

The SAMR Model: Technological Integration into Higher Education

Ruben R. Puentedura, Ph.D.

Transformation

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,
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Enhancement

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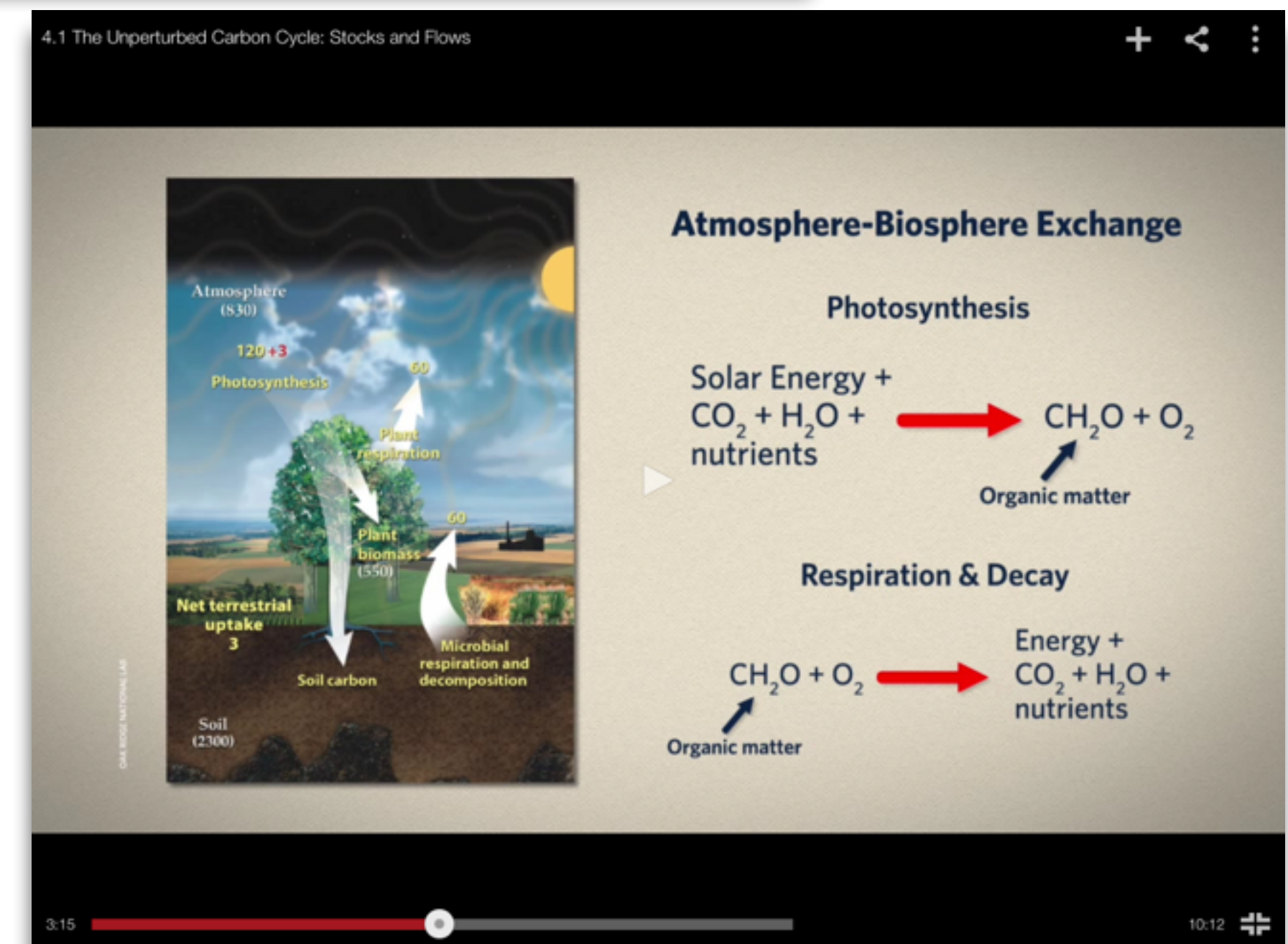
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The screenshot shows the MIT OpenCourseWare website interface. At the top, there's a navigation bar with 'MIT OPEN COURSEWARE' and 'MASSACHUSETTS INSTITUTE OF TECHNOLOGY'. Below this, a search bar and social media links are visible. The main content area is titled 'System Dynamics Self Study' and includes a sidebar with links to 'COURSE HOME', 'SYLLABUS', 'READINGS', 'ASSIGNMENTS', and 'DOWNLOAD COURSE MATERIALS'. The central part of the page features a line graph showing four variables over 4 months: Heroin stock (orange), Price (purple), Number of drug busts (green), and Revenue-raising crime (red). To the right of the graph, there's a section for 'Instructor(s)' (Prof. Jay Forrester), 'MIT Course Number' (15.988), 'As Taught In' (Fall 1998 - Spring 1999), and 'Level' (Undergraduate / Graduate). A 'Donate Now' button is prominently displayed on the right side of the page.



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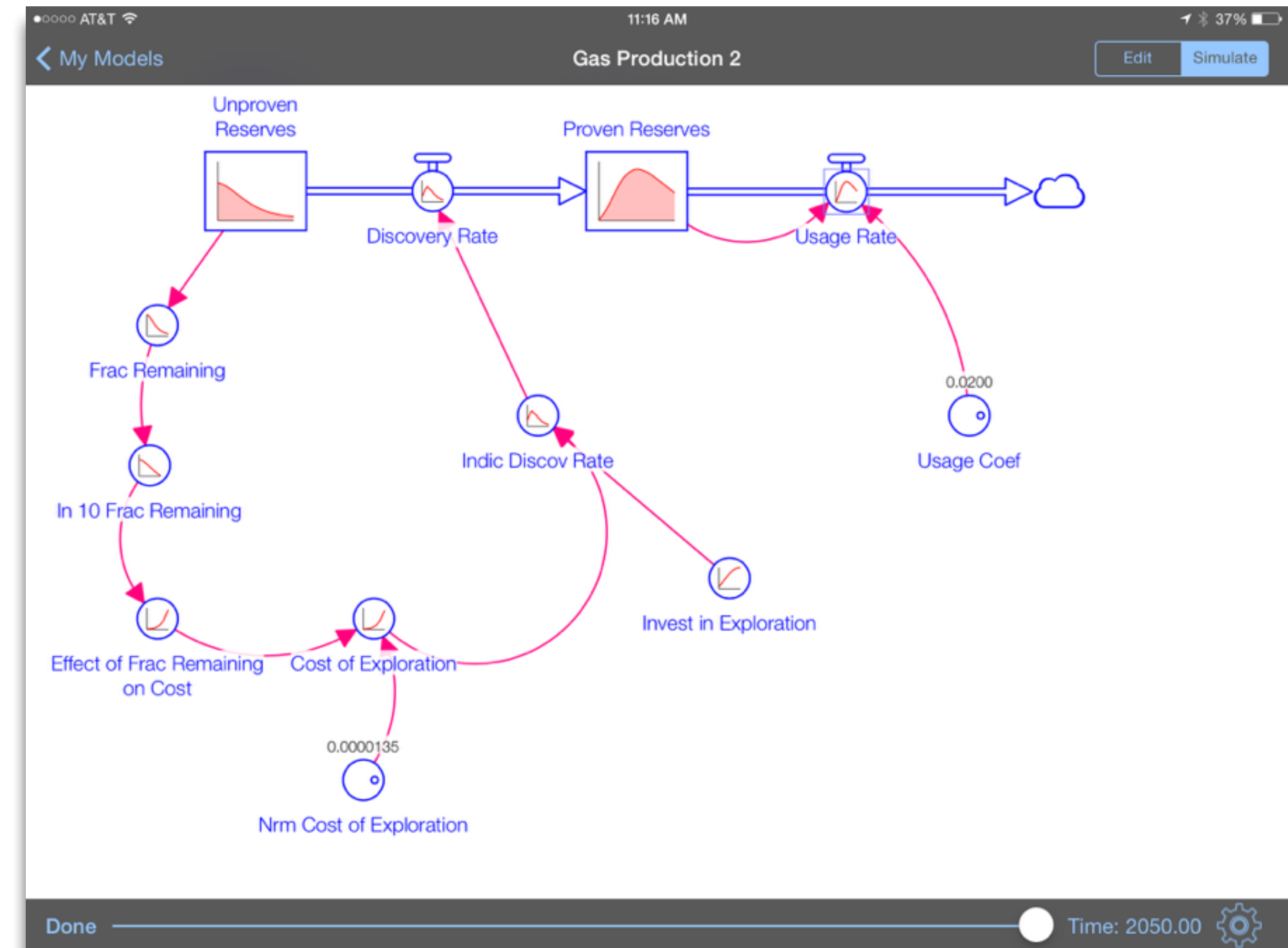
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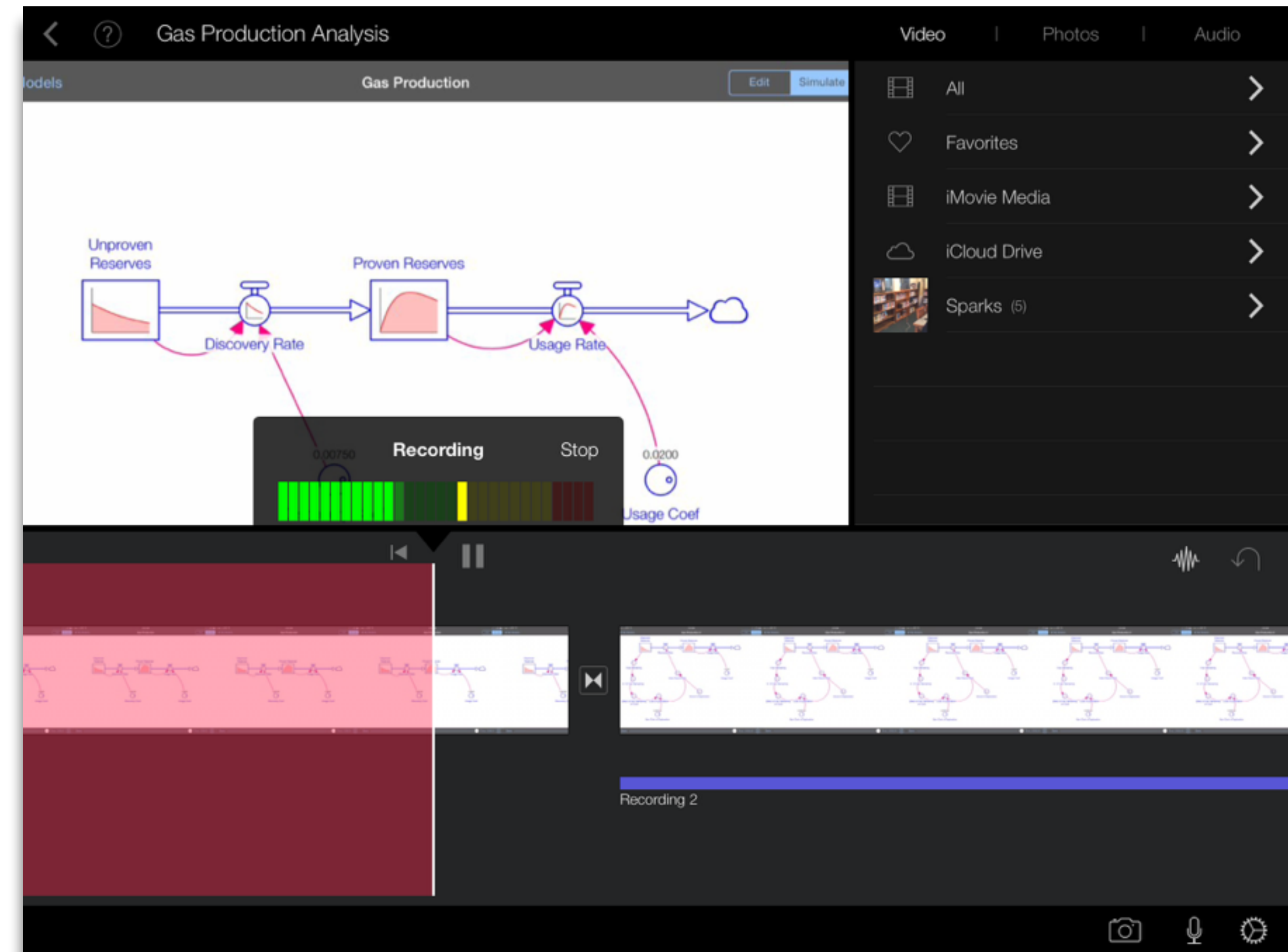
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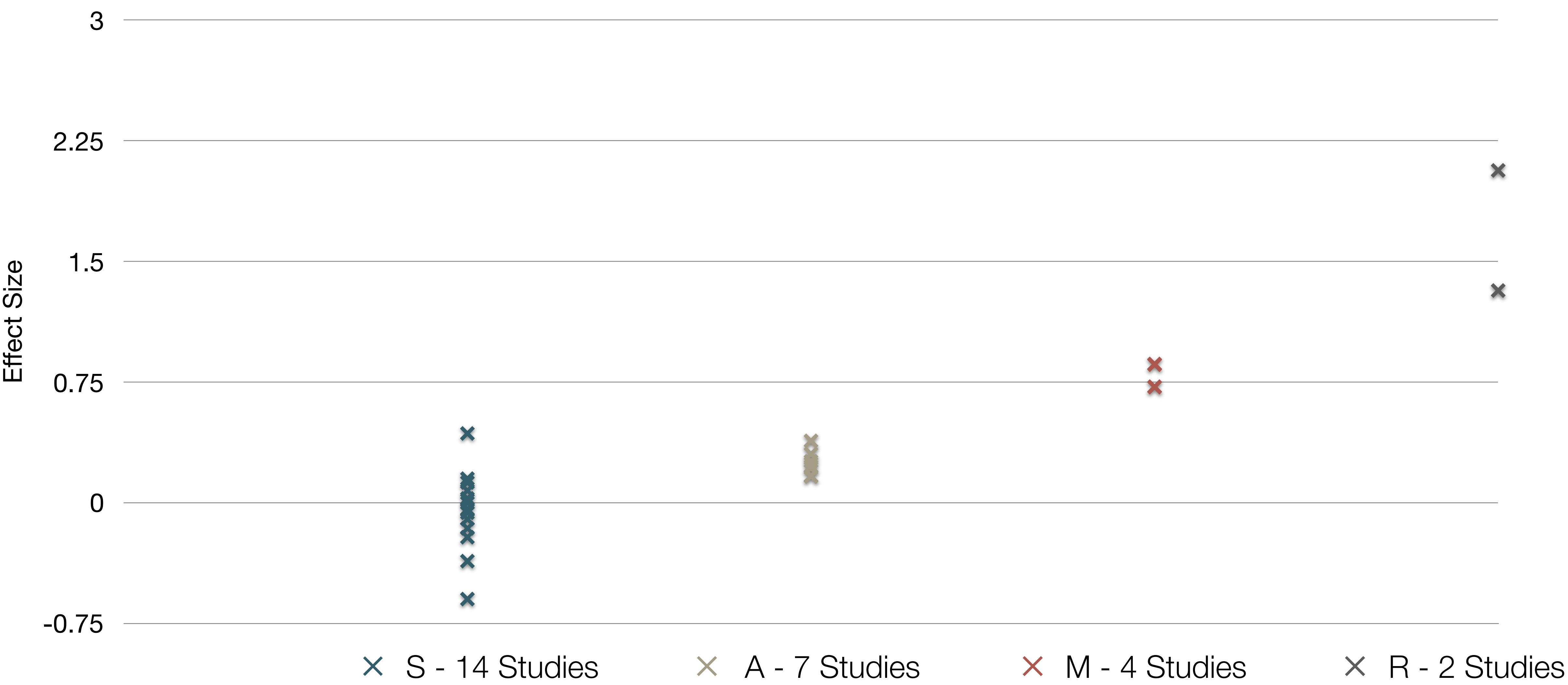


Meta-analysis	Number of studies	<i>ES</i> type	Mean <i>ES</i>	<i>SE</i>
Bangert-Drowns (1993)	19	Missing	0.27	0.11
Bayraktar (2000)	42	Cohen's <i>d</i>	0.27	0.05
Blok, Oostdam, Otter, and Overmaat (2002)	25	Hedges's <i>g</i>	0.25	0.06
Christmann and Badgett (2000)	16	Missing	0.13	0.05
Fletcher-Flinn and Gravatt (1995)	120	Glass's Δ	0.24	0.05
Goldberg, Russell, and Cook (2003)	15	Hedges's <i>g</i>	0.41	0.07
Hsu (2003)	25	Hedges's <i>g</i>	0.43	0.03
Koufogiannakis and Wiebe (2006)	8	Hedges's <i>g</i>	-0.09	0.19
Kuchler (1998)	65	Hedges's <i>g</i>	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

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Michko (2007)	45	Hedges's <i>g</i>	0.43	0.07
Onuoha (2007)	35	Cohen's <i>d</i>	0.26	0.04
Pearson, Ferdig, Blomeyer, and Moran (2005)	20	Hedges's <i>g</i>	0.49 ^a	0.11
Roblyer, Castine, and King (1988)	35	Hedges's <i>g</i>	0.31	0.05
Rosen and Salomon (2007)	31	Hedges's <i>g</i>	0.46	0.05
Schenker (2007)	46	Cohen's <i>d</i>	0.24	0.02
Soe, Koki, and Chang (2000)	17	Hedges's <i>g</i> and Pearson's <i>r</i> ^a	0.26 ^a	0.05
Timmerman and Kruepke (2006)	114	Pearson's <i>r</i> ^a	0.24	0.03
Torgerson and Elbourne (2002)	5	Cohen's <i>d</i>	0.37	0.16
Waxman, Lin, and Michko (2003)	42	Glass's Δ	0.45	0.14
Yaakub (1998)	20	Glass's Δ and <i>g</i>	0.35	0.05
Zhao (2003)	9	Hedges's <i>g</i>	1.12	0.26

a. Converted to Cohen's *d*.

SAMR and the Use of Tablets in Education



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



RSS Feeds

Discussions



Microblogging

Blogging










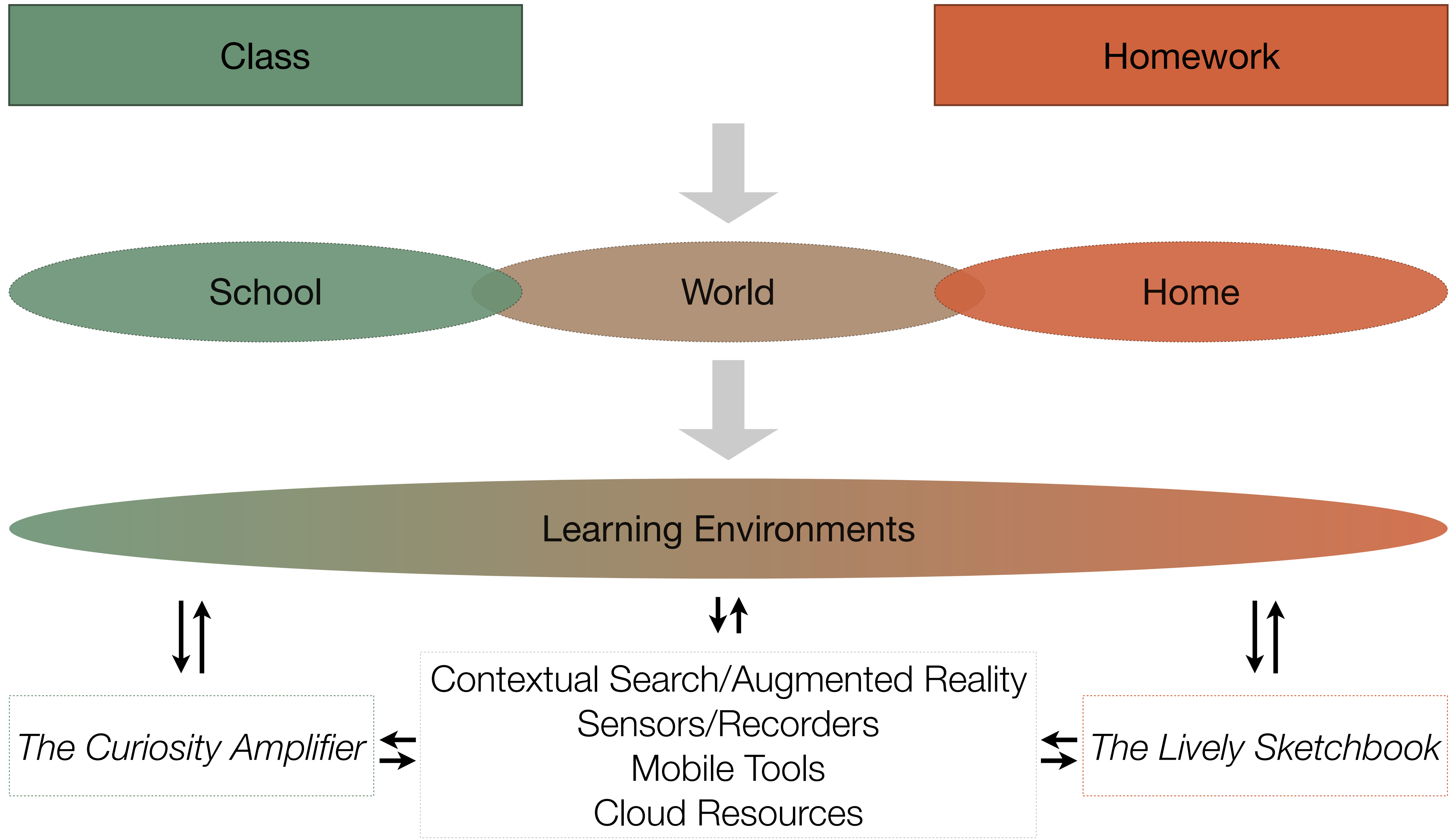
Wikis







Telepresence

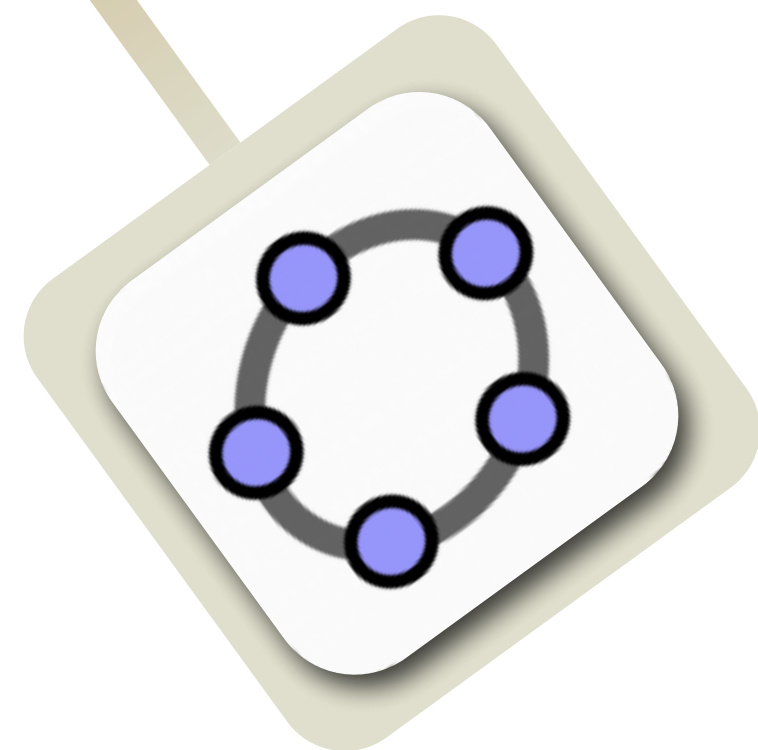
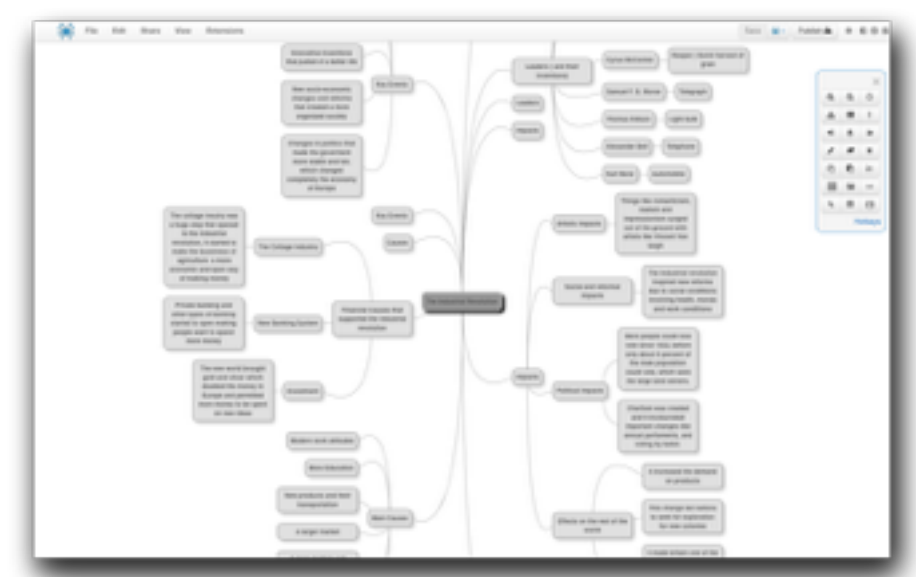


File Sharing

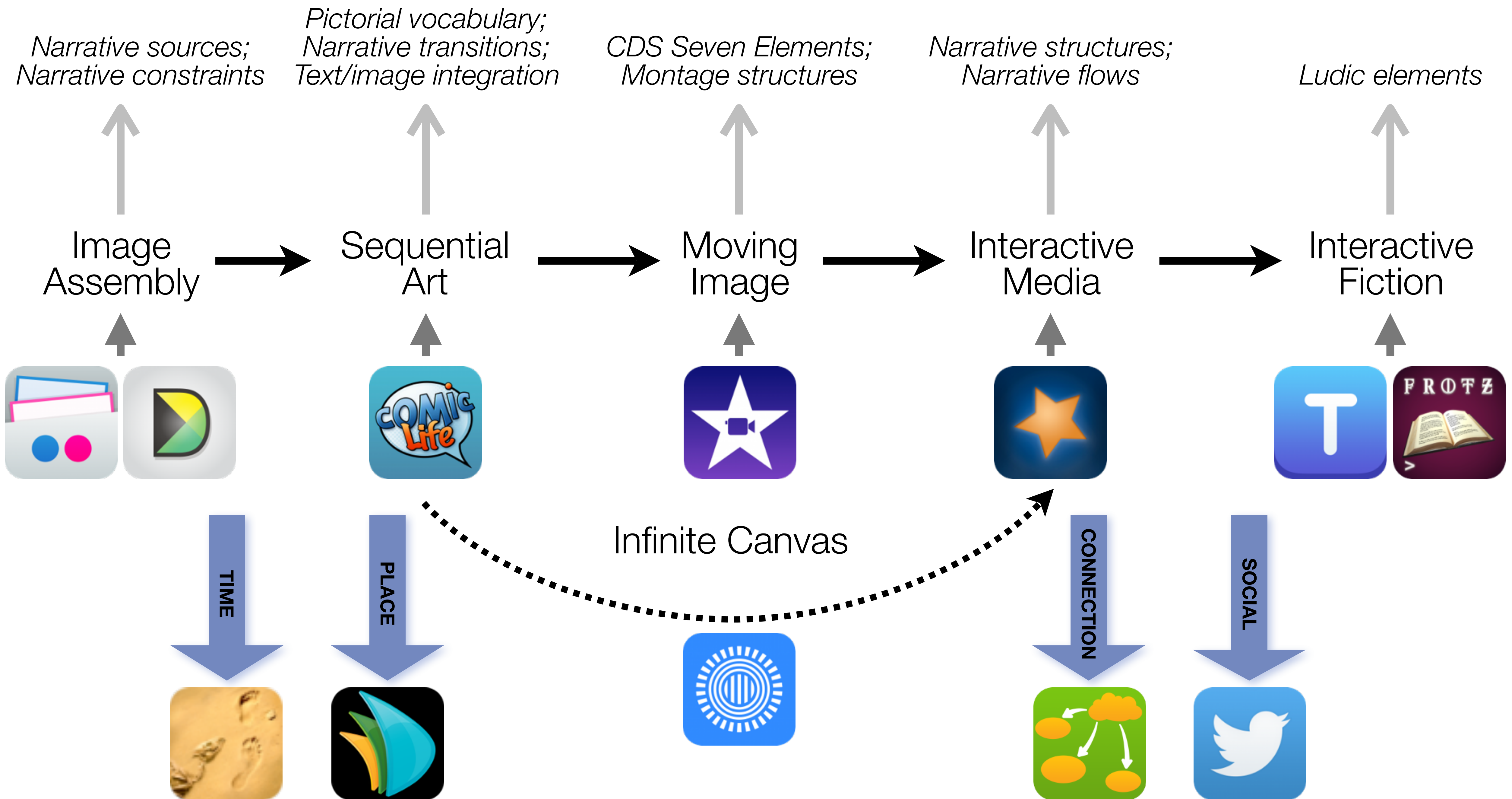
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Formal Definition of **Game** (Salen & Zimmerman)

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

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

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*

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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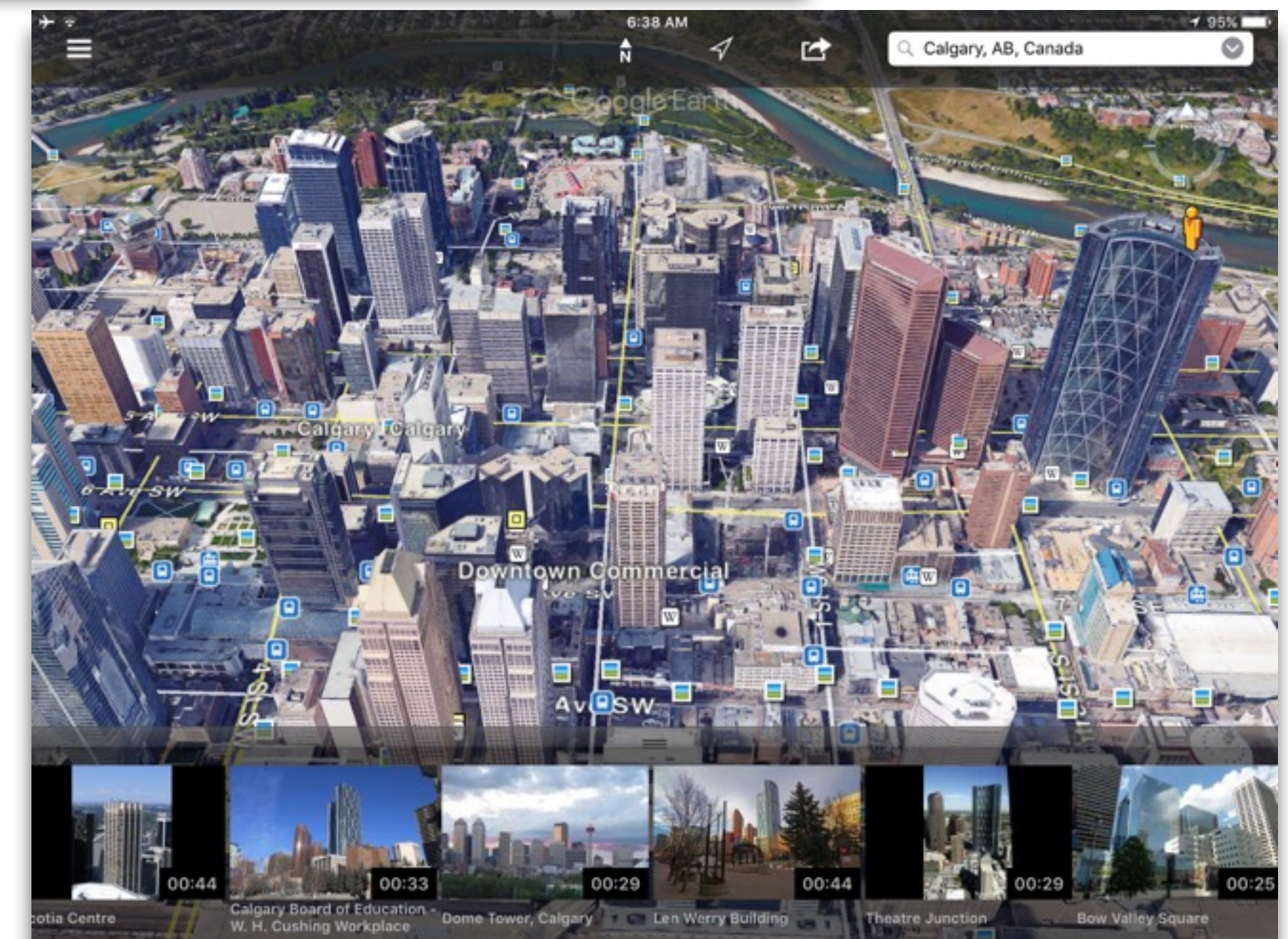
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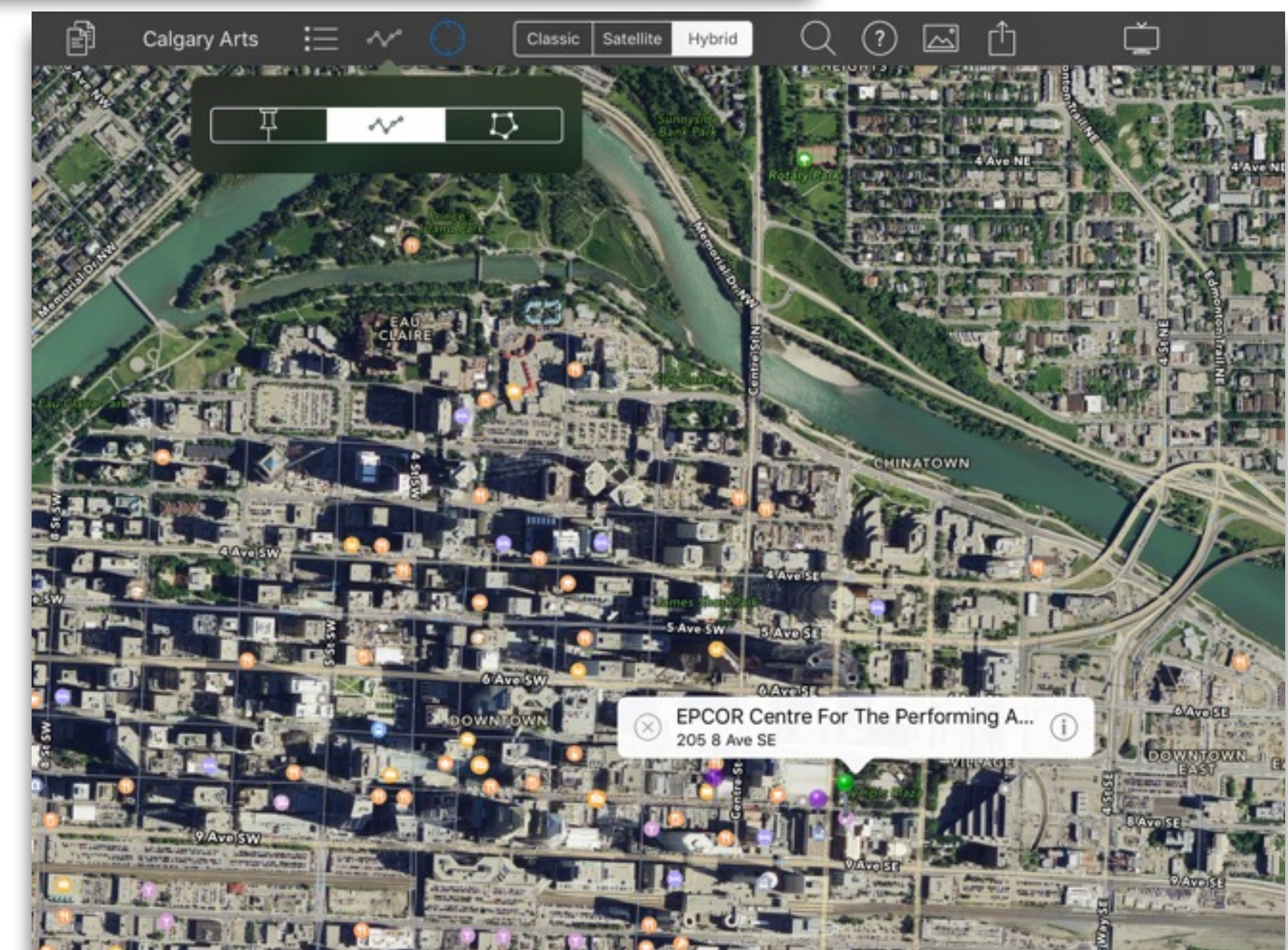
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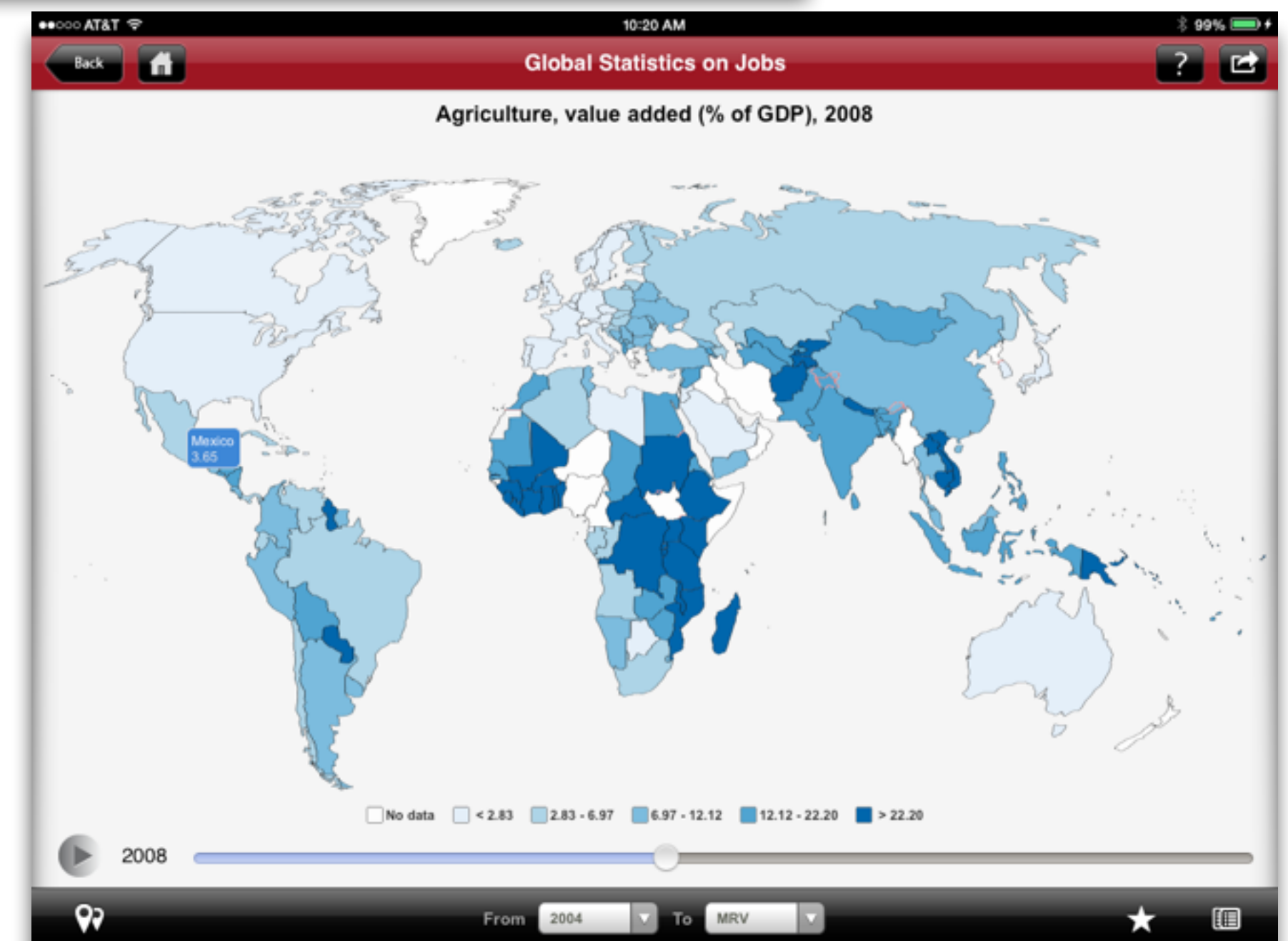
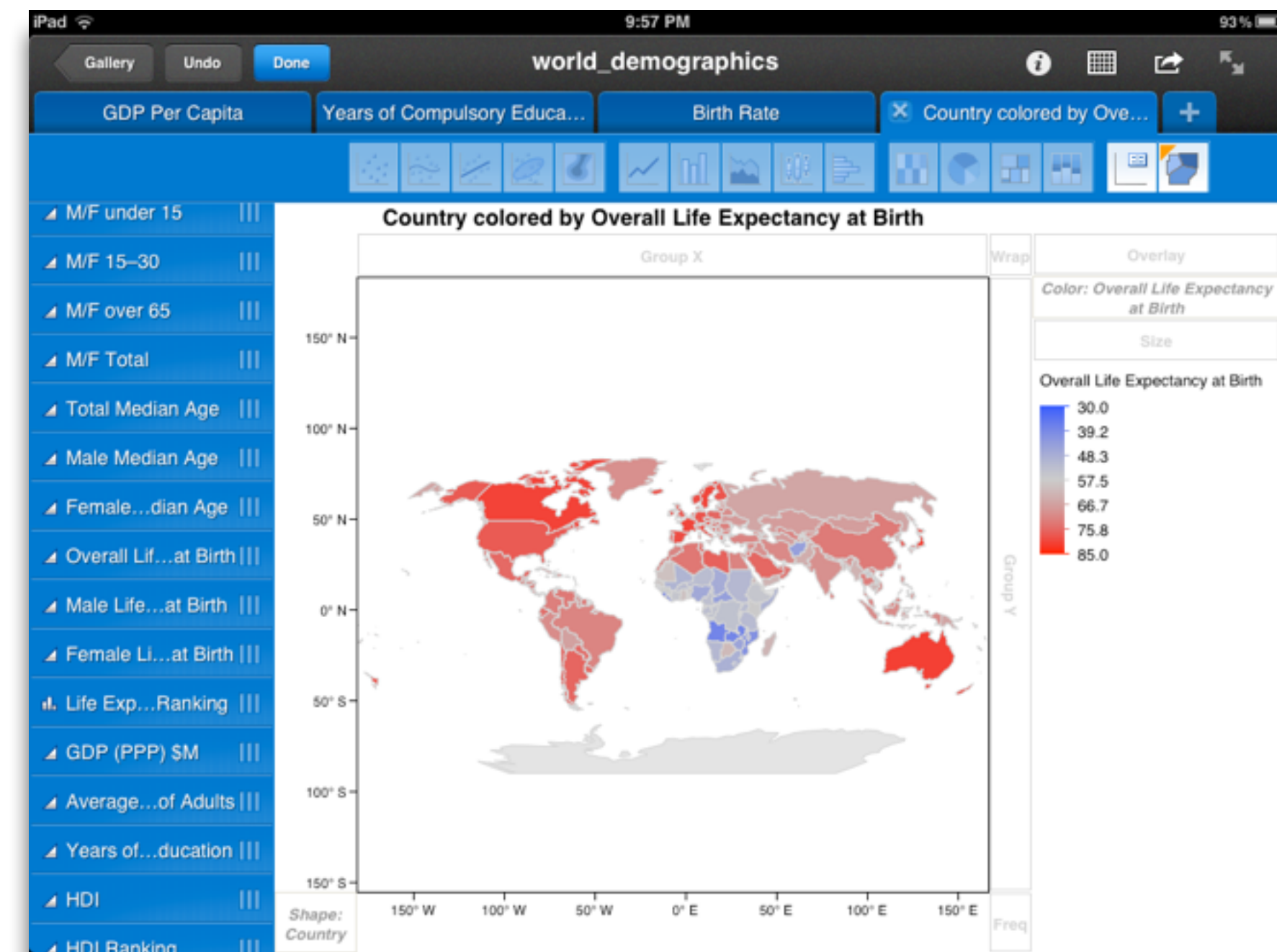
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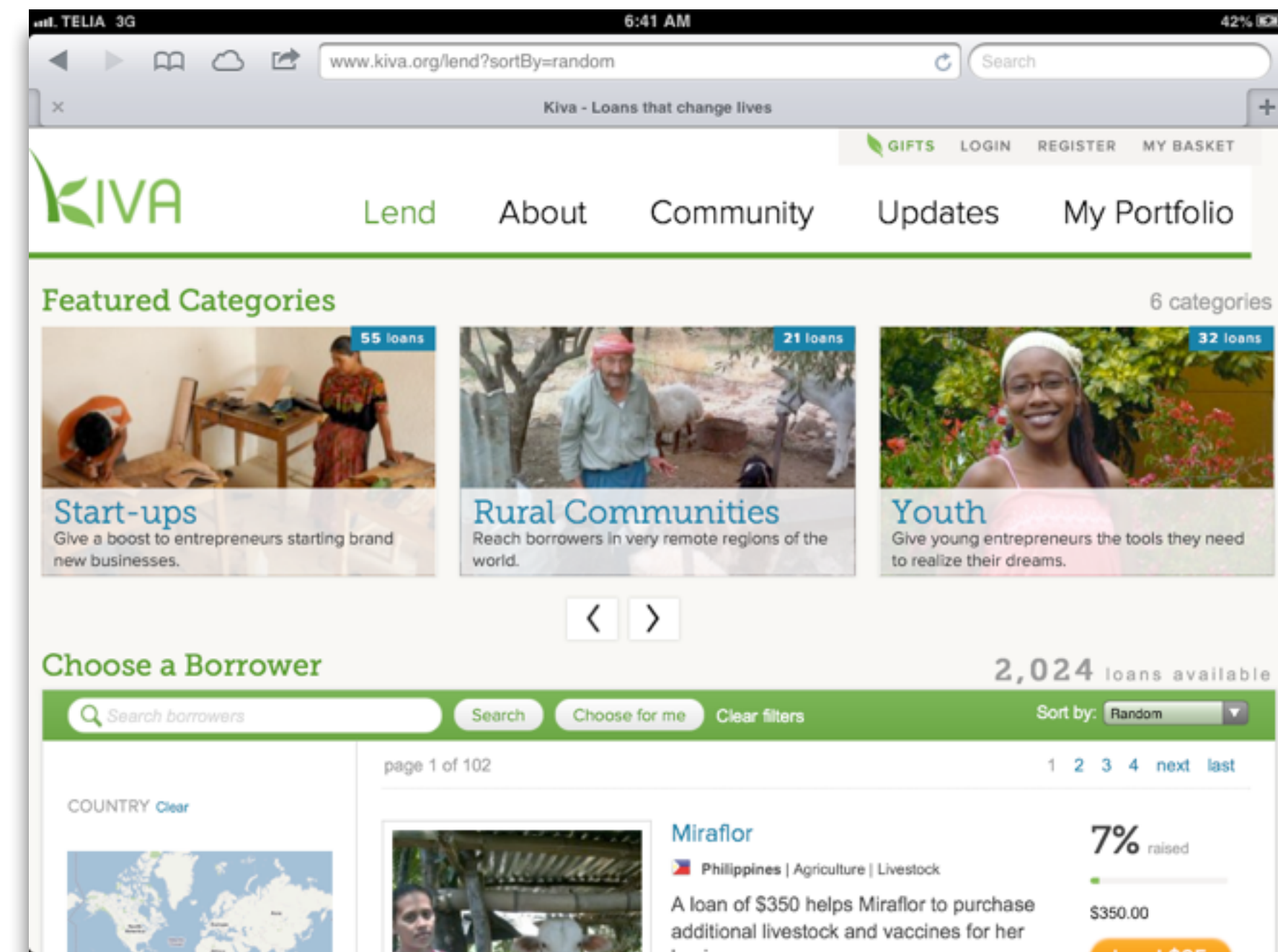
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Hippasus



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