SAMR: Thoughts on Sustainability and Opportunity

Ruben R. Puentedura, Ph.D.

Redefinition
Tech allows for the creation of new tasks, previously inconceivable

Modification
Tech allows for significant task redesign

Augmentation
Tech acts as a direct tool substitute, with functional improvement

Substitution
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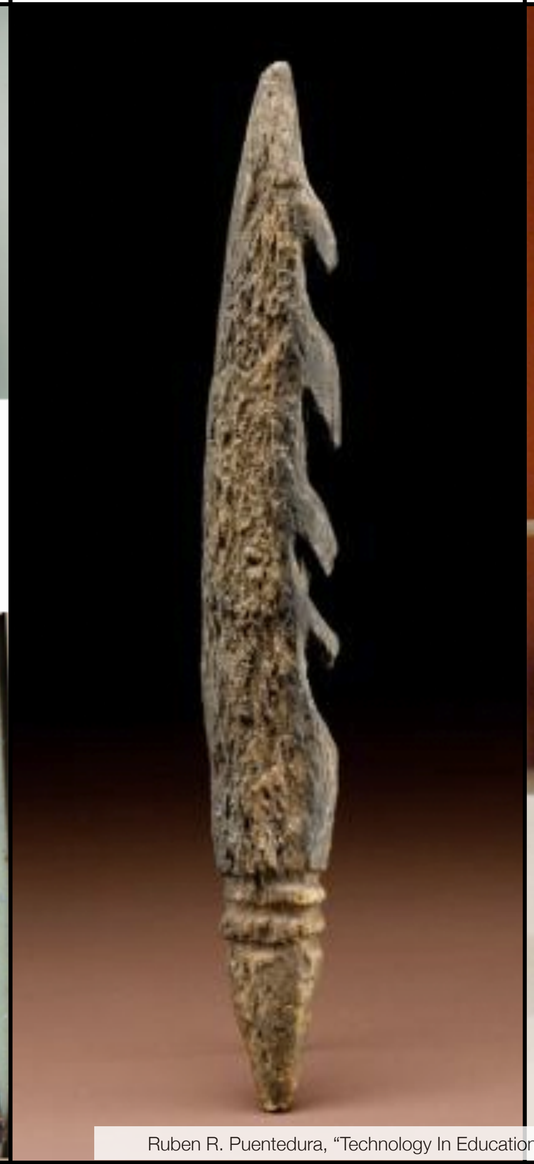
Transformation

Enhancement

Ruben R. Puentedura, *As We May Teach: Educational Technology, From Theory Into Practice*. (2009)

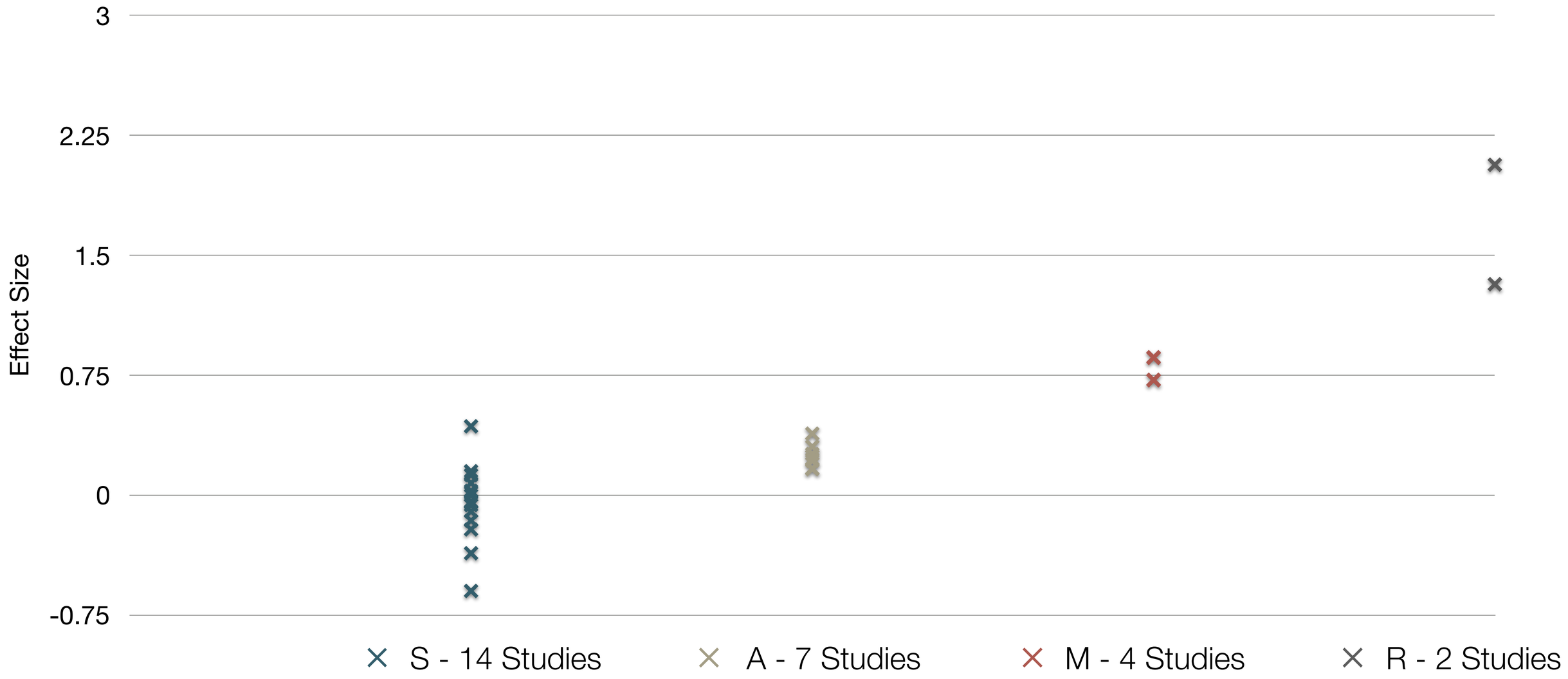
Social	Mobility	Visualization	Storytelling	Gaming
200,000 years	70,000 years	40,000 years	17,000 years	8,000 years



Ruben R. Puentedura, “Technology In Education: The First 200,000 Years” *The NMC Perspective Series: Ideas that Matter*. NMC Summer Conference, 2012.

The EdTech Quintet – Associated Practices	
Social	Communication, Collaboration, Sharing
Mobility	Anytime, Anyplace Learning and Creation
Visualization	Making Abstract Concepts Tangible
Storytelling	Knowledge Integration and Transmission
Gaming	Feedback Loops and Formative Assessment

SAMR and the Use of Tablets in Education



Tamim, R.M., Borokhovski, E., Pickup, D., Bernard, R.M. & El Saadi, L. "Tablets for Teaching and Learning: A Systematic Review and Meta-Analysis." *Commonwealth of Learning (COL)* (2015).

Choosing the First SAMR Ladder Project: Three Options

- **Your Passion:**
  - If you had to pick one topic from your class that best exemplifies why you became fascinated with the subject you teach, what would it be?
- **Barriers to Your Students' Progress:**
  - Is there a topic in your class that a significant number of students get stuck on, and fail to progress beyond?
- **What Students Will Do In the Future:**
  - Which topic from your class would, if deeply understood, best serve the interests of your students in future studies or in their lives outside school?

S to A: The Value of Shared Practices

- Checklists
- Augmented Note Taking Strategies
- Visualization Methods (5 Primary Domains)
- Simple Blogging
- Simple Digital Storytelling Video
- Flipped Classroom – Materials Creation
- Flipped Classroom – Peer Discussion/Instruction Methods
- LMS Practices

Research Article

ASSOCIATION FOR PSYCHOLOGICAL SCIENCE

Psychological Science
1–10

DOI: 10.1177/0956797614524581
pss.sagepub.com
SAGE

The Pen Is Mightier Than the Keyboard: Advantages of Longhand Over Laptop Note Taking

Pam A. Mueller[1] and Daniel M. Oppenheimer[2]
[1]Princeton University and [2]University of California, Los Angeles

Abstract

Taking notes on laptops rather than in longhand is increasingly common. Many researchers have suggested that laptop note taking is less effective than longhand note taking for learning. Prior studies have primarily focused on students' capacity for multitasking and distraction when using laptops. The present research suggests that even when laptops are used solely to take notes, they may still be impairing learning because their use results in shallower processing. In three studies, we found that students who took notes on laptops performed worse on conceptual questions than students who took notes longhand. We show that whereas taking more notes can be beneficial, laptop note takers' tendency to transcribe lectures verbatim rather than processing information and reframing it in their own words is detrimental to learning.

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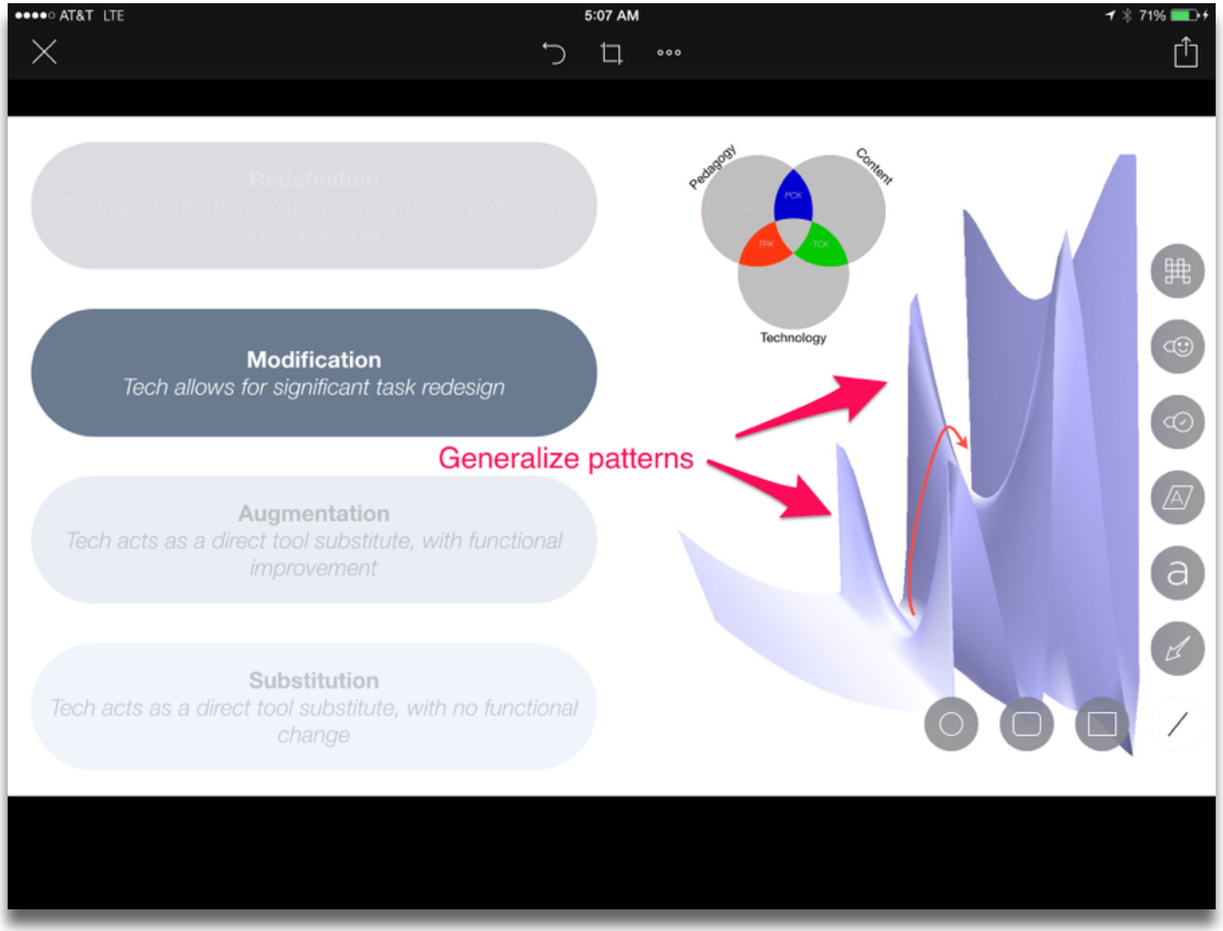

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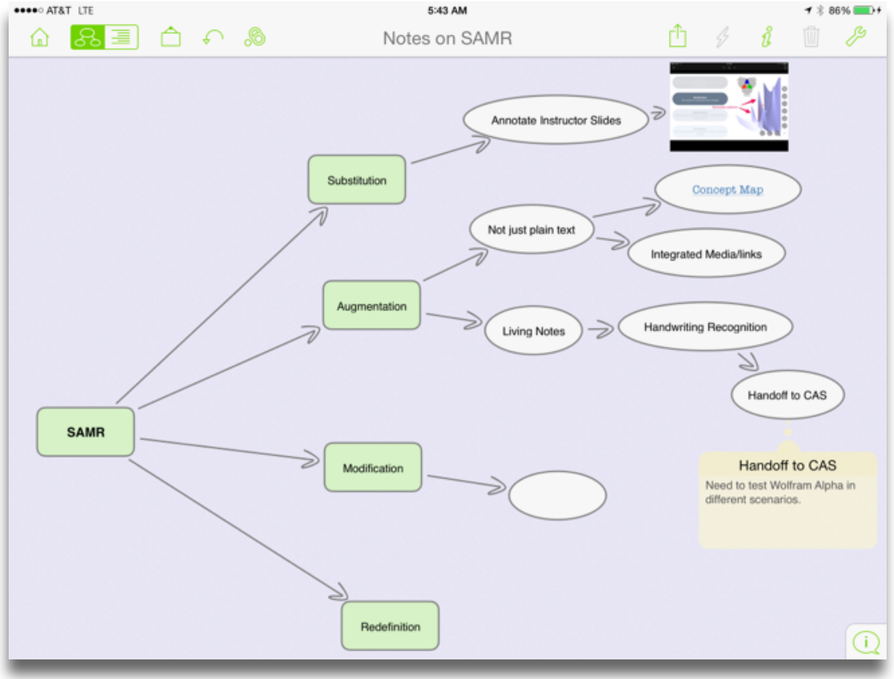

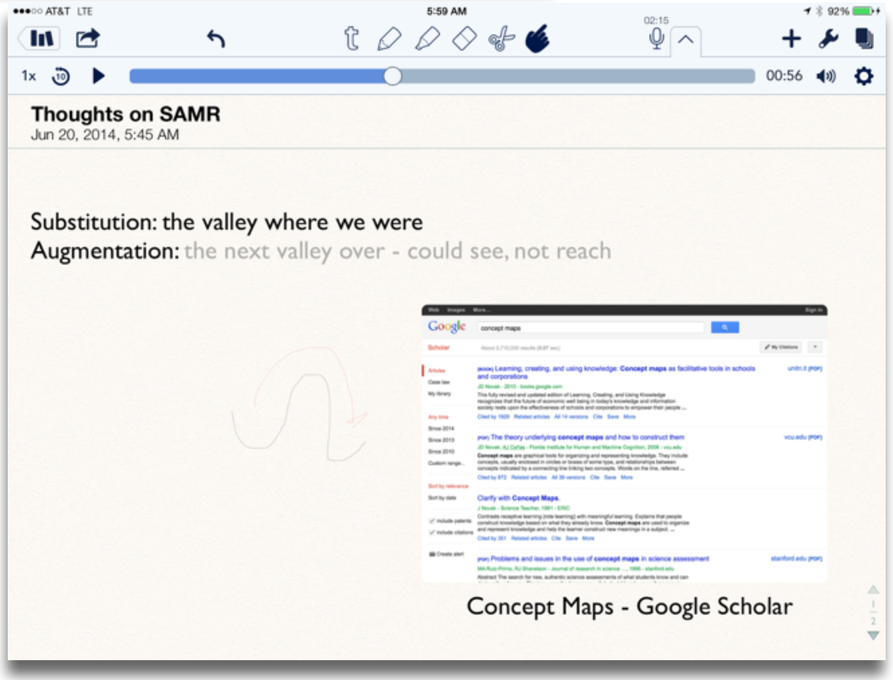

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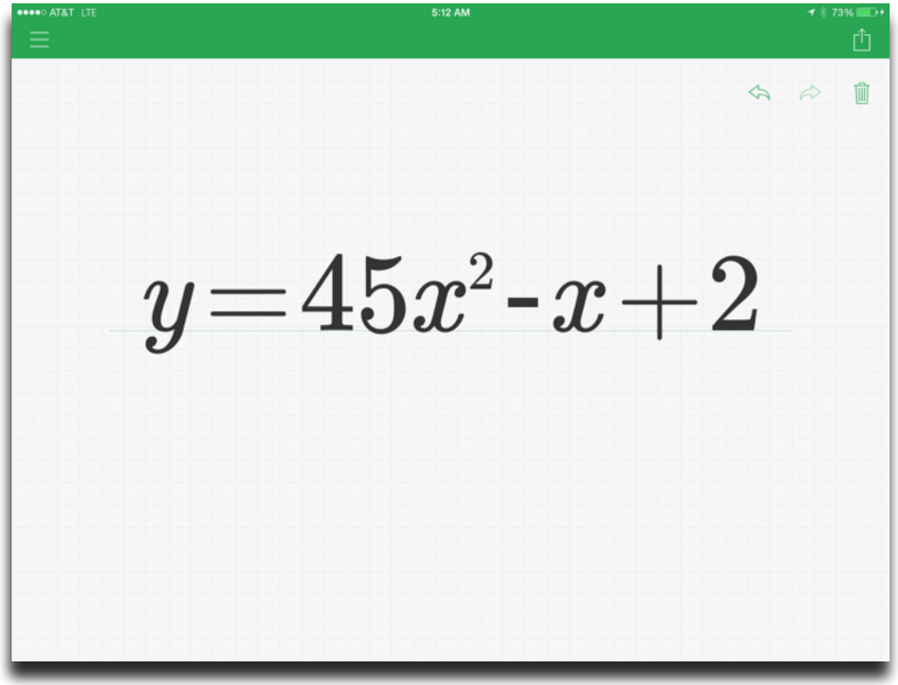

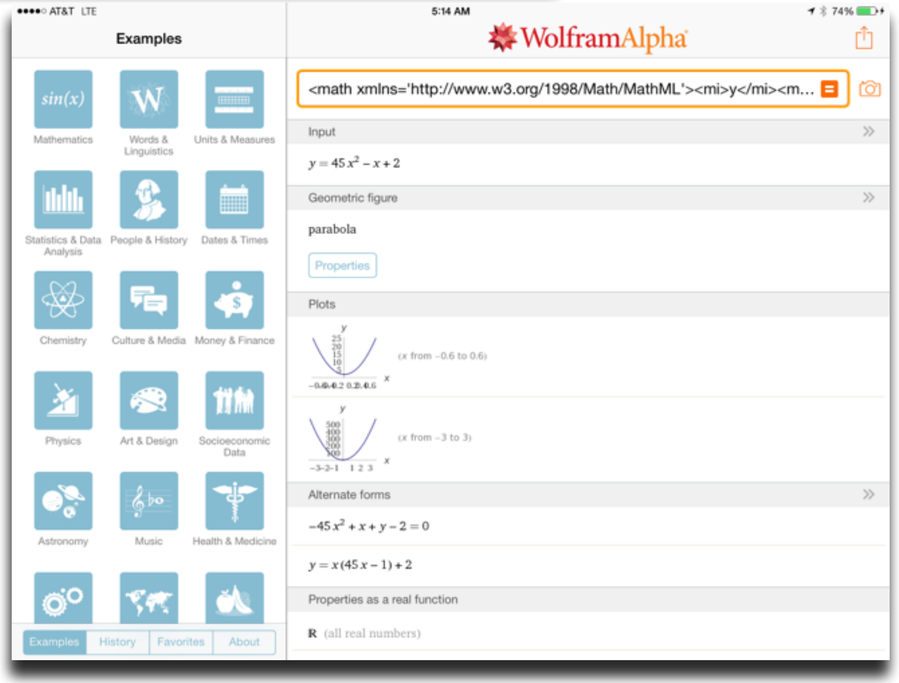

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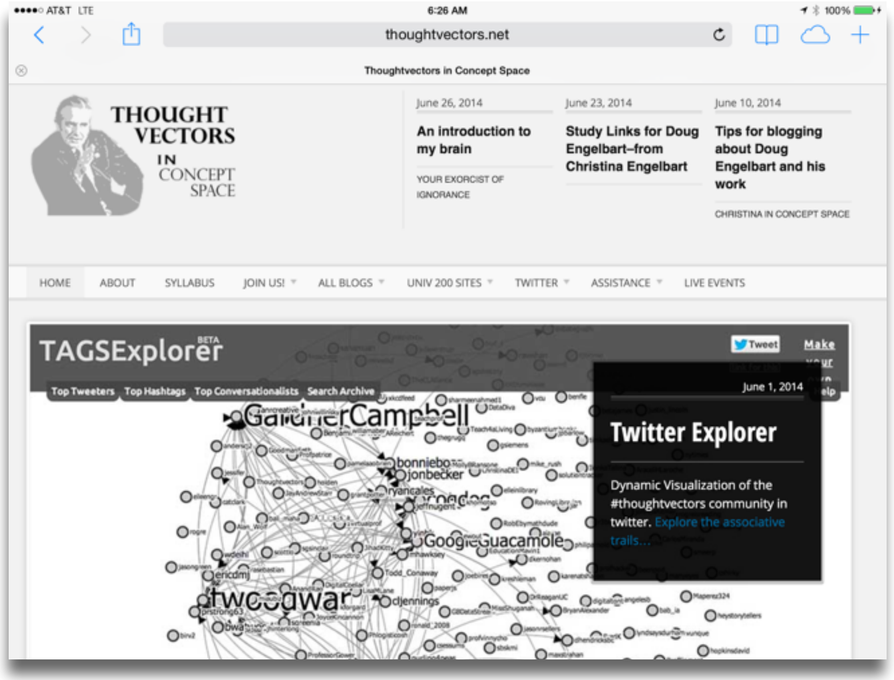

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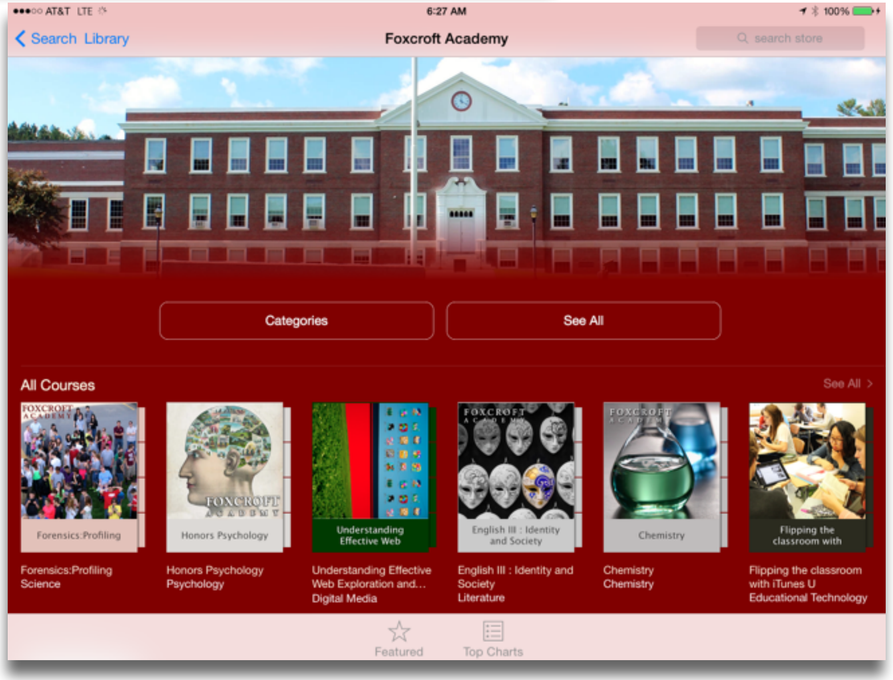

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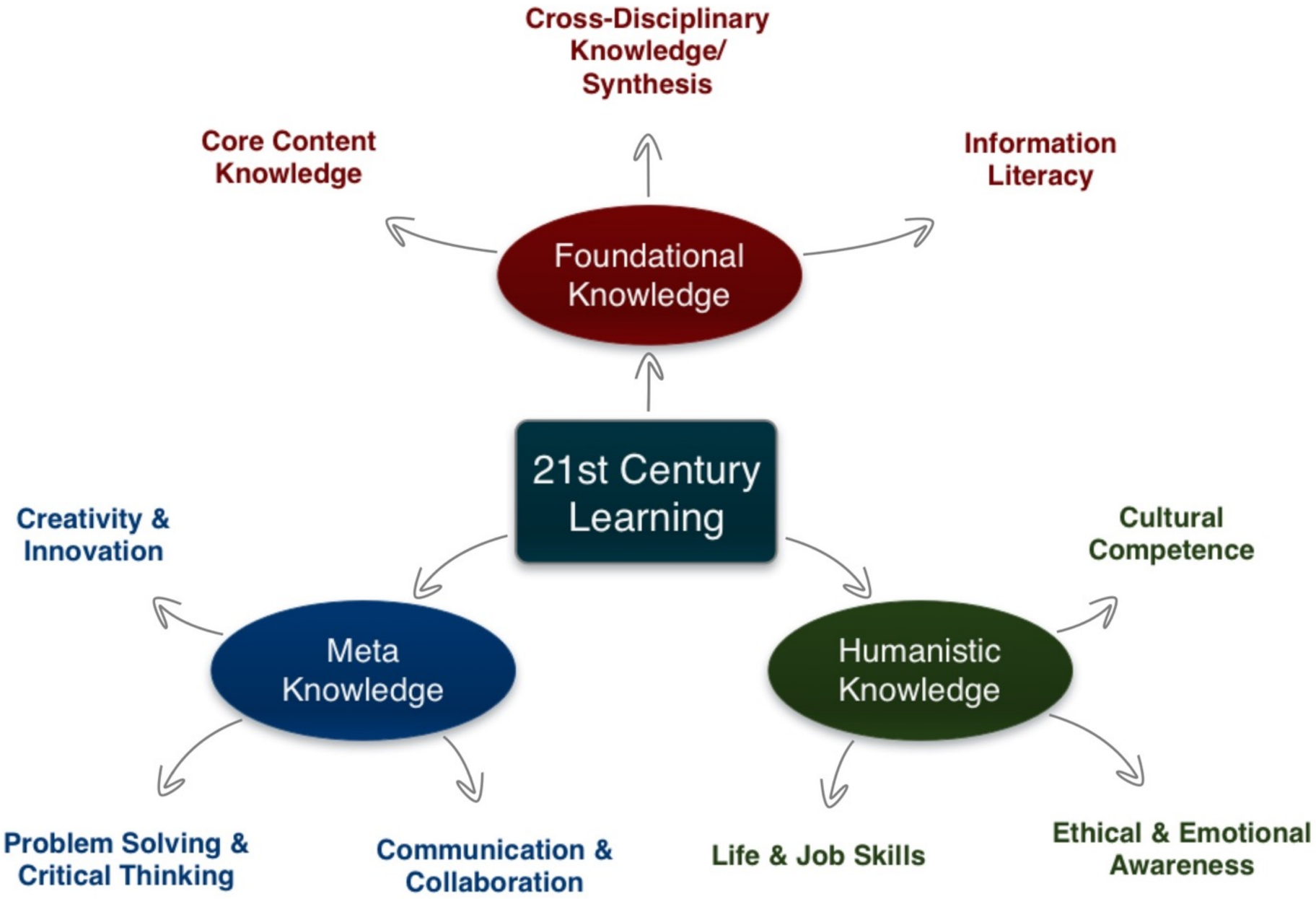


Kristen Kereluik, Punya Mishra, Chris Fahnoe, and Laura Terry, "What Knowledge Is of Most Worth: Teacher Knowledge for 21st Century Learning". *Journal of Digital Learning in Teacher Education (29)* 4 (2013)

A to M: Refraction

- Pick:

  1. A Content Area

  2. A 21C Learning Skill

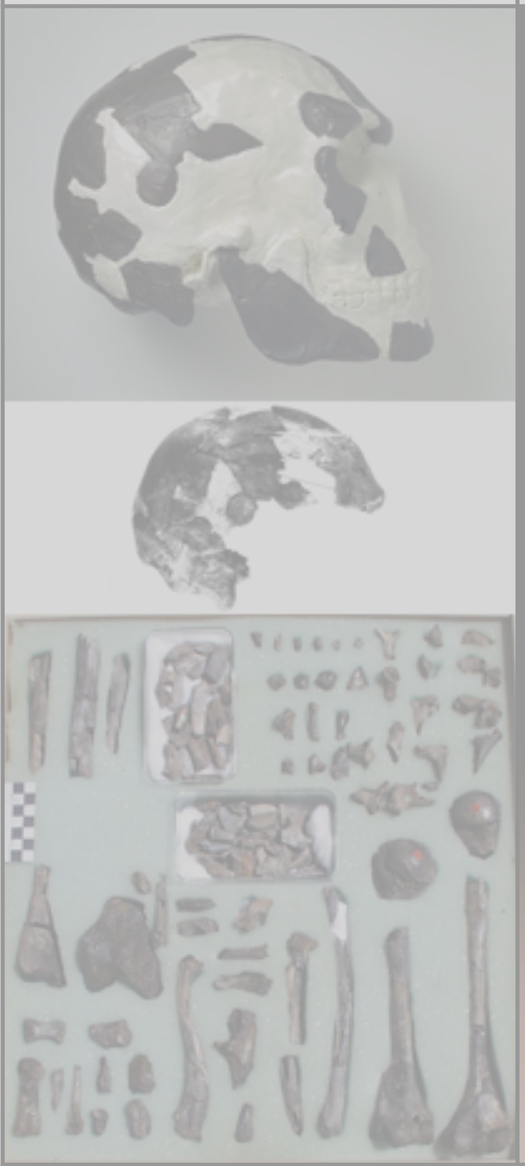
  3. A Shared Practice

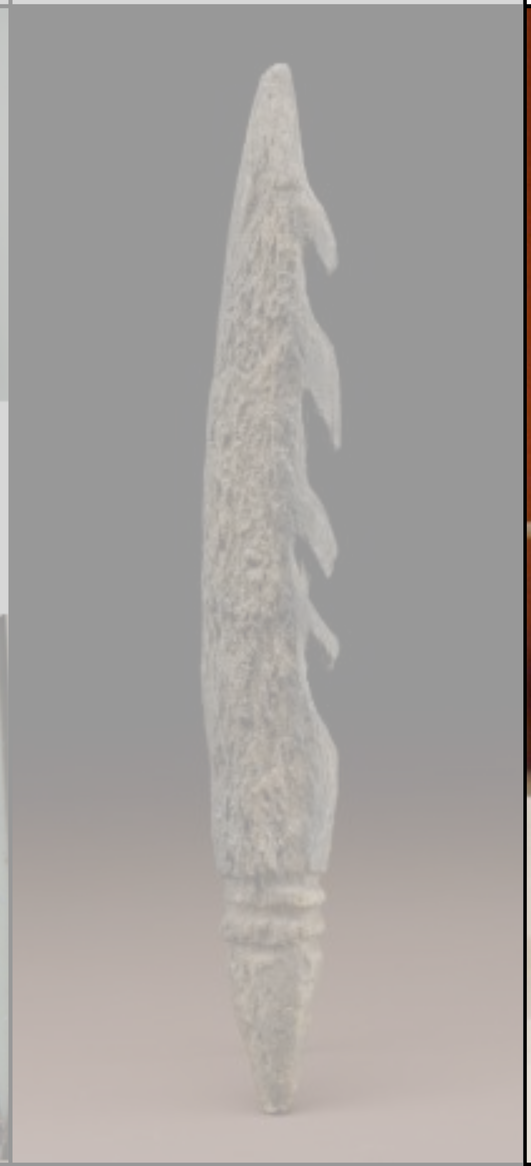
- Create a SAMR Ladder that looks at a topic in 1. through the lens of 2., focused into actual practice by 3.

Refraction Example: *Connecting the Dots*

Primary Topic: The Industrial Revolution
Primary 21C Lens: Cross-Disciplinary Knowledge & Synthesis
Primary Shared Practice Focus: Visualization Methods

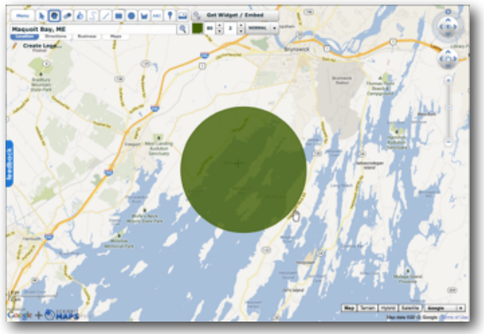
Social	Mobility	Visualization	Storytelling	Gaming
200,000 years	70,000 years	40,000 years	17,000 years	8,000 years






Timeline JS
Beautifully crafted timelines that are easy, and intuitive to use.
Website


3D



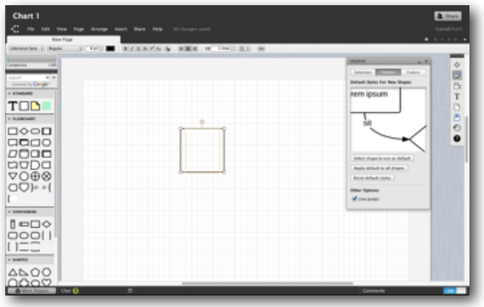


Chart 1


word tree
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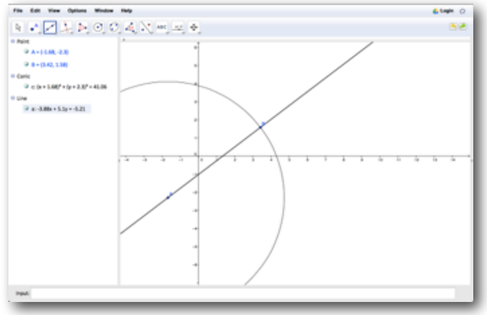
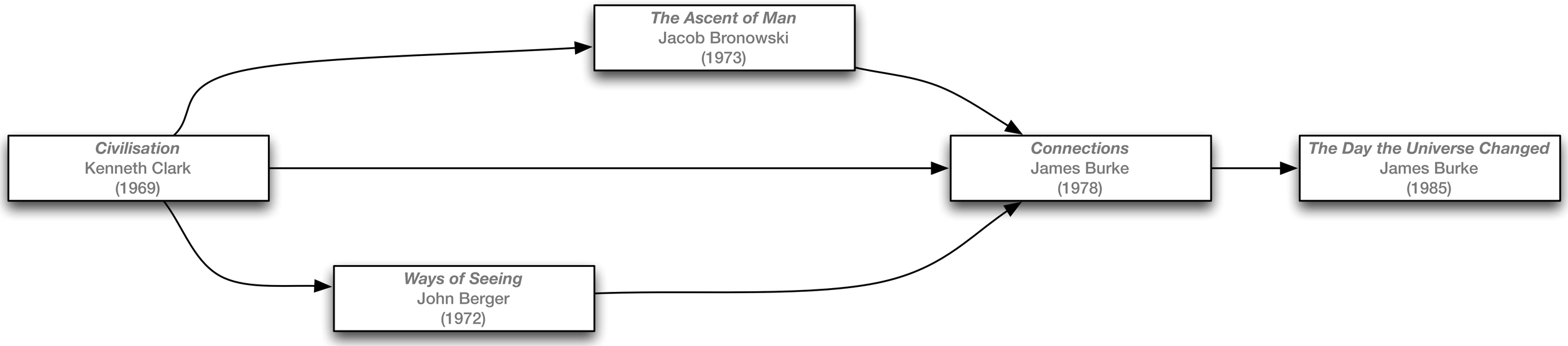
do
love
I


Word
Collage




The Ascent of Man
Jacob Bronowski
(1973)
Civilisation
Kenneth Clark
(1969)
Connections
James Burke
(1978)
The Day the Universe Changed
James Burke
(1985)
Ways of Seeing
John Berger
(1972)

Mahalo Learn Anything.

James Burke Connections Episode 4

Science historian James Burke's ten part series *Connections* traces the progression of technology from ancient to modern times. According to Burke, every invention comes from putting the right pieces of already available technology together to build something new. By tracing the history of technology through a series of "triggers," each one of which sets off the next, Burke demonstrates how technology is an interconnected web and how one seemingly unrelated innovation leads to another.

Episode Overview

The fourth episode of *Connections* shows us how Europeans transitioned from the Middle Ages to the Renaissance. When the Roman Empire fell, Western civilization was once again splintered; people were not sharing ideas or striving for knowledge as they once had. However, increased commercialism and international markets, which originated shortly before the onset of the plague and later flourished when survivors were made rich with inheritances, fueled international communication. The invention of the printing press eased the spread of knowledge to set off a revolution of innovation and chain of invention.

Jump to Episode

Fast Facts

Fact:	Written and presented by James Burke
Fact:	Directed by Mick Jackson
Episode length	50 minutes
Fact:	First aired in 1978
Network	BBC
Fact:	Shot at over 150 locations in 19 countries[1]

Recommended For You

James Burke

CONNECTIONS - # 4 FAITH IN NUMBERS

"The Road Ahead"

Content

SUMMARY

Flow of Innovations

CONCEPT MAP

Cheap Paper

Printing

Jacquard Loom

Punched Cards

Computer

Investment Capital Agreements

Fast Weaving & Spinning

Mechanical Devices

An Inference

GPS

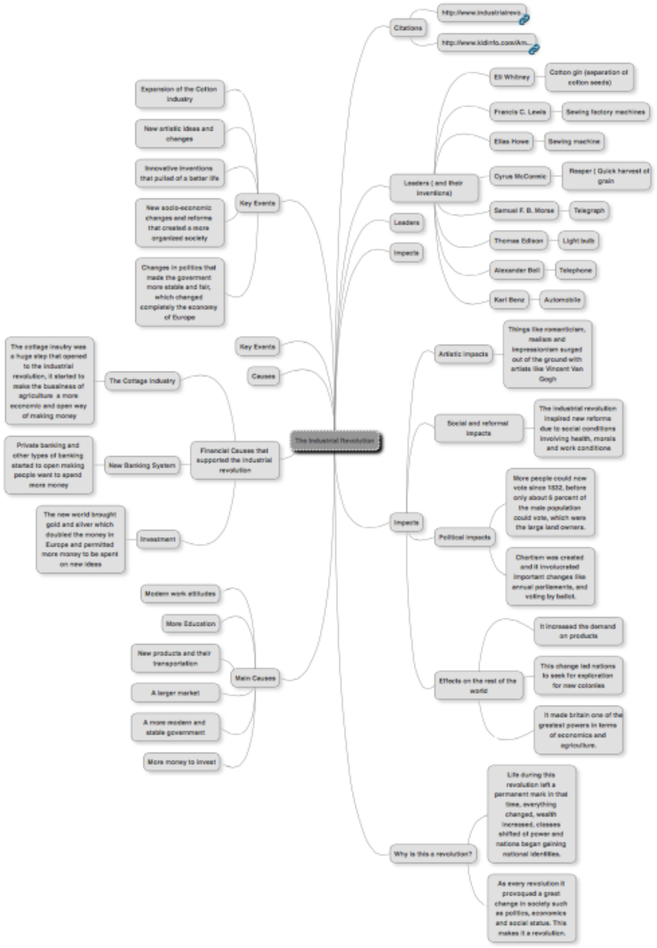
CRITICAL THINKING

- The solution to a problem can always be found from the lessons learnt in history, i-e Fall of Roman Empire
- Advancement is inevitable in life. Changing scenarios change the requirements and lead to evolution
- Evolution is never planned; its impossible to plan, indeed
- The history shows, technical development has been a game of musical chairs; its always about the right timing and the right problem- If you have it, you move further! An Example - The Romans (worn out cloth in abundance; hammers to make paper)
- The book boom - expanded knowledge; the internet boom- knowledge everywhere- These innovations were on the same line, just very different in scale

mindmup.com

File Edit Share View Extensions

Save Publish



Hotkeys

Display a menu

timeline.knightlab.com

By Marcin Wichary via Wikimedia Commons

This modern model of the Analytical Engine is housed at the Science Museum in London.

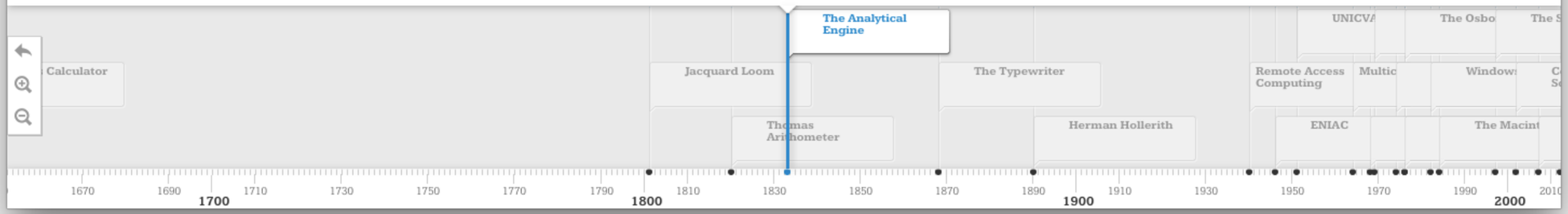
1820
Thomas Arithometer

1833

The Analytical Engine

Charles Babbage designed but was never able to produce a working model but it is significant in that it relied upon punched cards for data and programs and would employ a language similar to modern assembly language complete with loops and conditional branching (for the nerds out there).

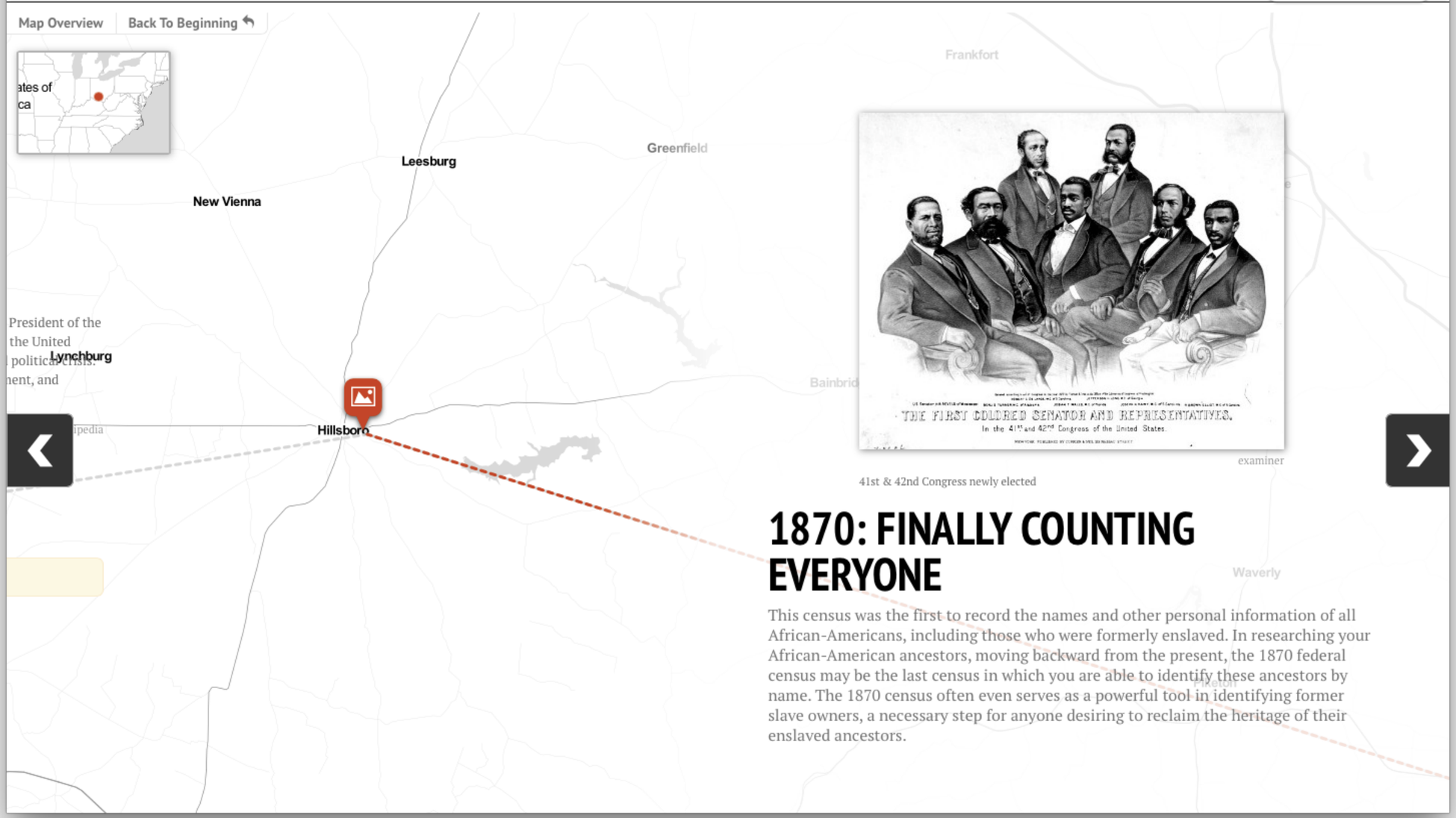
1868
The Typewriter



storymap.knightlab.com

StoryMap JS Create Gigapixel Advanced Examples Help

Map Overview Back To Beginning



41st & 42nd Congress newly elected

1870: FINALLY COUNTING EVERYONE

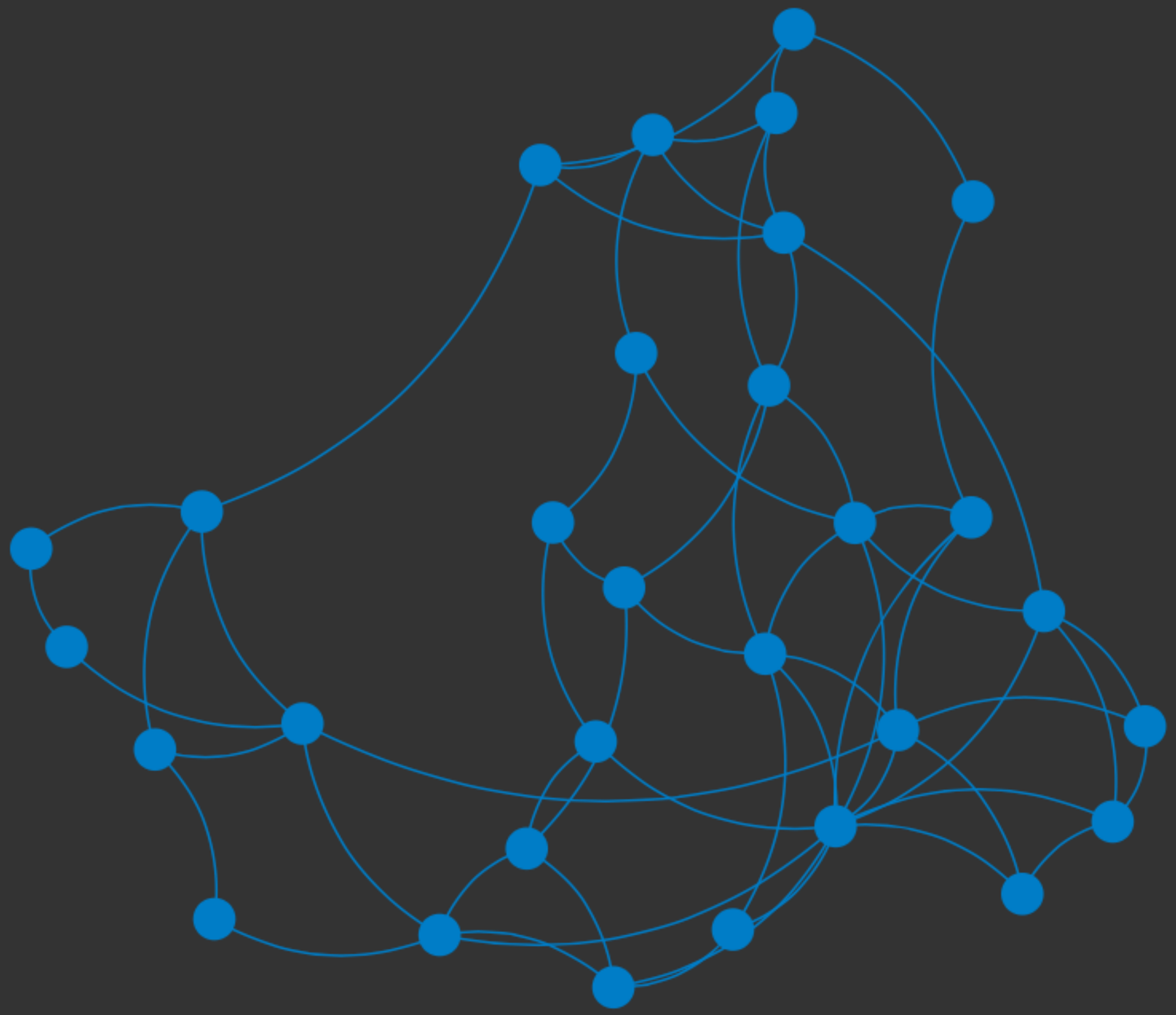
This census was the first to record the names and other personal information of all African-Americans, including those who were formerly enslaved. In researching your African-American ancestors, moving backward from the present, the 1870 federal census may be the last census in which you are able to identify these ancestors by name. The 1870 census often even serves as a powerful tool in identifying former slave owners, a necessary step for anyone desiring to reclaim the heritage of their enslaved ancestors.

M to R: Communities of Practice and Personal Learning Networks

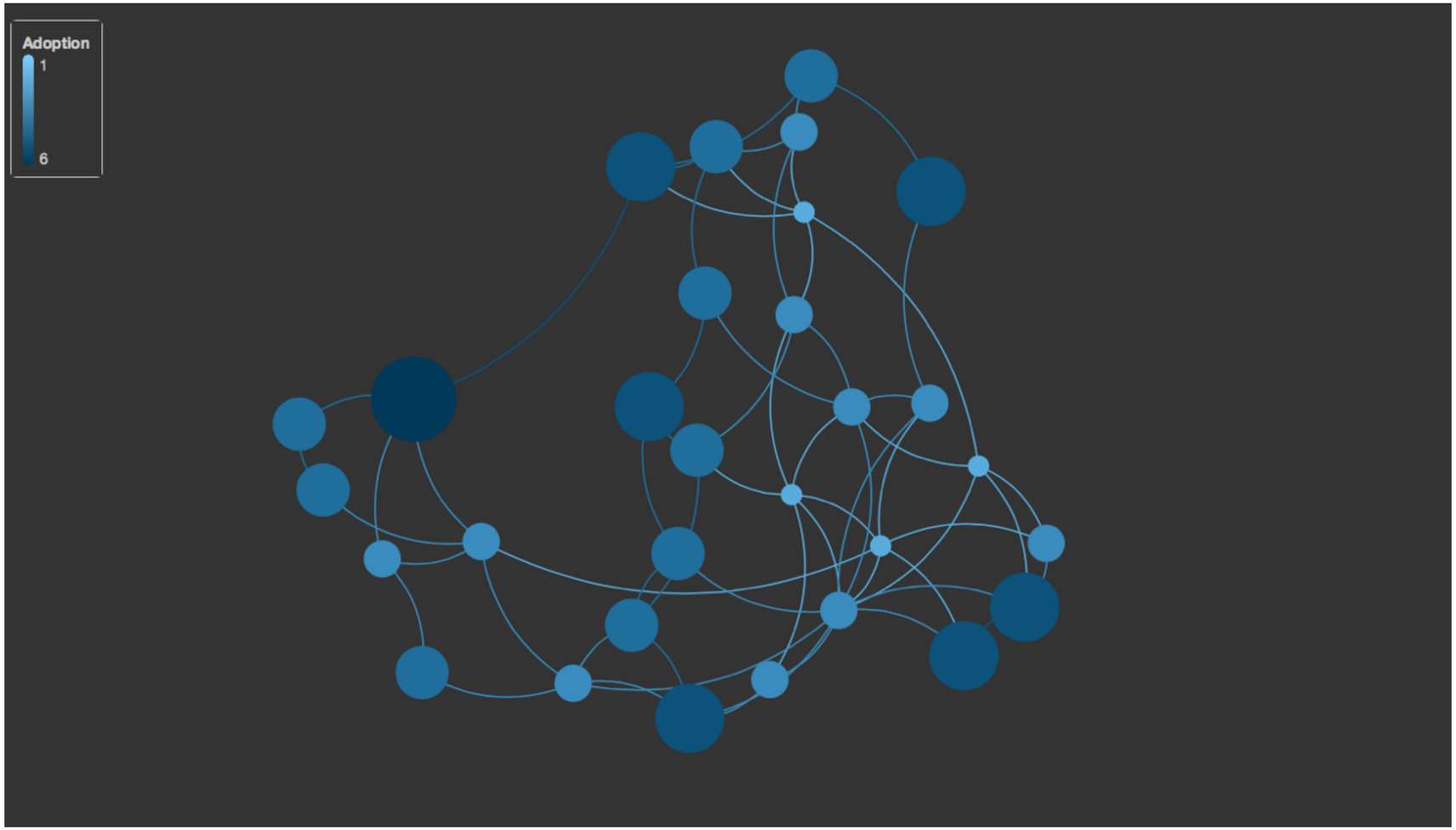
- Internally: *School as Community of Practice*
  - A **domain** of shared interest, commitment, and competence;
  - A **community** where joint activities, discussions, information sharing, and help processes are focused around and by the domain;
  - A **practice** with a shared repertoire of resources, such as experiences, stories, tools, and problem-solving approaches.
- Externally: *Individual Personal Learning Networks*
  - Loosely structured around a range of tools, individually chosen - no two PLNs are the same;
  - Usually online, but may involve face-to-face components (e.g. meetups);
  - Resources may range from professional society websites, to educator blogs, to Facebook groups, to Twitter feeds;
  - Involvement may range from primarily reading sources, to participating in discussions, to authoring new materials.

Etienne and Beverly Wenger-Trayner. *Introduction to communities of practice: A brief overview of the concept and its uses*. (2015) Online at: http://wenger-trayner.com/introduction-to-communities-of-practice/

Will Richardson and Rob Mancabelli. *Personal Learning Networks: Using the Power of Connections to Transform Education*. Solution Tree. (2012)

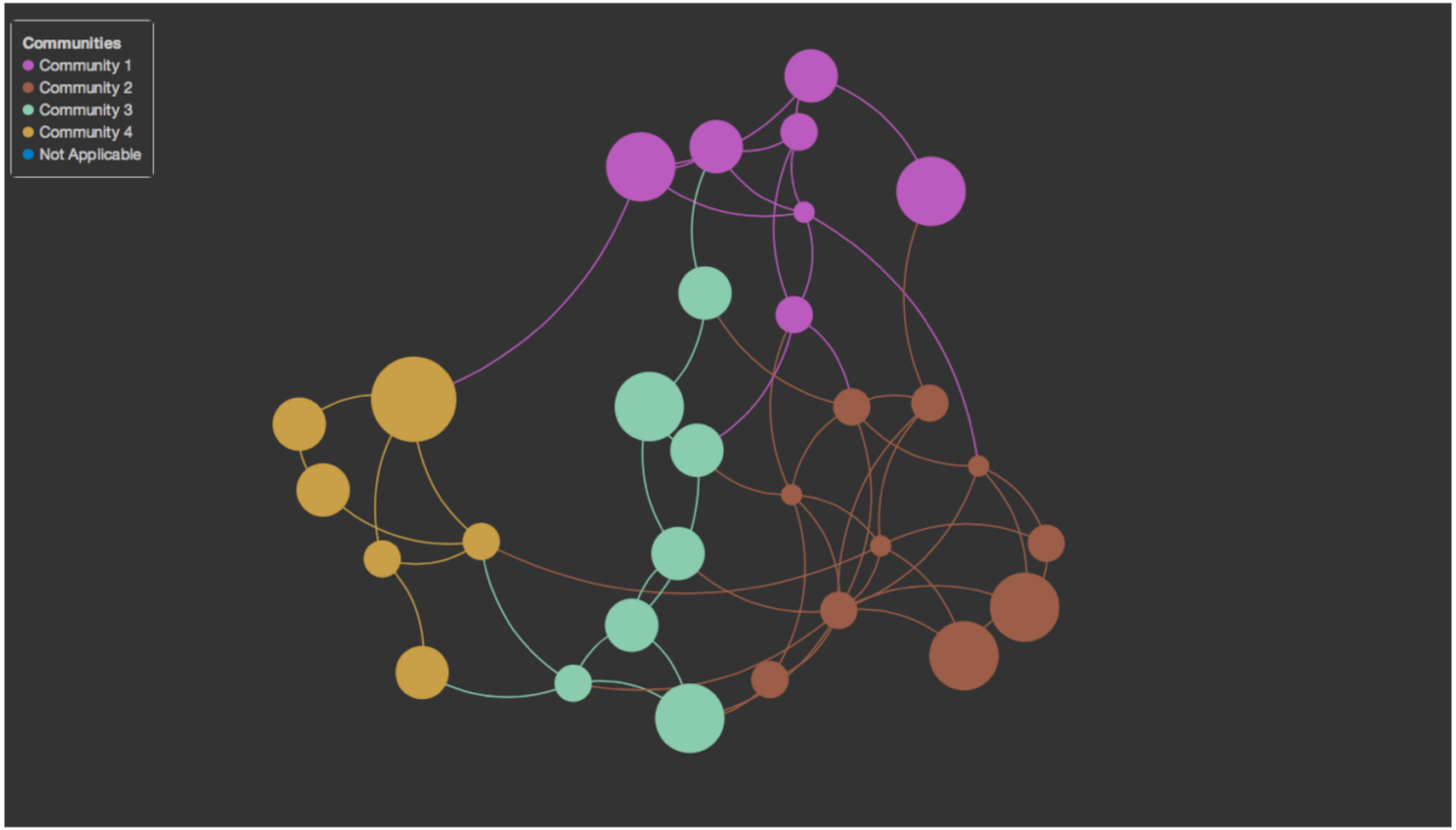


Innovation Adoption



R.O. Carlson, Adoption of Educational Innovations (Eugene: University of Oregon, Center for the Advanced Study of Educational Administration, 1965, p. 19). Network file coded as a Pajek file by W. de Nooy.

Communities



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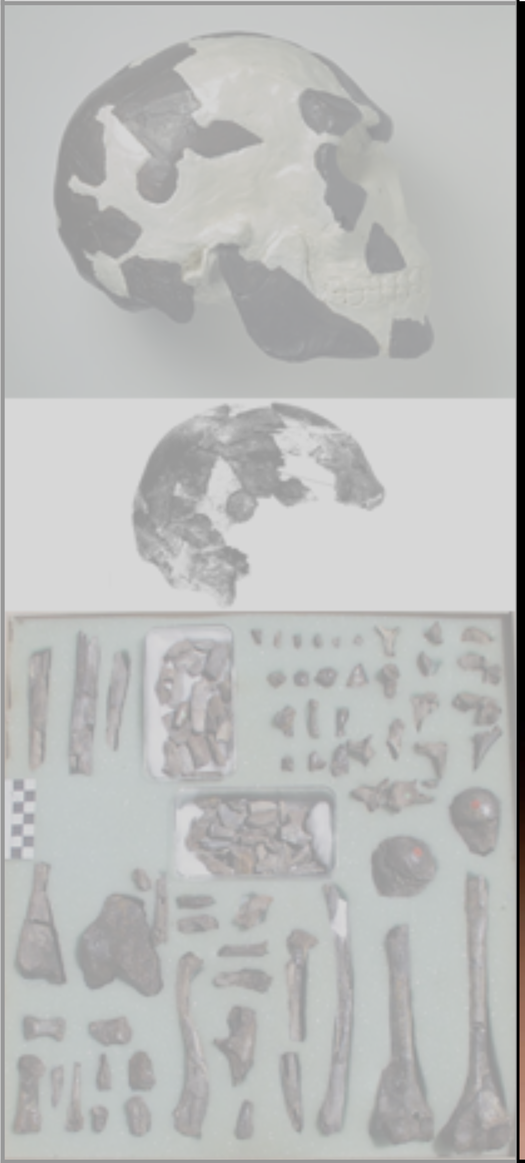
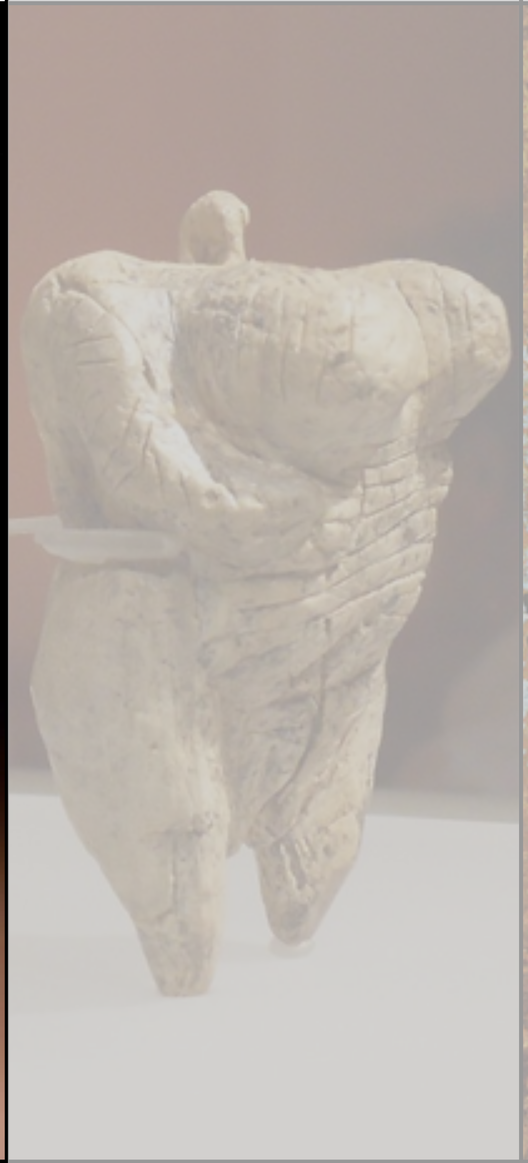
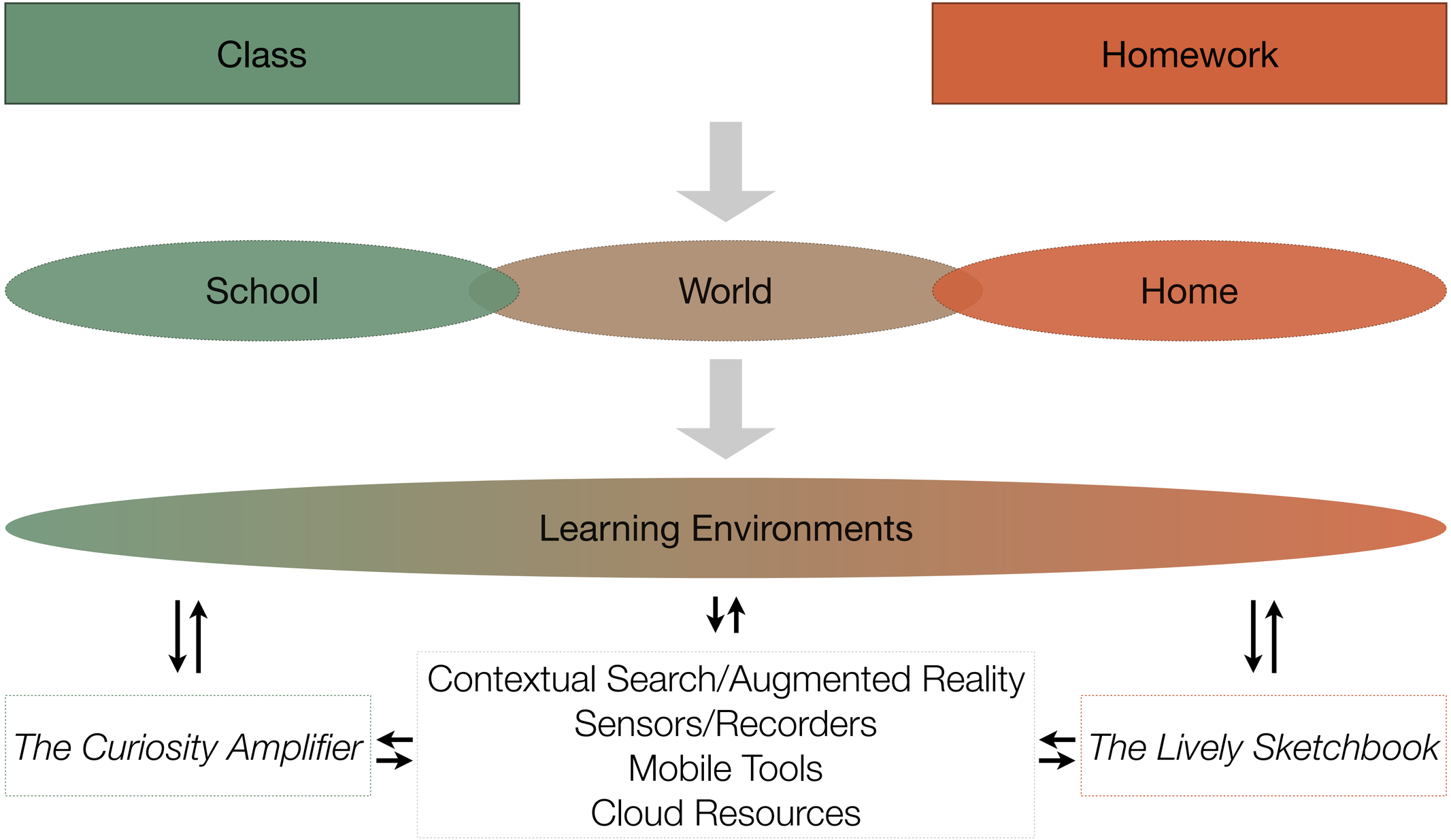




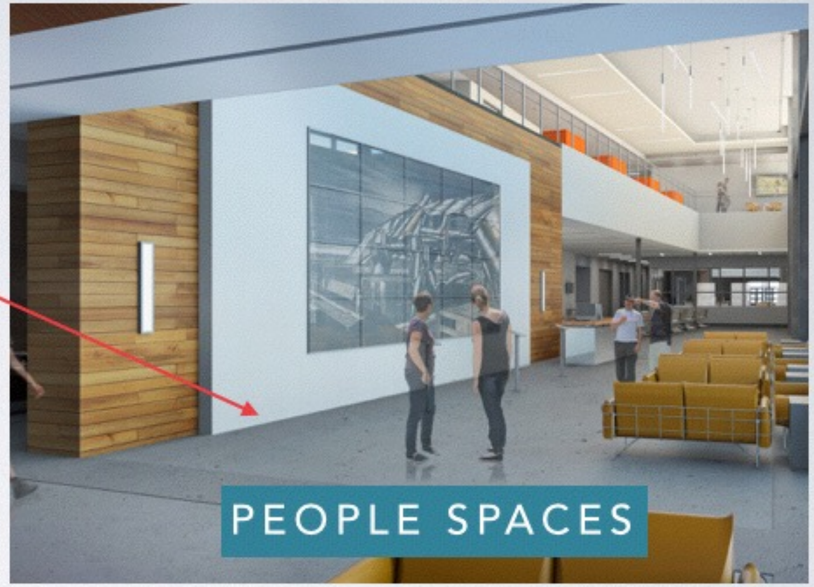


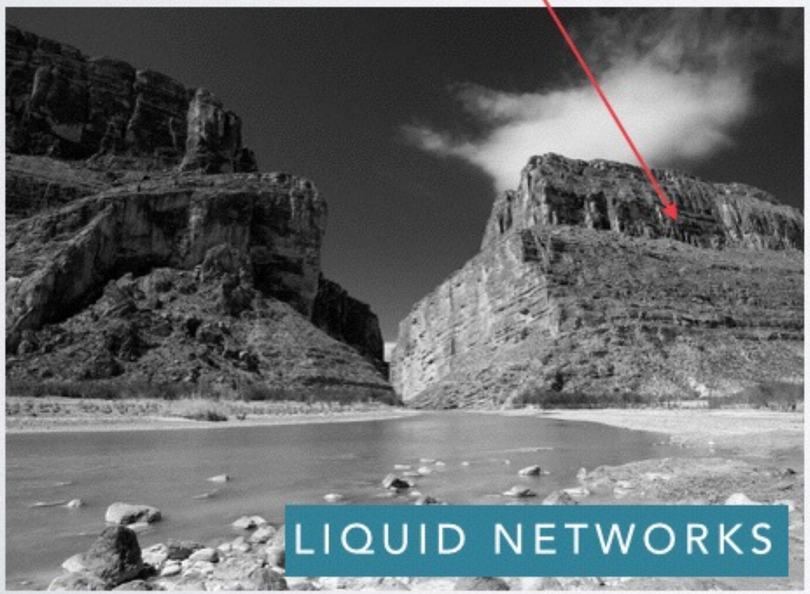
John Seely Brown. “A New Culture of Learning”. *NMC Summer Conference, Closing Keynote*. (2010)

Ruben R. Puentedura, “The Lively Sketchbook”. *Hippasus Blog*. (2010)

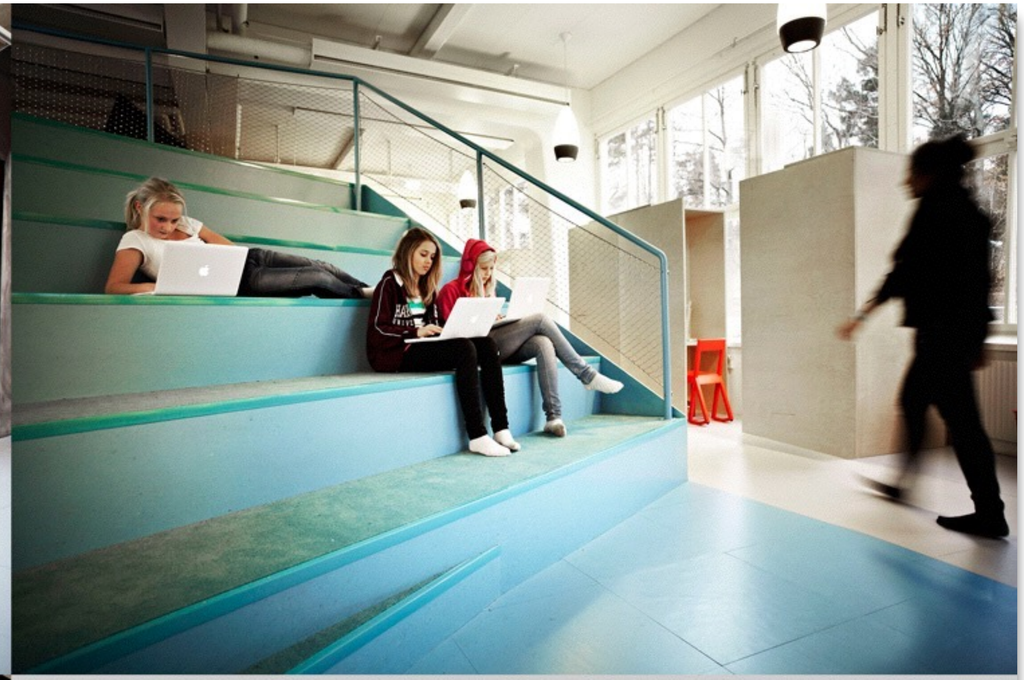
FACILITATING INNOVATION: THE IDEASPACES HIERARCHY

- Design physical **Spaces** that facilitate *Innovation*
- Create **Time** to allow people to *Innovate*
- Create **Structures** that nurture *Innovation*





Tom Haymes – http://ideaspaces.net

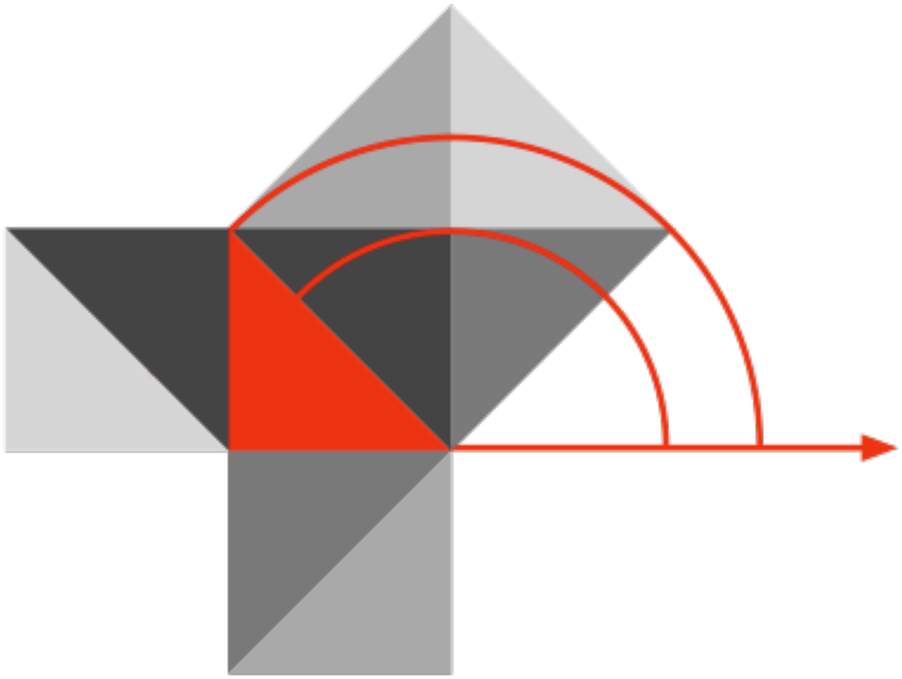


Vittra School *Telefonplan*

Principal: Jannie Jeppesen
Learning Design: Ante Runnquist
Architectural Design: Rosan Bosch

Photo Credit: Kim Wendt

Hippasus



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