

# Distributed Learning Technologies and Next Generation E-Learning

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National Research Council Canada

October 23, 2019

# Description

This workshop will give participants a map of the next-generation learning technology landscape.

- how the major developments in new technologies relate to each other a
- how they will change the learning landscape
- presentation of the concept of 'web3' as it has emerged from the decentralized digital currently community
- trace the relation between new and unfamiliar concepts such as hash-graphs, consensus, cloud architecture and machine
- explore several new technologies piloted over the last year, including blockchain-based badges, identity graphs, and new types of open educational resources.

# Agenda

09:00 – 10:30 Data and Cloud

10:30 – 11:00 Tea/Coffee Break

11:00 – 13:00 Graph and Resources

13:00 – 14:00 Lunch

14:00 – 15:30 Identity and Recognition

15:30 – 16:00 Tea/Coffee Break

16:00 – 17:30 Experience, Community and Agency

# The Learning Context

These are my perspectives. They represent the areas of expertise I have developed over the years. As I study new pedagogies and technologies, I ask questions from the following points of view:



## **Philosophy**

My degrees are in philosophy and I specialized in philosophies of mind, science, knowledge and logic. I ask questions about the bases for arguments and claims, look for presumptions about meaning and value, and consider ways of sensing, comprehending and knowing.



## **Education**

I am interested in the processes of learning, inference and discovery on a practical level. I ask what it is to learn – why and how people learn - and what are the conditions for best learning outcomes. I am focused on learning experience and personal agency.



# The Learning Context (2)



## **Computing**

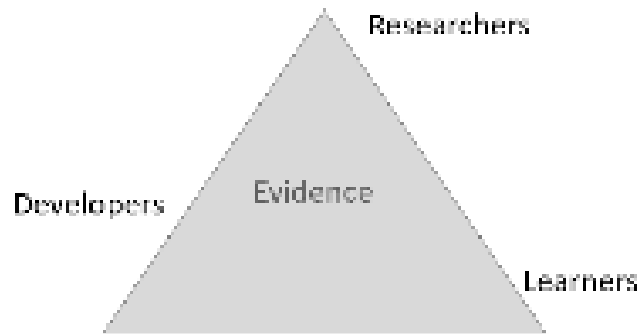
I took a few courses but have mostly taught myself computer programming over the years, learning a number of languages, and building websites, content management systems, and learning technology. I think of programming as a means of expression.



## **Media**

Since my days as a newspaper carrier to my involvement in student journalism to my work today in online media I have worked on new and better means of conveying information, illustration and photography, community-building and interactivity.

# Designing Learning Experiences



1. Learning from Experts
2. Learning with Others
3. Learning through Making
4. Learning through Exploring
5. Learning through Inquiry
6. Learning through Practising
7. Learning from Assessment
8. Learning in and across Settings

[http://discovery.ucl.ac.uk/1475754/4/Luckin\\_SoTL\\_Luckin\\_Final.pdf](http://discovery.ucl.ac.uk/1475754/4/Luckin_SoTL_Luckin_Final.pdf)

From a connectivist perspective, knowledge is the organization of connections between a set of entities, where the result of that organization is the capacity to *recognize* objects or states of affairs in the world. For all practical purposes, we can recognize anything: friends, pets, past events, future events, types, consequences, whatever. Moreover, there are different ways of recognizing: we can have a memory, imagine an object, exercise a certain skill, have some emotion or another.



# Open Pedagogy

|                             |  |
|-----------------------------|--|
| Participatory               | Interacting via social networks and mobile apps  |
| People and trust            | Develop trust, confidence and openness           |
| Innovation & creativity     | Encourage spontaneous innovation and creativity  |
| Sharing ideas and resources | Share freely to disseminate ideas and thoughts   |
| Connected community         | Participate in a community of practice           |
| Learner-generated           | Facilitate learner contributions to OER          |
| Reflective practice         | Create opportunities for dialogue and reflection |
| Peer review                 | Contribute to an open critique of scholarship    |

Gráinne Conole. 2015. MOOCs as disruptive technologies: strategies for enhancing the learner experience and quality of MOOCs. Revista de Educación a Distancia. Número 39.  
<http://www.um.es/ead/red/39>

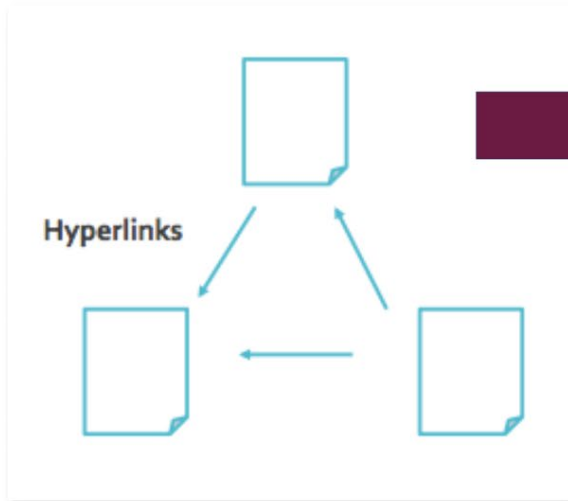
Bronwyn Hegarty. 2015. Attributes of Open Pedagogy: A Model for Using Open Educational Resources. Educational Technology, July/August, 2015.  
[https://upload.wikimedia.org/wikipedia/commons/c/ca/Ed\\_Tech\\_Hegarty\\_2015\\_article\\_attributes\\_of\\_open\\_pedagogy.pdf](https://upload.wikimedia.org/wikipedia/commons/c/ca/Ed_Tech_Hegarty_2015_article_attributes_of_open_pedagogy.pdf)

# Data

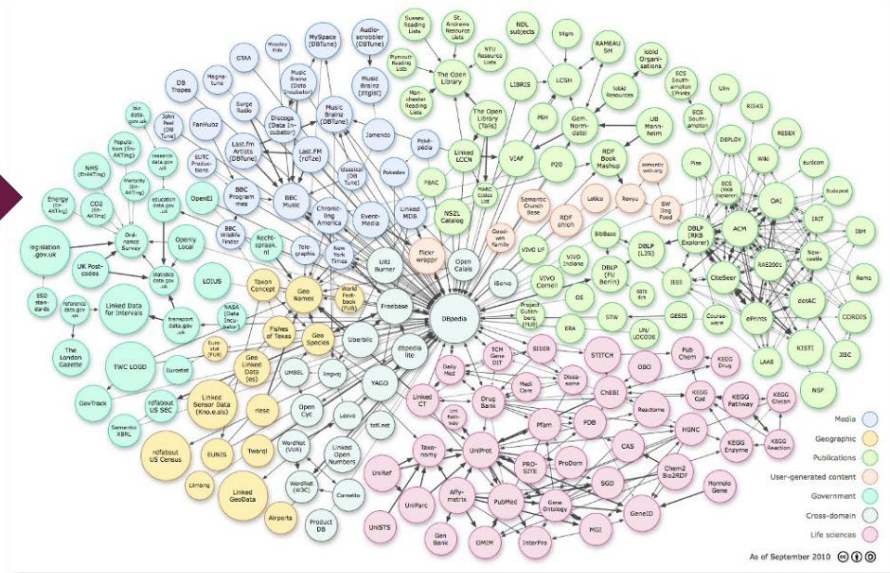
This part of the workshop addresses two conceptual challenges: first, the shift in our understanding of content from documents to data; and second, the shift in our understanding of data from centralized to decentralized.

*The Web is evolving from a “Web of linked documents” into a “Web of linked data”... (1/2)*

## Web of documents...



## Web of linked data...



- Introduction to Linked Data. This slide show introduces linked data principles.  
[https://www.europeandataportal.eu/sites/default/files/d2.1.2\\_training\\_module\\_1.2\\_introduction\\_to\\_linked\\_data\\_en\\_edp.pdf](https://www.europeandataportal.eu/sites/default/files/d2.1.2_training_module_1.2_introduction_to_linked_data_en_edp.pdf)

ψ

## From Document to Data

Storing our content as data makes it more flexible and more useful. One piece of data could be inserted into another piece of data, such as a template. Our perspective shifts from a *linear* organization to something more complex.



# Application Interfaces

The central role played by platforms is diminished in favour of direct interactions between peers, that is, a distributed web, which communicate with each other by means of application programming interfaces (API).





# Learning with Data

Learning with data isn't the same as learning with books. It's interactive, immersive and engaging, a process of learning how to perceive and comprehend rather than to decode and store.

[E]

## Linked Data

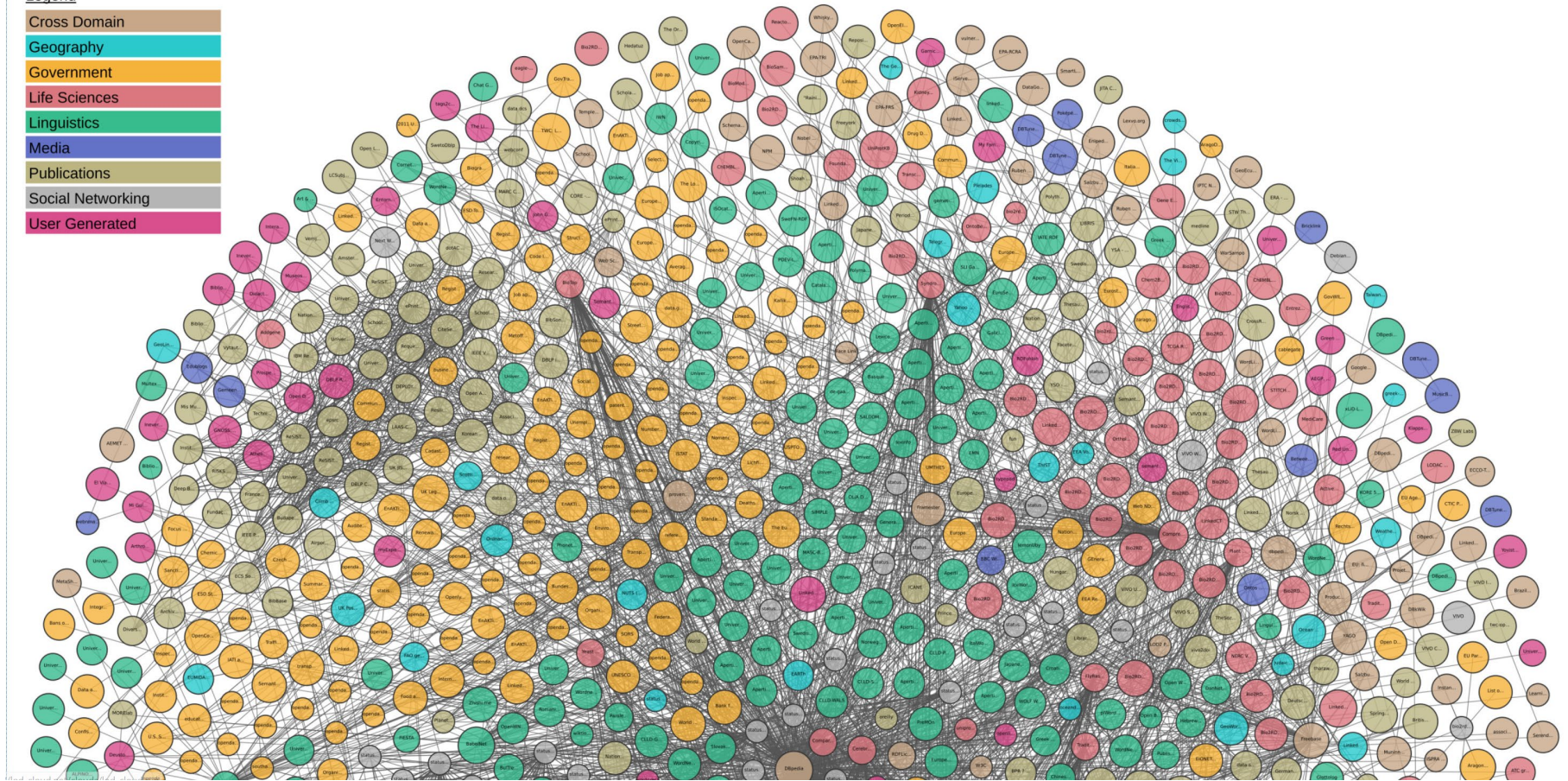
Today we are seeing a trend toward decentralized linked data. This is the idea that each person can manage his or her own data, storing it wherever they want, and using it whenever they like.

Feature Article: Data. <https://el30.mooc.ca/post/68416>


Featured Video: Conversation with Shelly Blake-Plock <https://el30.mooc.ca/event/80>

### Legend

|                   |
|-------------------|
| Cross Domain      |
| Geography         |
| Government        |
| Life Sciences     |
| Linguistics       |
| Media             |
| Publications      |
| Social Networking |
| User Generated    |



➤ The Linked Open Data Cloud. John P. McCrae. This web page is the home of the LOD cloud diagram. <https://lod-cloud.net/>



Government of Canada
Gouvernement du Canada

Search Canada.ca

Q

Jobs

Immigration

Travel

Business

Benefits

Health

Taxes

More services

Home → Open Government → Search Open Government

# Open Government Portal

## Search Records

Q

Suggest a Dataset

7 records found

Order by Relevance

JSON

Total Number of Completed Apprentices

Provincial

The combined number of apprentices certified and individuals issued qualification certificates by trade and by year for the last six calendar years. Includes averages and per cent changes.

Organization: Government of Alberta

Issued by: Advanced Education

Resource Formats: XLS CSV XML JSON

Total Number of Apprentices Registered by Trade

Provincial

The total number of apprentices registered by trade and by year for the last six calendar years. Includes averages and per cent changes.

Organization: Government of Alberta

Issued by: Advanced Education

Resource Formats: CSV XLS XML JSON

New Apprentices Registered

Provincial

Search Filters

Clear All

Portal Type

☐ Open Data (7)
☒ Clear All

Collection Type

☐ Federated Open Data (5)
☐ Non-Spatial (2)
☒ Clear All

Jurisdiction

☐ Federal (2)
☐ Provincial (5)
☒ Clear All

Organization

☐ Agriculture and Agri-Food Canada (1)

➤ Open Government Portal: Enables access to open data on the government of Canada website. [https://open.canada.ca/data/en/dataset?res\\_format=JSON](https://open.canada.ca/data/en/dataset?res_format=JSON)

## What does Solid offer?

Solid (derived from "social linked data") is a proposed set of conventions and tools for building decentralized social applications based on Linked Data principles. Solid is modular and extensible and it relies as much as possible on existing W3C standards and protocols.

At a glance, here is what Solid offers...



### True data ownership

Users should have the freedom to choose where their data resides and who is allowed to access it. By decoupling content from the application itself, users are now able to do so.



### Modular design

Because applications are decoupled from the data they produce, users will be able to avoid vendor lock-in, seamlessly switching between apps and personal data storage servers, without losing any data or social connections.



### Reusing existing data

Developers will be able to easily innovate by creating new apps or improving current apps, all while reusing existing data that was created by other apps.

➤ Solid. Tim Berners-Lee. Solid (derived from "social linked data") is a proposed set of conventions and tools for building decentralized social applications.

<https://solid.mit.edu/>

➤ Inrupt. New start-up developing Solid. <https://www.inrupt.com/>

## What is the IndieWeb?

The IndieWeb is a people-focused alternative to the "corporate web".



### Your content is yours

When you post something on the web, it should belong to you, not a corporation. Too many companies have gone out of business and [lost all of their users' data](#). By joining the IndieWeb, your content stays yours and in your control.



### You are better connected

Your articles and status messages can [go to all services](#), not just one, allowing you to engage with everyone. Even replies and likes on other services can [come back to your site](#) so they're all in one place.

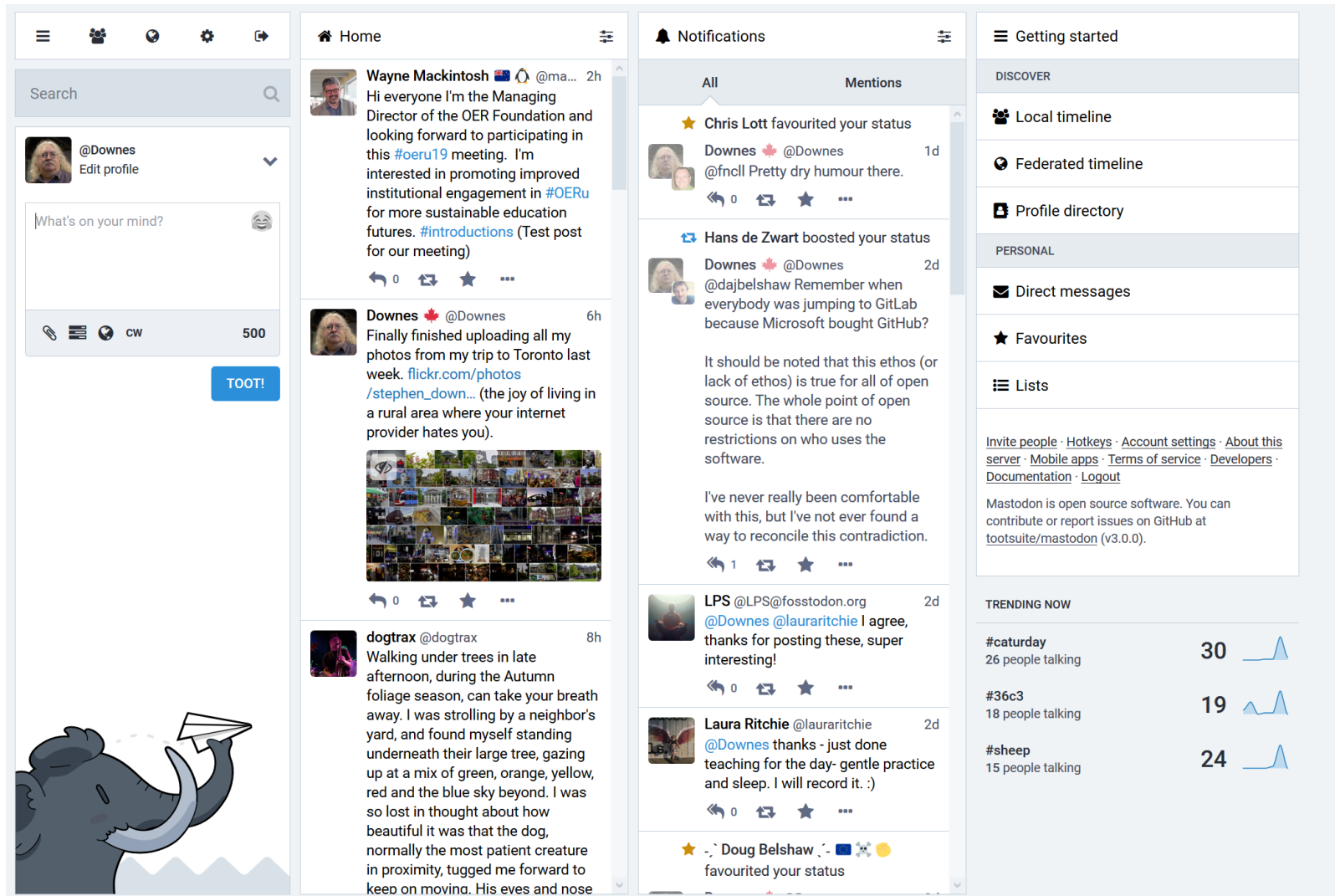


### You are in control

You can post anything you want, in any format you want, with no one monitoring you. In addition, you share simple readable links such as [example.com/ideas](#). These links are [permanent](#) and will always work.

➤ IndieWeb. The IndieWeb is a people-focused alternative to the "corporate web".  
<https://indieweb.org/>



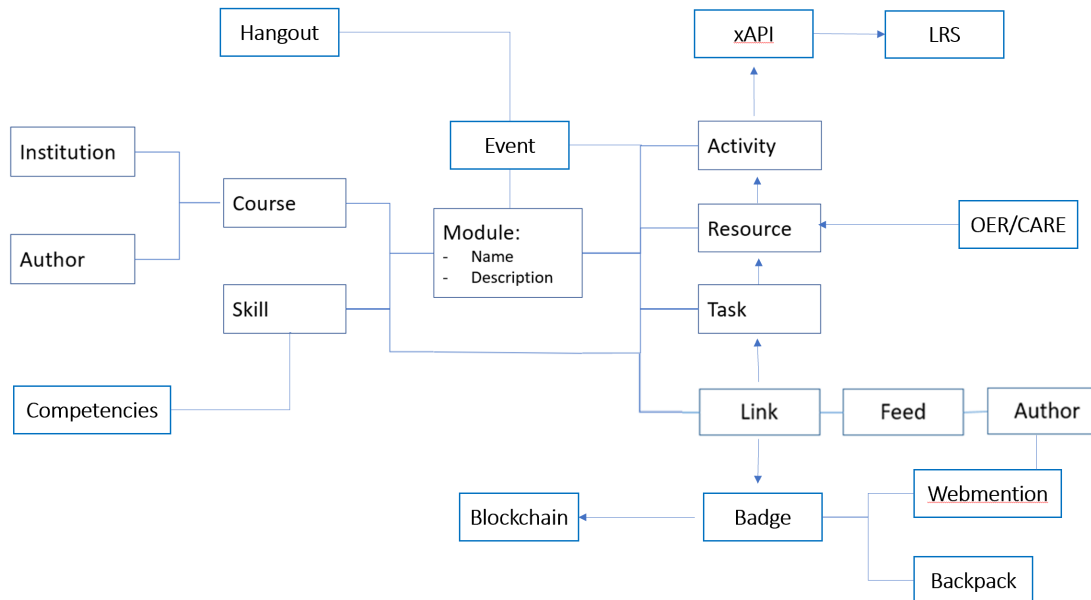


➤ An Increasingly Less-Brief Guide to Mastodon. Noëlle Anthony. GitHub.

<https://github.com/joyeusenoele/GuideToMastodon/>

➤ Mastodon: <https://mastodon.social>

# The BIG Idea - Course(?) as Open Data



## Decentralized, Distributed, Open

- “Open Data is the idea that some data should be publicly available and usable
- The course as decentralised: "Decentralized means that there is no single point where the decision is made. “
- The course as distributed: There is no one place where the course is.



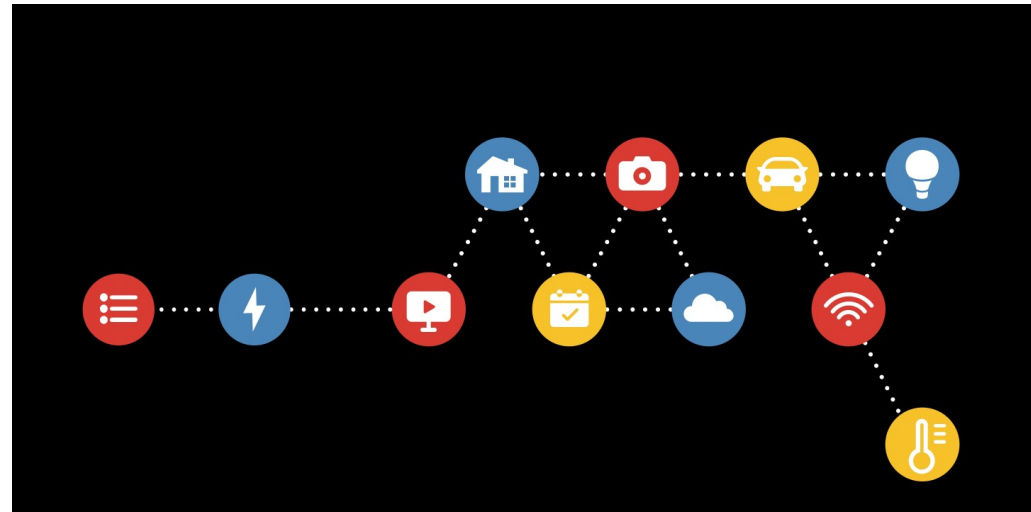
# Activity - My Open Data Feed

Use this space to design a data flow for your course, thinking of different sources of data and how they might be applied.

## Working With Open Data: IFFTT

'If This Then That (IFTTT) is a service that allows you to link data from different information sources. Thus, for example, you could have IFTTT send you an email each time the fridge is opened. Or compile a spreadsheet of all your Twitter posts.

<http://www.ifttt.com>



It is helpful to have a focus, e.g. 'Space' or 'Health professionals'

# Cloud

Cloud computing involves using servers and infrastructure hosted by internet-based providers. You can then access these from any computer, and also link them together for advanced applications.



Feature Article: Cloud: <https://el30.mooc.ca/post/68440>

Featured Video: Conversation with Tony Hirst <https://el30.mooc.ca/event/81>



# What is Cloud Computing in Simple Terms? Definition & Examples

AUGUST 12, 2018 | IN COLOCATION, CLOUD COMPUTING, DATA PROTECTION | BY BOJANA DOBRAN

Did you know that the monthly cost of running a basic web application was about \$150,000 in 2000?

**Cloud computing has brought it down to less than \$1000 a month.**

As [explained by Marc Andreessen](#), Co-founder of Netscape and a Board Member of Facebook, this was “the dream of every cyber-visionary of the early 1990s.” Cloud computing fundamentally changed the IT economy, introducing new opportunities, new business models, and a whole new era in business.

## What is Cloud Computing and How Does It Work

A simple definition of cloud computing involves delivering different types of services over the Internet. From software and analytics to [secure and safe data storage](#) and networking resources, everything can be delivered via the cloud.

You probably use different cloud-based applications every day. You are benefiting from cloud solutions every time you send a file to your colleague via the web, use a mobile app, download an

### YOU MAY ALSO BE INTERESTED IN:

- 8 Benefits of Cloud Computing for your Business in 2019
- What Is Cloud Security & What Are the Benefits?
- Benefits of Private Cloud: Protect Your Data Before Its Gone

➤ What is Cloud Computing in Simple Terms? Definition & Examples. Bojana Dobran. <https://phoenixnap.com/blog/what-is-cloud-computing>

## ψ Computing as Commodity

The conceptual challenge is that it doesn't matter whose computer it is, that it could change any time, and that we should begin to think of "computing" and "storage" as commodities, more like "water" or "electricity".



# Virtualization

Server virtualization begins with applications such as VMWare or Parallels, and progresses through a range of increasingly sophisticated computing containers created using programs like Docker and run using services like Amazon Web Services.



## Direct Experience

Students are now able to edit and create new tools to create text, music and art. They will be able to directly experience the relation between algorithm and outcome, or between mathematics and music, as the case may be.

## [E] New Possibilities

These new resources allow us to redefine what we mean by ‘textbooks’ and even ‘learning objects’. By putting powerful applications into the hands of students we create new possibilities for manipulation, visualization and creativity.

Feature Article: Data. <https://el30.mooc.ca/post/68416>

Featured Video: Conversation with Shelly Blake-Plock <https://el30.mooc.ca/event/80>



## Government of Canada Cloud Adoption Strategy: 2018 update

From [Treasury Board of Canada Secretariat](#)

### What is cloud computing?

Cloud computing can be compared to public utilities that deliver commodities such as electricity.

Instead of buying and running infrastructure itself, an organization buys computing power from a provider.

Much like electricity in a home, cloud computing is on-demand and the consumer pays for what they use. The cost of the infrastructure used for delivery (storage and services in the case of cloud computing, hydro poles and power lines in the case of electricity) is covered by the charges to the consumer.

Cloud computing offers:

- economies of scale
- on-demand provisioning
- elasticity (grows and shrinks according to the client's needs)
- services governed by service-level agreements
- security (professional auditing and assessment of the provider's security process)

➤ Cloud Adoption Strategy: 2018 update. Government of Canada.

<https://www.canada.ca/en/government/system/digital-government/modern-emerging-technologies/cloud-services/government-canada-cloud-adoption-strategy.html>



CLOUD NATIVE / DATA / STORAGE

# Forget the File System: The Future of Scalable Cloud Storage Will Be Objects

23 Mar 2017 7:03am, by Joab Jackson



- Forget the File System: The Future of Scalable Cloud Storage Will Be Objects. Joab Jackson. <https://thenewstack.io/forget-file-system-future-scalable-cloud-storage-will-objects/>

Home > Containers > Docker

LEARN TO USE DOCKER CONTAINERS

## What is Docker? The spark for the container revolution

Docker helps developers build lightweight and portable software containers that simplify application development, testing, and deployment

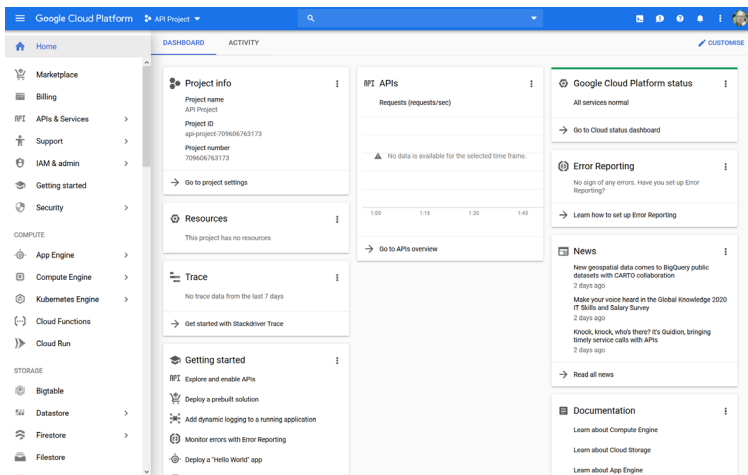


By Serdar Yegulalp

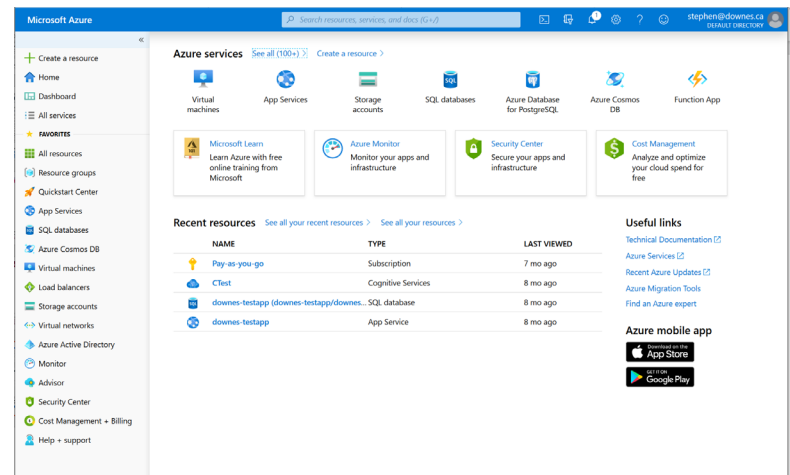
Senior Writer, InfoWorld | APR 19, 2019



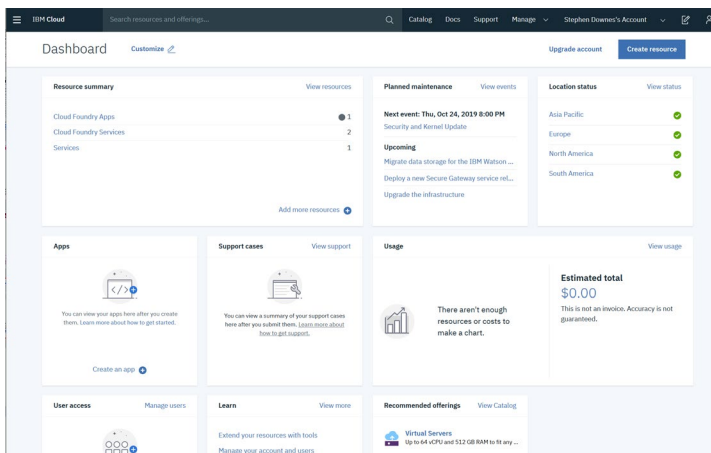
- What is Docker? Docker containers explained. Serdar Yegulalp, InfoWorld.  
<https://www.infoworld.com/article/3204171/docker/what-is-docker-docker-containers-explained.html>



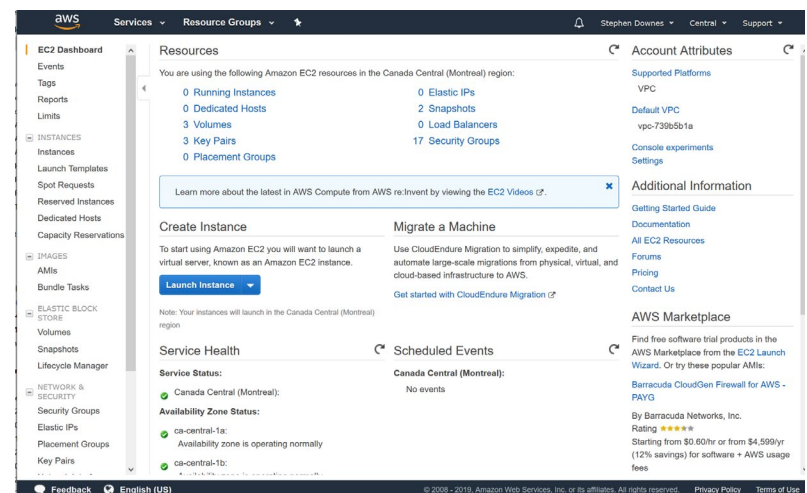
Google Cloud - <https://cloud.google.com/>



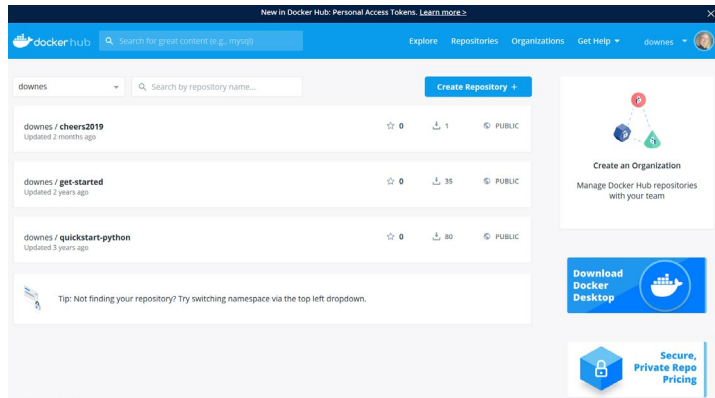
Microsoft Azure - <https://azure.microsoft.com/en-us/solutions/>



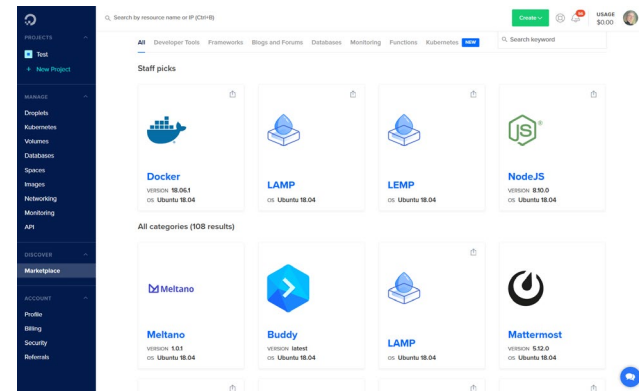
IBM Cloud <https://cloud.ibm.com>



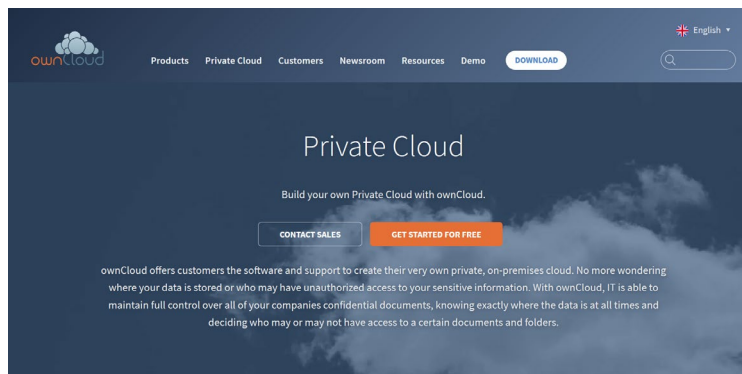
Amazon S3 - <https://aws.amazon.com/s3/>



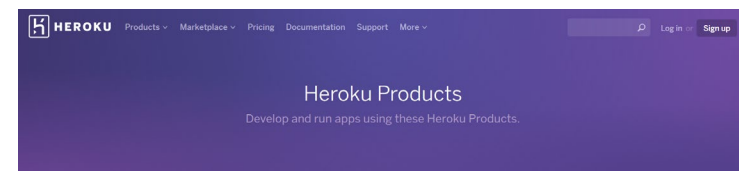
<https://www.docker.com/>



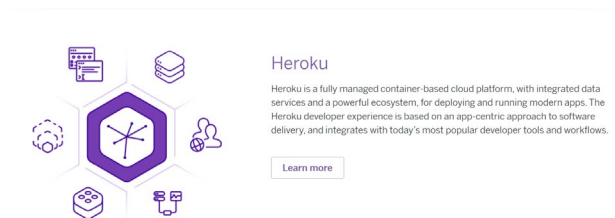
<https://www.digitalocean.com/>



<https://owncloud.com/overview/>



Learn more about the suite of products that underpin today's most innovative Platform-as-a-Service.



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

## The BIG Idea - Courses in Containers



Today, we can automate the creation and deployment of cloud containers. This means that a course can be created 'in a box' and then deployed when and where needed.

- What is Docker? Docker containers explained. Serdar Yegulalp, InfoWorld.  
<https://www.infoworld.com/article/3204171/docker/what-is-docker-docker-containers-explained.html>

## Activity - Create a Cloud-Based Service

Use this space to design the architecture of a cloud-based online course. What services would you need? How would you provide them?

It might be a good idea to focus on a particular application, e.g. space, health care.

Eg. MS Azure service

# Graph

When we connect things together we have created a graph. A graph has two types of component: the entities being connected (sometimes called nodes), and the connections between those entities (sometimes called edges).

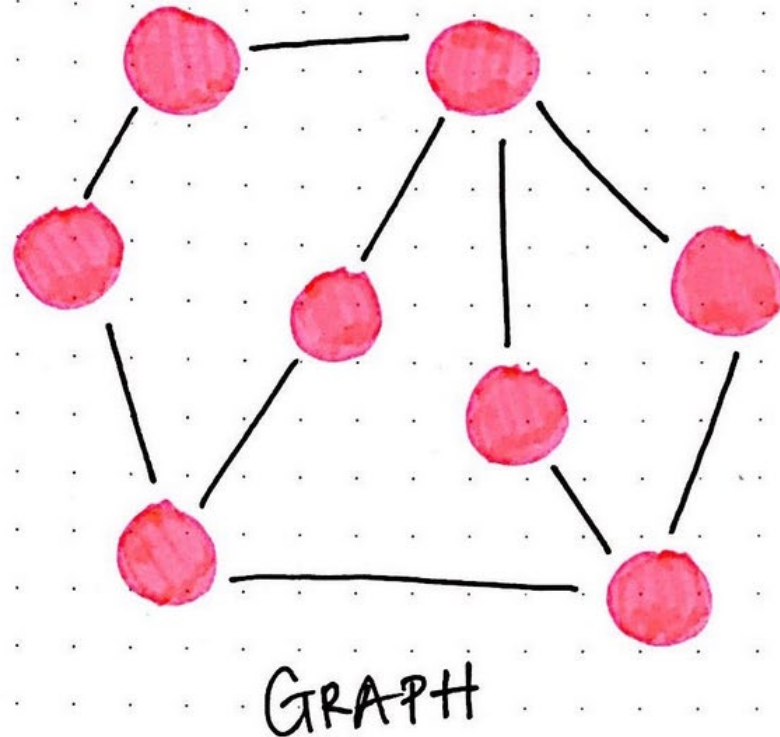
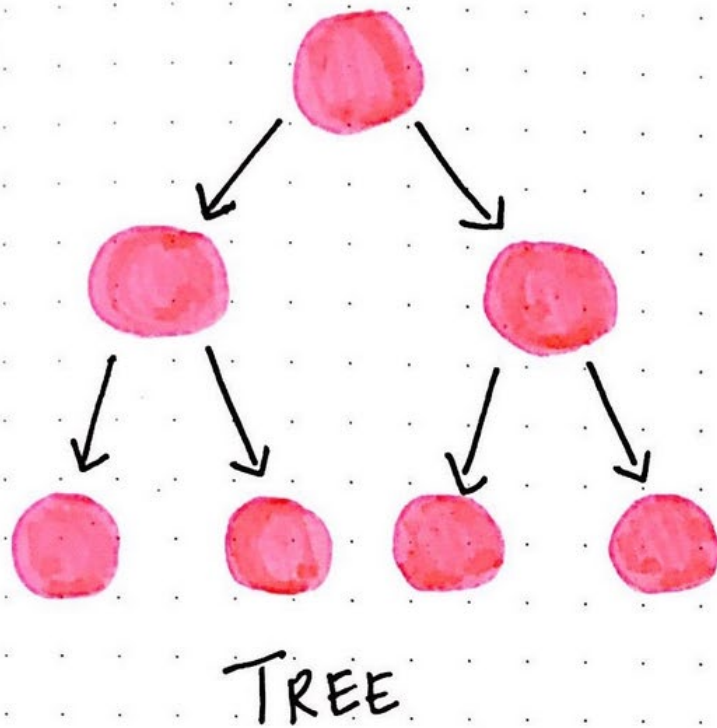


Feature Article: Graph. <https://el30.mooc.ca/post/68472>

Featured Video: Conversation with Ben Werdmuller

<https://el30.mooc.ca/event/82>





Tree data structures as compared to graph data structures

➤ A Gentle Introduction To Graph Theory. Vaidehi Joshi. <https://medium.com/basecs/a-gentle-introduction-to-graph-theory-77969829ead8>



## ψ Knowledge as a Graph

In connectivism we explored the idea of thinking of knowledge as a graph. Yet, what makes it knowledge? In the Semantic Web, we are faced with a similar question. What is the 'source of truth' of a distributed representation?



# New Types of Inference

As repositories of knowledge, graphs enable the same data to be viewed from a variety of perspectives. Manipulations of and inferences from these data structures allow us to draw conclusions and make new connections – drawing associations between similar entities, for example.



# Learning as Growth

It helps to understand that each idea connects to another, and it's not the individual idea that's important, but rather how the graph grows and develops. It protects us from category errors and helps prevent things like confirmation bias.

# [E] New Types of Content















The data structures we can build using these technologies have created a new type of content. One example is BitCoin, based on the recording of transactions in a blockchain, which is essentially a hash graph.

Feature Article: Data. <https://el30.mooc.ca/post/68416>

Featured Video: Conversation with Shelly Blake-Plock <https://el30.mooc.ca/event/80>

# Neural Networks

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-  Input Cell
-  Backfed Input Cell
-  Noisy Input Cell
-  Hidden Cell
-  Probabilistic Hidden Cell
-  Spiking Hidden Cell
-  Capsule Cell
-  Output Cell
-  Match Input Output Cell
-  Recurrent Cell
-  Memory Cell
-  Gated Memory Cell
-  Kernel
-  Convolution or Pool

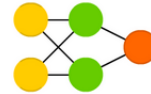
Perceptron (P)



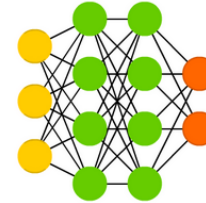
Feed Forward (FF)



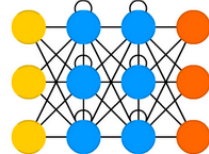
Radial Basis Network (RBF)



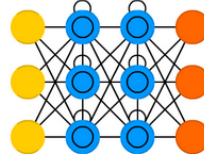
Deep Feed Forward (DFF)



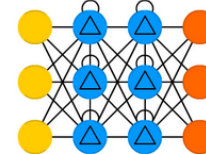
Recurrent Neural Network (RNN)



Long / Short Term Memory (LSTM)



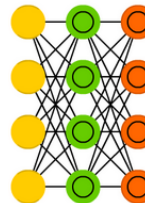
Gated Recurrent Unit (GRU)



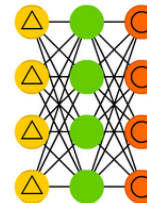
Auto Encoder (AE)



Variational AE (VAE)



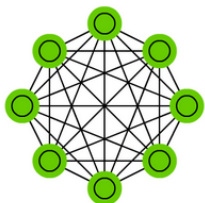
Denoising AE (DAE)



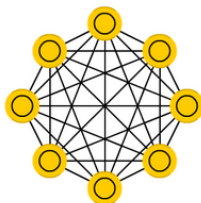
Sparse AE (SAE)



Markov Chain (MC)



Hopfield Network (HN)



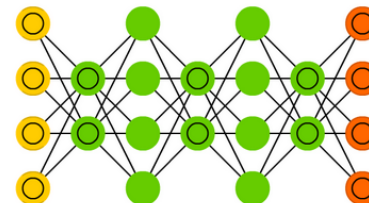
Boltzmann Machine (BM)



Restricted BM (RBM)



Deep Belief Network (DBN)



➤ The Neural Network Zoo. Fjodor van Veen. Neural Networks are types of graphs. <http://www.asimovinstitute.org/neural-network-zoo/>

GeeksforGeeks

A computer science portal for geeks

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GATE

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How to write an Interview Experience?

Must Do Coding Questions Company-wise

Must Do Coding Questions Topic-wise

Basic

Easy

Medium

Hard

Expert

Step by Step Preparation

## Graph Data Structure And Algorithms

### Recent Articles on Graph

A Graph is a non-linear data structure consisting of nodes and edges. The nodes are sometimes also referred to as vertices and the edges are lines or arcs that connect any two nodes in the graph. More formally a Graph can be defined as,

*A Graph consists of a finite set of vertices(or nodes) and set of Edges which connect a pair of nodes.*

In the above Graph, the set of vertices  $V = \{0,1,2,3,4\}$  and the set of edges  $E = \{01, 12, 23, 34, 04, 14, 13\}$ .

Graphs are used to solve many real-life problems. Graphs are used to represent net-

### Most Popular Articles

Must Do Coding Questions for Companies like Amazon, Microsoft, Adobe, ...

Must Do Coding Questions Company-wise

Google Interview Questions

WIPRO Placement Paper 1 | Written Test

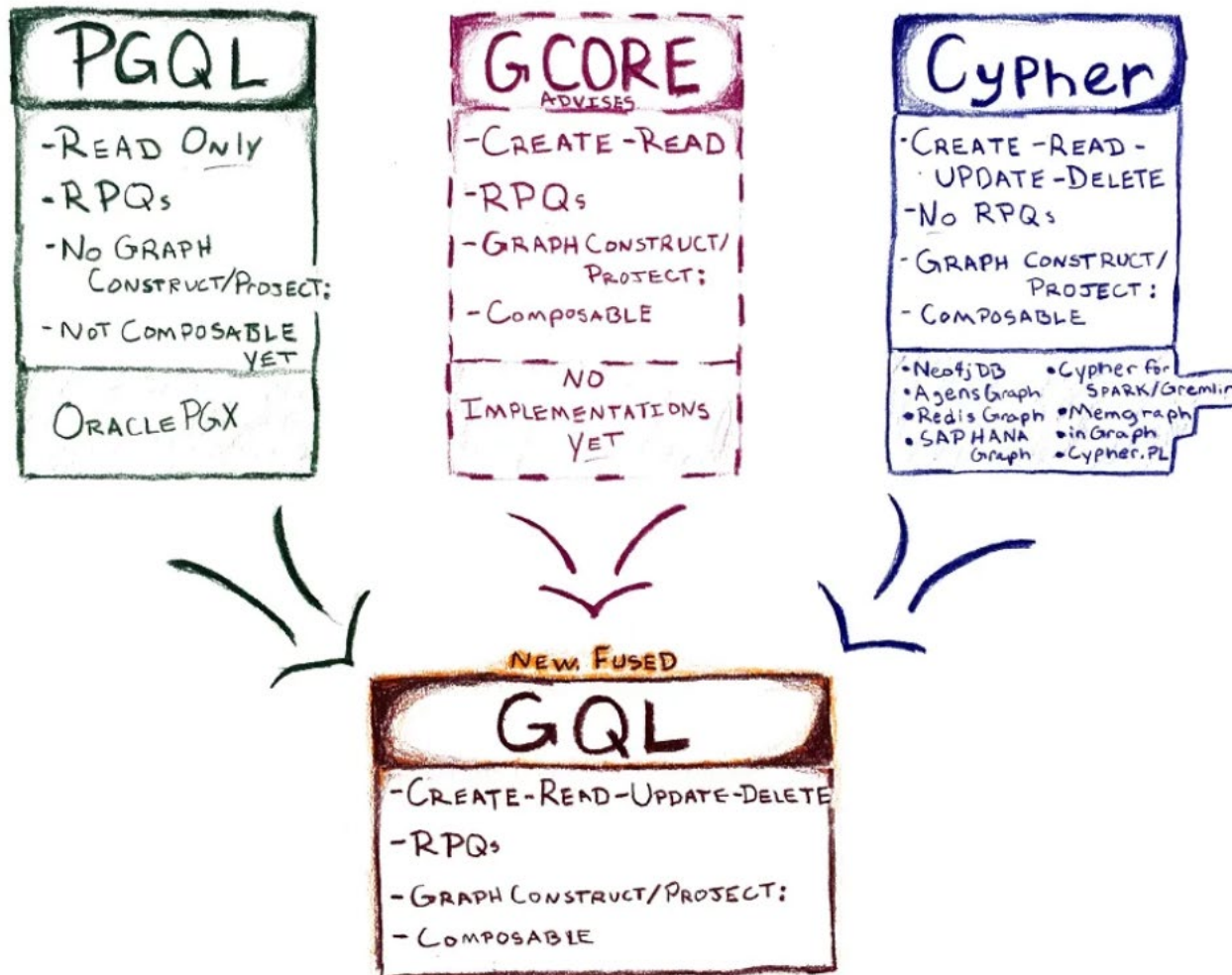
Sliding Window Maximum (Maximum of all subarrays of size k) using stack in  $O(n)$  time

### Most Visited Articles

GATE CS 2020 Important Official Dates

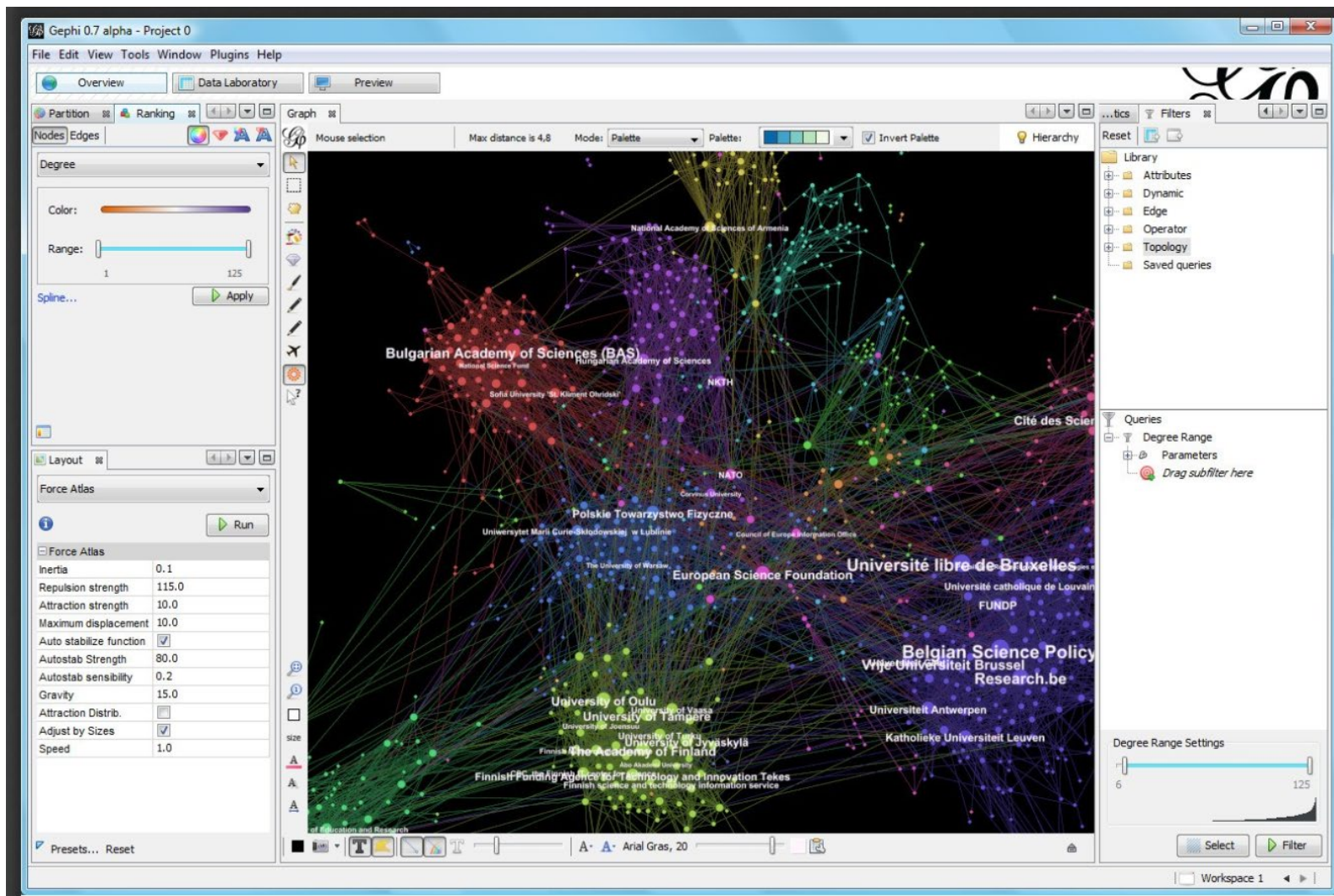
Check if given Preorder, Inorder and Postorder traversals are of same tree | Set

➤ Graph Data Structure And Algorithms. This page has a very brief description of a graph data structure and then a long list of things that can be done with graphs - cycling, sorting, spanning, searching. <https://www.geeksforgeeks.org/graph-data-structure-and-algorithms/>



- GQL Is Now a Global Standards Project alongside SQL. <https://gql.today/>
- Neo4J – What is a Graph Database? - <https://neo4j.com/developer/graph-database/>

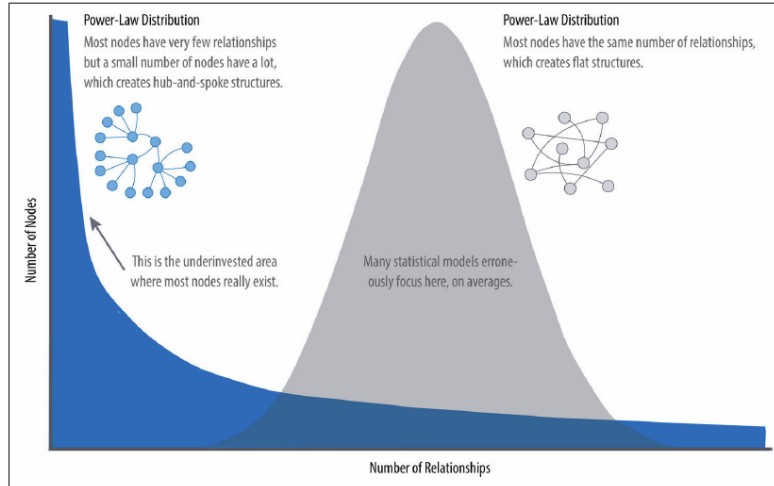




- Social Network Analysis. Philip Leifeld. <http://www.bearnetwork.ca/wp-content/uploads/2018/10/slides-leifeld-bear.pdf>
- Gephi – free and open source visualization and exploration software for all kinds of graphs and networks. <https://gephi.org/>



# The BIG Idea - Graph, Not Story



- All events are complex events and all disciplines are complex disciplines. Yet we have the urge to represent events and disciplines from the perspective of a narrative
- We are seeing the flaws of the narrative approach in contemporary journalism - a power-law understanding of the world, with a focus on a small and narrow set of interests and priorities.

<https://www.vanityfair.com/news/2019/01/how-the-media-can-prevent-2020-from-becoming-2016>



# Activity - My Model Graph

## Instructions

1. Create a model graph of some aspect of this workshop (it doesn't have to be an actual graph, only a representation of what an actual graph might look like. We've already seen, eg., graphs on the relations between people in the workshop. Could there be other types of graphs?
2. In your model, consider how the states of the entities in that graph might vary. Consider not only how nodes might vary (eg., a person might have a different height over time) but also how the edges might vary (eg., a person might have a different strength of relation (calculated how?) with another person over time).
3. In your model, consider how knowledge about the changes in states in the graph might be used.

Optional: Create your graph using an online service like <https://www.draw.io/>

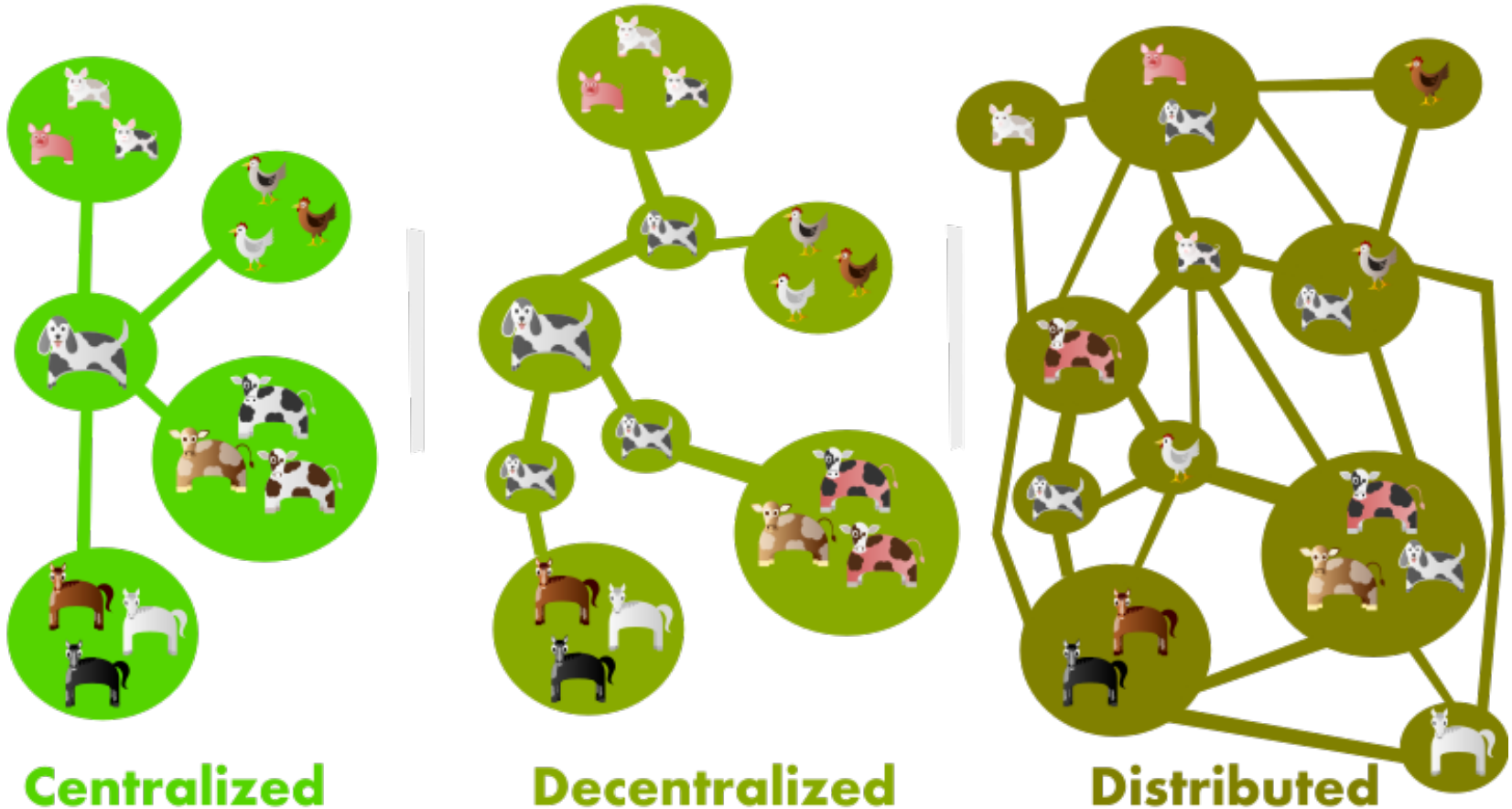
# Resources

Learning resources have traditionally been things like textbooks and media, but now learning resources can be anything from video to virtual reality to application. How we describe these, and access them, is changing.



Feature Article: Resources. <https://el30.mooc.ca/post/68554>

Featured Video: Conversation with Sukaina Walji and Cheryl Hodgkinson-Williams  
<https://el30.mooc.ca/event/84>



➤ Introducing the Dweb. Dietrich Ayala. The “d” in “dweb” usually stands for either decentralized or distributed. <https://hacks.mozilla.org/2018/07/introducing-the-d-web/>

## ψ Closing of the Web

Since the early days the web has been increasingly locked down, and the once seamless interaction between people and data has been put behind paywalls and content silos. Web3 is to a large degree a reaction against this.



# Content Addressing

Content addressable resources for education create mechanisms for the creation of resource graphs linking data, media, software and people, redefining our idea of an open course and open pedagogy.



## New Forms of Open

The concept of Content Addressable Resources for Education addresses the question of the sustainability of open educational resources. These resources will be packaged across a content-addressable network, whereupon they become permanently open.

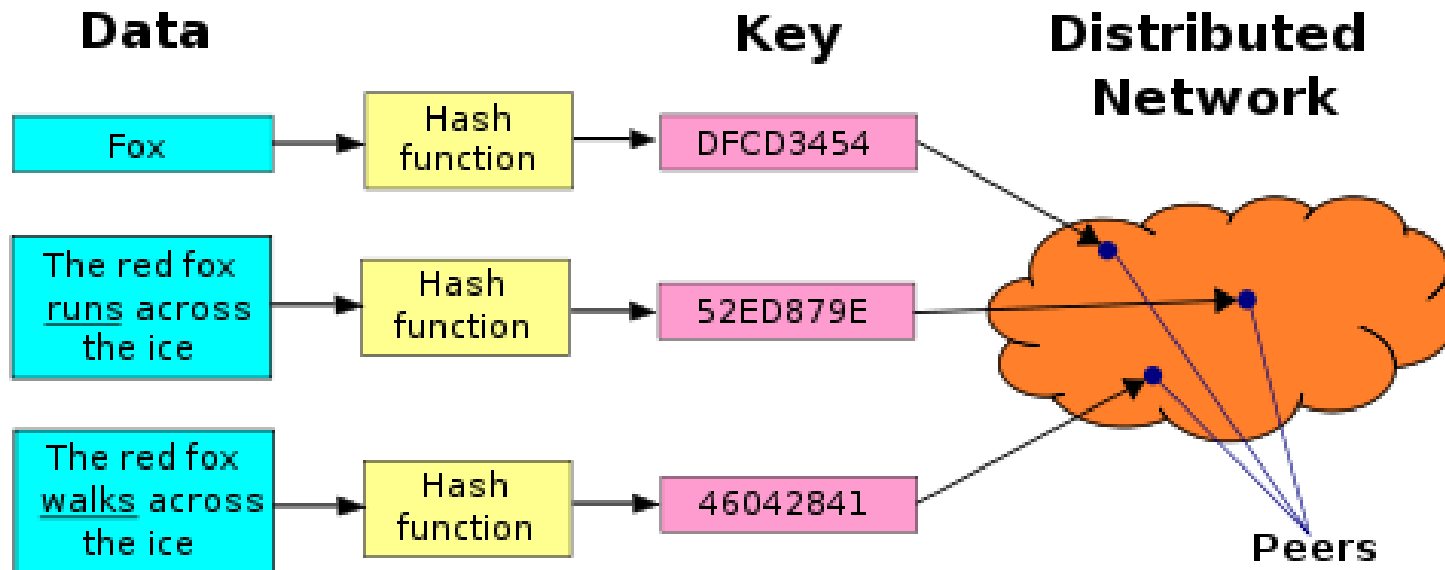


## III New Types of Content

We have already seen more traditional contents, such as books, media and music being distributed through IPFS. Similar technologies support more complex content, for example, distributed applications (dApps), subscriptions and lists, contract networks, and even distributed organizations.



➤ OER World Map. A couple years or so ago UNESCO launched an OER mapping project. <https://oerworldmap.org/>



- Distributed Hash Table. Type of decentralized distributed system.  
[https://ipfs.io/ipfs/QmXoypizjW3WknFiJnKLwHCnL72vedxjQkDDP1mXWo6uco/wiki/Distributed\\_hash\\_table.html](https://ipfs.io/ipfs/QmXoypizjW3WknFiJnKLwHCnL72vedxjQkDDP1mXWo6uco/wiki/Distributed_hash_table.html)
- Interplanetary File System (IPFS) - A peer-to-peer hypermedia protocol designed to make the web faster, safer, and more open.  
<https://ipfs.io/>

● Beaker weekly live-stream Every Sunday at 2pm CST

User pages



Albums



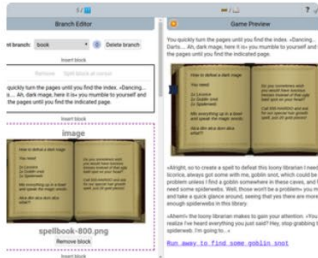
Apps



Modules

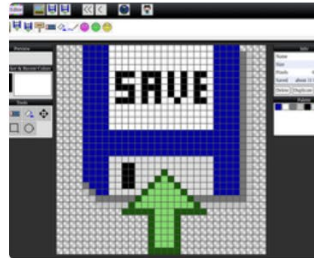


## What's new



### iftool

Interactive Fiction  
Development Environment



### Dat Pixel Editor

Pixel graphics editor for  
dat:// files



### Cryptic's File editor

In-browser editor for dat://  
files



### dotgrid

SVG icon tool



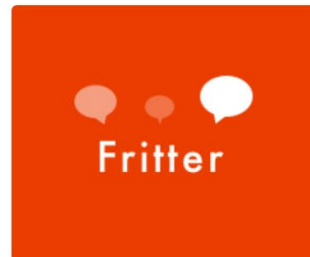
### Ridder

An RSS reader that you own



### Beautiful Web Type

A collection of open-source  
font faces



### Fritter

A p2p social networking  
app

➤ Beaker. Beaker is an experimental browser for exploring and building the peer-to-peer Web. <https://beakerbrowser.com/>

*The International Journal of*  
**OPEN EDUCATIONAL RESOURCES**

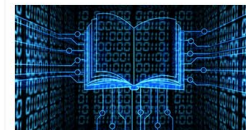
[HOME](#)[ABOUT IJOER](#)[EDITORIAL BOARD](#)[GUIDELINES](#)[OER & BEYOND](#)[MANUSCRIPTS](#) English

As the nature of educational content changes with new technology, so does the nature of OER. This article explores the impact of four major types of technology on our understanding of OER: *cloud infrastructure*, *open data*, *artificial intelligence*, and *decentralized networks*.

#### **A LOOK AT THE FUTURE OF OPEN EDUCATIONAL RESOURCES**

By Stephen Downes, Digital Technologies Research Centre National Research Council, Canada

#### *Related Post*



##### **A Look at the Future of OER (Chinese Translation)**

June 28, 2019



##### **Adapting and Adopting Open Educational Resources**

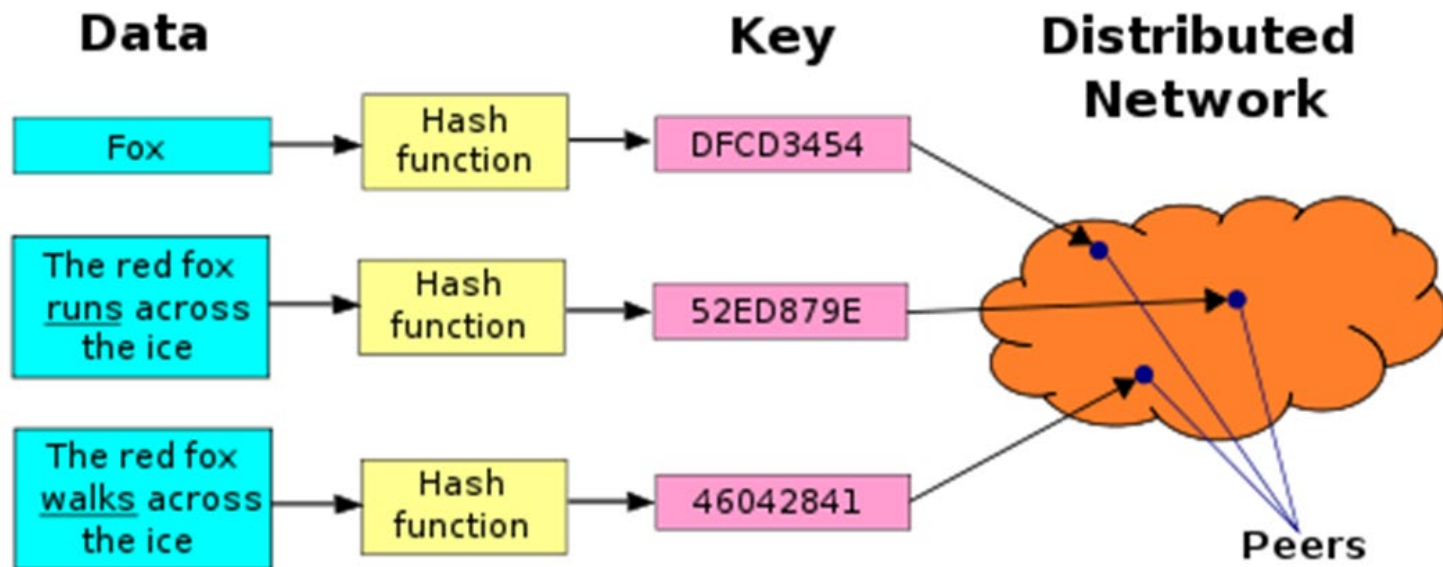
June 28, 2019



➤ A Look at the Future of Open Educational Resources.

<https://www.ijoeer.org/a-look-at-the-future-of-open-educational-resources/>

## The BIG Idea - Content Addressable Resources for Education



### Distributed Hash Table

E  
is a hash of its content

# Open educational resources in the future:

- OER will be more like tools that students use in order to create their own learning content, which they will then consume or use for some other purpose.
- The learning happens through the use of the content.
- Licensing fades to the background is that most resources are created and used only once.
- Technologies such as encryption, hashing and blockchain create a record of ownership and provenance of any resource.

# Activity - My OER

Instructions:

Design a scenario where students could obtain content or data, revise or remix that content or data, and create a new learning resource for their own use.

- Bonus: try downloading and using the Beaker browser



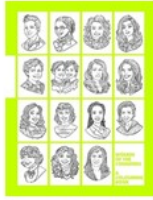
# Identity

In this workshop we look at identity relatively narrowly, asking how we know who someone is, how we project ourselves on the internet, and how we can be safe and secure.



Feature Article: Identity. <https://el30.mooc.ca/post/68516>

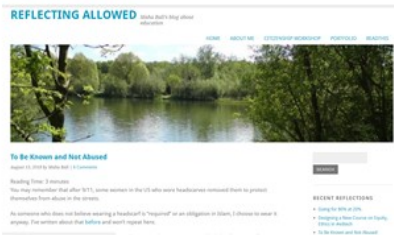
Featured Video: Conversation with Maha Bali <https://el30.mooc.ca/event/83>



Voted for inclusion in Uncommon Women Coloring Book for “unparalleled dedication to connecting researchers, activists and practitioners around the globe”



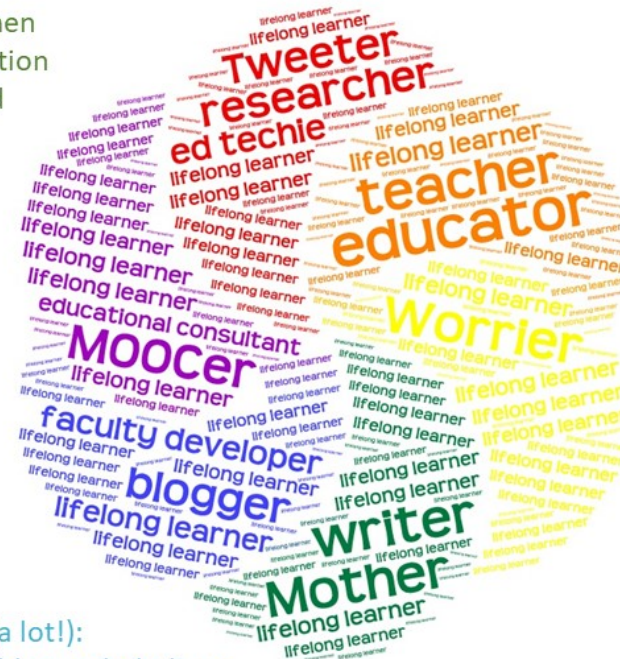
Awarded the first Zewail prize at graduation



I blog (a lot!):  
<http://blog.mahabali.me>



**Rajiv Jhangiani** @thatpsychprof · Jan 21  
For Week 3/50 I recommend following a true open educator, the **peerless** and prolific **@Bali\_Maha** from **@AUC**. Among many other things, Maha is founder & co-director of **@VConnecting**, editor **@HybridPed**, and blogger **@ProfHacker**. She blogs at [blog.mahabali.me](http://blog.mahabali.me) #ScholarSunday



Co-founder of  
[www.virtuallyconnecting.org](http://www.virtuallyconnecting.org)—  
connecting people to  
conference conversations

Finished my PhD while caring  
for my toddler and my country  
was in political upheaval

I don't sleep  
much – see my  
game on sleep  
deprivation



➤ Identity as Evolving, Dynamic, Contextual. Maha Bali.

<https://blog.mahabali.me/writing/identity-as-evolving-dynamic-contextual-el30/>

## ψ The Qualified Self

Instead of demographics being about quantity we will now have access to a rich tapestry of data and relations. The quantified self will give way to the qualified self.



# Digital Identity

We look at identity narrowly, asking how we know who someone is, how we project ourselves onto the internet (and into society), and how we can be safe and secure. In a wider sense, however, we are developing a mechanism for the creation of a *digital identity*.



# Teaching Identity

Should we think of identity from the outside in or the inside out? Can we *teach* identity? Is identity something that can be done to us or for us? Or is it inherent in our nature, something we *bring* to education as course participants, something that *informs* how we see and how we learn?

## III We are the Content


We were the client, we were the product, are we at last the *content*? We are the thread that runs through an otherwise disconnected set of data. Knowledge about ourselves will create an underlying fabric against which the value and relevance of everything else will be measured.

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TV & Radio

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Subjects

Society, Politics & Law

Free courses

Identity in question

1.1.1 Summary

Society, Politics & Law

Featured content

Free courses

All content

< Course content

Introduction

Learning outcomes

1 Questions of identity

1.1 What is identity?

1.1.1 Summary

1.2 Who am I?

1.2.1 Summary

2 Gender identity and gender development

3 Identity, inequality and social class: what it is to be poor

4 Where do you come from?

5 Conclusion

Identity in question

This free course is available to start right now. Review the full **course description** and key learning outcomes and create an account and enrol if you want a free statement of participation.

Create account

See more free courses >

1.1.1 Summary

Identity involves:

- a link between the personal and the social;
- some active engagement by those who take up identities;
- being the same as some people and different from others, as indicated by symbols and representations;
- a tension between how much control I have in constructing my identities and how much control or constraint is exercised over me.

< Previous

Next >

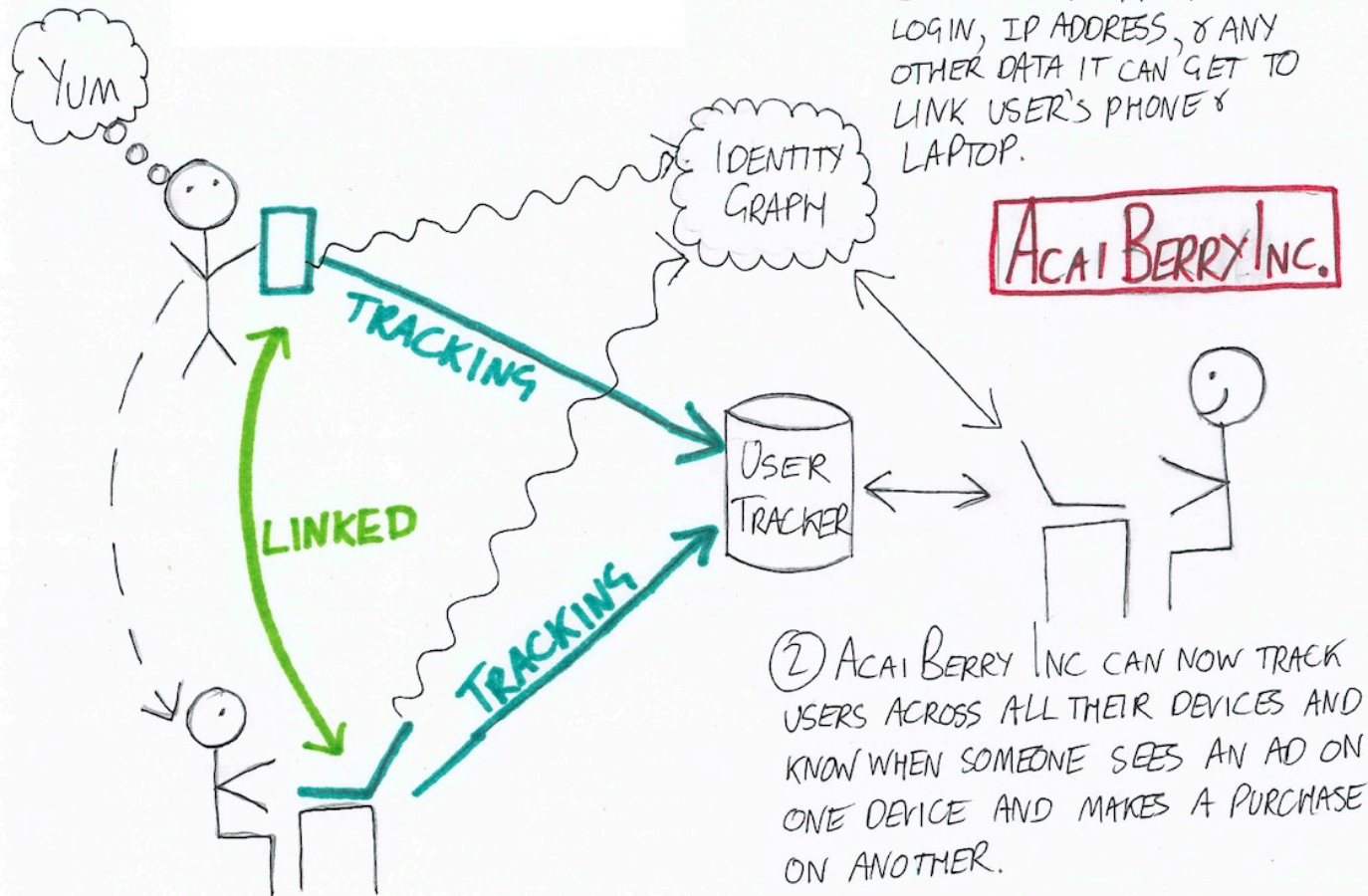
1 Questions of identity

1.2 Who am I?

➤ What Is Identity? OpenLearn. Read through the first part of this short course.  
<https://www.open.edu/openlearn/people-politics-law/politics-policy-people/sociology/identity-question/content-section-1.1>

67

## Tracking with an Identity Graph



- Identity Graphs: how online trackers follow you across devices. Robert Heaton.  
<https://robertheaton.com/2017/11/24/identity-graphs-how-online-trackers-follow-you-across-devices/>

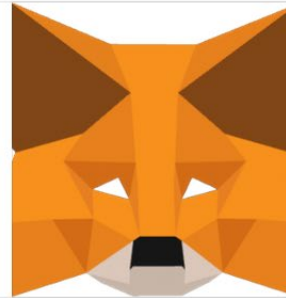


## Decentralized Wallet — MetaMask

### MetaMask

MetaMask - brings Ethereum to your browser.

metamask.io

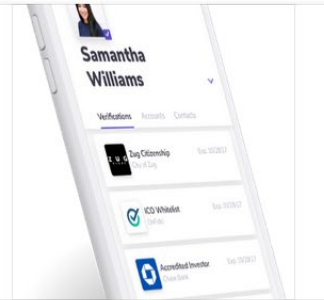


## Decentralized Identity — uPort

### uPort.me

uPort is building a shared identity web of trust. Your app can request access to the set of credentials a user has...

www.uport.me

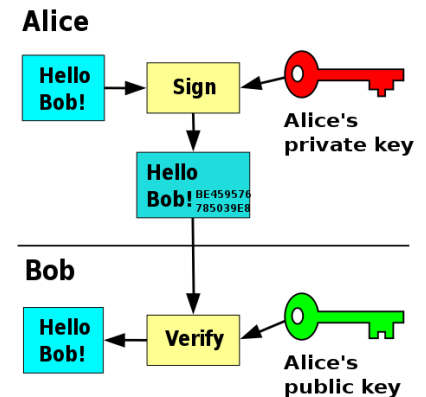
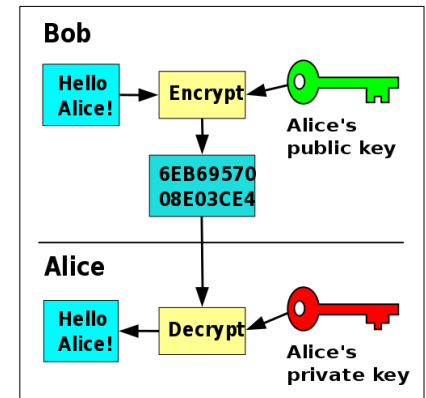
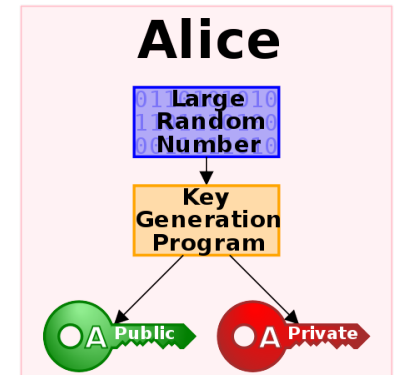


- The Basics of Decentralized Identity. Kames.

<https://medium.com/uport/the-basics-of-decentralized-identity-d1ff01f15df1>

- Public-key cryptography. Wikipedia.

[https://en.wikipedia.org/wiki/Public-key\\_cryptography](https://en.wikipedia.org/wiki/Public-key_cryptography)



## TABLE OF CONTENTS

- 1. Introduction
  - 1.1 A Simple Example
  - 1.2 Design Goals
  - 1.3 Interoperability
- 2. Terminology
- 3. Data Model
  - 3.1 Document
  - 3.2 Keys
  - 3.3 Services
- 4. Decentralized Identifiers (DIDs)
  - 4.1 Generic DID Syntax
  - 4.2 Method-Specific Syntax
  - 4.3 Generic DID Parameter Names
  - 4.4 Method-Specific DID Parameter Names
  - 4.5 Path
  - 4.6 Query
  - 4.7 Fragment
  - 4.8 Normalization
  - 4.9 Persistence
- 5. DID Documents
  - 5.1 Contexts
  - 5.2 DID Subject

### § 1.1 A Simple Example

*This section is non-normative.*

A DID is a simple text string that consists of three parts: 1) the URL scheme identifier (**did**), 2) the identifier for the DID Method, and 3) the DID Method-specific identifier.

#### EXAMPLE 1: A simple example of a Decentralized Identifier (DID)

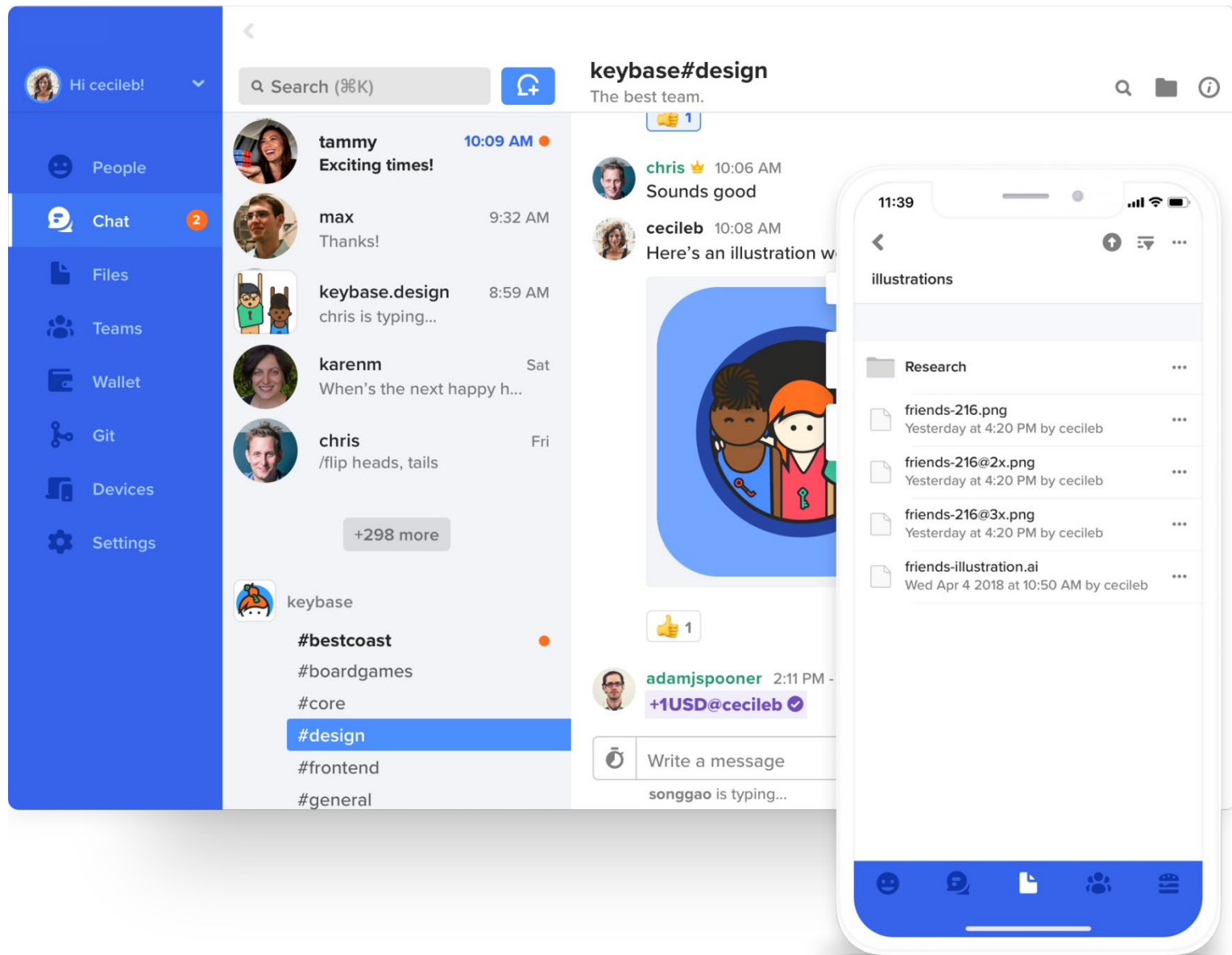
```
did:example:123456789abcdefghi
```

The DID above resolves to a DID Document. A DID Document contains information associated with the DID such as ways to cryptographically authenticate the entity in control of the DID, as well as services that can be used to interact with the entity.

#### EXAMPLE 2: Minimal self-managed DID Document

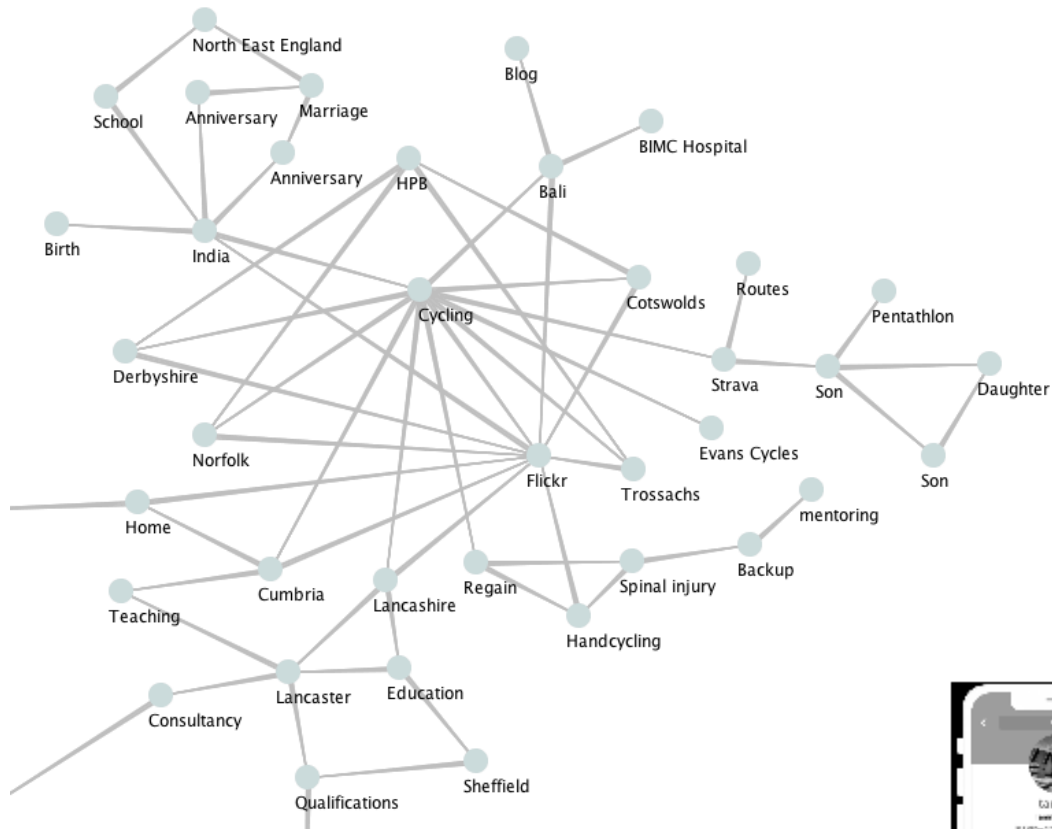
```
{
  "@context": "https://www.w3.org/2019/did/v1",
  "id": "did:example:123456789abcdefghi",
  "authentication": [{
    // used to authenticate as did:...fghi
    "id": "did:example:123456789abcdefghi#keys-1",
    "type": "RsaVerificationKey2018",
    "controller": "did:example:123456789abcdefghi",
    "publicKeyPem": "-----BEGIN PUBLIC KEY...END PUBLIC KEY-----\r\n"
  }],
  "service": [{
    // used to retrieve Verifiable Credentials associated with the DID
    "id": "did:example:123456789abcdefghi#vcs",
    "type": "VerifiableCredentialService",
    "serviceEndpoint": "https://example.com/vc/"
  }]
}
```

➤ Decentralized Identifiers. A new World Wide Web Confortium (W3C) specification. <https://w3c-ccg.github.io/did-spec/>



➤Keybase.io - Downes. This is my Keybase page.  
<https://keybase.io/downes>

## The BIG Idea - We Are the Content



### [tracking-and-the-qualified-self/](#)

Cryptographic keys - either digital or physical - will become the norm, but this gives us a permanent identity that not only secures our data, it is our data.

Our new identities have the potential to be an enormous source of strength or a debilitating weakness. Will we be lost in the sea of possibilities, unable to navigate through the complexities of defining for ourselves who we are, or will we be able to forge new connections, creating a community of interwoven communities online and in our homes?



# Activity - My Identity Graph

## Instructions

- Create an Identity Graph: We are expanding on the marketing definition of an identity graph. It can be anything you like, but with one stipulation: your graph should not contain a self-referential node titled 'me' or 'self' or anything similar
  - Think of this graph as you defining your identity, not what some advertiser, recruiter or other third party might want you to define.
  - Don't worry about creating the whole identity graph - focusing on a single facet will be sufficient. And don't post anything you're not comfortable with sharing. It doesn't have to be a real identity graph, just an identity graph, however you conceive it.
- Optional: consider some of these questions about your identity graph:
  - What is the basis for the links in your graph: are they conceptual, physical, causal, historical, aspirational?
  - Is your graph unique to you? What would make it unique? What would guarantee uniqueness?
  - How (if at all) could your graph be physically instantiated? Is there a way for you to share your graph? To link and/or intermingle your graph with other graphs?
  - What's the 'source of truth' for your graph?

# Recognition

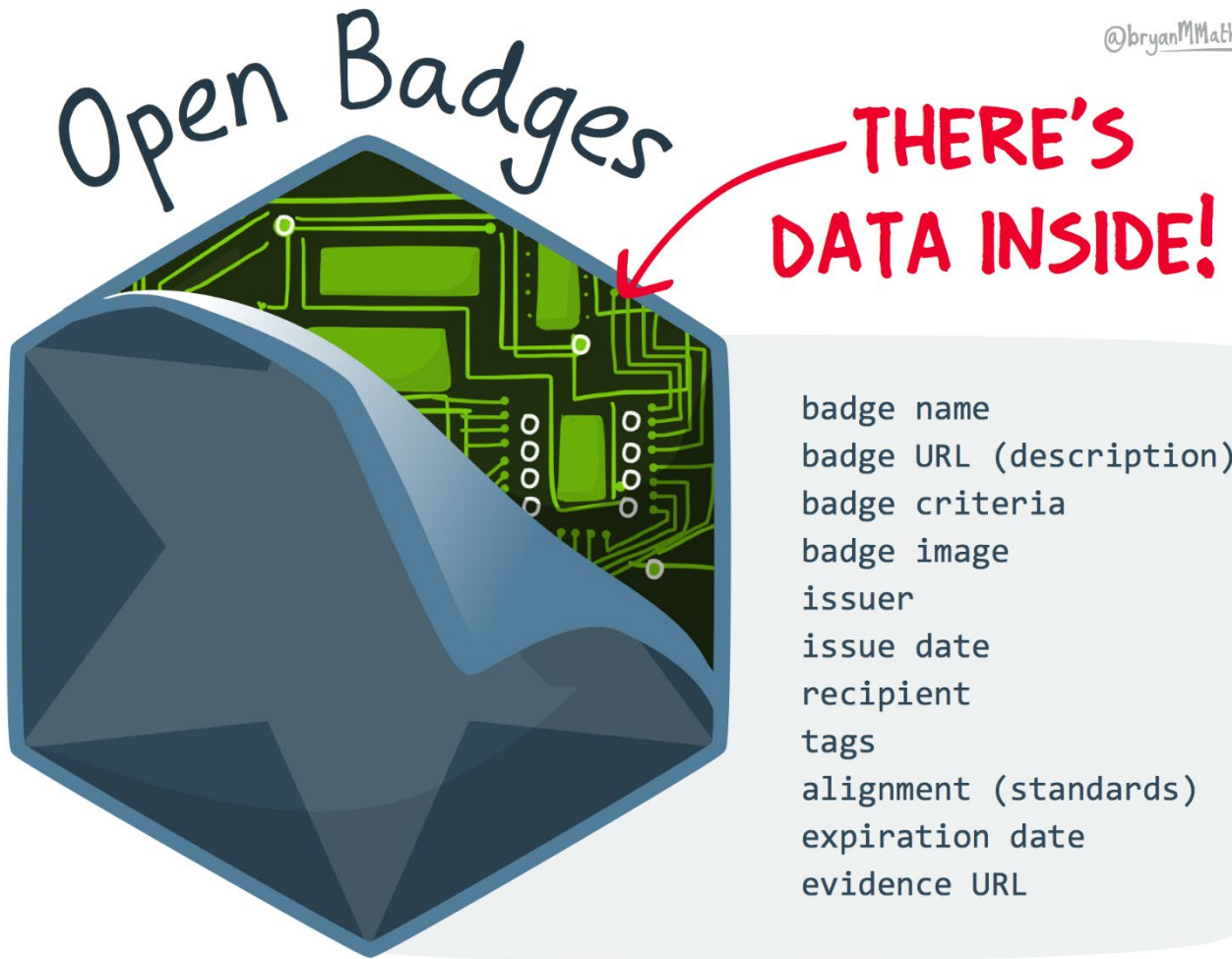
How do we know a course has been successful?  
How do we know what someone has learned? How  
can we know whether to trust in the education of  
our mechanics, doctors, engineers and pilots.



Feature Article: Recognition. <https://el30.mooc.ca/post/68595>

Featured Video: Conversation with Viplav Baxi

<https://el30.mooc.ca/event/85>



- Open Badges. General information page about badges. <https://openbadges.org/>  
Open Badges Peeled by [Bryan Mathers](#)

## ψ What Counts as Success?

There is not clear agreement on what counts as success. Different outcomes from learning events can be tracked and measured in any number of ways. And there is the danger of bad actors – of those who cheat on tests, fake certificates, or misrepresent their qualifications.





# AI-based Competency Models

Actual AI-based assessment of competent performance will be used to create competency models that can inform AI-based speech-raters, competency systems, and professional evaluation. Actual authentic tasks designed or contributed by humans may be needed to balance the possibility of biased algorithms.



# Competencies and Activities

There are numerous competency standards, everything from Australia's National Competency Standards to NIH's Nursing Competency Standard. Activity tracking has been formalized by xAPI and records are stored in Learning Record Stores (LRS)

## ⌘ Certificate of the Future

The certificate of the future will be a job offer. Software is being developed to map directly from a person's online profile to jobs and work. These today are unreliable and superficial, but with trustworthy data from distributed networks we will be able to accurately determine the skills and potential of every individual.



## The Advanced Distributed Learning Initiative

### Research & Development

The ADL Initiative develops and assesses distributed learning prototypes that enable more effective, efficient, and affordable learner-centric solutions.

[Overview](#)[Projects](#)[BAA Solicitation](#)[Working Groups](#)[GitHub](#)

### Competency & Skills System (CaSS)

*Providing a robust common language and translation method for competencies, evidence of attainment, and associated resources.*

#### Description

The future learning ecosystem must support greatly enhanced assessment, recording, and reporting of performance through credible credentials. The idea of competencies represents performance across a wide array of knowledge, skills and attributes. This project focuses on the research, design, and development of services that enable competency frameworks to be leveraged within the Total Learning Architecture (TLA). The Competency and Skills System (CaSS) enables collection, processing, and incorporation of credentials and data ("assertions") about an individual's competencies into accessible, sharable learner profiles. CaSS will create an infrastructure enabling competencies, competency frameworks, and competency-based learner models to be managed and accessed independently of a learning management system, course, training program, or credential.

#### Major Deliverables

- Architecture and APIs documentation
- Evidence Processing Component, Resource Alignment Component, and Profile Manager (code, documentation, and demos)
- Blockchain proof of concept

➤ Competency & Skills System (CaSS). Advanced Distributed Learning.

<https://adlnet.gov/projects/cass>



- An Experience API for learning everywhere (also in virtual worlds). Roland Legrand. <https://www.mixedrealities.com/2018/10/25/an-experience-api-for-learning-everywhere-also-in-virtual-worlds/>
- The Experience API. <https://xapi.com/overview/>



The xAPI is composed of four separate, yet interdependent API Resources:

- Statement: Records of specific interactions and outputs of an actor (often learner) during an experience.
- State: Data relating to the state of a learning activity.
- Agent Profile: Data relating to a human actor or a system.
- Activity Profile: Data related to a learning activity.

➤ 2018 Technical Report on xAPI. IEEE LTSC TAGxAPI.

<https://www.tagxapi.org/ieee-technical-report/>



POLICY BRIEF

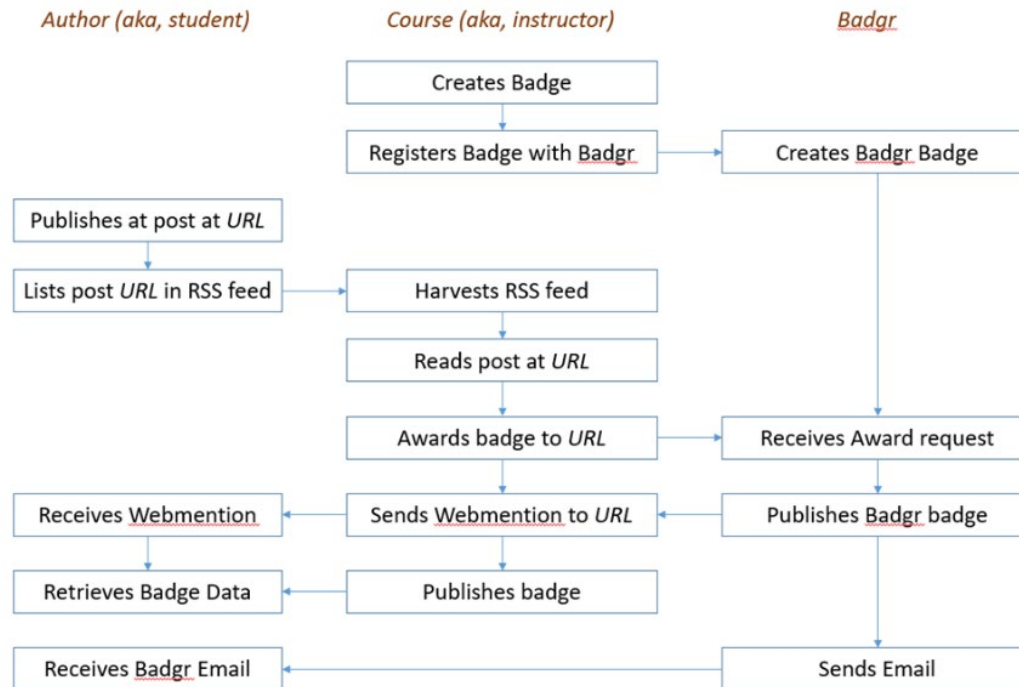
## China's Social Credit System: A Mark of Progress or a Threat to Privacy?



- China's Social Credit System: A Mark of Progress or a Threat to Privacy?  
<https://piie.com/publications/policy-briefs/chinas-social-credit-system-mark-progress-or-threat-privacy>



# The BIG Idea - AI-Based Learning Recognition



xAPI lets you capture (big) data on human performance, along with associated instructional content or performance context information...

We can also gather data *outside* the school or program, looking at actual results and feedback from the workplace.



# Activity – My Badge

## Instructions

- Use this space to design your badge, clearly identifying different data elements:
  - create a badge and give it a name, criteria, design
  - award it to yourself or describe how it would be awarded.
  - use a blog post on your blog as the 'evidence' for awarding yourself the badge
  - place the badge on the blog post.

## Optional

- Define how your digital badge connect to or ties in to your identity graph
- If you have internet access, create a free account on a Badge service (<https://badgr.com/> , <https://www.openbadges.me/> , <https://openbadgefactory.com/> ).

# Community

The fundamental challenge to community is to make decisions on matters affecting everybody while leaving to individuals, companies and institutions those matters not effectively managed by consensus.

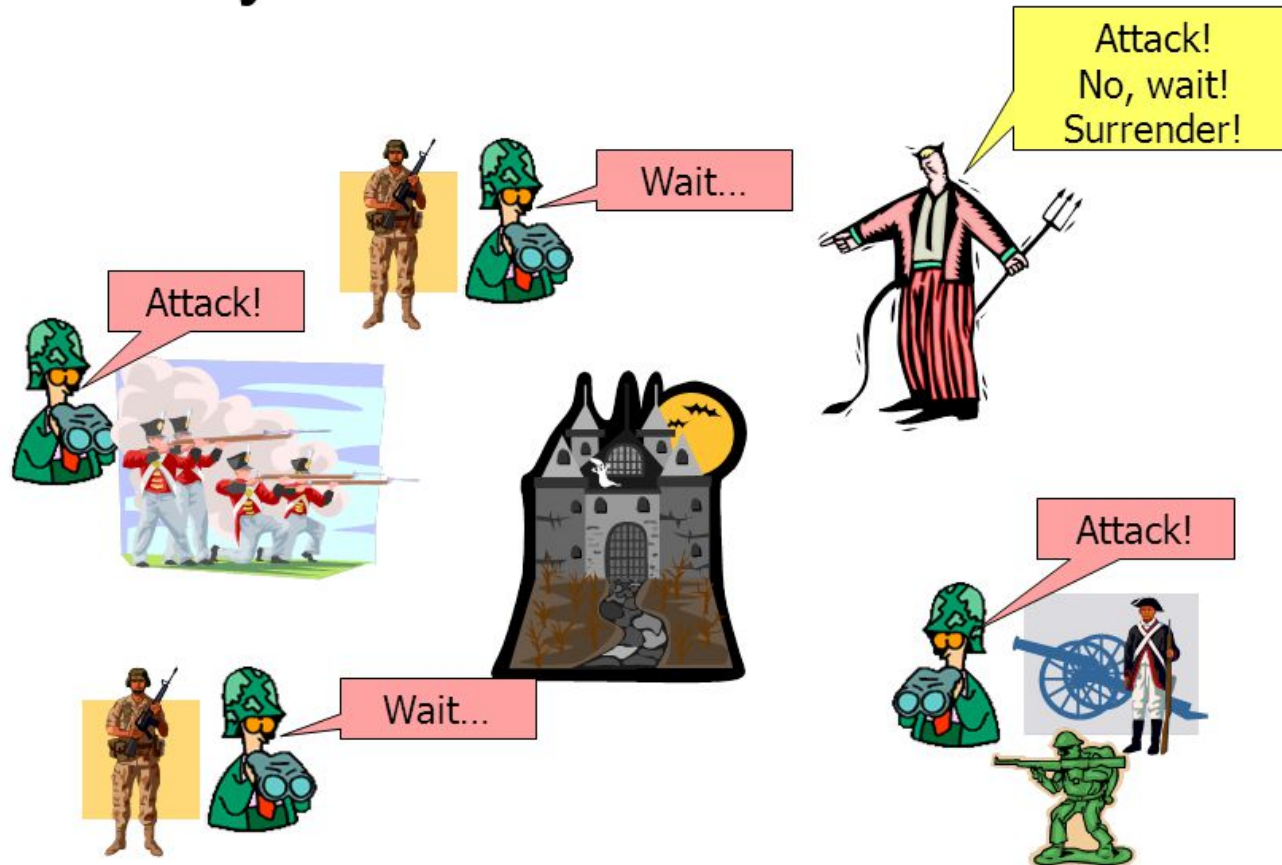


Feature Article: Community. <https://el30.mooc.ca/post/68638>

Featured Video: Conversation with Pete Forsyth

<https://www.youtube.com/watch?v=1Urc4EW9hiE>

# The Byzantine Generals Problem



From cs4410 fall 08 lecture

- The Byzantine Generals Problem - <https://lamport.azurewebsites.net/pubs/byz.pdf>

ψ **The Concept of Community**  
The traditional concept of community was built on sameness, on collections of people from the same family, speaking the same language, living in the same place, believing the same things. This has been challenged by social and political reforms through the last few centuries. ons.



## How to we Create Consensus?

Digital currencies such as Bitcoin and Ethereum use ‘proof of work’. Other types of content create other types of consensus: ‘proof of stake’ relies on guarantees of resources or assets; ‘proof of authority’ depends on certification or validation.



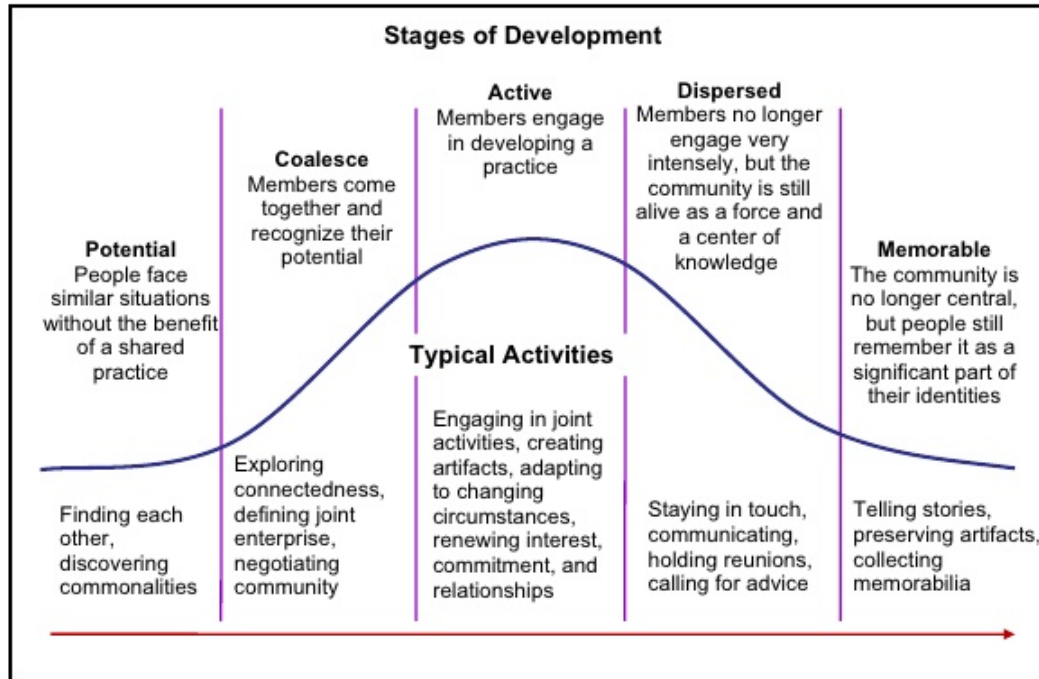
## Learning by Agreement

What is required for learning to work is not merely control, but *agreement* on the part of members of the community. Underlying this is a respect for law, institutions and processes, and when these break

## III Critical Literacies

The critical literacies include not just being able to communicate with each other, but to be able to build and create. Consensus, ultimately, is a question of stigmergy, and we will look not only how it is created but also how it is undermined (think 'dark patterns').

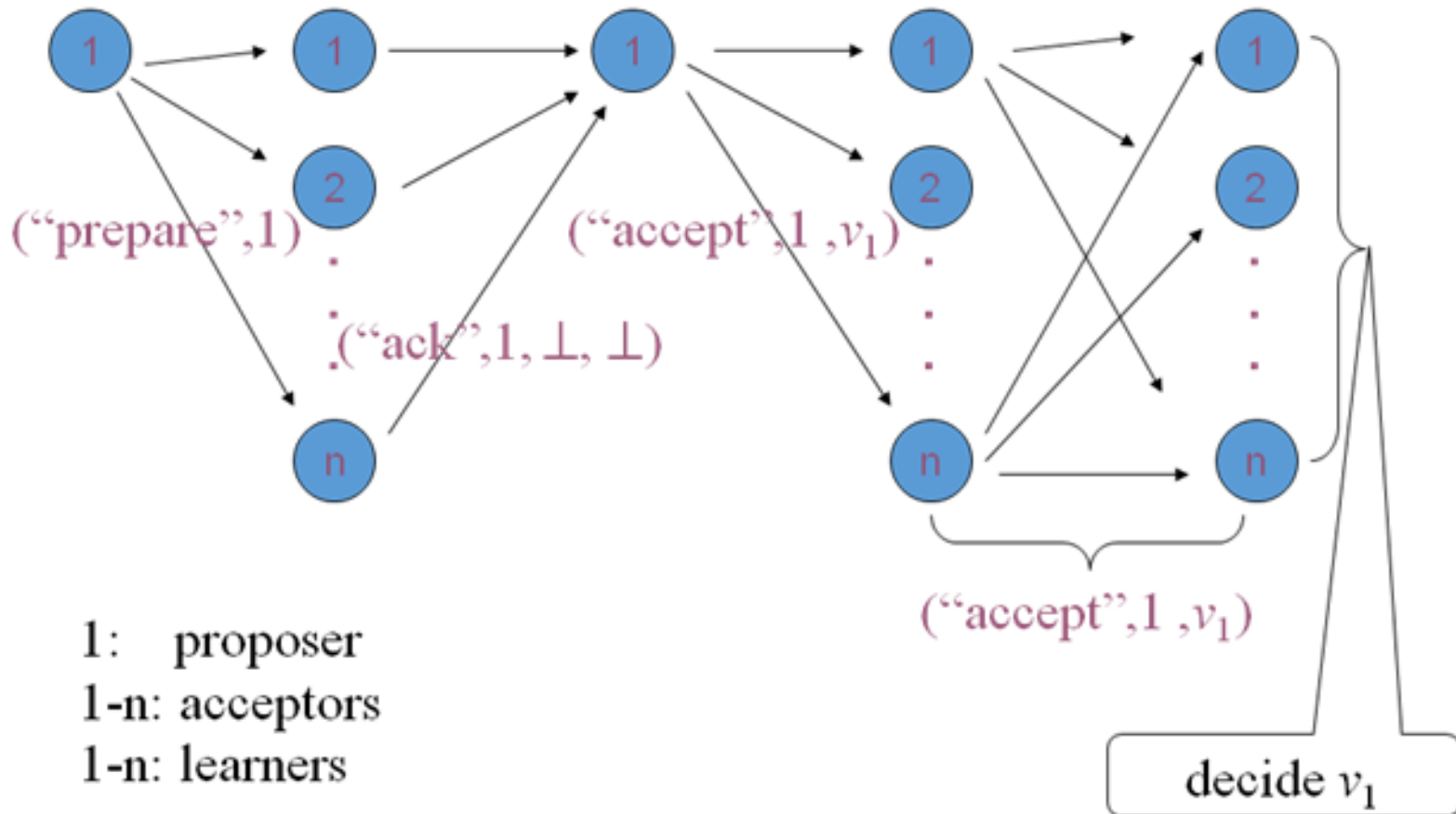
Communities of practice move through various stages of development characterized by different levels of interaction among the members and different kinds of activities



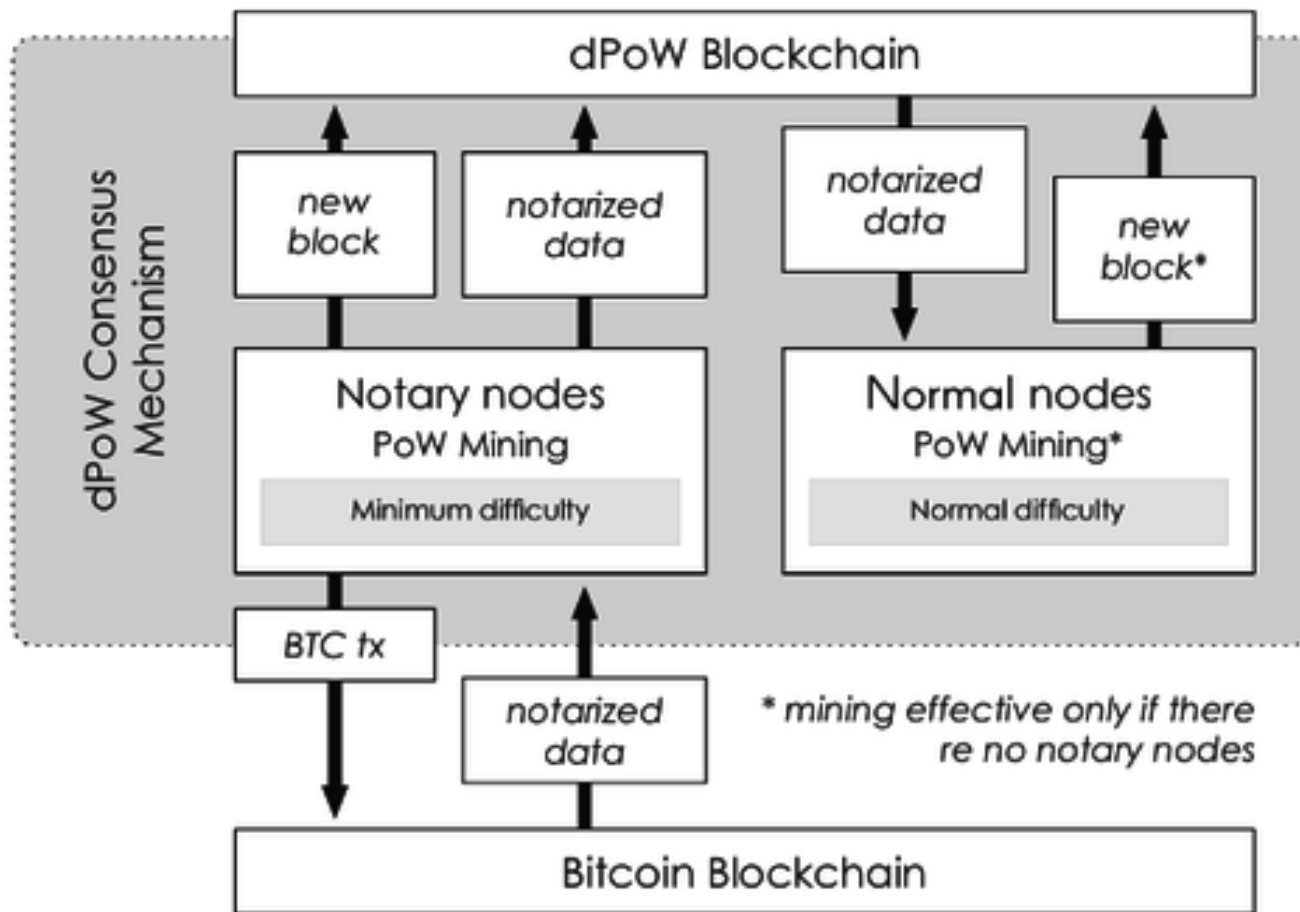
Etienne Wenger, Communities of practice learning as a social system, Systems Thinker, June 1998.

➤ Trust, Truth, Consensus and Community on the distributed web - Jenny Mackness  
<https://jennymackness.wordpress.com/2018/12/09/trust-truth-consensus-and-community-on-the-distributed-web/>





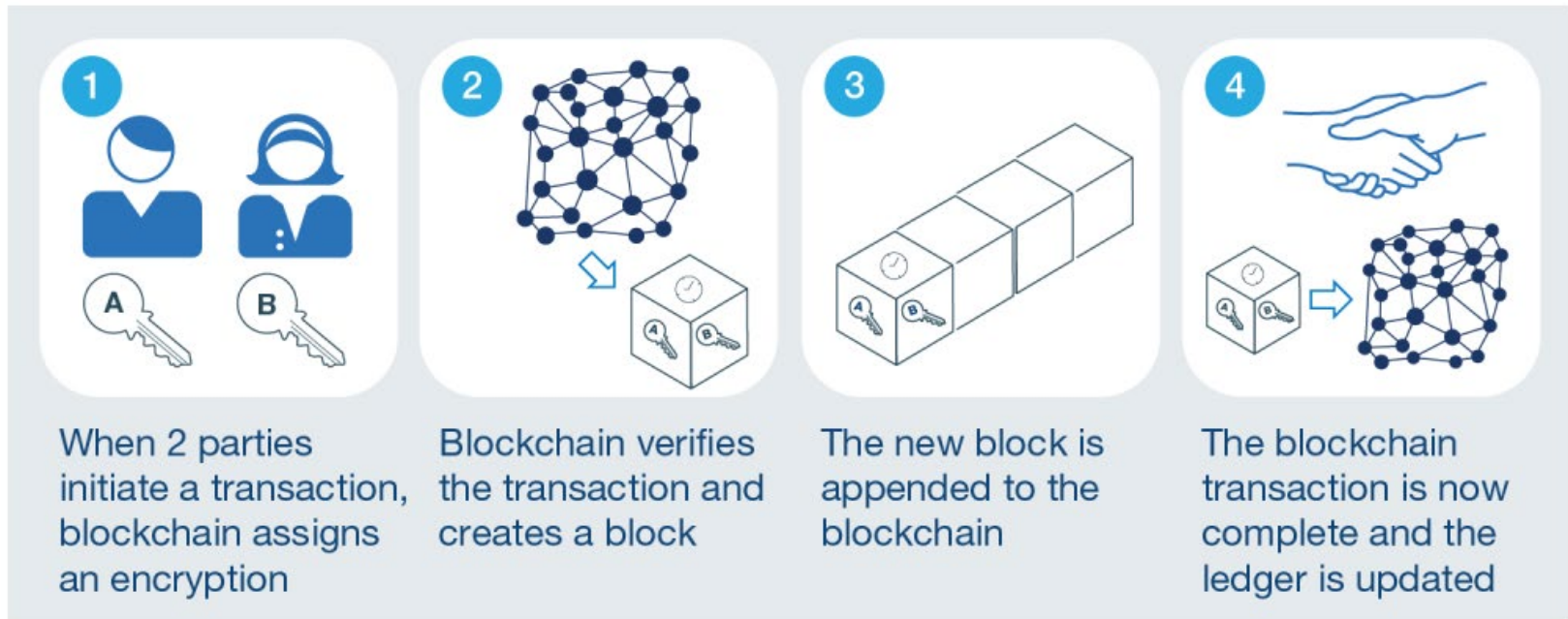
➤ How Does Distributed Consensus Work? Preethi Kasireddy. Distributed systems and consensus. <https://medium.com/s/story/lets-take-a-crack-at-understanding-distributed-consensus-dad23d0dc95>



➤ ConsensusPedia: An Encyclopedia of 29 Consensus Algorithms. Consensus algorithms are the basis of all the blockchains/DAGs.

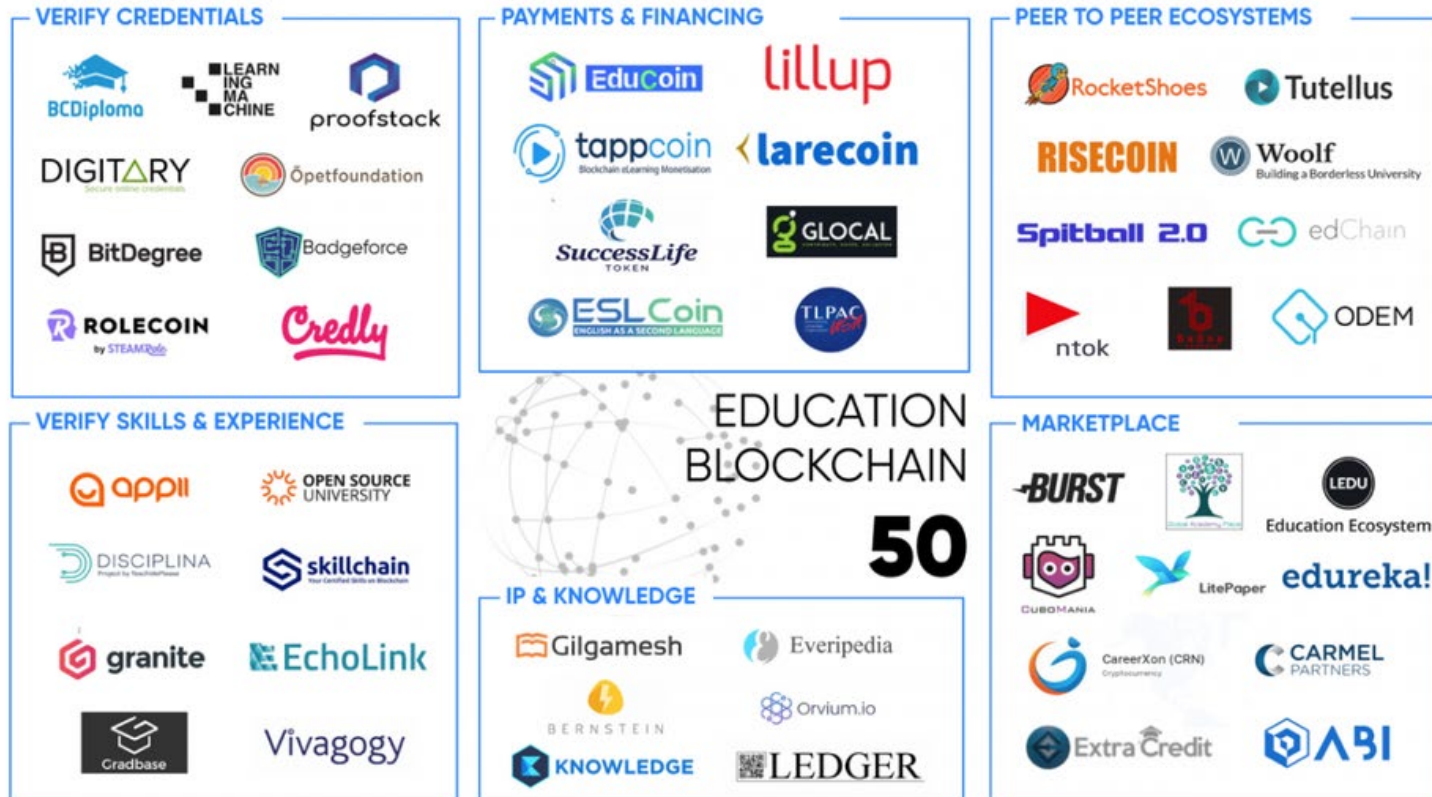
<https://hackernoon.com/consensuspedia-an-encyclopedia-of-29-consensus-algorithms-e9c4b4b7d08f>

# How to create a blockchain transaction



McKinsey&Company

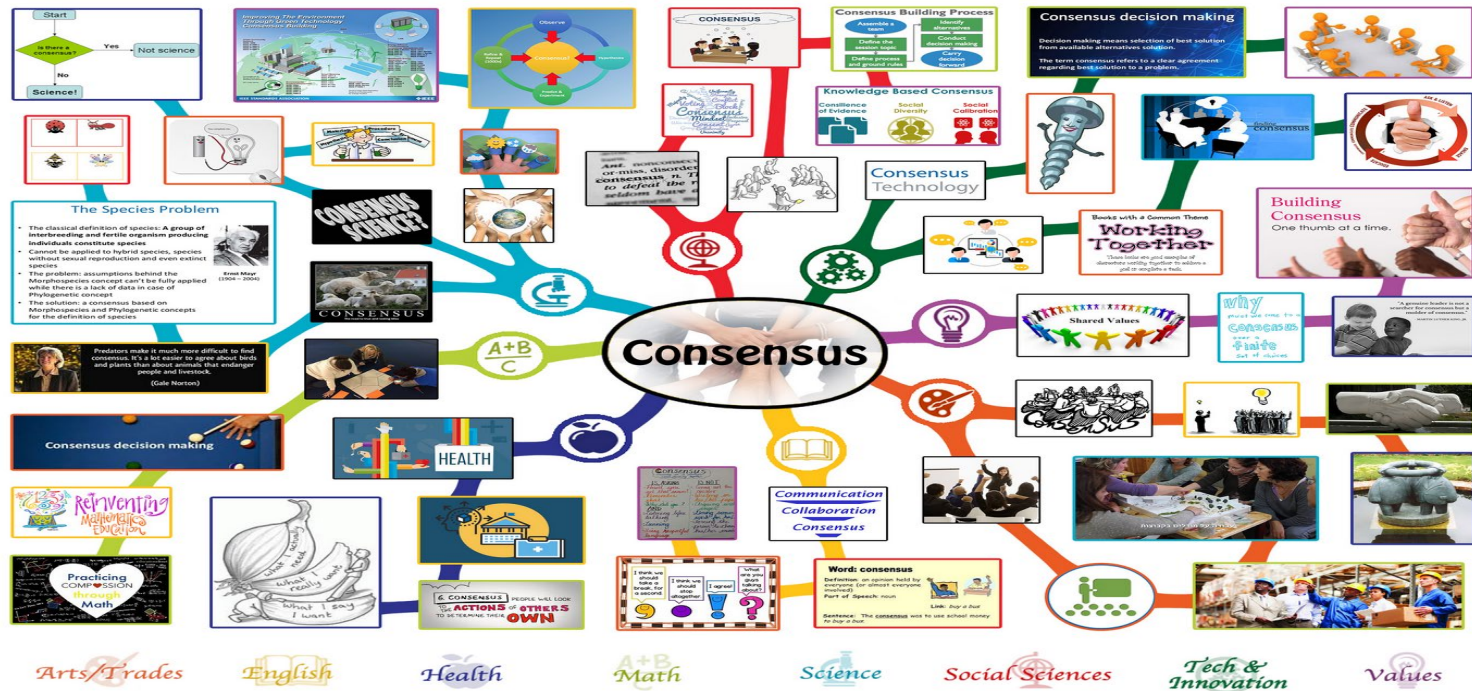
- What is Blockchain? Lucas Mostazo, YouTube. Blockchain explained in plain English. <https://www.youtube.com/watch?v=3xGLc-zz9cA>
- Image: <https://www.mckinsey.com/business-functions/operations/our-insights/blockchain-technology-for-supply-chains-a-must-or-a-maybe>



Source: [www.holoniq.com/blockchain](http://www.holoniq.com/blockchain)

- Education Blockchain Market Map. HolonIQ.  
<https://www.holoniq.com/news/education-blockchain-50-fuzzy-front-end/>

## The BIG Idea – Community as Consensus



The mechanisms we use to interact and reach consensus are what define us as a community... but what are the *conditions* for consensus?

# Activity - My Community

## Instructions

- As a community, create an assignment the completion of which denotes being a member of the community. For the purposes of this task, there can only be one community for the entire workshop.
- Use the space above to contain your contribution to the community.
- For each participant, your being a member of the community completes the task.

Note: in the workshop, you may be presented with the 'Byzantine Generals Problem' and left to consider how you, as a community of communities, might solve it.



# Experience

It is a truism that we learn from experience, and yet creating a role for experience in learning has been one of the most difficult problems in education. And so much of education continues to rely on indirect methods depending on knowledge transfer - reading, lectures, videos - rather than hands-on practice and knowledge creation.



Feature Article: Experience. <https://el30.mooc.ca/post/68683>

Featured Video: Conversation with Amy Burvall <https://el30.mooc.ca/event/87>



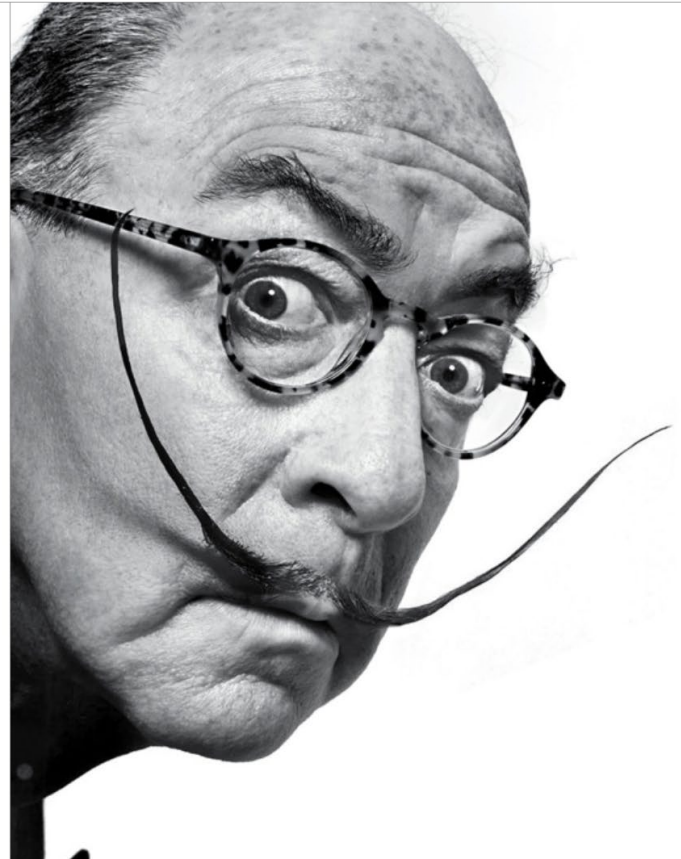
VULTURE GUIDES | NOV. 27, 2018

## How to Be an Artist 33 rules to take you from clueless amateur to generational talent (or at least help you live life a little more creatively).

By Jerry Saltz [@jerrysaltz](#)

SEEN 

Spend 47 days in  
the art world  
with *Seen*.



How to Be an Artist. Jerry Saltz. Good advice that could be applied not only to art but to anything. <https://www.vulture.com/2018/11/jerry-saltz-how-to-be-an-artist.html>



ψ Experience and Meaning  
No experience is inherently meaningful. What a new experience means depends on previous experience. And experience is active. “Observation alone is not enough. We have to understand the significant of what we see, hear and touch. This is determined by us, as recognition.



## Reflective Practice

New technology is beginning to *combine* the ability of teachers and role models to model and demonstrate successful practice, and the ability of learners to practice and reflect on their learning in that environment. Live streaming events are transforming real-world events into hands-on learning experiences.



# Learning Together

Just as multiple authors can edit Wikipedia articles or work on code in GitHub, participatory learning media enables learners to interact creatively without management or direction. The outcome is a consensus determined not by voting but by participation.

## ⌈ Working Openly

The *creation* of the content becomes a part of the content itself. We see this with the recent self-shredding art by Banksy or the inside look at how the single-scene time-lapse sequence was filmed. Some artists have made working openly a part of the act – Deadmau5, for example, showing how electronic music is produced.



# Openness to Experience and Creative Achievement

Openness to experience— the drive for cognitive exploration of inner and outer experience— is the personality trait most consistently associated with creativity.

By Scott Barry Kaufman on November 25, 2013 1



## READ THIS NEXT

### SPACE

Aerogel Mars

13 hours ago — Caleb A. Scharf

### POLICY & ETHICS

How Can We Curb the Spread of Scientific Racism?

16 hours ago — John Horgan | Opinion

### ARTS & CULTURE

Recommended Books, October 2019

19 hours ago — Andrea Gawrylewski

Openness to Experience and Creative Achievement. Scott Barry Kaufman, Scientific American. <https://blogs.scientificamerican.com/beautiful-minds/openness-to-experience-and-creative-achievement/>

Twitch. A global community of millions who come together each day to create their own entertainment. <https://www.twitch.tv/>

Creating uniform duotone images with CSS filters and mix-blend-mode

A PEN BY Melissa Em

Fork

Settings

Change View

Sign Up

Log In

HTML

```

1 * <div class="filter-controls">
2 *   <label for="filter-grayscale">
3 *     <span class="filter-name">
4 *       grayscale
5 *     </span>
6 *     <input type="range" step=".1" min="0" max="1"
7 *       value="1" id="filter-grayscale">
8 *     <span class="filter-val">1</span>
9 *   </label>
10 *   <label for="filter-contrast">
11 *     <span class="filter-name">contrast</span>
12 *     <input type="range" step=".05" min="0" max="2"
13 *       value="1.5" id="filter-contrast">
14 *     <span class="filter-val">1.5</span>
15 *   </label>

```

CSS

```

1 * :root {
2 *   /* used for the filter values on the image to make
3 *     them look a bit uniform */
4 *   --grayscale: 1;
5 *   --contrast: 1.6;
6 *   --brightness: 0.95;
7 *   /* saturation and lightness on image's color; didn't
8 *     include options for these to keep a more uniform look
9 *   */
10 *   --saturation: 35%;
11 *   --lightness: 60%;
12 * }
13 * .fig {

```

JS (Babel)

```

1 * function updateHue(e) {
2 *   // value of the input range to use as the new hue
3 *   const val = e.target.value;
4 *   // parent element to get and set --hue prop
5 *   const fig = e.target.closest(".fig");
6 *   // hue value text output
7 *   const text = fig.querySelector(".hue-val");
8 *   changeProp(fig, "--hue", val);
9 *   text.textContent = val;
10 * }
11 *
12 * function updateFilterVal(e) {
13 *   const val = e.target.value;
14 *   // get custom property name of input

```

grayscale

1

contrast

1.55

brightness

.95

☐ show original images

Console

Assets

Comments

Shortcuts

Embed

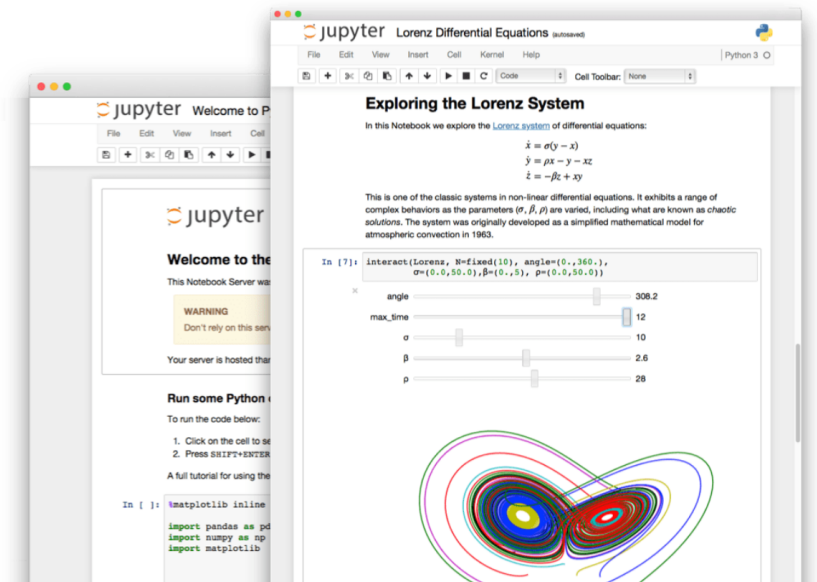
Export

Share

CodePen. Interactive live generation of web pages and scripts. This example at <https://codepen.io/meowwwwls/pen/qBBWYJJ>

107





## The Jupyter Notebook

The Jupyter Notebook is an open-source web application that allows you to create and share documents that contain live code, equations, visualizations and narrative text. Uses include: data cleaning and transformation, numerical simulation, statistical modeling, data visualization, machine learning, and much more.

[Try it in your browser](#)
[Install the Notebook](#)


Language of choice

Jupyter supports over 40 programming languages, including Python, R, Julia, and Scala.



Share notebooks

Notebooks can be shared with others using email, Dropbox, GitHub and the [Jupyter Notebook Viewer](#).



Interactive output

Your code can produce rich, interactive output: HTML, images, videos, LaTeX, and custom MIME types.

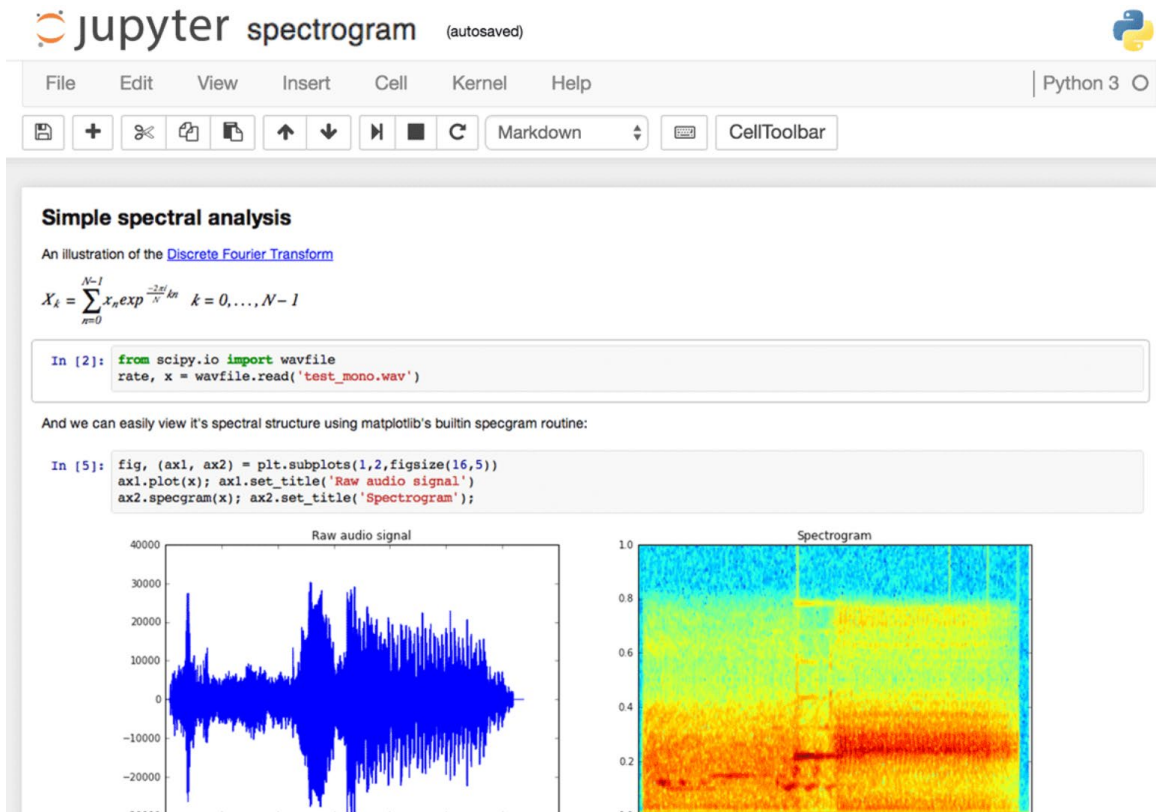


Big data integration

Leverage big data tools, such as Apache Spark, from Python, R and Scala. Explore that same data with pandas, scikit-learn, ggplot2, TensorFlow.

Jupyter Notebooks. <https://jupyter.org/>  
Binder. <https://mybinder.org/>





Jupyter Notebook combines data and code in a document. In the JupyterLab Environment - work with code, data, and the Jupyter notebook format.

- A Gallery of interesting Jupyter Notebooks: <https://github.com/jupyter/jupyter/wiki/A-gallery-of-interesting-Jupyter-Notebooks>
- Binder - <https://mybinder.org> - runs Jupyter Notebooks in a web browser, eg. Jupyter for kids - <https://mybinder.org/v2/gh/mikkokotila/jupyter4kids/master>

## The BIG Idea - Content and Creation Combined



- A good example of this is the live-streaming platform Twitch and especially games like Fortnite, in which players become spectators, and back again, ver and over.
- Using applications like xSplit or Open Broadcaster Software individuals can make their experiences part of the learning experience shared by others.

# Tools for Creating

- Twitch <https://www.twitch.tv/> live-streaming site for game playing, game-watching, and chat
- Filmora and Filmore Go <https://filmora.wondershare.com> video creation, editing, upload
- Tiktok <http://www.tiktok.com> social video meme and sharing
- Turtle <http://turtle.audio/> make music - see also [https://www.youtube.com/watch?v=lg\\_LKkMx2FE](https://www.youtube.com/watch?v=lg_LKkMx2FE)
- Glitch <https://glitch.com/> make apps, remix others
- Livecaster <https://intrsection.com/2017/04/8396/> make webcasts
- Open Broadcaster <https://obsproject.com/> stream desktop
- Workbench <https://www.dataquest.io/blog/jupyter-notebook-tips-tricks-shortcuts/> free and open source data journalism

# Activity - My Community

## Instructions

- Be creative! Using the medium of your choice, create a representation of your experience of this workshop. Optional: post your creation (or post a link to your creation) on your blog.
- Here's a good example of the sort of thing you could create, by Kevin Hodgeson:  
<http://dogtrax.edublogs.org/2018/12/12/el30-a-visual-sense-of-community-connected/>
- If you need inspiration, visit the DS106 Assignment Bank and select one of the assignments, and then interpret it in the light this workshop.  
<http://assignments.ds106.us/>

# Agency

What we learn depends on why we learn, and the idea of agency is to enable this to be shaped by the learner. Learning technology and pedagogy needs to support and reflect this, ensuring that the learner has the capacity to express and preserve their interests and their identity. So we close our enquiry with a consideration of issues related to power and control, to peace and prosperity, to hopes and dreams.



Featured Video: Conversation with Silvia Baldiris and Jutta Treviranus <https://el30.mooc.ca/event/88>



The three dimensions of the framework are:

1. Recognize, respect, and design for human uniqueness and variability.
2. Use inclusive, open & transparent processes, and co-design with people who have a diversity of perspectives, including people that can't use or have difficulty using the current designs.
3. Realize that you are designing in a complex adaptive system.

➤ The Three Dimensions of Inclusive Design. Jutta Treviranus. GitHub.  
<https://handbook.floeproject.org/TheThreeDimensionsPartOne.html>



## Ψ A Projection of Ourselves

McLuhan said that technology is a projection of ourselves into the world. Our senses are amplified by virtual and augmented reality, our cognitive capacities are extended by machine vision and AI, and our economic and social agency is represented by our bots and agents.



## What Technology Supports

What we learn, and what makes learning successful, depends on *why* we learn. Four key elements of the new technological framework: security, identity, voice, opportunity. These elements are in turn what consensus-based decentralized communities are designed to augment.





## More than Just Knowledge

Learning therefore demands more than just the transmission or creation of knowledge. Our learning will need to emphasize and promote individual agency as much as it needs to develop the tools and capacities needed to support social, political and economic development.

## ☐ What we Want to Project

How do we ensure that what we project in the world is what we want to project, both as teachers and learners? As content and media become sophisticated and more autonomous, how do we bind these to our cultural and ethical frameworks.



NEWS FOR AND ABOUT THE PHILOSOPHY PROFESSION



ABOUT · COMMENTS POLICY · PHILOSOPHY COMICS · VALUE OF PHILOSOPHY · CALLS FOR PAPERS / GRANTS / ETC. · NON-ACADEMIC HIRES · HEAP OF L

## HEAP OF LINKS

**The winner of the 2018 Doak Walker Award for top running back in college football, Wisconsin's Jonathan Taylor, is a philosophy major**

— his interests include Kant's philosophy and the semantics of questions, according to Sports Illustrated (via Alex Scott)

**Bridging rancorous political divides: what lessons about how to do this can be gleaned from teaching a moral problems course?**

— quite a few, says Evan Mandery (John Jay)

**One ethical concern with the treatment: it aims to benefit patients by restoring their consciousness, but if successful it may harm those patients by making them aware of their pain**

— Andrew Peterson (George Mason) and others are looking at the bioethics of using "magic mushrooms" to treat disorders of consciousness

**A majestic goddess, Athena, / swooped down from the sky - you'd have seen her / as some kind of bird / when she gave the word / men's yearning for fighting got keener**

— The Odyssey in limerick form, from classicist and translator Emily Wilson (U. Penn)

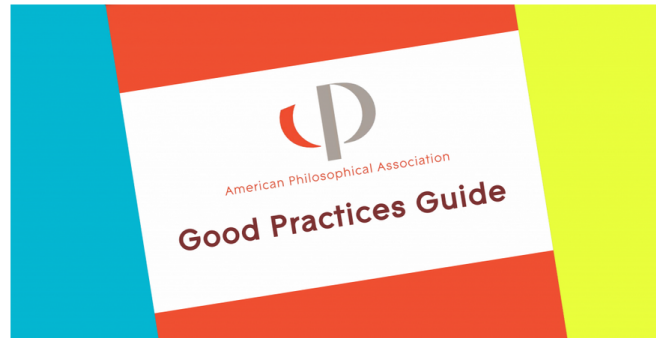
HOME » PROFESSIONALISM »

## APA Publishes "Good Practices Guide"

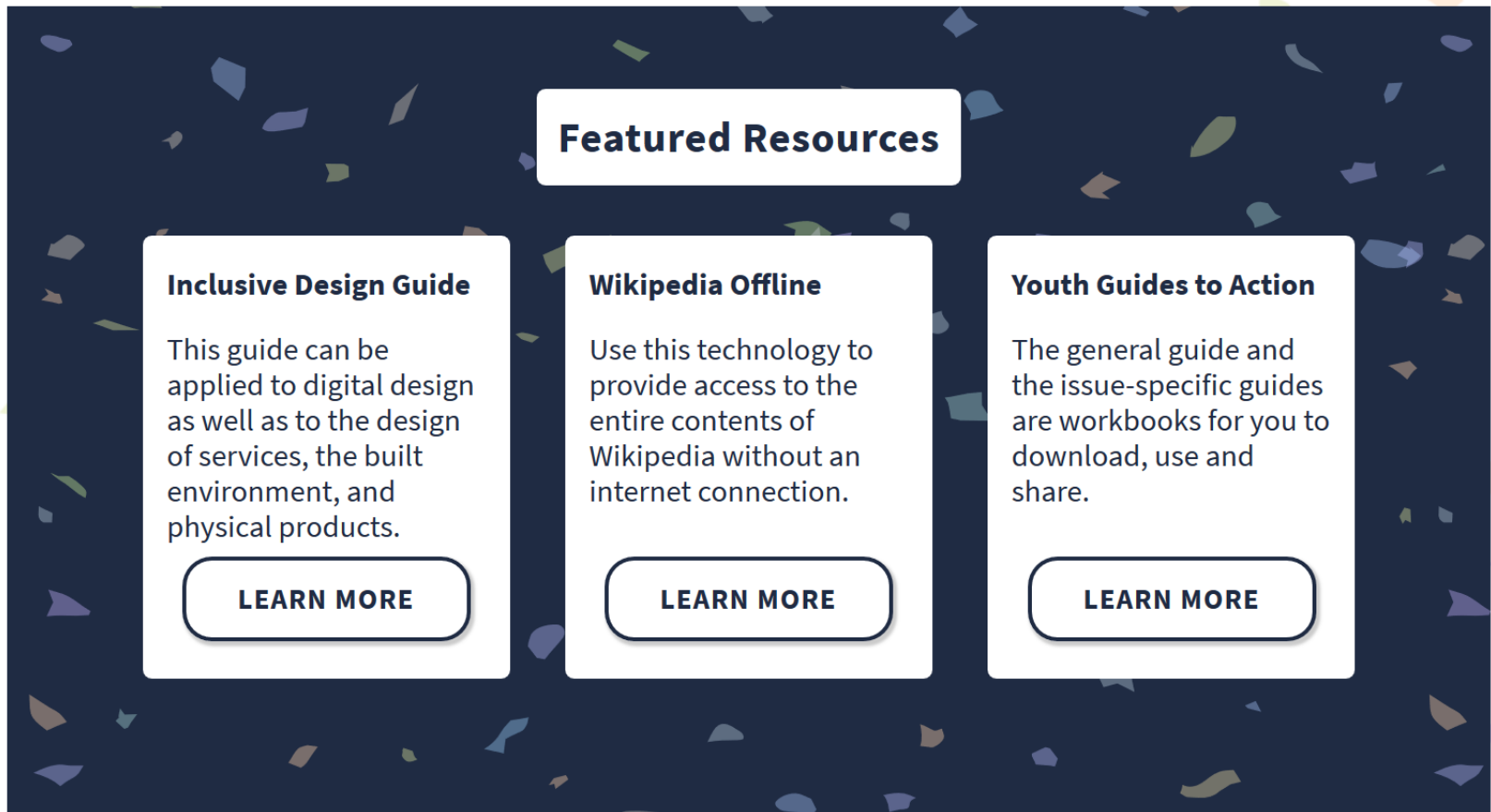
By [Justin Weinberg](#): September 19, 2019 at 8:55 am

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The American Philosophical Association (APA) has published its *Good Practices Guide*, "a set of recommendations to help philosophers create and maintain an academic community based on mutual respect, fairness, inclusivity, and a commitment to scholarship and learning."



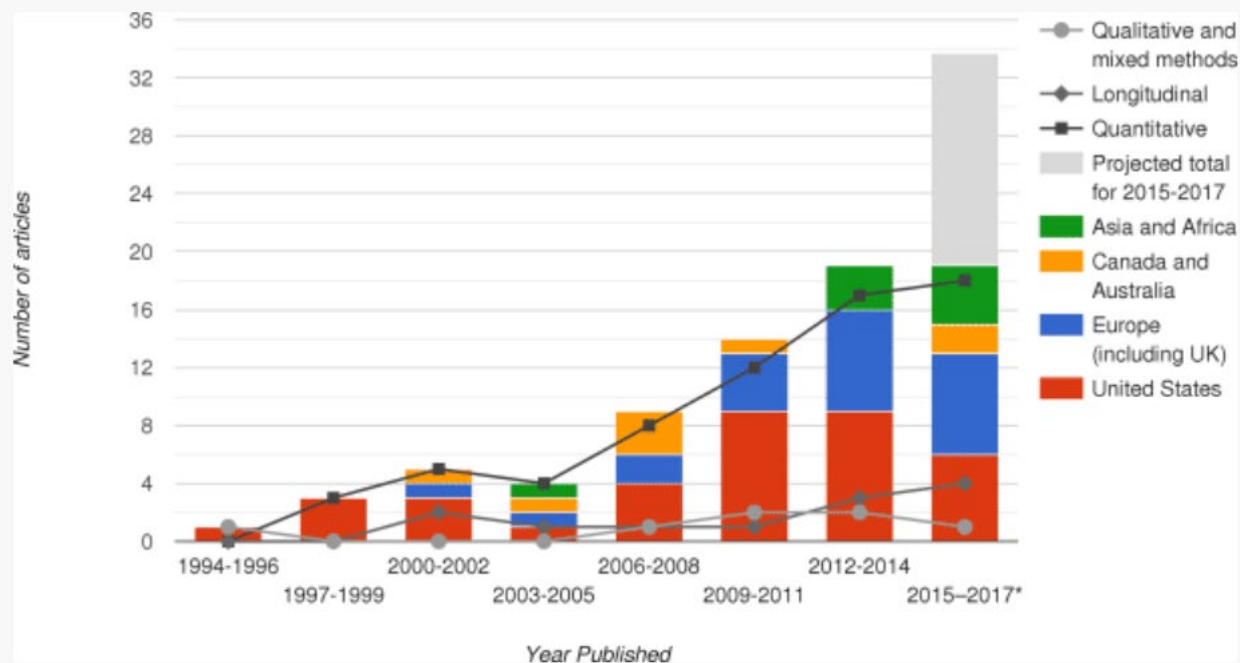
➤ APA Good Practices Guide - <http://dailynous.com/2019/09/19/apa-publishes-good-practices-guide/>



➤ Social Justice Repair Kit. Inclusive Design Research Centre.

<https://sojustrepairit.org/>

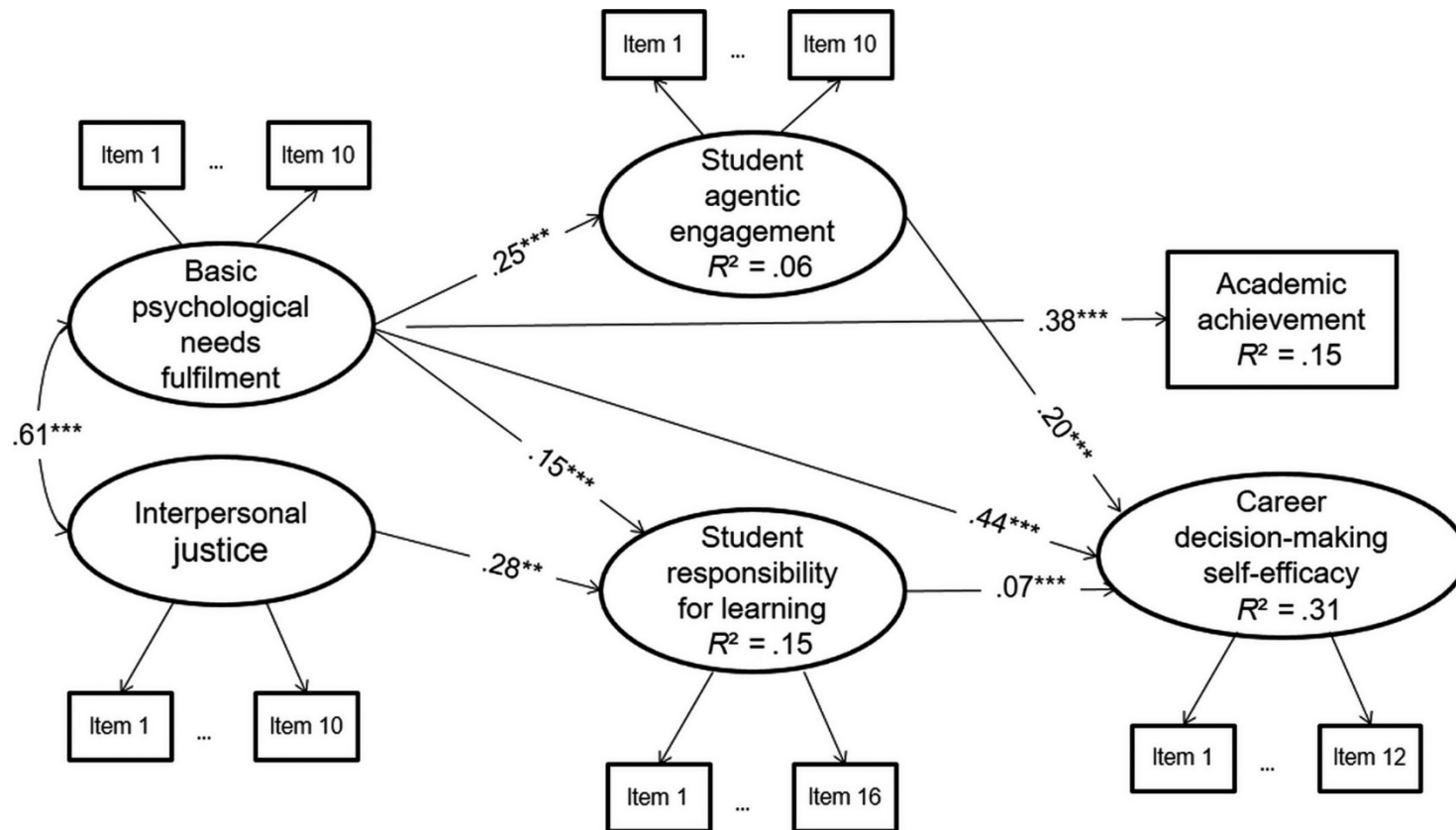
➤ Wikipedia offline – Kiwix - <https://www.kiwix.org/en/>



**Fig. 1**

Summary of research on medical student self-efficacy: publication rates, research internationalization. \*Note Articles were reported only for five months in 2016

➤ Self-efficacy beliefs of medical students: a critical review - Klassen & Klassen - <https://link.springer.com/article/10.1007/s40037-018-0411-3>



➤ Agency and responsibility in adolescent students: A challenge for the societies of tomorrow - <https://onlinelibrary.wiley.com/doi/full/10.1111/bjep.12215>

# We identified 14 Core Values

Underpinned by psychological needs



Achieving goals



Being inspired



Being safe and well



Belonging to a group



Connecting with others



Exploring the world



Expressing myself



Feeling impactful



Growing myself



Having autonomy



Having stability



Pursuing pleasure



Receiving recognition

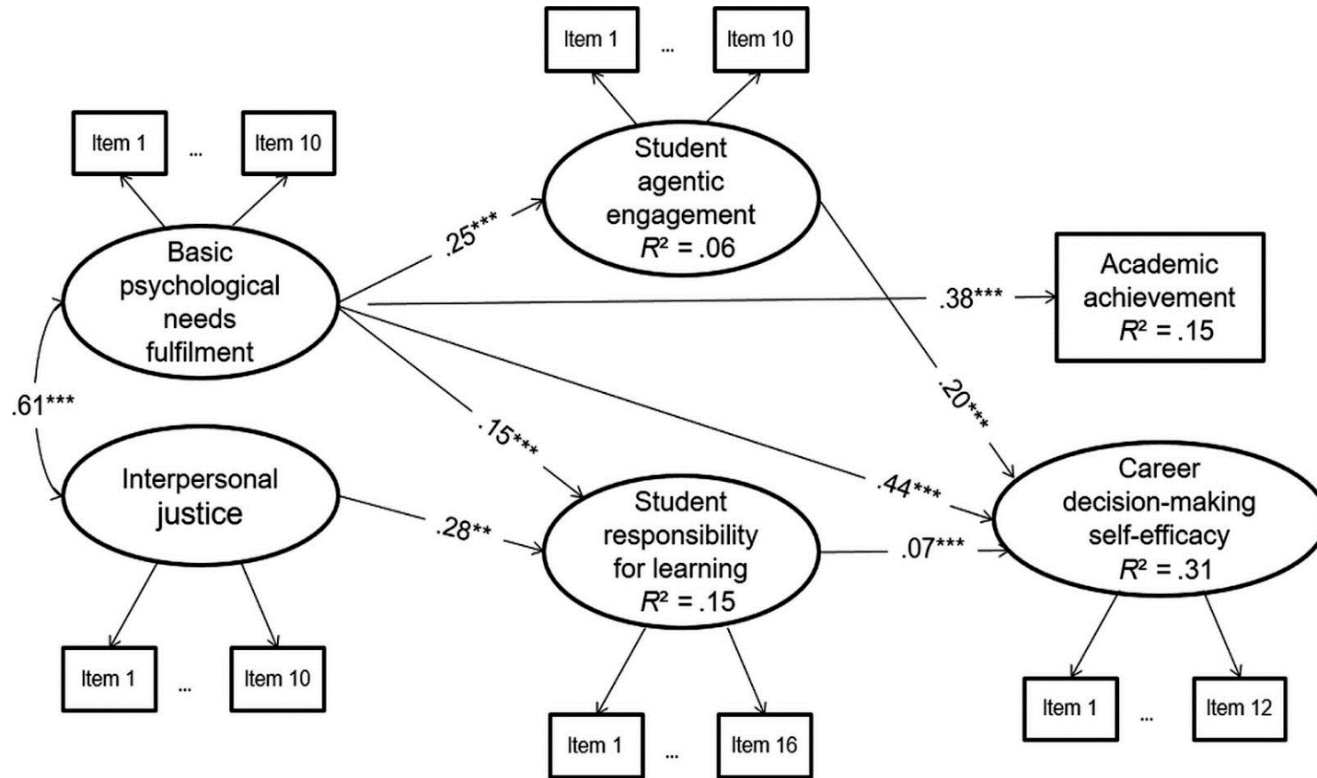


Understanding myself

➤ Digital Wellbeing, BBC -

<https://www.bbc.co.uk/rd/projects/digital-wellbeing>

# The BIG Idea - Redefining Success



Each of the major developments in the internet - from the client-server model to platform-based interoperability to web3-based consensus networks - has been accompanied by a shift in agency. The relative standing of the individual with respect to community, institutions, and governments was shifted, for better or worse.



- Each stage in technological development is inspired by social, political and economic aspirations, and understanding the next generation of learning and technology requires understanding the forces that shaped them.
- ‘Success’ in the future will not be defined by employment opportunities, by competencies, by skills and expertise, but by agency - can the learner learn, think and do for themselves in a rapidly changing and complex environment?

# Activity - My Definition of Success

## Instructions

- Using the space below or one of the many online tools at your disposal, consider what success - in this workshop, in your career, in life - looks like to you.