

Designing Sustainable Innovation: SAMR, the EdTech Quintet, and Shared Practices

Ruben R. Puentedura, Ph.D.

Substitution

Augmentation

Modification

Redefinition

EdTech Quintet

Shared Practices



TPCK



21C Learning Framework

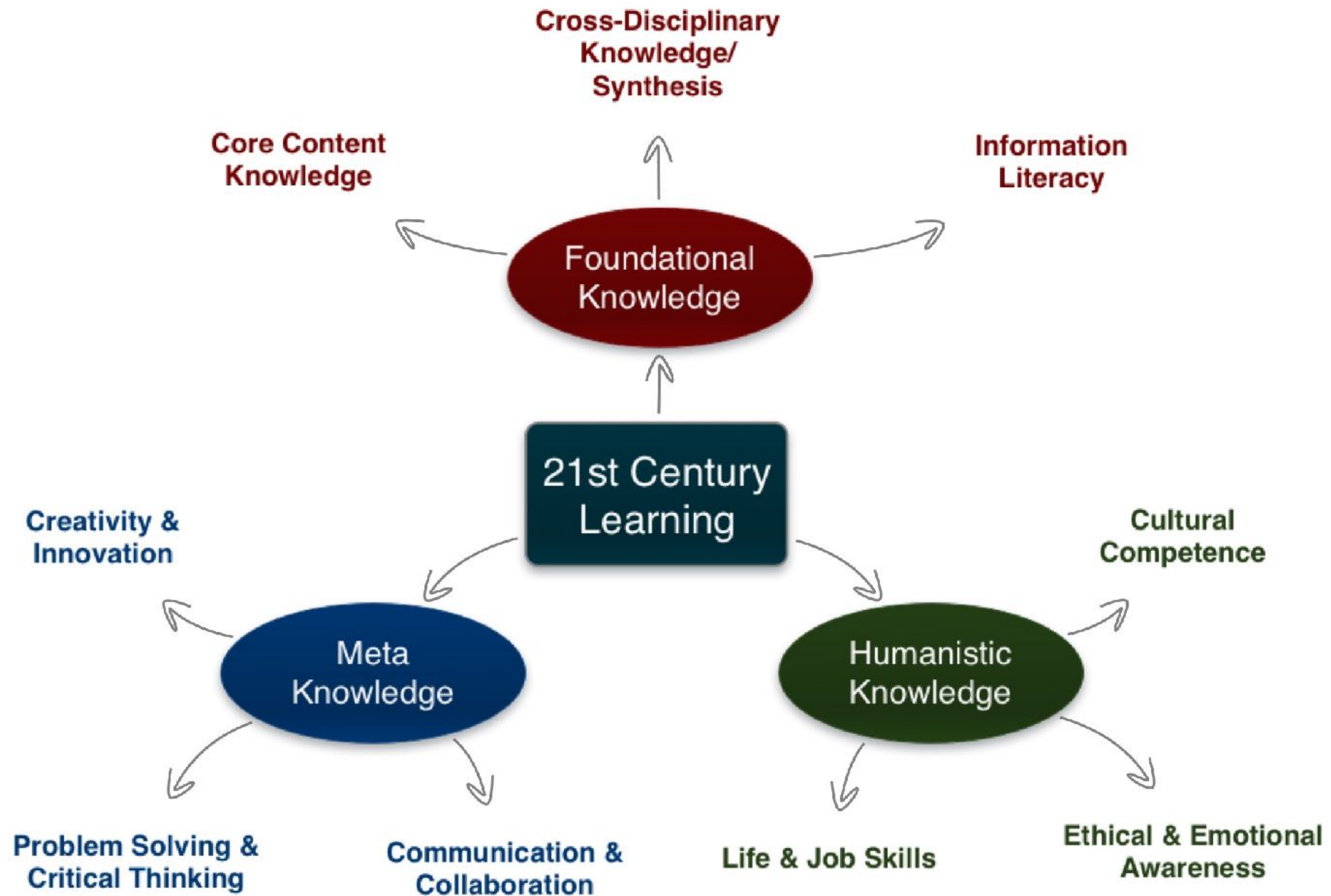
Refraction

Conversational Framework

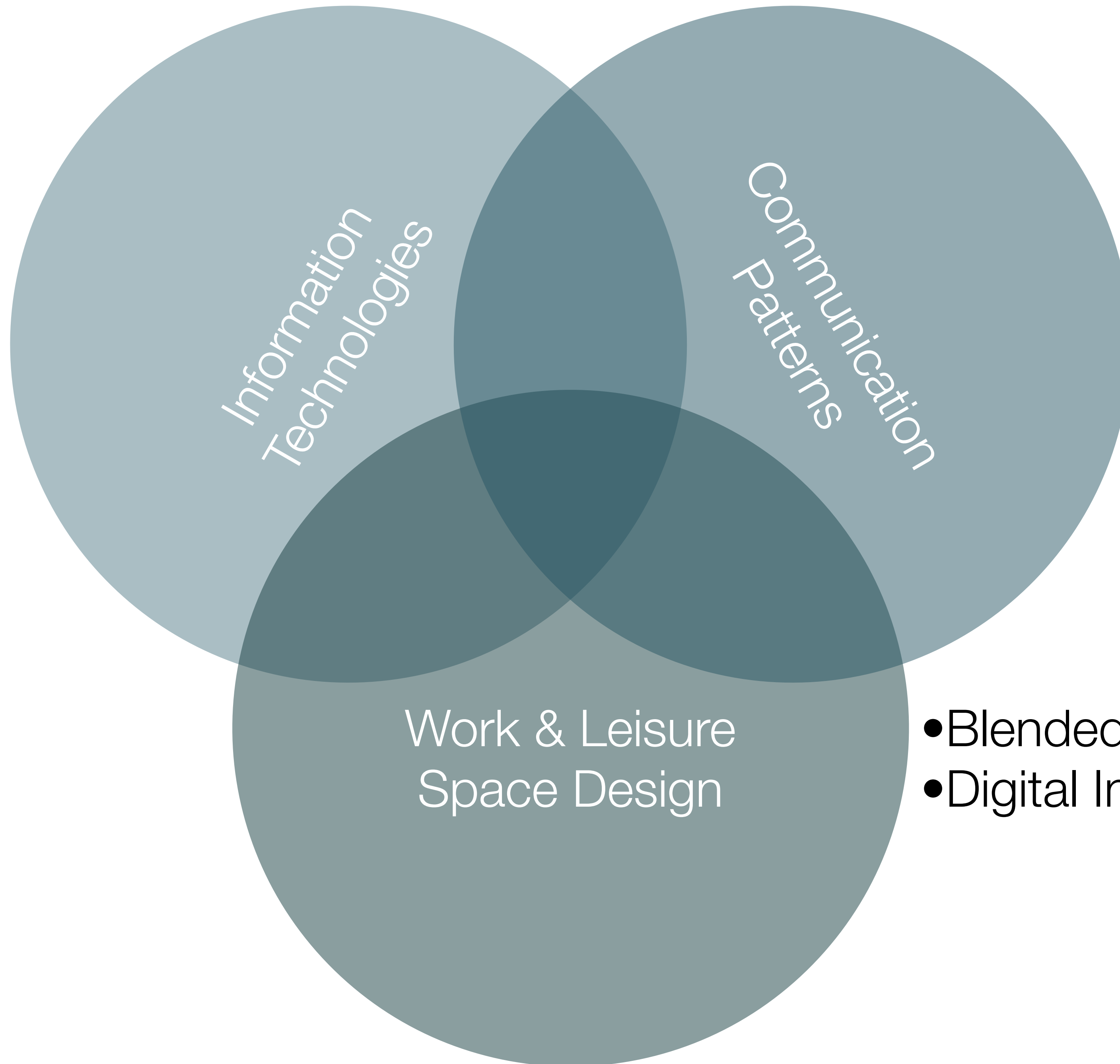
Communities of Practice

Personal Learning Networks

Dynamic Learning Structures

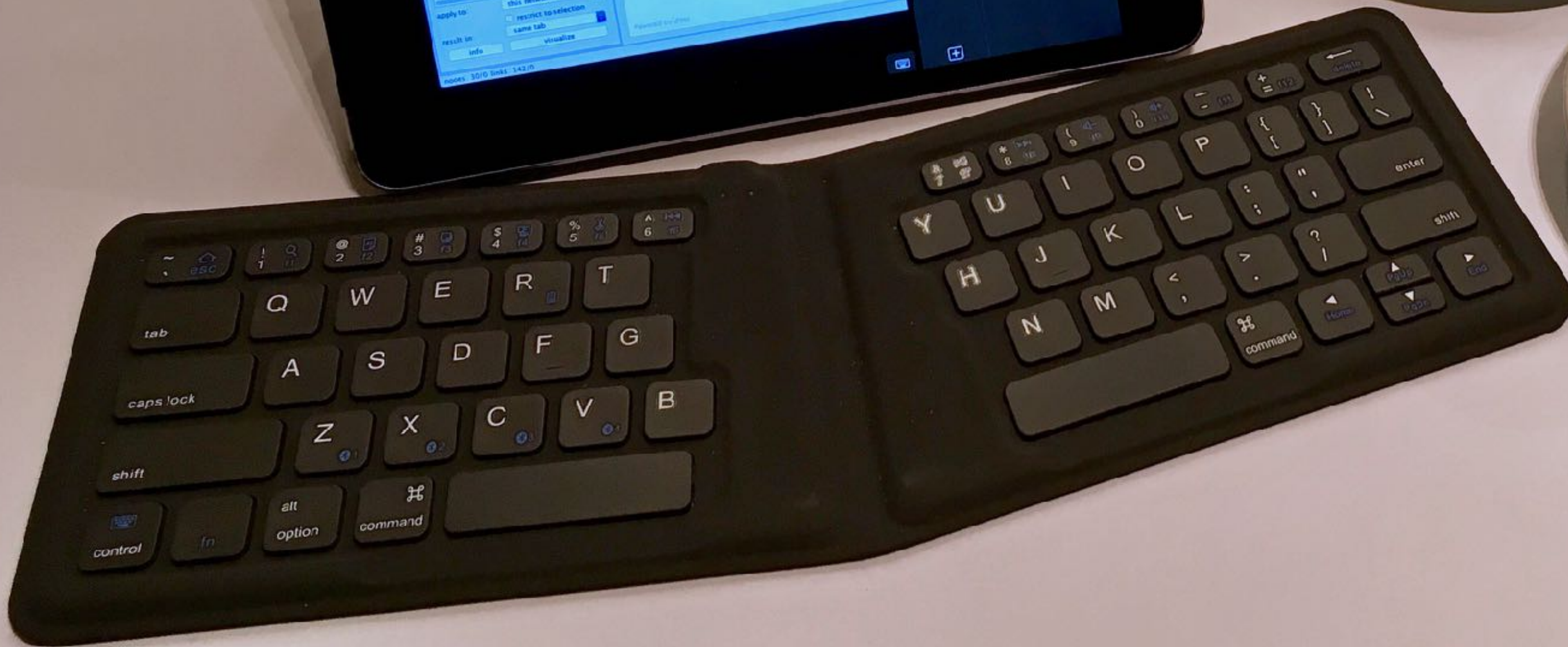


- Computing Power
- Machine Learning



- Mobile Devices
- Social Media

- Blended Spaces
- Digital Integration



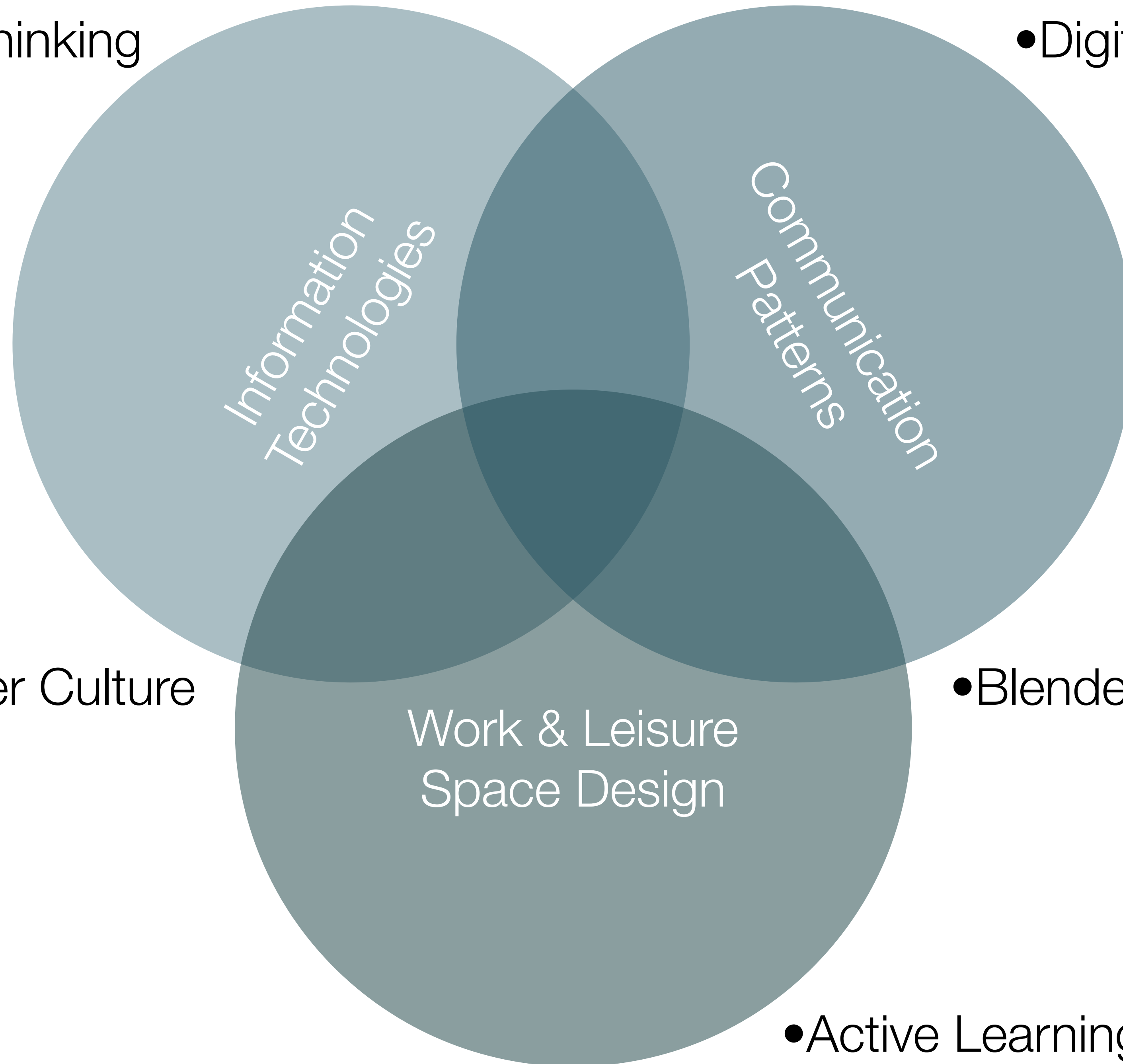
•Computational Thinking

•Digital Citizenship

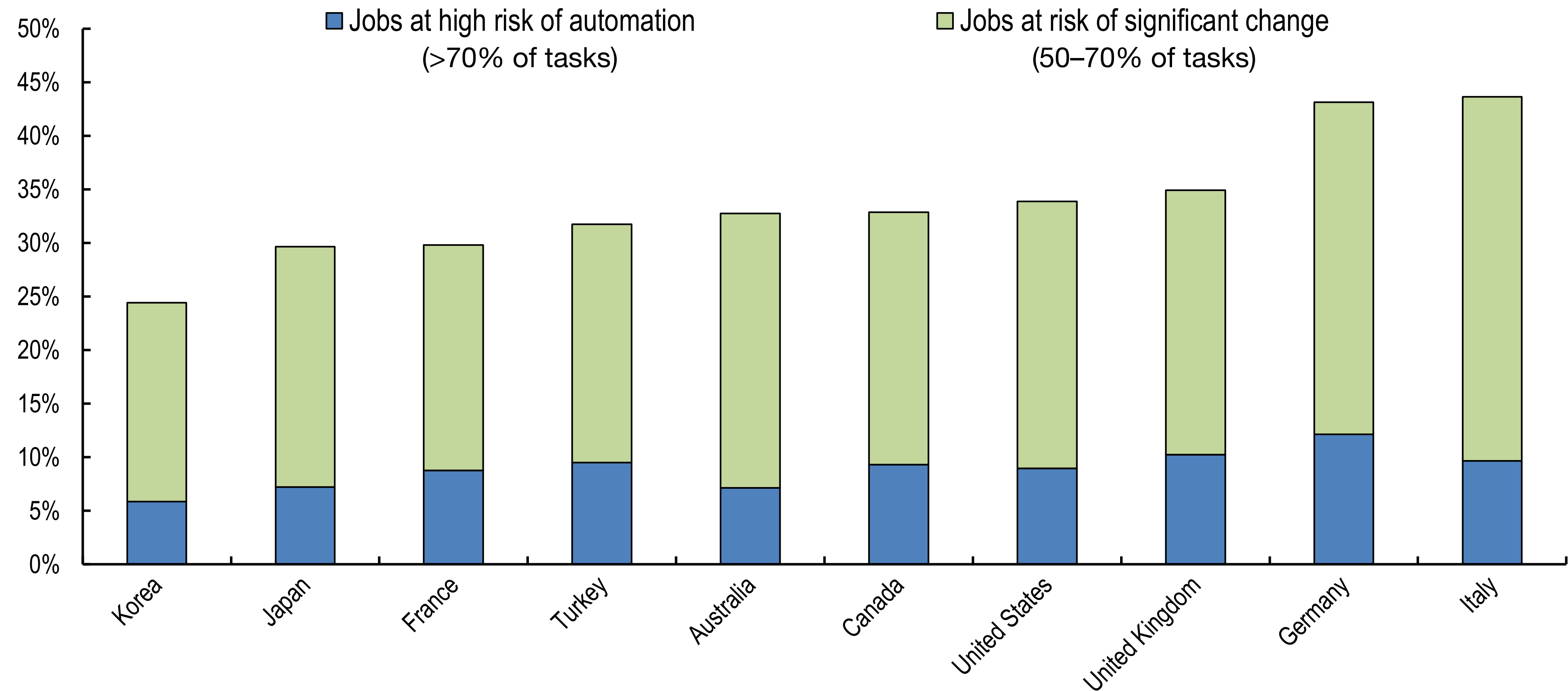
•Maker Culture

•Blended Learning

•Active Learning Design



Advanced G20 Countries: Jobs at High Risk of Automation



“*Gakushiryoku* - ability required for university graduates for an unpredictable era including the education, knowledge and experience to make correct decisions in the face of unexpected difficulties.”

MEXT - *Summary of Report: Towards a Qualitative Transformation of University Education for Building a New Future - Universities Fostering Lifelong Learning and the Ability to Think Independently* (2012)

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

Step 1

The teacher provides a description, explanation, or example of the new term

Step 2

Students restate the explanation of the new term in their own words

Step 3

Students create a nonlinguistic representation of the term

Step 4

Students do activities that help them add to their knowledge of vocabulary terms

Step 5

Students are asked to discuss the terms with one another

Step 6

Students are involved in games that allow them to play with the terms

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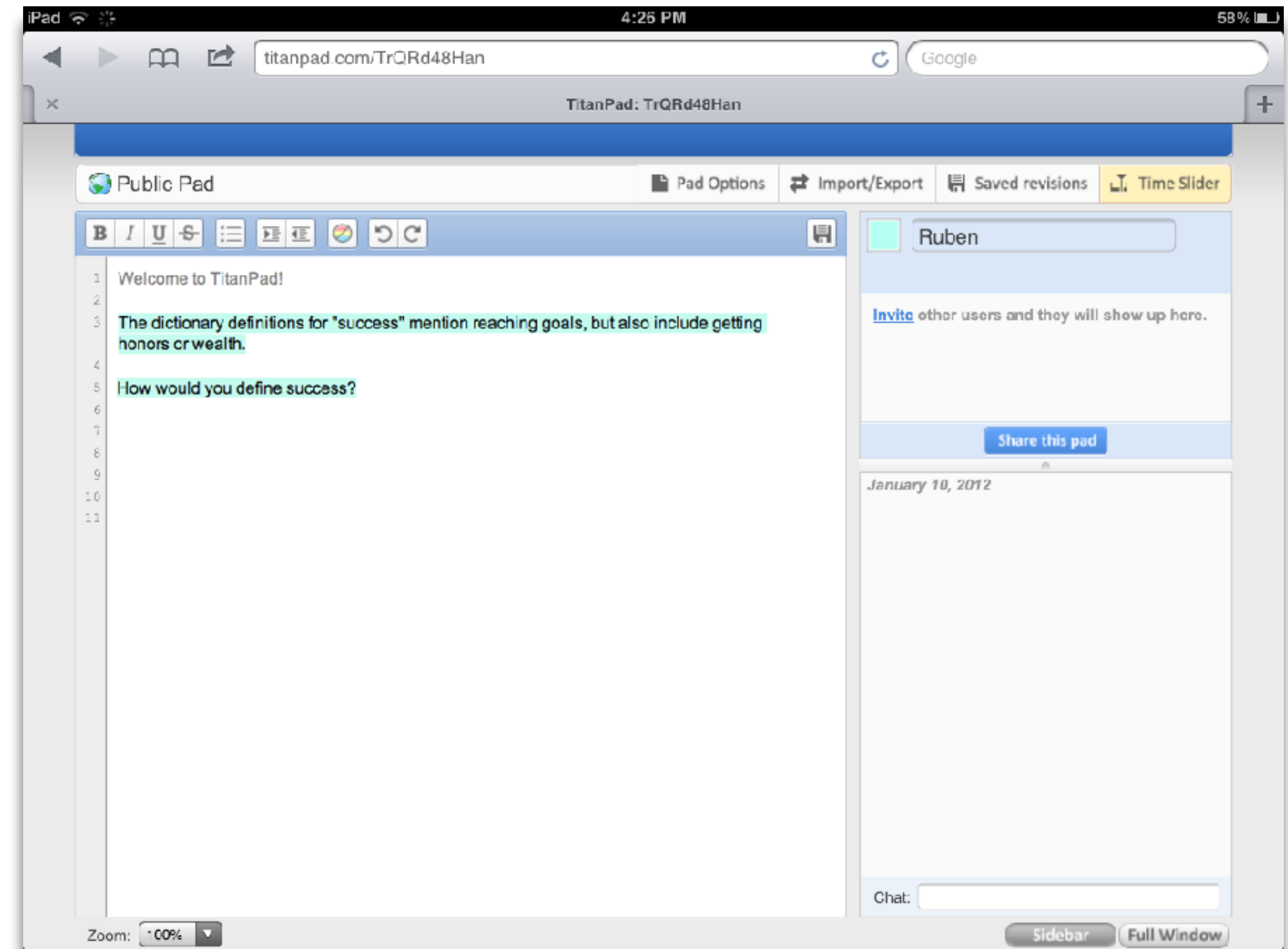
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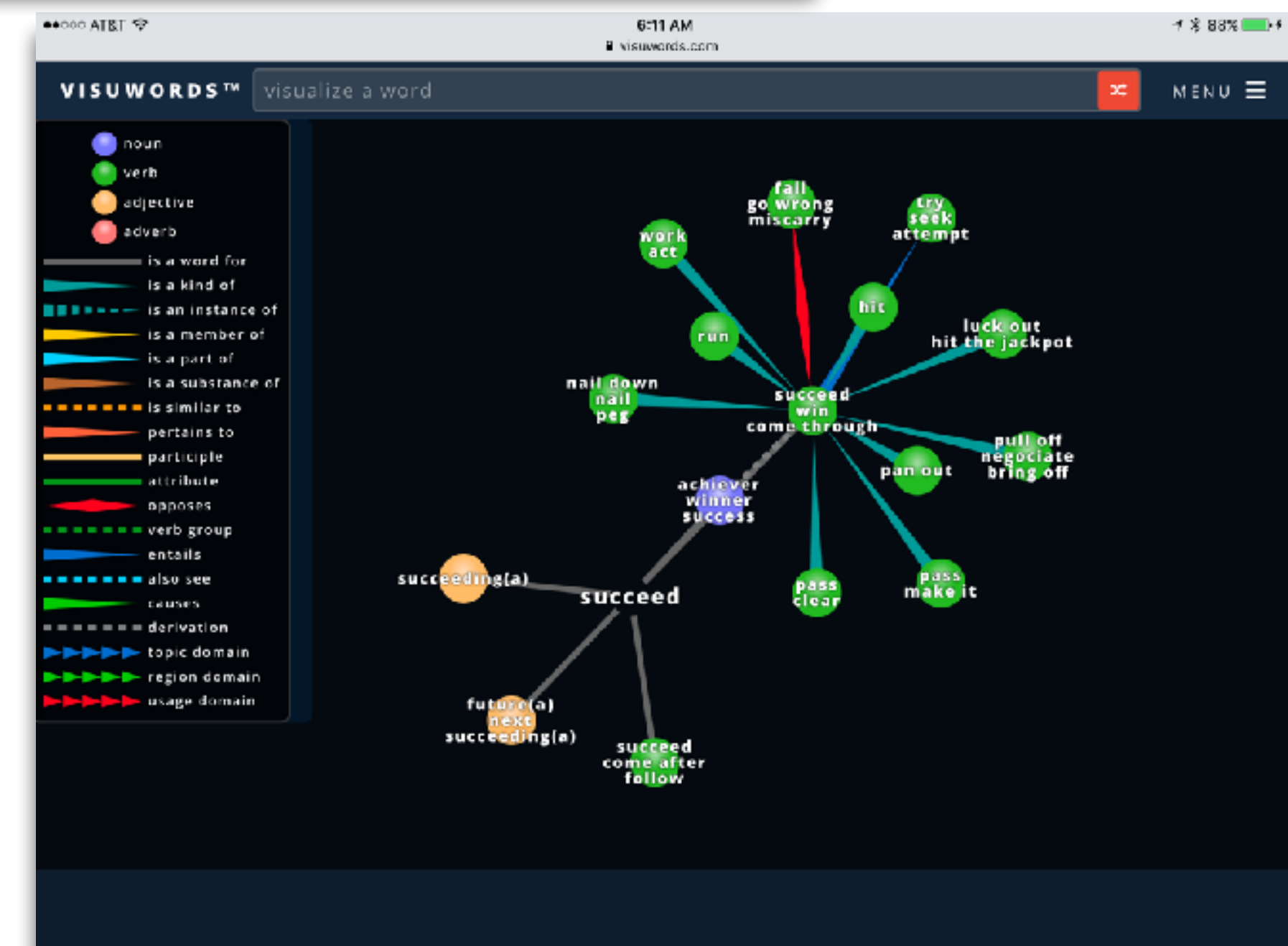
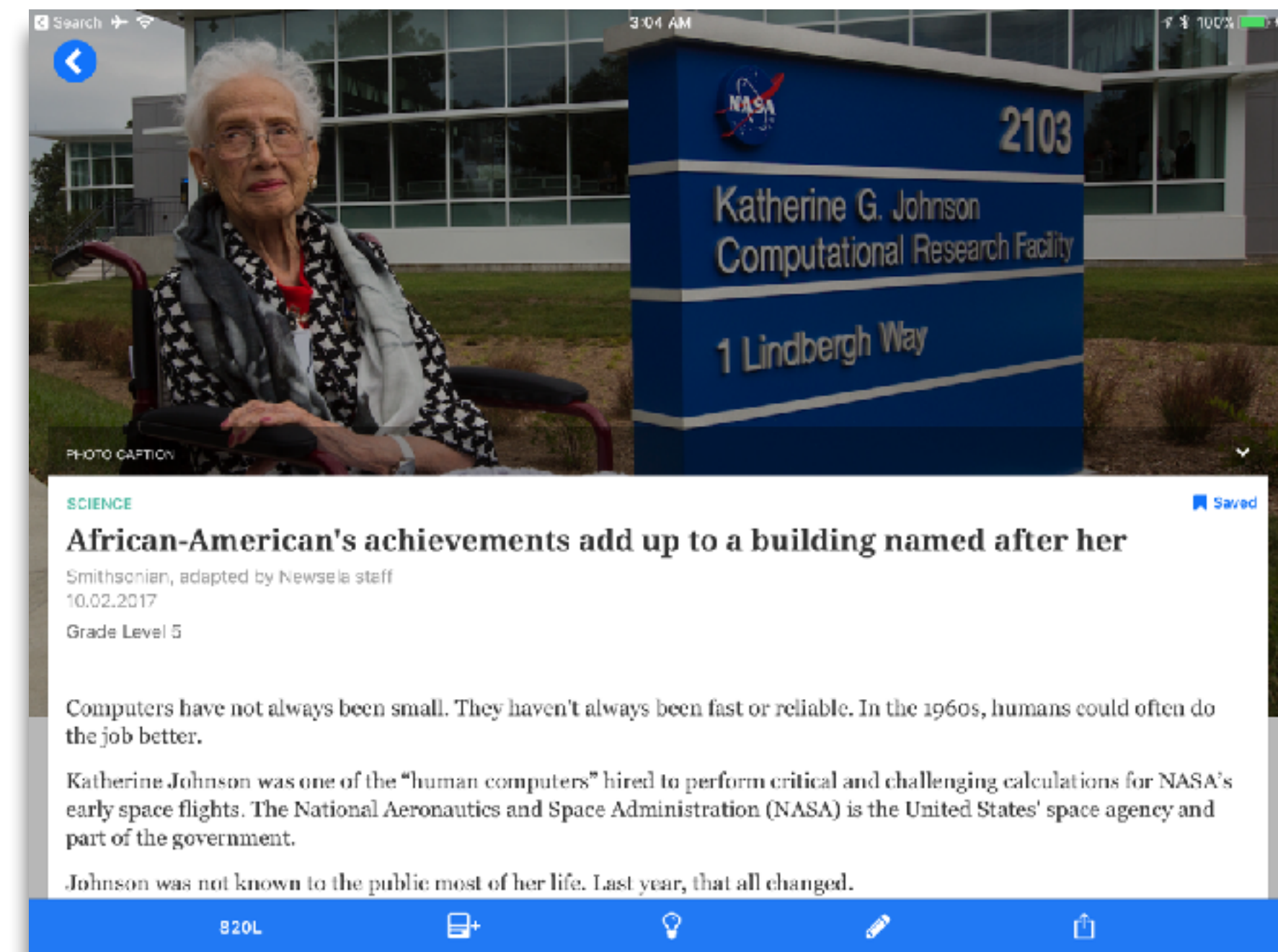
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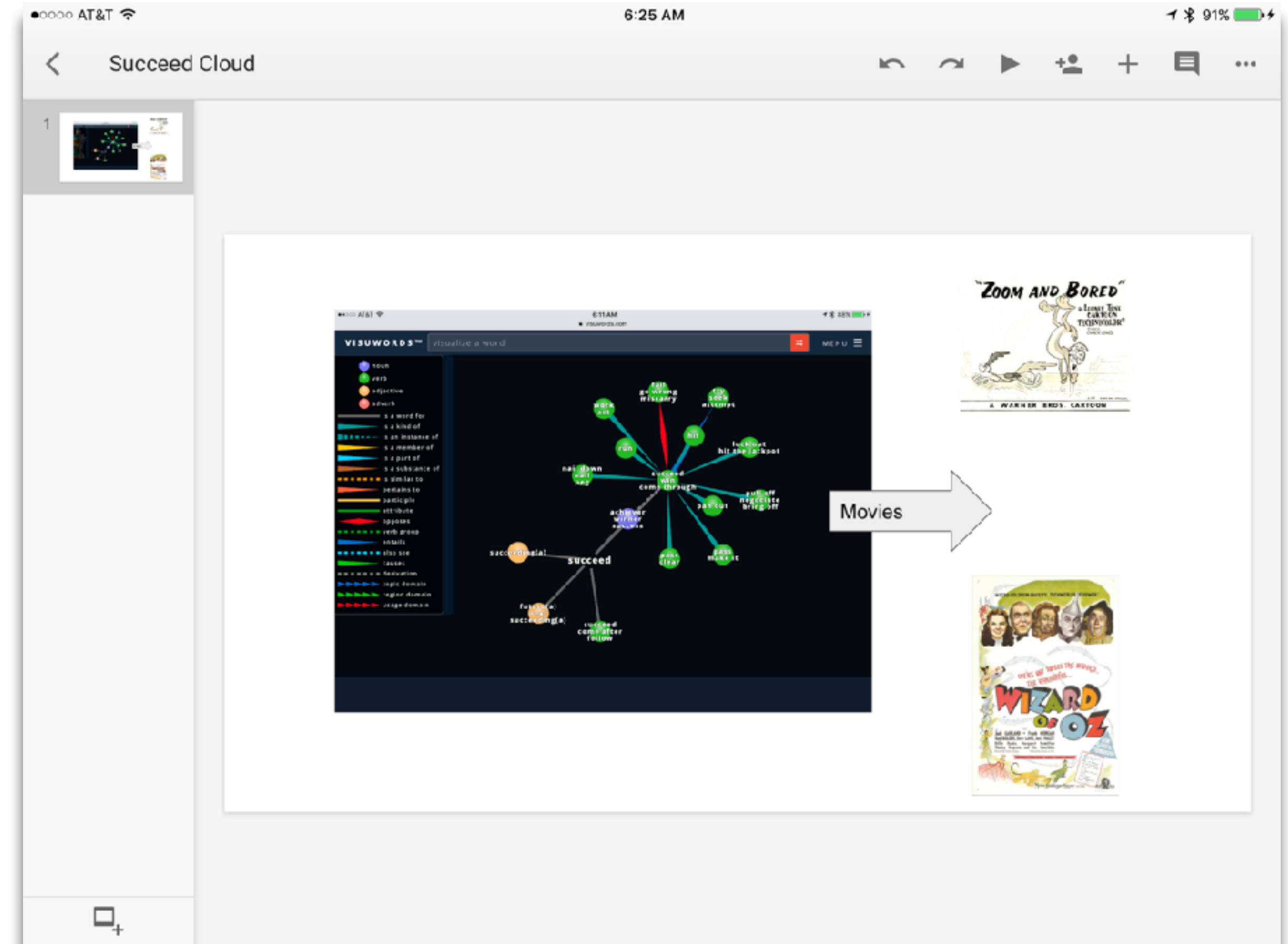
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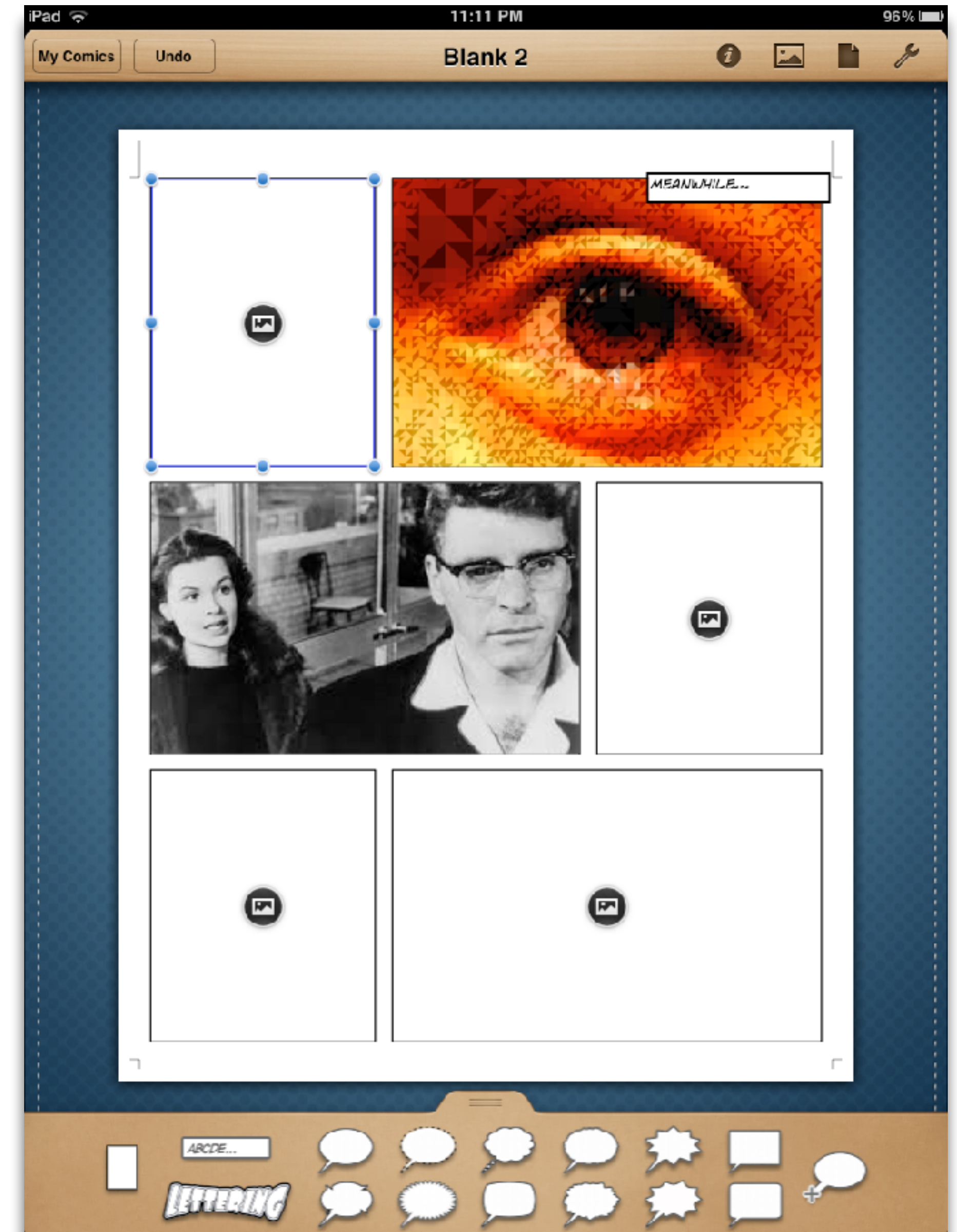
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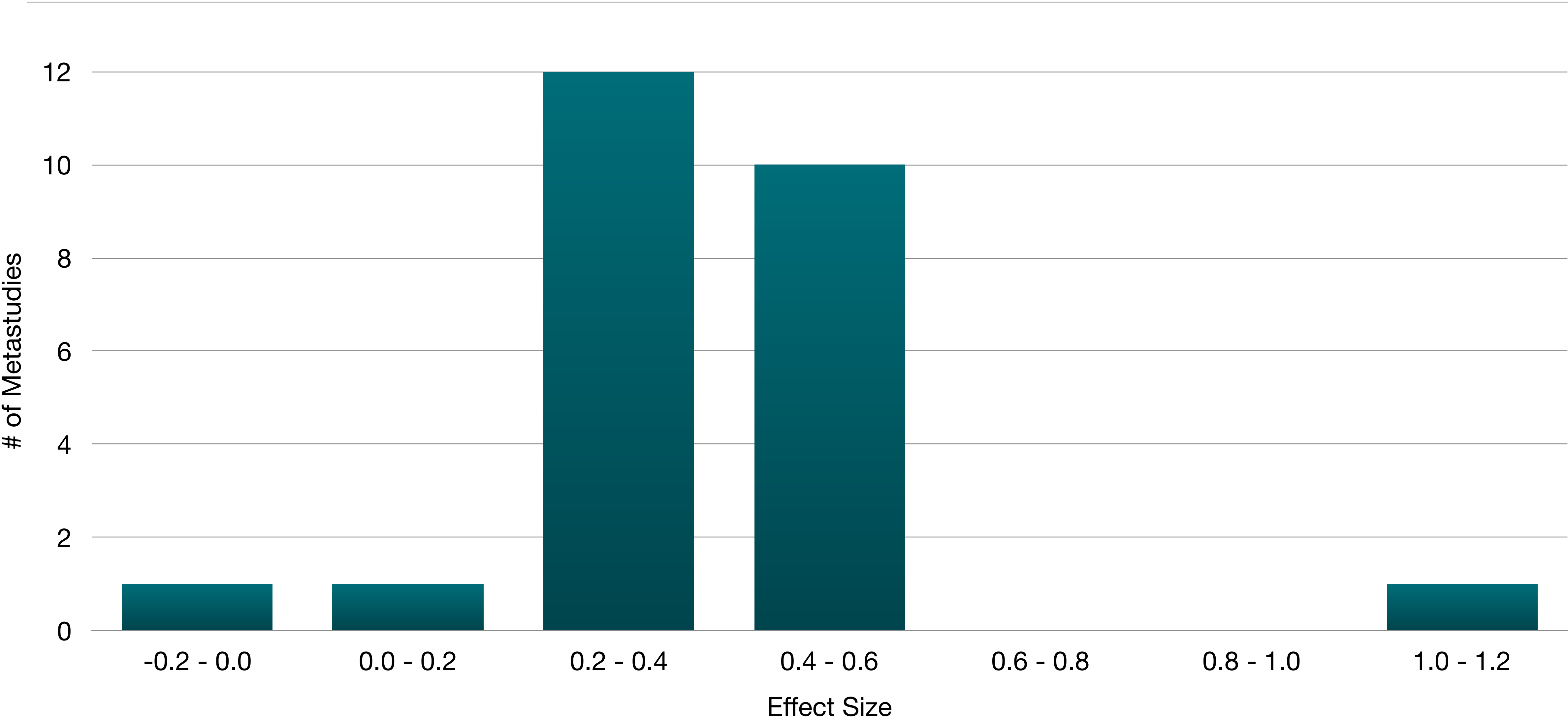
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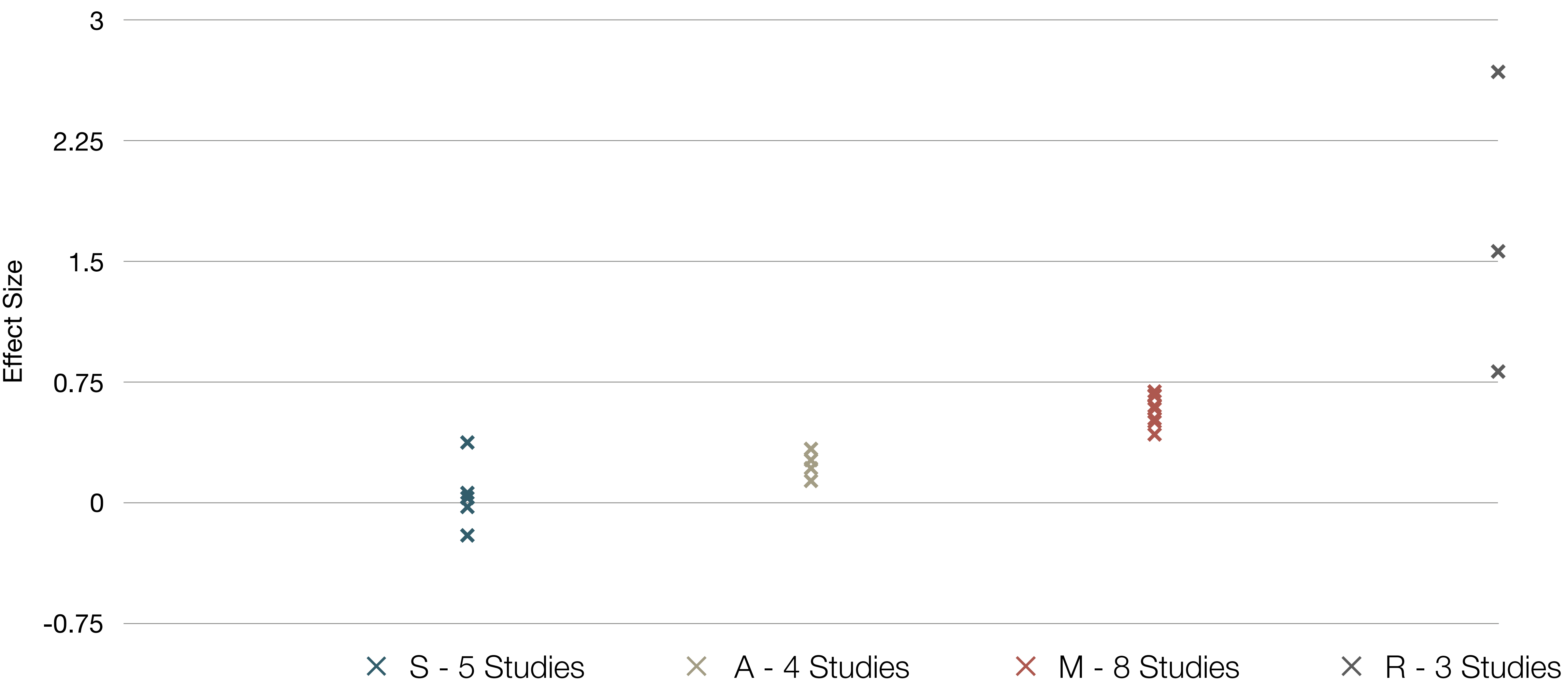
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The Research: 1,097 Studies, 25 Metastudies, 19 Years



SAMR and the Use of Technology to Enhance Reading Performance in Middle School



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Extended Thinking

Strategic Thinking

Skills and Concepts

Recall and Reproduction

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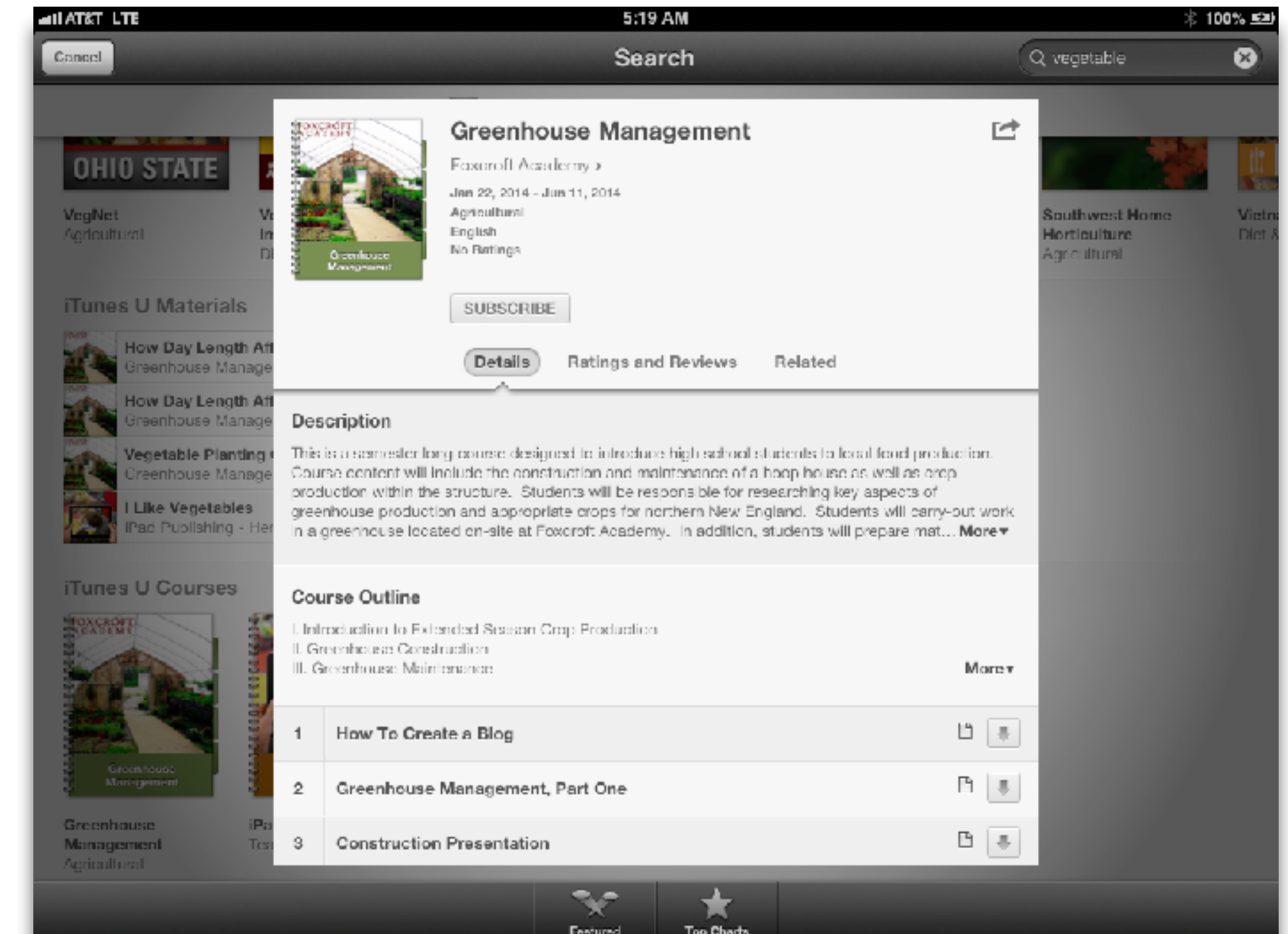
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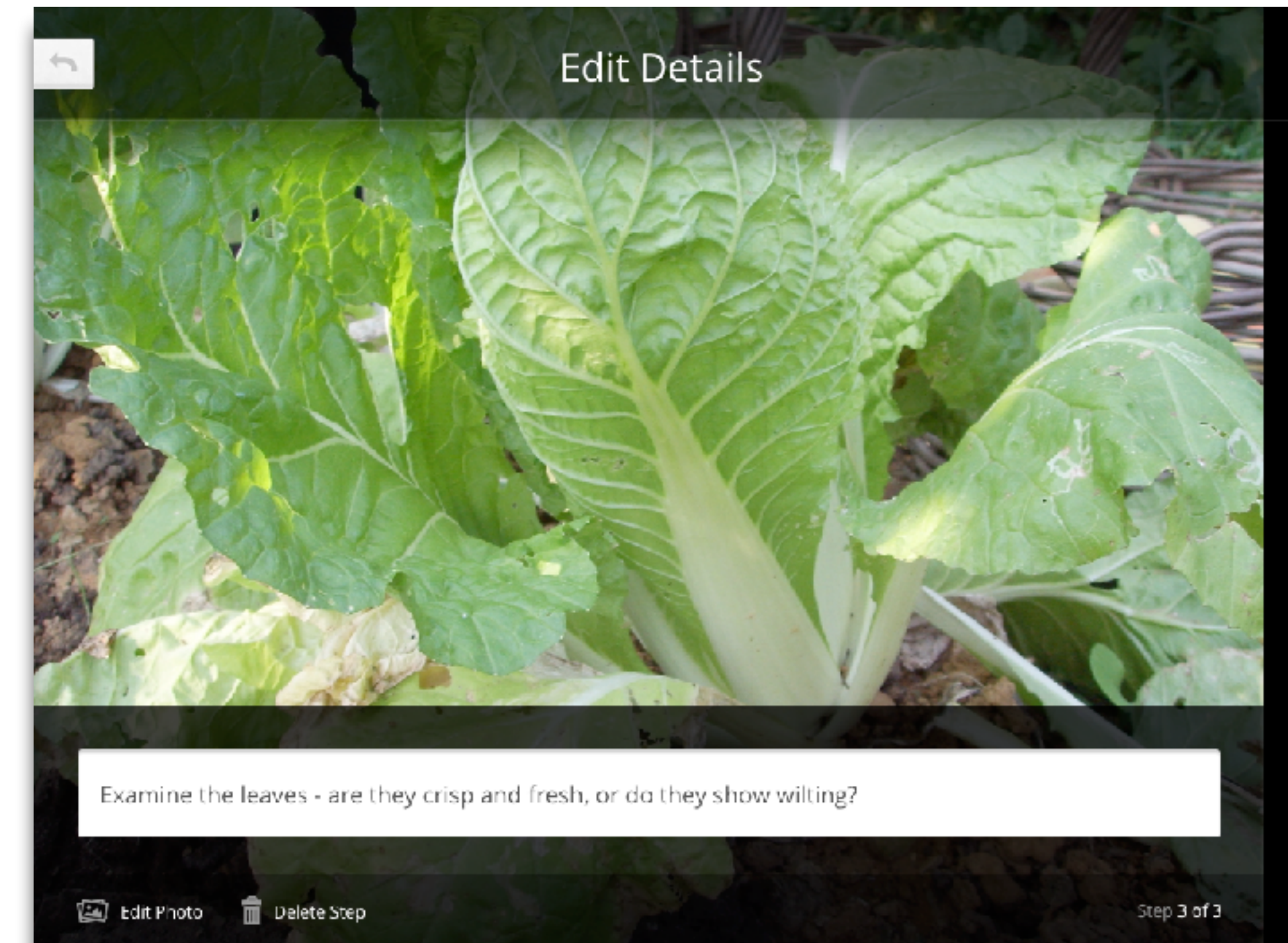
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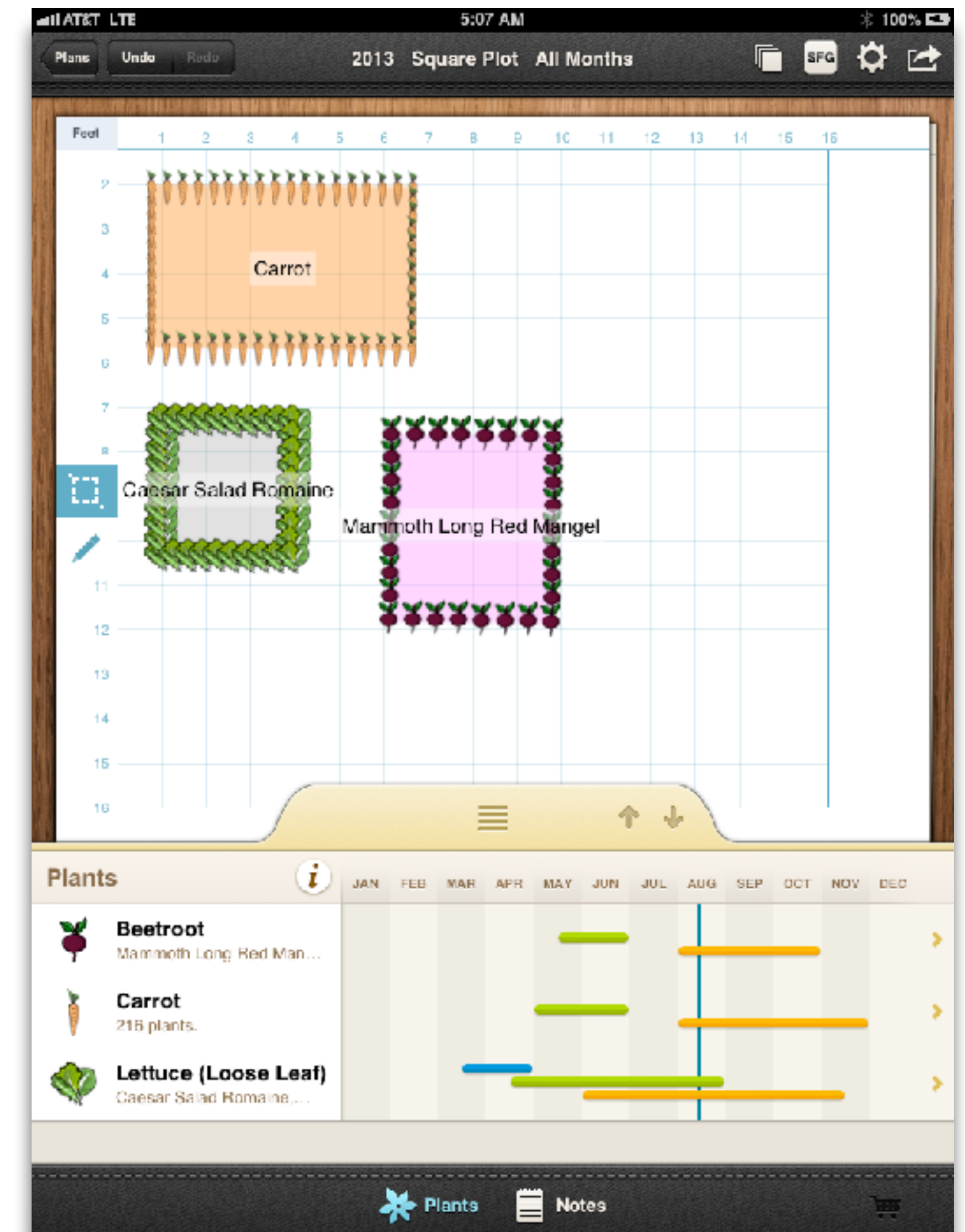
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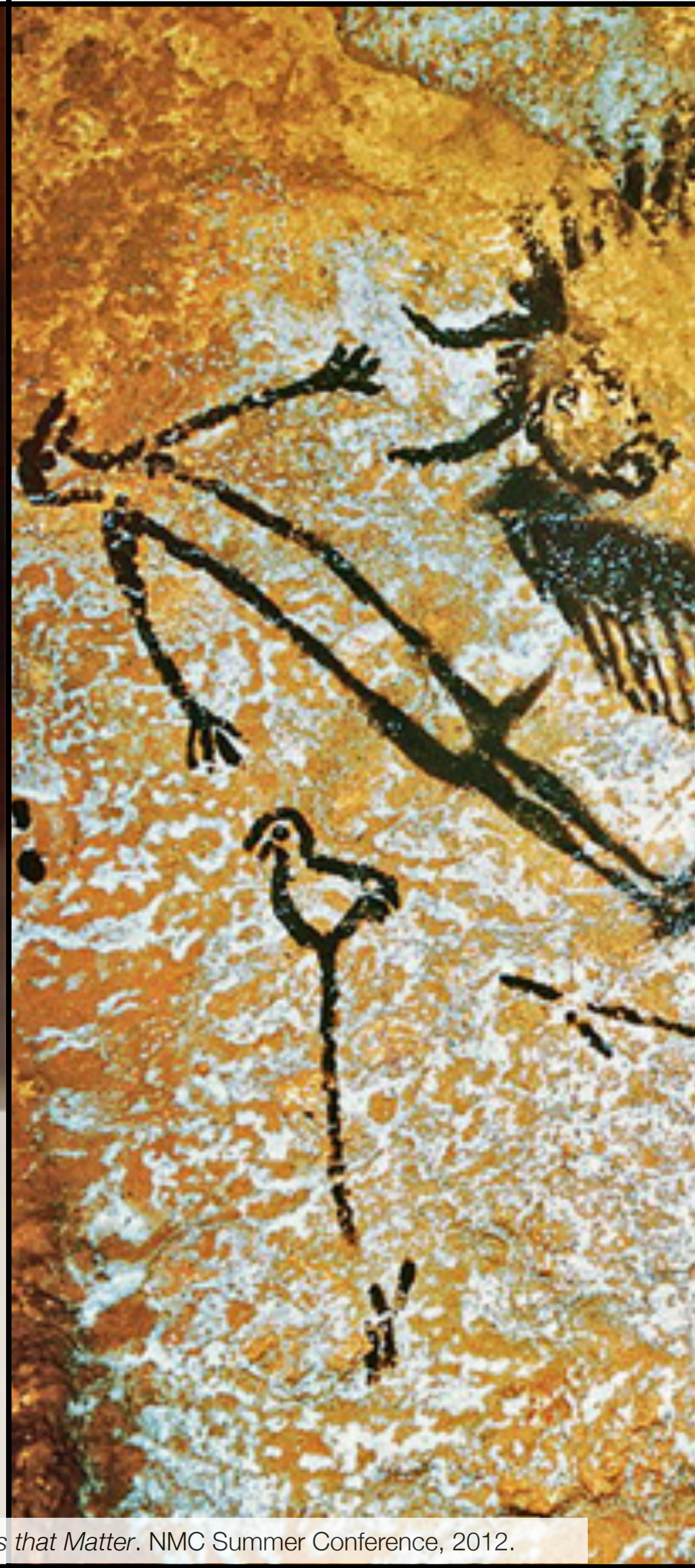

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Social	Mobility	Visualization	Storytelling	Gaming
200,000 years	70,000 years	40,000 years	17,000 years	8,000 years
				

Bookmarks



RSS Feeds

Discussions



Microblogging

Blogging

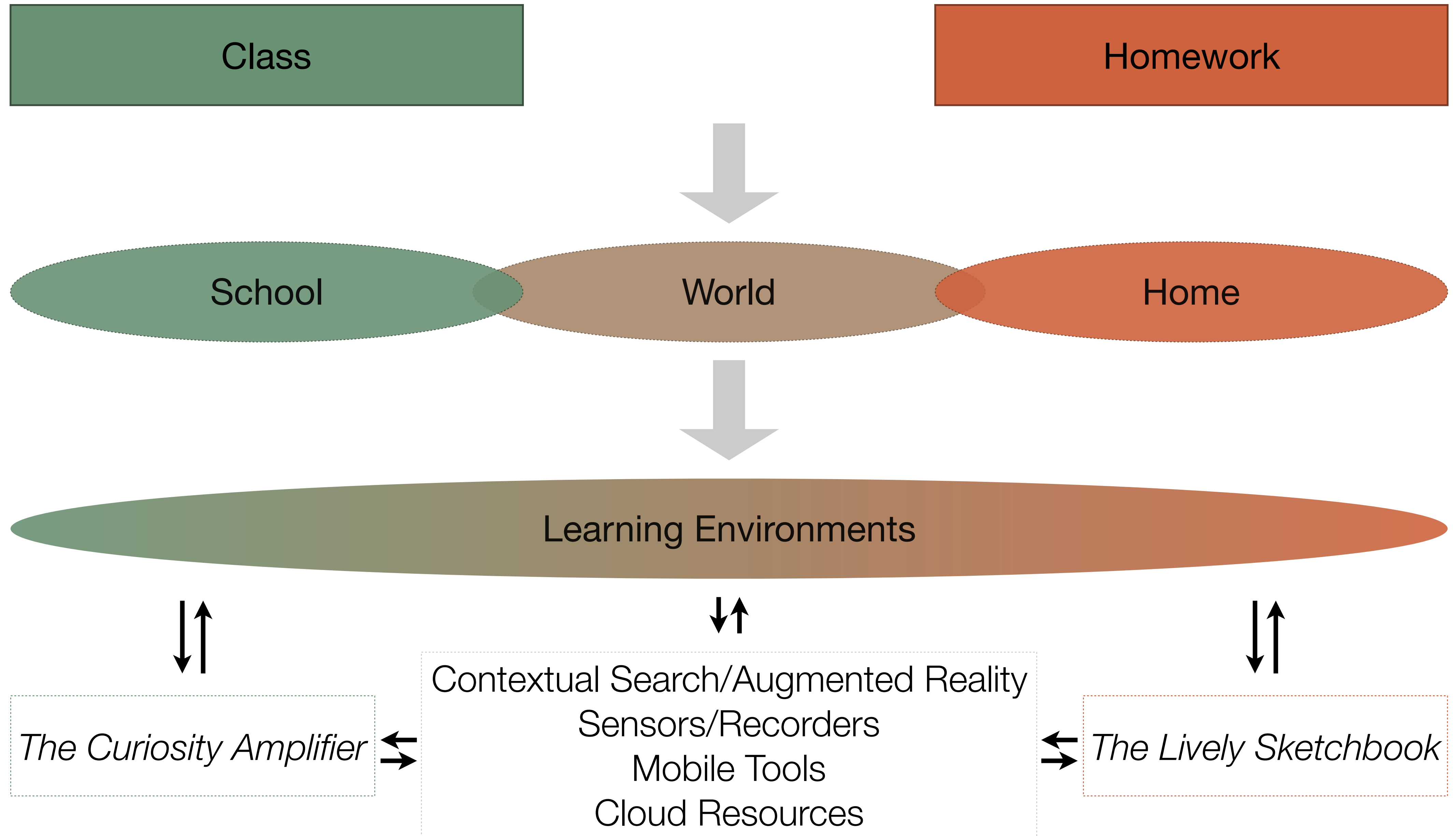


Wikis

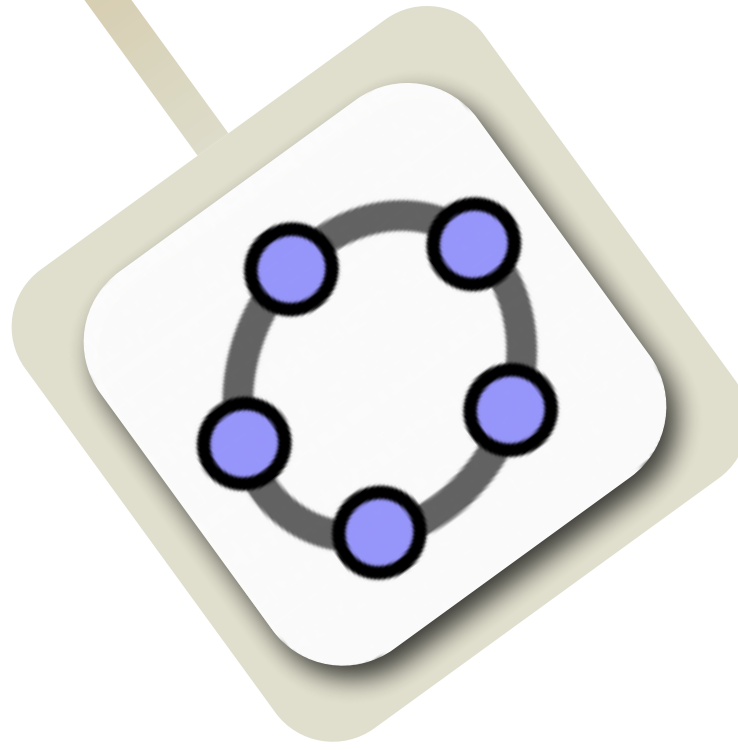
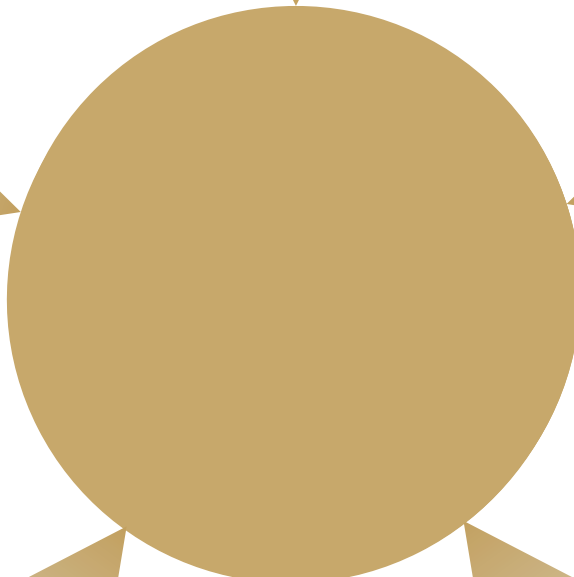
Telepresence



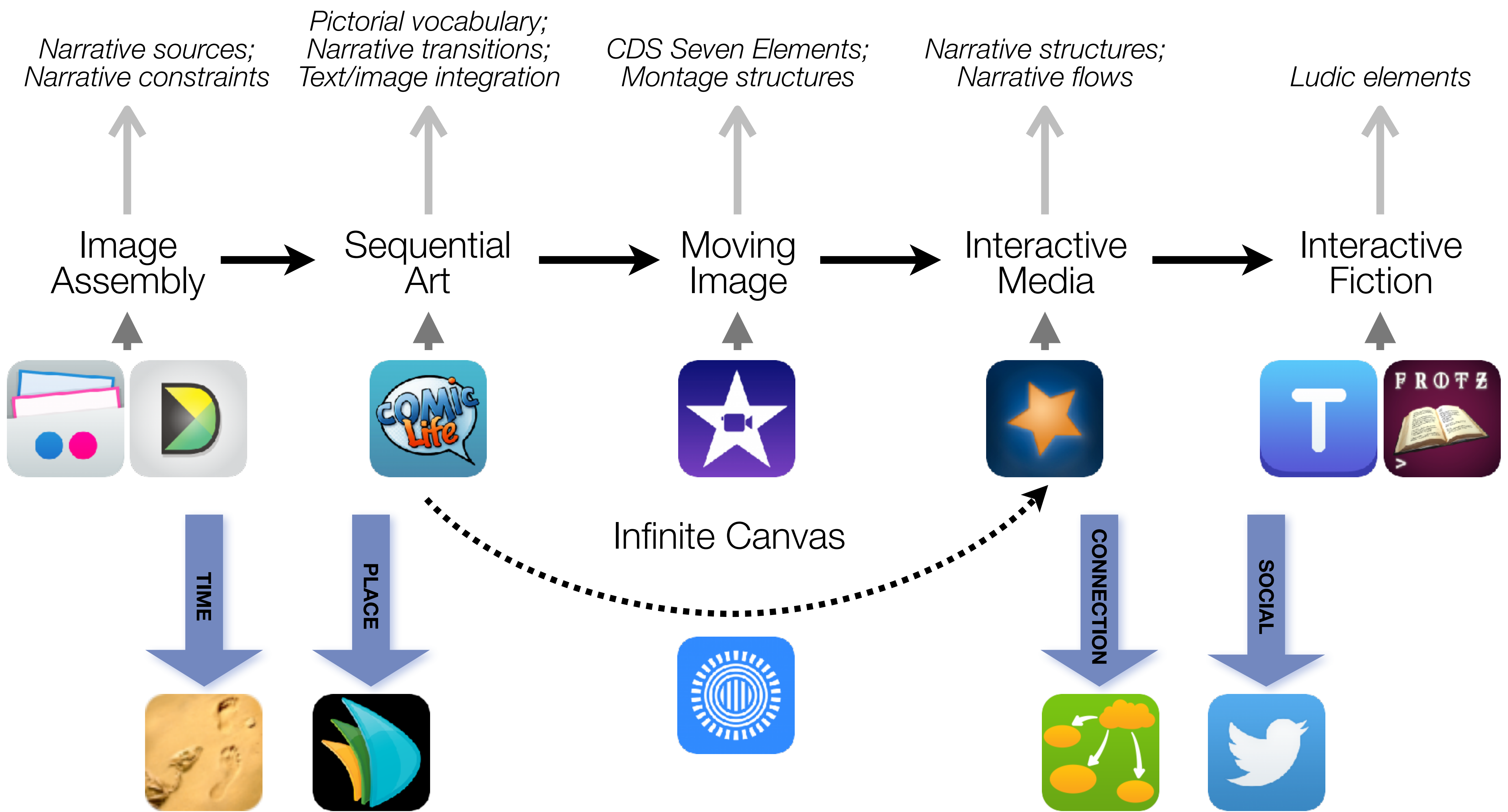
File Sharing



Visualization



Storytelling

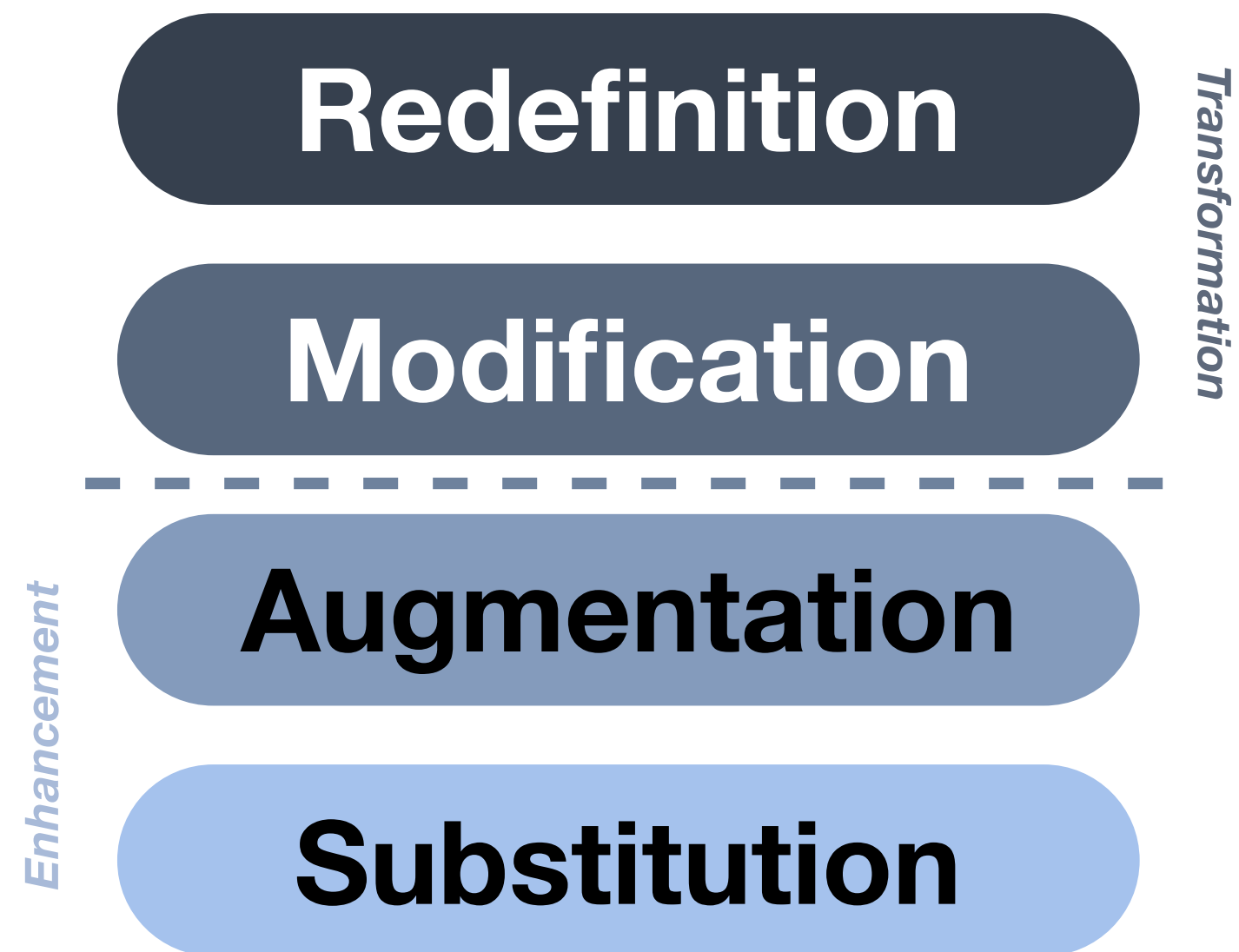


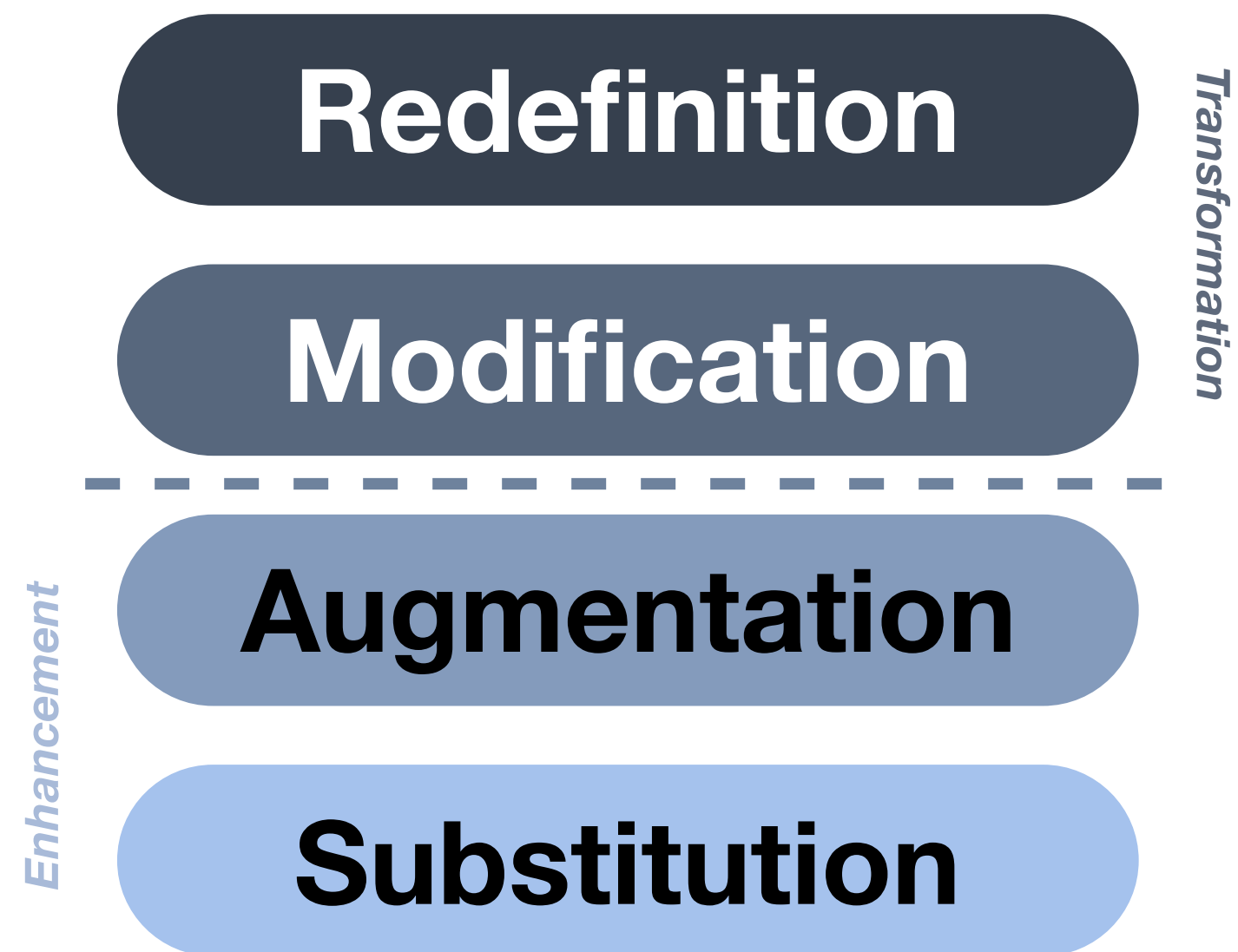
Formal Definition of **Game** (Salen & Zimmerman)

“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





Language Arts
French/Mi'kmaw/Gaelic
Health
ICT/Coding
Mathematics
Music
Physical Education
Science
Social Studies
Visual Arts

P-3	4-6	7-9	10-12
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A Core Set of Shared Practices

- Augmented Note Taking and Annotation
- Visualization Methods:
 - 5 Primary Domains: Space, Time, Networks, Text, Number
- Simple Blogging
- Simple Digital Storytelling Video
- Flipped Classroom:
 - Materials Creation
 - Peer Discussion/Instruction Methods
- Simple Interactive Fiction
- LMS Practices

Competency Concept	Evaluate Historical Accounts	Interpret Primary Sources	Apply Chronological Reasoning	Contextualize	Construct Acceptable Historical Accounts
History as an Interpretive Account					
The Relationship of Past and Present					
Historical Evidence					
Complex Causality					
Significance					

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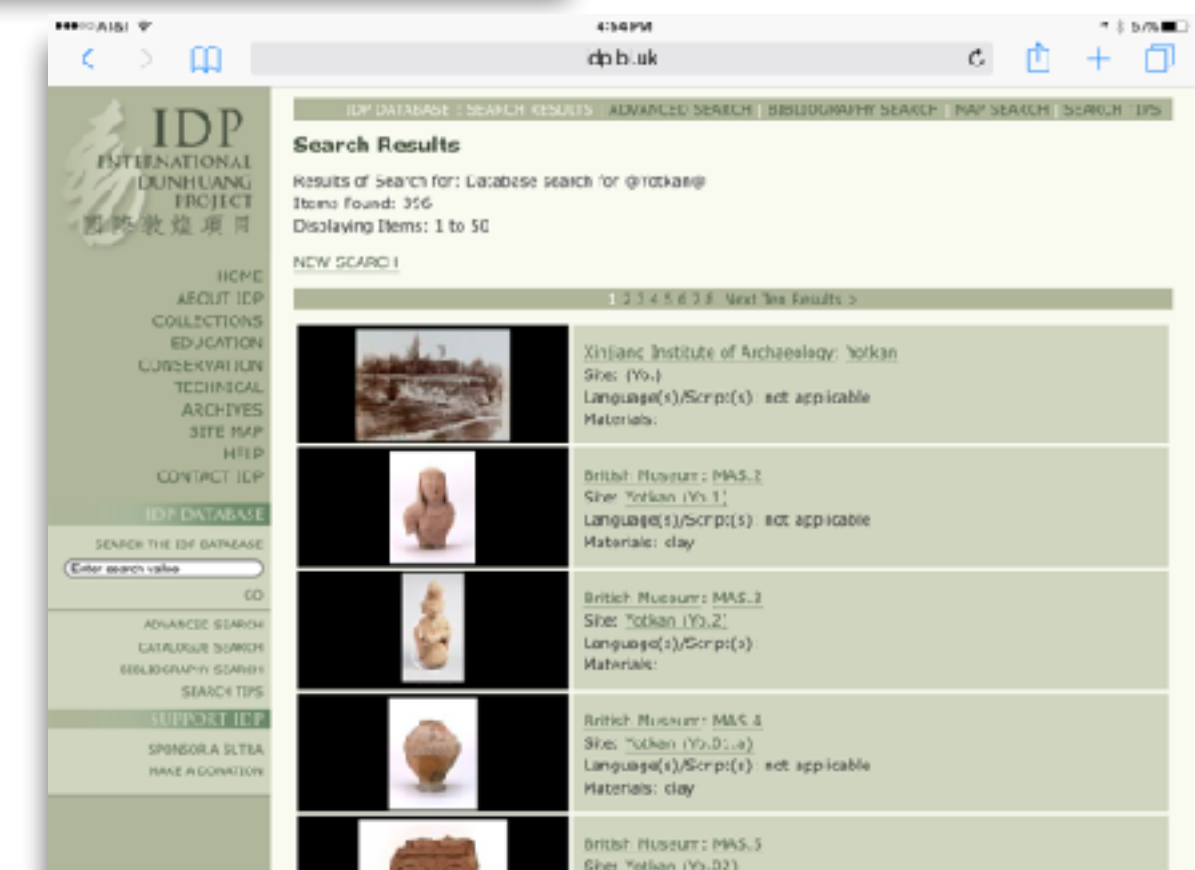
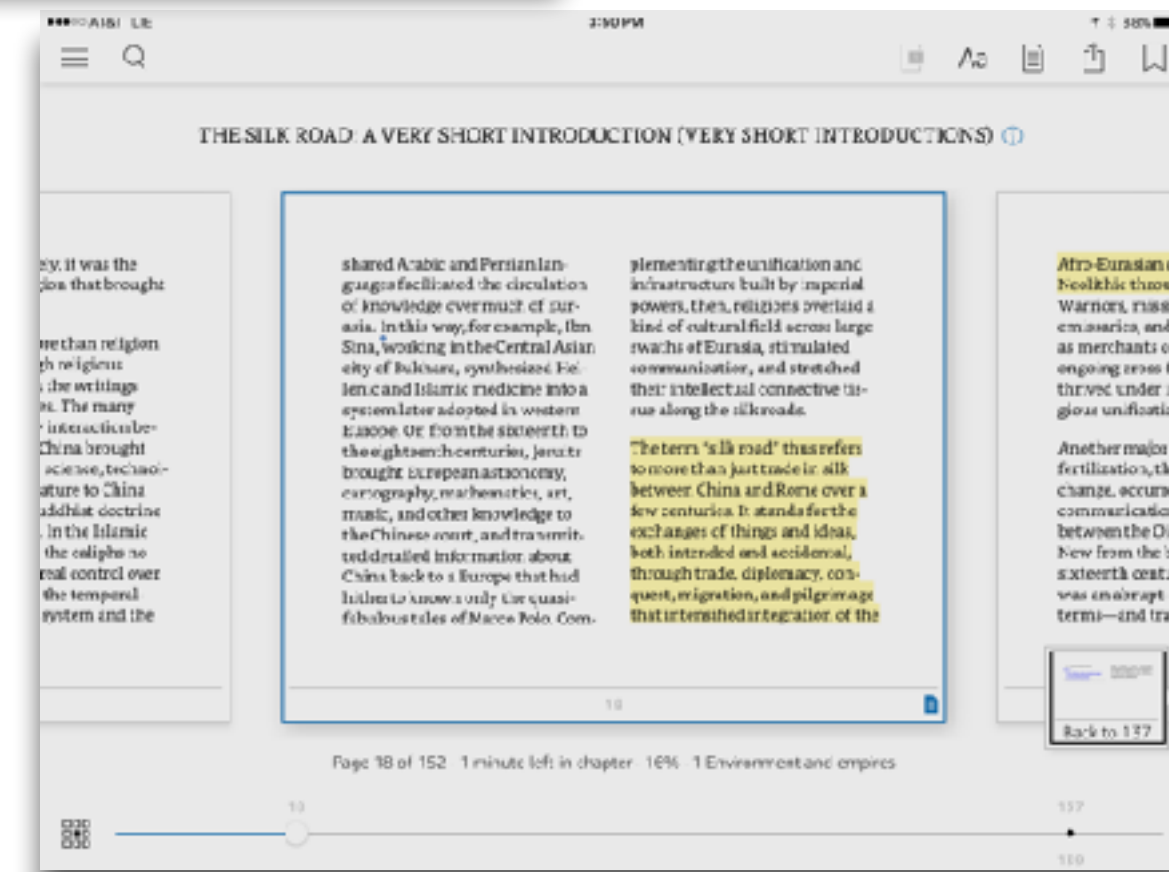
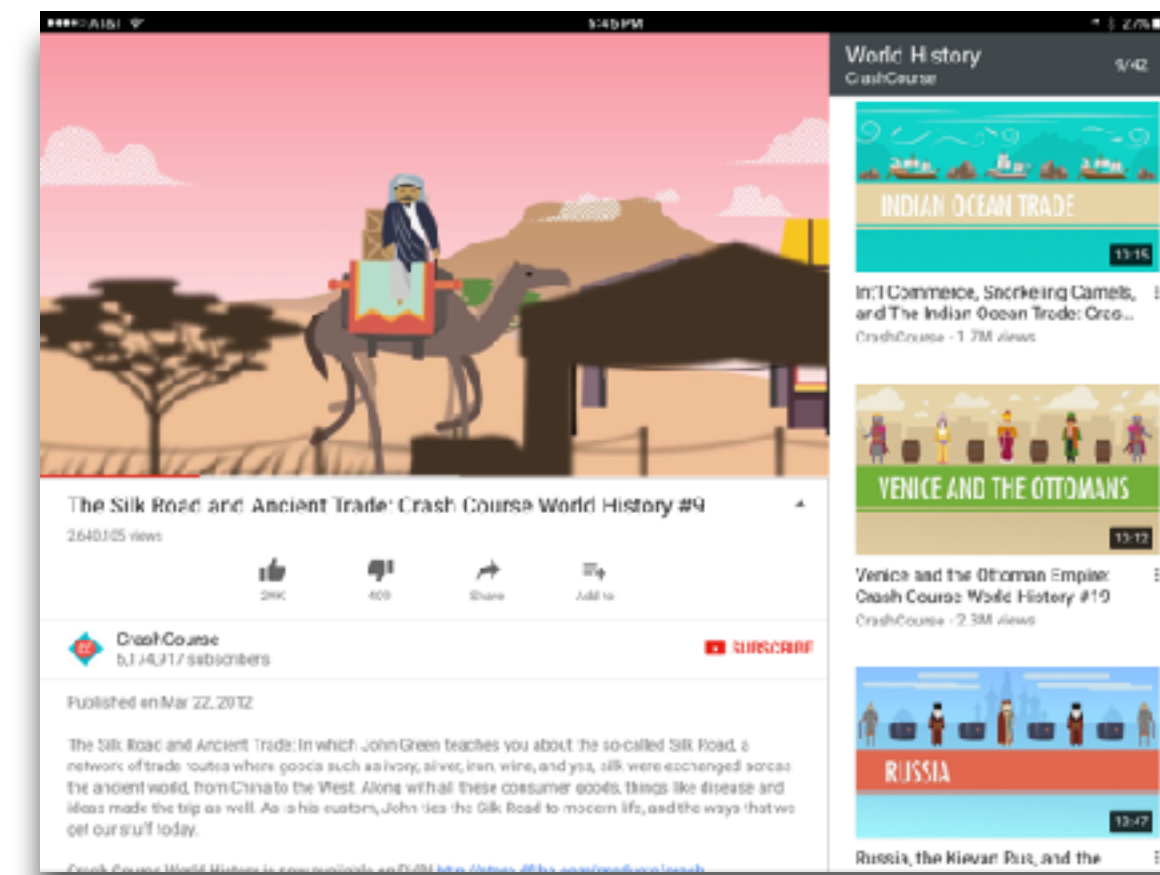
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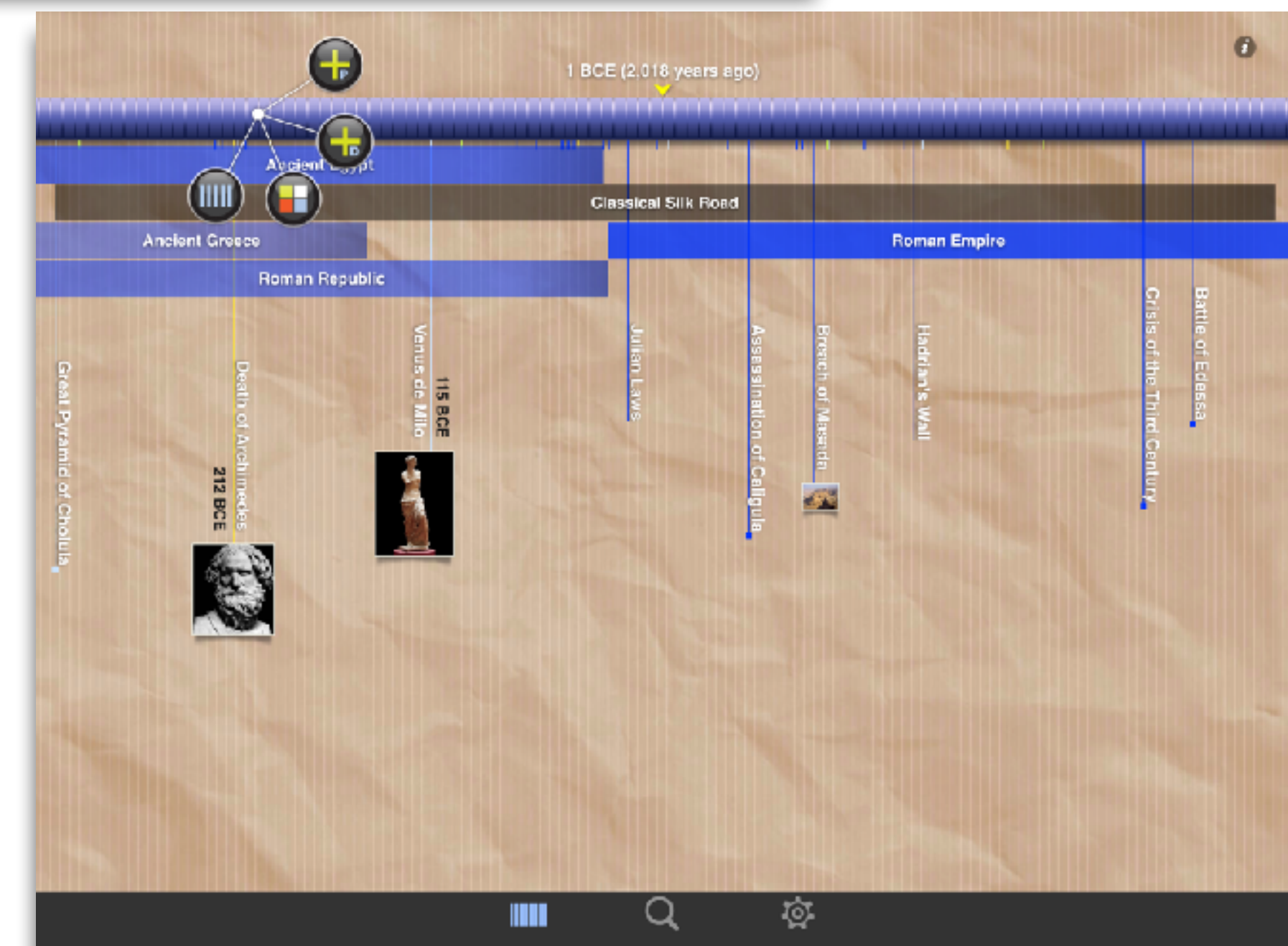
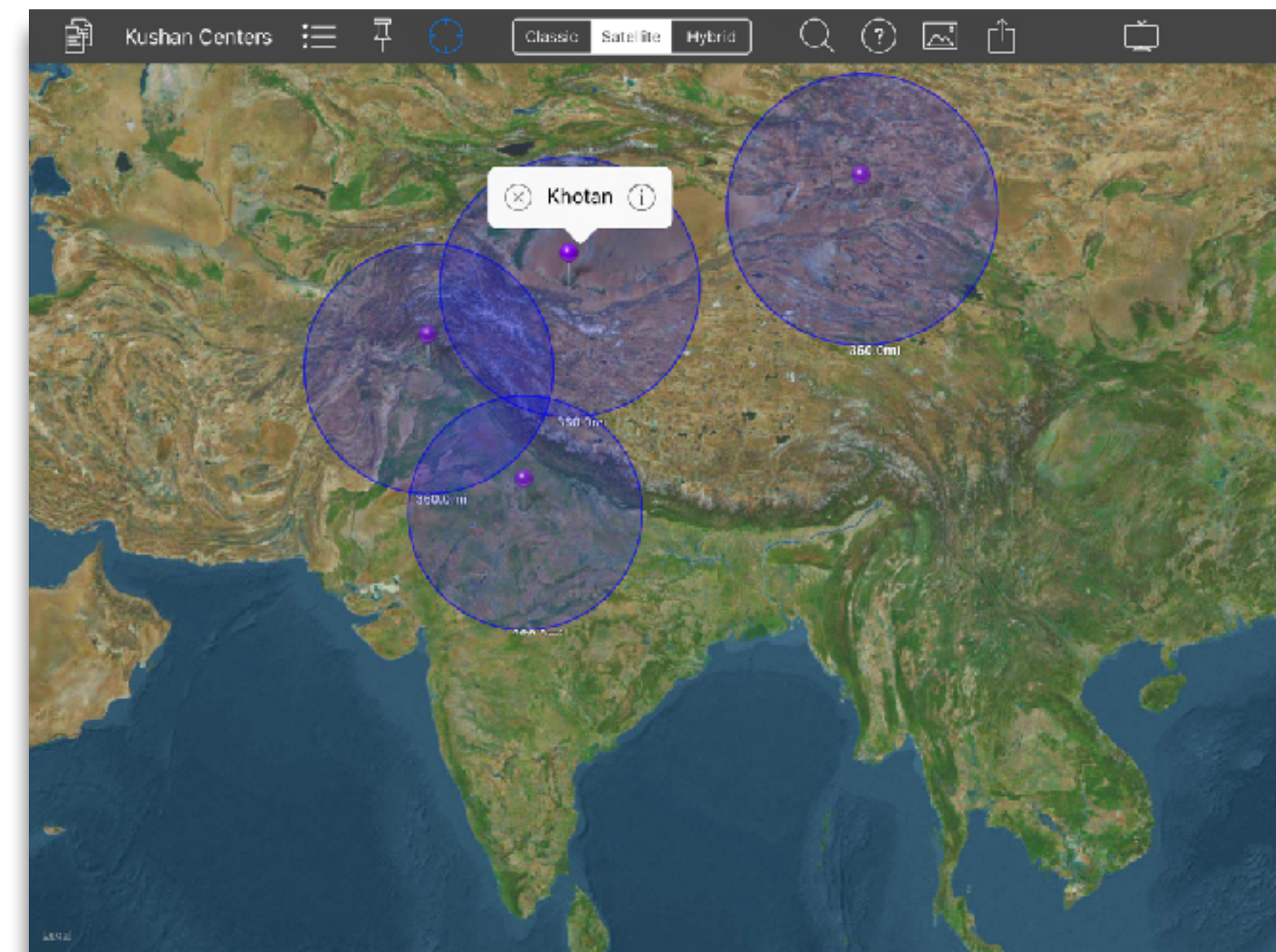
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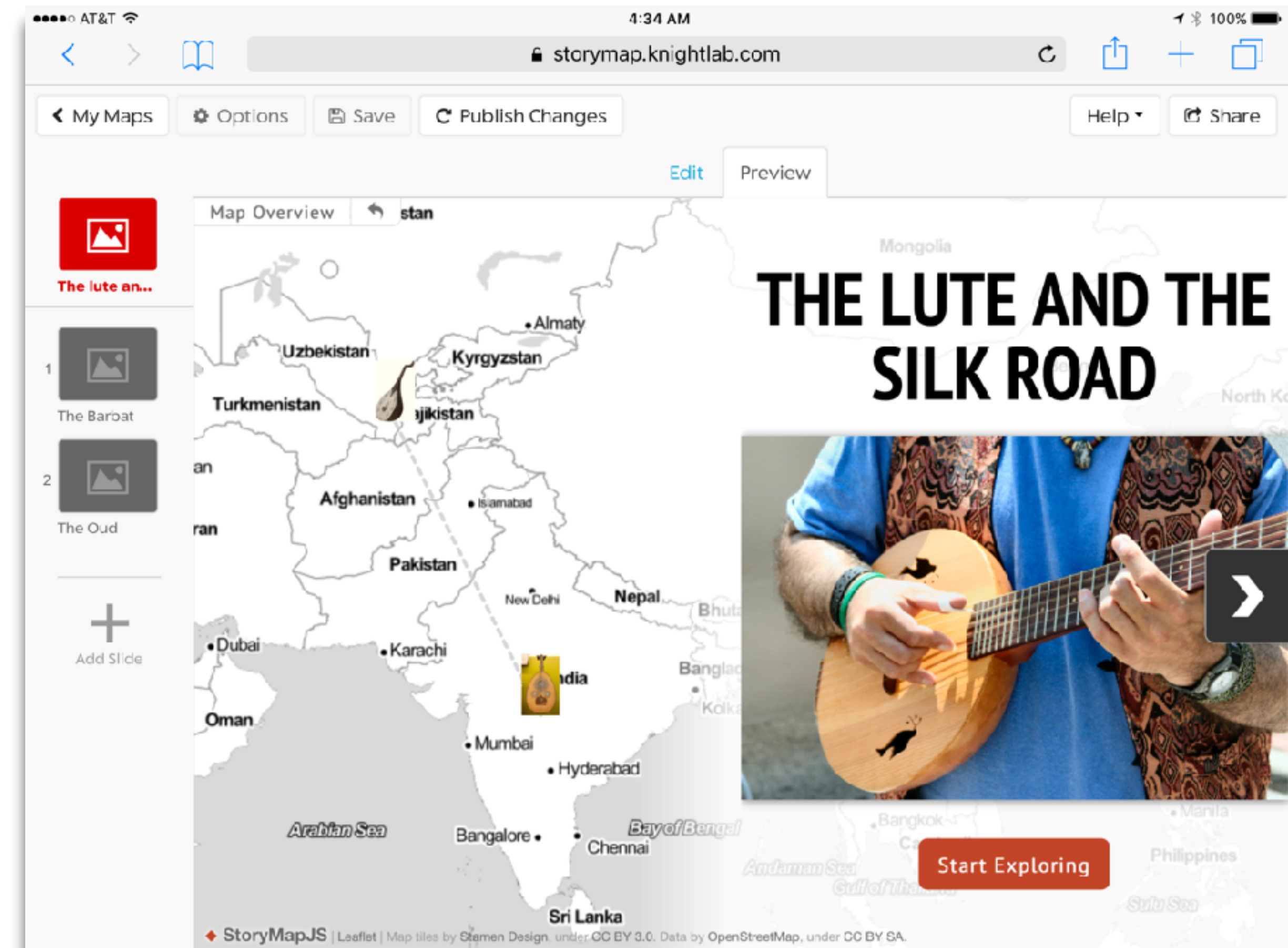
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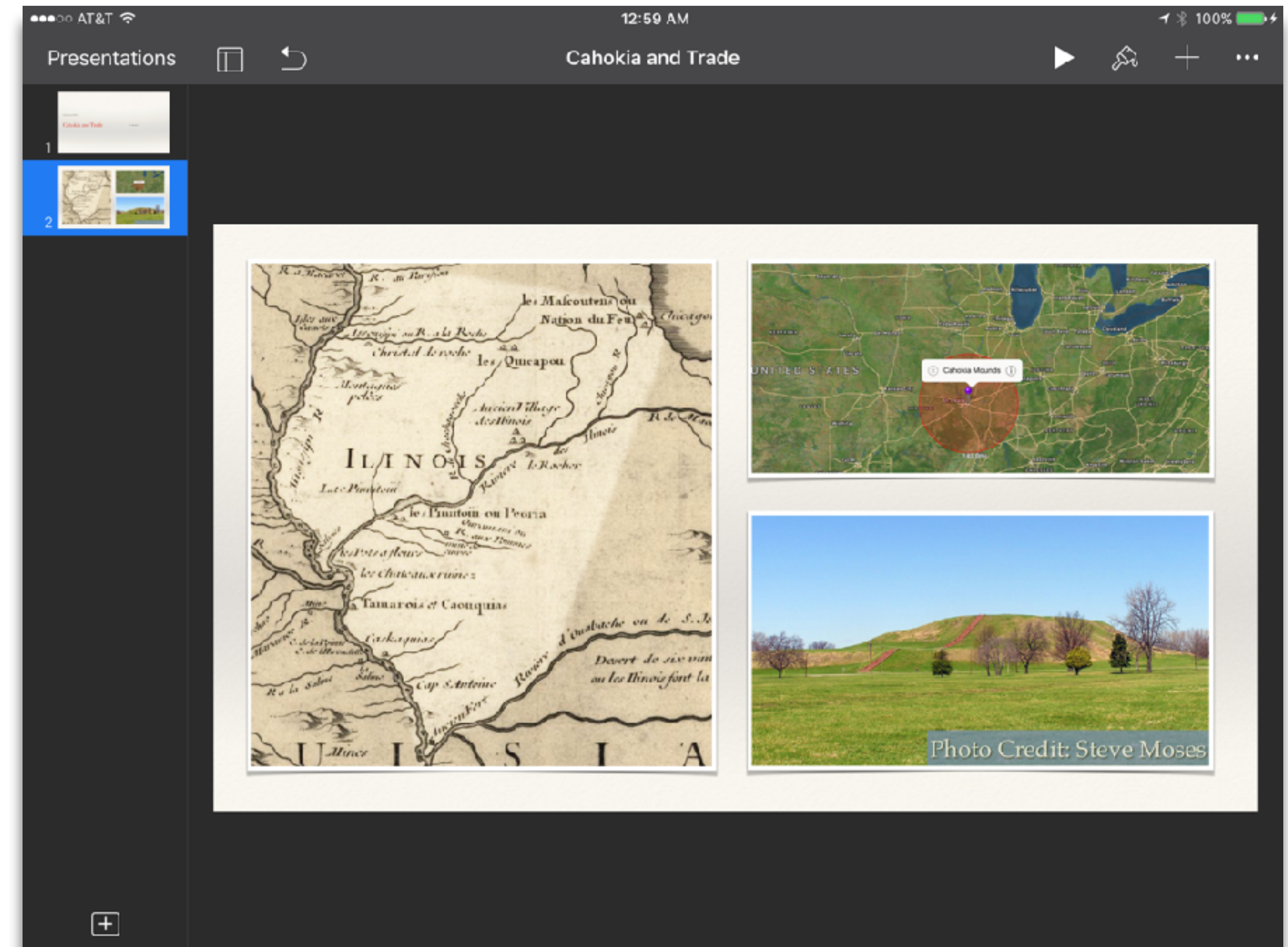
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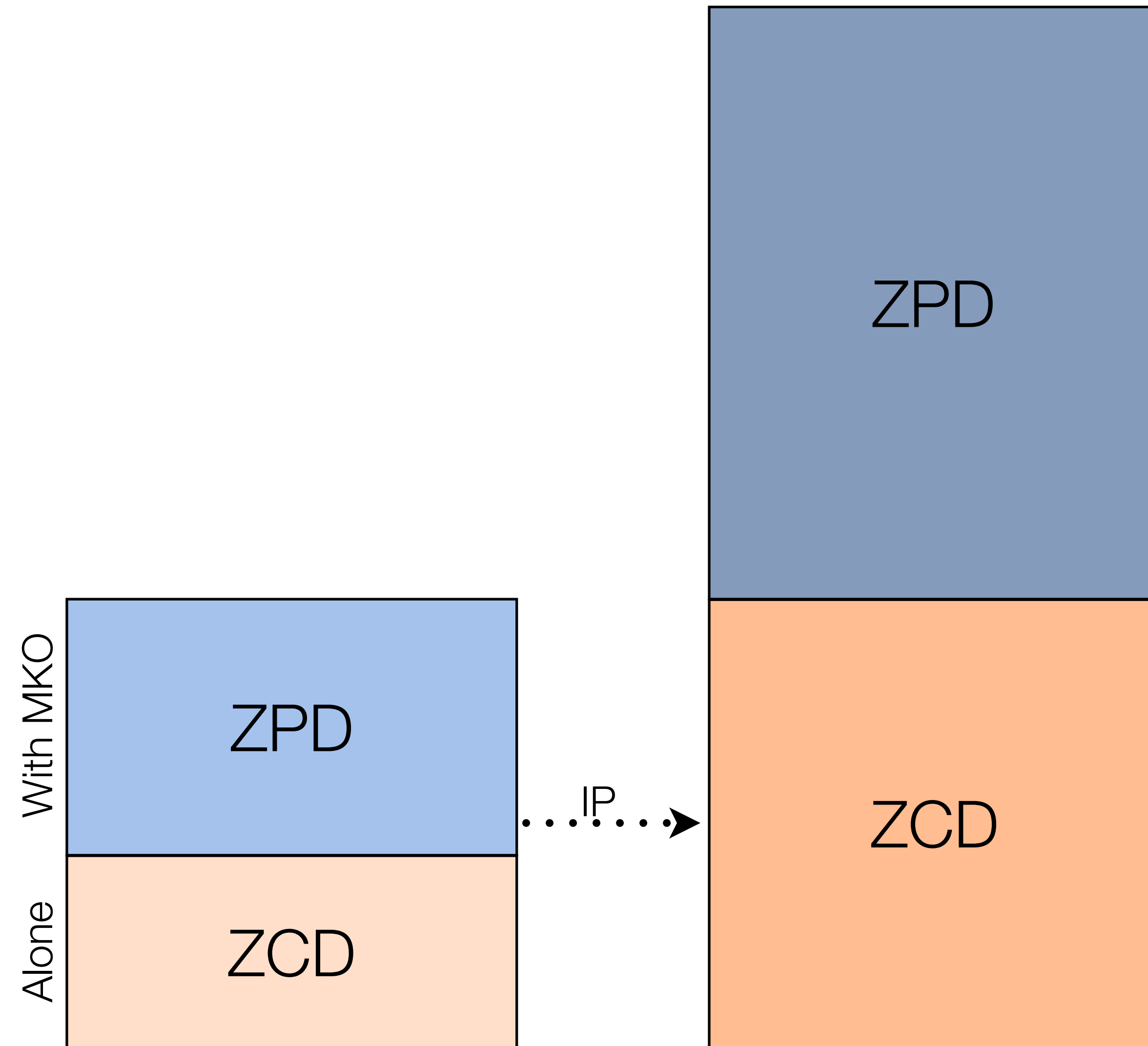
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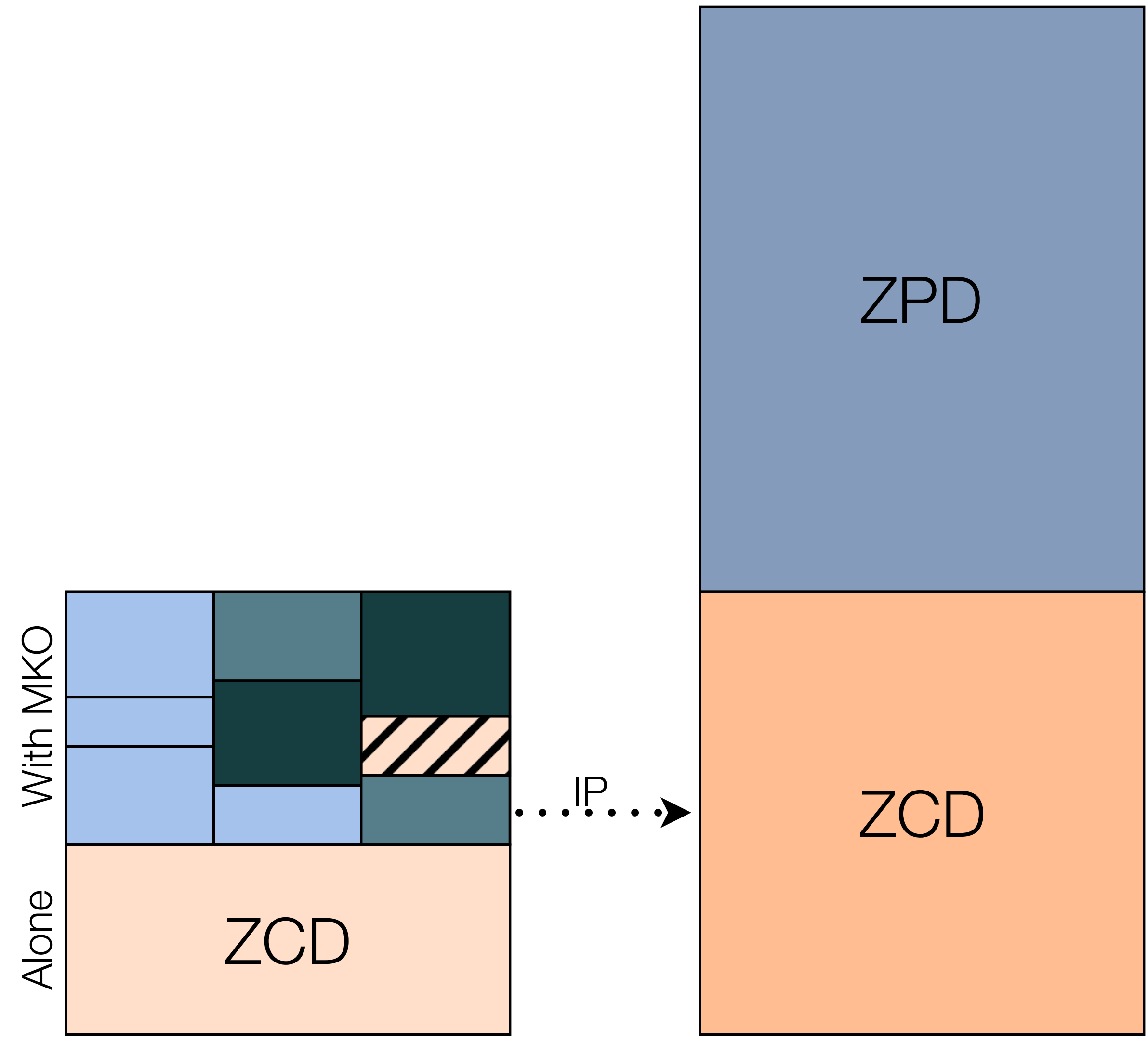
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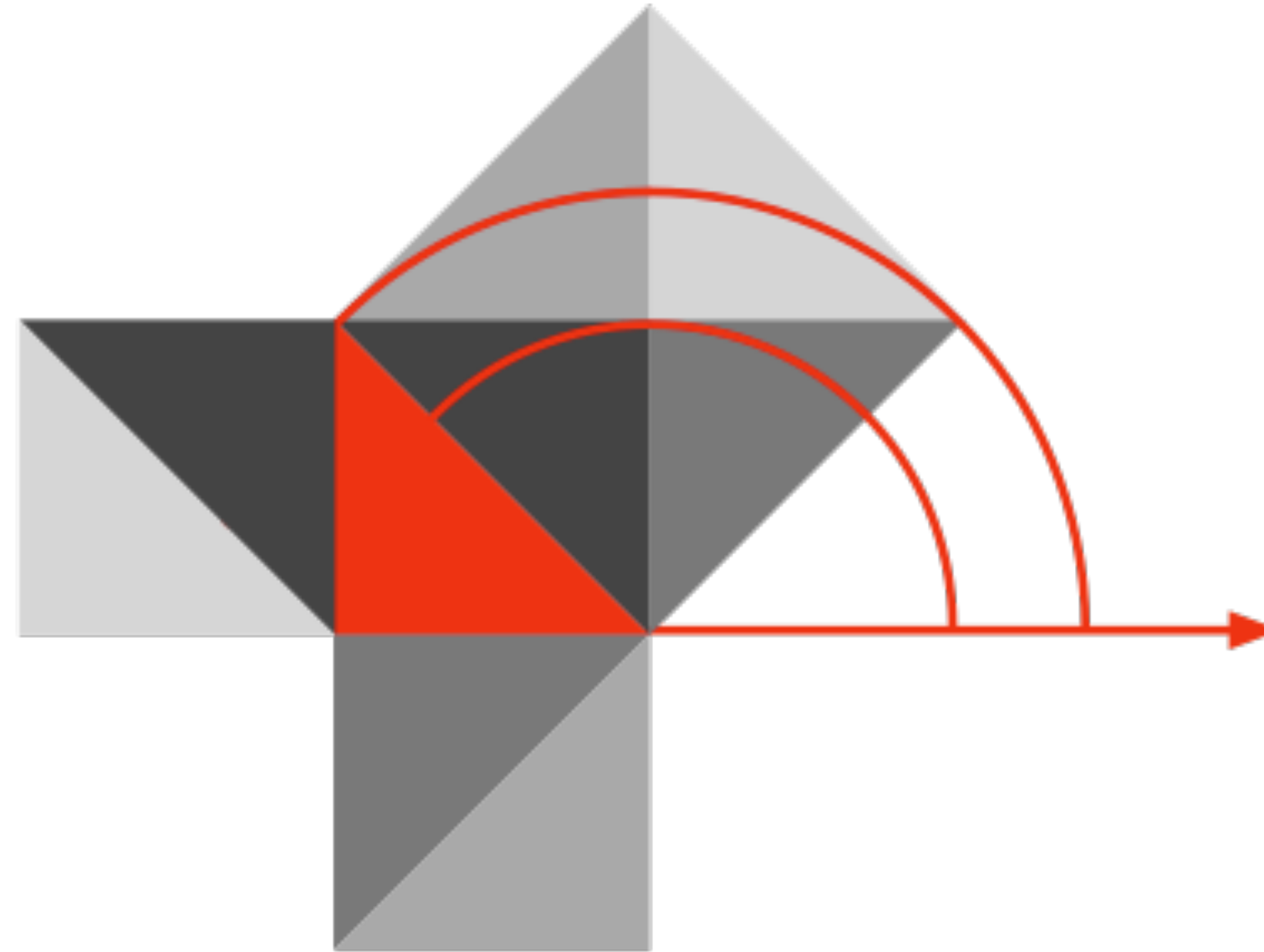
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The EdTech Quintet – Associated Practices

Social	Provides diversity to the ZPD
Mobility	Creates the context for the process
Visualization	Aids in segmenting ZPD, bridging gaps
Storytelling	Aids in the integration of the ZPD
Gaming	Provides frameworks for independent practice

Hippasus



Blog: <http://hippasus.com/blog/>

Email: rubenrp@hippasus.com

Twitter: @rubenrp

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