SAMR and the EdTech Quintet: First Steps

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

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Enhancement

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

ART & DESIGN

At the Museum of London, the City That Sherlock Holmes Knew

By ROSLYN SULCAS FEB. 9, 2015

LONDON — A riveting exhibition here at the Museum of London has capitalized on the full-blown Sherlockmania that seems to have seized the Western world, judging by a new spate of movies, television shows and books.

John O'Connor's "From Pentonville Road Looking West: Evening," in a show at the Museum of London. Museum of London

Unexpectedly, the show, "Sherlock Holmes: The Man Who Never Lived and Will Never Die," which has drawn record numbers to the museum and continues until April 12, does not focus on the stories about Holmes or his creator, Arthur Conan Doyle, though an opening section shows some early notebooks and illustrations as well as a rare portrait of the author in his 30s.

"We deliberately didn't want to make it a text- and manuscript-heavy library exhibition," said Alex Werner, the lead curator. "It's about the character, and although I had a bit of trepidation about putting on an exhibition about a fictional being, we tried to set him firmly against the real city of London in which the stories take place."

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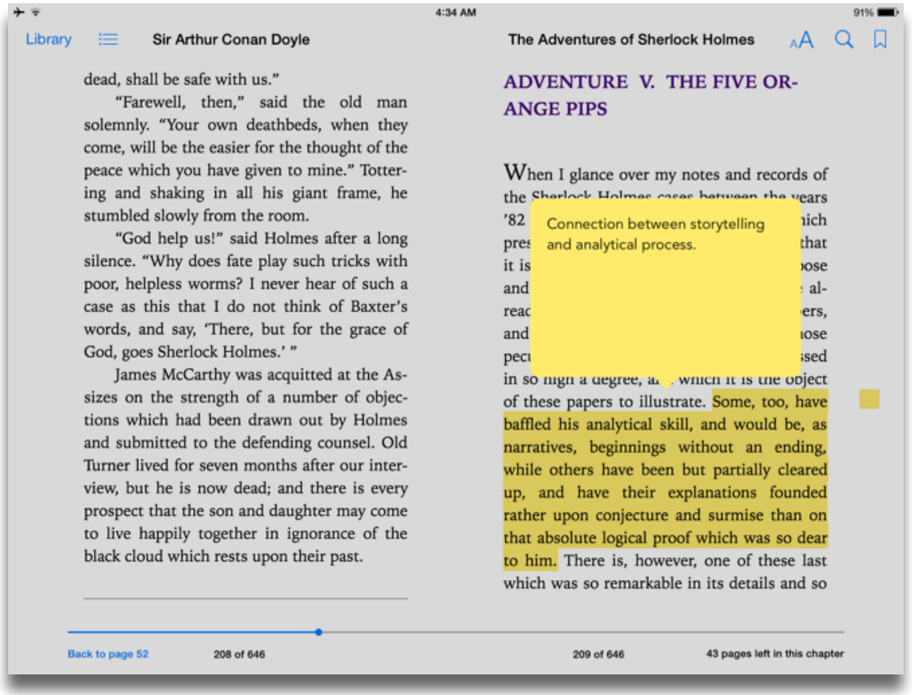

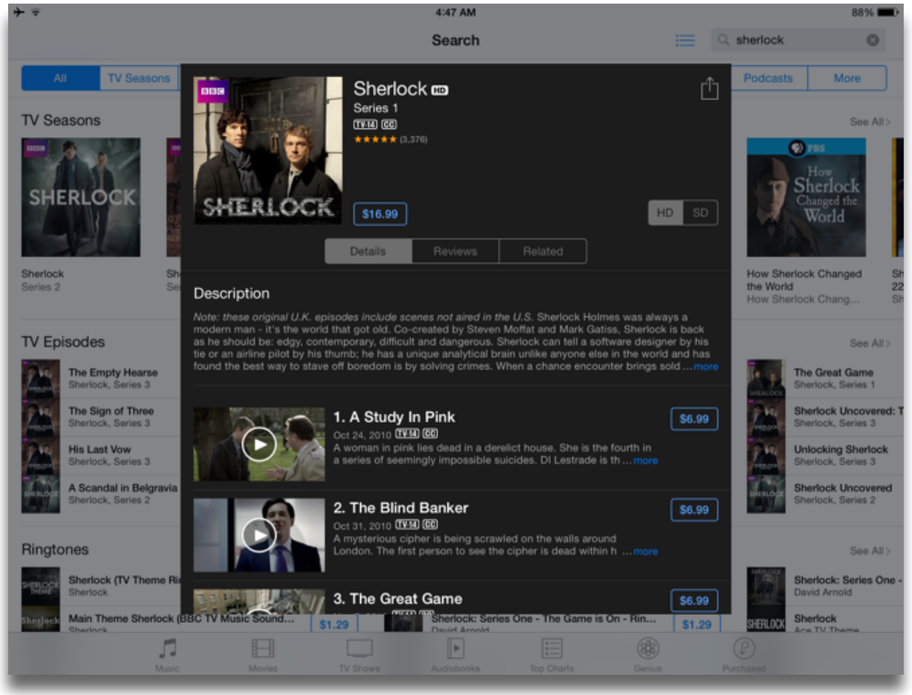

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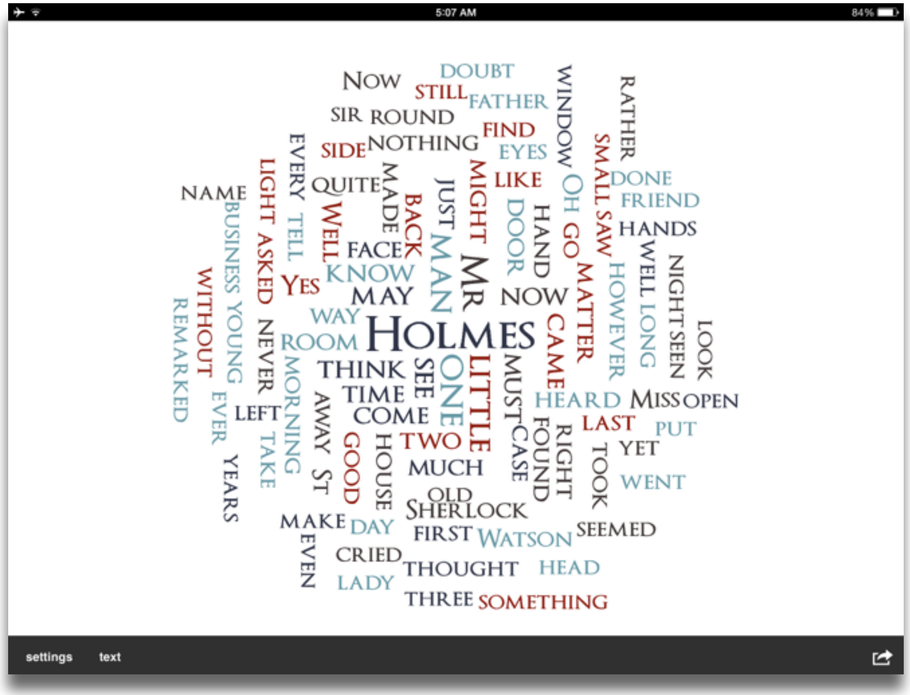

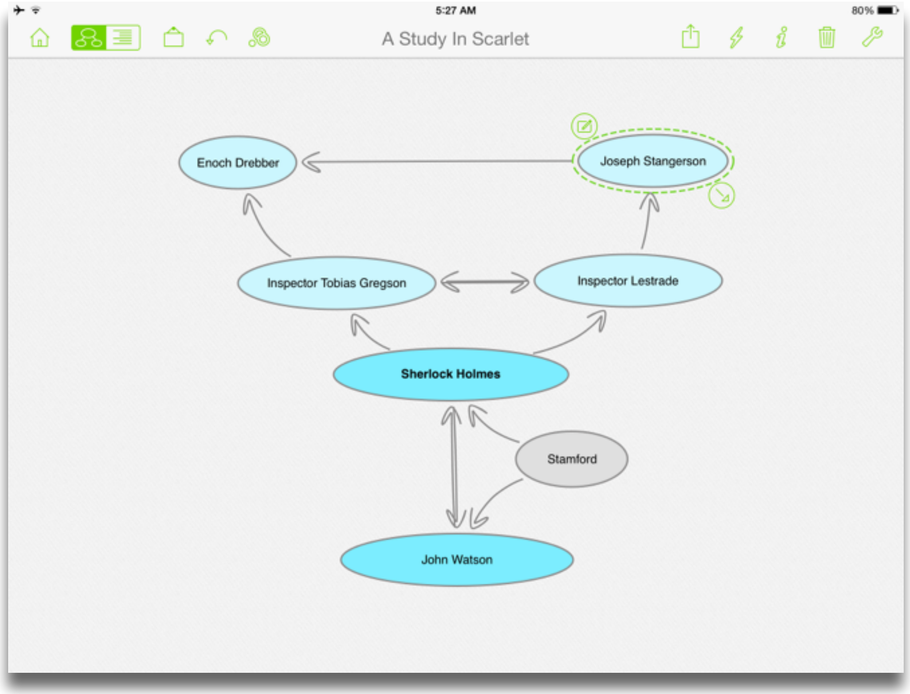

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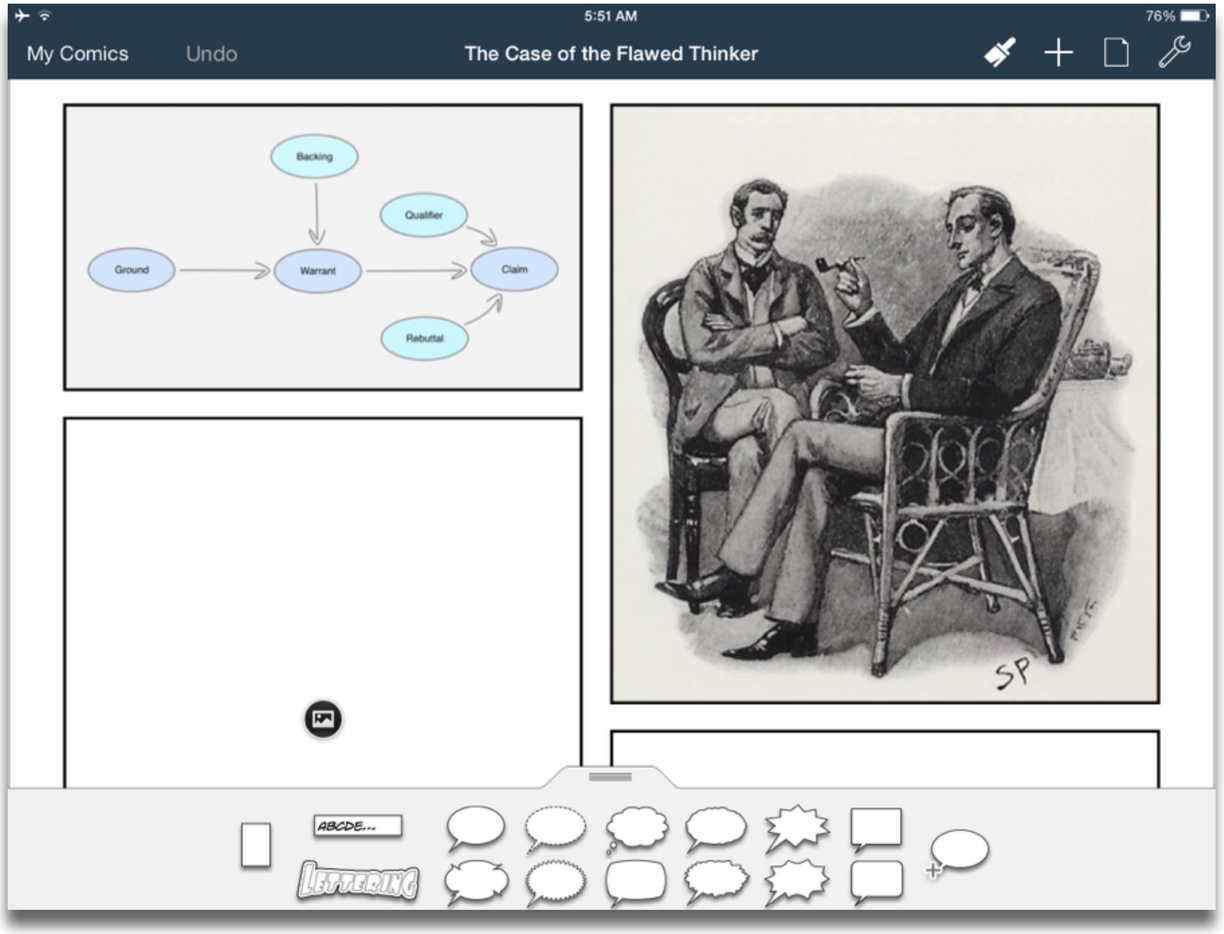

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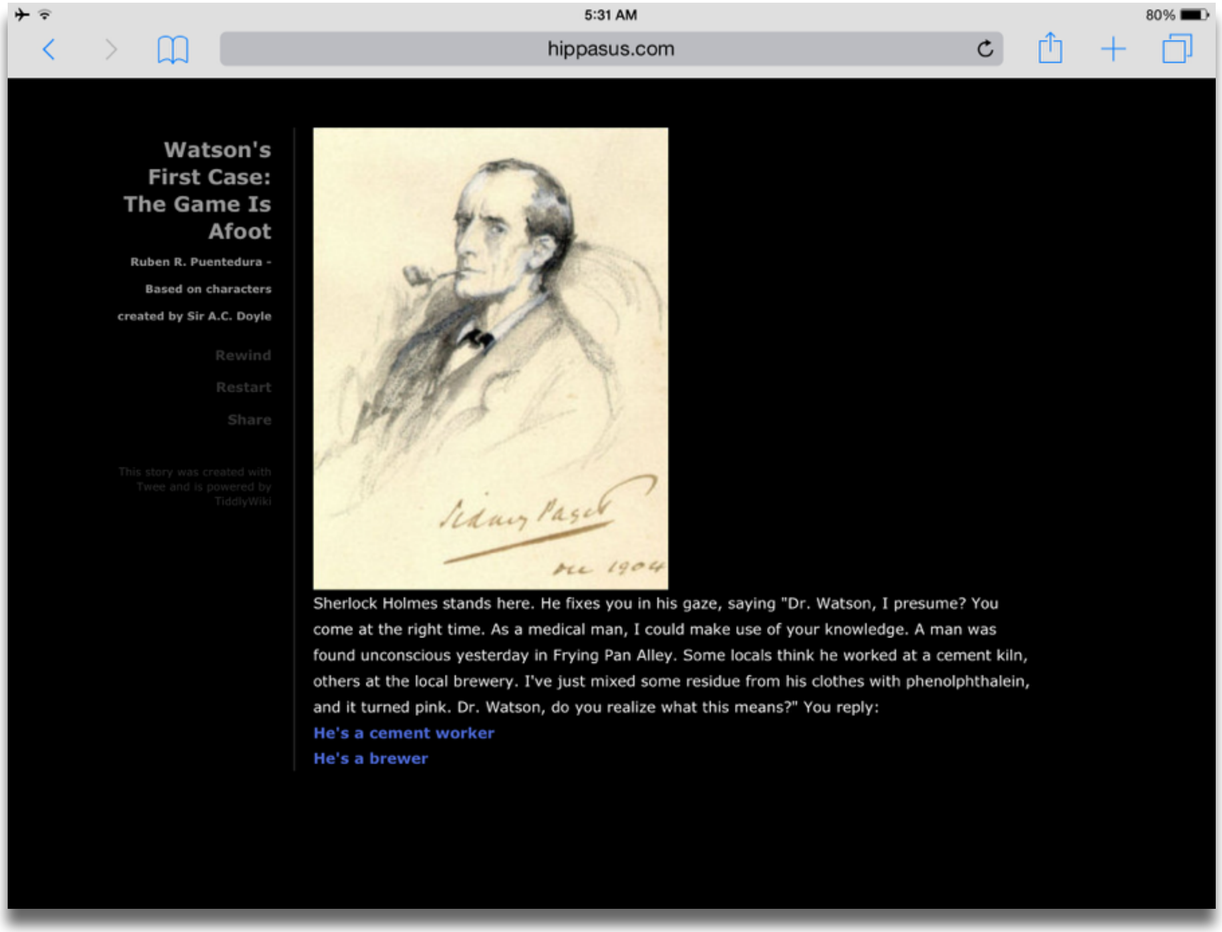
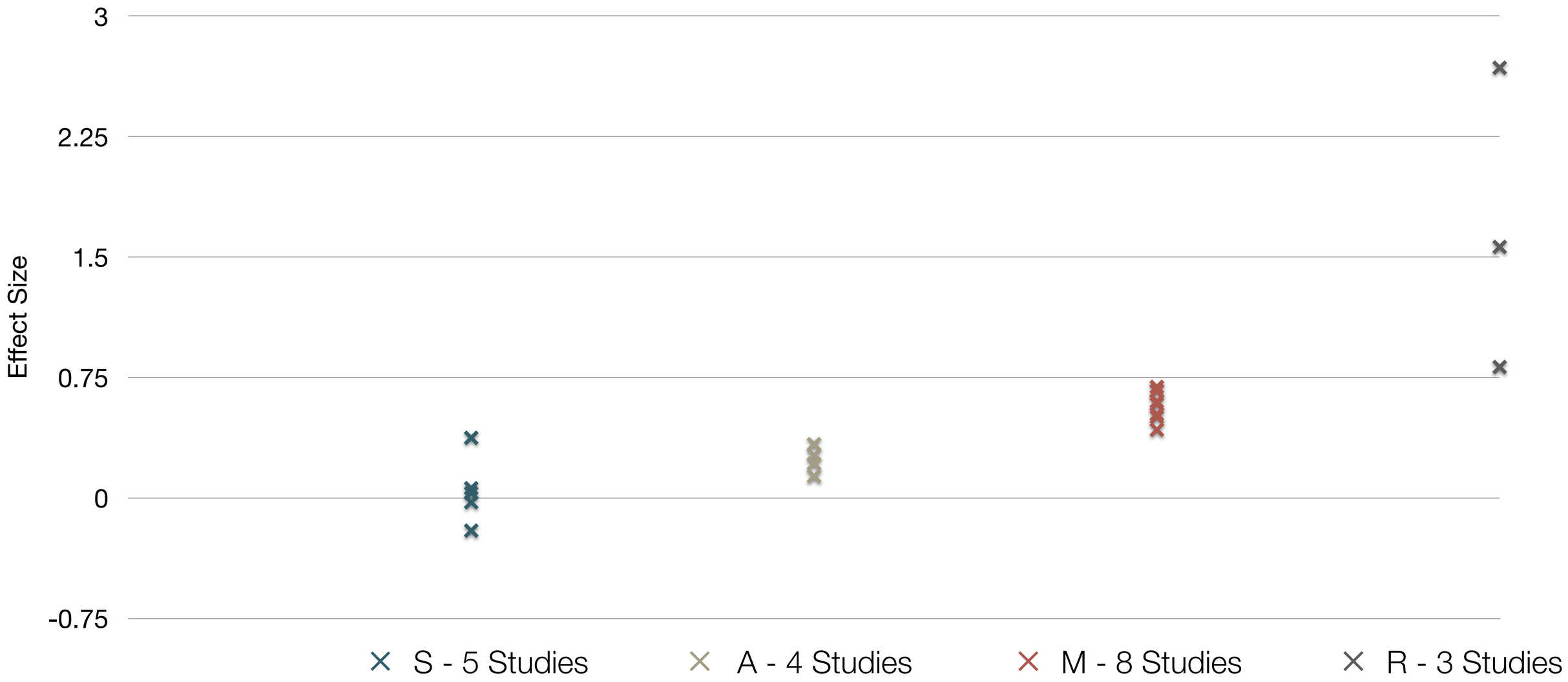


Meta-analysis	Number of studies	*ES* type	Mean *ES*	*SE*
Bangert-Drowns (1993)	19	Missing	0.27	0.11
Bayraktar (2000)	42	Cohen's *d*	0.27	0.05
Blok, Oostdam, Otter, and Overmaat (2002)	25	Hedges's *g*	0.25	0.06
Christmann and Badgett (2000)	16	Missing	0.13	0.05
Fletcher-Flinn and Gravatt (1995)	120	Glass's Δ	0.24	0.05
Goldberg, Russell, and Cook (2003)	15	Hedges's *g*	0.41	0.07
Hsu (2003)	25	Hedges's *g*	0.43	0.03
Koufogiannakis and Wiebe (2006)	8	Hedges's *g*	−0.09	0.19
Kuchler (1998)	65	Hedges's *g*	0.44	0.05
Kulik and Kulik (1991)	239	Glass's Δ	0.30	0.03
Y. C. Liao (1998)	31	Glass's Δ	0.48	0.05
Y.-I. Liao and Chen (2005)	21	Glass's Δ	0.52	0.05
Y. K. C. Liao (2007)	52	Glass's Δ	0.55	0.05
Michko (2007)	45	Hedges's *g*	0.43	0.07
Onuoha (2007)	35	Cohen's *d*	0.26	0.04
Pearson, Ferdig, Blomeyer, and Moran (2005)	20	Hedges's *g*	0.49[a]	0.11
Roblyer, Castine, and King (1988)	35	Hedges's *g*	0.31	0.05
Rosen and Salomon (2007)	31	Hedges's *g*	0.46	0.05
Schenker (2007)	46	Cohen's *d*	0.24	0.02
Soe, Koki, and Chang (2000)	17	Hedges's *g* and Pearson's *r*[a]	0.26[a]	0.05
Timmerman and Kruepke (2006)	114	Pearson's *r*[a]	0.24	0.03
Torgerson and Elbourne (2002)	5	Cohen's *d*	0.37	0.16
Waxman, Lin, and Michko (2003)	42	Glass's Δ	0.45	0.14
Yaakub (1998)	20	Glass's Δ and *g*	0.35	0.05
Zhao (2003)	9	Hedges's *g*	1.12	0.26

a. Converted to Cohen's *d*.

Tamim, Rana M., Robert M. Bernard, Eugene Borokhovski, Philip C. Abrami, and Richard F. Schmid. "What forty years of research says about the impact of technology on learning a second-order meta-analysis and validation study." *Review of Educational Research 81*, no. 1 (2011): 4-28.



Pearson, P.D., Ferdig, R.E., Blomeyer Jr, R.L., & Moran, J. "The Effects of Technology on Reading Performance in the Middle-School Grades: A Meta-Analysis With Recommendations for Policy." *Learning Point Associates/North Central Regional Educational Laboratory (NCREL)* (2005).

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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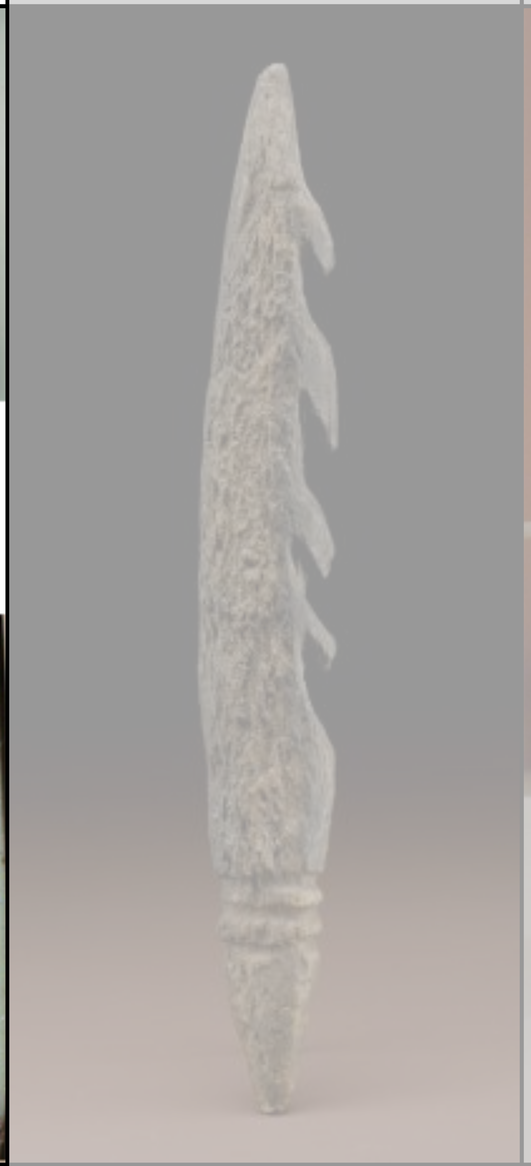

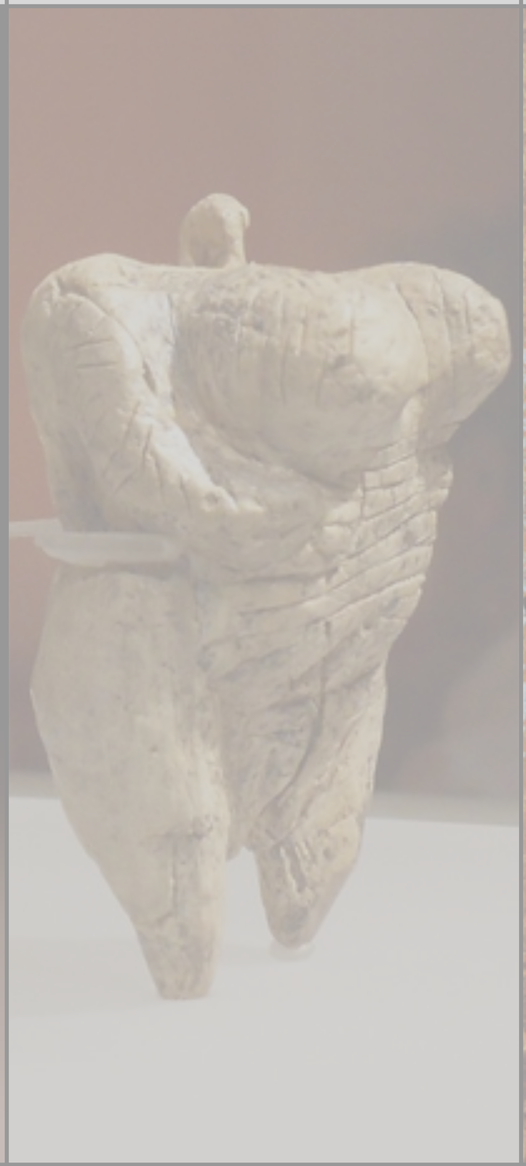

Bookmarks

RSS Feeds

Discussions

Microblogging

Blogging

Wikis

Telepresence

File Sharing

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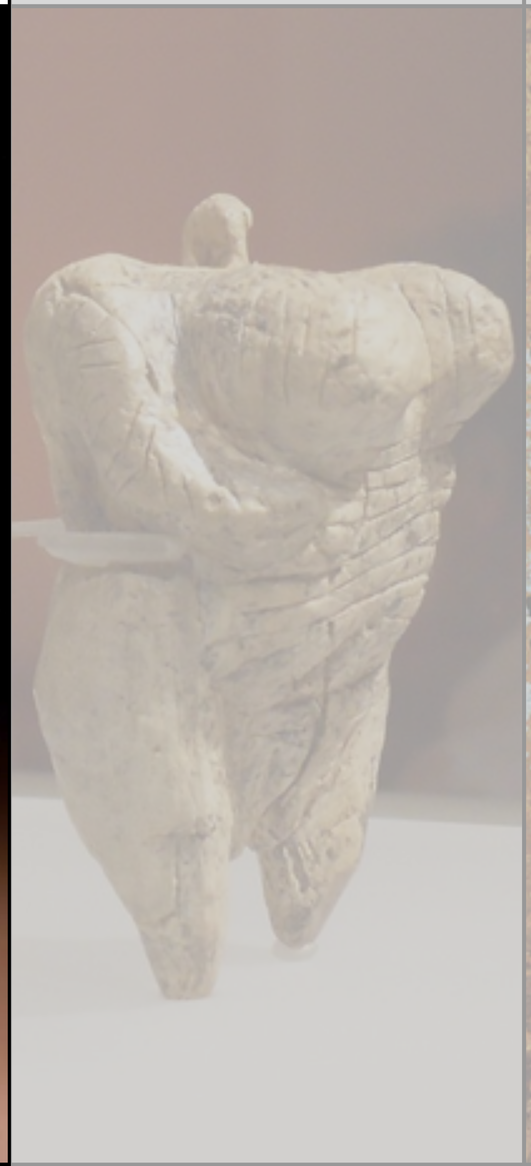

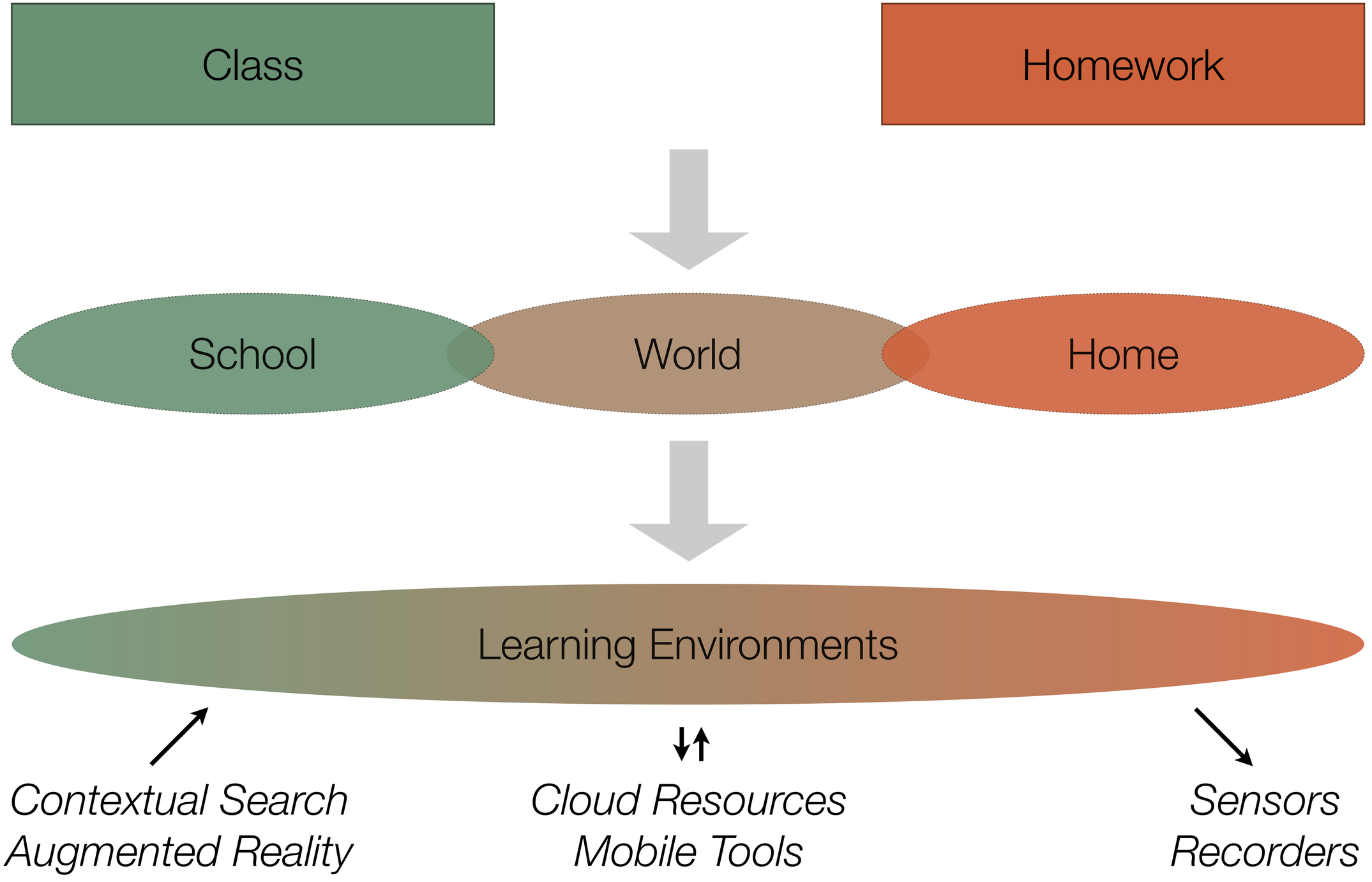
Class
Homework
School
World
Home
Learning Environments
Contextual Search
Augmented Reality
Cloud Resources
Mobile Tools
Sensors
Recorders

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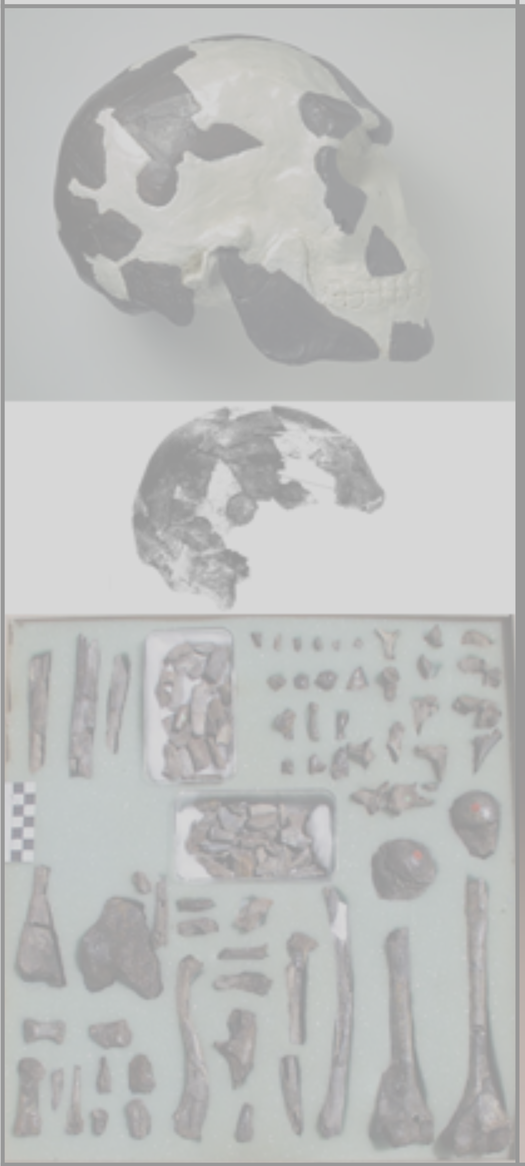
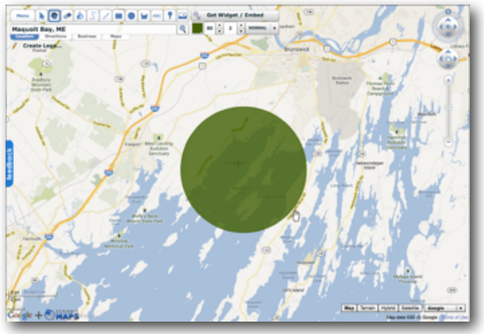
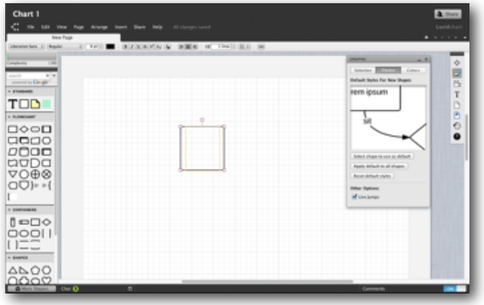



TimelineJS
Website

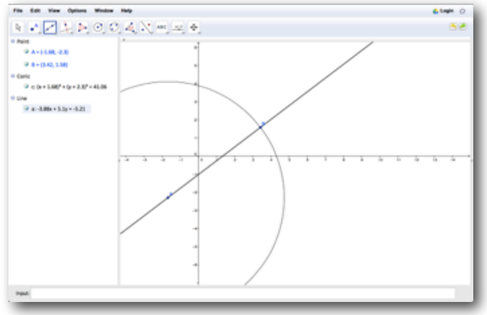

3D






word tree
I
am
have
do
love


Word
Collage



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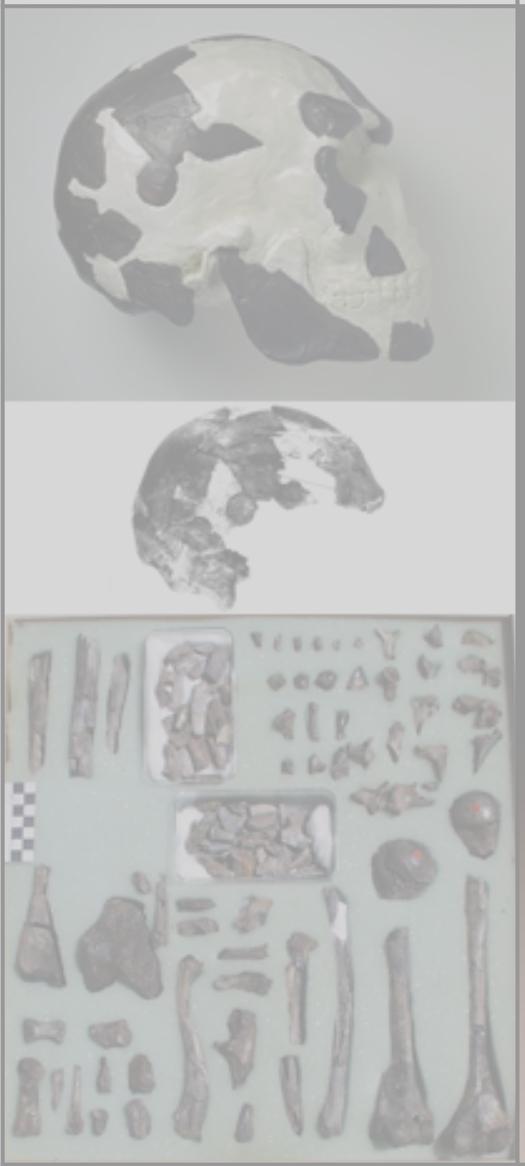

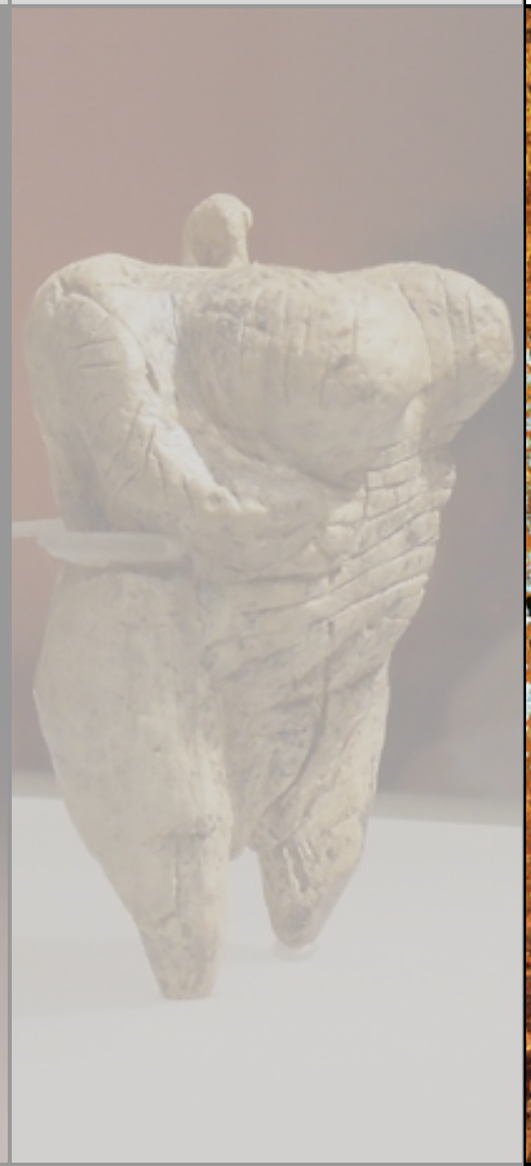

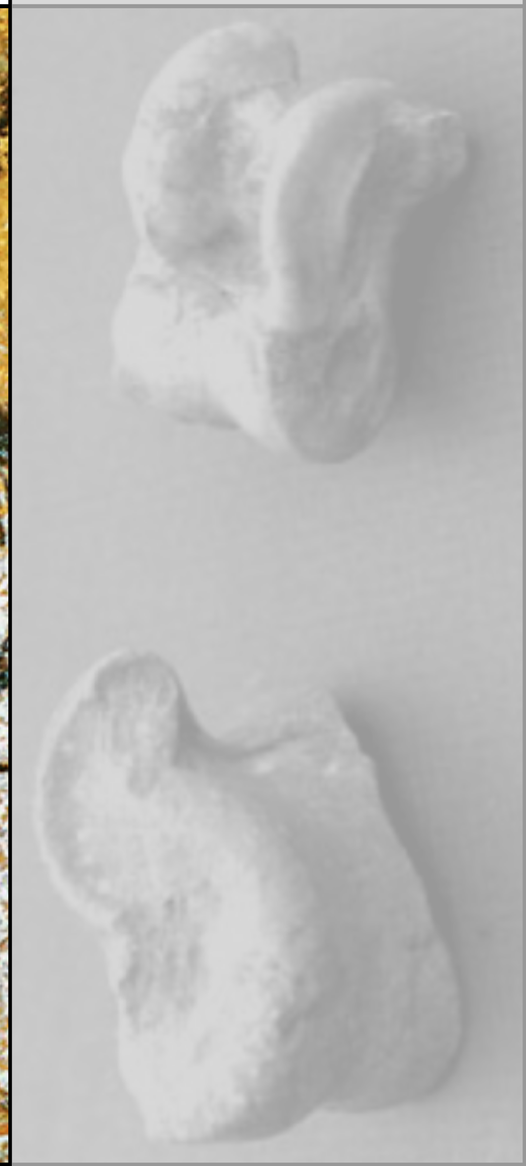

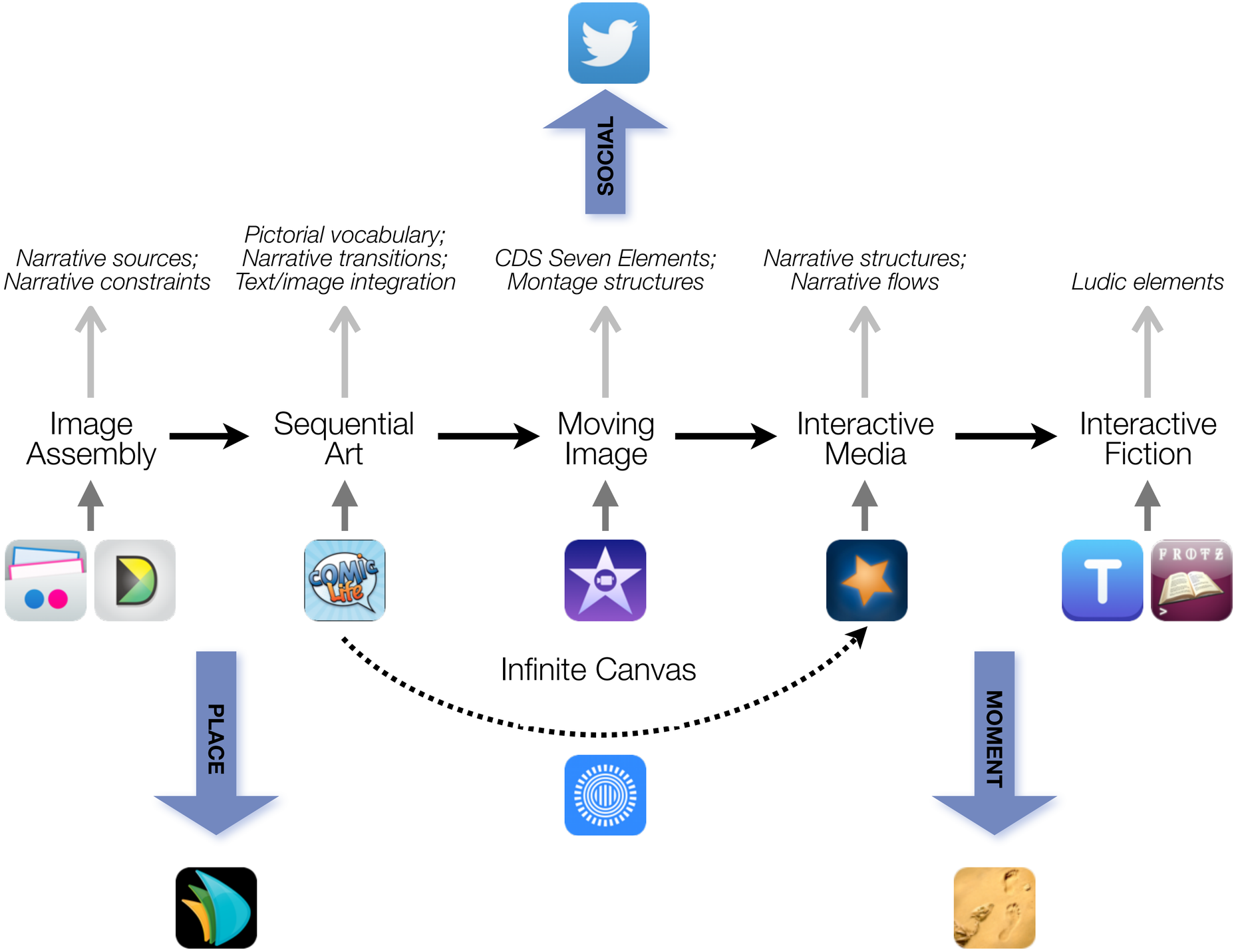
SOCIAL
Narrative sources;
Narrative constraints
Pictorial vocabulary;
Narrative transitions;
Text/image integration
CDS Seven Elements;
Montage structures
Narrative structures;
Narrative flows
Ludic elements
Image Assembly
Sequential Art
Moving Image
Interactive Media
Interactive Fiction
Infinite Canvas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

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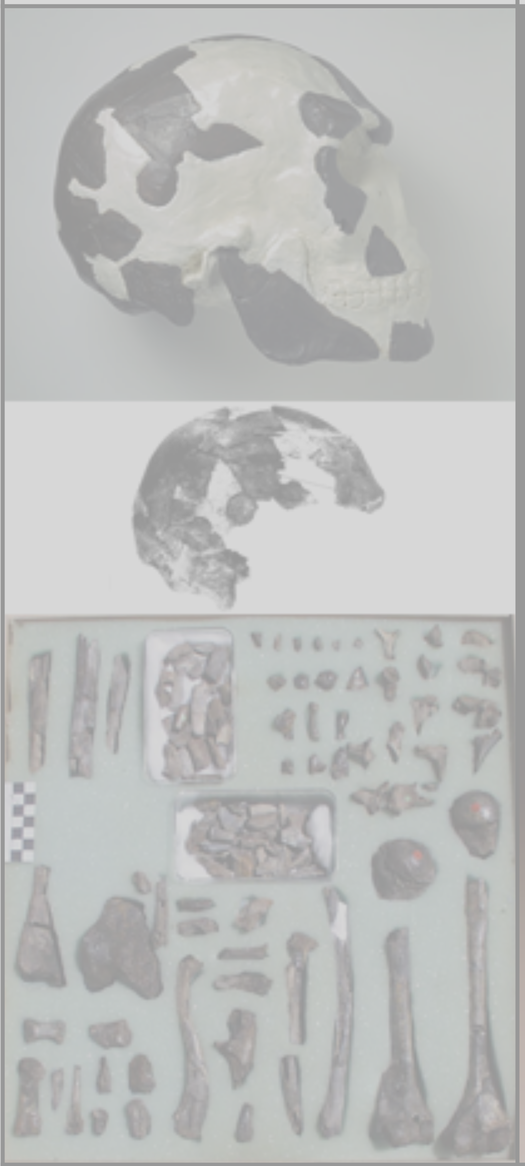

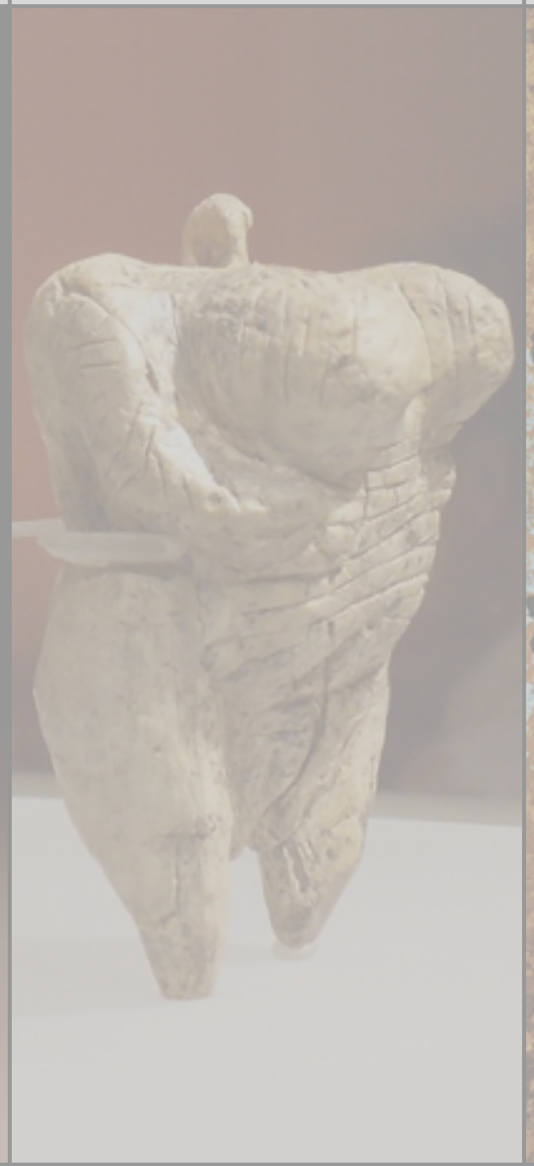

Formal Definition of **Game** (Salen & Zimmerman)

"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)

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

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THE FUTURE OF MUSEUMS CONFERENCE

Main | 2014 Conference | Attending + Schedule | Presenters | Volunteers | Sponsors + Partners | Advisory Board | Members | My Page |

/// TWIN MUSEUM EVENTS

The New Media Consortium and Learning Revolution held twin events about the future of museums on **July 23rd & 24th, 2014**. Both events were focused on four main themes from the *NMC Horizon Report > 2013 Museum Edition*:

- Bring Your Own Device
- Location-Based Services
- Crowdsourcing
- Makerspaces

July 23rd - The NMC Virtual Symposium on the Future of Museums was an exclusive symposium for you, the curators, creators, innovators, museum professionals, and educators. In this limited-space event, participants engaged with panels on these topics and helped to shape the conversation around the future of museums.

More information at go.nmc.org/future-museums

July 24th - The Learning Revolution

/// WELCOME!

THE FUTURE OF MUSEUMS CONFERENCE

The Future of Museums Conference was held from 10am - 5pm US-Eastern Time on **July 24th, 2014**, and featured keynote speakers and crowd-sourced presentations by your peers.

The conference was a collaborative global conversation about technology, museums, and the future. A welcome letter with the conference strands is here.

To be kept informed of future conference news and updates, please join this network!

/// KEYNOTES







Welcome to
The Future of Museums Conference
Sign Up
or Sign In

/// SUPPORT FREE PD!

/// 2014 CONFERENCE

Conference

- Welcome + Information
- Attending + Schedule
- Con

Sign in to chat!

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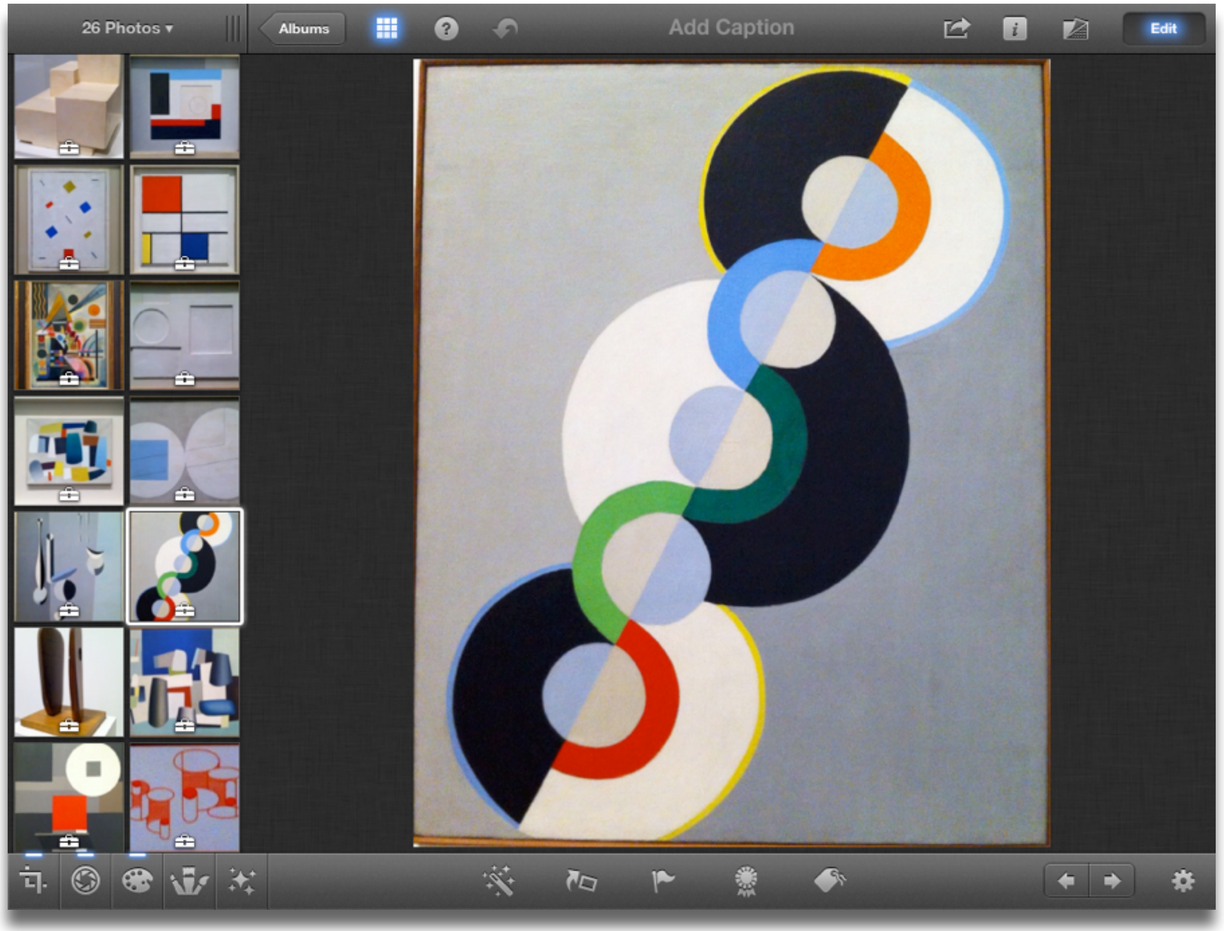

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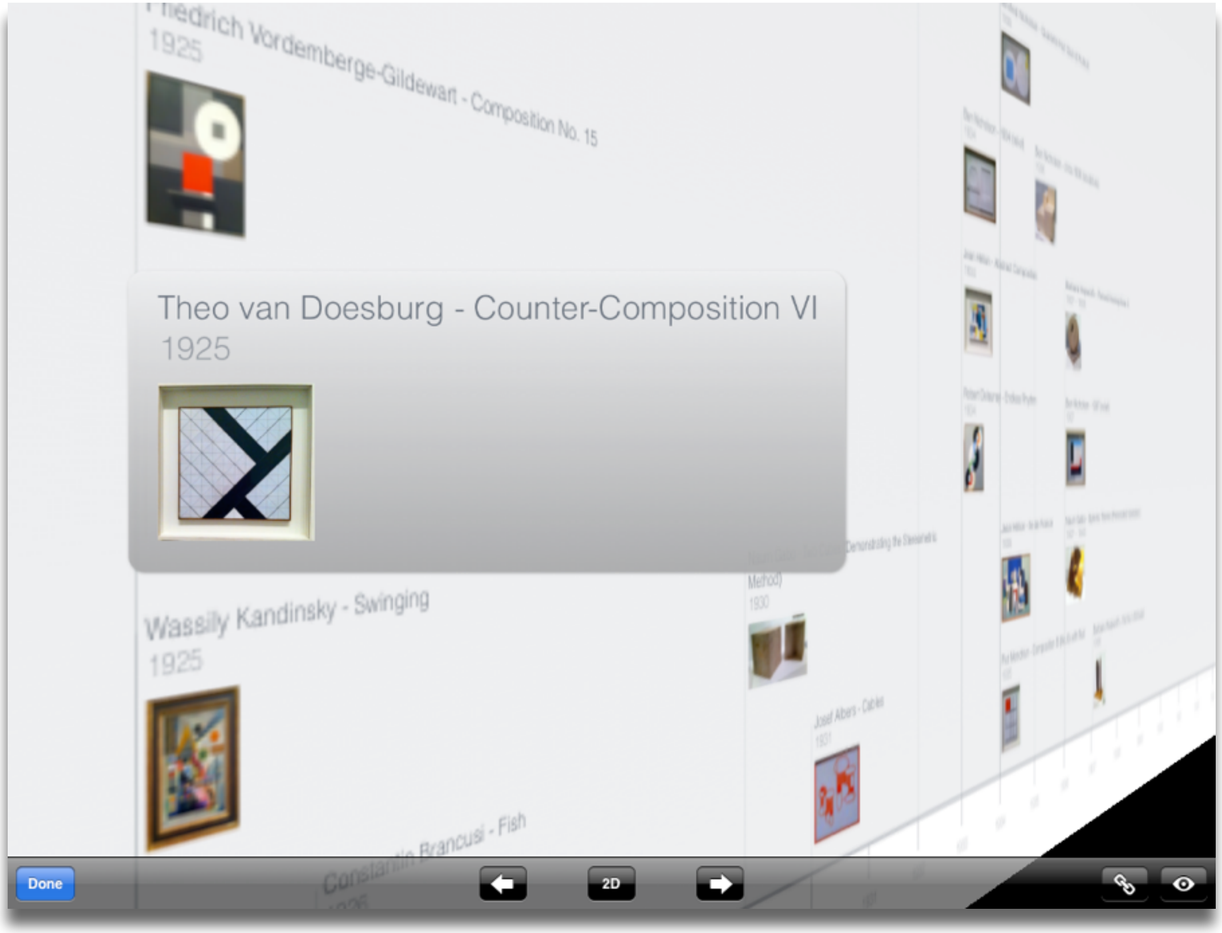

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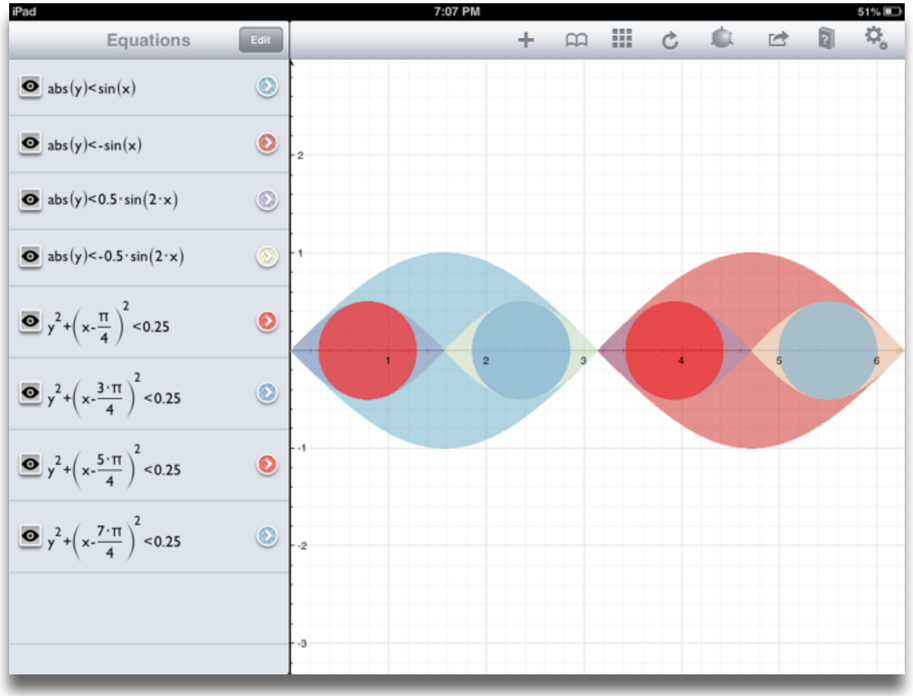

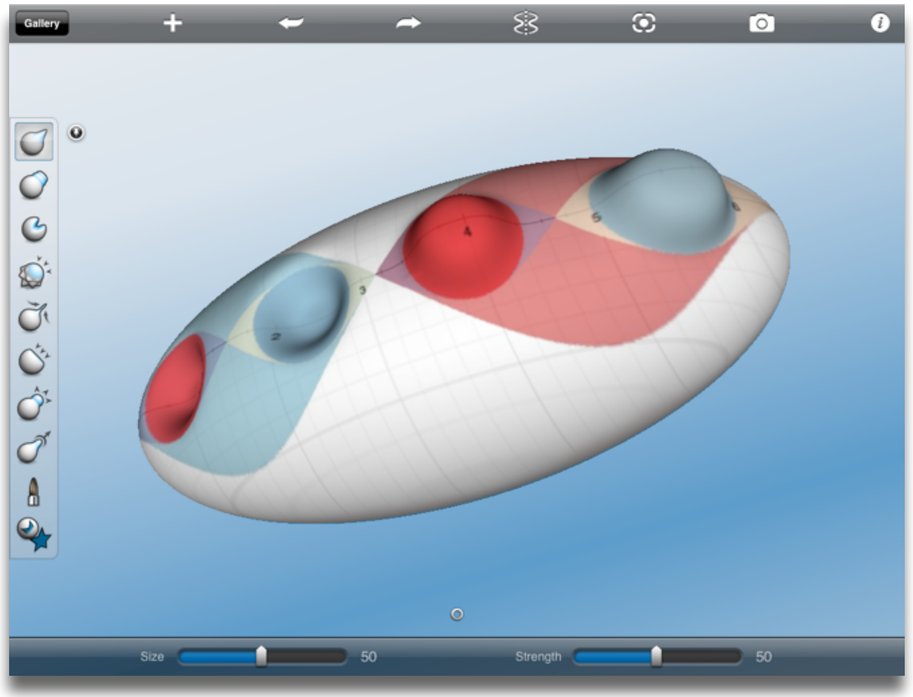

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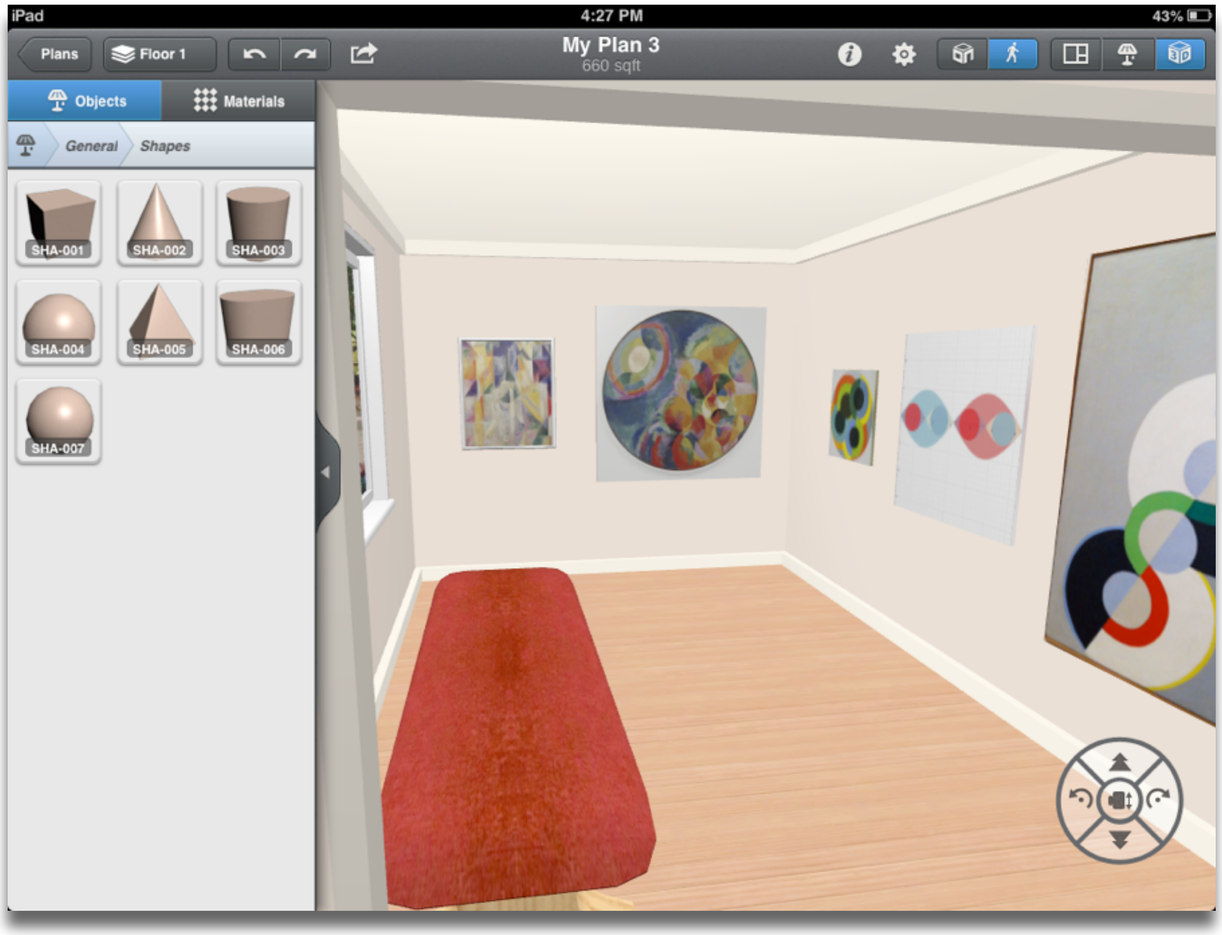
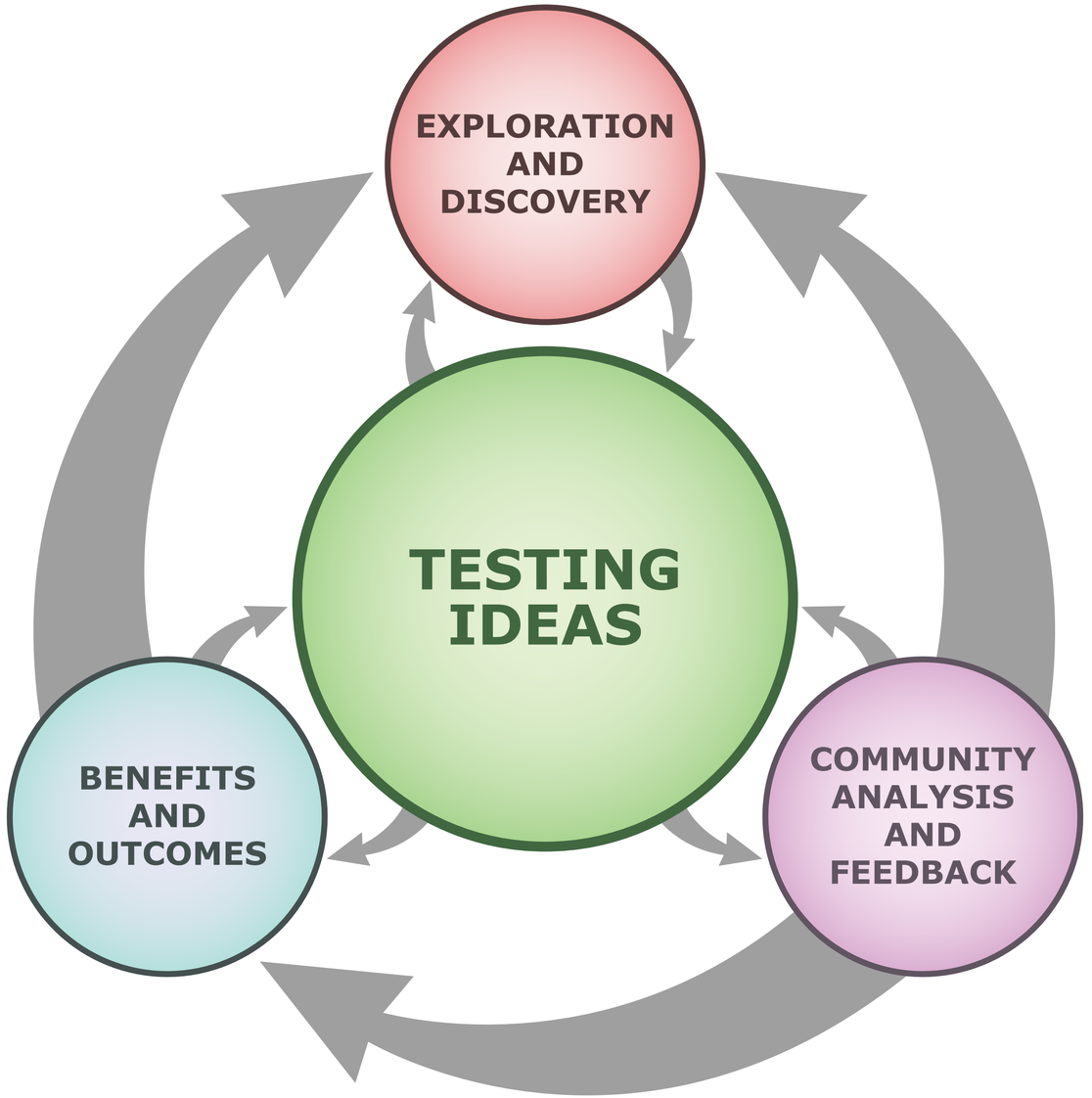


Understanding Science: How Science Works



"Understanding Science." Understanding Science. N.p., n.d. Web. 5 Jan. 2014. <http://undsci.berkeley.edu>

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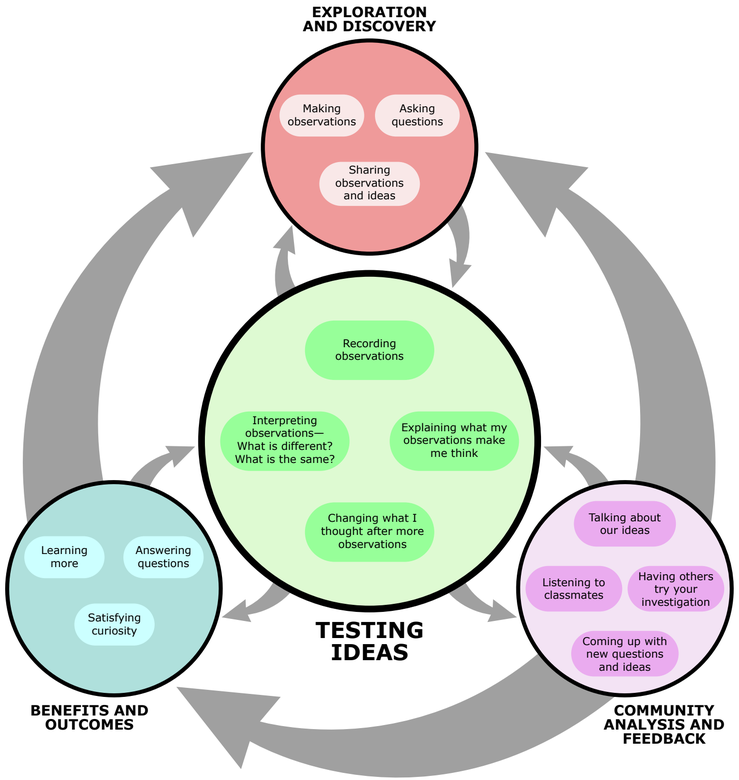
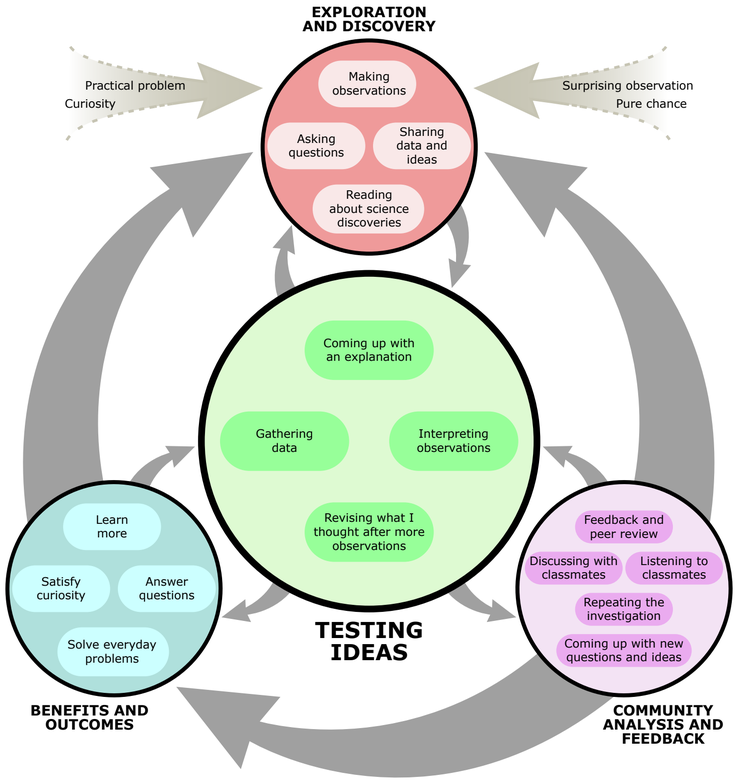
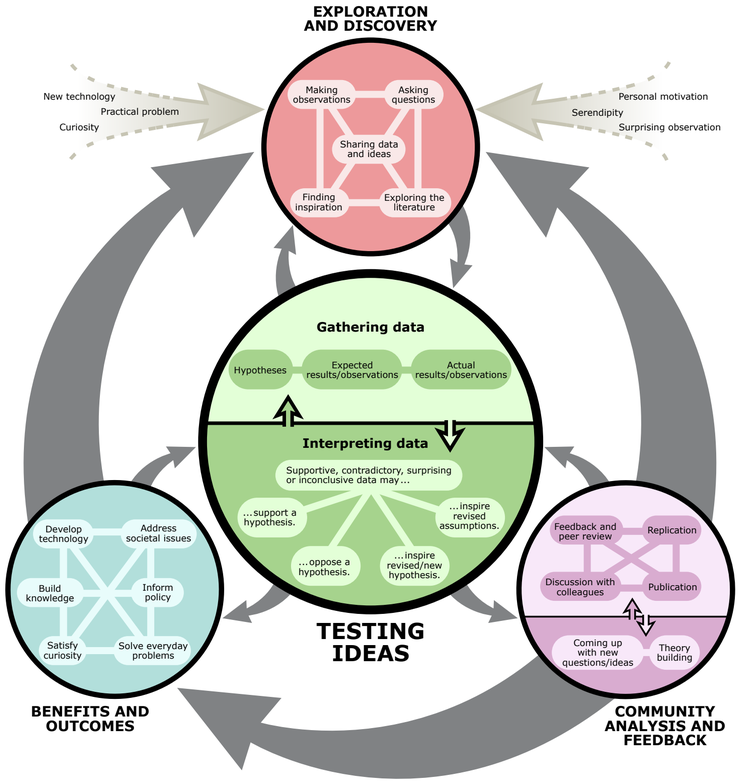


K–2



3–5



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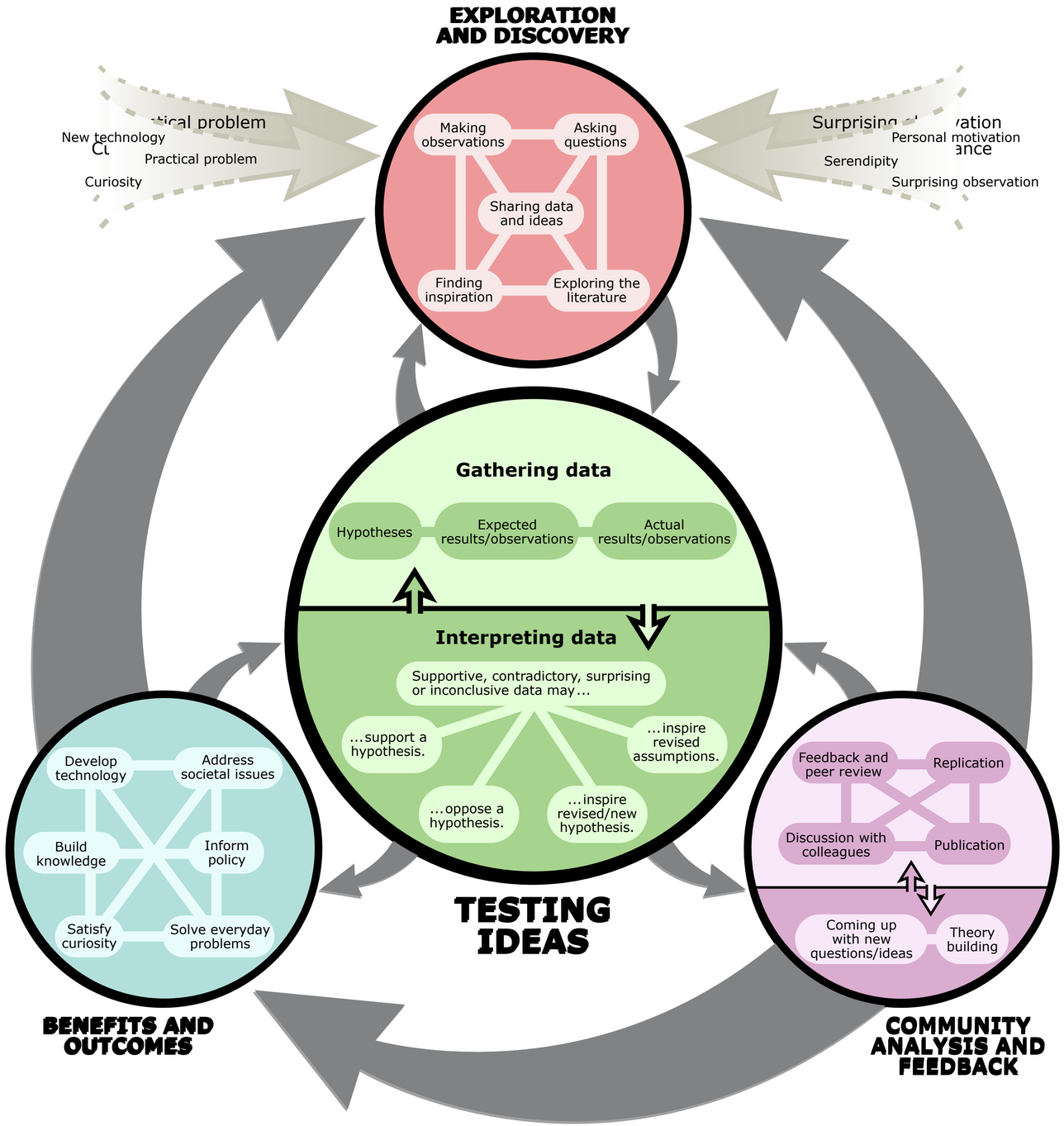
EXPLORATION AND DISCOVERY
Making observations
Asking questions
Sharing data and ideas
Finding inspiration
Exploring the literature
New technology
Practical problem
Curiosity
Personal motivation
Serendipity
Surprising observation
Gathering data
Hypotheses
Expected results/observations
Actual results/observations
Interpreting data
Supportive, contradictory, surprising or inconclusive data may…
…support a hypothesis.
…oppose a hypothesis.
…inspire revised/new hypothesis.
…inspire revised assumptions.
TESTING IDEAS
Develop technology
Address societal issues
Build knowledge
Inform policy
Satisfy curiosity
Solve everyday problems
BENEFITS AND OUTCOMES
Feedback and peer review
Replication
Discussion with colleagues
Publication
Coming up with new questions/ideas
Theory building
COMMUNITY ANALYSIS AND FEEDBACK

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)

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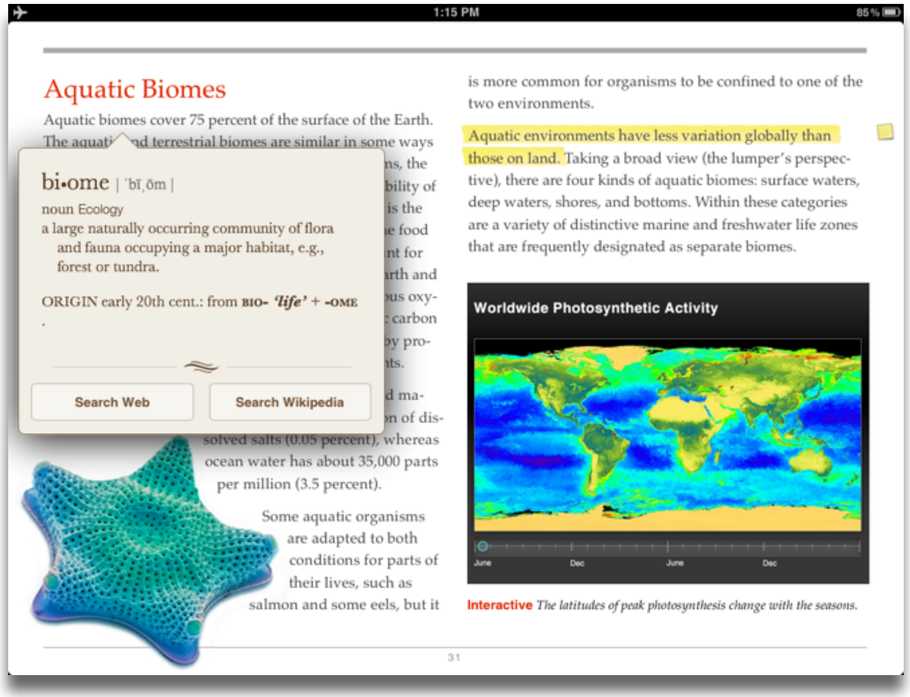

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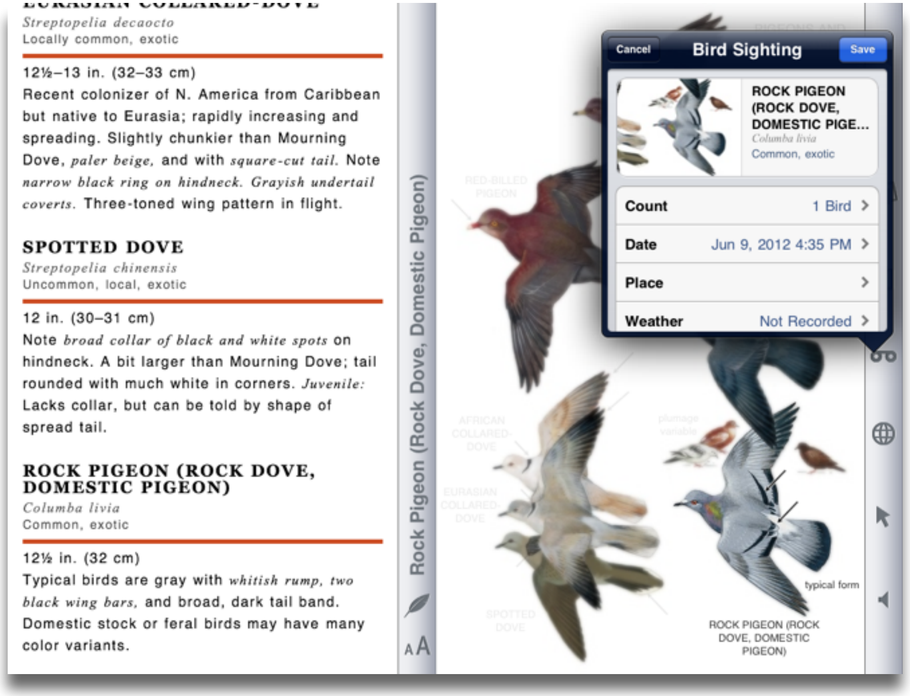

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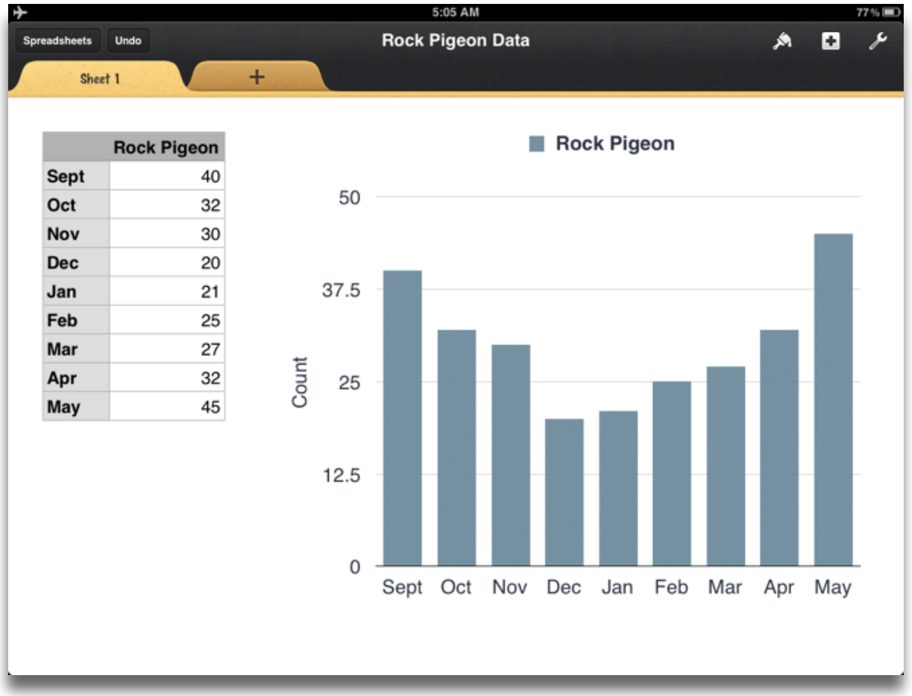

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Evaluate

Research Article

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

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Abstract

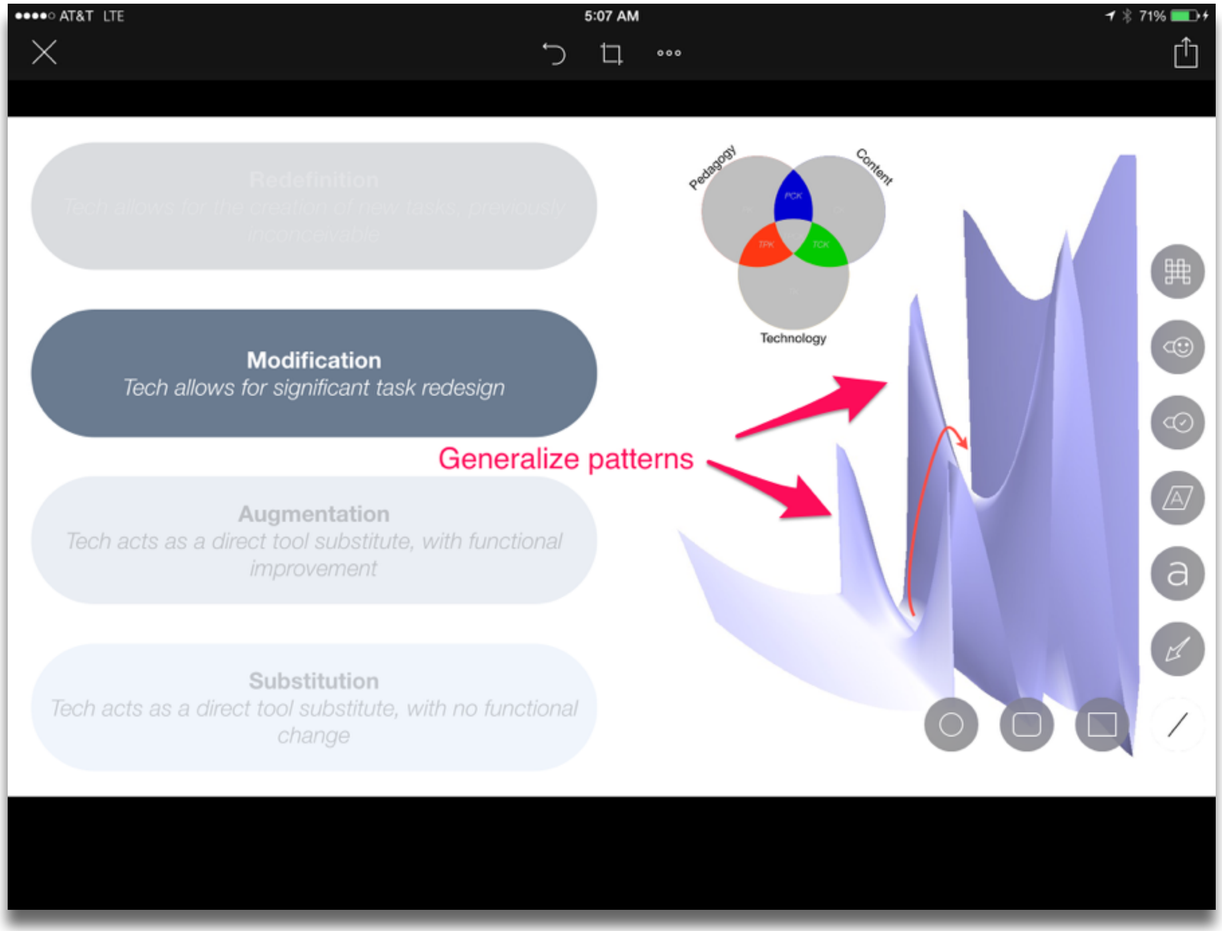
Taking notes on laptops rather than in longhand is increasingly common. Many researchers have suggested that laptop note taking is less effective than longhand note taking for learning. Prior studies have primarily focused on students' capacity for multitasking and distraction when using laptops. The 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.

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



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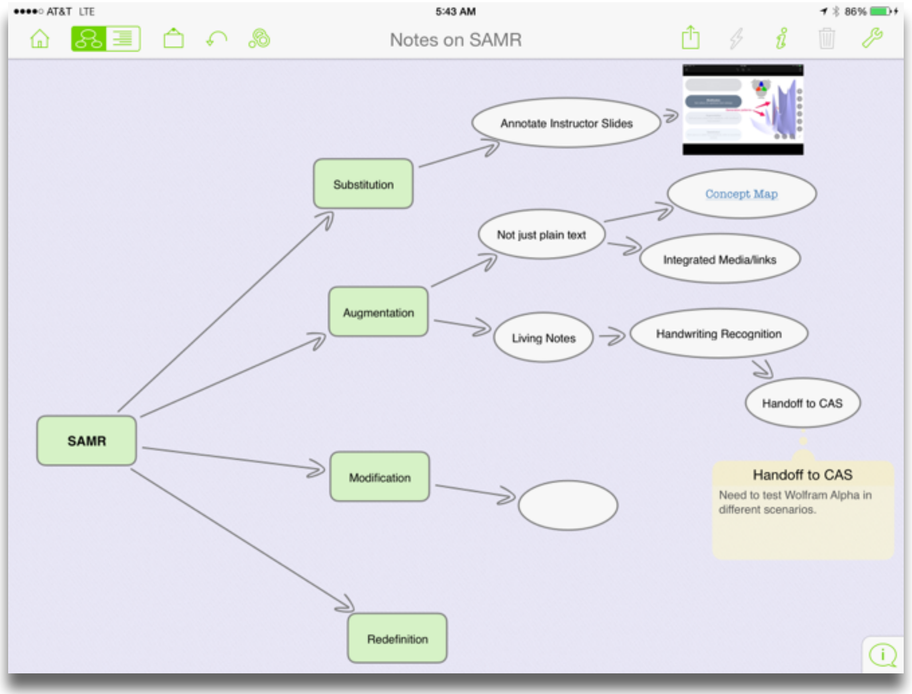

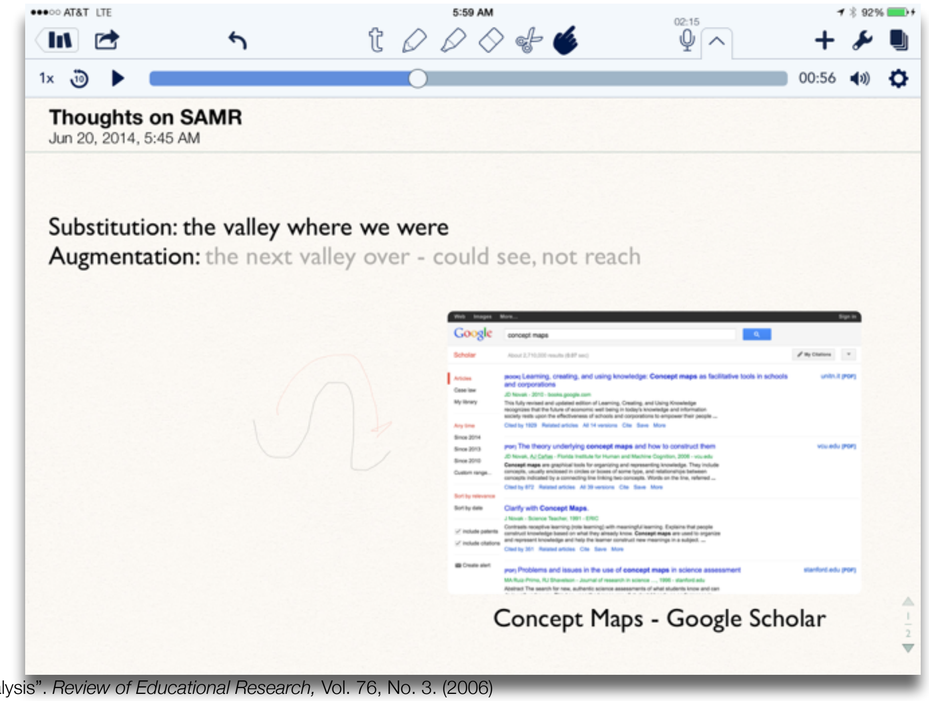

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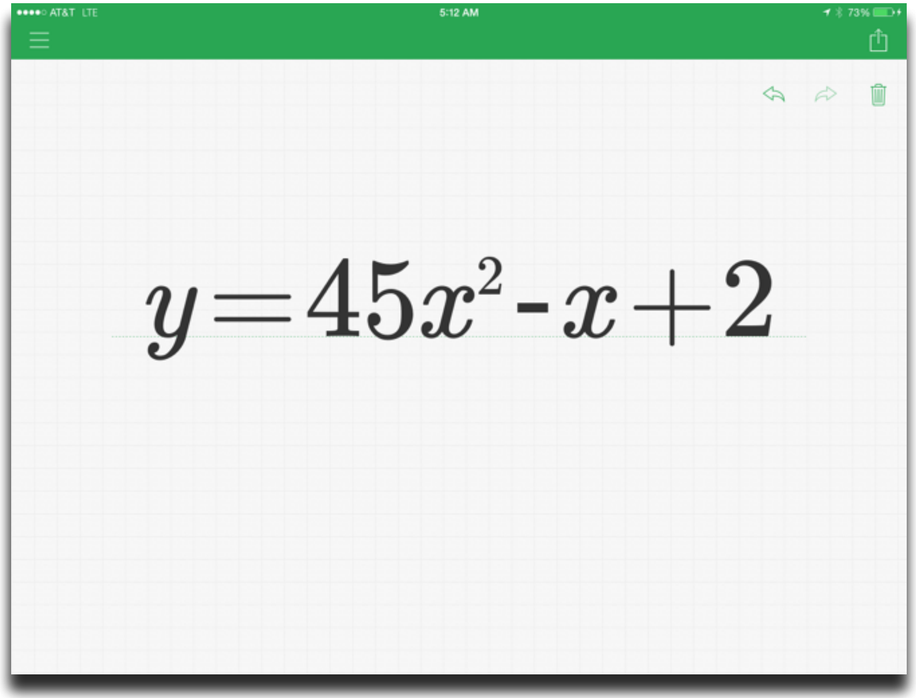

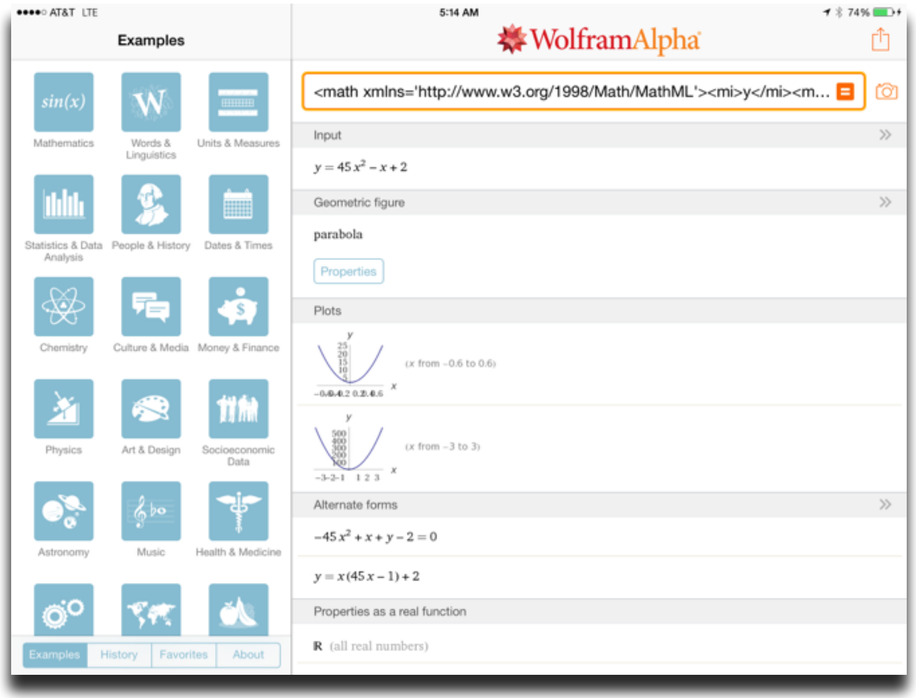

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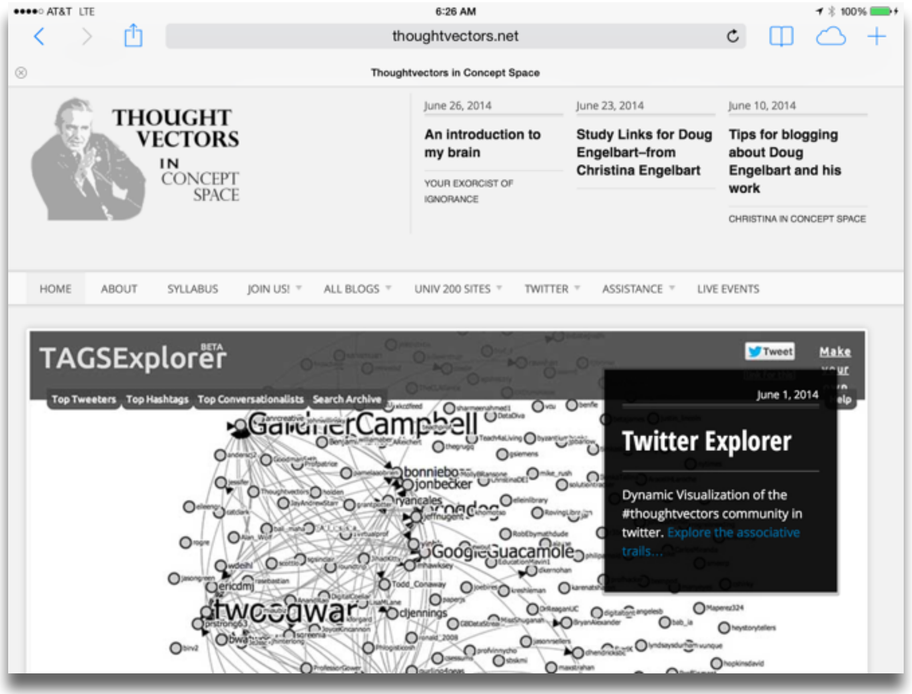

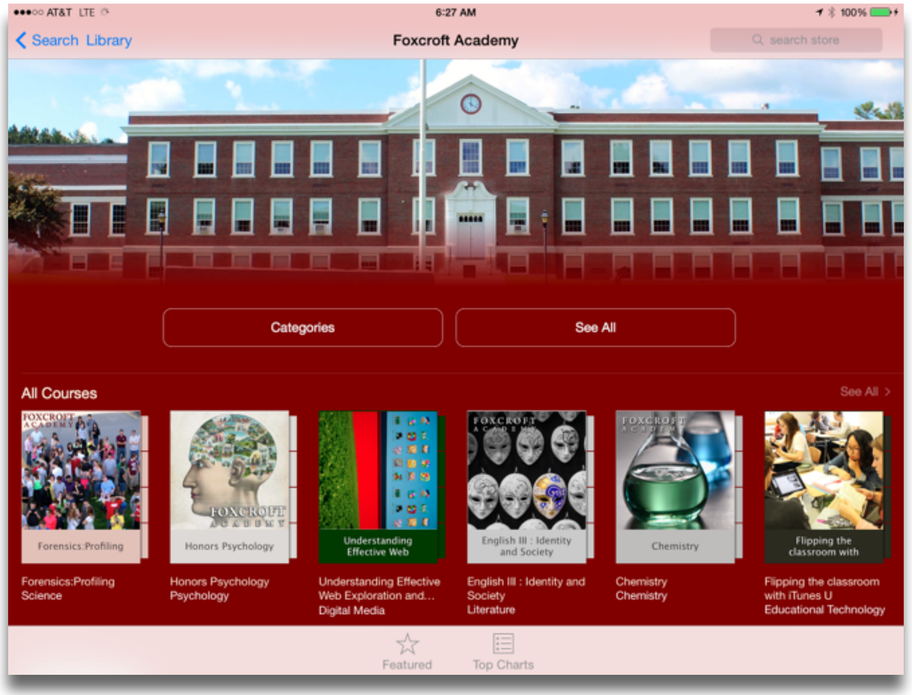

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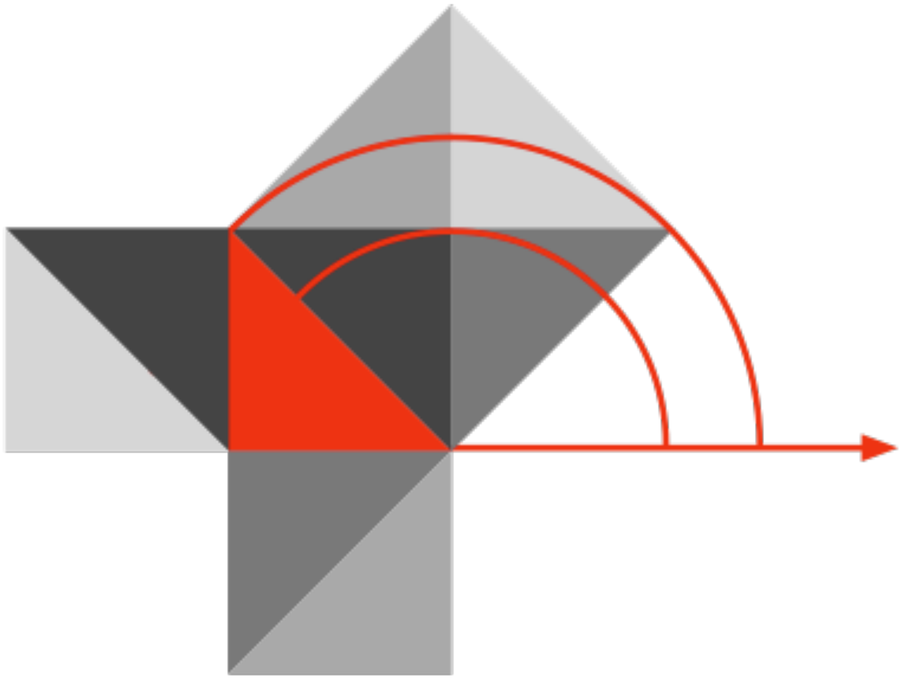

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