SAMR: An E-Learning Leadership Perspective

Ruben R. Puentedura, Ph.D.

Redefinition

Tech allows for the creation of new tasks, previously inconceivable

Modification

Tech allows for significant task redesign

Transformation

Augmentation

Tech acts as a direct tool substitute, with functional improvement

Substitution

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

Enhancement

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

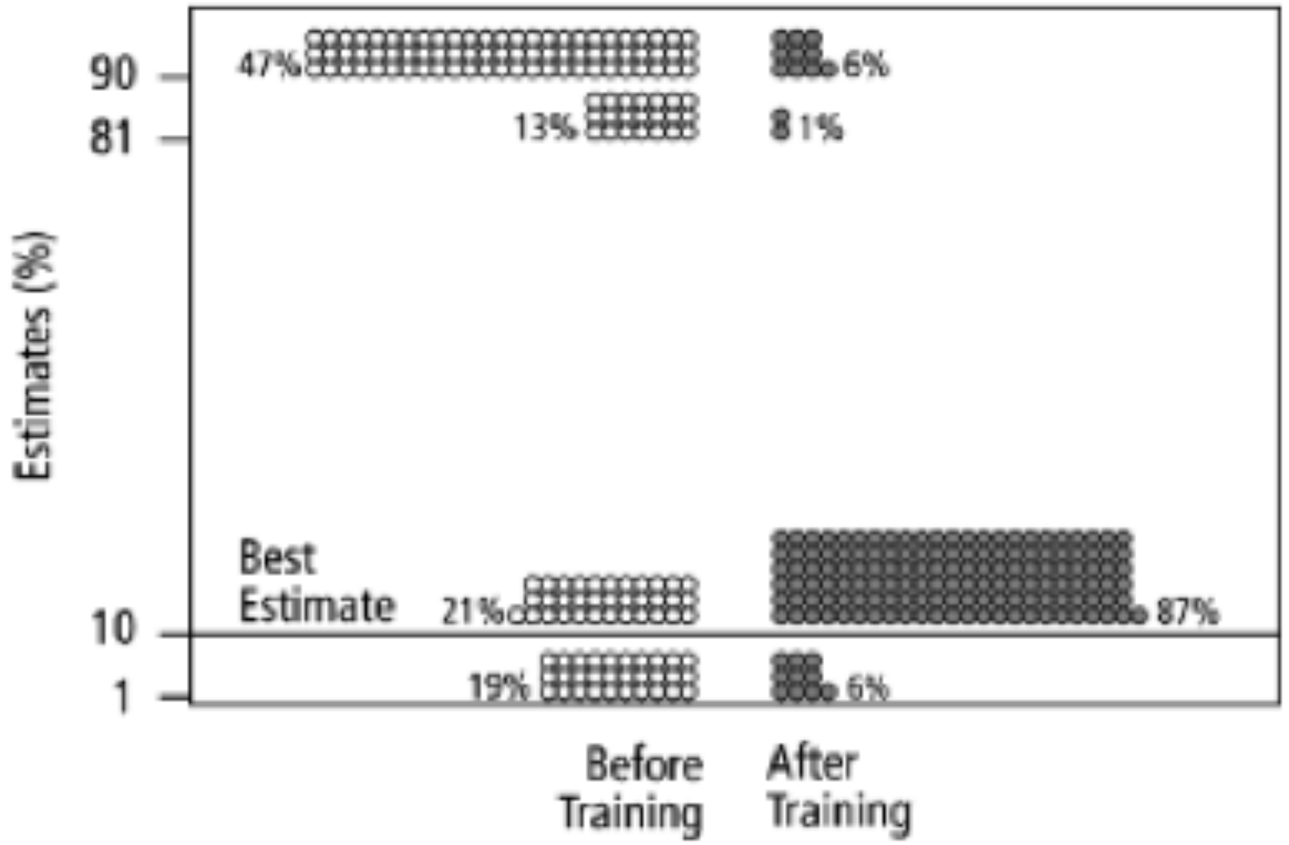

Fig. 2. Estimates by 160 gynecologists of the probability that a woman has breast cancer given a positive mammogram, before and after receiving training in how to translate conditional probabilities into natural frequencies.

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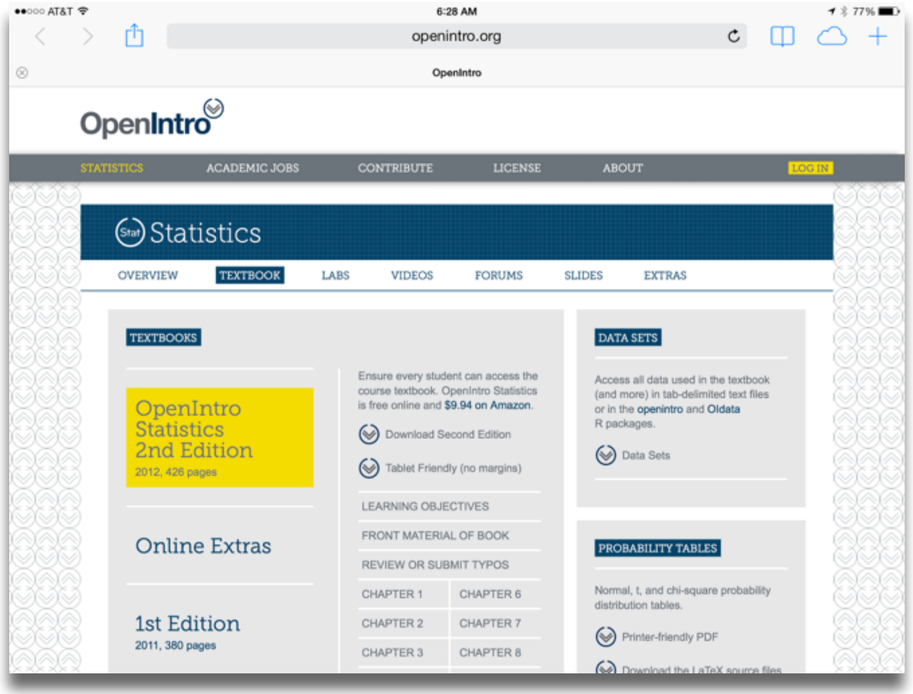

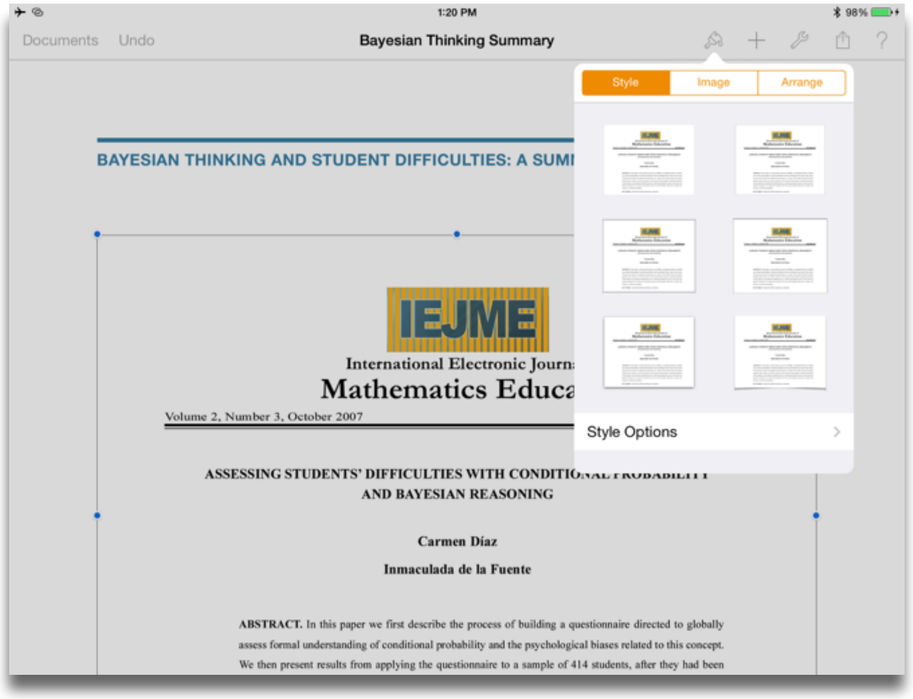

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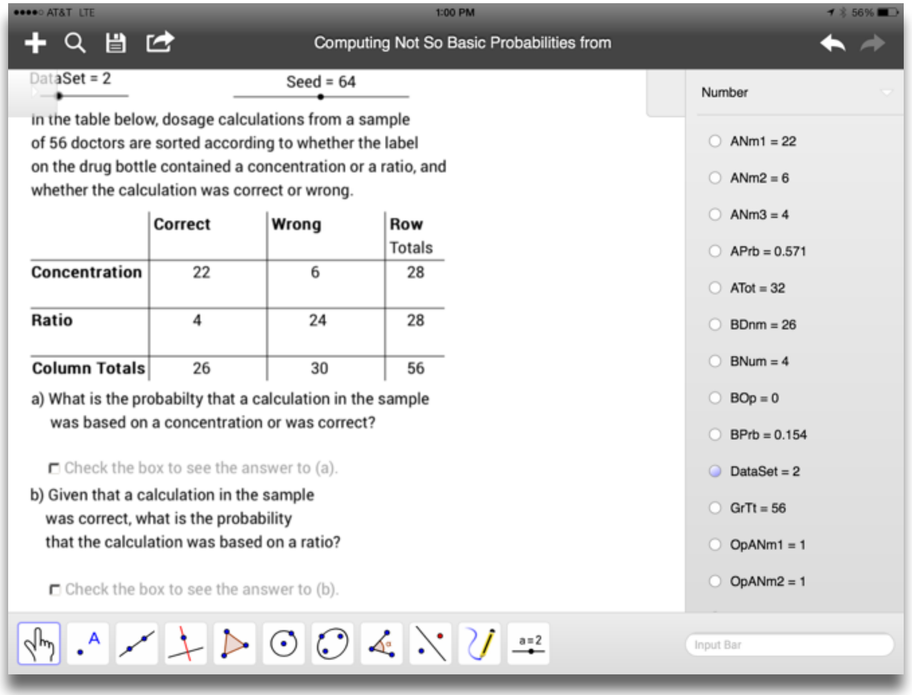

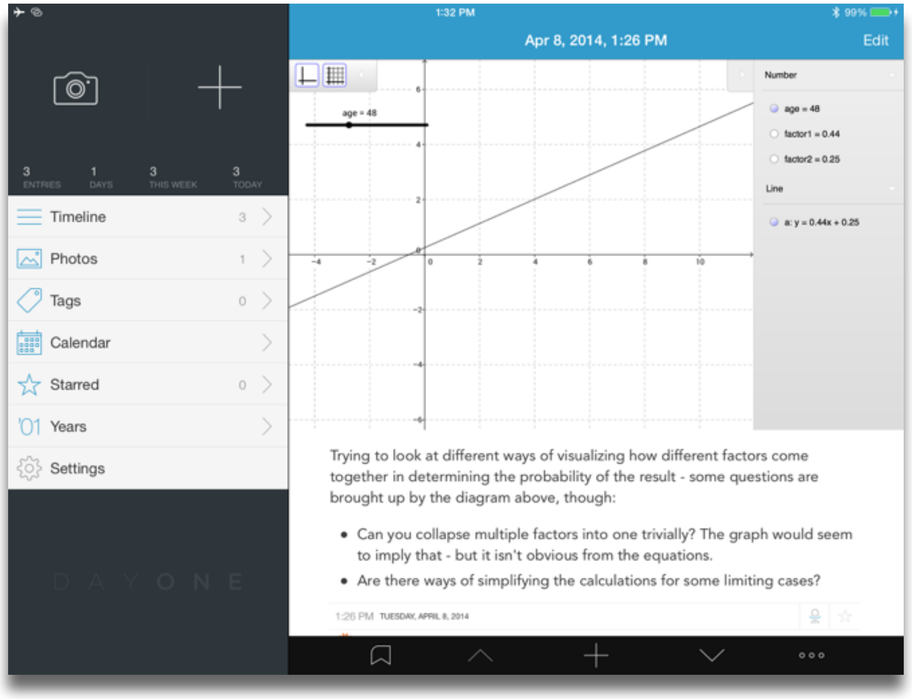

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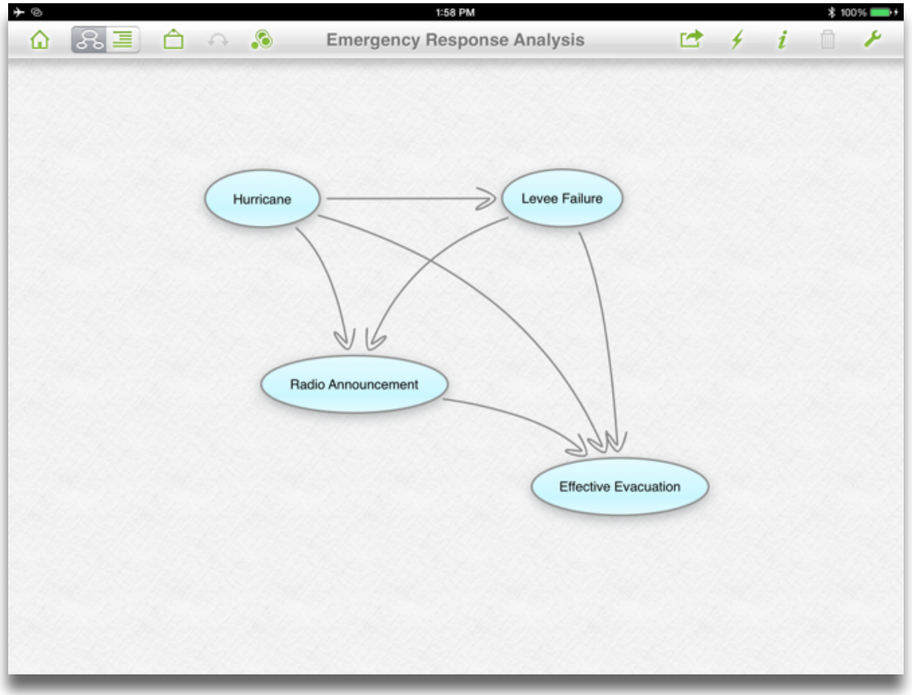

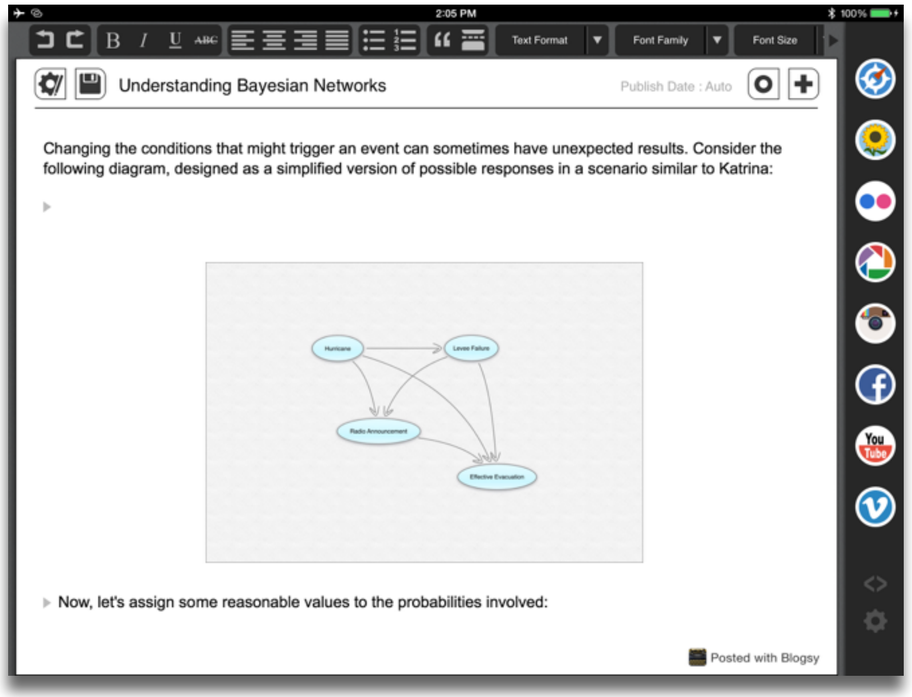

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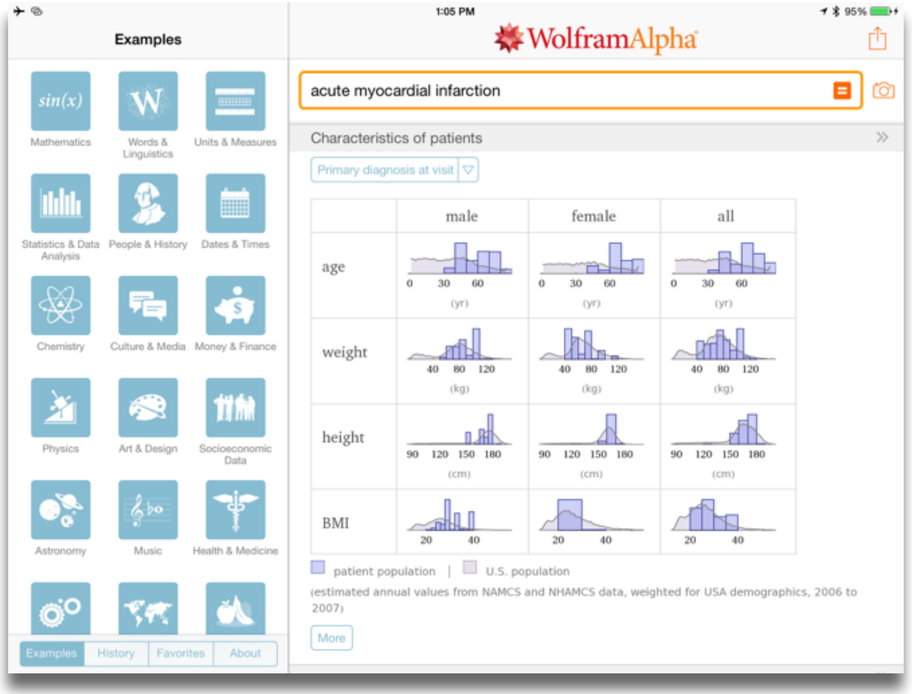
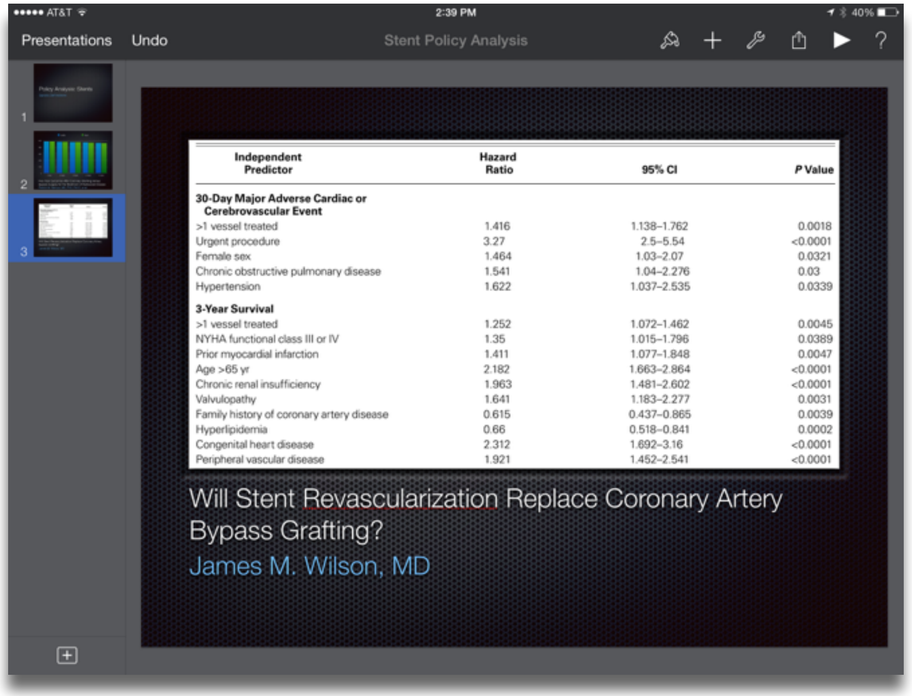
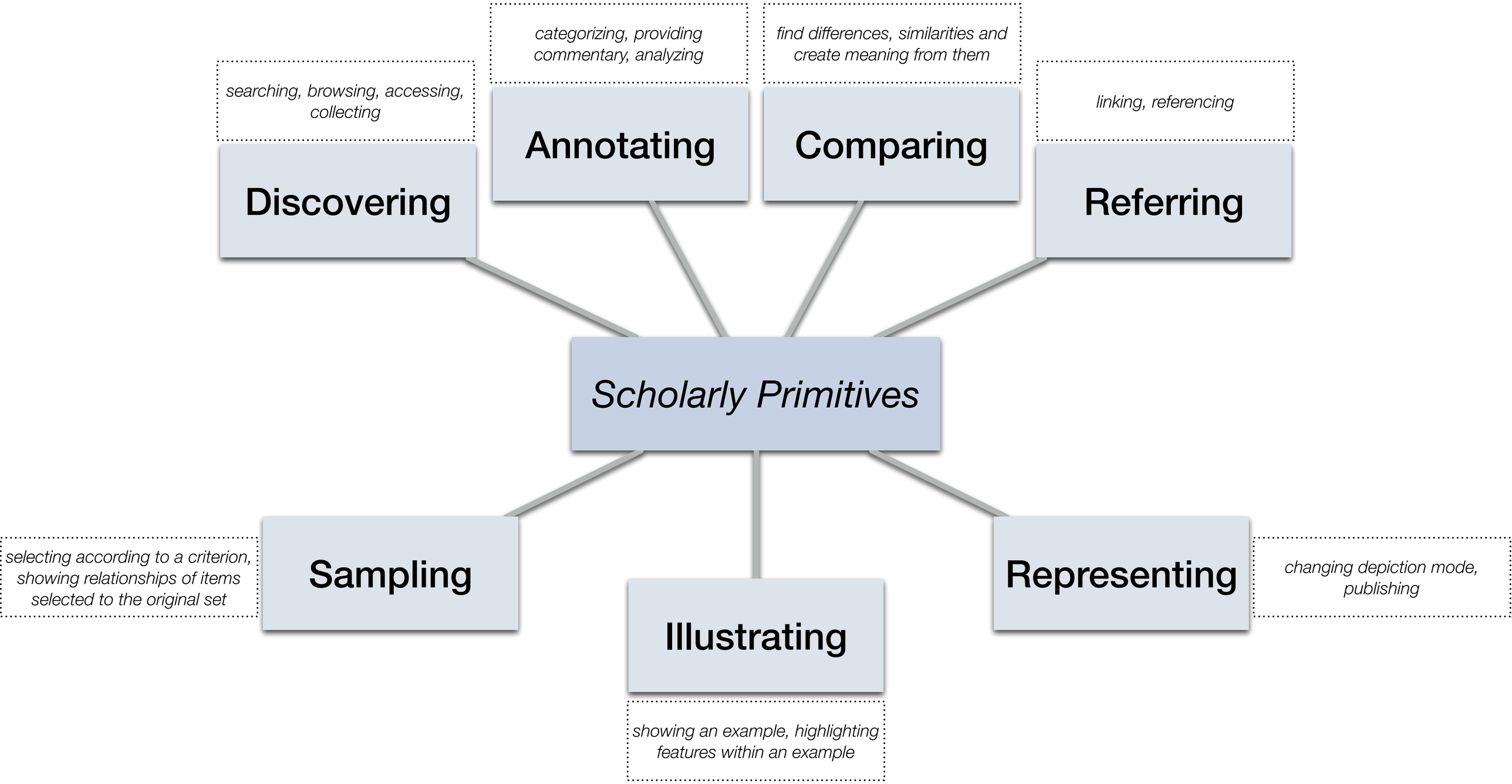
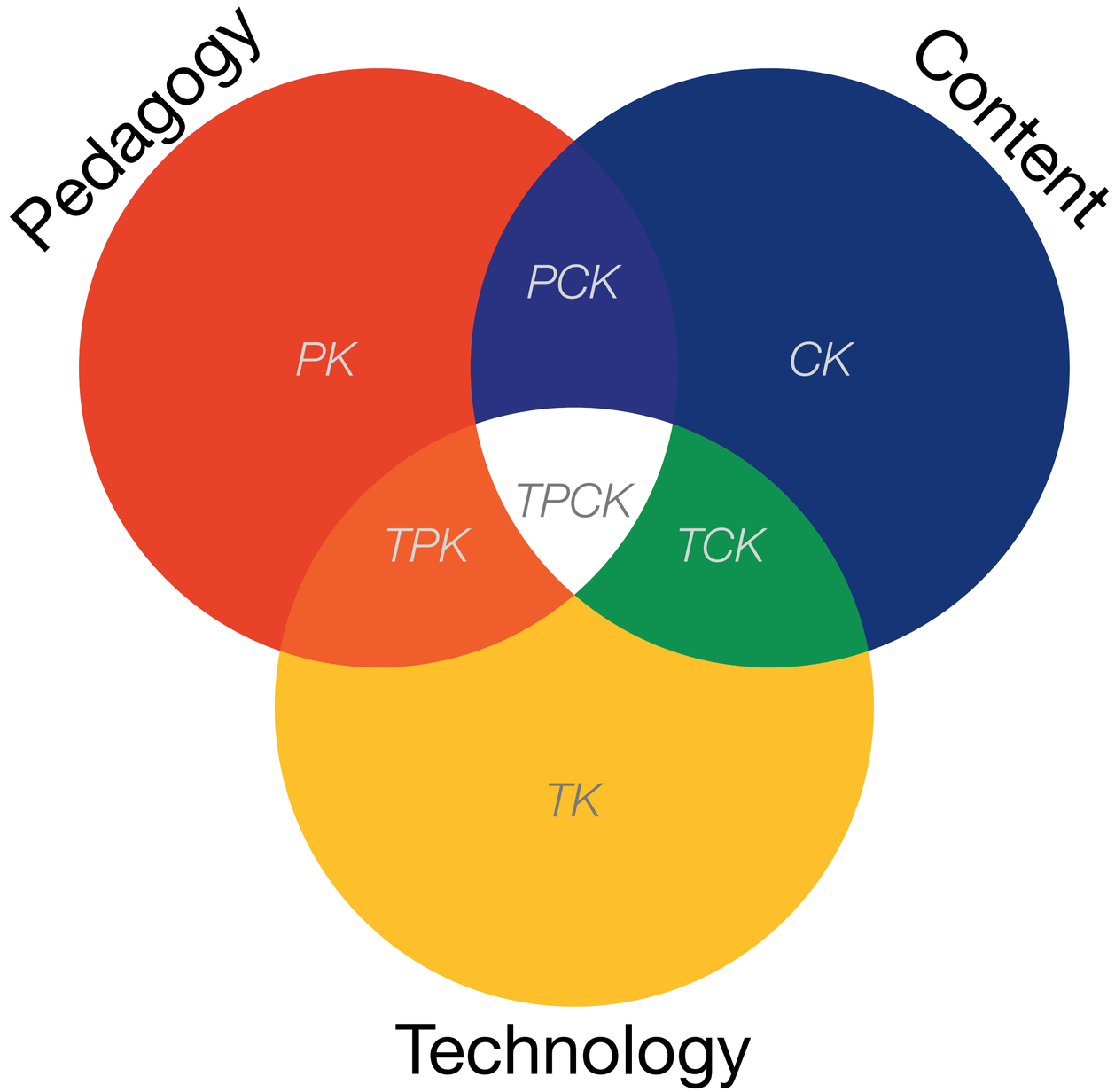






John Unsworth. *Scholarly Primitives: What Methods Do Humanities Researchers Have in Common and How Might Our Tools Reflect This?* Humanities Computing, Formal Methods, Experimental Practice Symposium, Kings College, London. (May 2000)



Punya Mishra & Matthew J. Koehler, “Technological pedagogical content knowledge: A framework for teacher knowledge”. *Teachers College Record, 108*(6). (2006)

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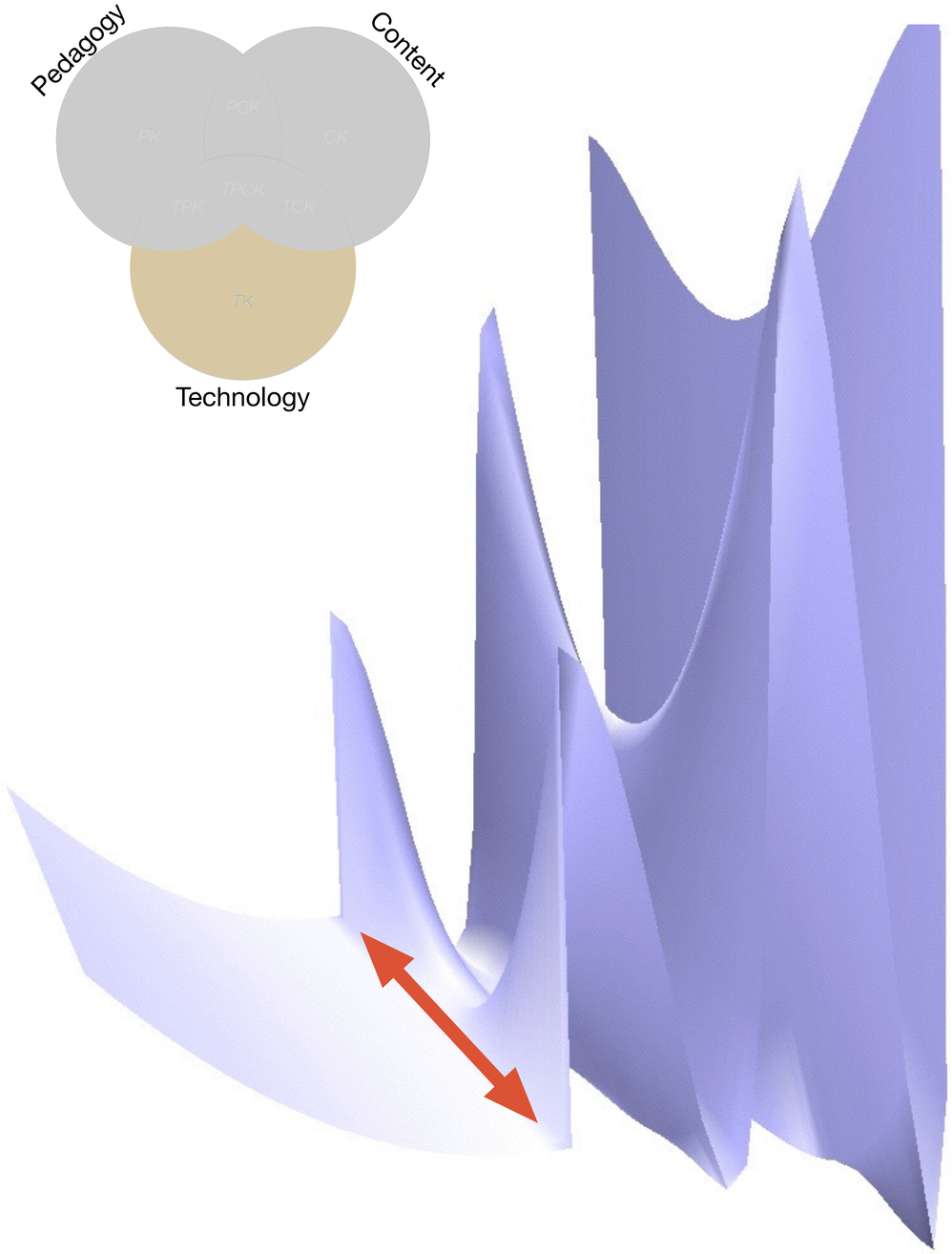

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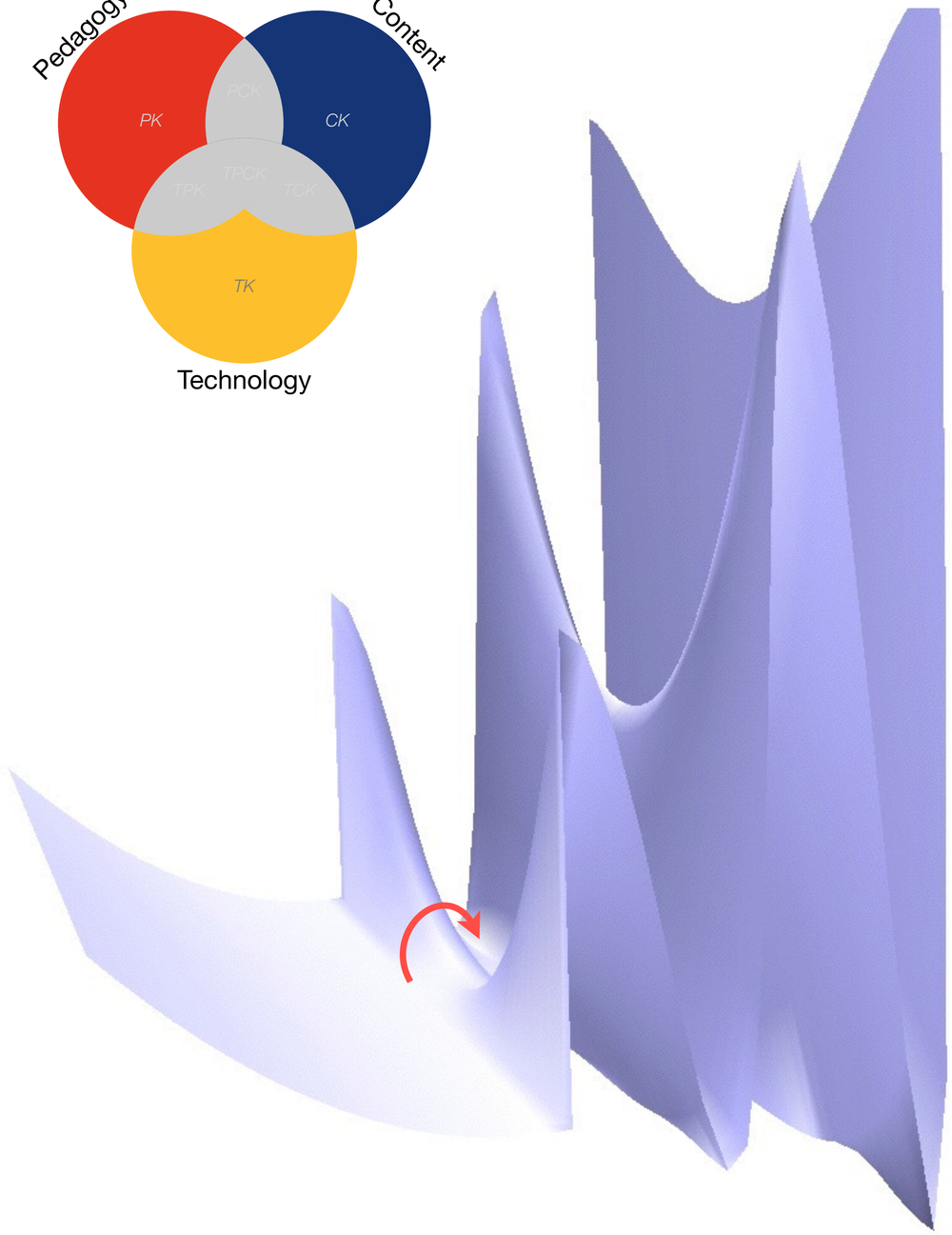

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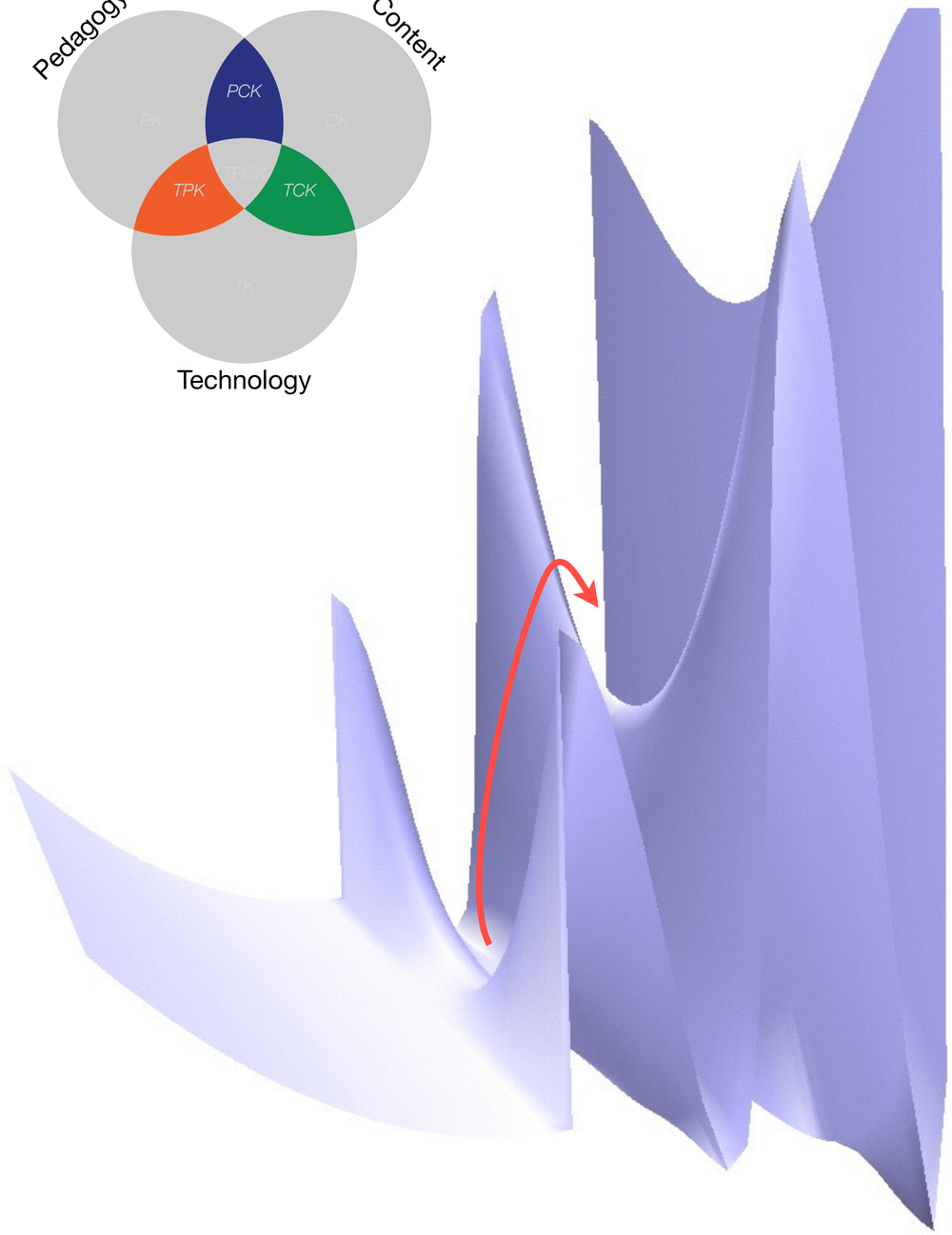

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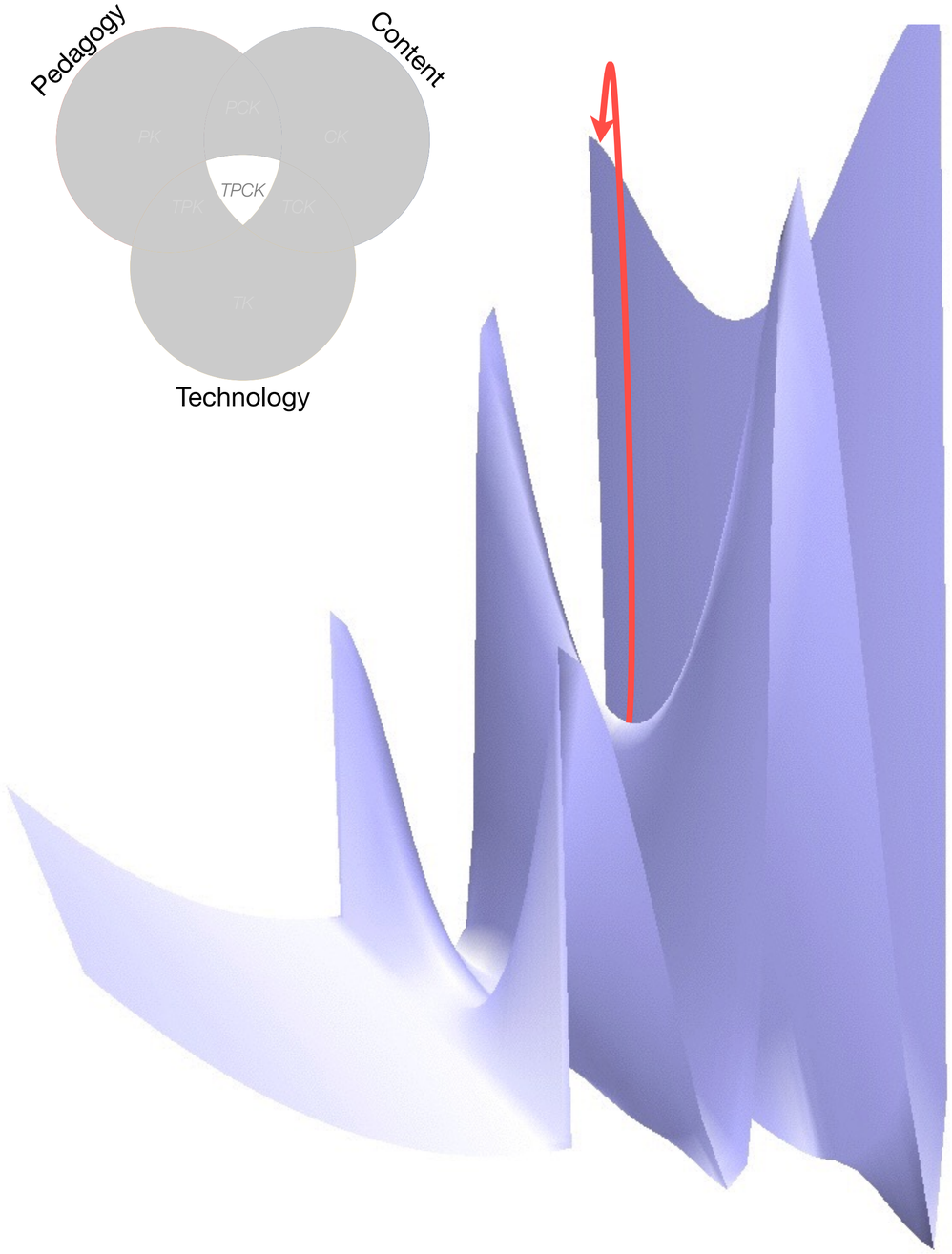

Social	Mobility	Visualization	Storytelling	Gaming
200,000 years	70,000 years	40,000 years	17,000 years	8,000 years

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

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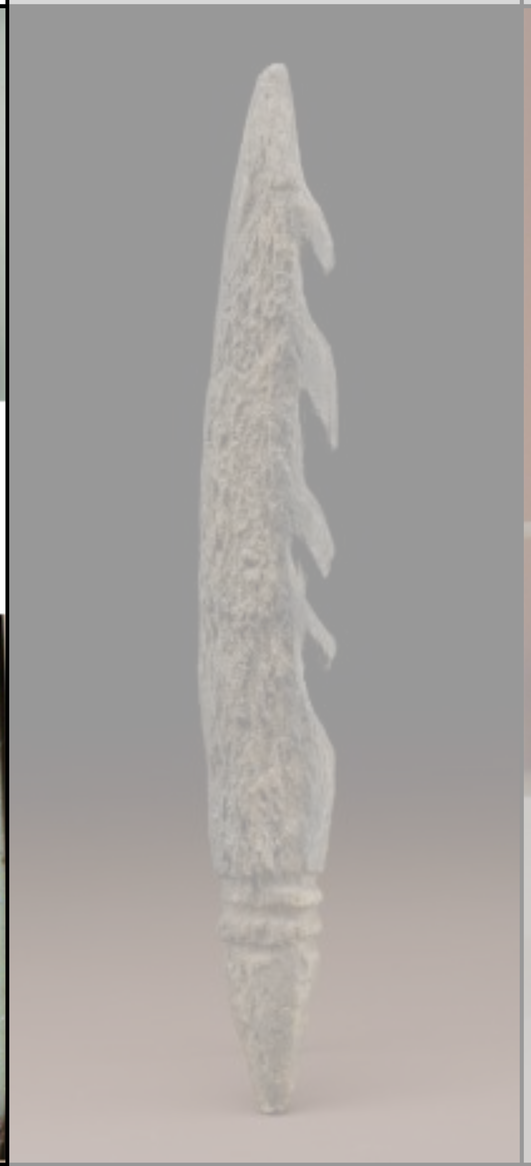

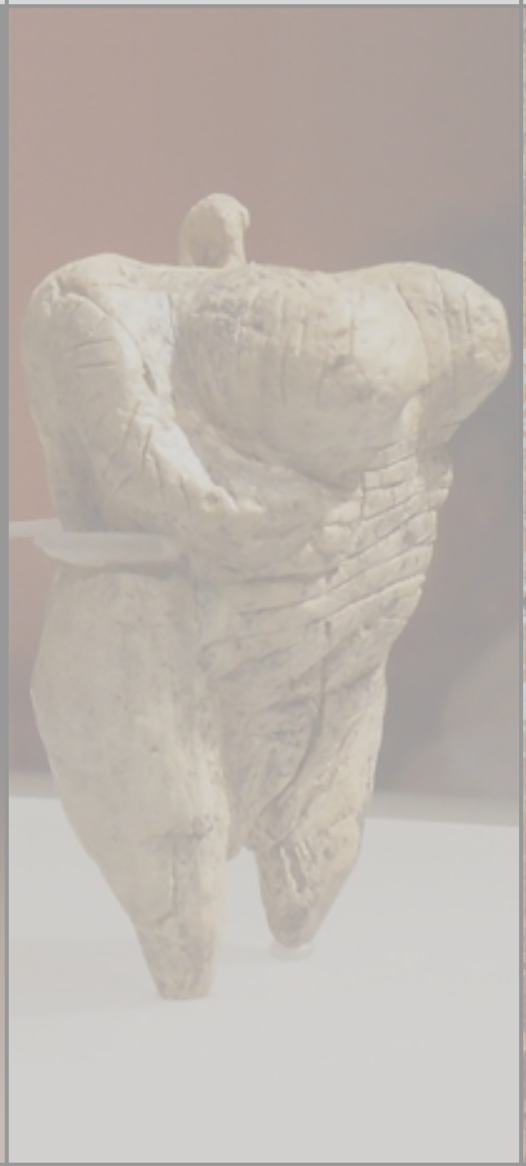

Bookmarks

RSS Feeds

Discussions

Microblogging

Blogging

Wikis

Telepresence

File Sharing

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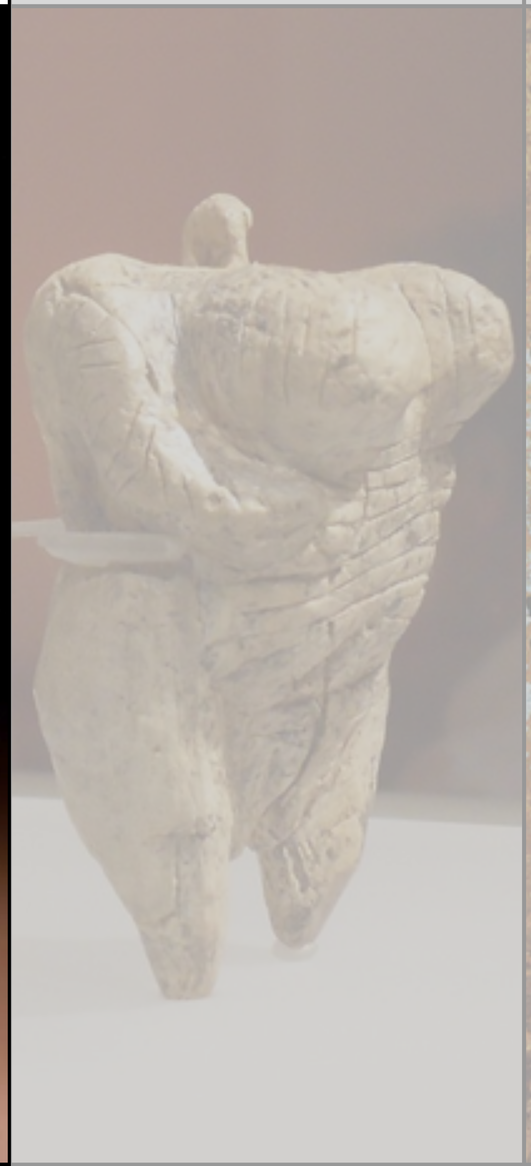

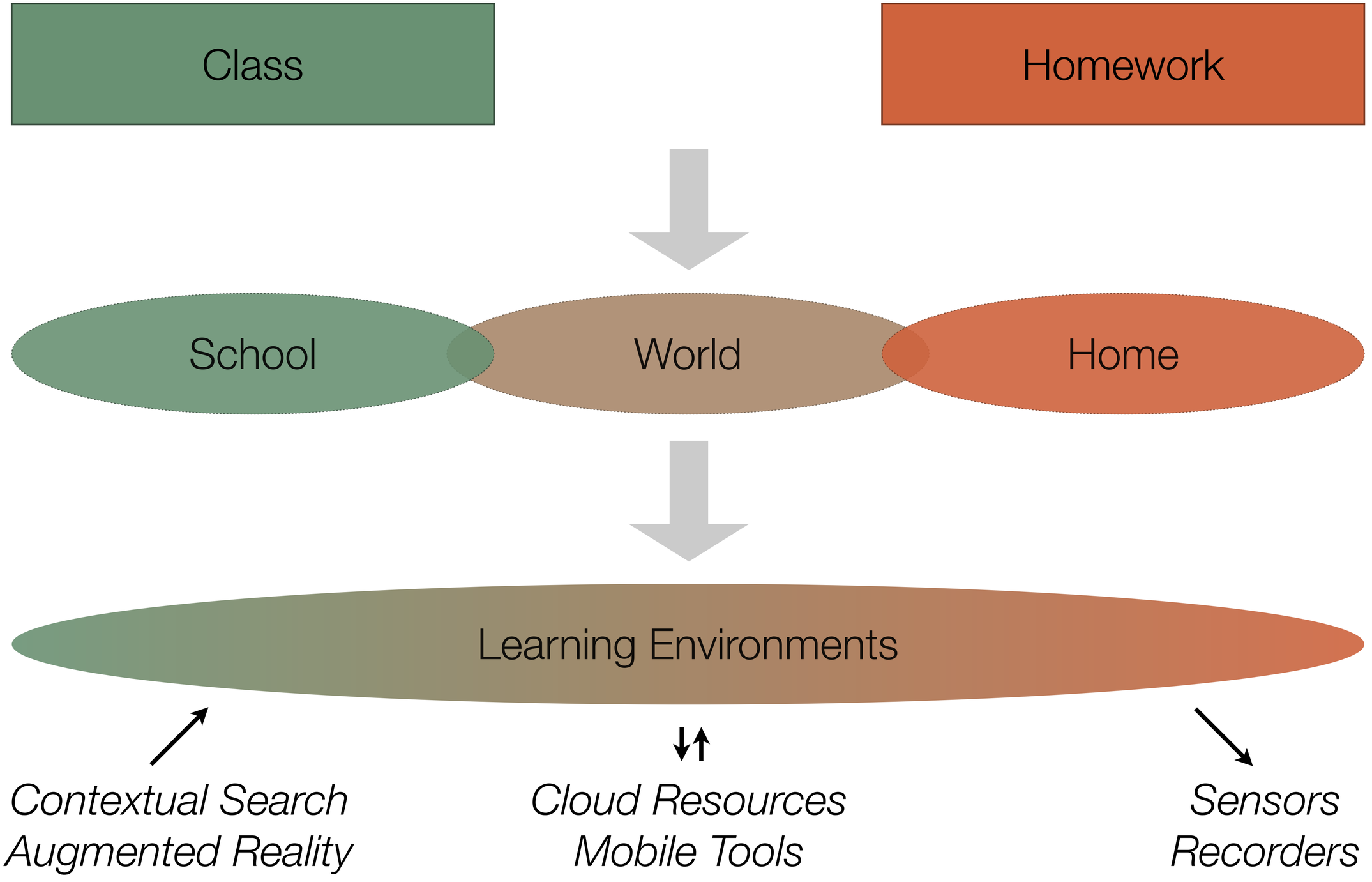
Class
Homework
School
World
Home
Learning Environments
Contextual Search
Augmented Reality
Cloud Resources
Mobile Tools
Sensors
Recorders

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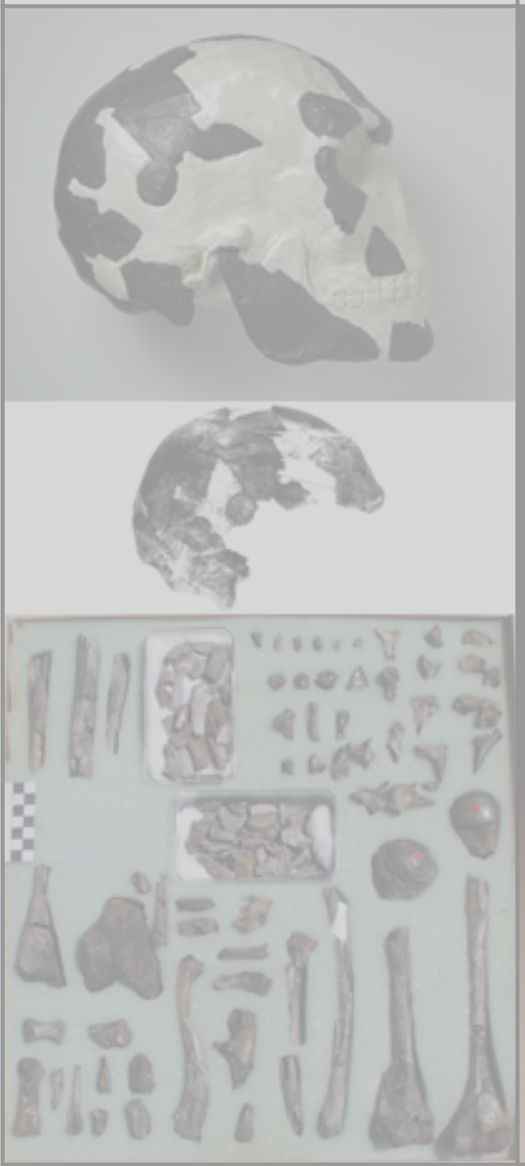
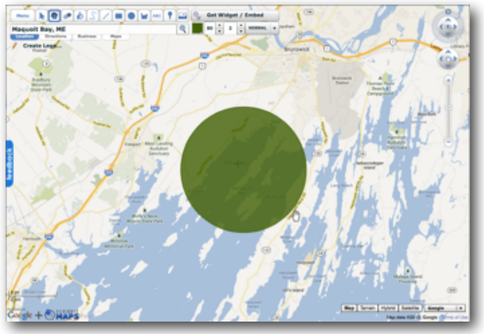



TimelineJS
Website


3D



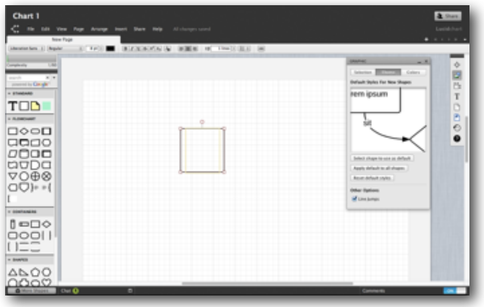
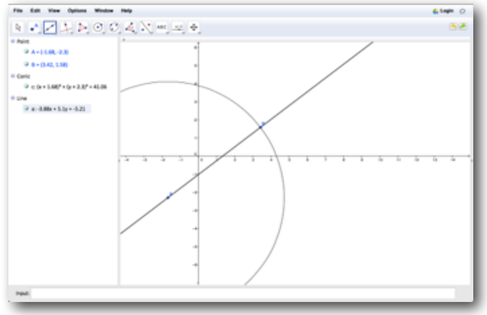


Chart 1


word tree
I
am
have
do
love


Word
Collage



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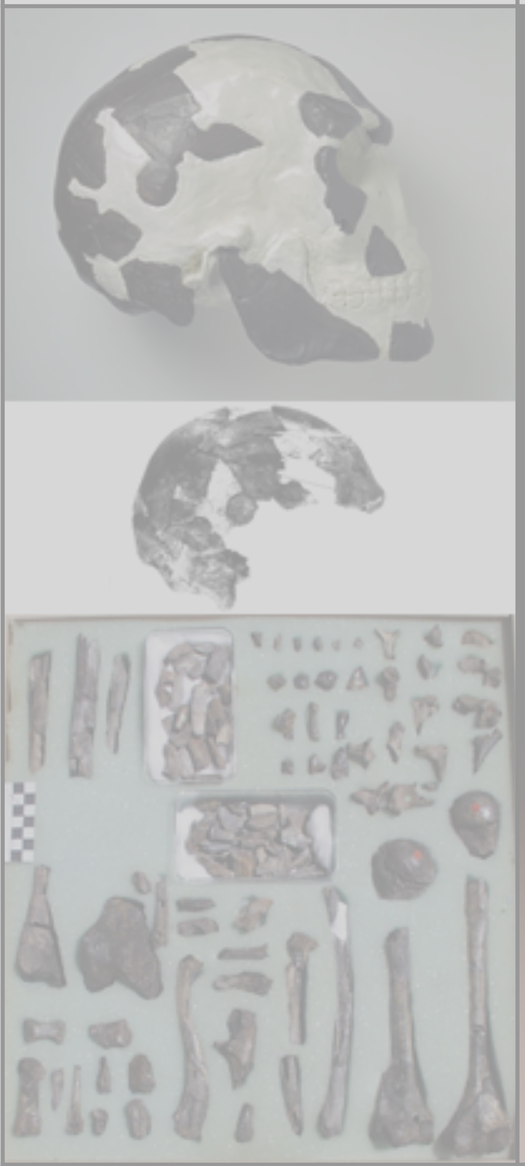

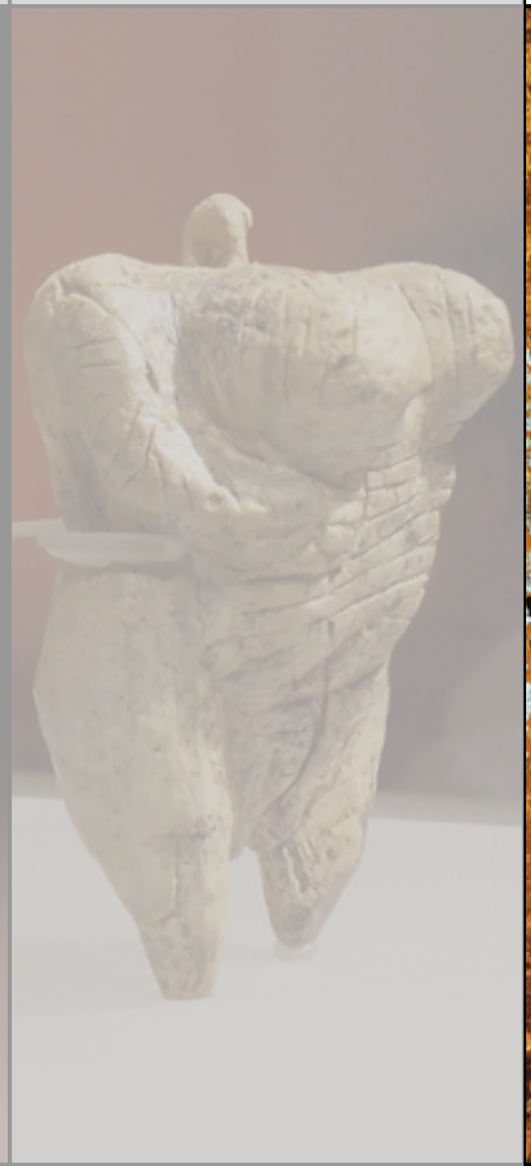

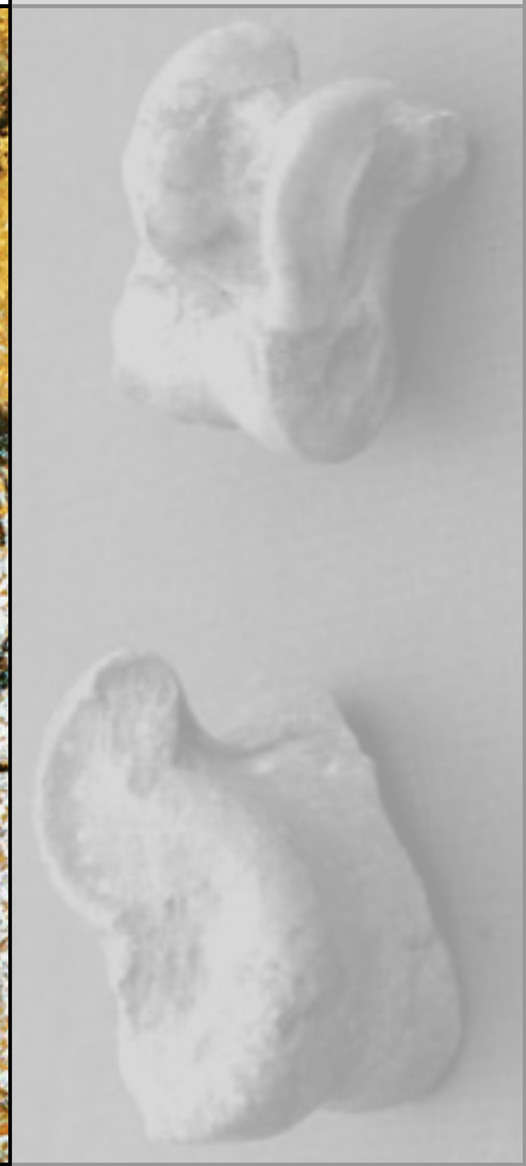

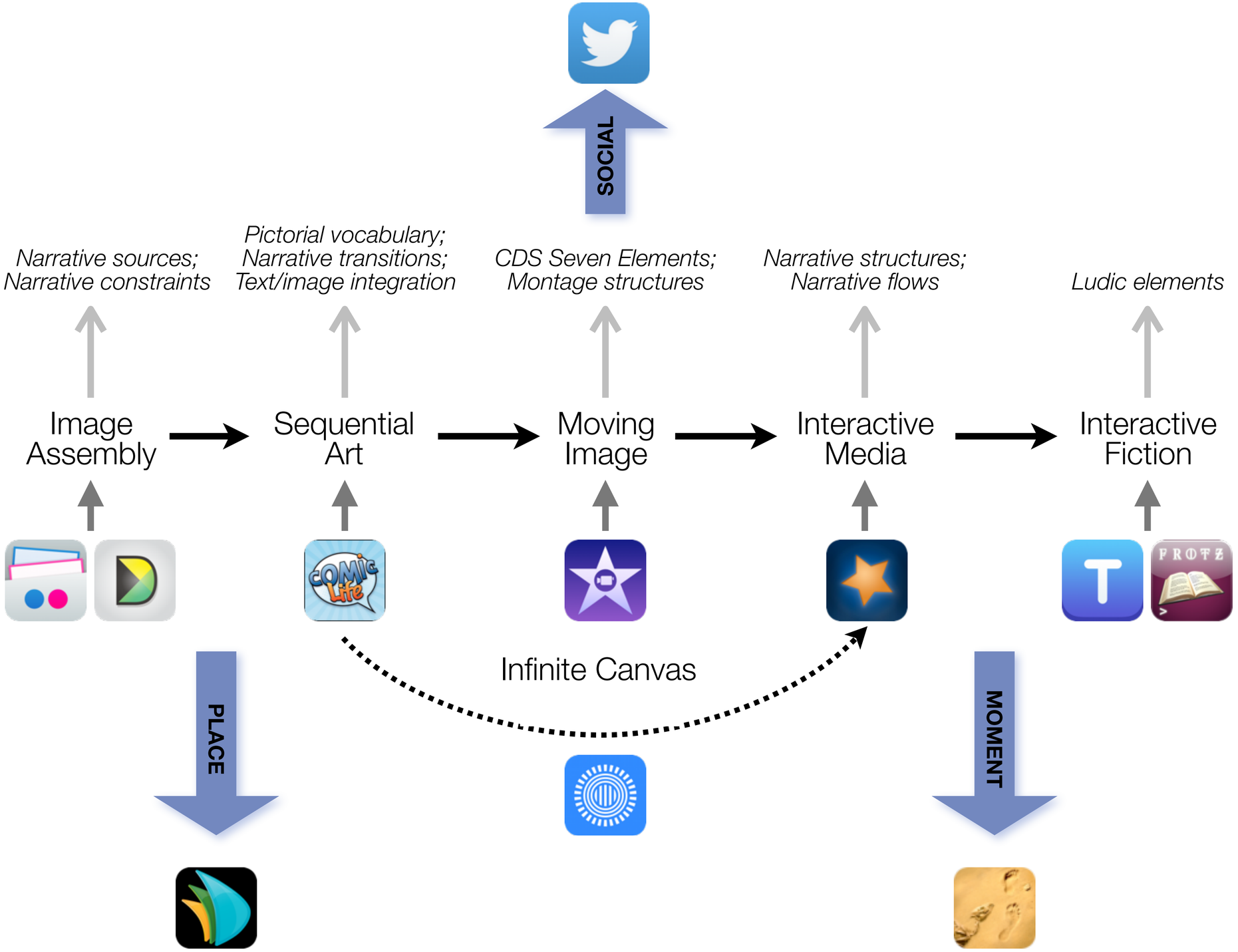
SOCIAL
Narrative sources;
Narrative constraints
Pictorial vocabulary;
Narrative transitions;
Text/image integration
CDS Seven Elements;
Montage structures
Narrative structures;
Narrative flows
Ludic elements
Image Assembly
Sequential Art
Moving Image
Interactive Media
Interactive Fiction
Infinite Canvas
PLACE
MOMENT

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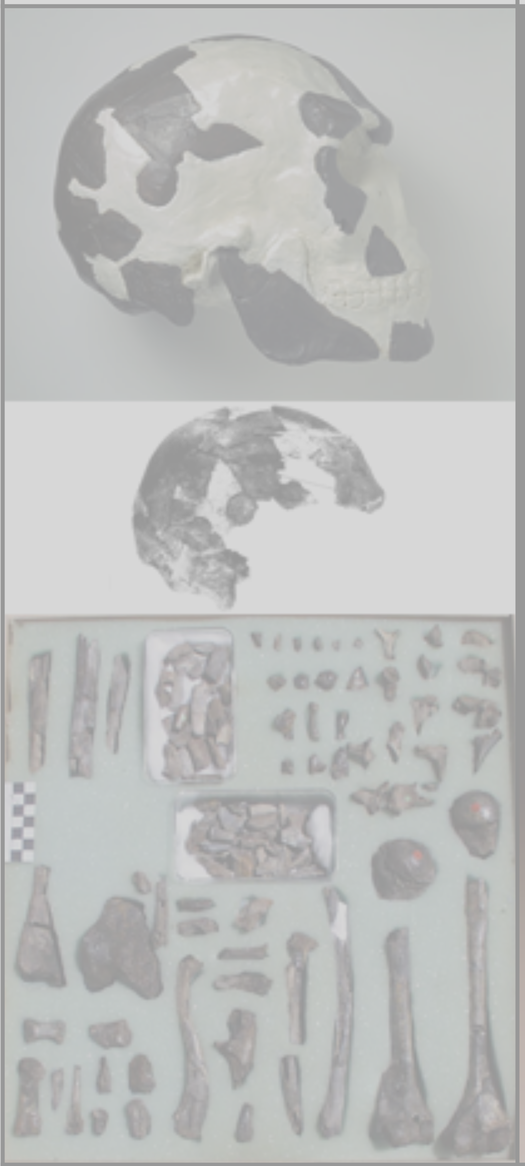
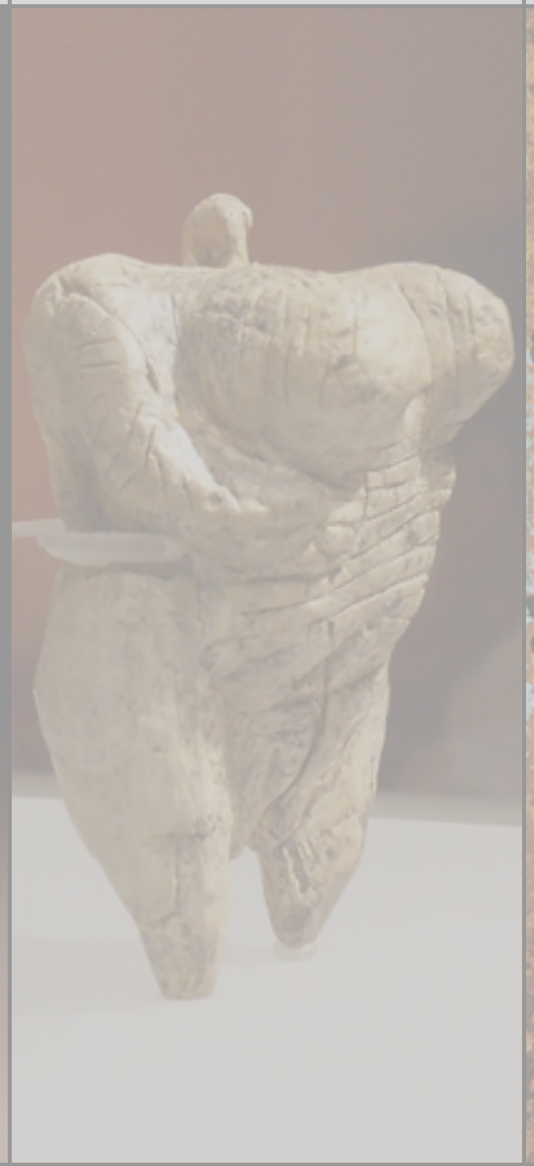
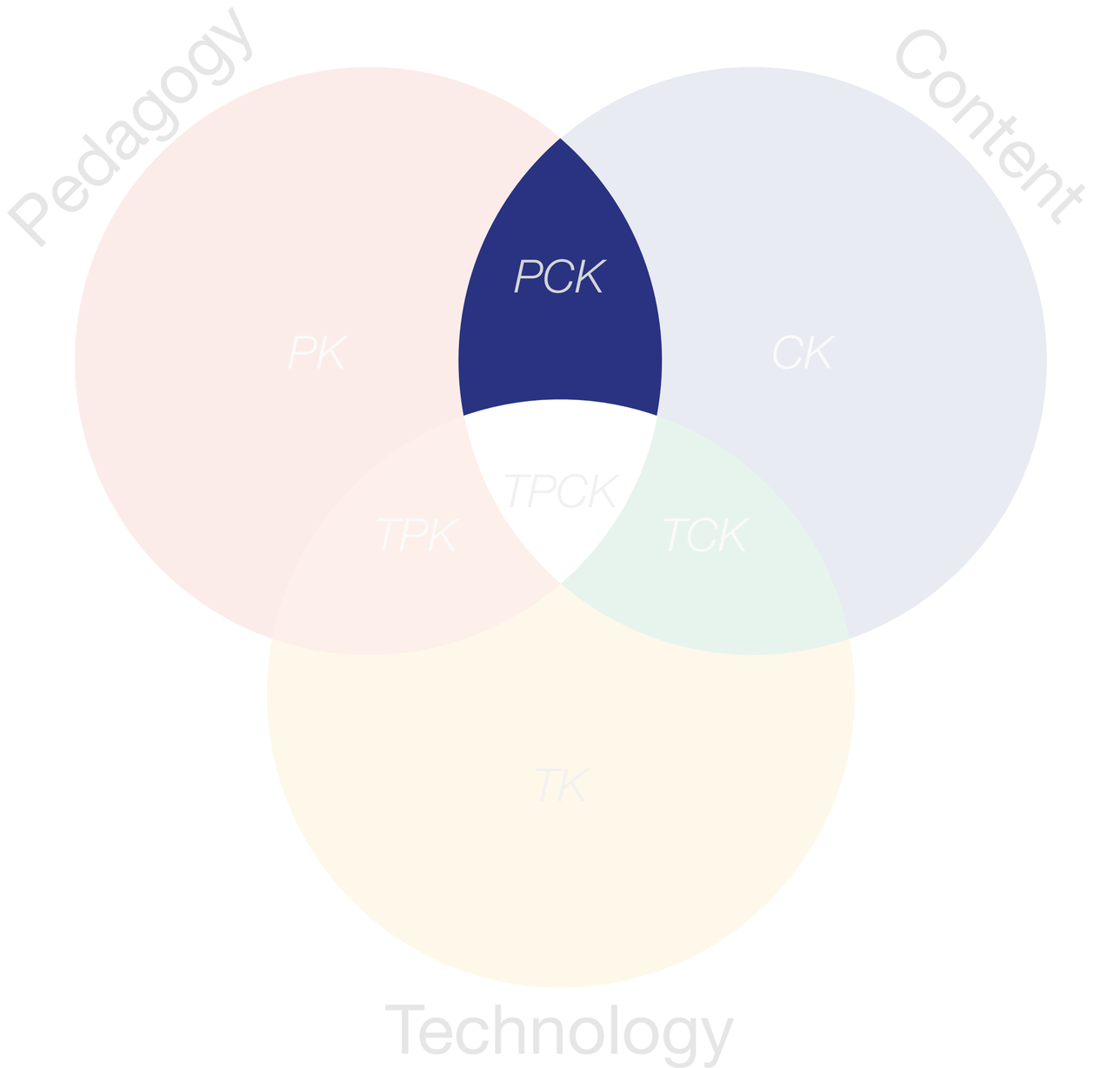




Formal Definition of **Game** (Salen & Zimmerman)

"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)



Lee S. Shulman, "Those Who Understand: Knowledge Growth in Teaching." *Educational Researcher*, Vol. 15, No. 2 (Feb., 1986)

Location
Position in space

Condition
Mix of natural & artificial features that give meaning to a location

Links
Connections between places

Formal Region
Group of places with similar conditions

Functional Region
Group of places linked together by a flow

Phil Gersmehl. *Teaching Geography*. The Guilford Press. (2005)

Spatial Thinking Skills	
Comparison	How are places similar or different?
Aura	What is this place’s influence on nearby places?
Region	What nearby places are similar to this one?
Transition	How do things change between two places?
Hierarchy	What larger area is this area inside? What smaller areas are inside it?
Analogy	What places have similar conditions?
Pattern	What distinctive arrangements can you see on a map?
Association	Are these patterns similar?

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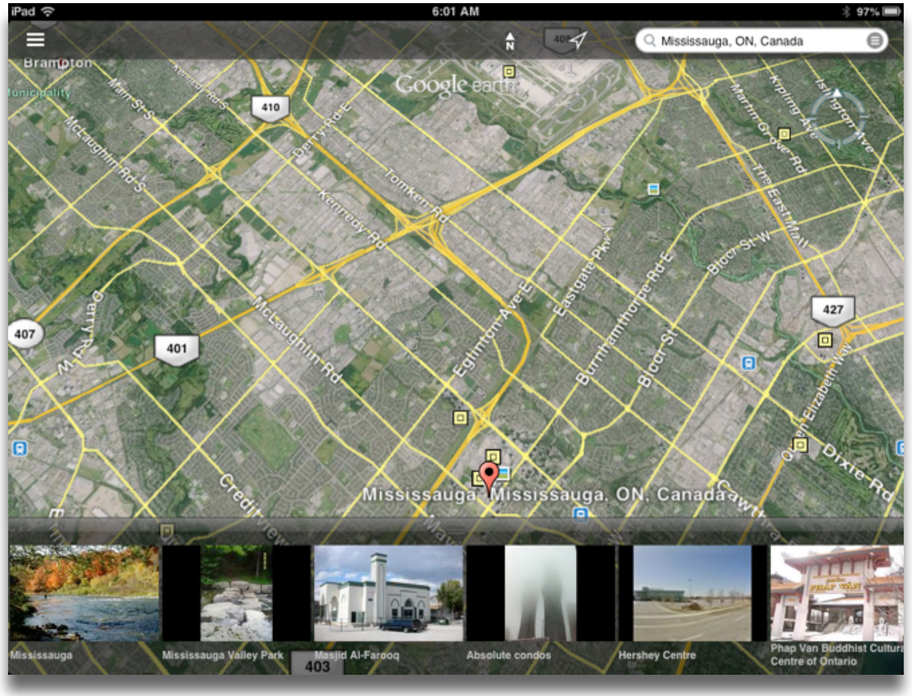

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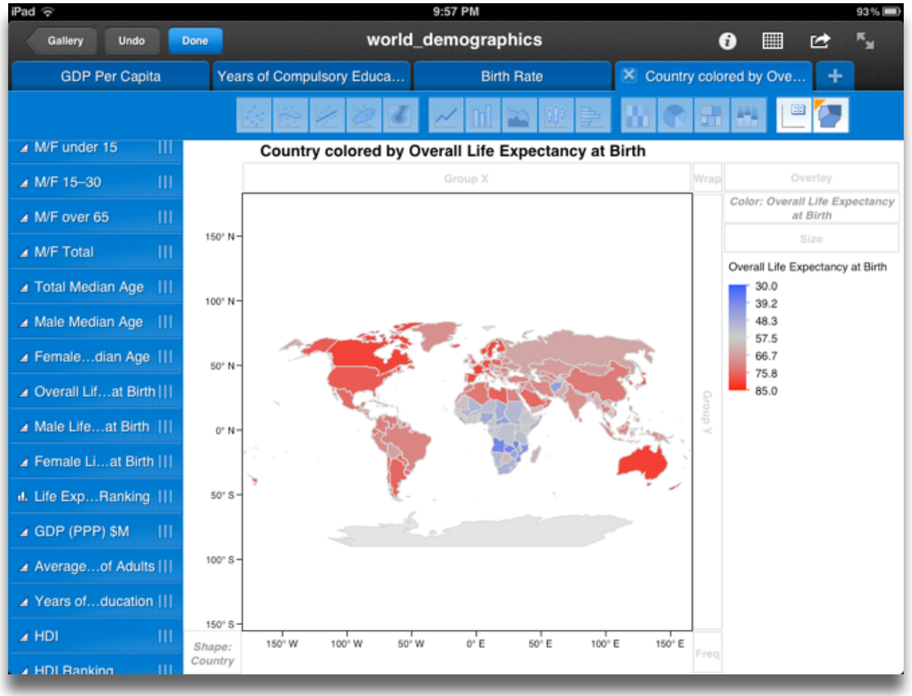

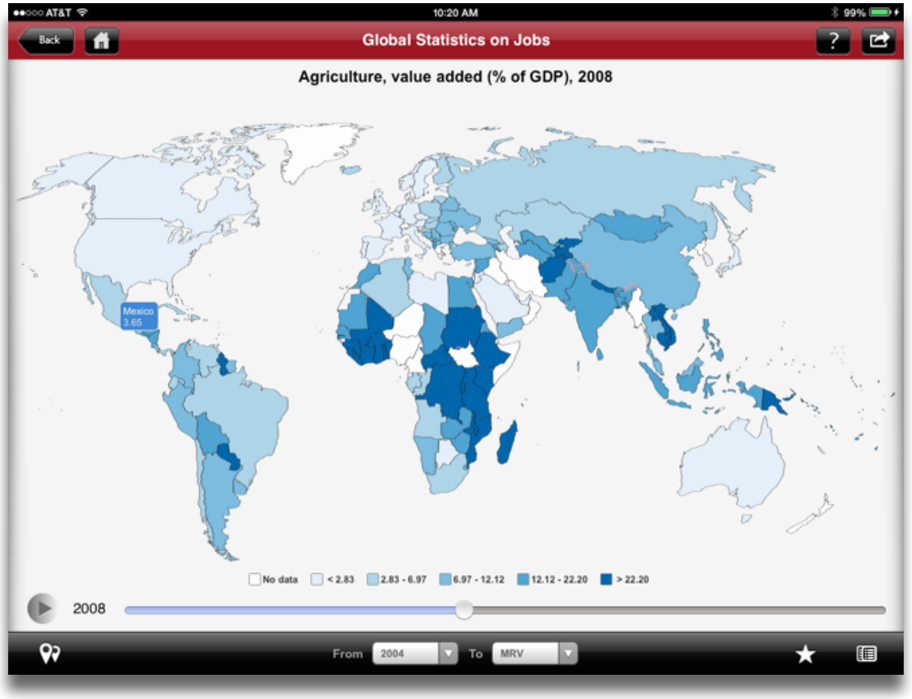

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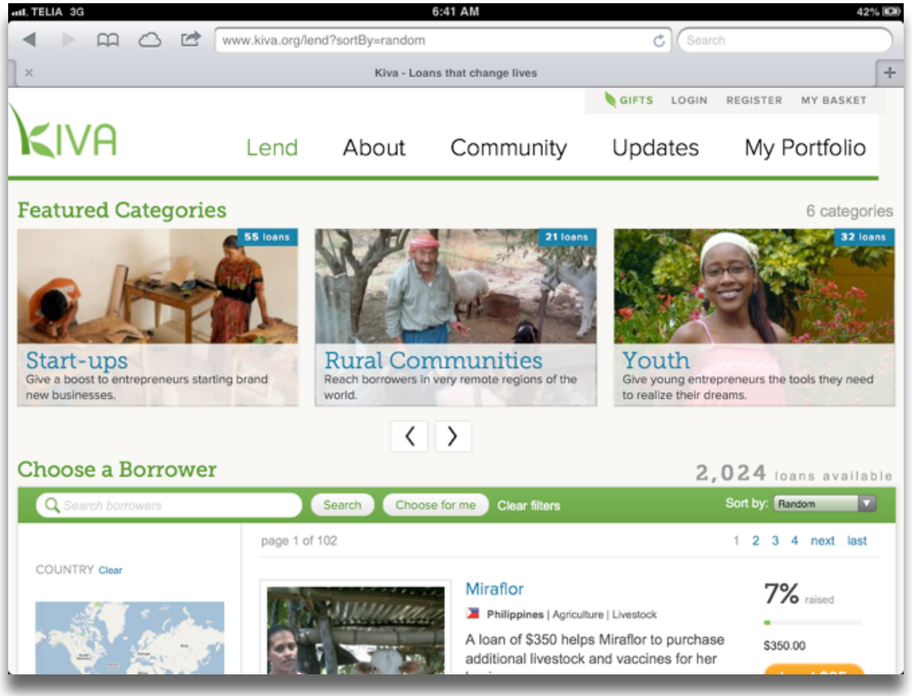
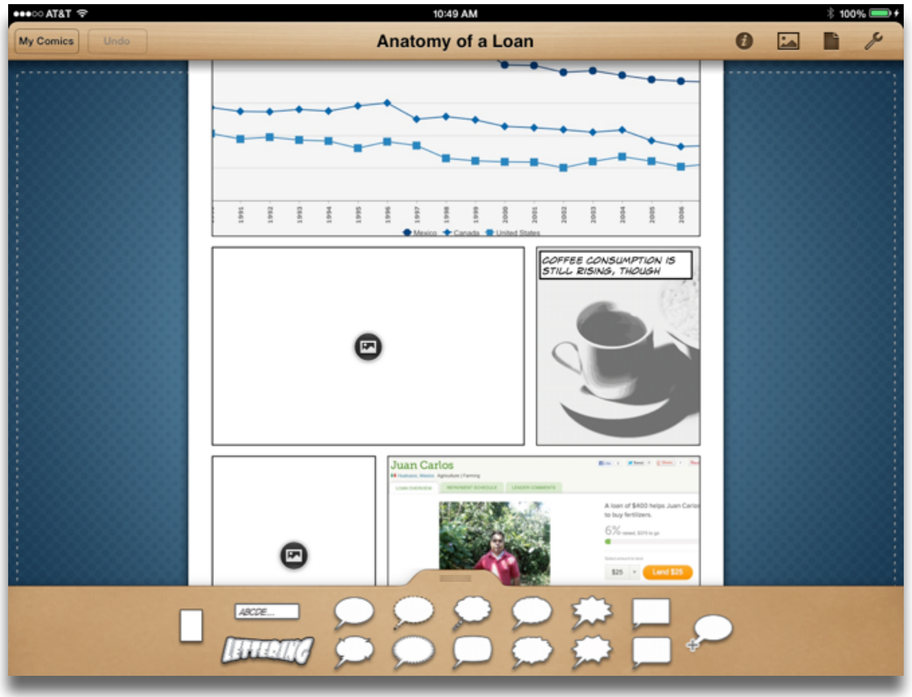




Surveying Seymour Papert’s Four Expectations

- **Expectation 1:** suitably designed formative/summative assessment rubrics will show improvement when compared to traditional instruction.
- **Expectation 2:** students will show more instances of work at progressively higher levels of Bloom's Taxonomy.
- **Expectation 3:** student work will demonstrate more – and more varied – critical thinking cognitive skills, particularly in areas related to the examination of their own thinking processes.
- **Expectation 4:** student daily life will reflect the introduction of the technology. This includes (but is not limited to) directly observable aspects such as reduction in student attrition, increase in engagement with civic processes in their community, and engagement with communities beyond their own.

S. Papert. *An Evaluative Study of Modern Technology in Education*. MIT Artificial Intelligence Laboratory Memo No. 371. (June, 1976)

Bloom's Taxonomy: Cognitive Processes

Anderson & Krathwohl (2001)	Characteristic Processes	
Remember	• Recalling memorized knowledge • Recognizing correspondences between memorized knowledge and new material	
Understand	• Paraphrasing materials • Exemplifying concepts, principles • Classifying items • Summarizing materials	• Extrapolating principles • Comparing items
Apply	• Applying a procedure to a familiar task • Using a procedure to solve an unfamiliar, but typed task	
Analyze	• Distinguishing relevant/irrelevant or important/unimportant portions of material • Integrating heterogeneous elements into a structure • Attributing intent in materials	
Evaluate	• Testing for consistency, appropriateness, and effectiveness in principles and procedures • Critiquing the consistency, appropriateness, and effectiveness of principles and procedures, basing the critique upon appropriate tests	
Create	• Generating multiple hypotheses based on given criteria • Designing a procedure to accomplish an untyped task • Inventing a product to accomplish an untyped task	

Lorin W. Anderson and David R. Krathwohl (Eds.), *A Taxonomy for Learning, Teaching, and Assessing: A Revision of Bloom's Taxonomy of Educational Objectives, Complete Edition*. Longman. (2000)

Facione: Critical Thinking – Cognitive Skills and Subskills

Skill	Subskills
Interpretation	Categorization Decoding Significance Clarifying Meaning
Analysis	Examining Ideas Identifying Arguments Analyzing Arguments
Evaluation	Assessing Claims Assessing Arguments
Inference	Querying Evidence Conjecturing Alternatives Drawing Conclusions
Explanation	Stating Results Justifying Procedures Presenting Arguments
Self-Regulation	Self-examination Self-correction

Peter Facione, *Critical Thinking: A Statement of Expert Consensus for Purposes of Educational Assessment and Instruction - Executive Summary*. "The Delphi Report". American Philosophical Association, Committee on Pre-College Philosophy. California Academic Press, 1990

Black and Wiliam: Defining Formative Assessment

"Practice in a classroom is formative to the extent that evidence about student achievement is elicited, interpreted, and used by teachers, learners, or their peers, to make decisions about the next steps in instruction that are likely to be better, or better founded, than the decisions they would have taken in the absence of the evidence that was elicited."

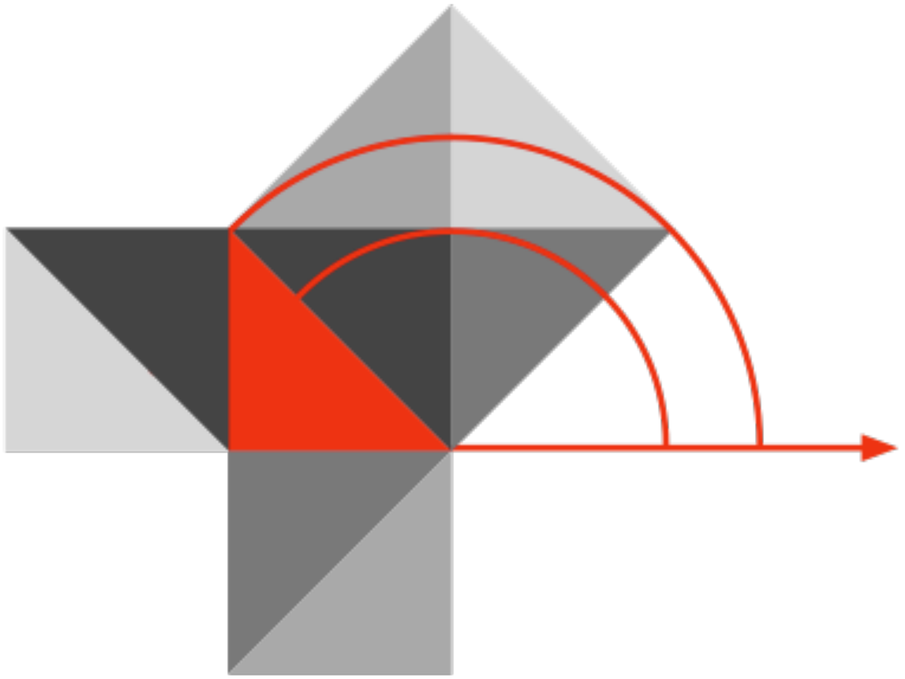
Black, P. and Wiliam D. "Developing the theory of formative assessment." *Educational Assessment, Evaluation and Accountability*. 21:5-31 (2009)

Wiliam: A Framework for Formative Assessment

	Where the learner is going	Where the learner is right now	How to get there
Teacher	1 Clarifying learning intentions and criteria for success	2 Engineering effective classroom discussions and other learning tasks that elicit evidence of student understanding	3 Providing feedback that moves learners forward
Peer	Understanding and sharing learning intentions and criteria for success	4 Activating students as instructional resources for one another	
Learner	Understanding learning intentions and criteria for success	5 Activating students as the owners of their own learning	

Dylan Wiliam, *Embedded Formative Assessment*. Solution Tree (2011)

Hippasus



Blog: http://hippasus.com/rrpweblog/
Email: rubenrp@hippasus.com
Twitter: @rubenrp