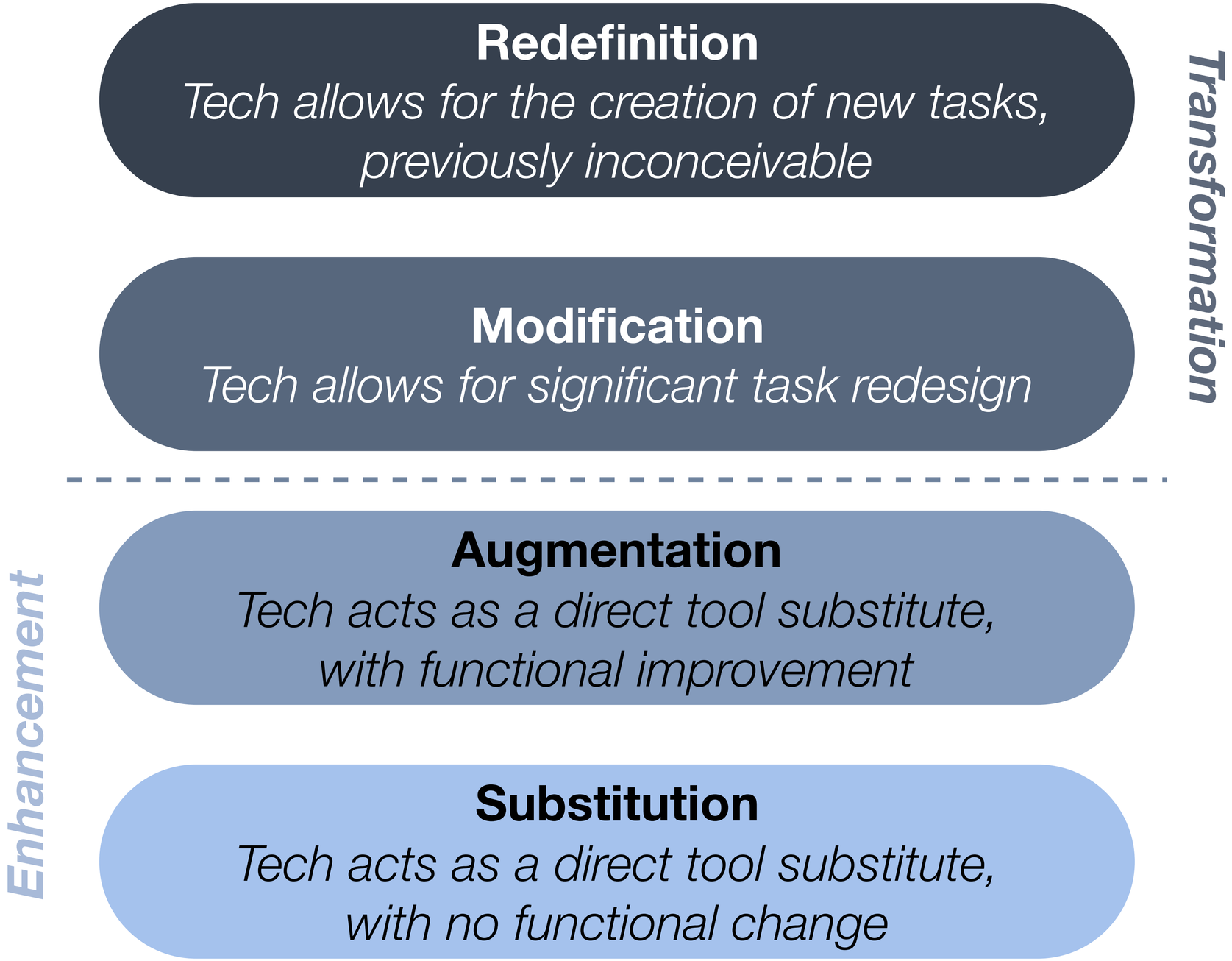
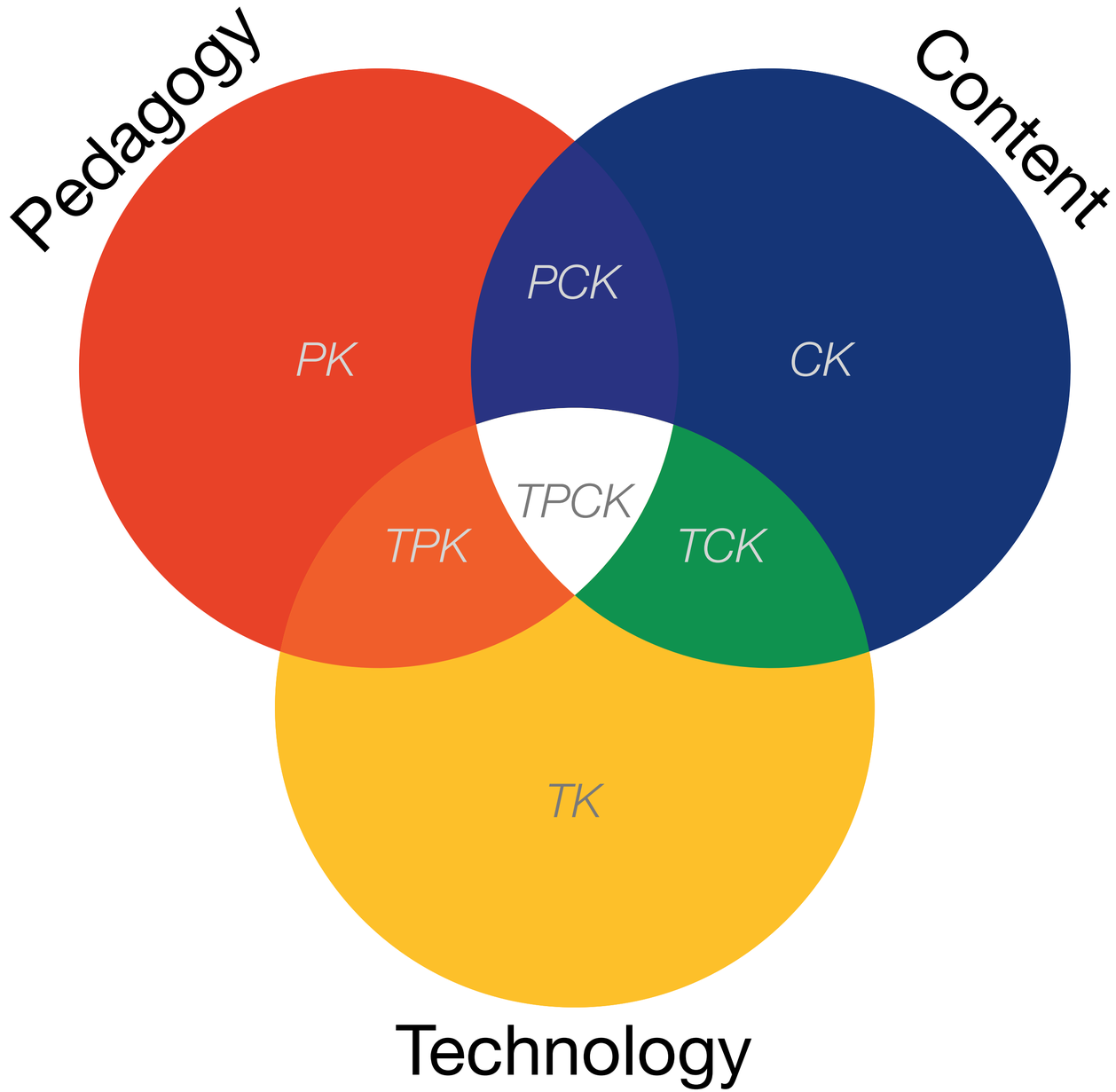
Technology Use for Active Learning

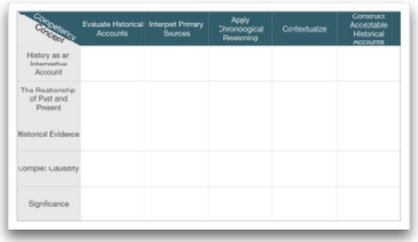
Ruben R. Puentedura, Ph.D.

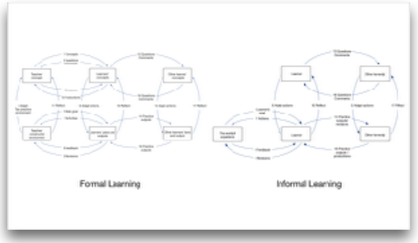


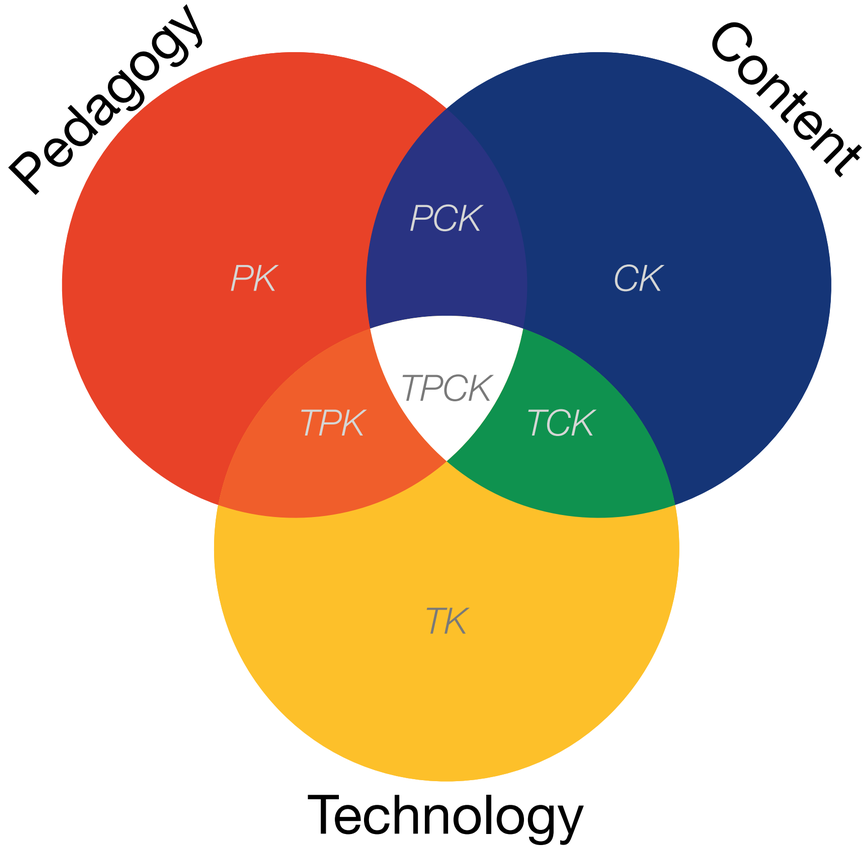
Ruben R. Puentedura, *As We May Teach: Educational Technology, From Theory Into Practice*. (2009)

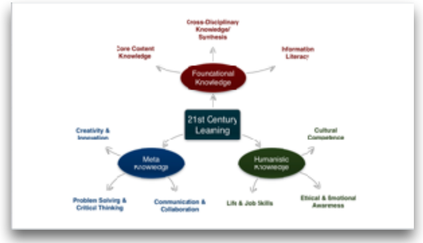


Punya Mishra & Matthew J. Koehler, “Technological pedagogical content knowledge: A framework for teacher knowledge”. *Teachers College Record, 108*(6). (2006)

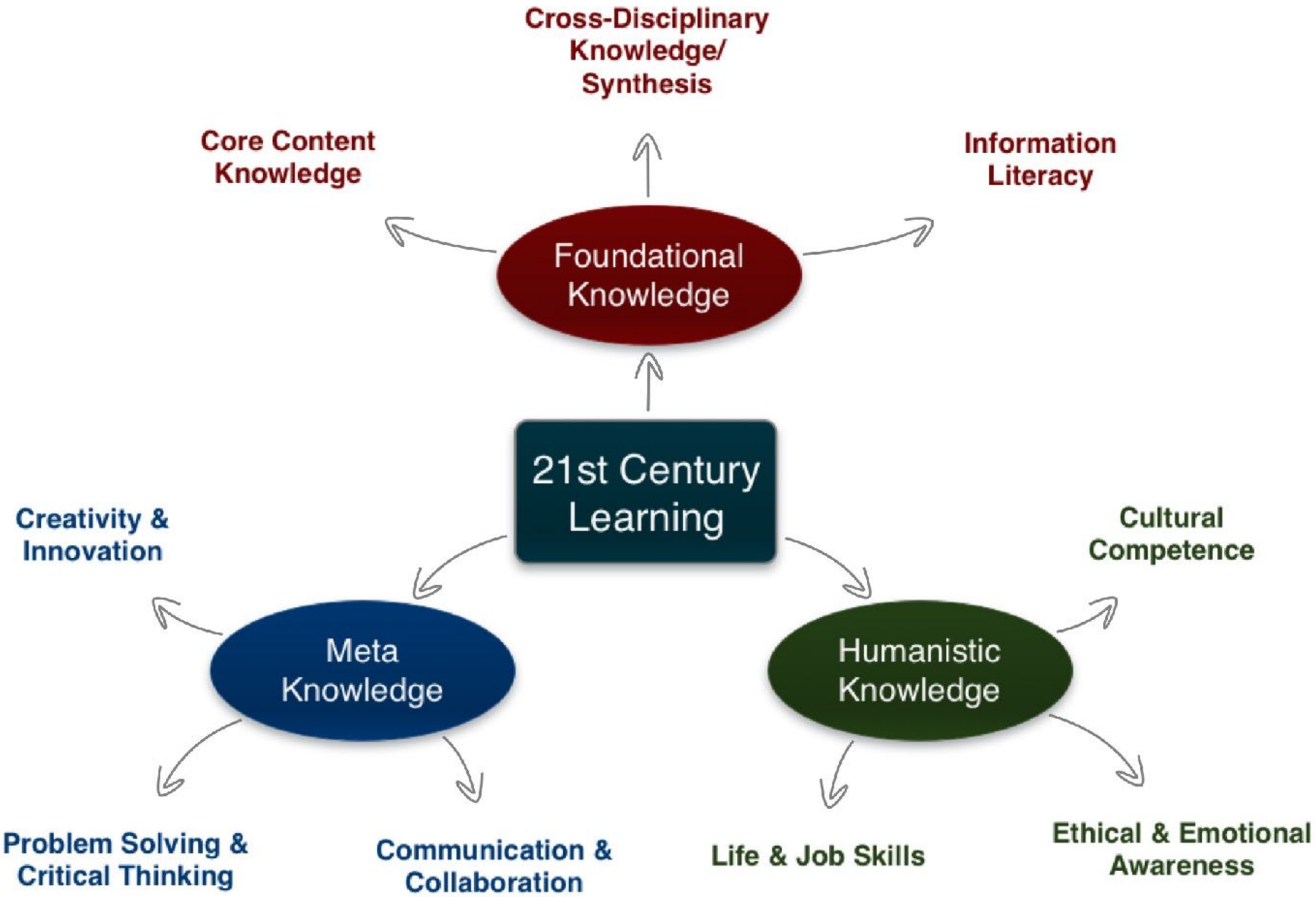

Concepts
Evaluate Historical Accounts
Interpret Primary Sources
Apply Chronological Reasoning
Contextualize
Construct Acceptable Historical Accounts
History as an Interpretive Account
The Relationship of Past and Present
Historical Evidence
Complex Causality
Significance


Formal Learning
Informal Learning


Pedagogy
Content
Technology
PK
PCK
CK
TPK
TPCK
TCK
TK

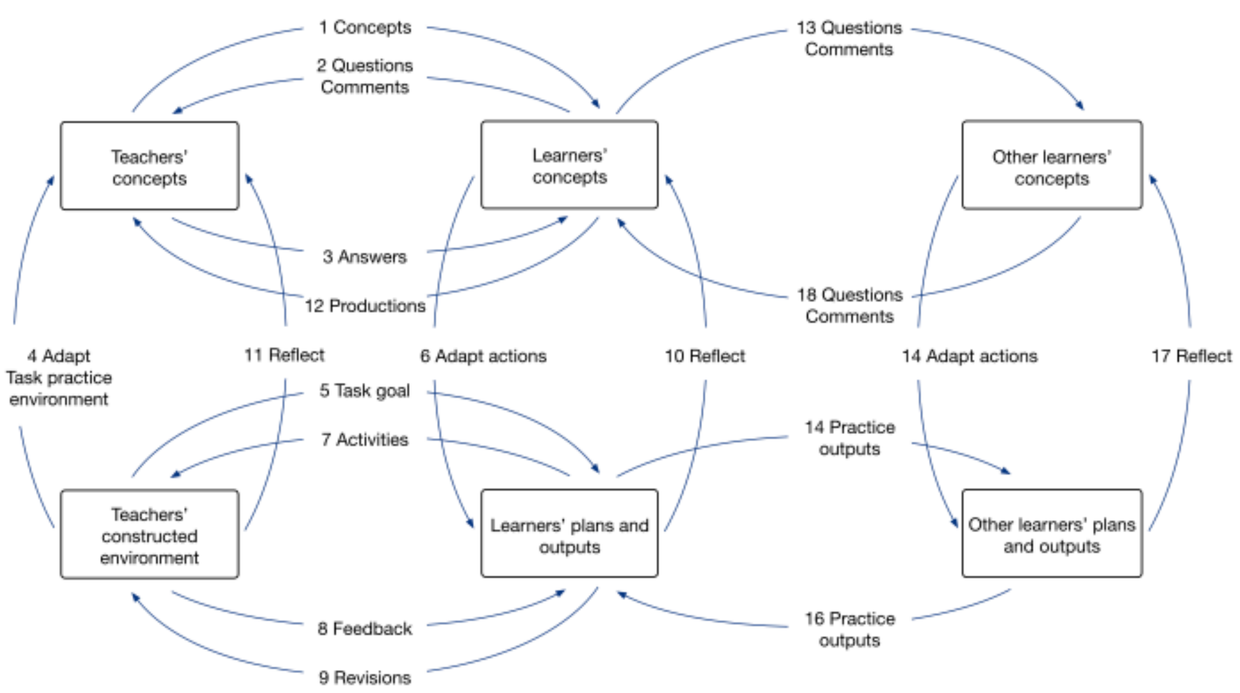

Cross-Disciplinary Knowledge/ Synthesis
Core Content Knowledge
Information Literacy
Foundational Knowledge
21st Century Learning
Creativity & Innovation
Cultural Competence
Meta-Knowledge
Humanistic Knowledge
Problem Solving & Critical Thinking
Communication & Collaboration
Life & Job Skills
Ethical & Emotional Awareness


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

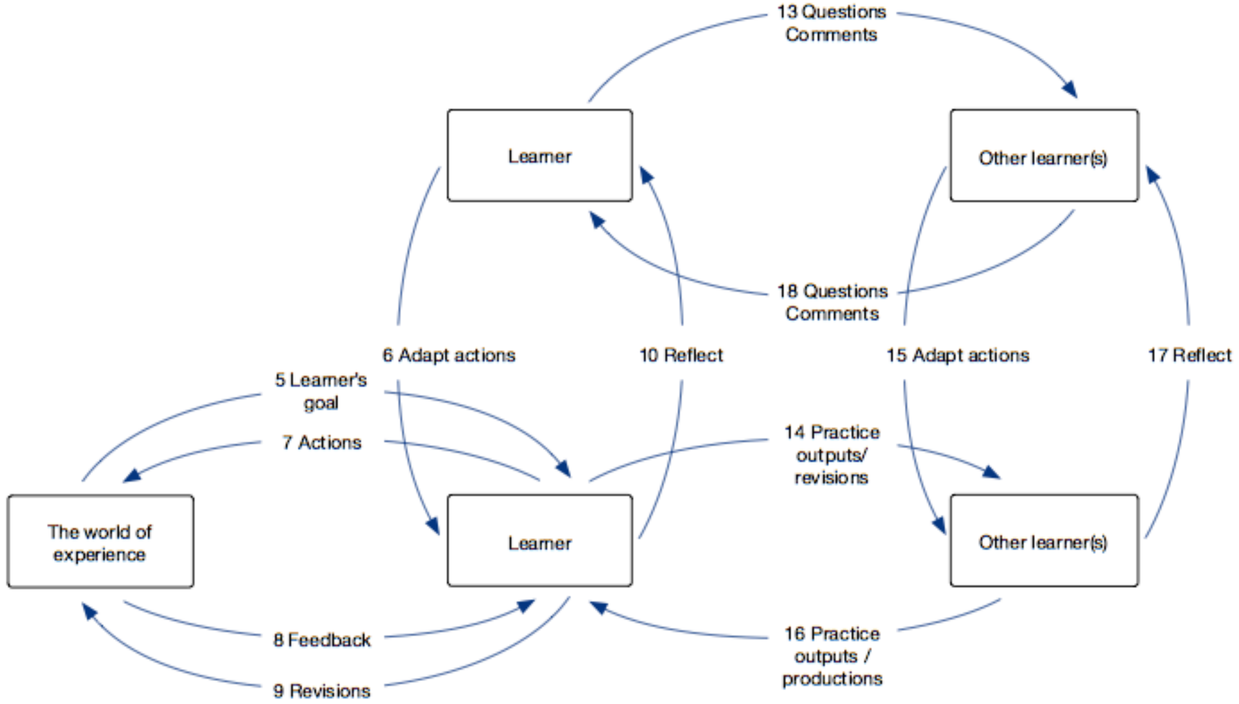


Kristen Kereluik, Punya Mishra, Chris Fahnoe, and Laura Terry, "What Knowledge Is of Most Worth: Teacher Knowledge for 21st Century Learning". *Journal of Digital Learning in Teacher Education (29)* 4 (2013)

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					



Formal Learning



Informal Learning

Diana Laurillard, “Pedagogical forms of mobile learning: framing research questions.” In N. Pachler (Ed.), *Mobile learning: Towards a research agenda*. (2007)

Communities of Practice and Personal Learning Networks

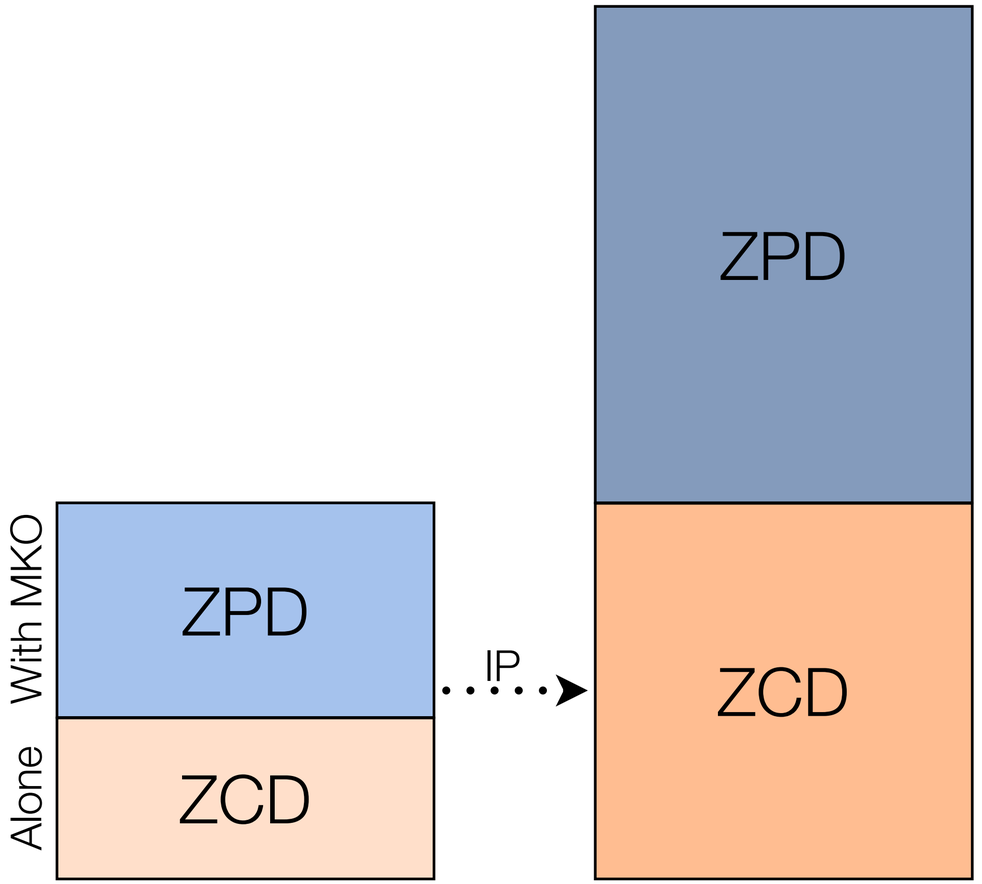
- Internally: *School as Community of Practice*
  - A **domain** of shared interest, commitment, and competence;
  - A **community** where joint activities, discussions, information sharing, and help processes are focused around and by the domain;
  - A **practice** with a shared repertoire of resources, 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 websites, to blogs, to Facebook groups, to Twitter feeds;
  - Involvement may range from primarily reading sources, to participating in discussions, to authoring new materials.

Etienne and Beverly Wenger-Trayner. *Introduction to communities of practice: A brief overview of the concept and its uses*. (2015) Online at: http://wenger-trayner.com/introduction-to-communities-of-practice/

Will Richardson and Rob Mancabelli. *Personal Learning Networks: Using the Power of Connections to Transform Education*. Solution Tree. (2012)

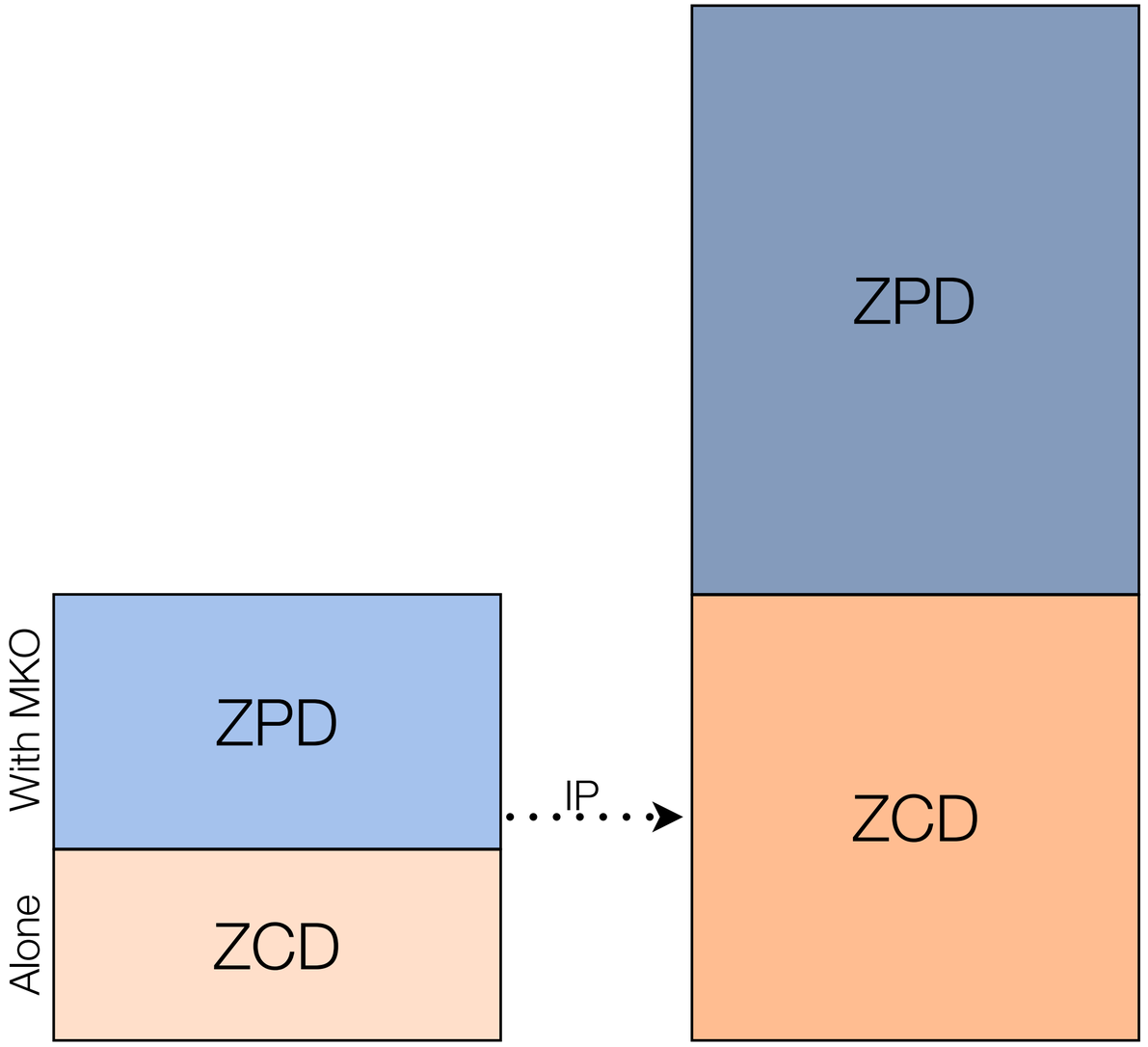
Social	Mobility	Visualization	Storytelling	Gaming
200,000 years	70,000 years	40,000 years	17,000 years	8,000 years

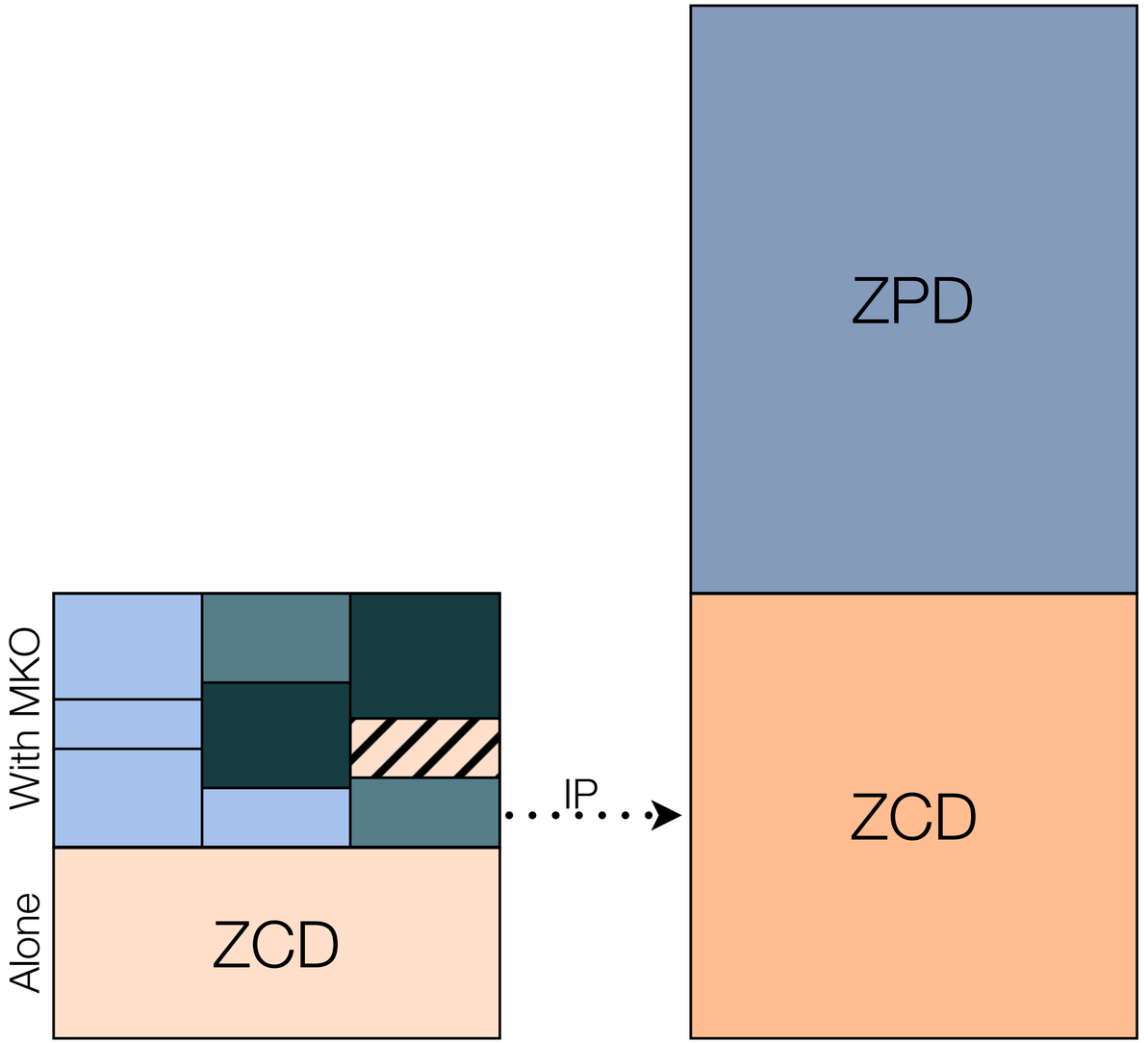
Ruben R. Puentedura, “Technology In Education: The First 200,000 Years” *The NMC Perspective Series: Ideas that Matter*. NMC Summer Conference, 2012.



- Zone of Proximal Development (ZPD):
  - Region between:
    - what a learner can accomplish independently (the Zone of Current Development, ZCD)
    - what they can accomplish with assistance from a "more knowledgeable other" (MKO)
- *"…what a child can do with assistance today she will be able to do by herself tomorrow."*
- This is an iterative process:
  - The ZCD and ZPD change over time;
  - Independent practice (IP) is required to close the loop.

Lev Vygotsky, *Mind in Society: The Development of Higher Psychological Processes*. Harvard University Press. (1978)


With MKO
ZPD
Alone
ZCD
IP
ZPD
ZCD

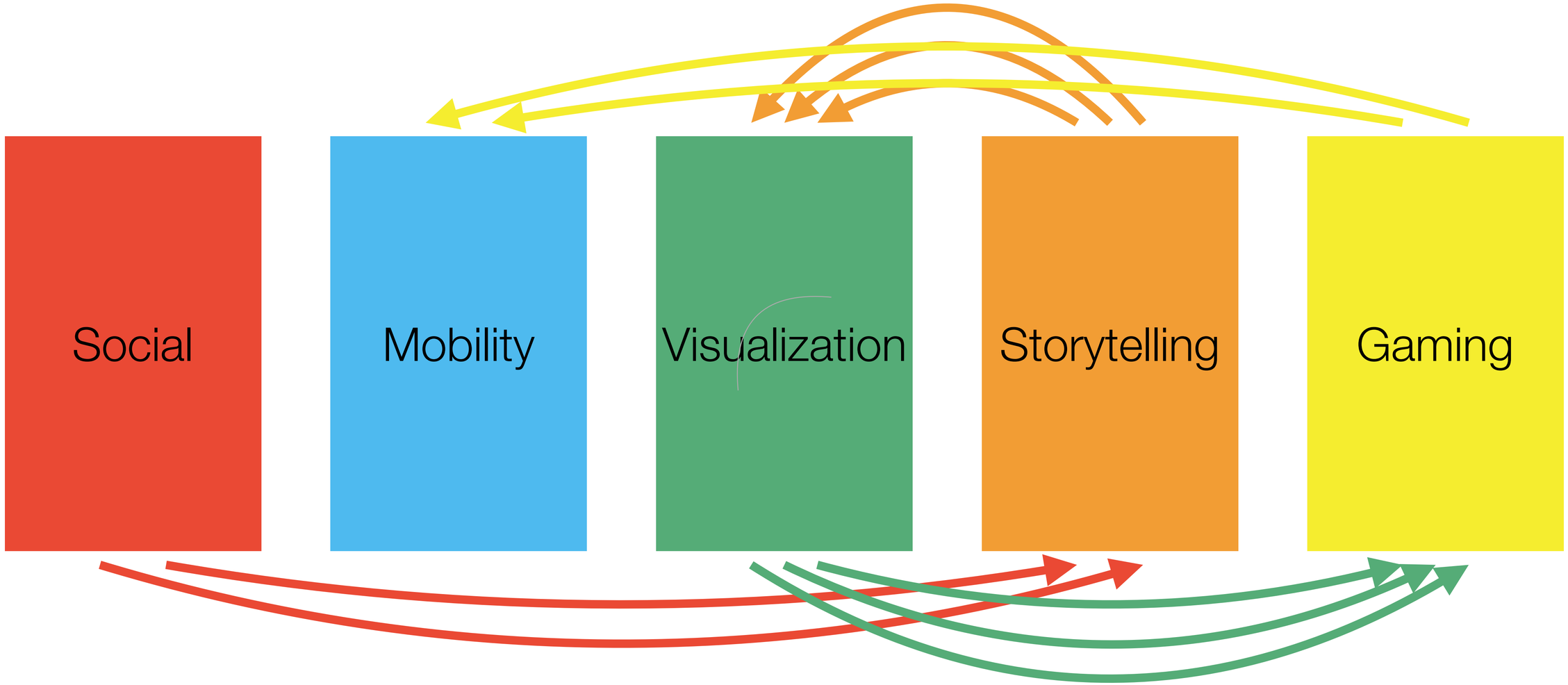


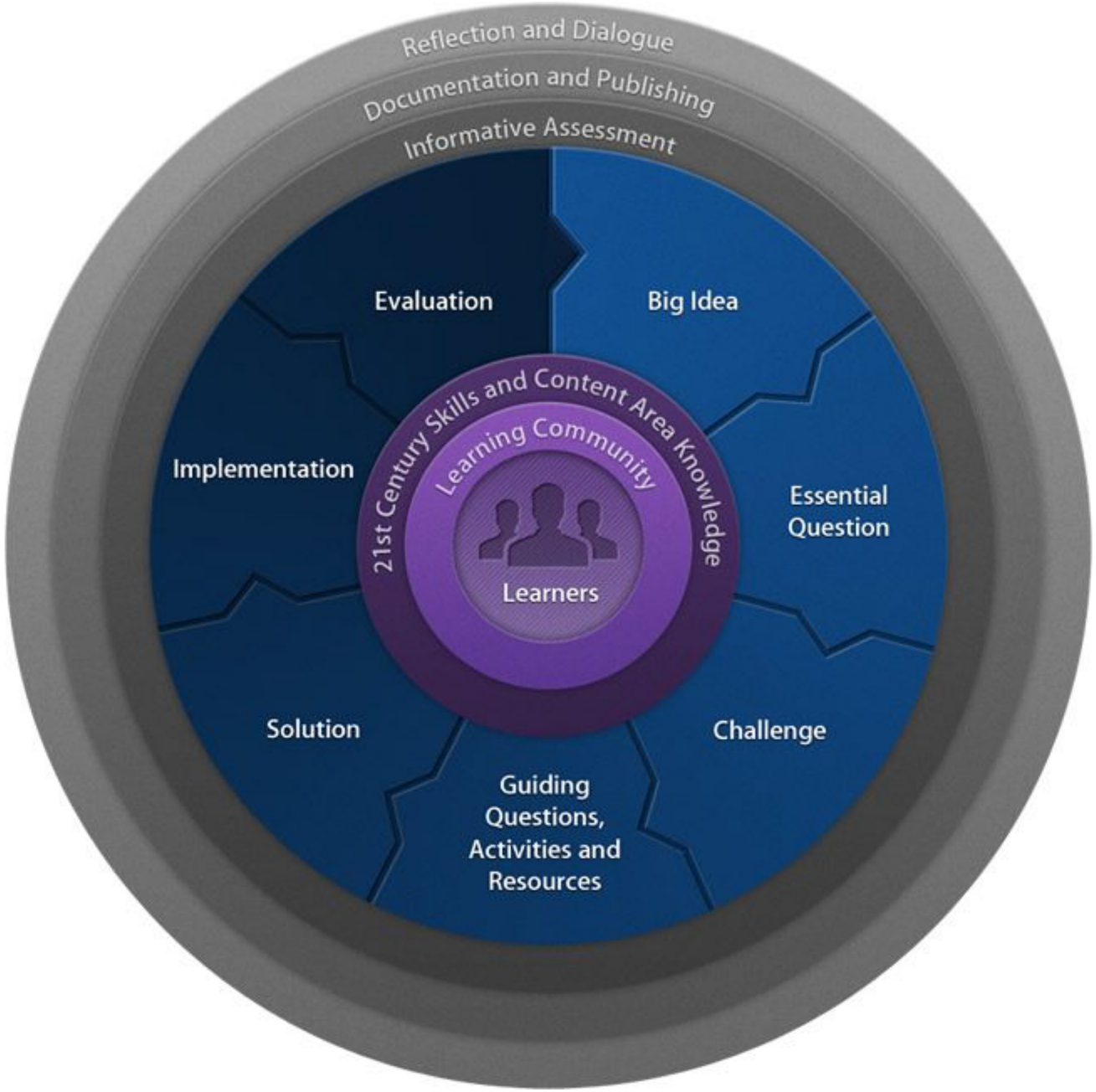
Galperin, P.Ia. “Stage by Stage formation as a method of psychological investigation”. *Journal of Russian and East European Psychology, 30*(4), 61-80 (1992)
Van Geert, Paul. "Vygotsky's dynamic systems." *Lev Vygotsky: Critical assessments* 4 (1997): 3-21.
Ann Pendleton-Julian and John Seely Brown. *Pragmatic Imagination: Single from Design Unbound* (2016).

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

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

Diversifying Practice: Weaving through the EdTech Quintet





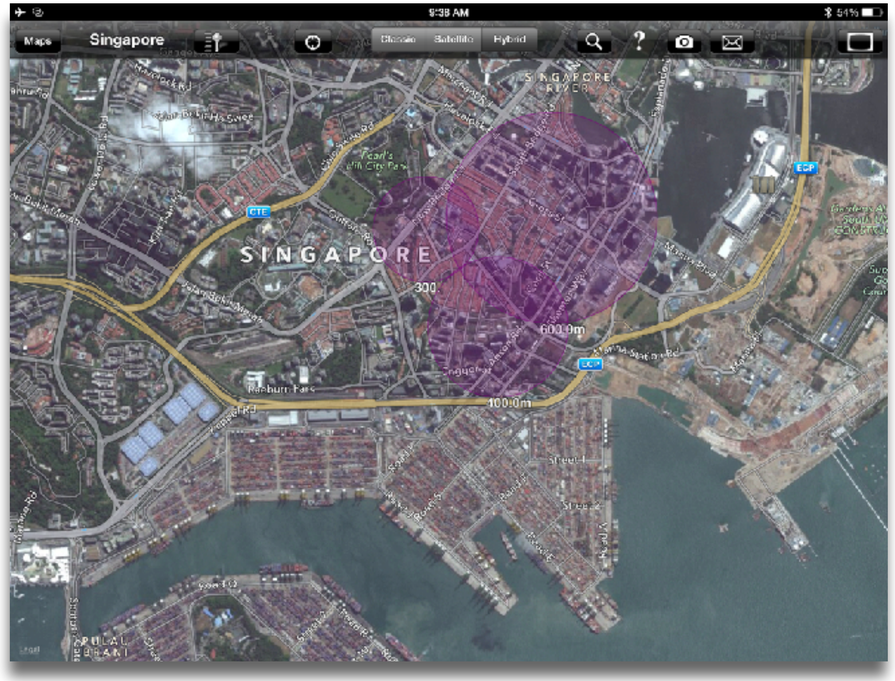
Challenge Based Learning (2011)

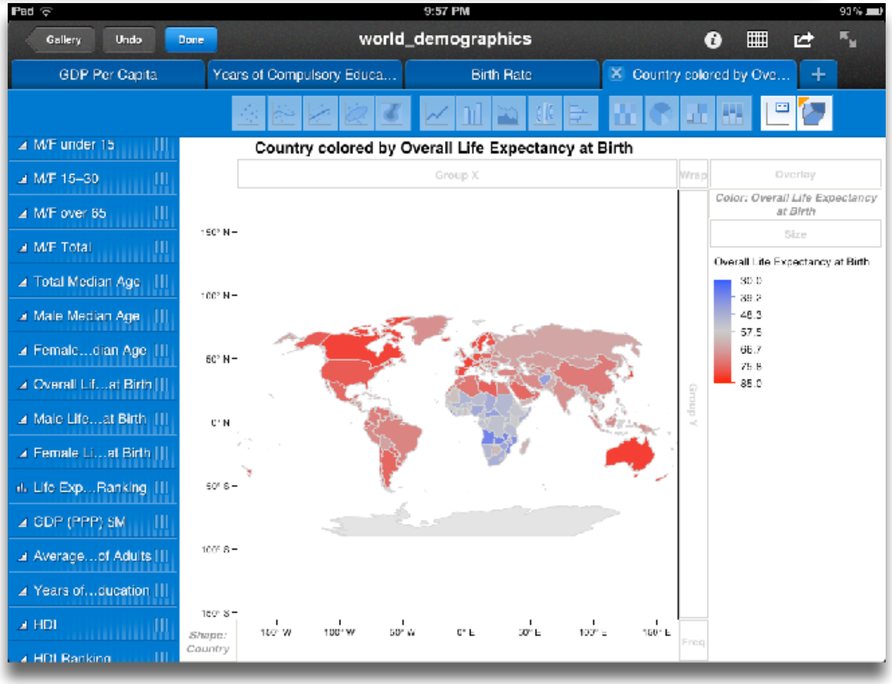
Redefinition
Tech allows for the creation of new tasks, previously inconceivable

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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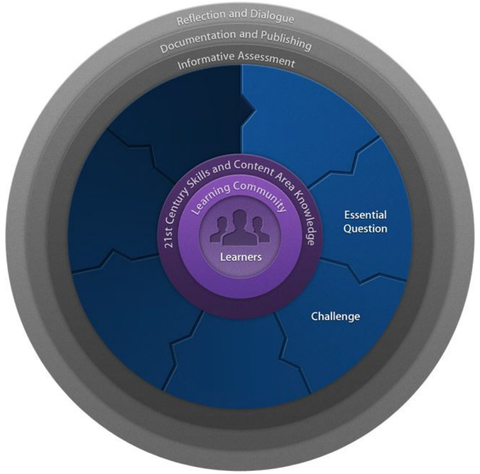

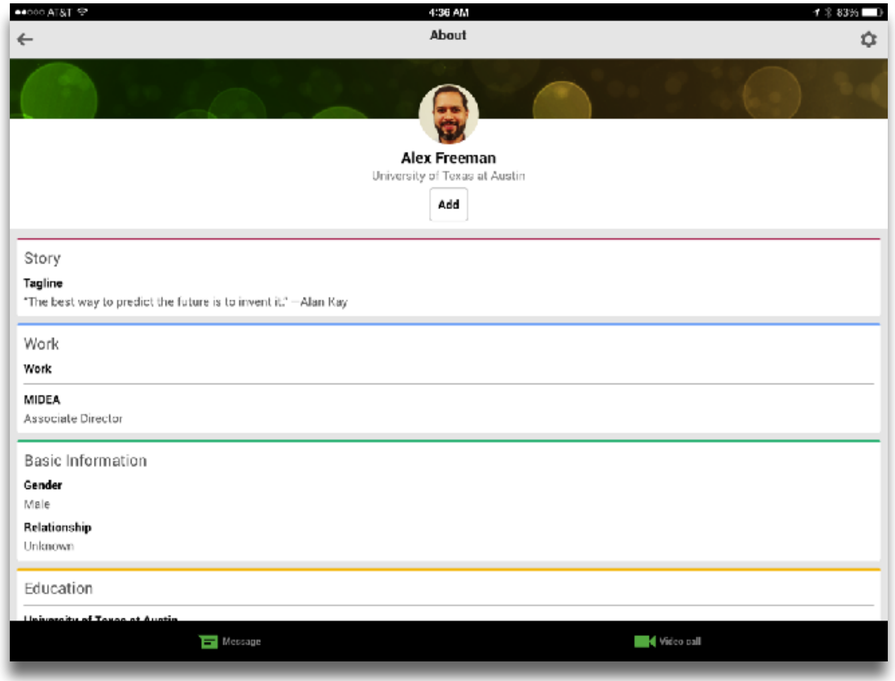

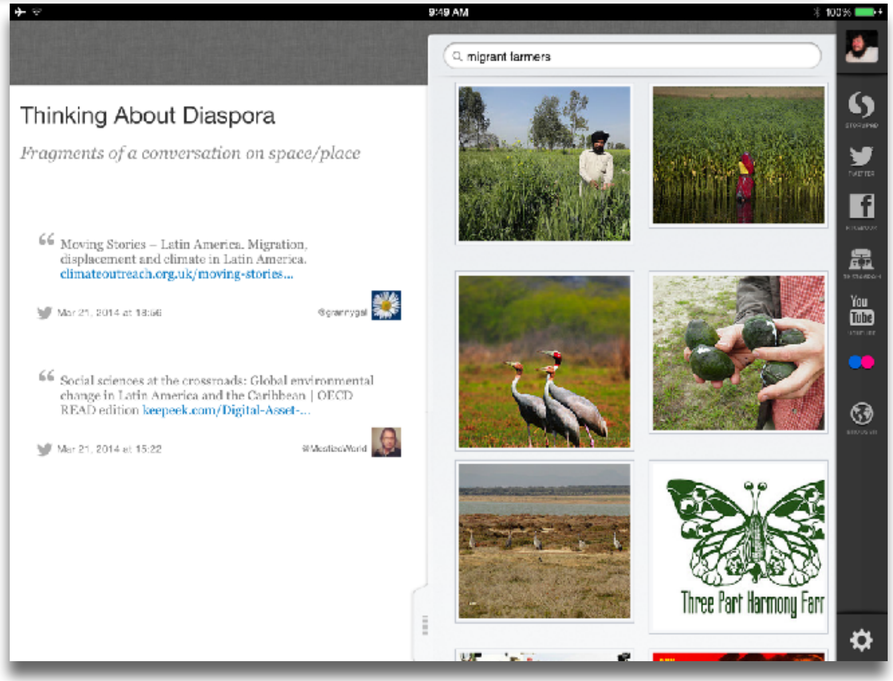

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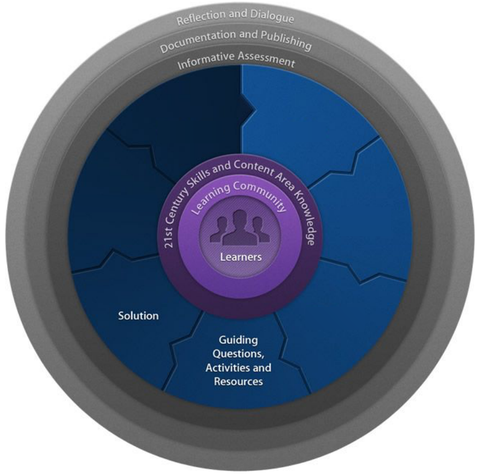

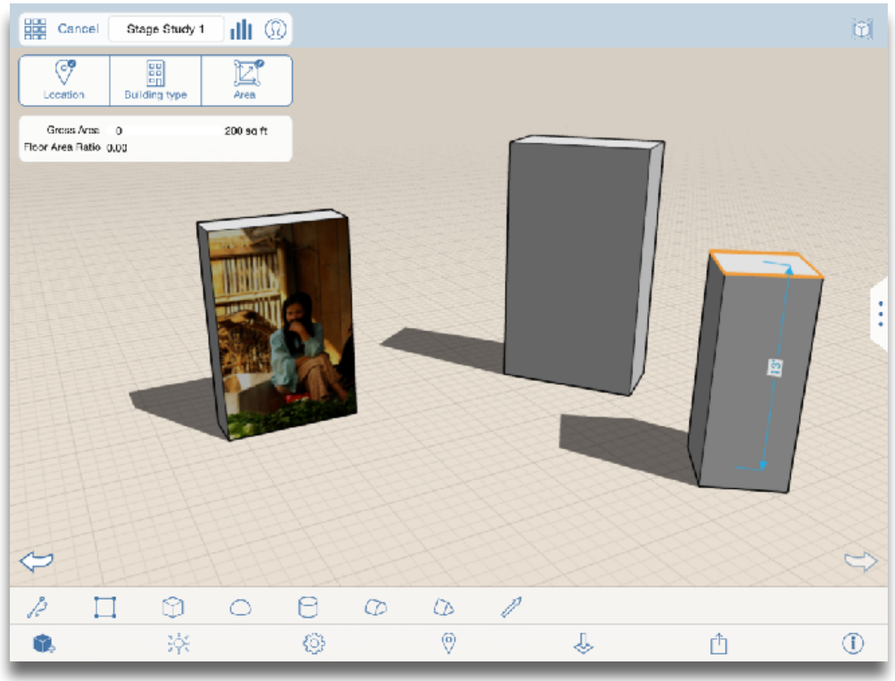

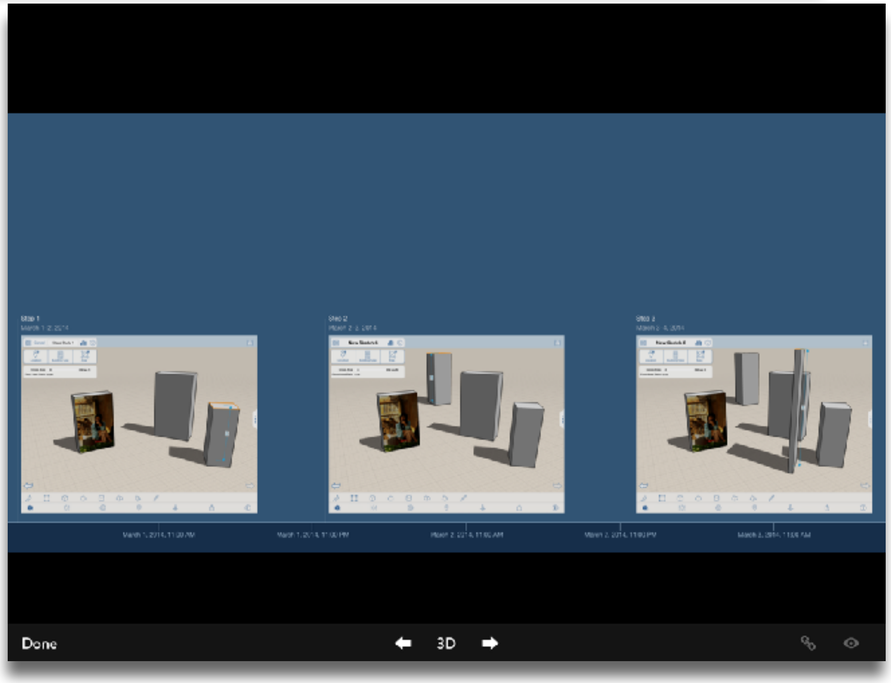

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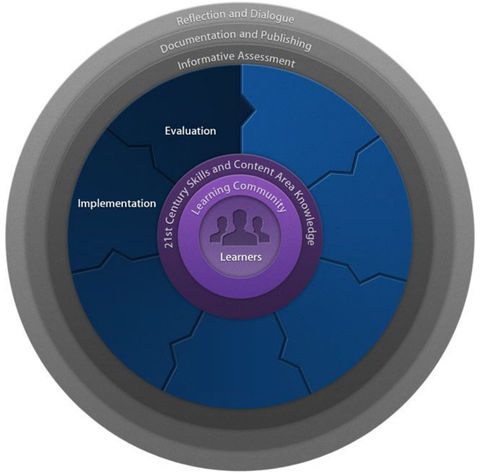

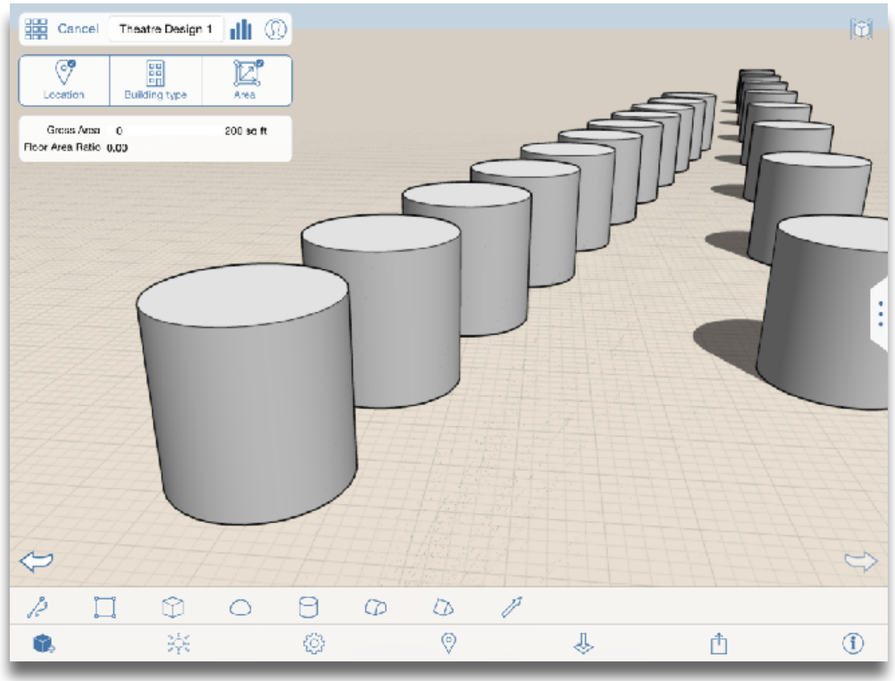

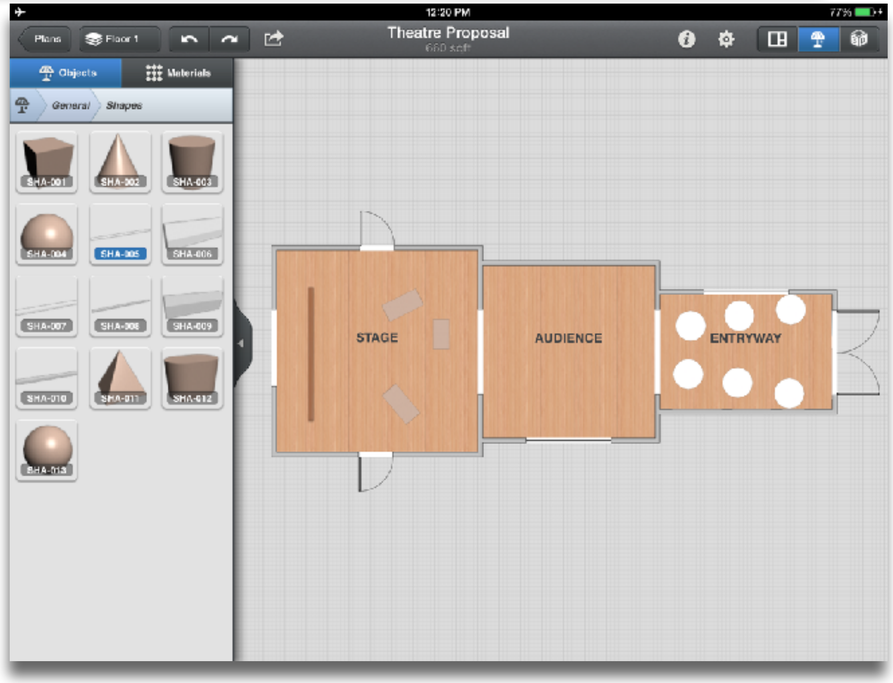

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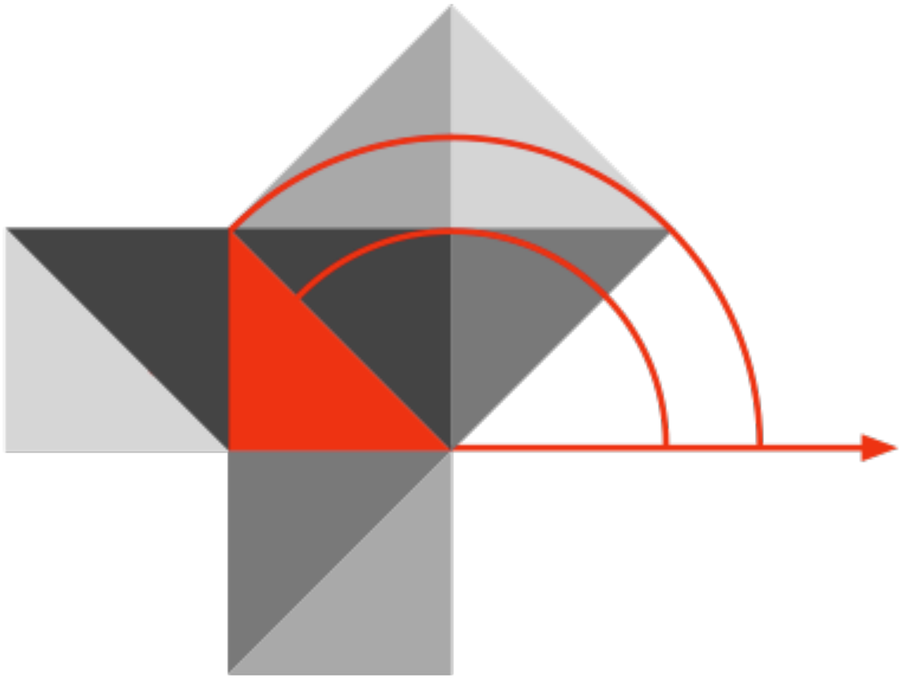

Blog: http://hippasus.com/blog/
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Twitter: @rubenrp