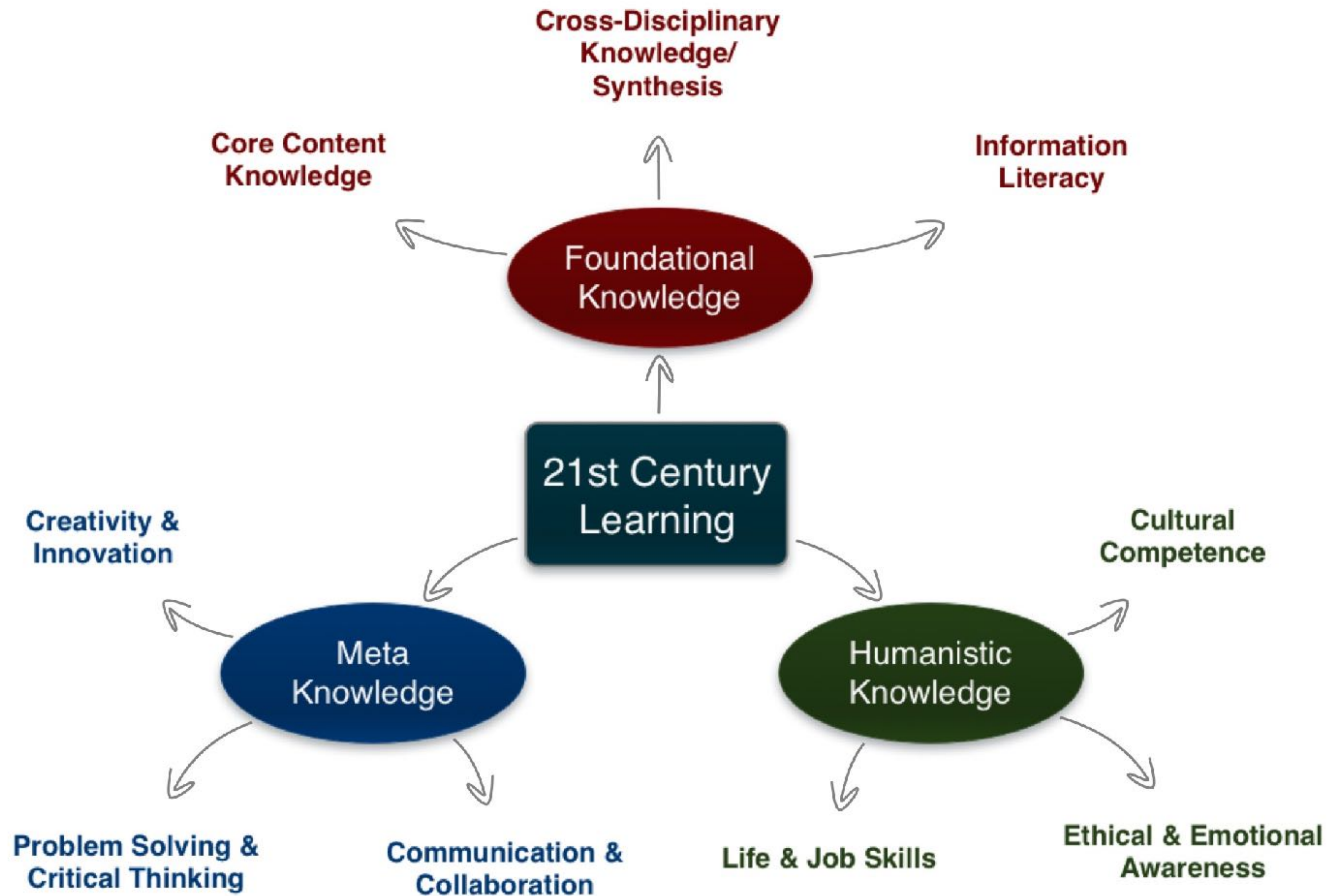


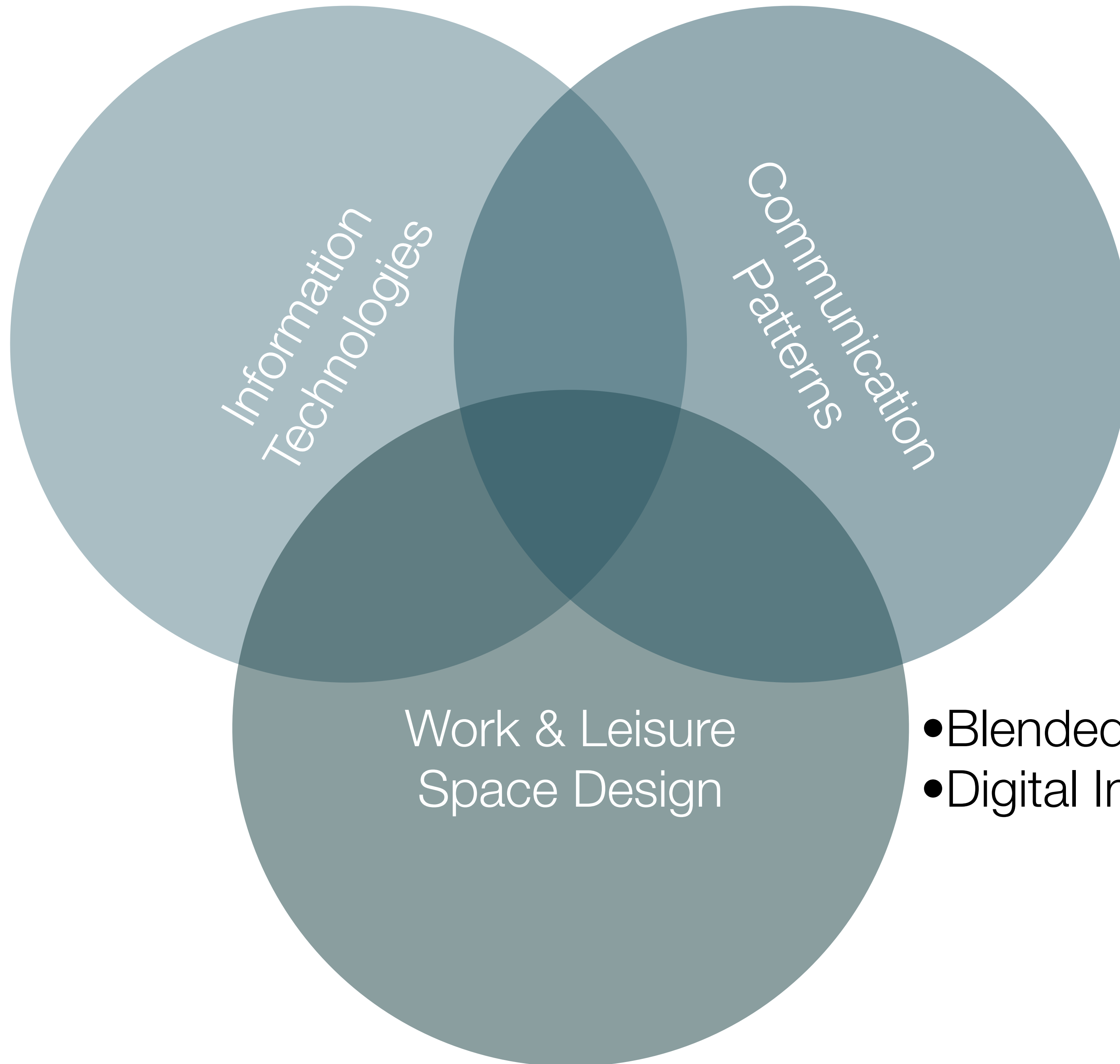
# Learning and Technology Today: Notes for a Future that Arrived Early

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Ruben R. Puentedura, Ph.D.



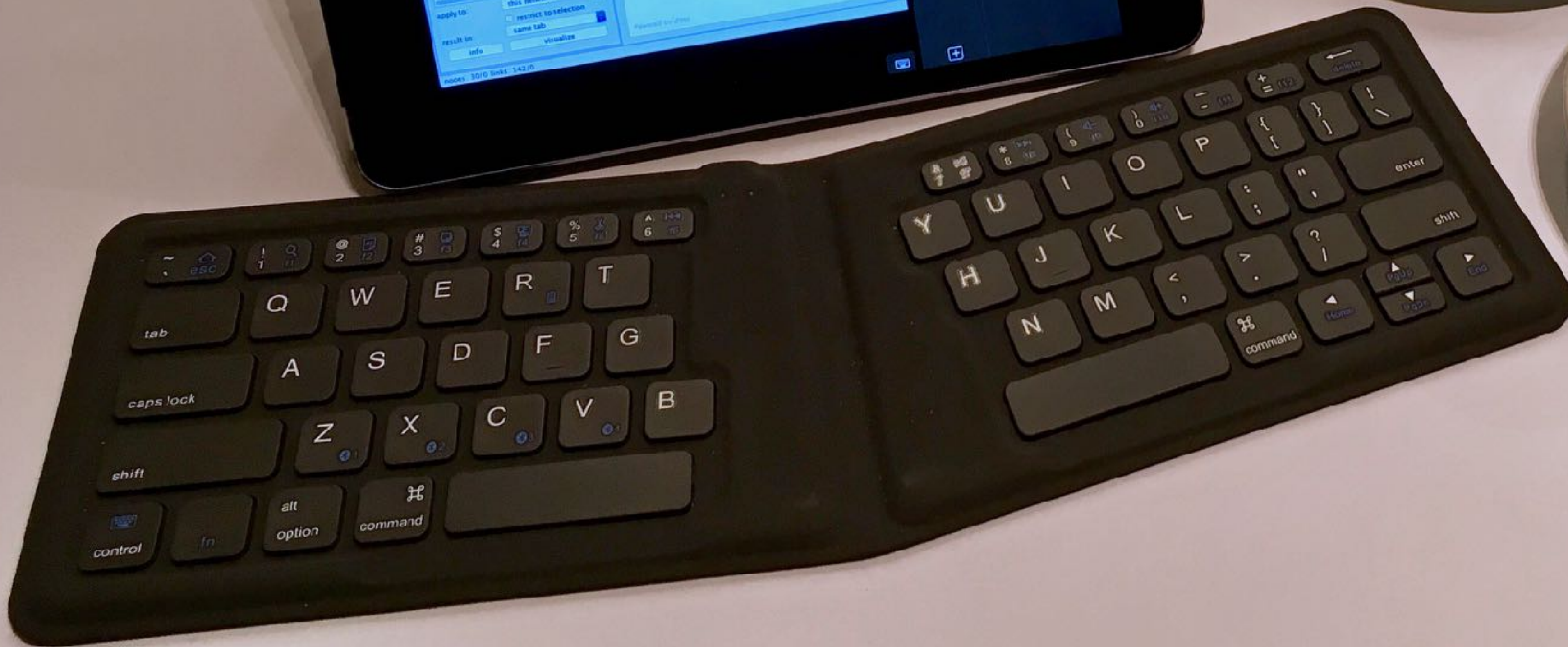
- Computing Power
- Machine Learning



- Mobile Devices
- Social Media

- Blended Spaces
- Digital Integration







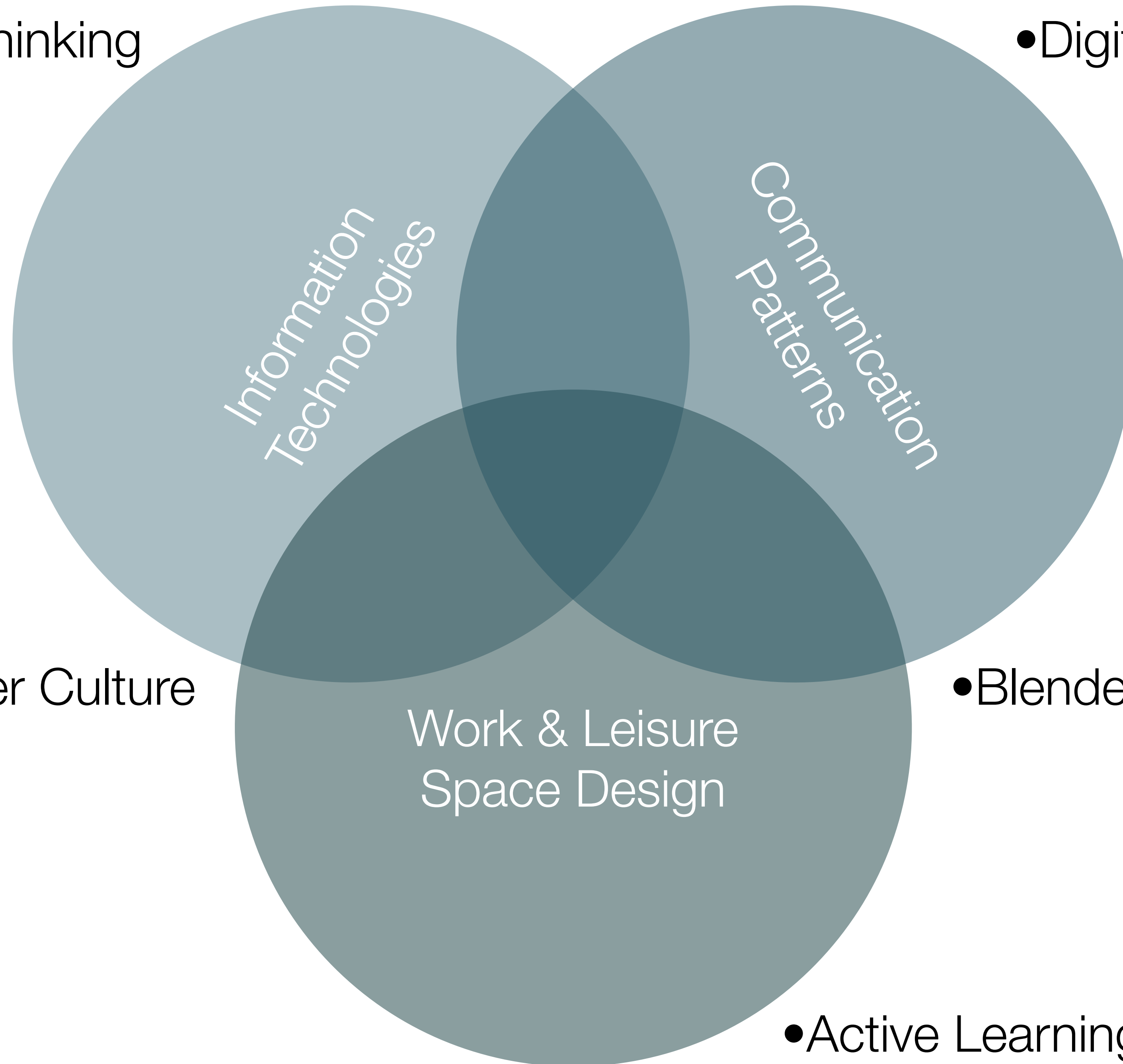
•Computational Thinking

•Digital Citizenship

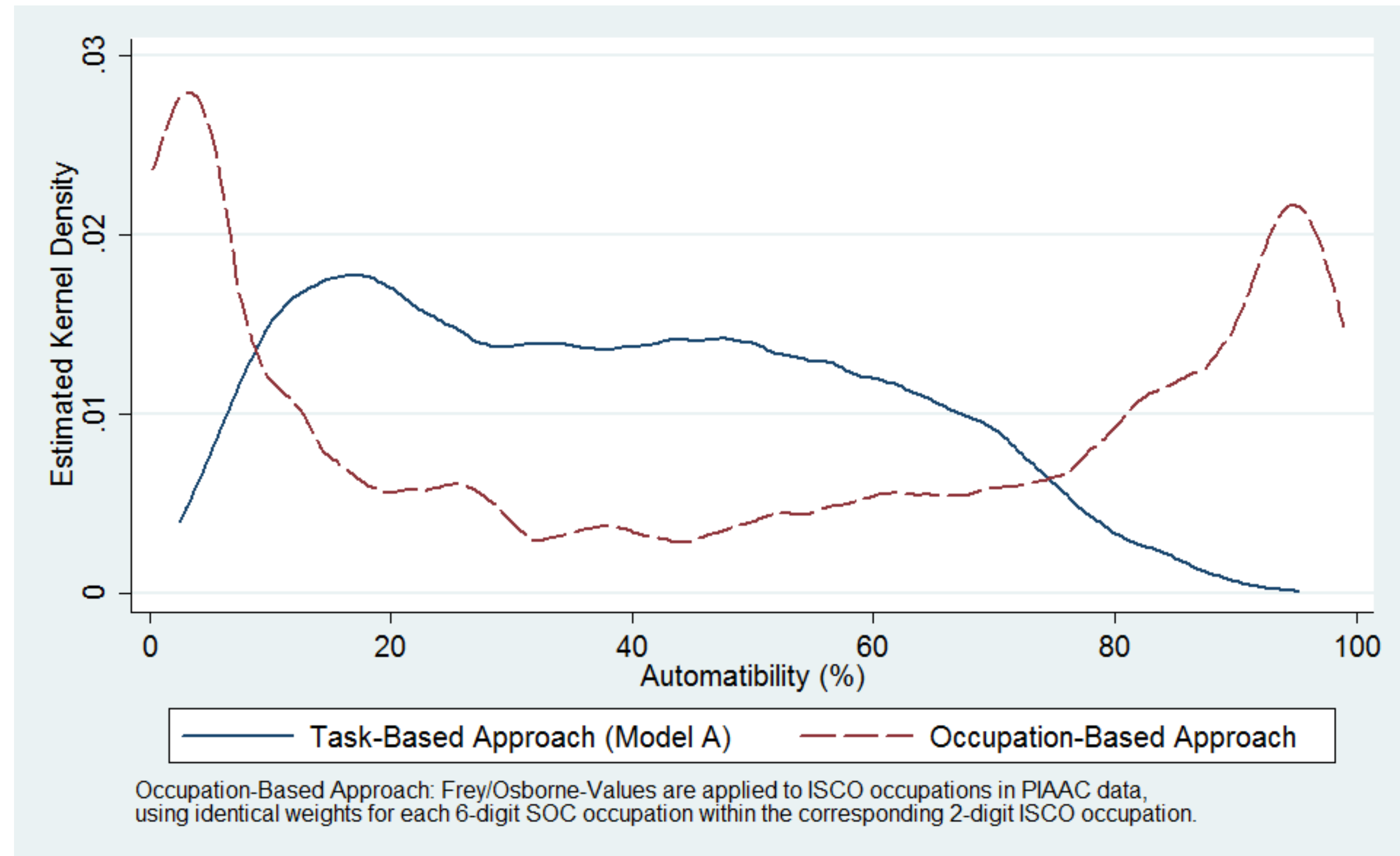
•Maker Culture

•Blended Learning

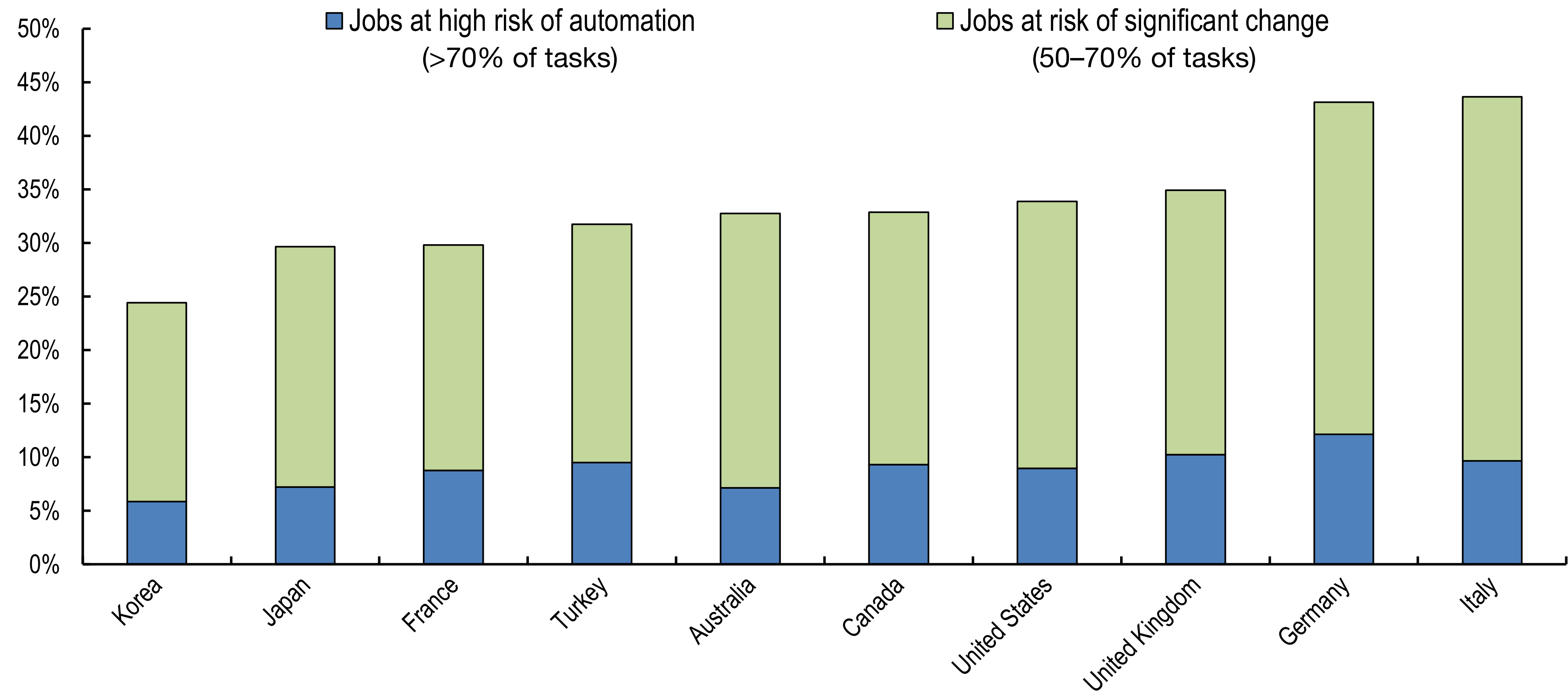
•Active Learning Design



# Distribution of Automatability in the US (Task-Based vs. Occupation-Based Approach)



# Advanced G20 Countries: Jobs at High Risk of Automation





COMMITTED TO  
IMPROVING THE STATE  
OF THE WORLD

Insight Report

# Towards a Reskilling Revolution

## A Future of Jobs for All

In collaboration with The Boston Consulting Group

January 2018



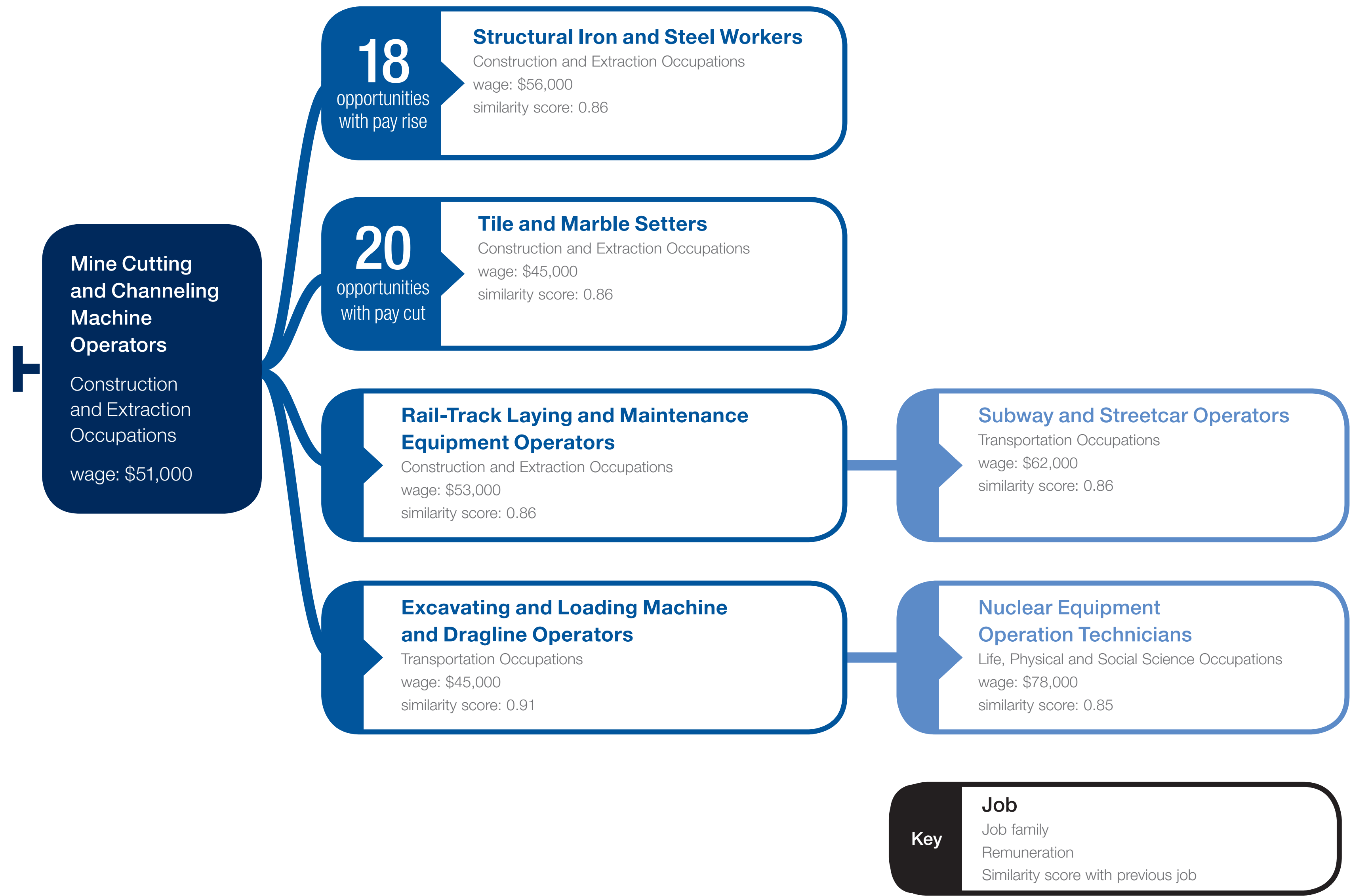


Figure 1: Job transition matrix between 958 jobs in the United States



Source data: Burning Glass Technologies and US Bureau of Labor Statistics.

Figure B15: Examples of Pathways for Mine Cutting and Channeling Machine Operators



Source data: Burning Glass Technologies and US Bureau of Labor Statistics.

“*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)**



Substitution

Augmentation

Modification

Redefinition

EdTech Quintet

Shared Practices



TPCK



21C Learning Framework

Refraction

Conversational Framework

Communities of Practice

Personal Learning Networks

Dynamic Learning Structures

## Transformation

### **Redefinition**

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

### **Modification**

*Tech allows for significant task redesign*

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### **Augmentation**

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

### **Substitution**

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

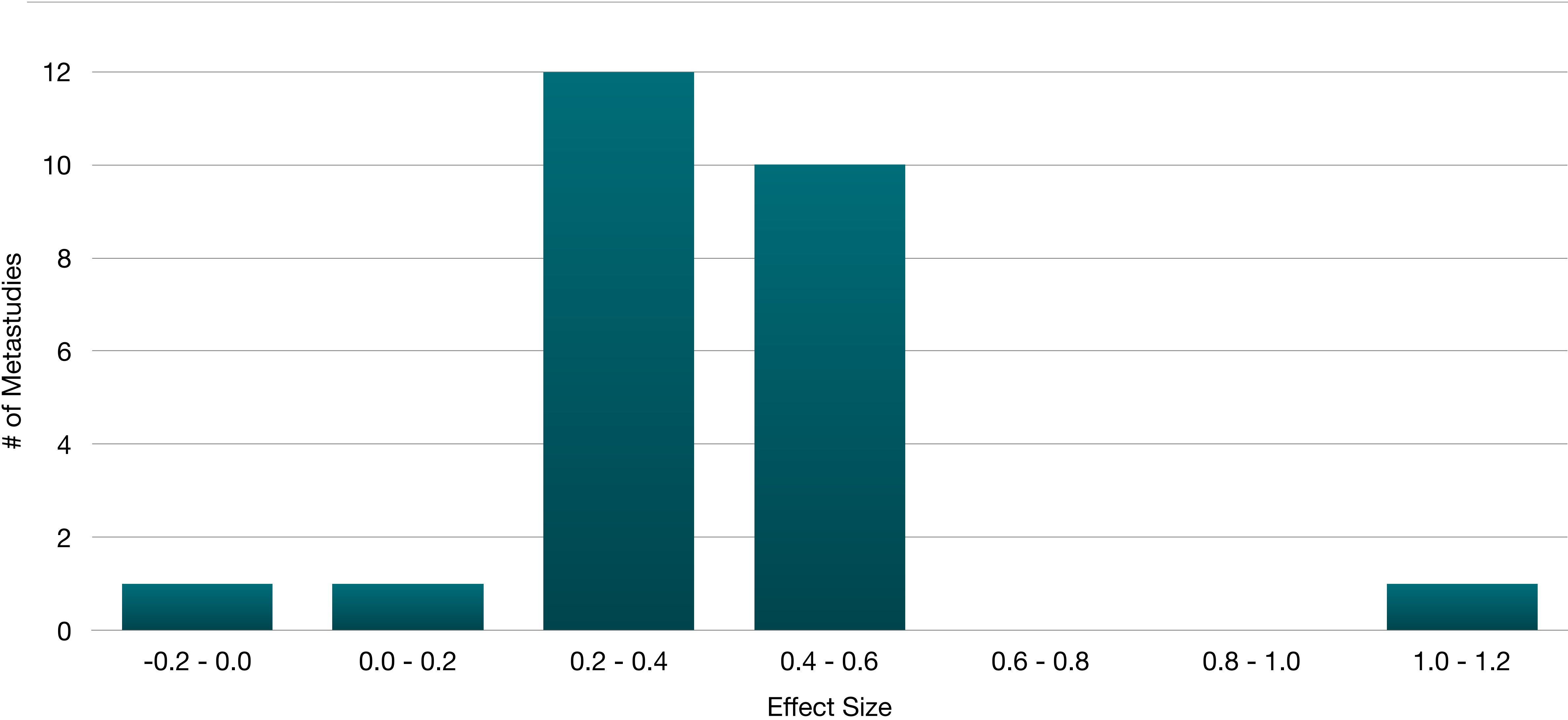
## Enhancement



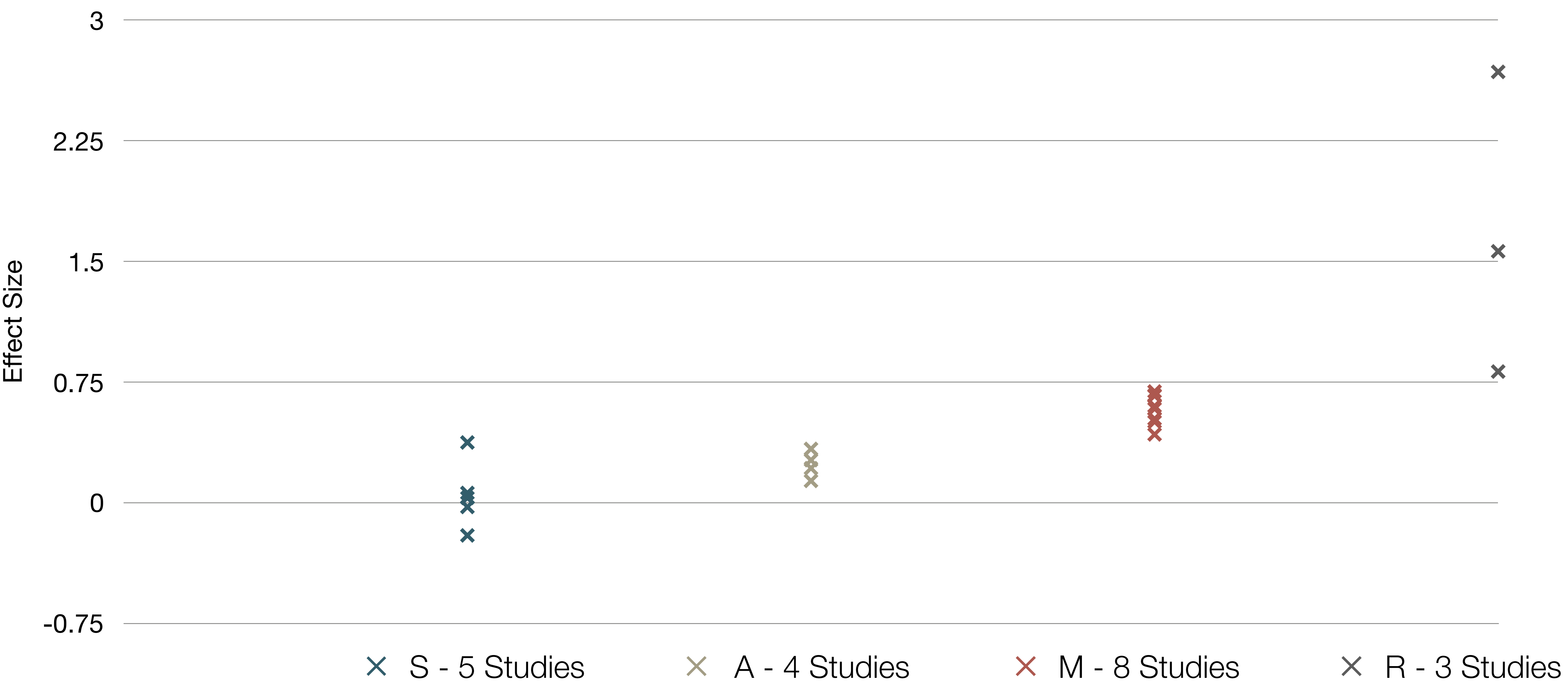
| Social   | Mobility  | Visualization  | Storytelling   | Gaming   |
|--|---|--|--|--|
| 200,000 years  | 70,000 years  | 40,000 years   | 17,000 years   | 8,000 years  |
|  |  |  |  |  |



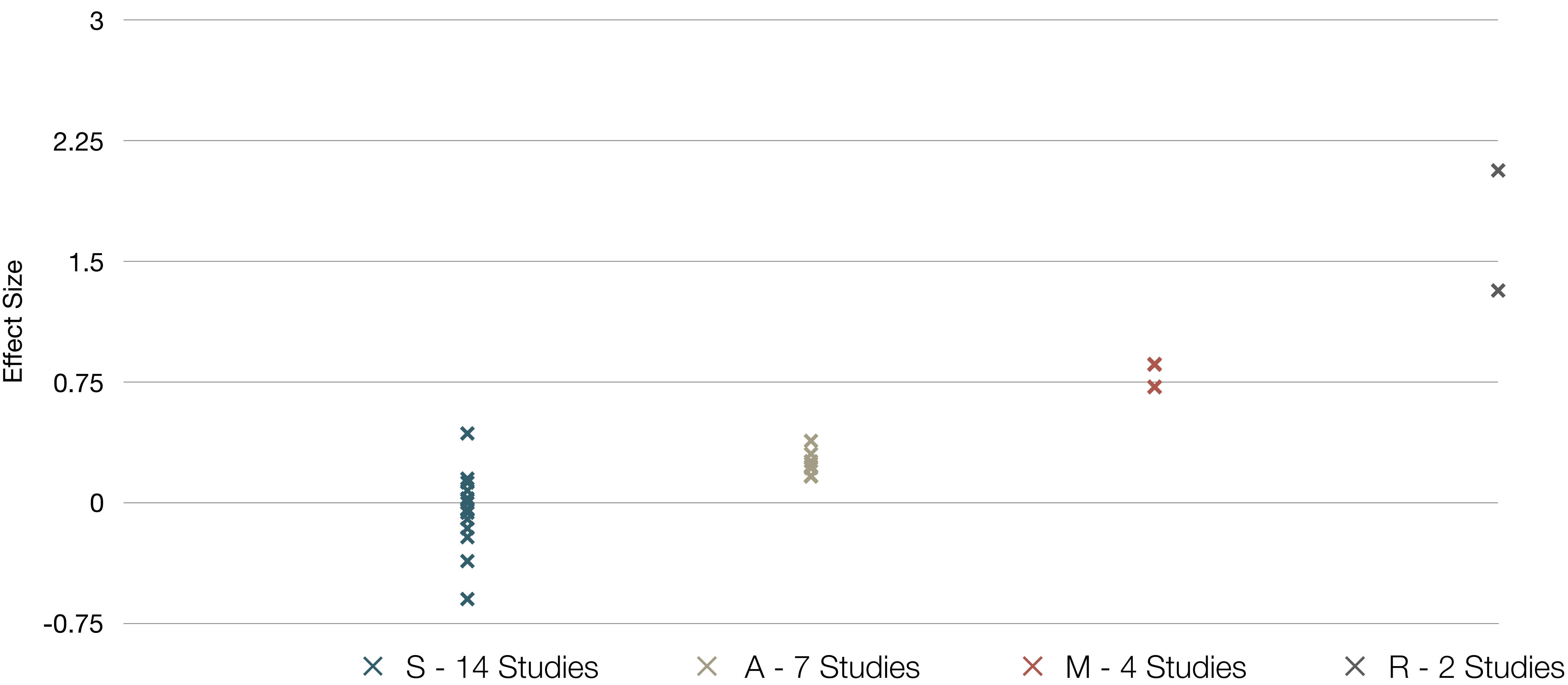
# The Research: 1,097 Studies, 25 Metastudies, 19 Years



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



# SAMR and the Use of Tablets in Education





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

## Redefinition

*Tech allows for the creation of new tasks,  
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## Modification

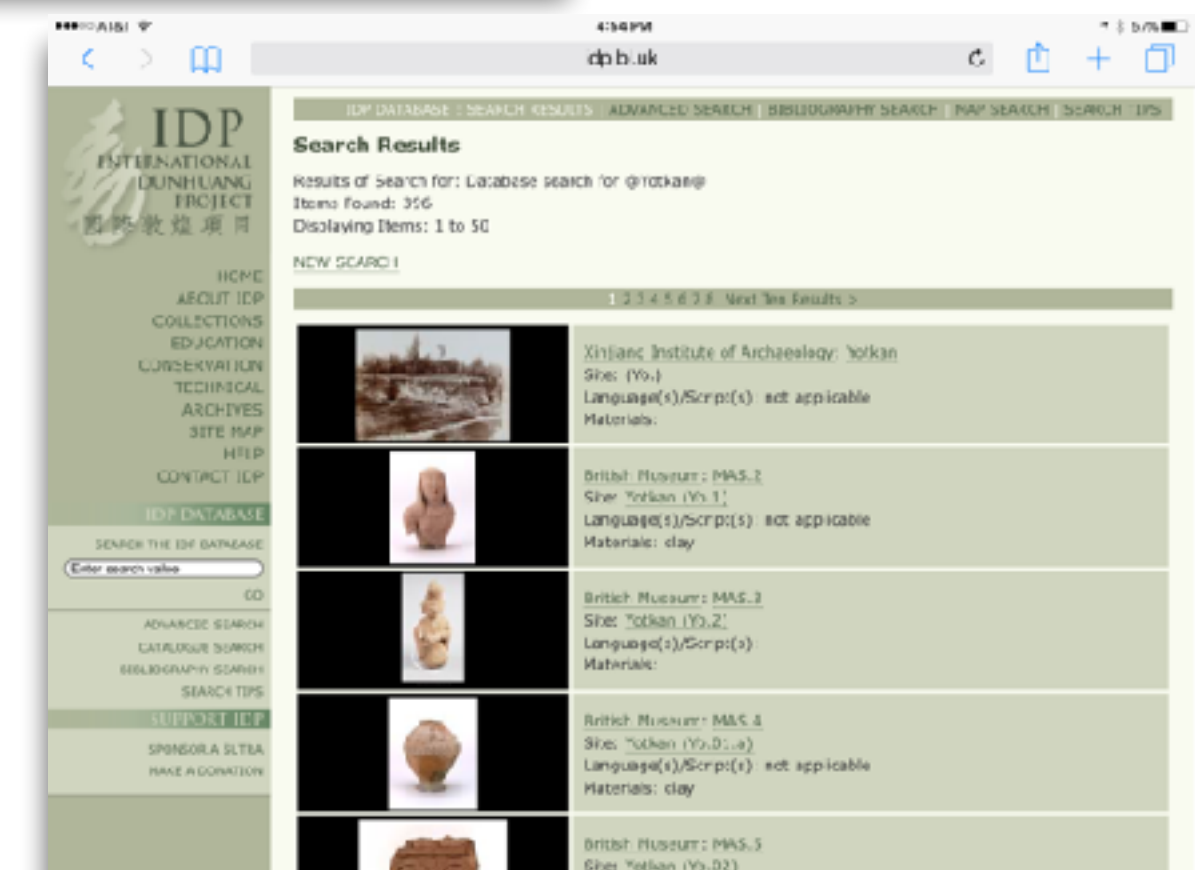
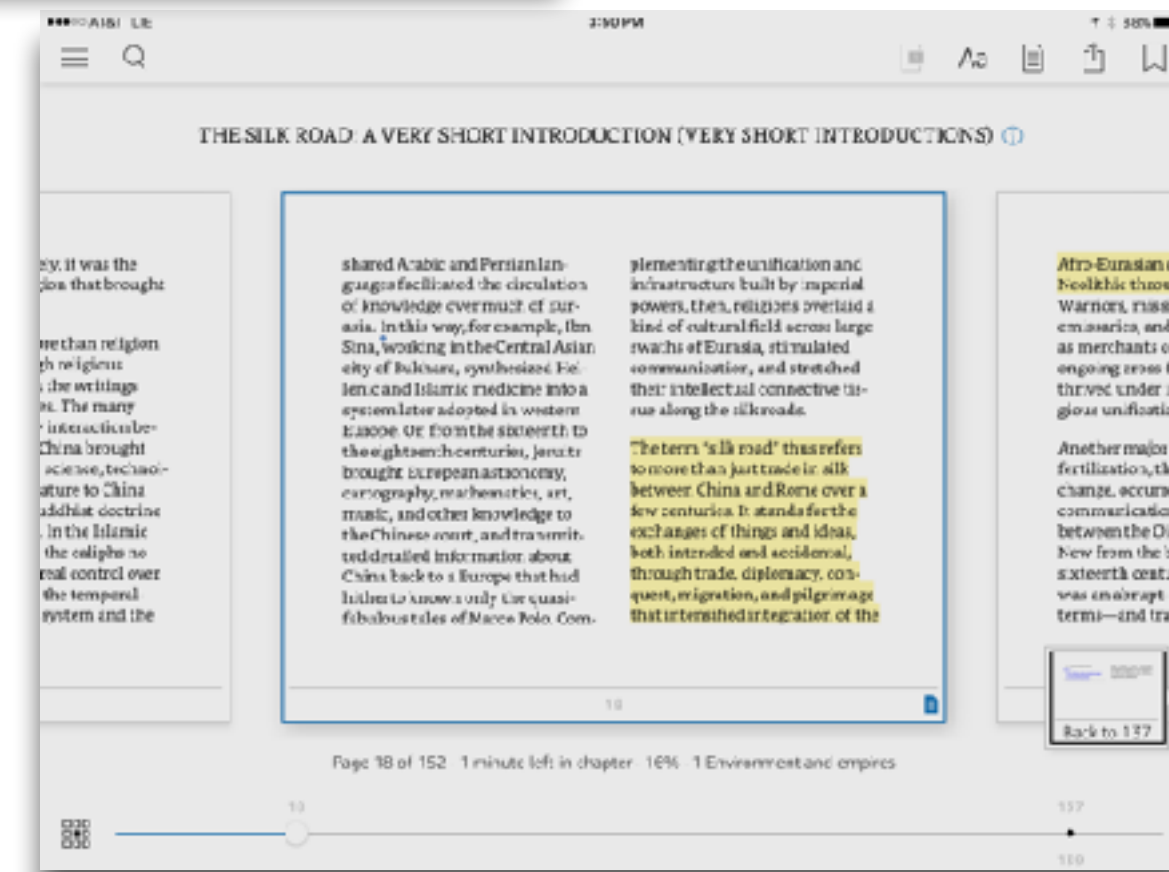
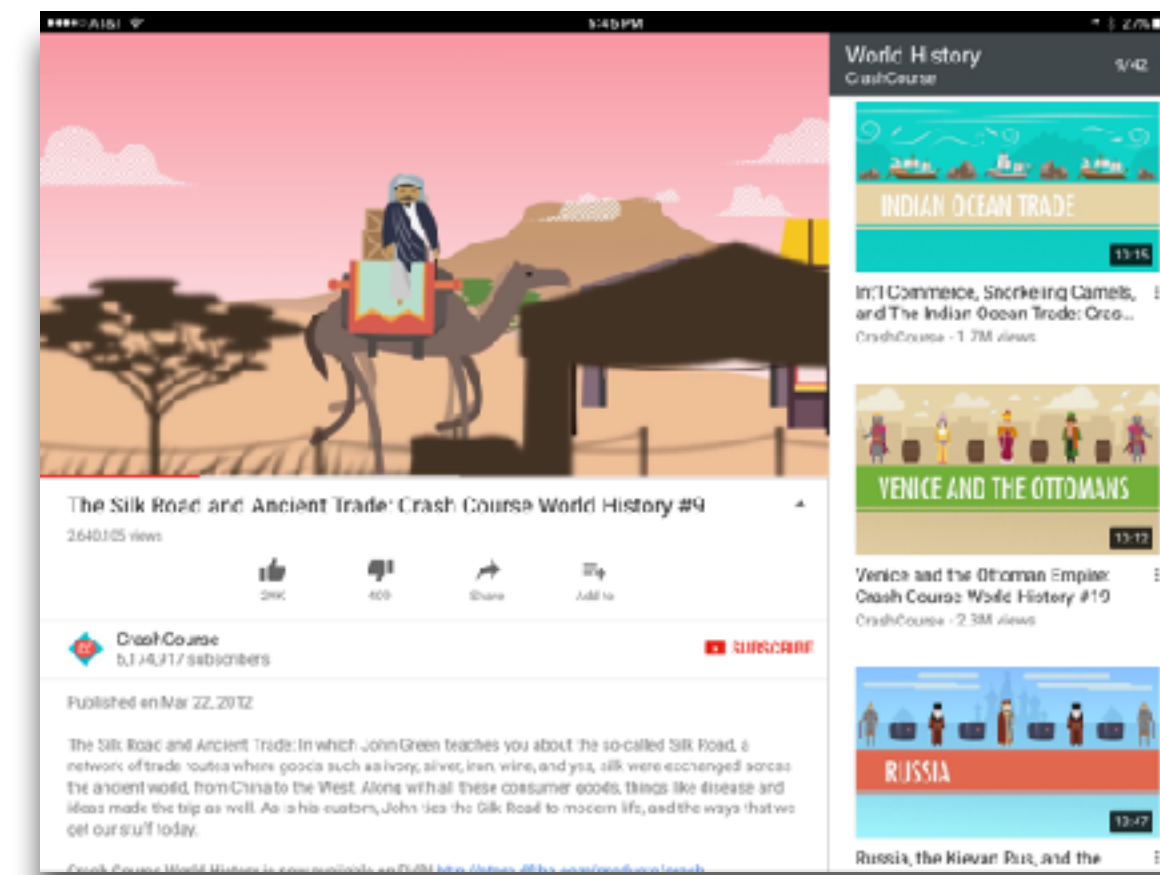
*Tech allows for significant task redesign*

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## Redefinition

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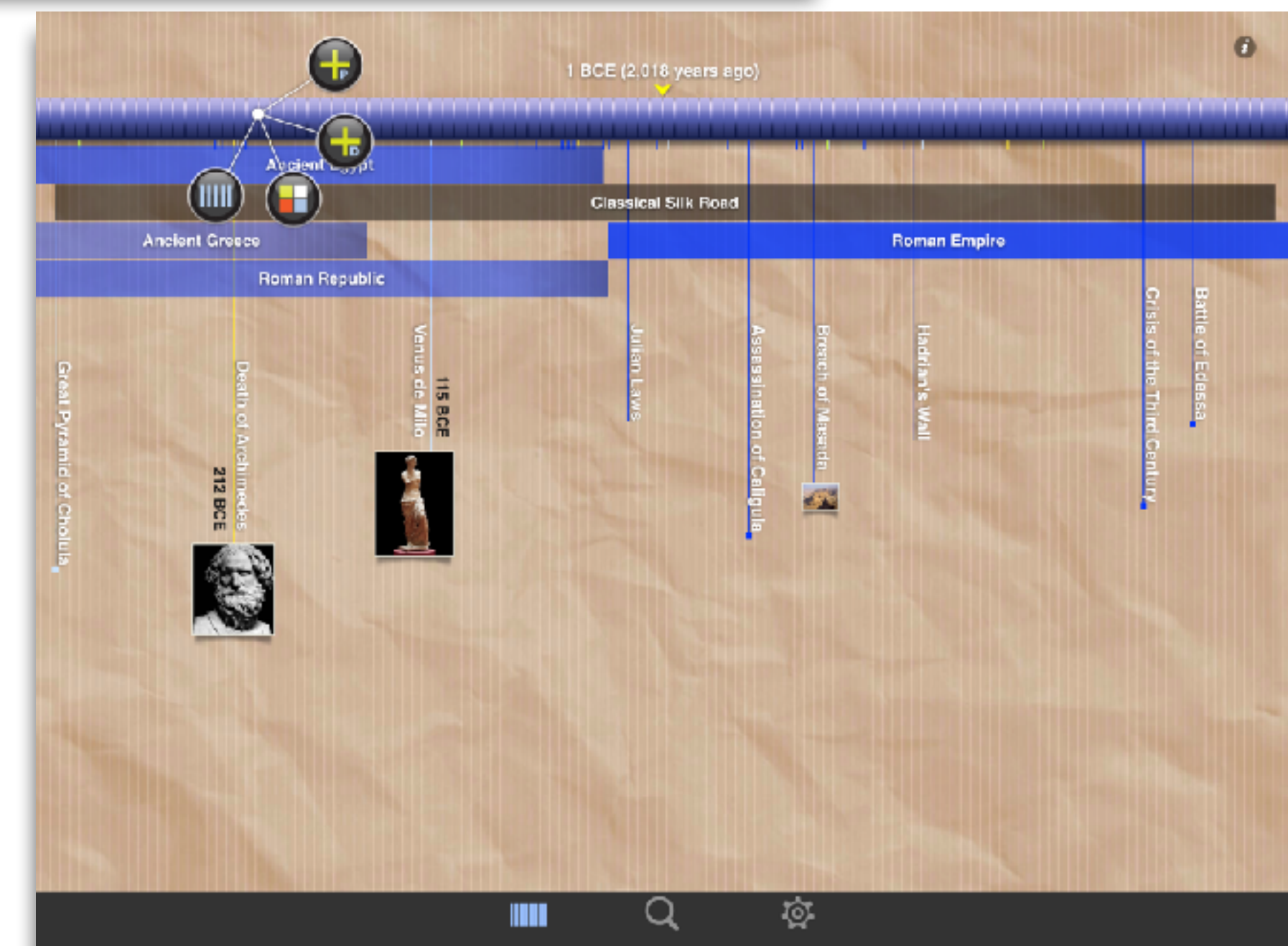
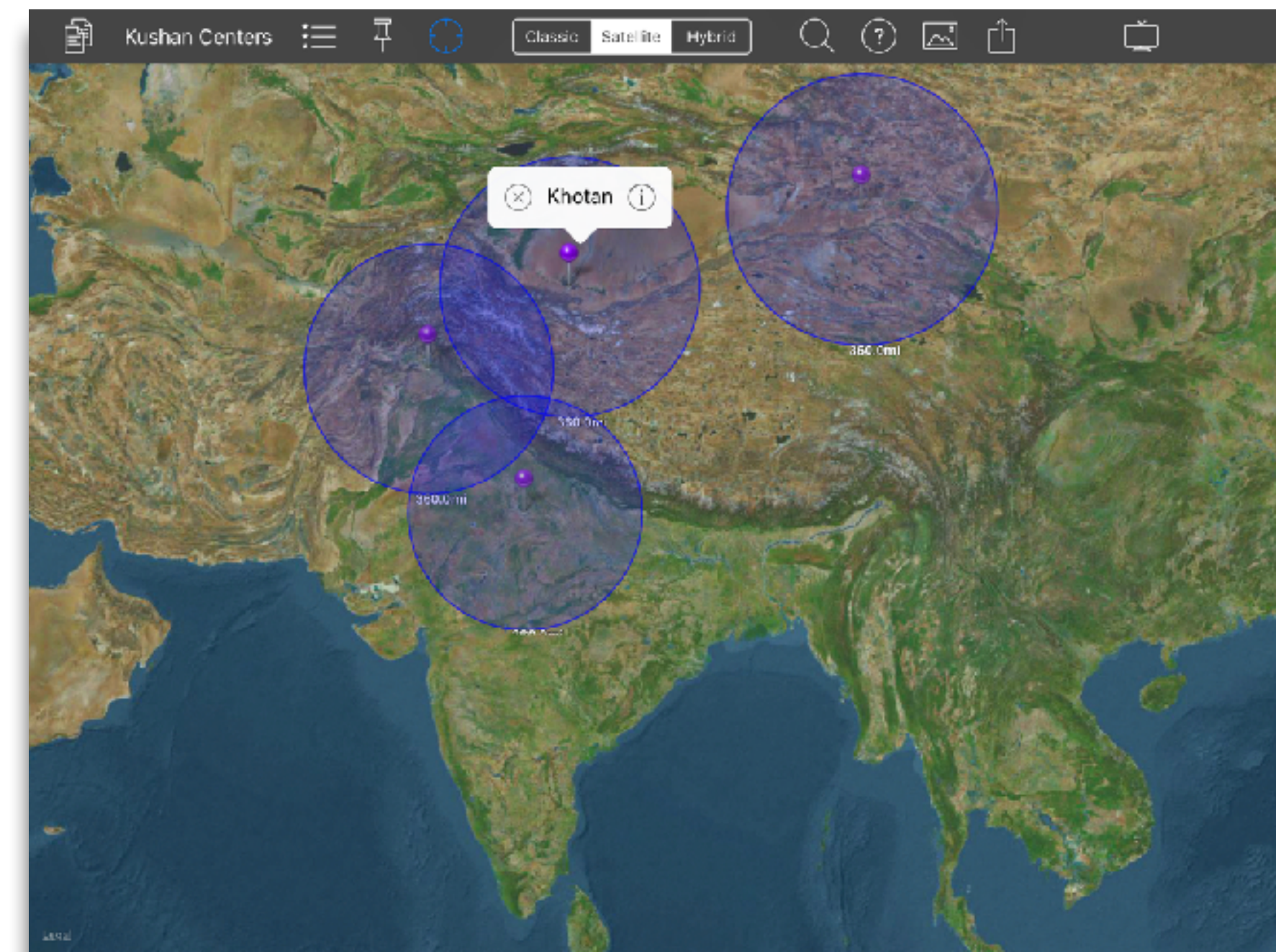
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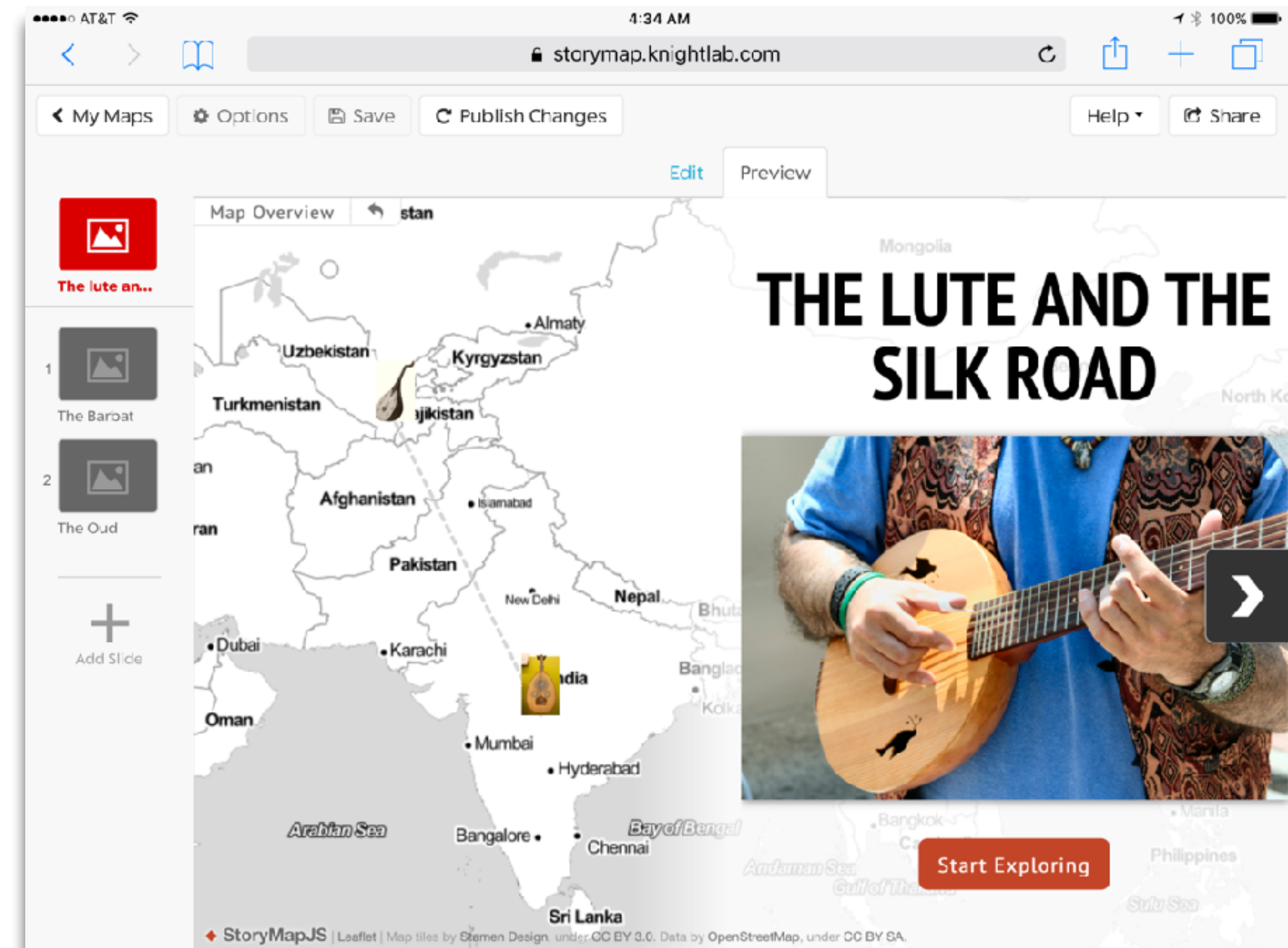
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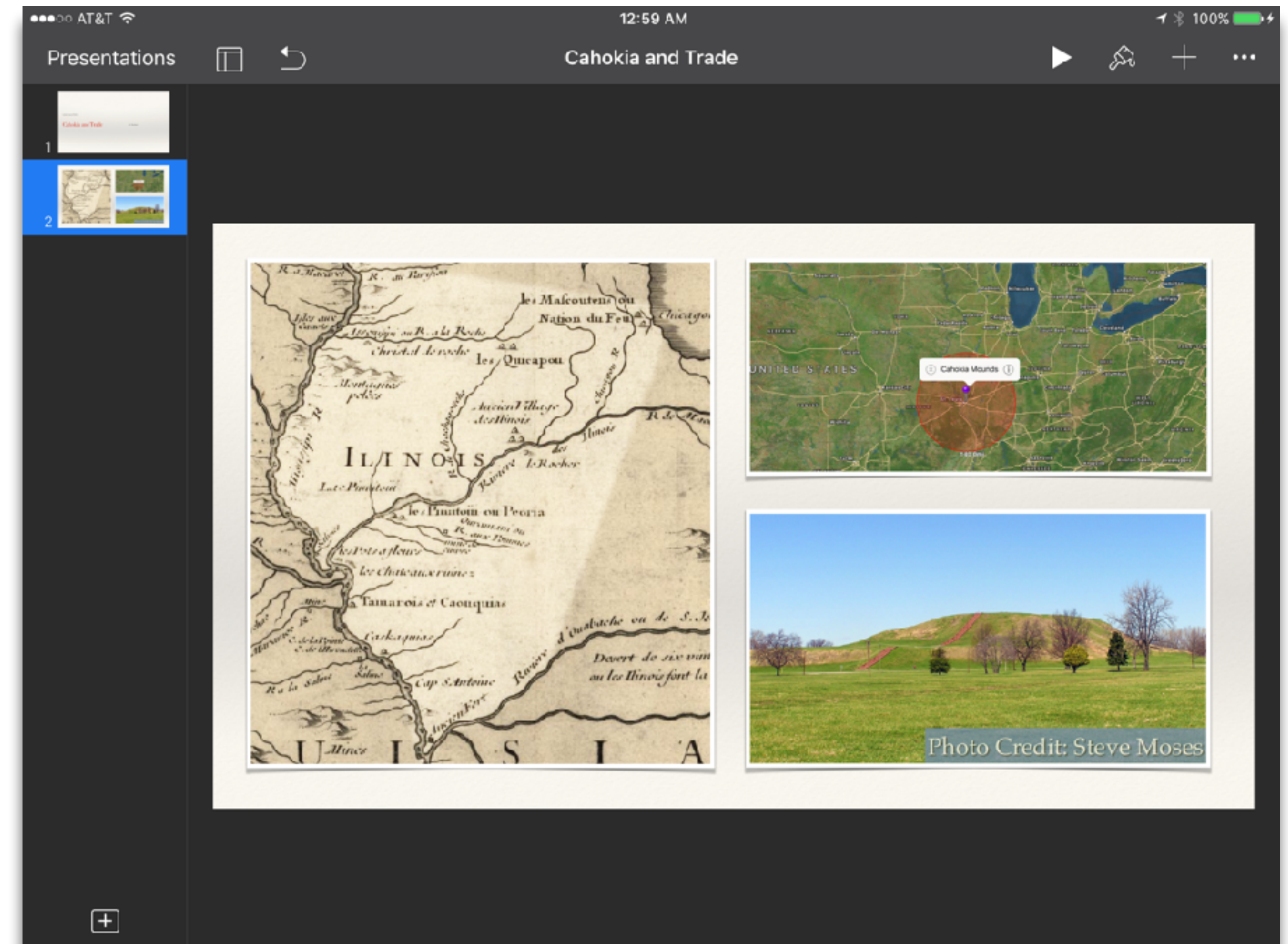
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# Communities of Practice and Personal Learning Networks

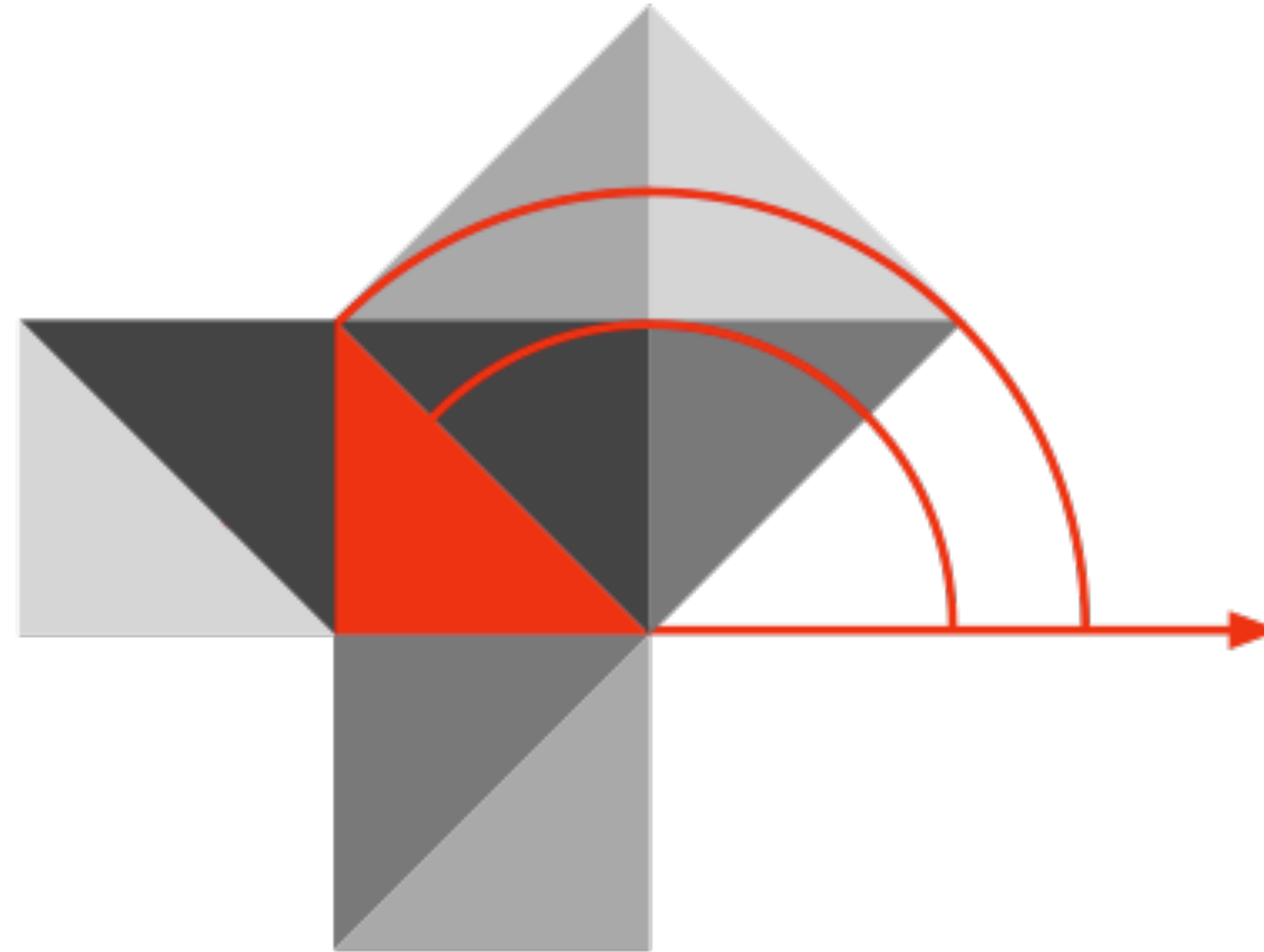
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- Internally: *School as Community of Practice*
  - A **domain** of shared interest, commitment, and competence;
  - A **community** where joint activities, discussions, information sharing, and help processes are focused around and by the domain;
  - A **practice** with a shared repertoire of resources, such as experiences, stories, tools, and problem-solving approaches.
- Externally: *Individual Personal Learning Networks*
  - Loosely structured around a range of tools, individually chosen - no two PLNs are the same;
  - Usually online, but may involve face-to-face components (e.g. meetups);
  - Resources may range from professional society websites, to educator blogs, to Facebook groups, to Twitter feeds;
  - Involvement may range from primarily reading sources, to participating in discussions, to authoring new materials.



# Hippasus

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Twitter: @rubenrp

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