedia, Teaching and Learning](#)  
19 -- article, 23 Jul 1997 -- [Distance Ed Instructional Designer](#)  
20 -- article, 24 Jul 1997 -- [Geek Movie? Absolutely](#)

28460 -- link, 9 May 2017 -- [This is How Google will Collapse](#)  
28461 -- link, 9 May 2017 -- [Experiential Learning: It's been happening for](#)  
28462 -- link, 9 May 2017 -- [Fait Accompli: Agentive Tech Is Here](#)  
28463 -- link, 10 May 2017 -- [Educational Technology and Education Conf](#)  
28464 -- link, 10 May 2017 -- [Google Chrome won't be allowed on Window](#)  
28465 -- link, 10 May 2017 -- [A Plan to Kill High School Transcripts ... and](#)  
28466 -- link, 10 May 2017 -- [Email is the new RSS \(or a Factotum is Born\)](#)  
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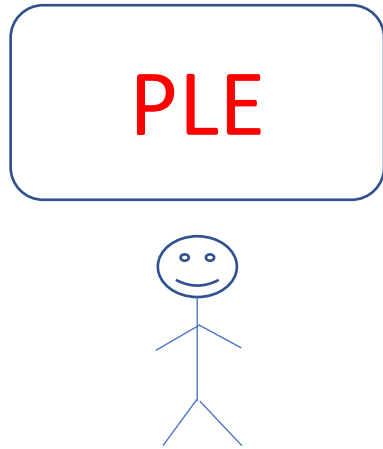
# Overview of the Concept of PLEs



Access to many services in one personal environment

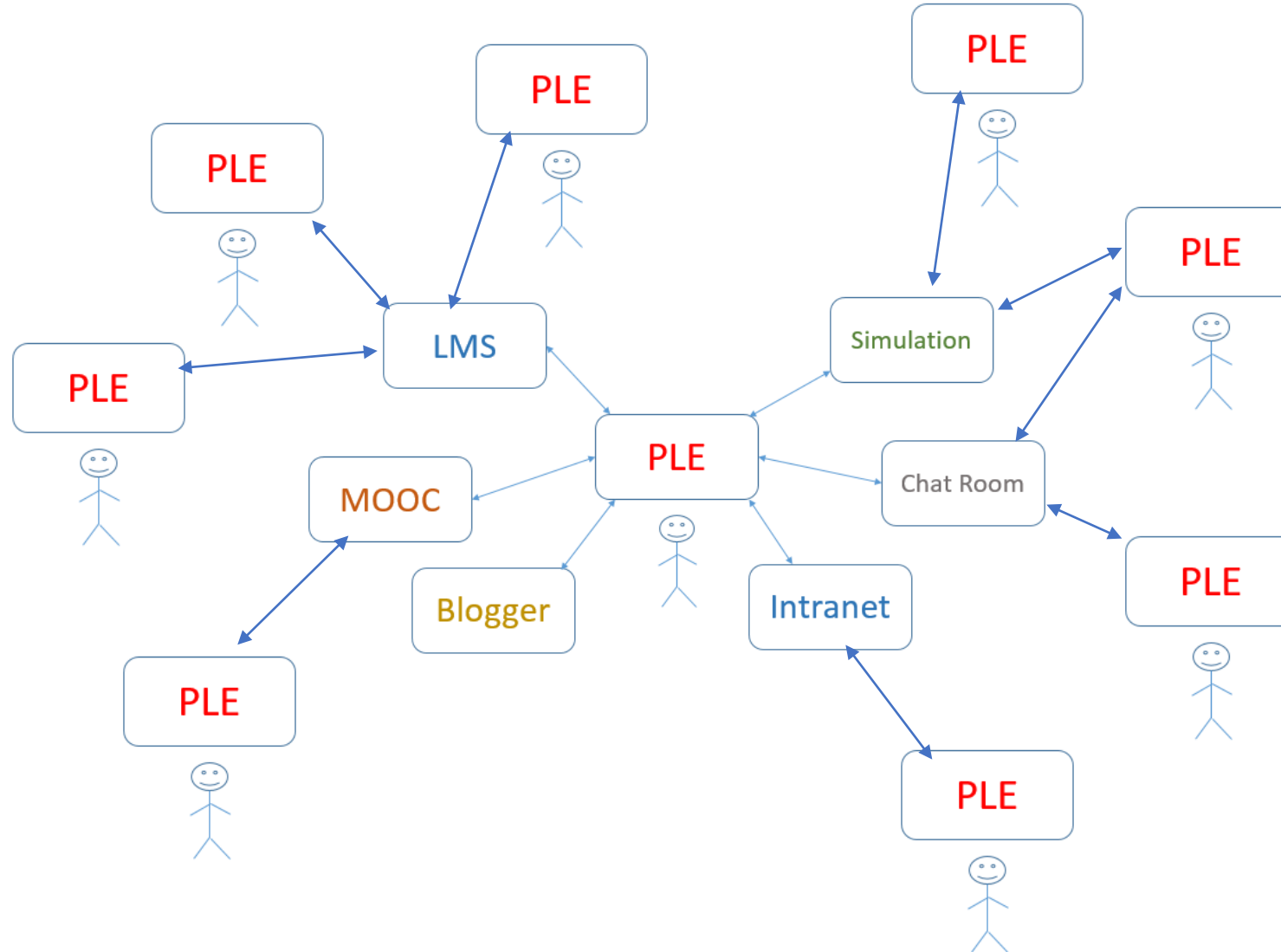


# Properties of the PLE...

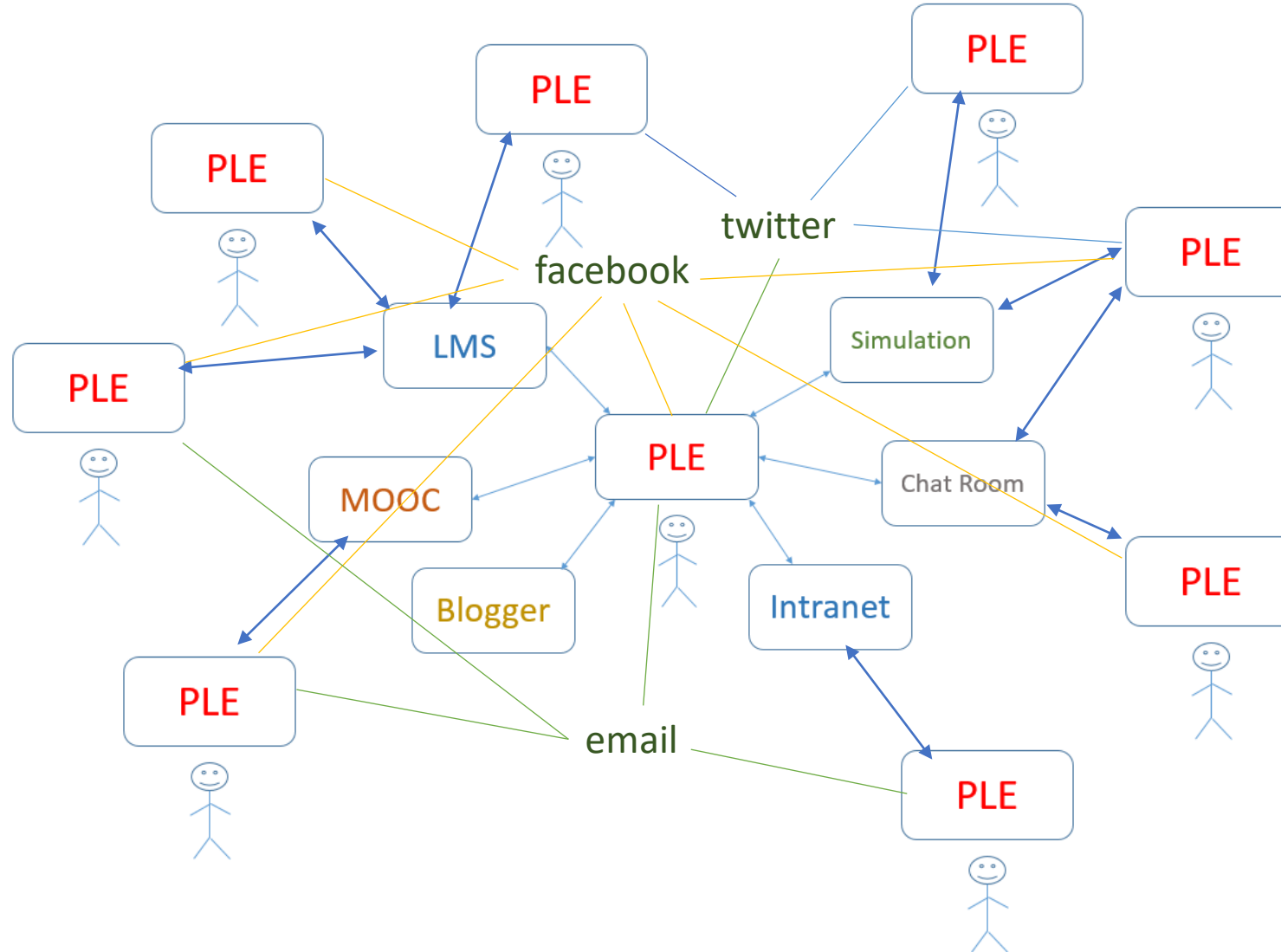


- What information should it record?
- Who owns the data? How private is it?
- What should it *do*?
- What would a person do with it?
- Where, exactly, is a PLE located?

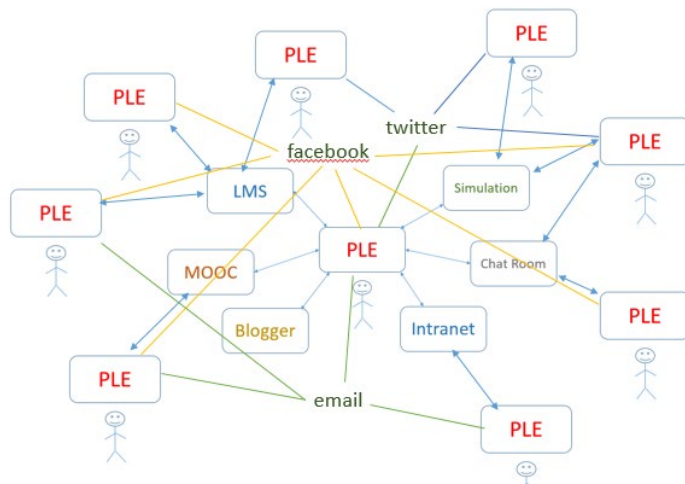
# The Network of PLEs



# The Social Network of PLEs



# Properties of the Network...



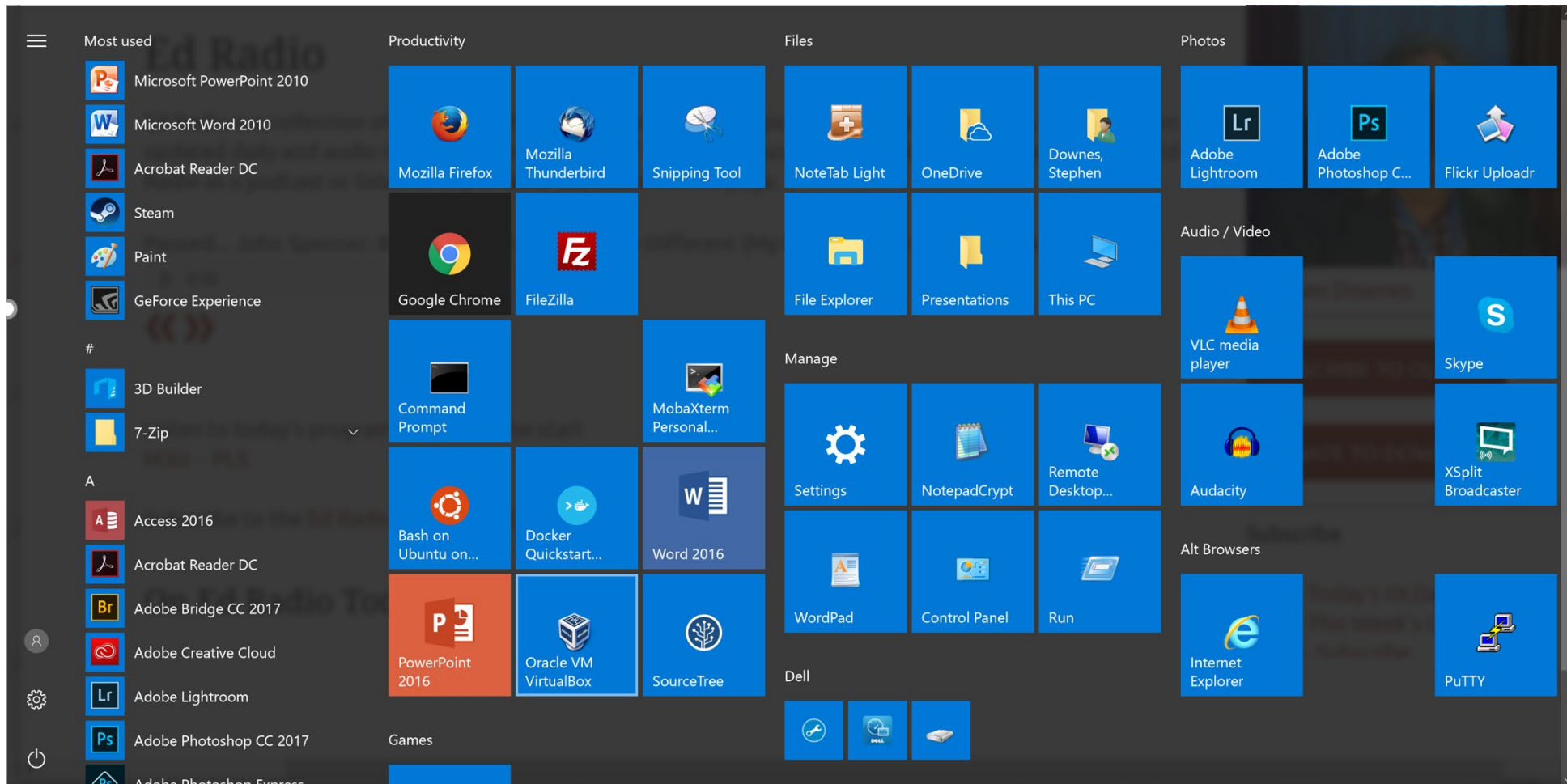
- How do people find each other? Services?
- How do they communicate? What do they share?
- How does a single PLE work with services?
- Do we need centralized registries?



# Why a personal learning environment?

- What is the *value proposition* for a PLE?
  - Note: value isn't what you can *do*, it's how you benefit
  - This is usually stated in financial terms (earn more, cost less)
  - Can also be stated in terms of quality: faster, bigger, better
  - And can be non-financial goods: satisfaction, happiness, memories

# Making

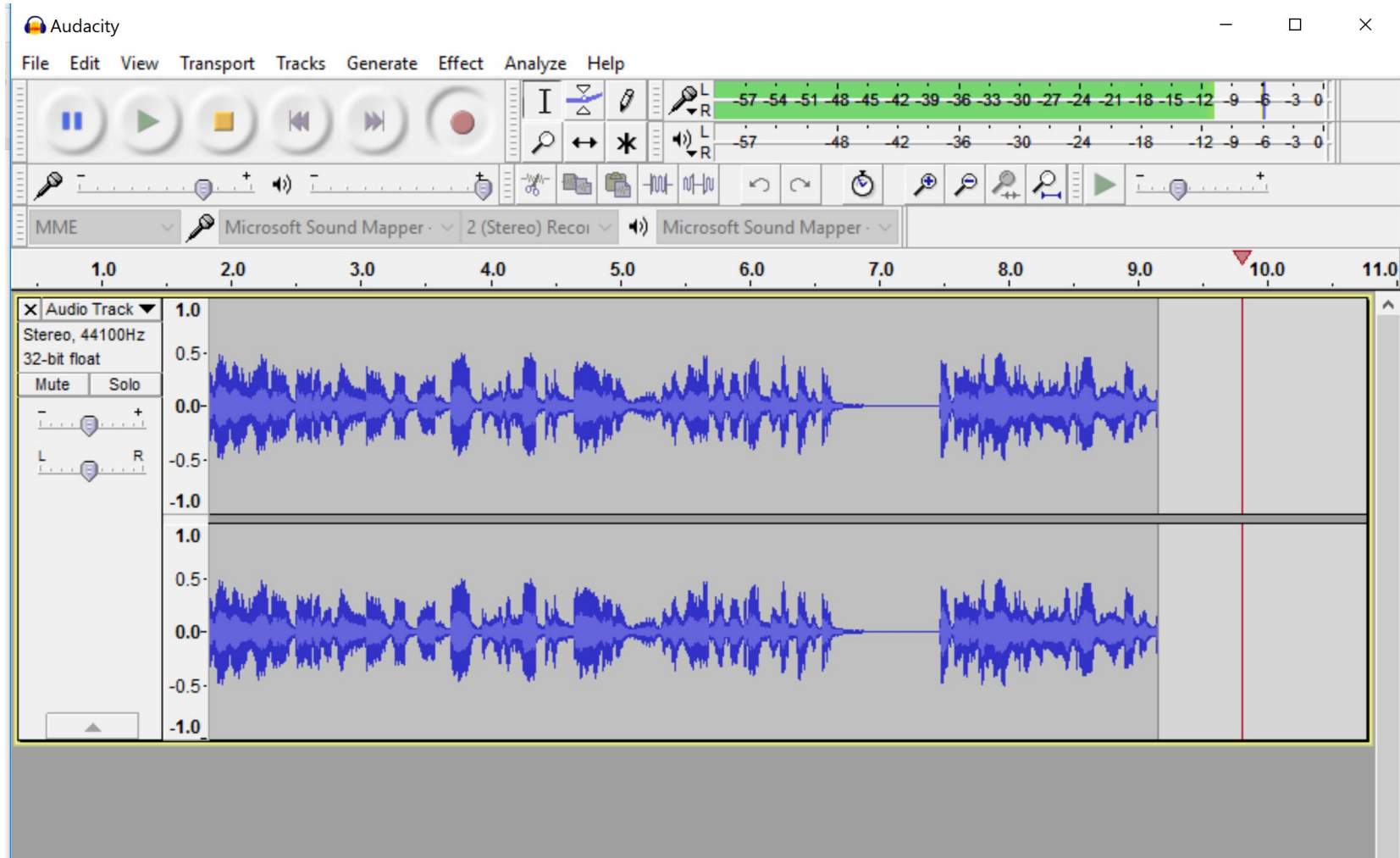


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

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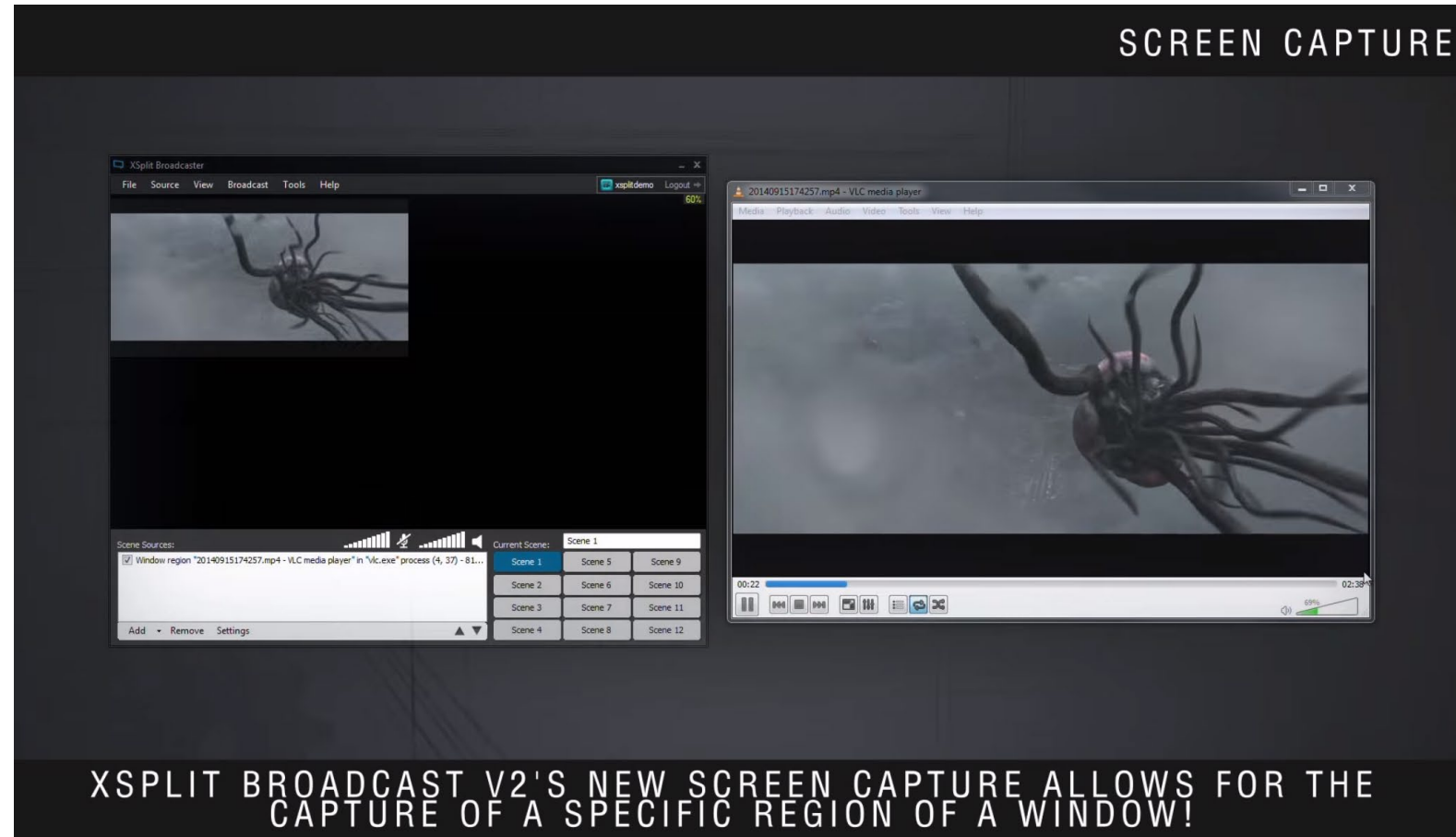
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 <b>Aesthetics [section ed: W. Scott Clifton]</b> 2 months ago · hugh	18 POSTS	647 VIEWS	 <a href="#">9 days ago</a> <a href="#">@wturgeon</a> I like this idea of case studies or examples ... it seems to me that this
 <b>This topic is deleted!</b> 2 months ago · hugh	1 POSTS	3 VIEWS	No one has replied

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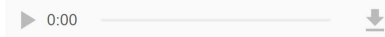
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Stephen Downes

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## Half an Hour

A place to write, half an hour, every day, just for me.

Saturday, April 22, 2017

### How We Know

In my view, knowledge is a subjective feel, but there's a nice story behind it.

The subjective feel appears circular: I say that I know when I can't not know.

The story lies in the cause of this subjective feel: to know is to recognize.

Recognition is involuntary, hence the modality of 'can't not know'. It is also non-grounded. The subjective feel is the knowledge.

It's like recognizing a person. Your mother walks through the train station and you pick her out of the crowd. This recognition is not based on any particular rule or principle, not based on any essential features, not based on any inferential process.

Yes, you could be mistaken in the train station - an alien disguised as your mother may have appeared instead. But your knowledge is not at fault. You know what your mother looks like; that's where your certainty lies.



### Stephen Downes

Writer, philosopher, educator, journalist. Specialist in online learning and new media technologies. For social networks, papers, presentations and newsletter please visit my home page at <http://www.downes.ca>

<http://halfanhour.blogspot.com>

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- Occupation:** Researcher
- Interests:** Technology / Software / Internet
- Website:** [www.downes.ca](http://www.downes.ca)
- Links:** <http://www.downes.ca>, [Twitter](#), [LinkedIn](#)
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Stephen Downes  
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Stephen Downes

Knowledge, Learning, Community

## Open Learning, Open Networks



<http://www.downes.ca/presentation/468>



SUNY Open COTE 2017, Syracuse, New York, .

Open online learning entered the mainstream with the growth and popularity of MOOCs, but while interest in open online courses has never been greater MOOCs represent only the first step in a broader open learning infrastructure. In this keynote Stephen Downes will describe several key innovations shaping the future of open learning: distributed social networks, cloud infrastructures and virtualization, immersive reality, and personal learning environments. The talk will outline the challenges this evolving model will pose to learning providers and educational institutions and recommend policies and processes to meet them. [Link to hosted video.](#)

Keynote, Mar 09, 2017.

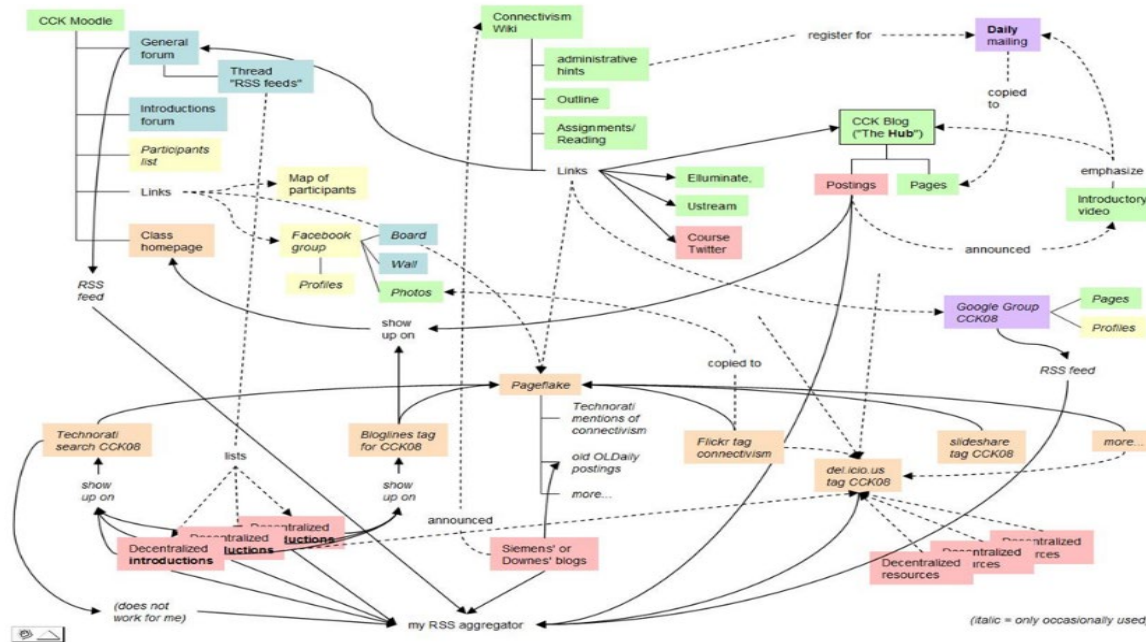
Downloads: [\[Slides\]](#) [\[Audio\]](#) [\[Conference Link\]](#)

# New learning Paradigms

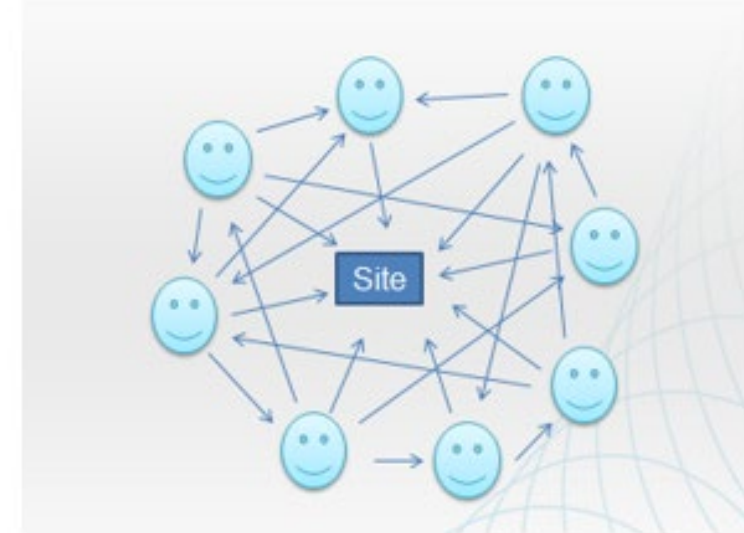
Path	Field
Course	Curriculum (as in 'mapping')
Sequence / Prerequisite	Core / periphery / foundation
Movement / covered	Inquiry / Discovery / Gaps
Threshold / Levels	Coverage / Construction
Positioning – first / last	Grouping / Clustering
Objective / target	Serendipity / emergence
Leading / Led	Centred



# The Connectivist MOOC (cMOOC) Design



A MOOC is a Web, not a Website

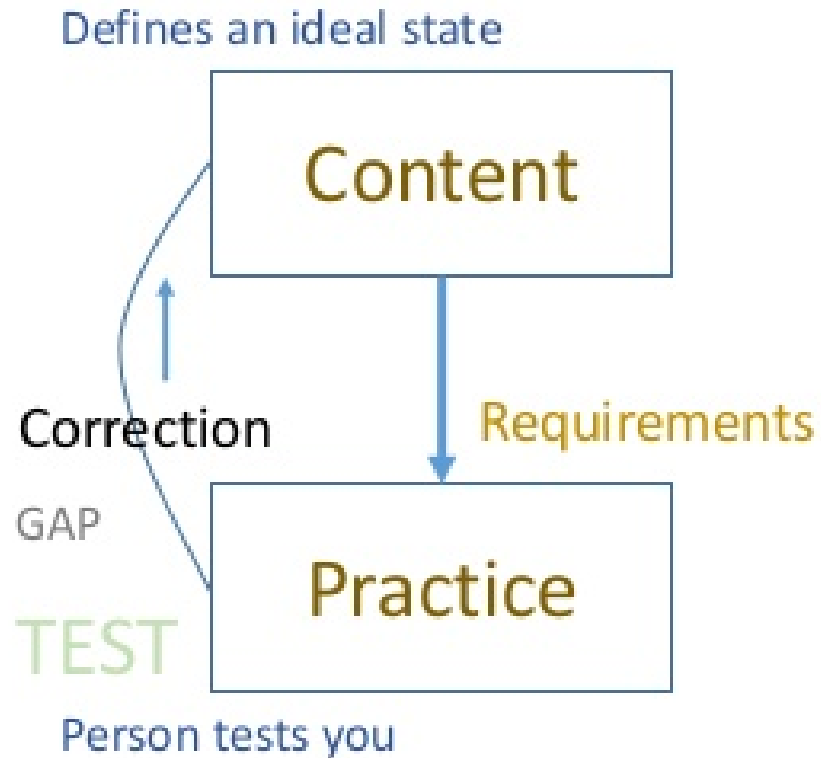


Instead of seeing a course as a series of contents to be presented, a course is a **network of participants** who find and exchange resources with each other

- An initial structure is developed and 'seeded' with existing **OERs**
- Participants **encouraged** to use their own sites to create or share resources
- A mechanism (gRSShopper) is employed to **connect them**

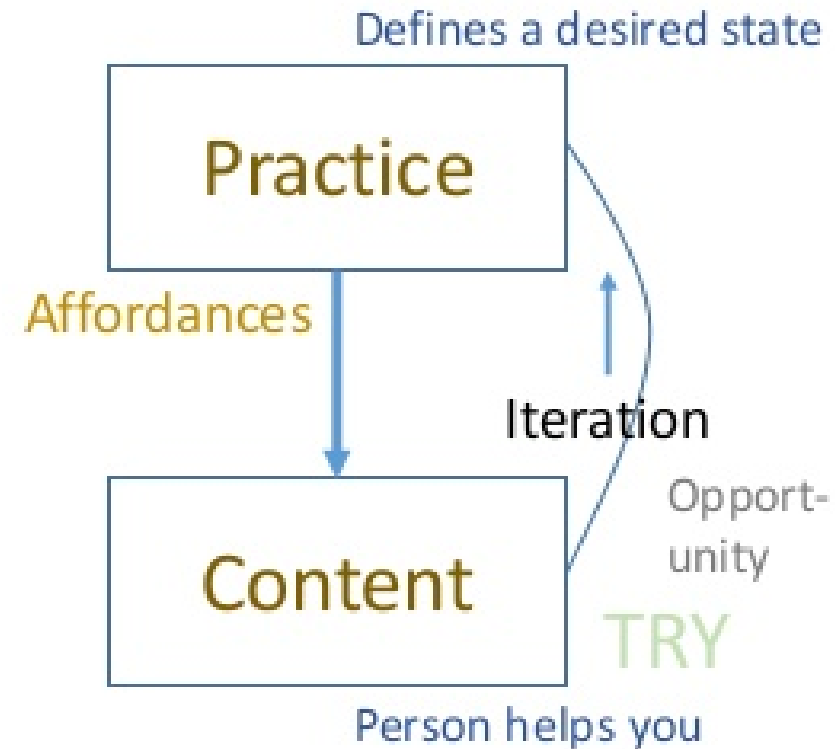
# Personalized

We do for you



# Personal

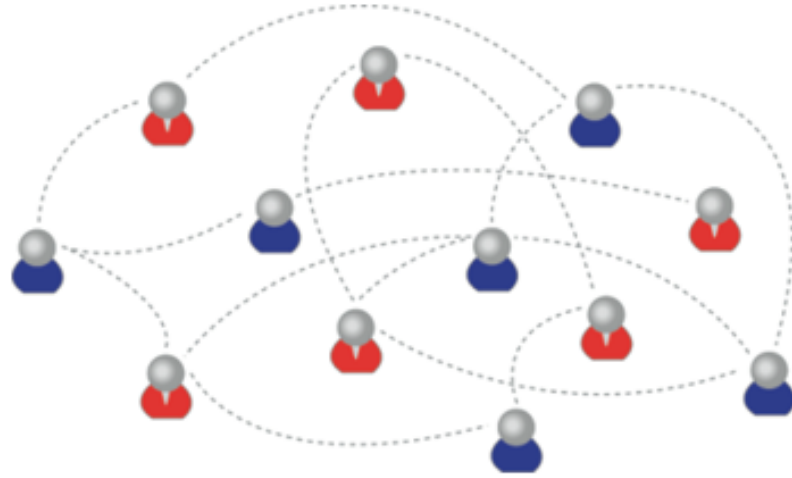
You do for yourself



Learning is Personal



# Learning Outcomes



We are using one of these

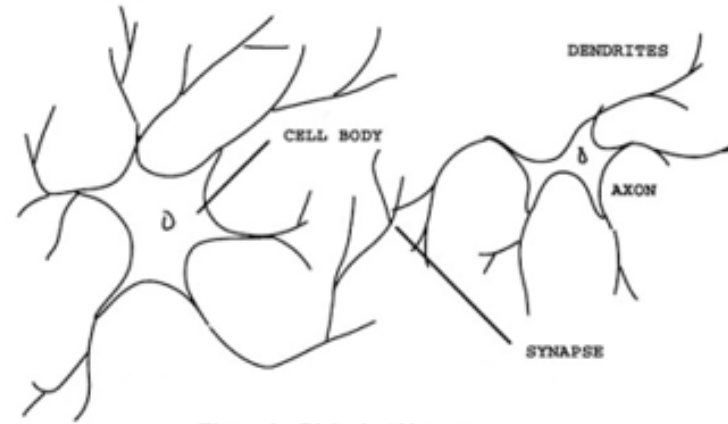


Figure 1. Biological Neuron

To create one of these

- Learning a discipline is a total state and not a collection of specific states
- It is obtained through immersion in an environment rather than acquisition of particular entities
- It is expressed functionally (can you perform 'as a geographer'?) rather than cognitively (can you state 'geography facts' or do 'geography tasks'?)

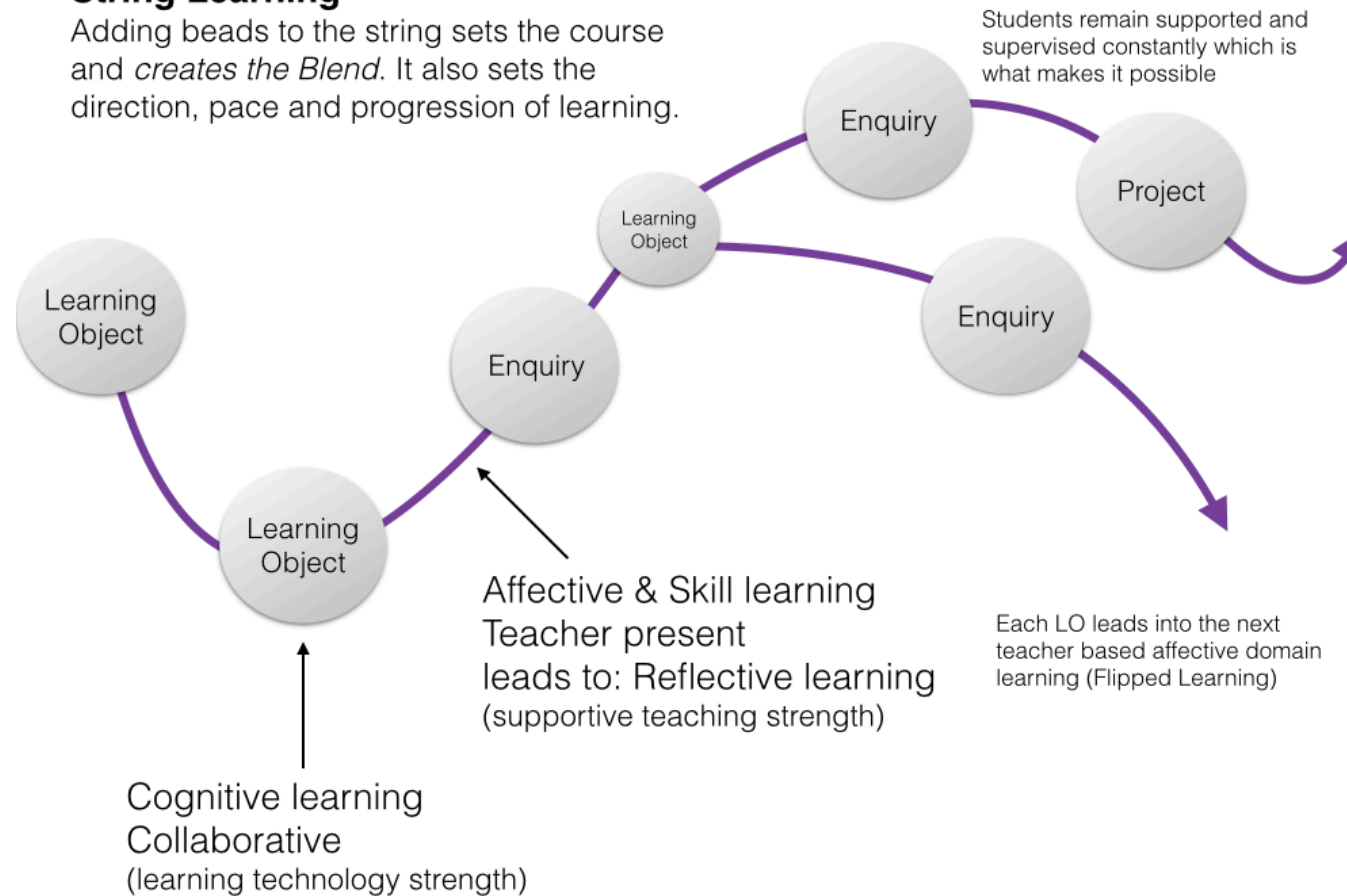
# Extended Cognition

- More than neural networks?
  - Embodied learning, stigmergy, extended memory (Andy Clark)
- Is my library a part of my cognition?
  - Which books?
- The problem of explanation

# Cloud Environments

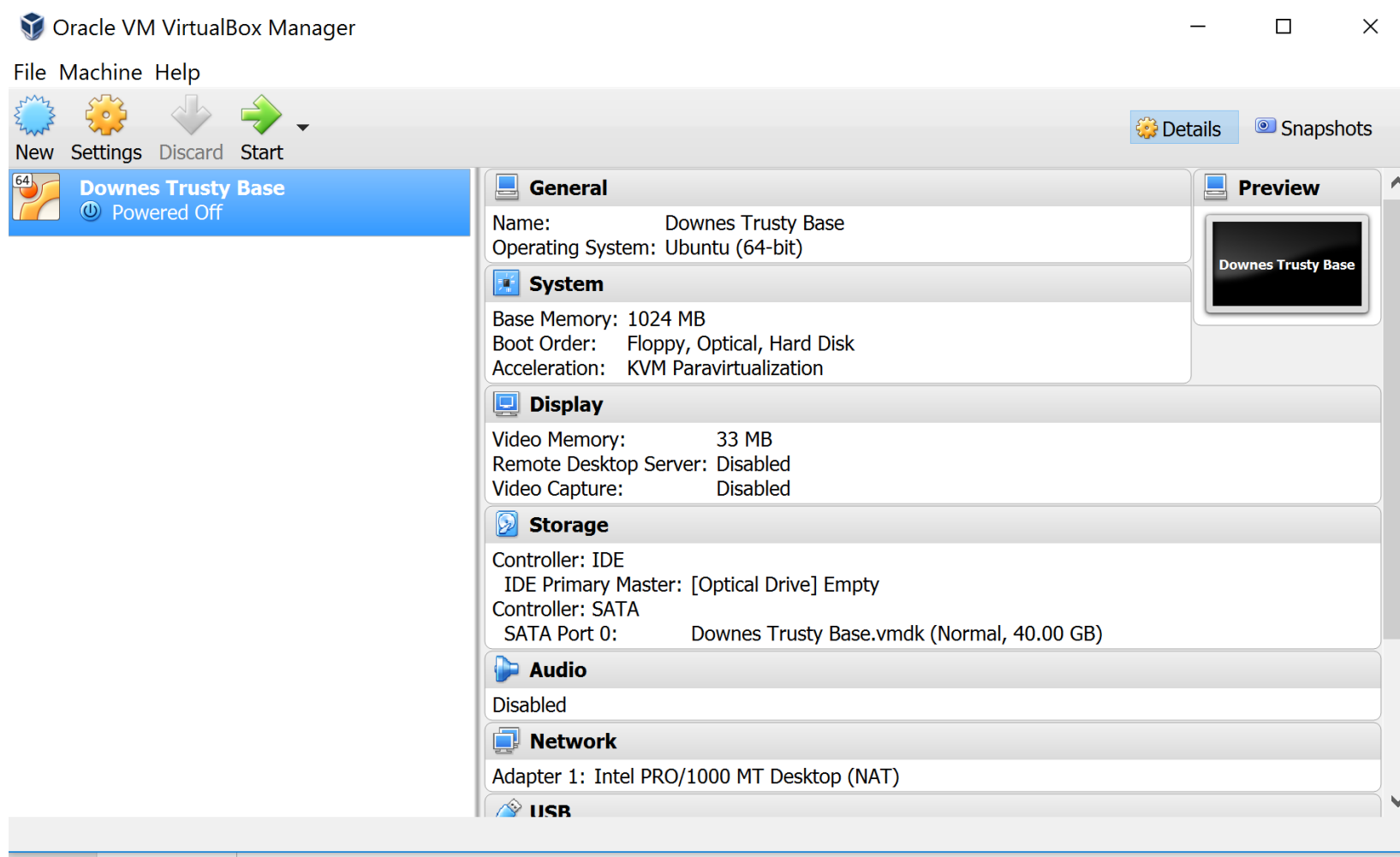
## String Learning

Adding beads to the string sets the course and *creates the Blend*. It also sets the direction, pace and progression of learning.



<https://www.linkedin.com/pulse/string-learning-blend-objects-geoff-rebbeck?articleId=6932346018329088240>

# Making



<https://www.virtualbox.org/>

# Cloud Environments

EC2 Dashboard  
Events  
Tags  
Reports  
Limits

INSTANCES

Instances

Spot Requests  
Reserved Instances  
Dedicated Hosts

IMAGES

AMIs  
Bundle Tasks

ELASTIC BLOCK STORE

Volumes  
Snapshots

NETWORK & SECURITY

Security Groups  
Elastic IPs  
Placement Groups  
Key Pairs  
Network Interfaces

Launch Instance Connect Actions

Filter by tags and attributes or search by keyword

	Name	Instance ID	Instance Type	Availability Zone	Instance State	Status Checks	Alarm Status	Public DNS (IPv4)	IPv4 Public IP
<input checked="" type="checkbox"/>	LRS	i-0203360f8deec276b	t2.micro	ca-central-1a	running	2/2 checks ...	None	ec2-52-60-218-119.ca-c...	52.60.218.119
<input type="checkbox"/>	PLE	i-086b155fce285dd7f	t2.medium	ca-central-1b	running	2/2 checks ...	None	ec2-52-60-175-41.ca-ce...	52.60.175.41
<input type="checkbox"/>	C and L	i-0d76c770a3b511f94	t2.medium	ca-central-1a	running	2/2 checks ...	None	ec2-52-60-150-138.ca-c...	52.60.150.138

Instance: i-0203360f8deec276b (LRS) Public DNS: ec2-52-60-218-119.ca-central-1.compute.amazonaws.com

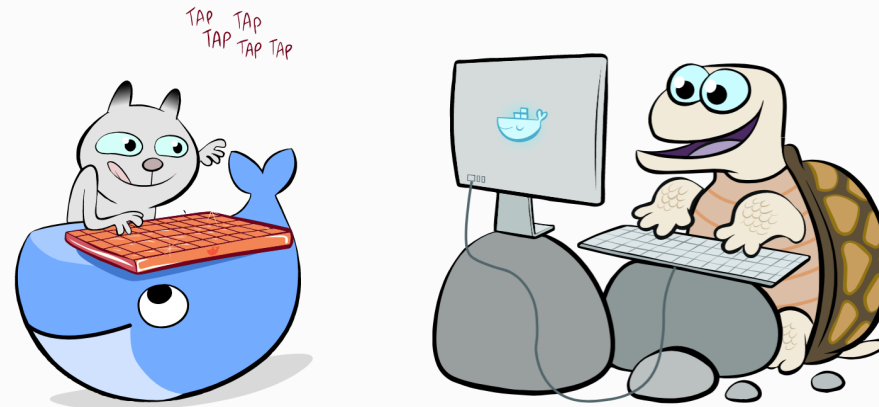
Description Status Checks Monitoring Tags

Instance ID	i-0203360f8deec276b	Public DNS (IPv4)	ec2-52-60-218-119.ca-central-1.compute.amazonaws.com
Instance state	running	IPv4 Public IP	52.60.218.119
Instance type	t2.micro	IPv6 IPs	-
Elastic IPs		Private DNS	ip-172-31-30-33.ca-central-1.compute.internal
Availability zone	ca-central-1a	Private IPs	172.31.30.33
Security groups	launch-wizard-4 . view inbound rules	Secondary private IPs	
Scheduled events	No scheduled events	VPC ID	vpc-739b5b1a
AMI ID	ubuntu/images/hvm-ssd/ubuntu-xenial-16.04-amd64-server-20170202 (ami-7b74c91f)	Subnet ID	subnet-e401ce8d
Platform	-	Network interfaces	eth0
IAM role	-	Source/dest. check	True

<https://aws.amazon.com/console/>

# Cloud Environments

## A Better Way to Build Apps



### ESCAPE THE APP DEPENDENCY MATRIX

Eliminate the “it works on my machine” problem once and for all. Package dependencies with your apps in Docker containers for portability and predictability during development, testing, and deployment.

### WORKS WITH ANY STACK

Deploy both microservices and traditional apps anywhere without costly rewrites. Isolate apps in containers to eliminate conflicts and enhance security.











### BETTER TEAM COLLABORATION

Streamline collaboration between developers and operators and get features and fixes into production faster. Productive developers doing frequent releases unleashes creativity to build awesome software.

<https://www.docker.com/>

# Learning Record Store

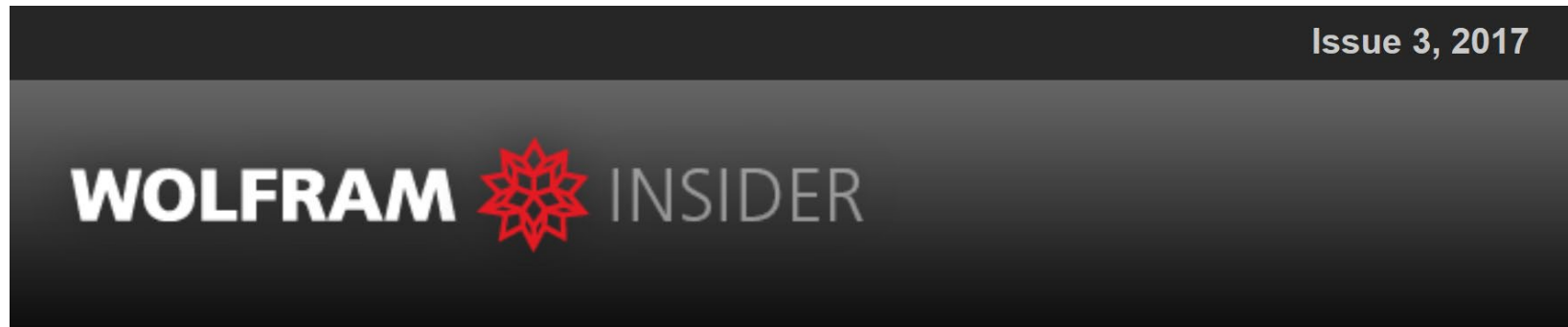
## xAPI Statement Viewer

Statement List							<a href="#">Get Statements</a>
Query Options							>
Show	25	entries	Search:				
Timestamp	Actor Name	Verb	Object Name	Object Type	Authority Name		
in 7 minutes	zlw7m	clicked	http://adlnet.github.io/xAPI-Dashboard	Activity	tom		
in 7 minutes	zlw7m	clicked	http://adlnet.github.io/#reporting	Activity	tom		
in 7 minutes	zlw7m	clicked	http://adlnet.github.io/#	Activity	tom		
in 7 minutes	zlw7m	clicked	http://adlnet.github.io/#scorm	Activity	tom		
in 7 minutes	zlw7m	clicked	http://adlnet.github.io/#mobile	Activity	tom		
in 7 minutes	zlw7m	clicked	http://adlnet.github.io/#reporting	Activity	tom		
in 7 minutes	zlw7m	clicked	http://adlnet.github.io/#aptools	Activity	tom		
in 7 minutes	zlw7m	clicked	http://adlnet.github.io/xAPI-Dashboard	Activity	tom		
in 6 minutes	zlw7m	clicked	http://adlnet.github.io/xapi-statement-viewer	Activity	tom		
in 6 minutes	zlw7m	clicked	http://adlnet.github.io/#lrstools	Activity	tom		

<http://adlnet.github.io/xapi-statement-viewer/>



# Cloud Services



## JUST RELEASED

### **Wolfram Data Repository »**

Building on the Wolfram Data Framework and the Wolfram Language, the Wolfram Data Repository provides a uniform system for storing data and making it immediately computable and useful. It is built to be a global resource for public data and data-backed publication.



Read Stephen Wolfram's Data Repository [blog](#).

<https://datarepository.wolframcloud.com/>

Stephen Downes

<http://www.downes.ca>



<http://www.downes.ca/presentation/389>