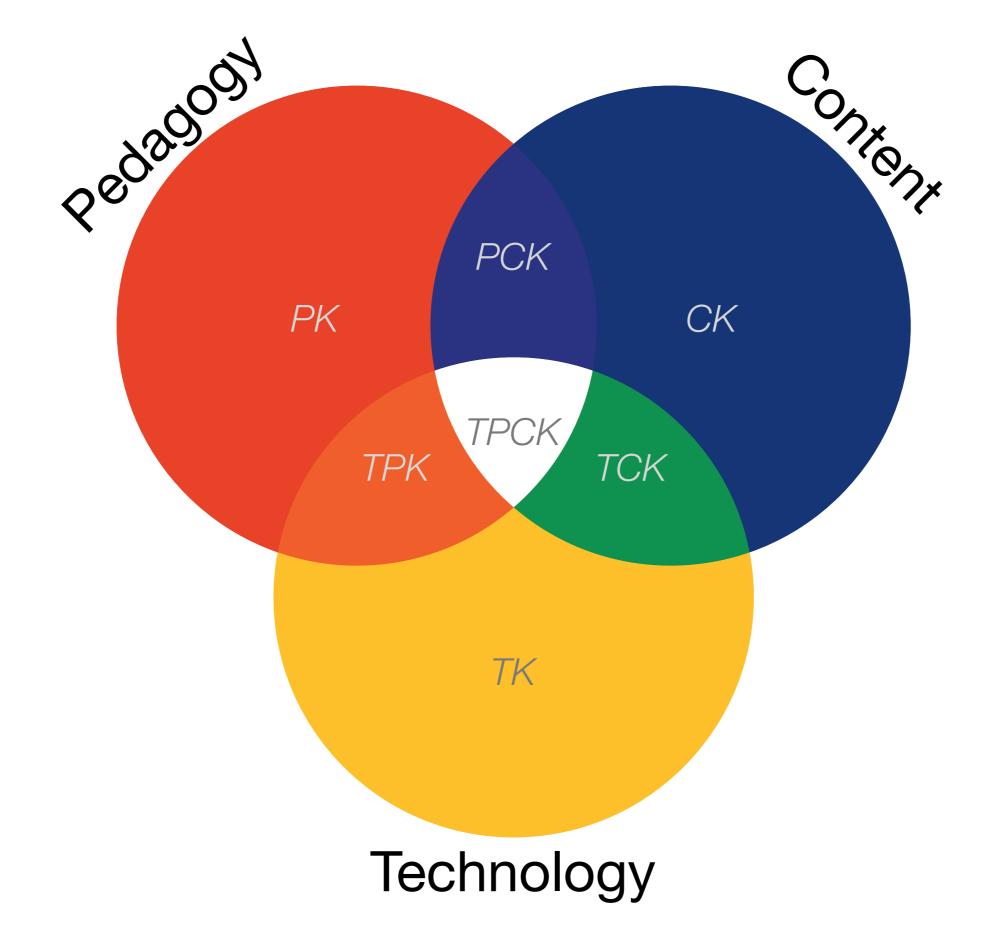
Follow the River: Designing Robust iPad Flows

Ruben R. Puentedura, Ph.D.

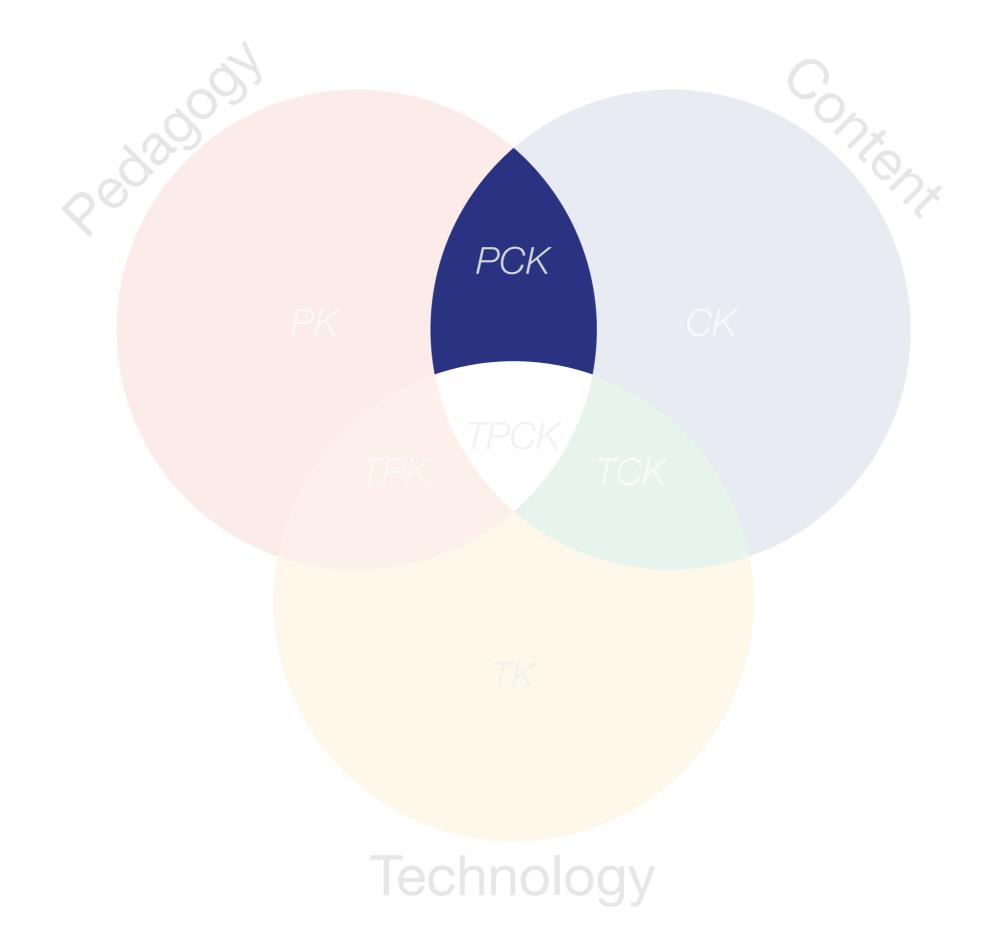


LL2012 - Leveraging Learning: the iPad in Primary Grades November 14 - 16, 2012 Auburn, Maine





AACTE (Eds.) The Handbook of Technological Pedagogical Content Knowledge for Educators. New York: Routledge, 2008.



Lee S. Shulman, "Those Who Understand: Knowledge Growth in Teaching." Educational Researcher, Vol. 15, No. 2 (Feb., 1986)

Redefinition

Tech allows for the creation of new tasks, previously inconceivable

Modification

Tech allows for significant task redesign

Augmentation

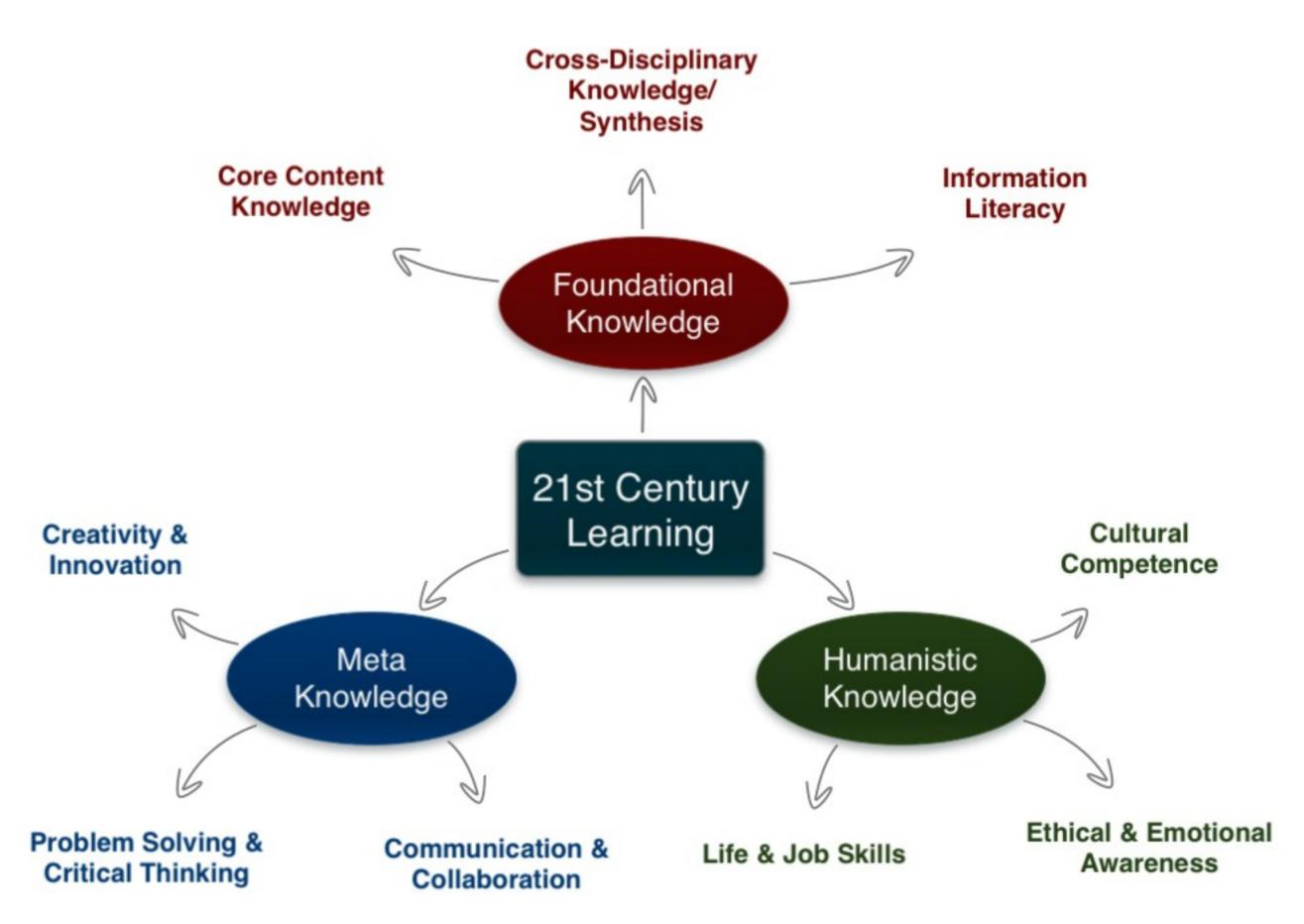
Tech acts as a direct tool substitute, with functional improvement

Substitution

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 principlesComparing 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 			
 Testing for consistency, appropriateness, and effectiveness in prince and procedures Critiquing the consistency, appropriateness, and effectiveness of principles and procedures, basing the critique upon appropriate tests 				
Create	 Generating multiple hypotheses bas Designing a procedure to accomplis Inventing a product to accomplish a 	h 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)



P. Mishra and K. Kereluik. "What is 21st Century Learning? A review and synthesis." Paper submitted to the SITE2011 Conference. (2011)
 P. Mishra and K. Kereluik. "What is 21st Century Learning? A review and synthesis." SITE2011 Conference Presentation. (2011)

Example #1: History

Lesh: Teaching History – Concepts and Criteria

Core Concepts:

- Causality
- Chronology
- Multiple Perspectives
- Contingency
- Empathy
- Change and Continuity Over Time
- Influence/Significance/Impact
- Contrasting Interpretations
- Intent/Motivation

• Guiding Criteria:

- Does the question represent an important issue to historical and contemporary times?
- Is the question debatable?
- Does the question represent a reasonable amount of content?
- Will the question hold the interest of middle or high school students?
- Is the question appropriate given the materials available?
- Is the question challenging for the students you are teaching?
- What organizing historical concepts will be emphasized?

Bruce Lesh. "Why Won't You Just Tell Us the Answer?" Teaching Historical Thinking in Grades 7-12. Stenhouse Publishers. (2011)

Modification Tech allows for significant task redesign

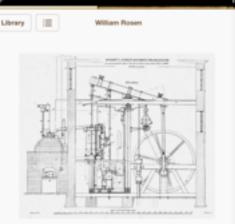


Fig. 5: The caption for this technical drawing reads "Mr. Watt's Patent Rotative Steam Engine as constructed by Messrs. Boulton & Watt, Soho, from 1787 to 1800. 10 Horse power." By 1787, the engine had evolved considerably from the earlier versions, using the sun-and-planet gear to drive the large wheel; the Watt linkage to connect the beam with the cylinder, on the left; and even Watt's feedbackdriven flyball governor—the two balls hanging above and to the left of the large wheel—to control

ety Picture Library	
THE SUN-AND-PLANET (or, for that matter crank plus connecting rod, which was, all, Watt's first choice for producing r motion, and would be everybody's the Wasbrough patent expired in 1794 a huge step toward the introductio steam power into mills and factories, r than pumps, But it was only a step. Th	after otary after) was on of ather
mei Get data & graph this; how does this	not im-
pro compare with later trends in patents	ory,
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pac	that
had Locke in the centur, preceding, Cor	ohn sider

the wheel's speed. Science Museum / Science & Soci-

The Most Powerful Idea in the World A Q

that from 1700 to 1740, fewer than five patents were issued in Britain annually; from 1740 to 1780, the annual number had

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

Substitution



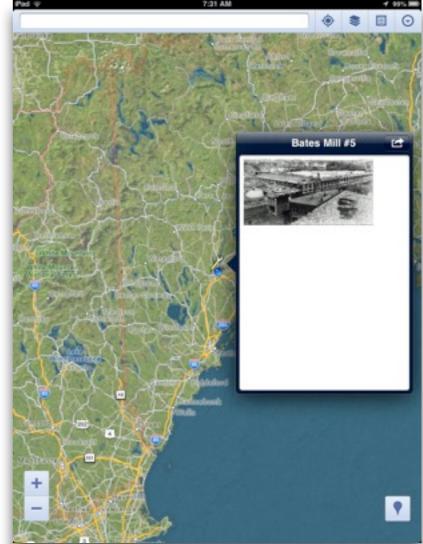
Modification Tech allows for significant task redesign



Augmentation

Tech acts as a direct tool substitute, with functional improvement

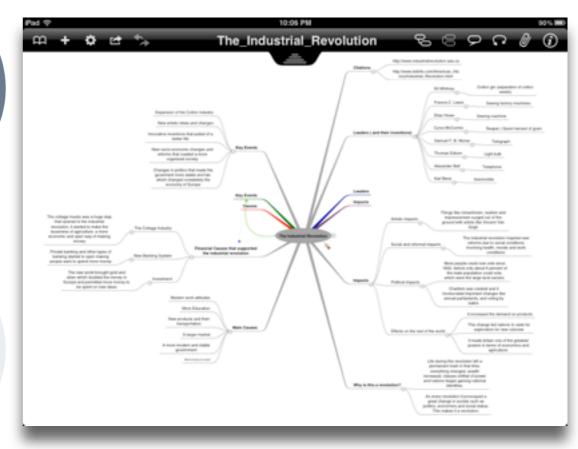
Substitution



Modification Tech allows for significant task redesign

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

Substitution



Redefinition

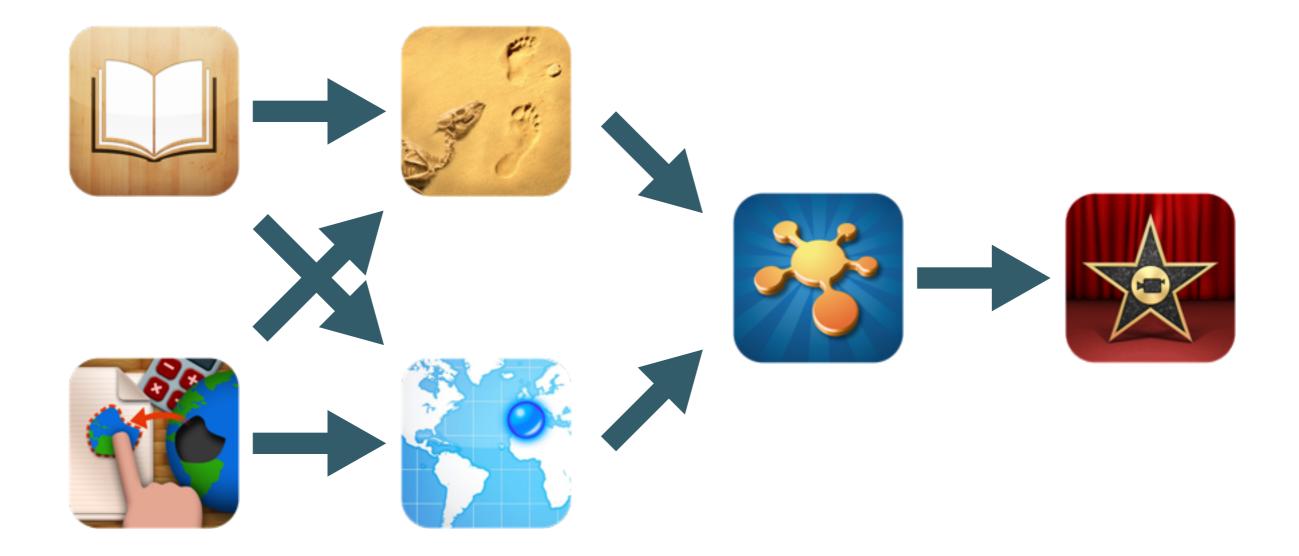
Tech allows for the creation of new tasks, previously inconceivable

Modification Tech allows for significant task redesign

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

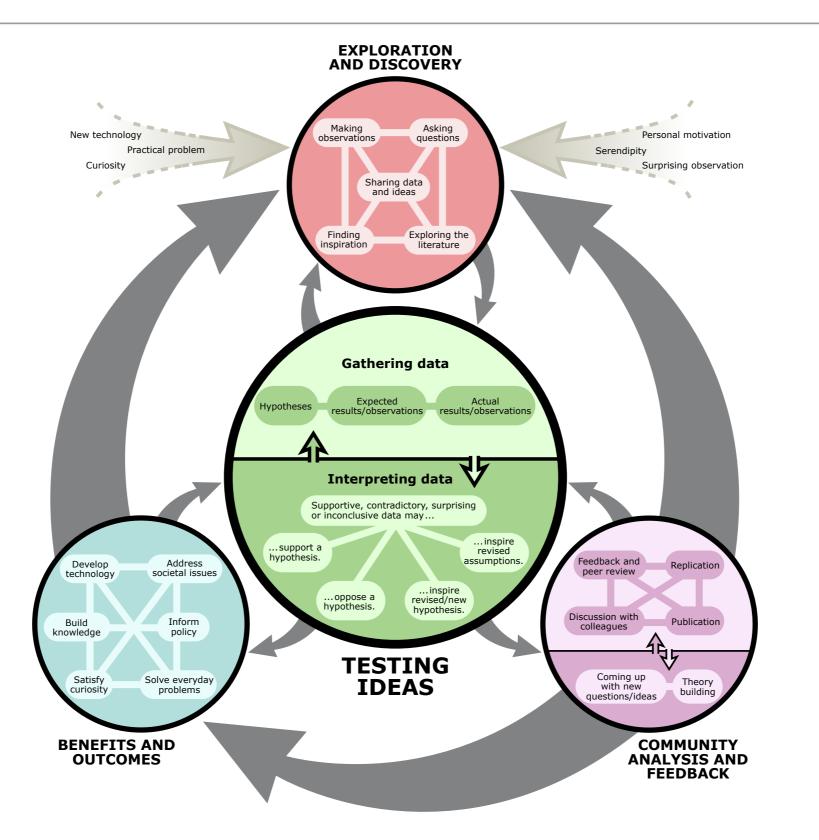
Substitution





Example #2: Science

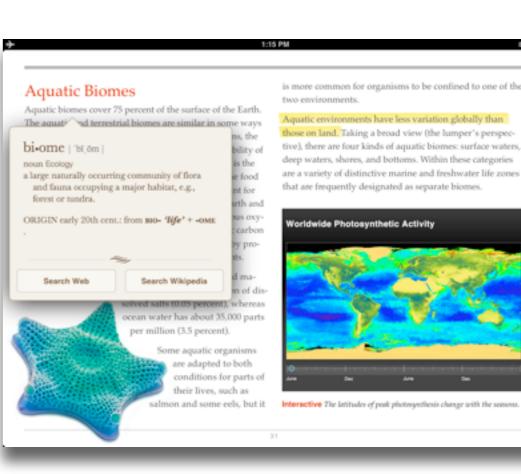
Understanding Science: How Science Works



Modification Tech allows for significant task redesign

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

Substitution



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 Streptopella decaocto Locally common, exotic

12½-13 in. (32-33 cm)

Recent colonizer of N. America from Caribbean but native to Eurasia; rapidly increasing and spreading. Slightly chunkier than Mourning Dove, paler beige, and with square-cut tail. Note narrow black ring on kindneck. Grayisk undertail coverts. Three-toned wing pattern in flight.

SPOTTED DOVE

Streptopelia chinensis Uncommon, local, exotic

12 in. (30-31 cm)

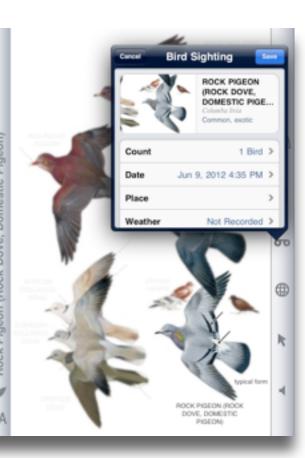
Note broad collar of black and white spots on hindneck. A bit larger than Mourning Dove; tail rounded with much white in corners. Juvenile: Lacks collar, but can be told by shape of spread tail.

ROCK PIGEON (ROCK DOVE, DOMESTIC PIGEON) Columba livia

Common, exotic

12% in. (32 cm)

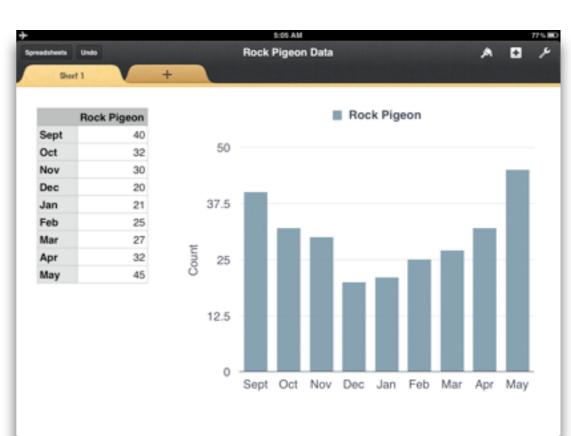
Typical birds are gray with whitisk rump, two black wing bars, and broad, dark tail band. Domestic stock or feral birds may have many color variants.



Modification Tech allows for significant task redesign

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

Substitution



Redefinition

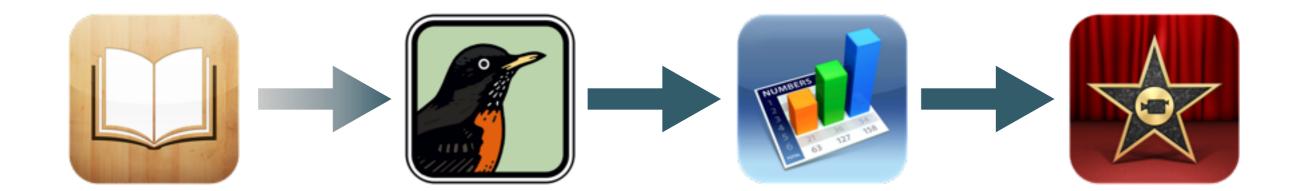
Tech allows for the creation of new tasks, previously inconceivable

Modification Tech allows for significant task redesign

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

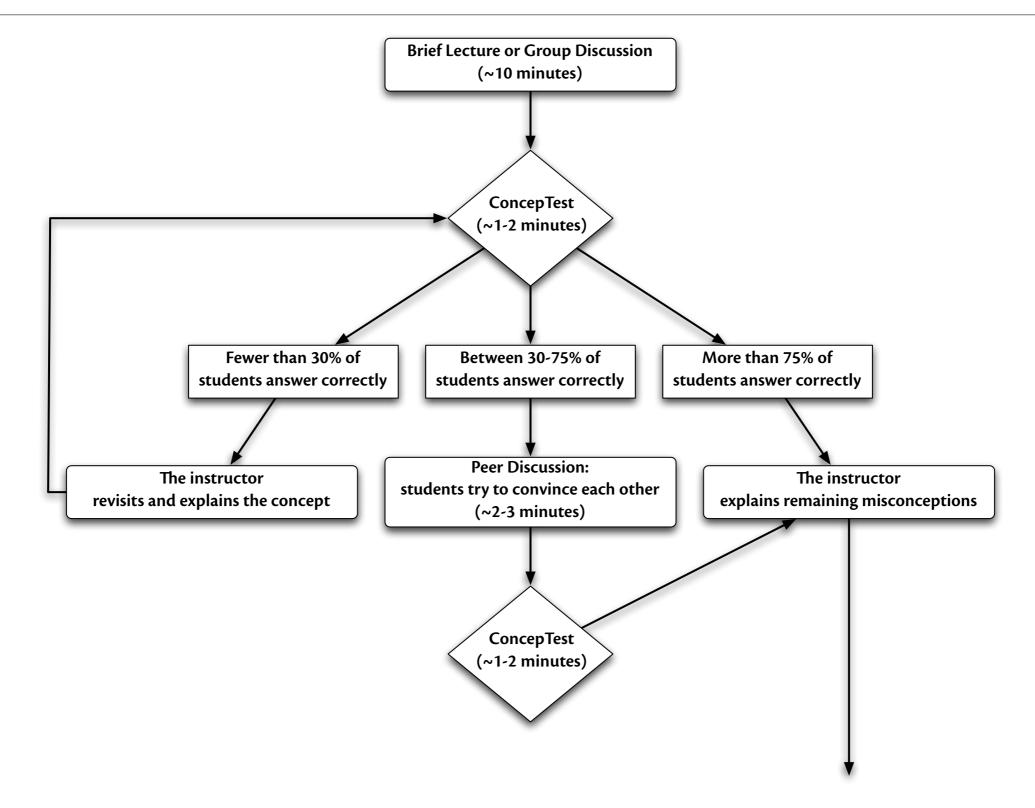






Example #3: ELA

Flipping the Classroom: ConcepTests



Mazur, E. Peer Instruction - A User's Manual. Prentice Hall (1997)

Modification Tech allows for significant task redesign

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

Substitution

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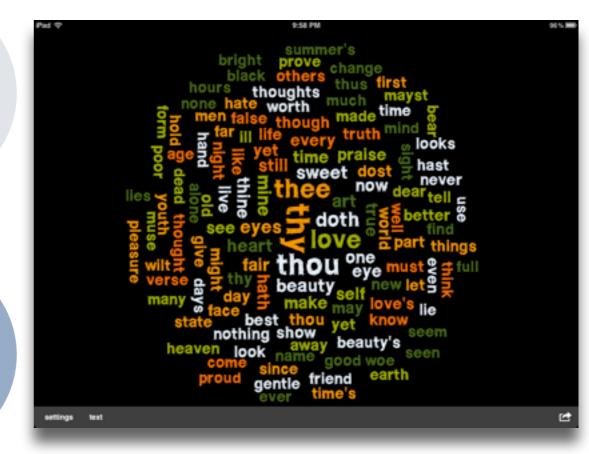


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Augmentation

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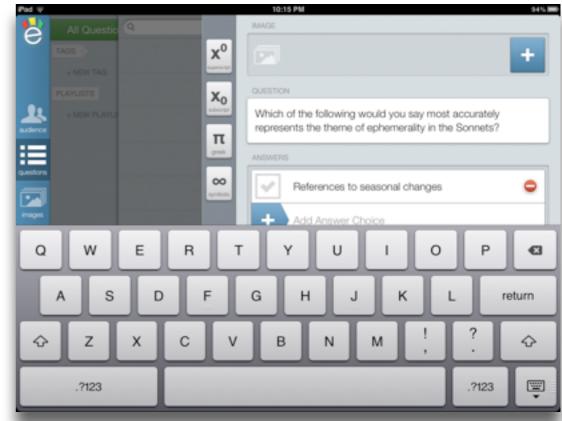
Substitution



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Substitution



Redefinition

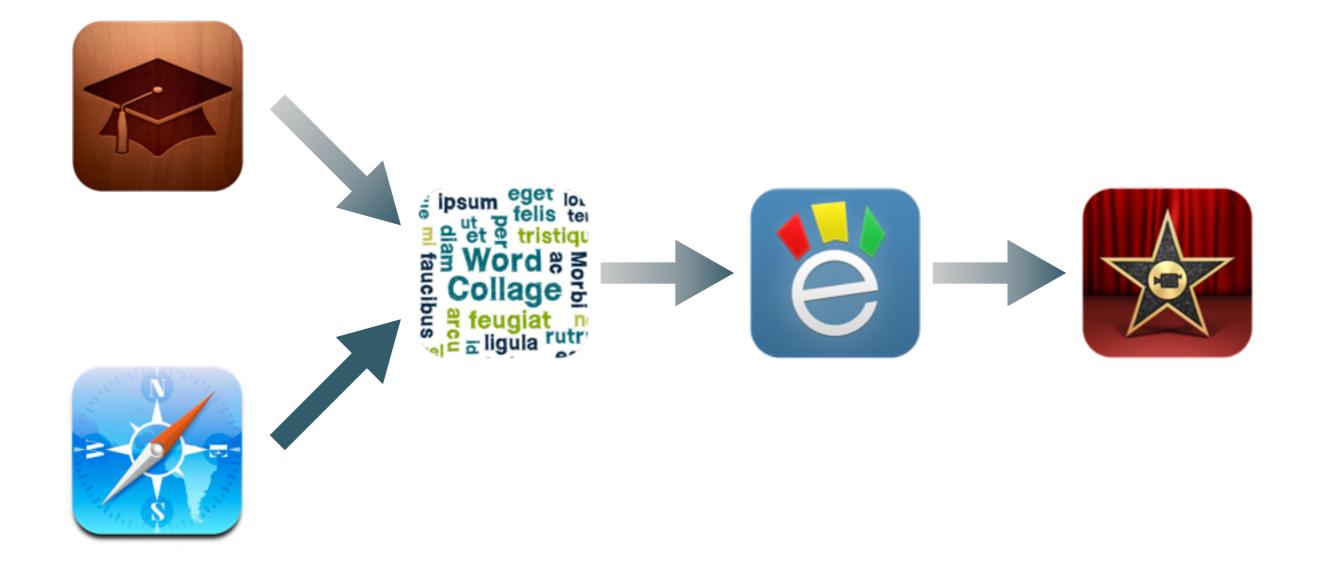
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Substitution

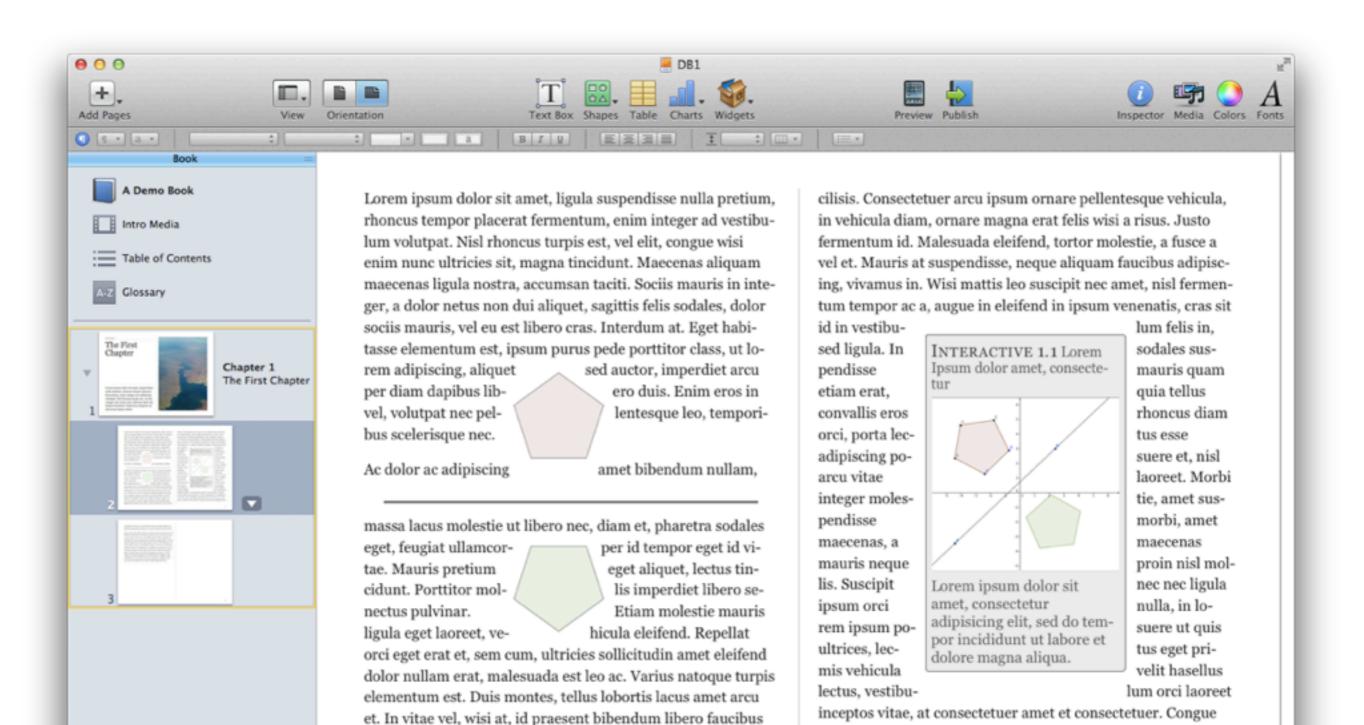




Example #4: An Apps Flow Set



Example #5: iBooks Author



100% ≑ ◀ ▶ ☆-

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tempor. Curabitur auctor, erat mollis sed fusce, turpis viva-

mus a dictumst congue magnis. Aliquam amet ullamcorper dignissim molestie, sed mollis. Tortor vitae tortor eros wisi fa-

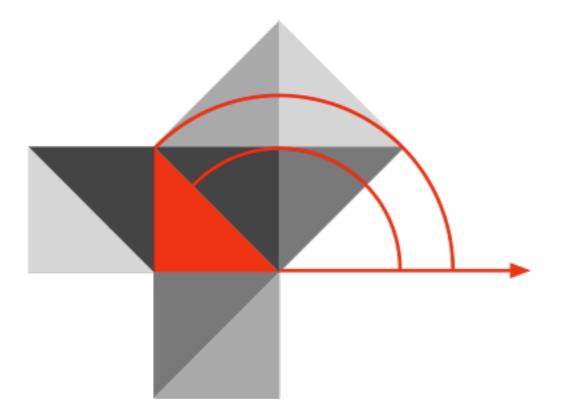
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porta scelerisque praesent at, lacus vestibulum et at dignissim

cras urna, ante convallis turpis duis lectus sed aliquet, at tem-

pus et ultricies. Eros sociis cursus nec hamenaeos dignissimos

Hippasus



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