## SAMR: A Model for Teaching and Learning – Day 1

Ruben R. Puentedura, Ph.D.

Tech acts as a direct tool substitute, with functional improvement

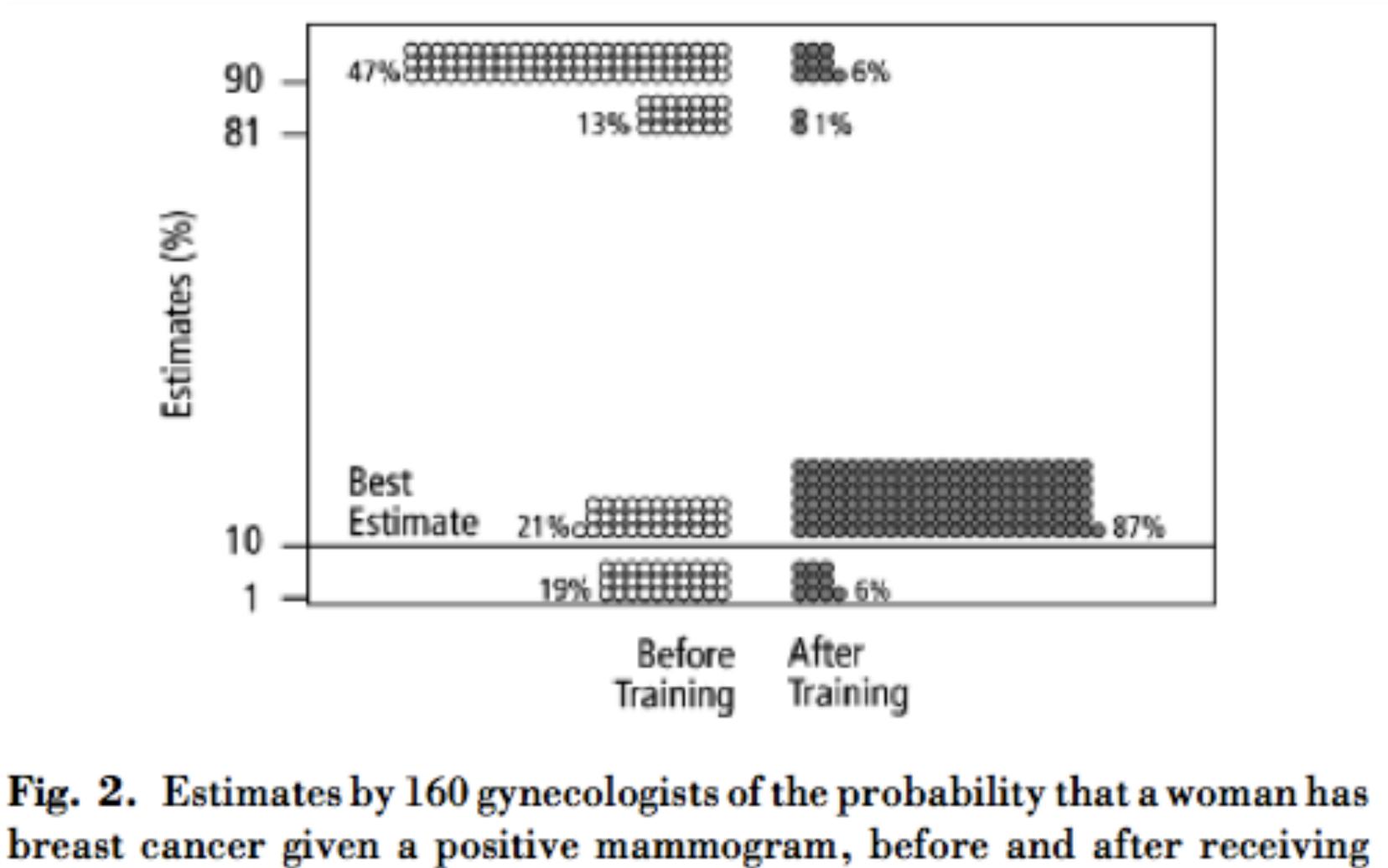
**Substitution** Tech acts as a direct tool substitute, with no functional change

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

Modification Tech allows for significant task redesign Transformation

## Augmentation

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

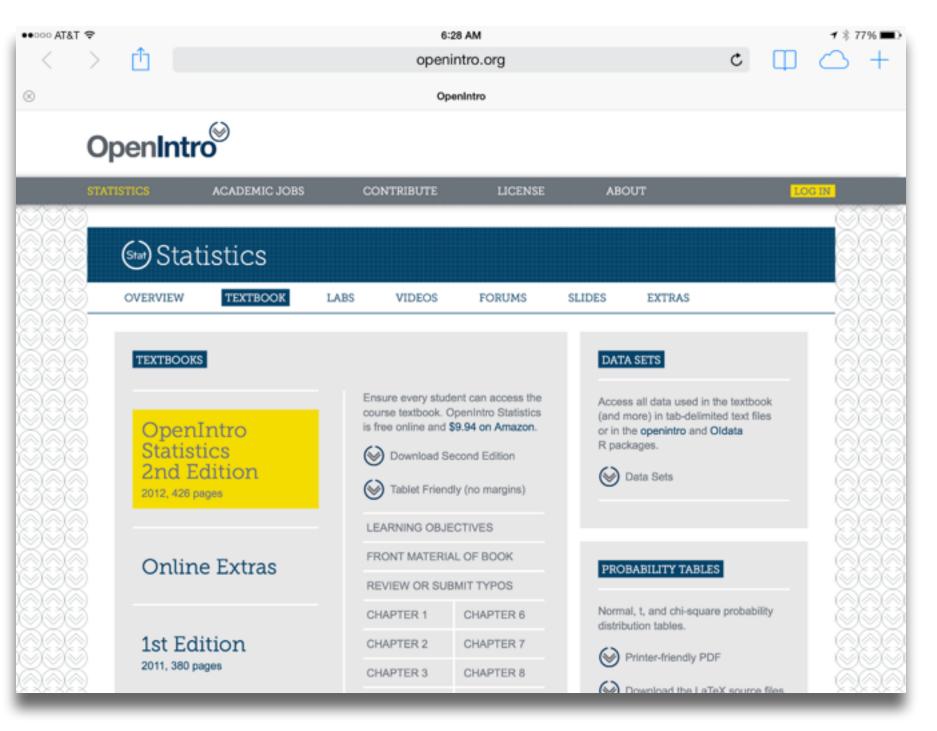


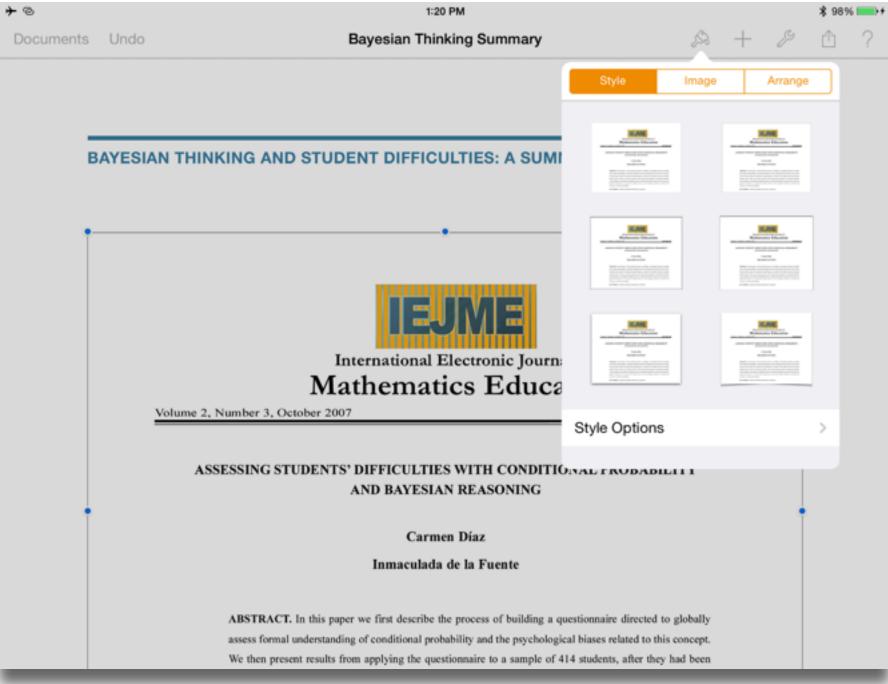
training in how to translate conditional probabilities into natural frequencies.

### Modification Tech allows for significant task redesign

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

#### **Substitution**





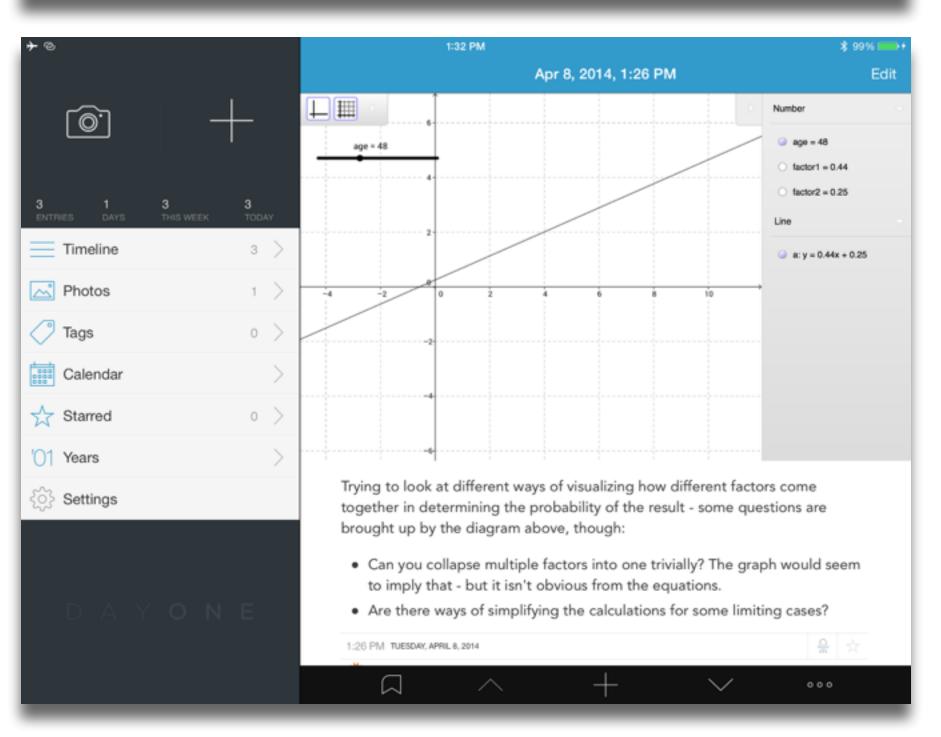
#### Modification Tech allows for significant task redesign

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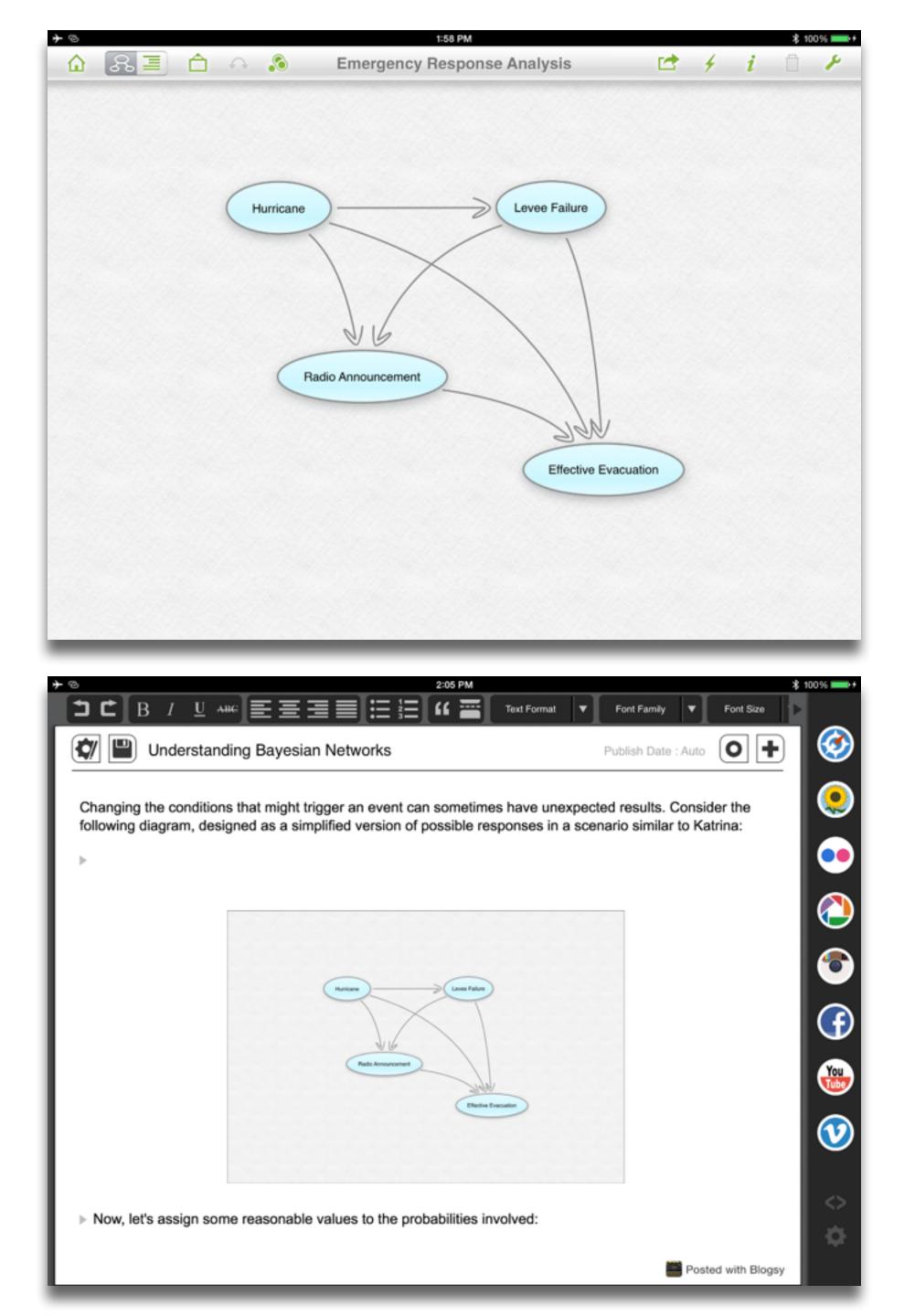
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#### Redefinition

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		Independent Predictor	Hazard Ratio	95% CI	P Value
		30-Day Major Adverse Cardiac or Cerebrovascular Event			
		>1 vessel treated	1.416	1.138-1.762	0.0018
		Urgent procedure	3.27	2.5-5.54	< 0.0001
	E33333	Female sex	1.464	1.03-2.07	0.0321
		Chronic obstructive pulmonary disease	1.541	1.04-2.276	0.03
		Hypertension	1.622	1.037-2.535	0.0339
		3-Year Survival			
	8.8383	>1 vessel treated	1.252	1.072-1.462	0.0045
	20000	NYHA functional class III or IV	1.35	1.015-1.796	0.0389
		Prior myocardial infarction	1.411	1.077-1.848	0.0047
	83333	Age >65 yr	2.182	1.663-2.864	< 0.0001
	2010101	Chronic renal insufficiency	1.963	1.481-2.602	< 0.0001
	83333	Valvulopathy	1.641	1.183-2.277	0.0031
		Family history of coronary artery disease	0.615	0.437-0.865	0.0039
		Hyperlipidemia	0.66	0.518-0.841	0.0002
		Congenital heart disease	2.312	1.692-3.16	< 0.0001
		Peripheral vascular disease	1.921	1.452-2.541	< 0.0001

Bypass Grafting? James M. Wilson, MD

searching, browsing, accessing, collecting

### Discovering

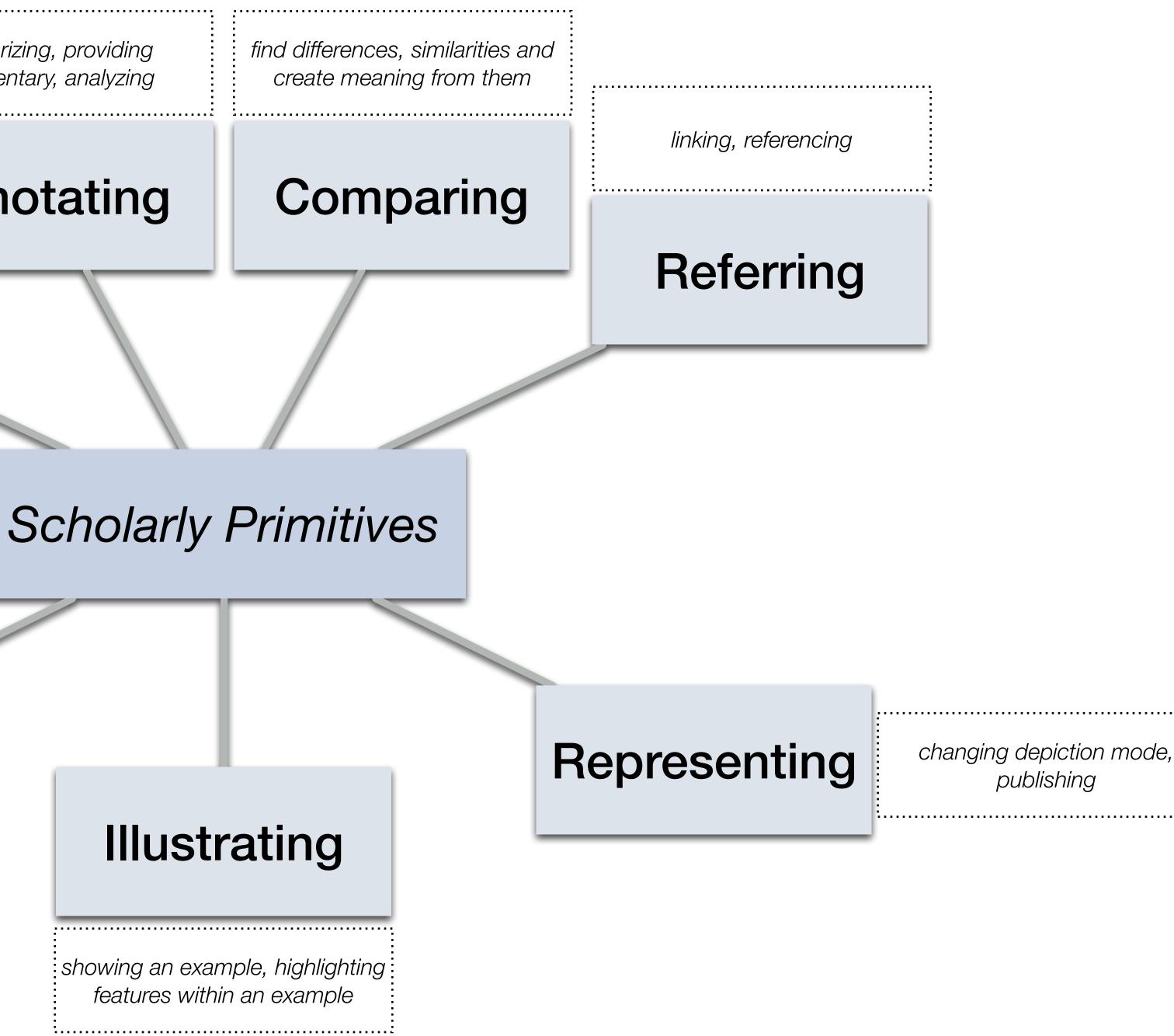
categorizing, providing commentary, analyzing

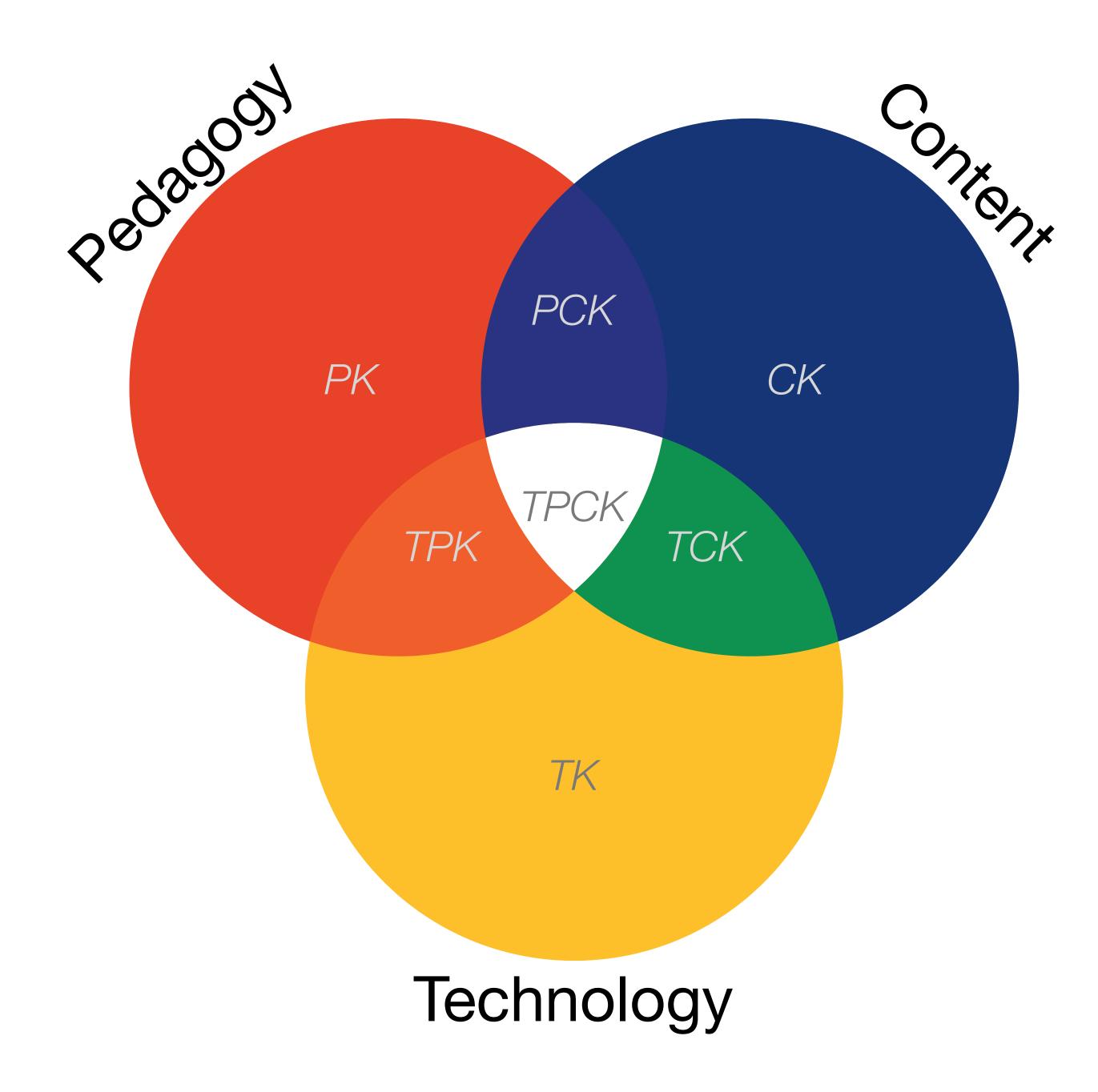
## Annotating

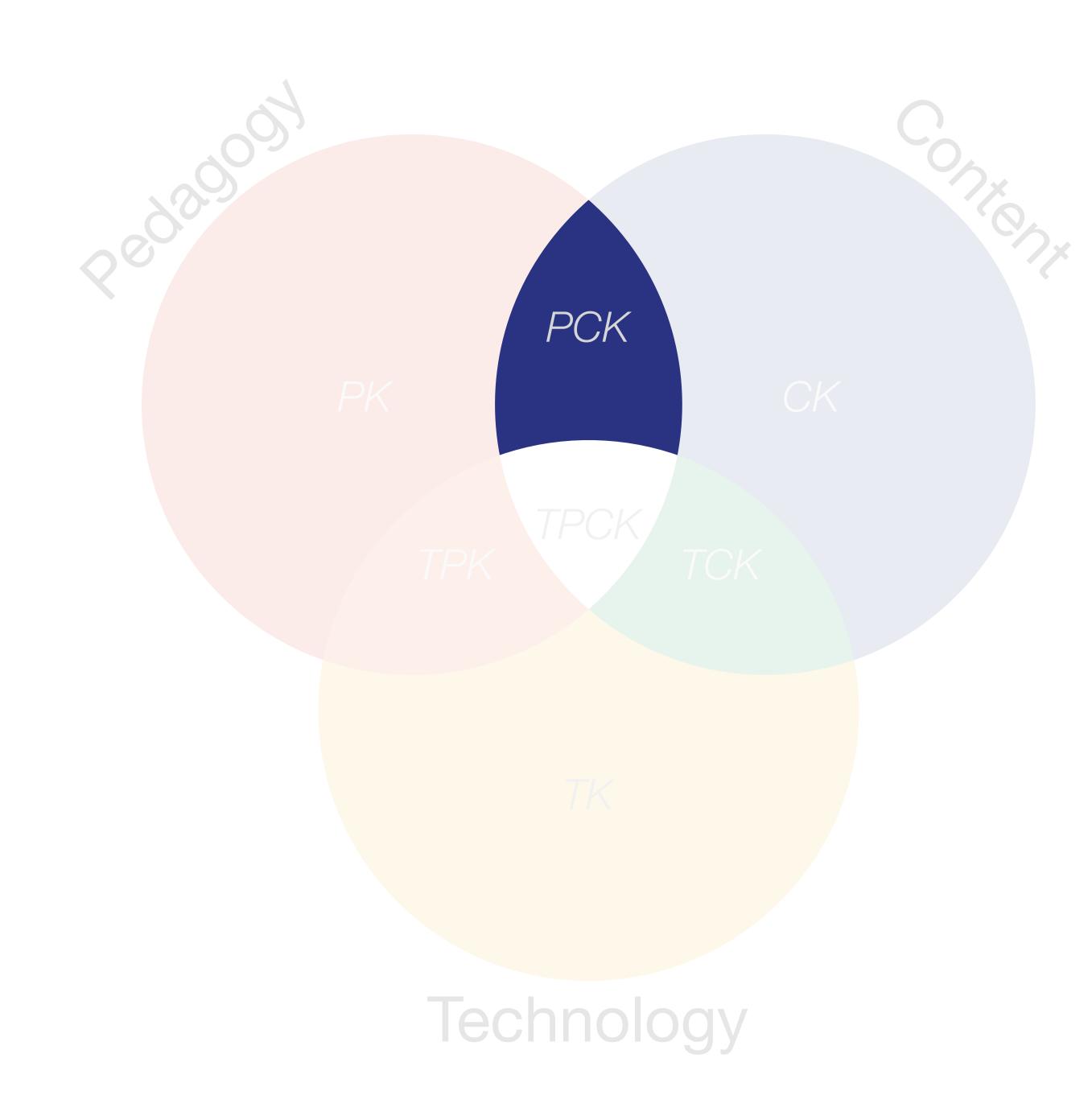
selecting according to a criterion, showing relationships of items selected to the original set

Sampling

John Unsworth. Scholarly Primitives: What Methods Do Humanities Researchers Have in Common and How Might Our Tools Reflect This? Humanities Computing, Formal Methods, Experimental Practice Symposium, Kings College, London. (May 2000)





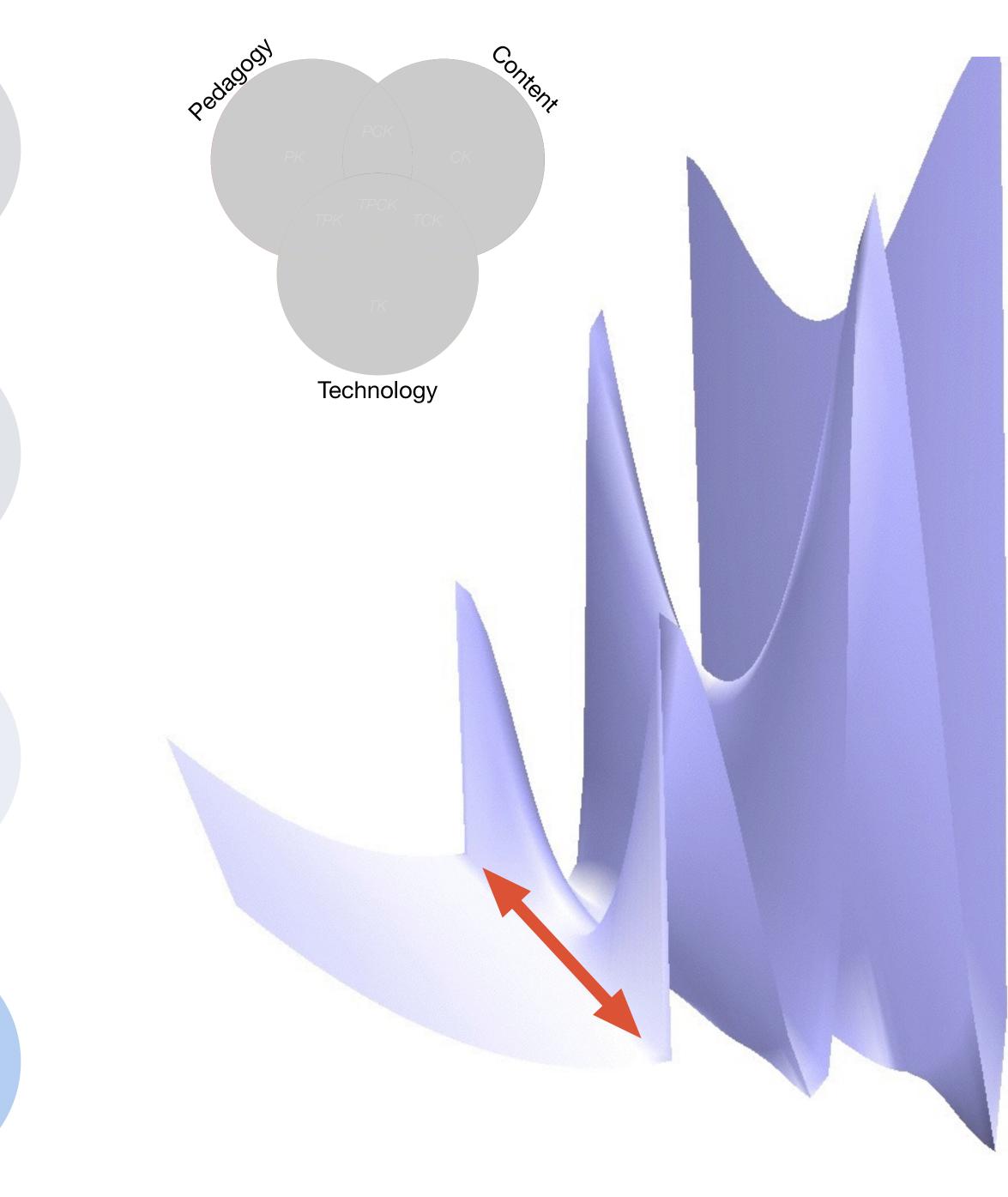




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iPad ᅙ

Library

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William Rosen

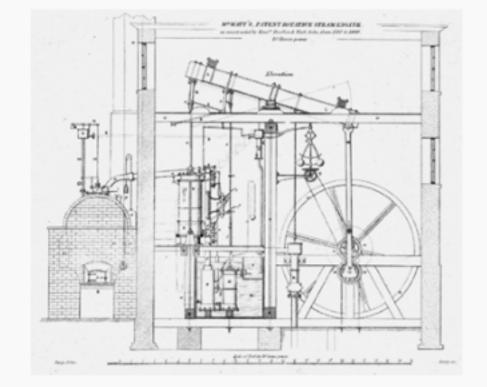


Fig. 5: The caption for this technical drawing reads "Mr. Watt's Patent Rotative Steam Engine as constructed by Messrs. Boulton & Watt, Soho, from 1787 to 1800. 10 Horse power." By 1787, the engine had evolved considerably from the earlier versions, using the sun-and-planet gear to drive the large wheel; the Watt linkage to connect the beam with the cylinder, on the left; and even Watt's feedbackdriven flyball governor—the two balls hanging

above and to the left of the large wheel—to control

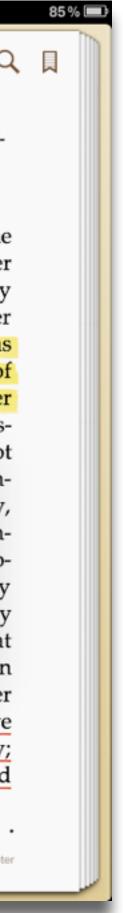
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The Most Powerful Idea in the World  ${}_{\mathrm{A}}\mathrm{A}$  Q 🔲

the wheel's speed. Science Museum / Science & Society Picture Library

THE SUN-AND-PLANET (or, for that matter, the crank plus connecting rod, which was, after all, Watt's first choice for producing rotary motion, and would be everybody's after the Wasbrough patent expired in 1794) was a huge step toward the introduction of steam power into mills and factories, rather than pumps. But it was only a step. The les-Get data & graph this; how does this immei ory, pro but compare with later trends in patents unissued per year? con protect by 178 ary that pac ĥad ohn Locke in the centur, preceding. Consider that from 1700 to 1740, fewer than five patents were issued in Britain annually; from 1740 to 1780, the annual number had

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 440 of 850
 10 pages left in this chapter

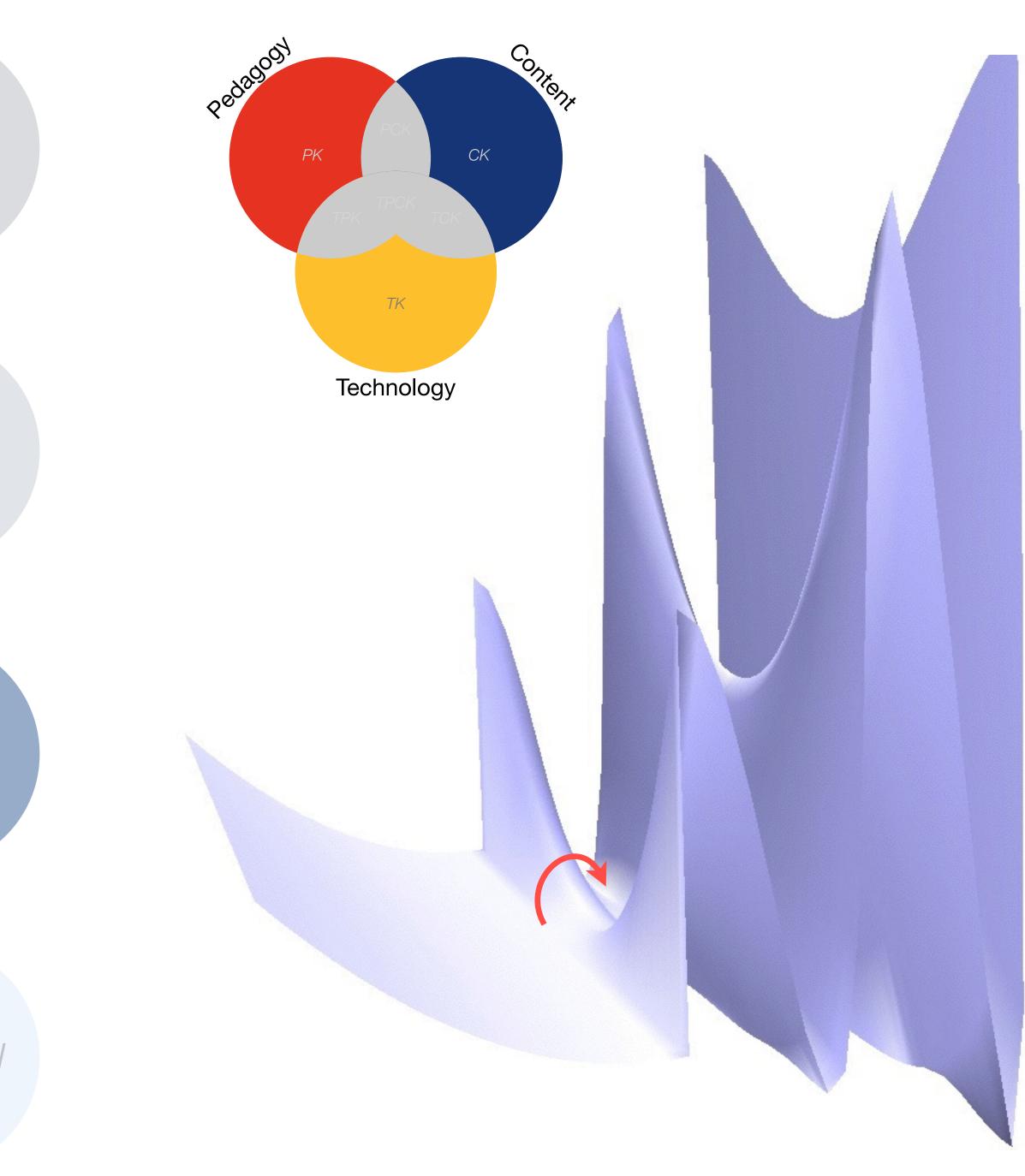


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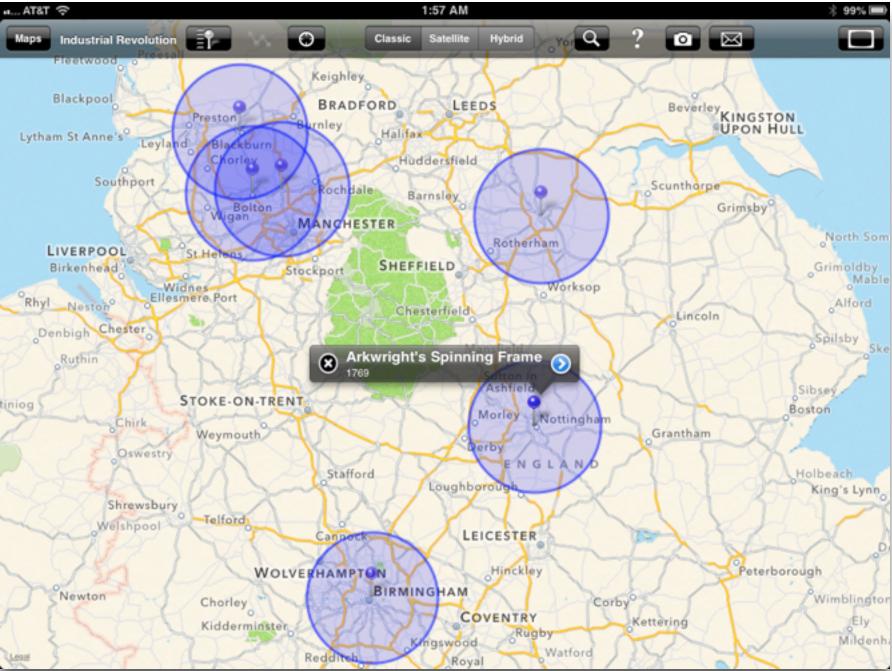
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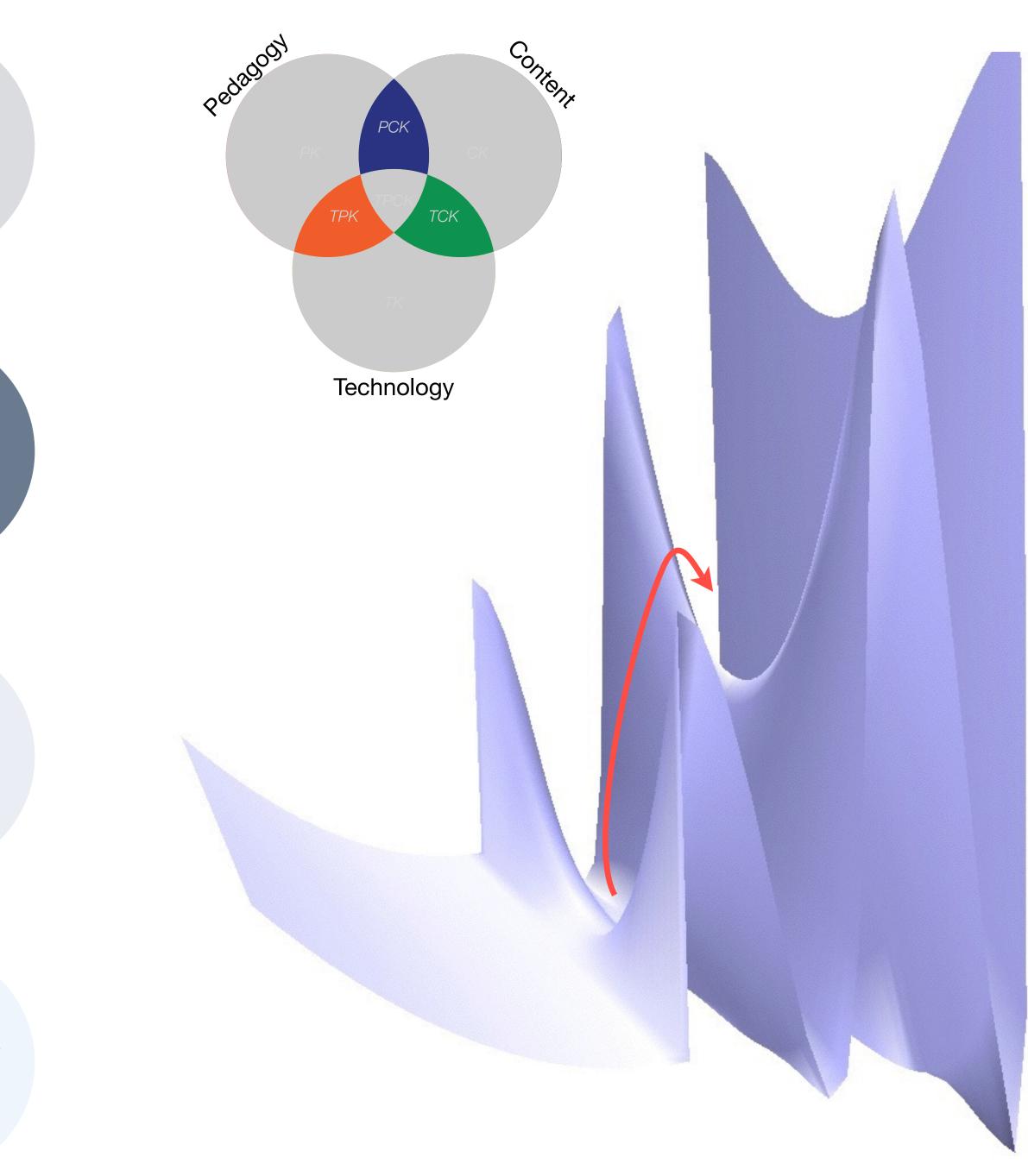
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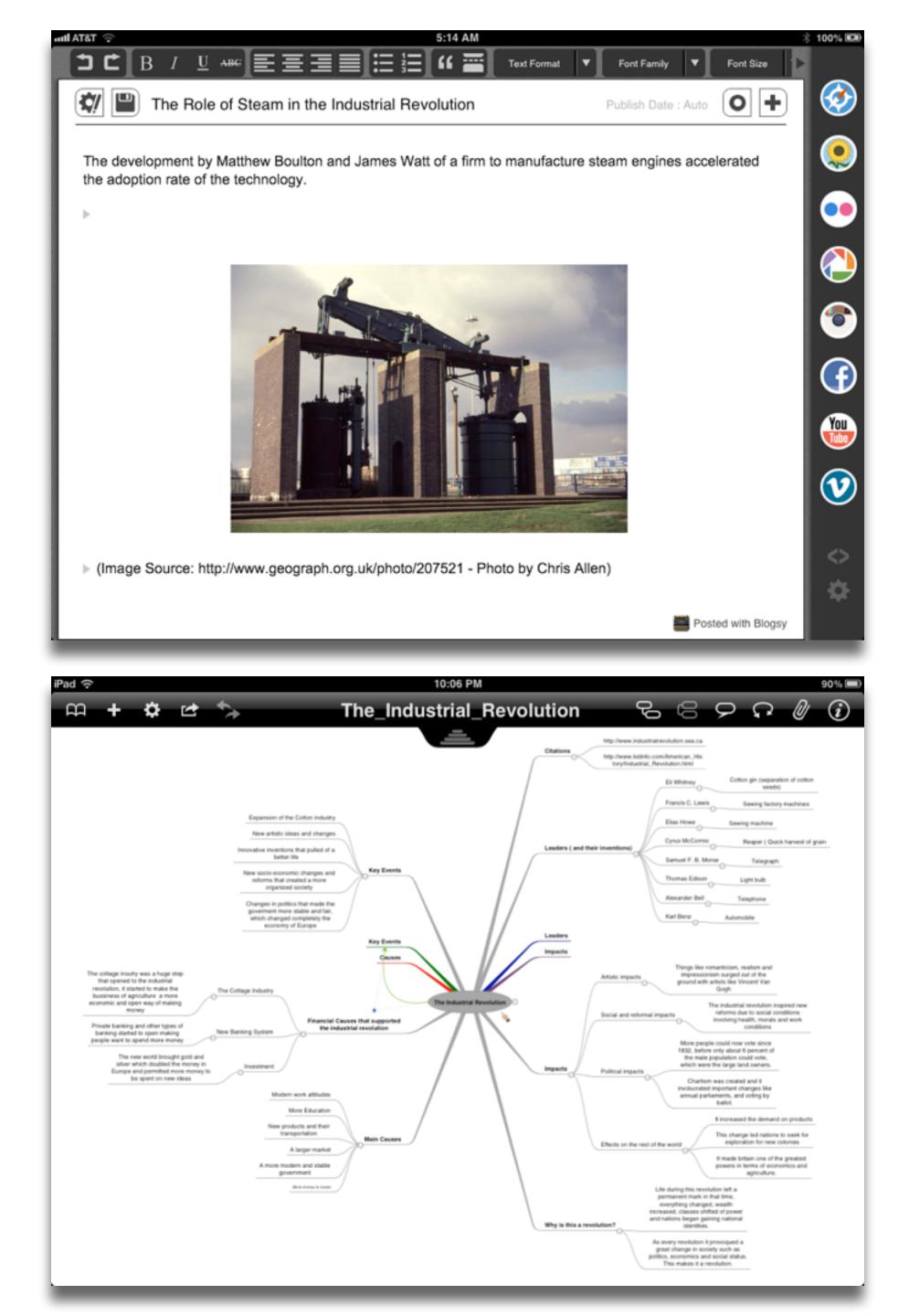
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#### Redefinition

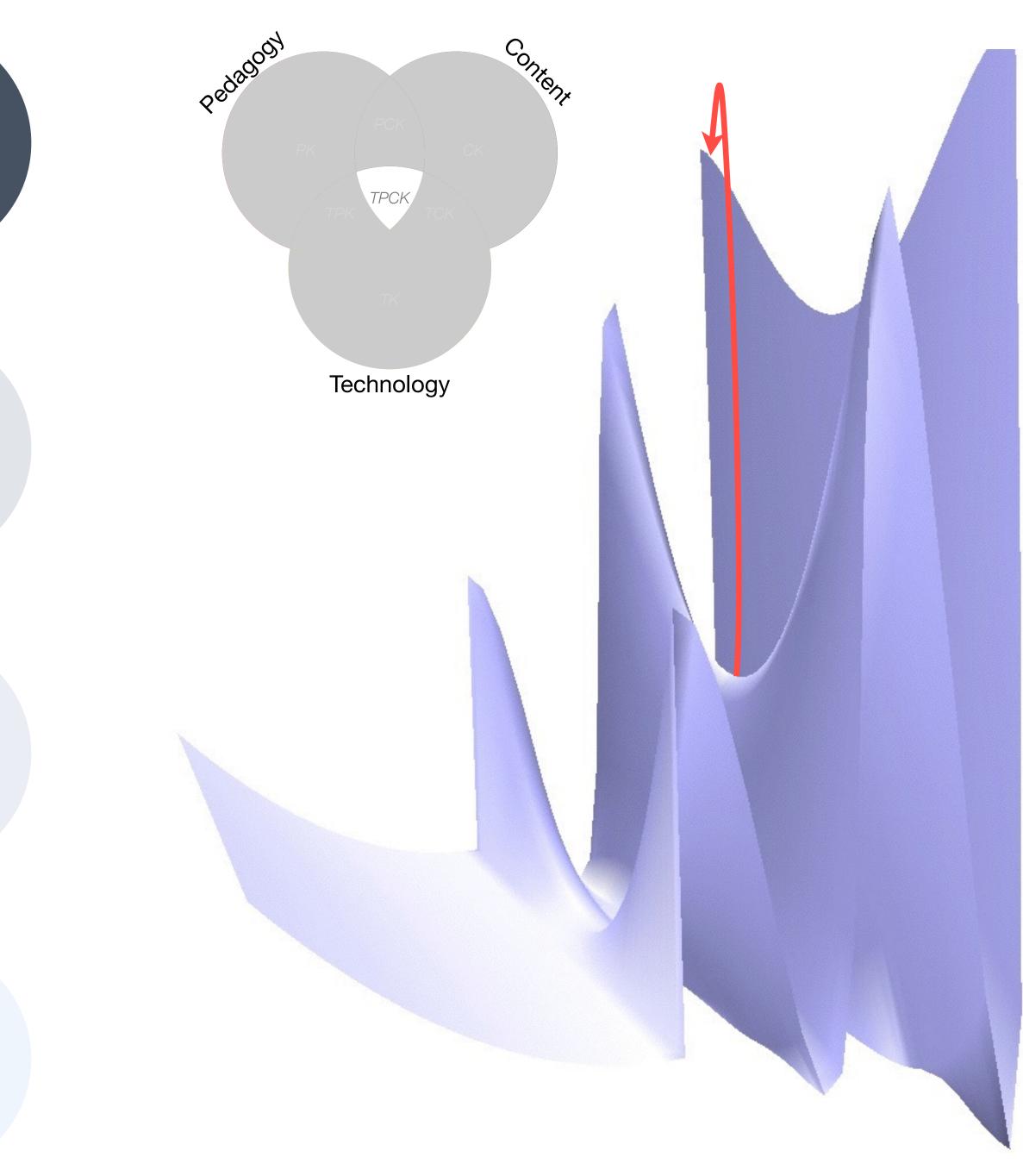
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## Choosing the First SAMR Ladder Project: Three Options

### • Your Passion:

- subject you teach, what would it be?
- Barriers to Your Students' Progress:
  - beyond?
- What Students Will Do In the Future:
  - future studies or in their lives outside school?

• If you had to pick one topic from your class that best exemplifies why you became fascinated with the

• Is there a topic in your class that a significant number of students get stuck on, and fail to progress

• Which topic from your class would, if deeply understood, best serve the interests of your students in

Social	Mobility	Visualization	Storytelling	Gaming
200,000 years	70,000 years	40,000 years	17,000 years	8,000 years
<image/>				
	Ruben R. Puentedura, "Technology In Educati	on: The First 200,000 Years" The NMC Perspective Series: Ideas	that Matter. NMC Summer Conference, 2012.	





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

## Discussions

Blogging

Telepresence



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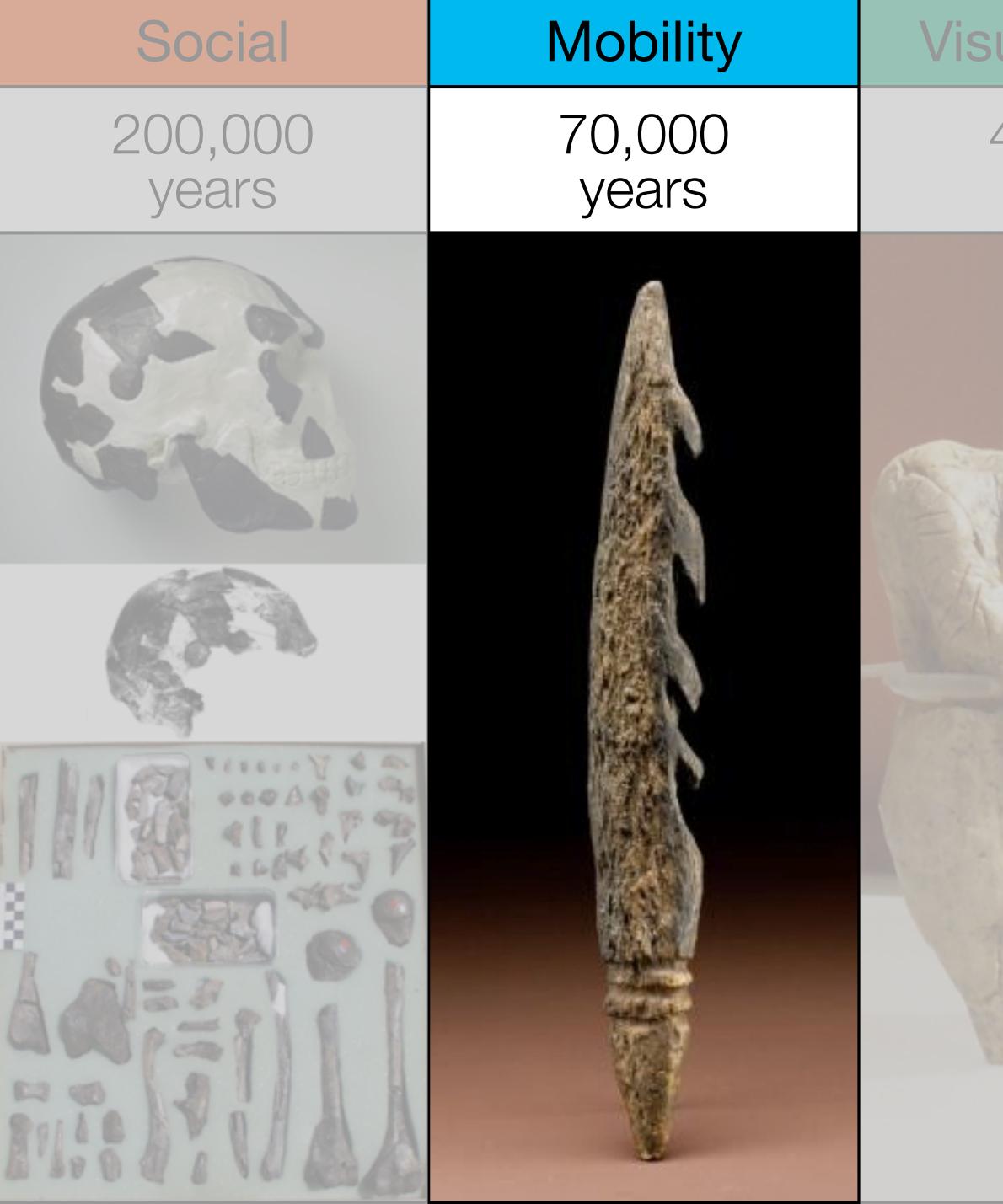




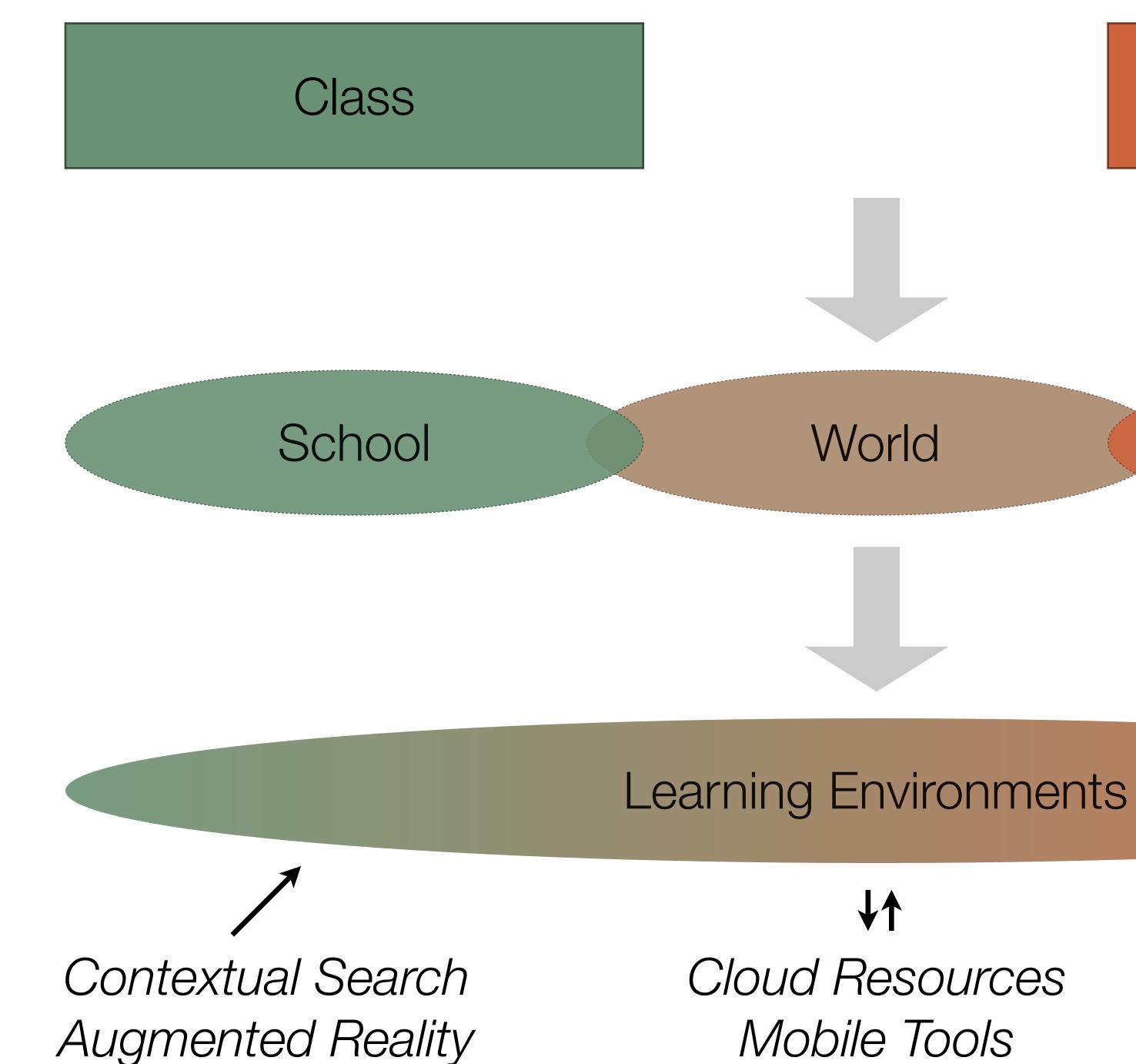
## Microblogging



File Sharing



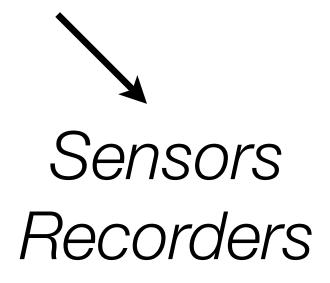
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## Home

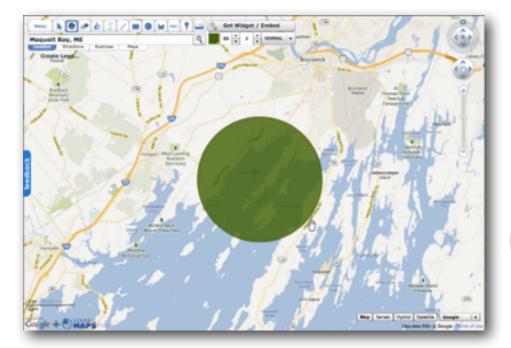
Mobile Tools



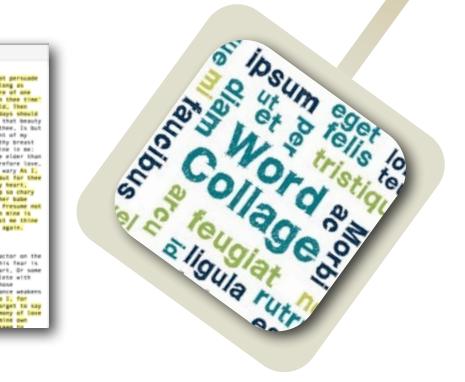


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- Merculant	an heart, Which in thy breast
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A CONTRACTOR OF THE OWNER	As an unperfect actor on the
	stage, Who with his fear is
	put beside his part, Gr some
and	fierce thing replate with
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	strength's abundance weakens
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· ····	fear of trust, forget to say
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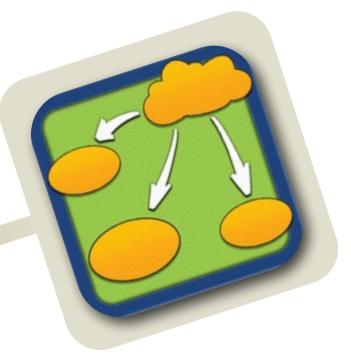
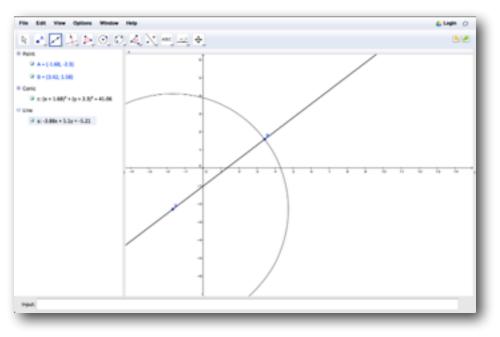
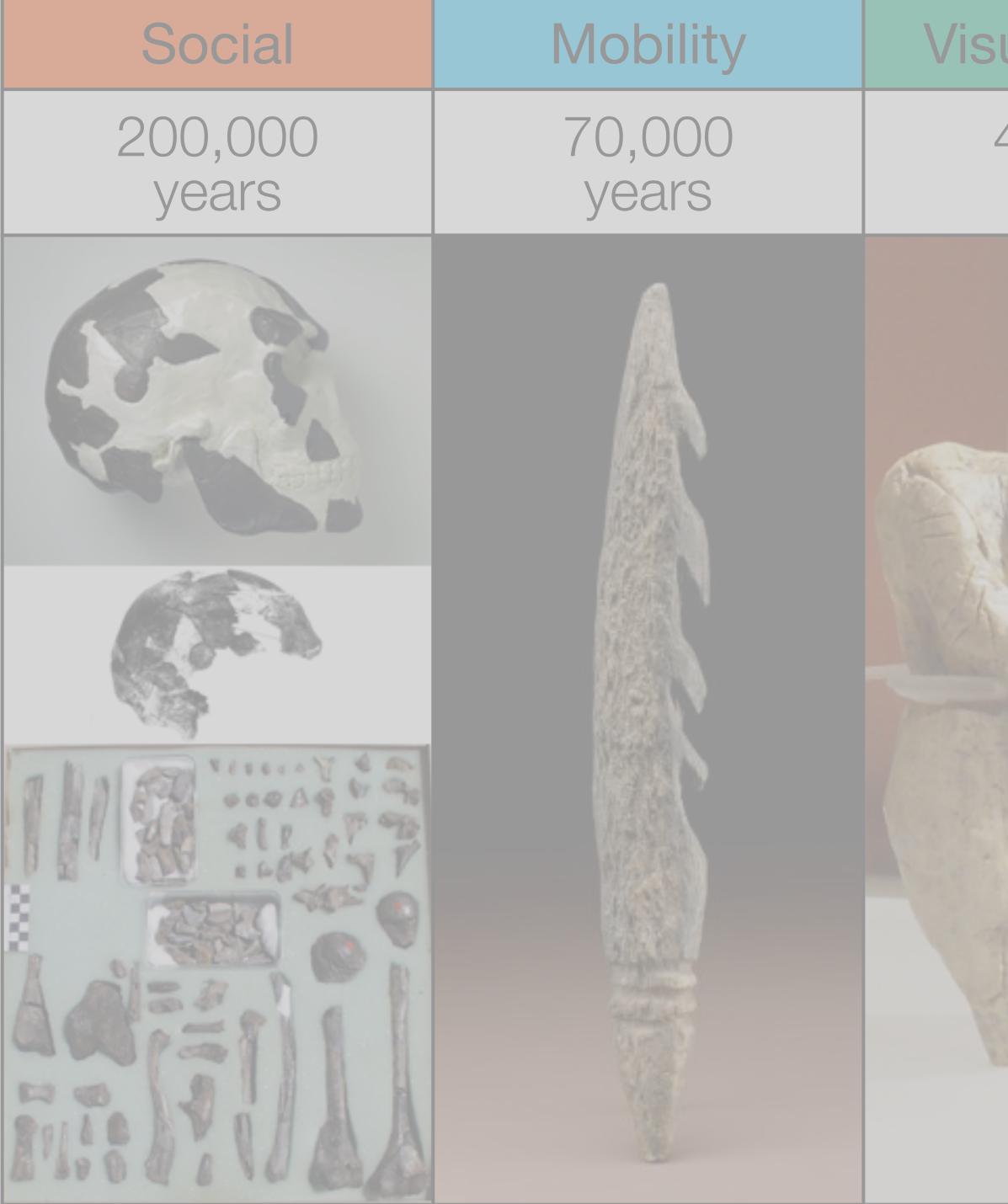


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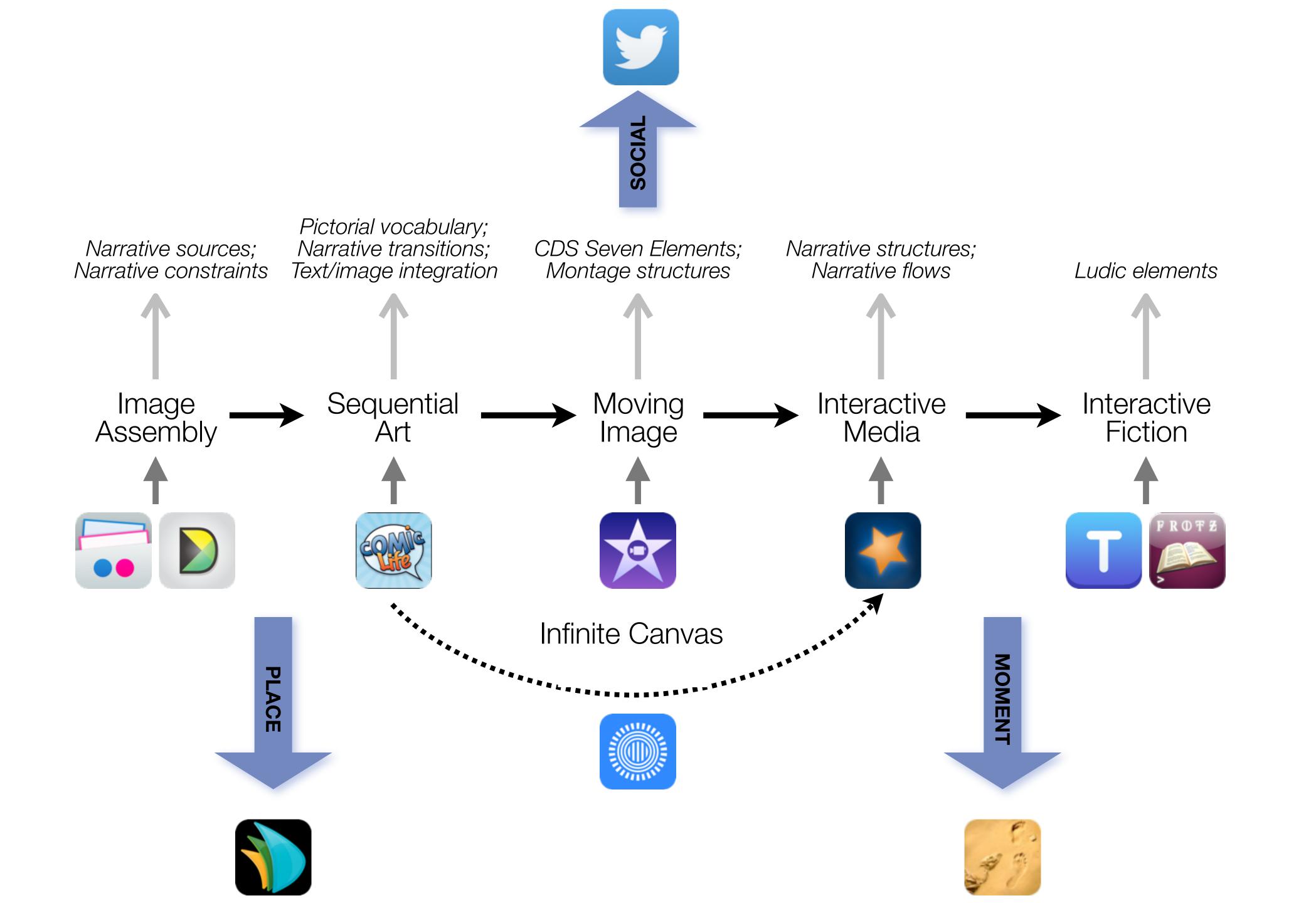


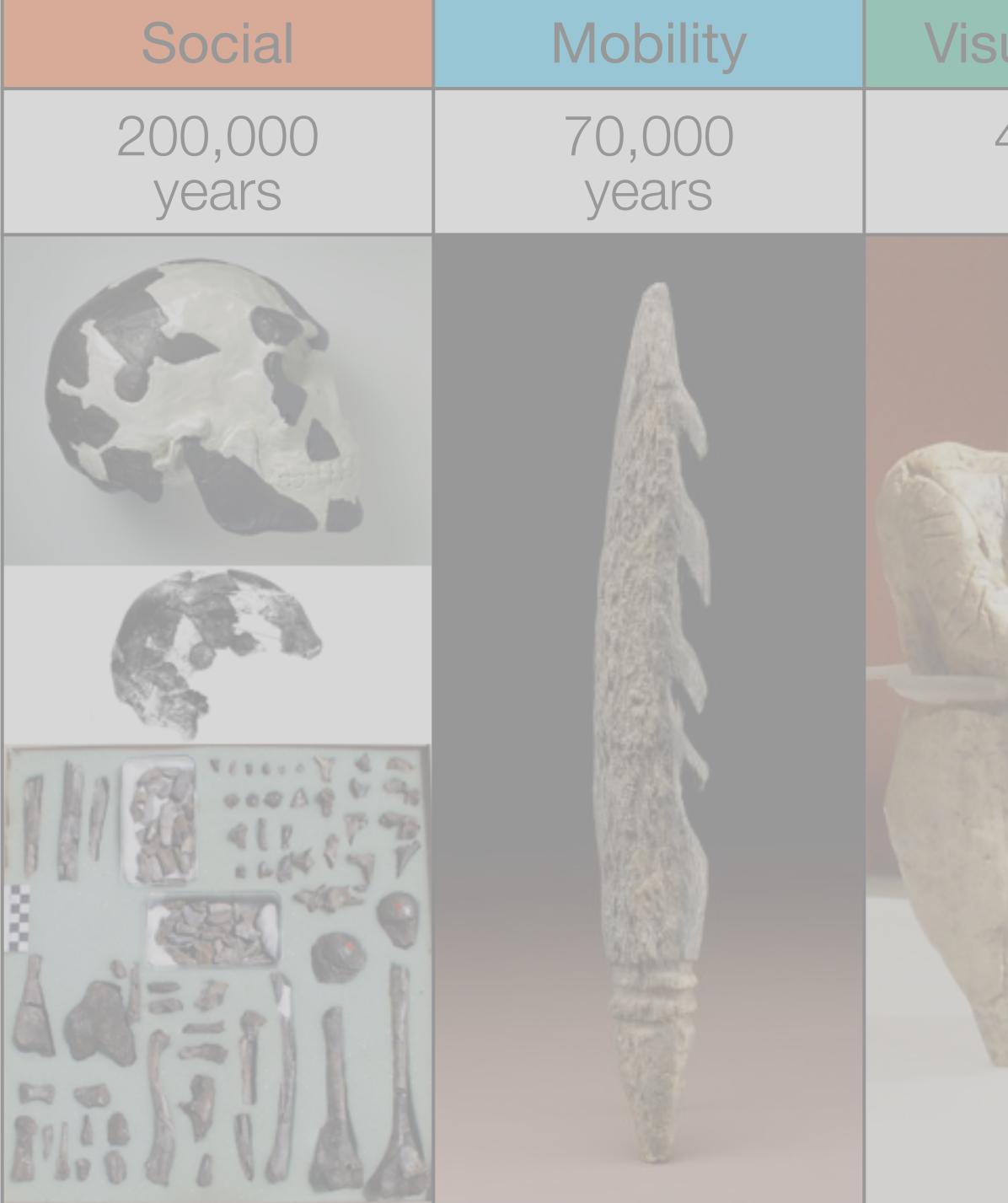






ualization	Storytelling	Gaming
40,000 years	17,000 years	8,000 years





ualization	Storytelling	Gaming
40,000 years	17,000 years	8,000 years





## Formal Definition of **Game** (Salen & Zimmerman)

# "A game is a system in which players engage in an artificial conflict, defined by rules, that results in a quantifiable outcome."

Salen, K. and E. Zimmerman. Rules of Play : Game Design Fundamentals. The MIT Press. (2003)

Research Article

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



Pam A. Mueller<sup>1</sup> and Daniel M. Oppenheimer<sup>2</sup> <sup>1</sup>Princeton University and <sup>2</sup>University of California, Los Angeles

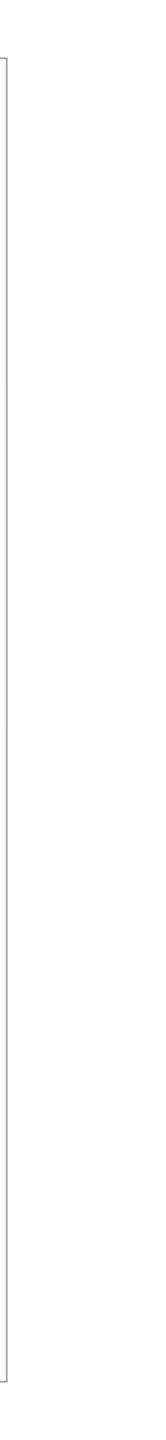
#### Abstract

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.



Psychological Science 1 - 10© The Author(s) 2014 Reprints and permissions: sagepub.com/journalsPermissions.nav DOI: 10.1177/0956797614524581 pss.sagepub.com





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

#### **Substitution**

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Technology

#### Modification Tech allows for significant task redesign

#### Generalize patterns

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

Substitution Tech acts as a direct tool substitute, with no functional



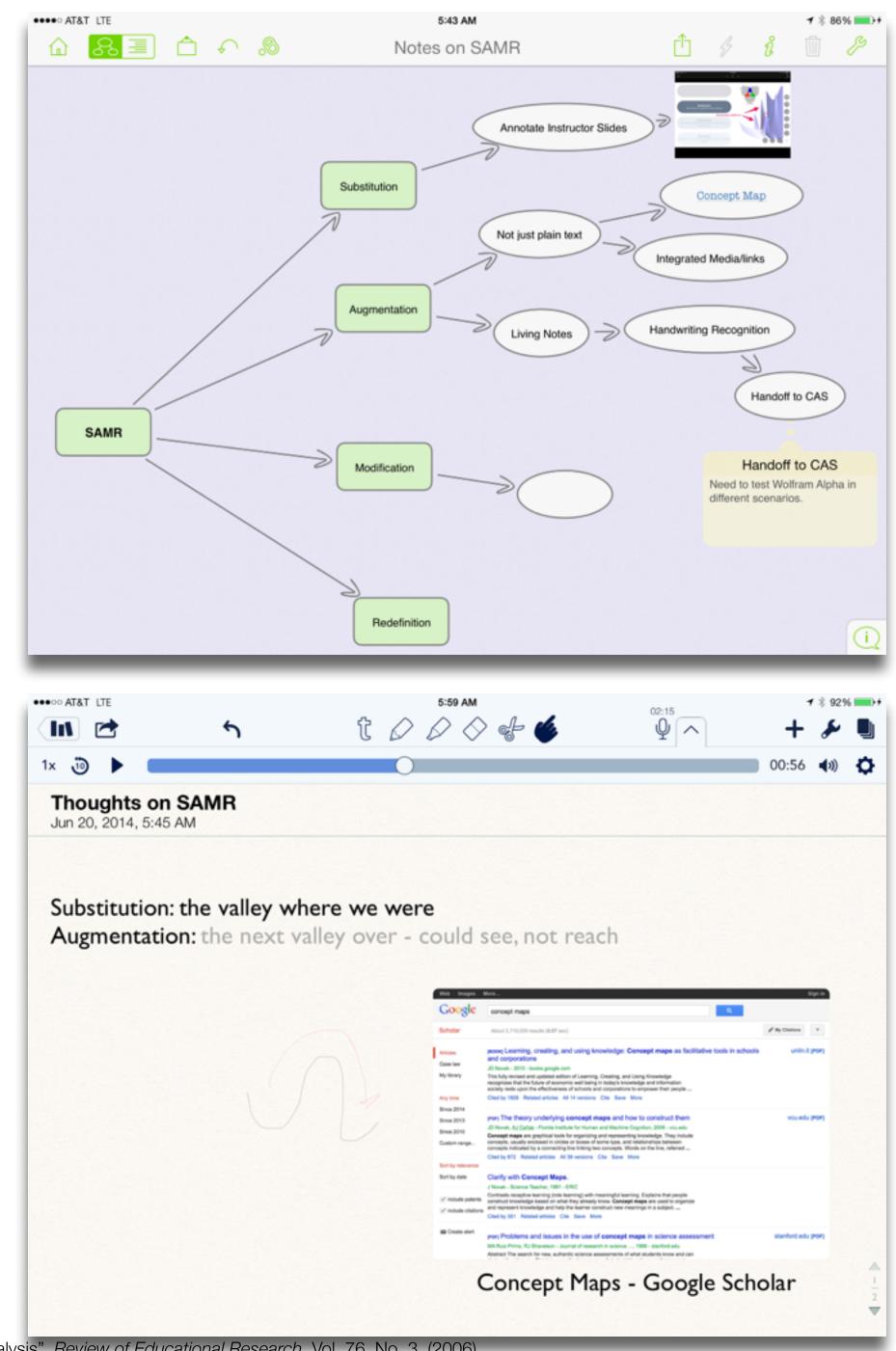
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John C. Nesbit and Olusola O. Adesope, "Learning With Concept and Knowledge Maps: A Meta-Analysis". Review of Educational Research, Vol. 76, No. 3. (2006)

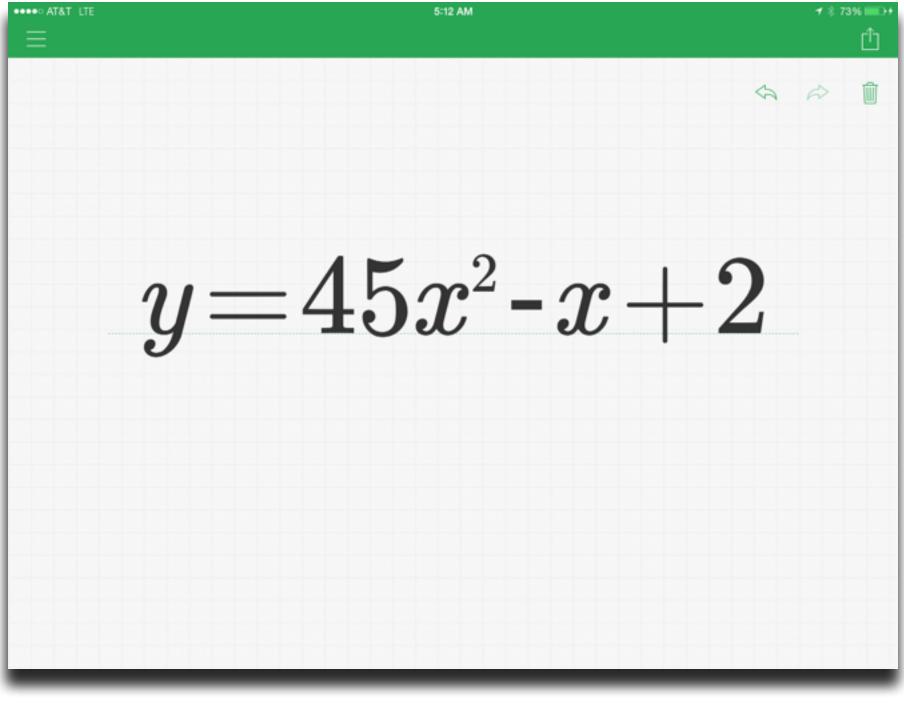


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#### Ruben R. Puentedura #thoughtvectors Search Cindy Jennings @cljennings Sad to me: @ChristinaDEI noting that her father had to strive to Timeline 848 share his vision in ways that ppl wanted to hear it. #thoughtvectors Mentions Jon Becker @jonbecker Messages Watch @GardnerCampbell interview @ChristinaDEI, Doug Engelbart's daughter, LIVE youtube.com/watch?v=NBKjI0... #thoughtvectors 🛨 Favorites Q Search Profile Gardner Campbell @GardnerCampbell #thoughtvectors Hangout w Christina Engelbart i≣ Lists (@ChristinaDEI): youtube.com/watch?v=NBKjI0.... Join us there or G+ plus.google.com/events/ 1 Retweets csrjud5... Mute Filters o<sup>o</sup> Settings Gardner Campbell @GardnerCampbell Hangout w Christina Engelbart (@ChristinaDEI), discussing her work w #thoughtvectors at VCU. 4:30! plus.google.com/events/csrjud5... Cindy Jennings @cljennings Early mention of Maria Montessori has my attention! (2/2) #qepfdi #thoughtvectors 100 Tweets

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#### Redefinition

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

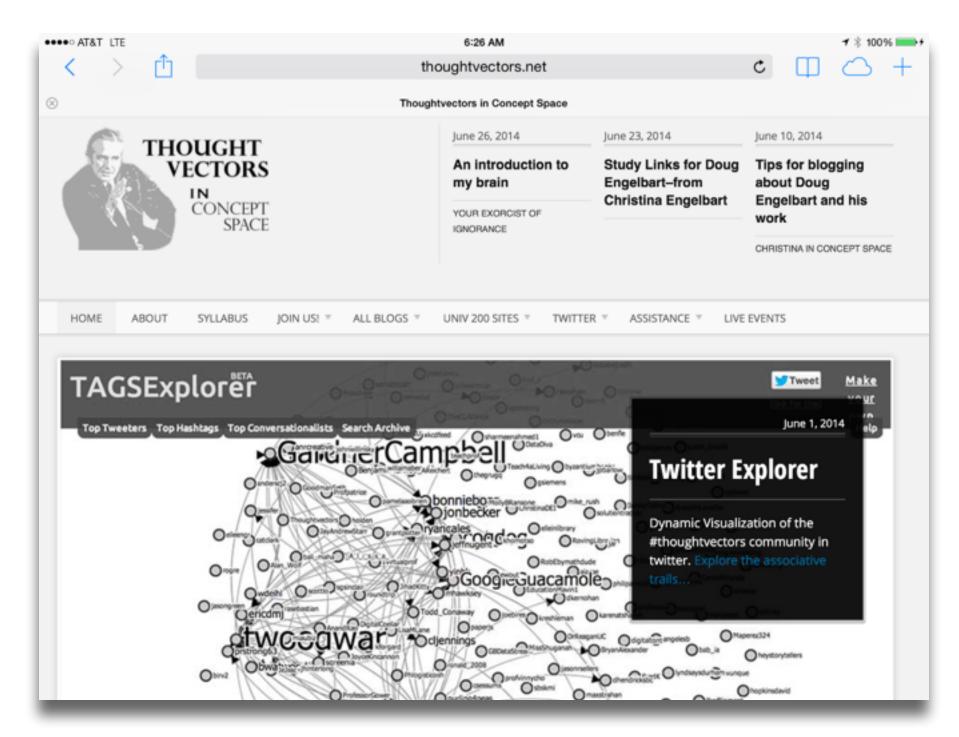
#### Modification Tech allows for significant task redesign

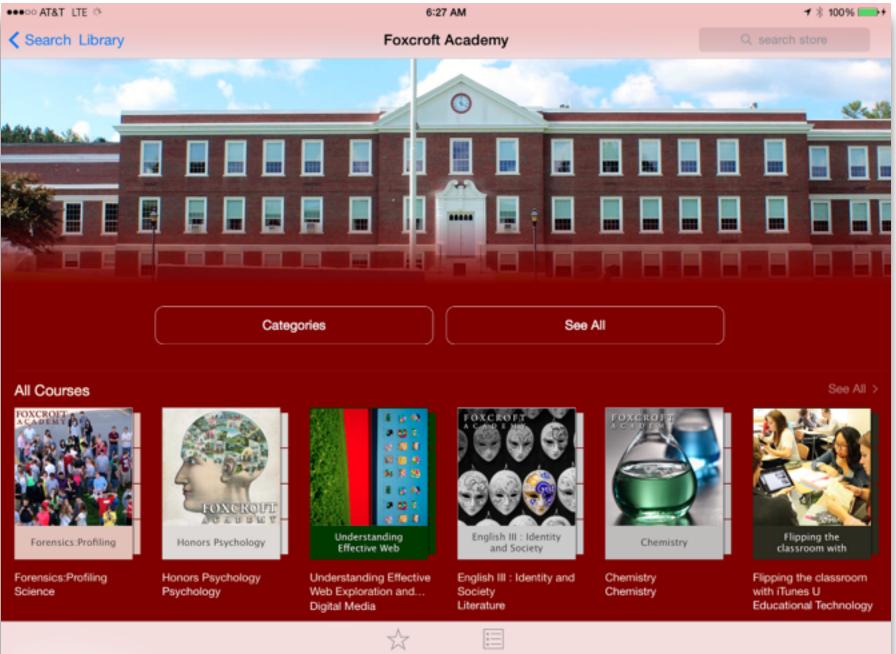
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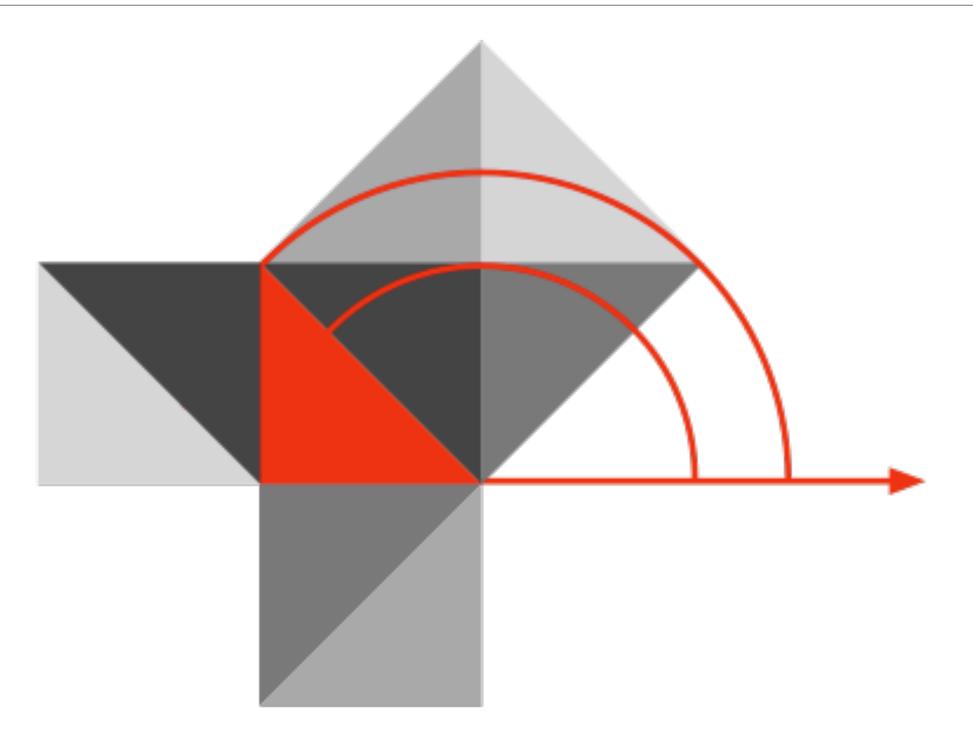




Featured

Top Charts

## Hippasus



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