SAMR and the EdTech Quintet: A Deeper Dive

Ruben R. Puentedura, Ph.D.

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

Modification
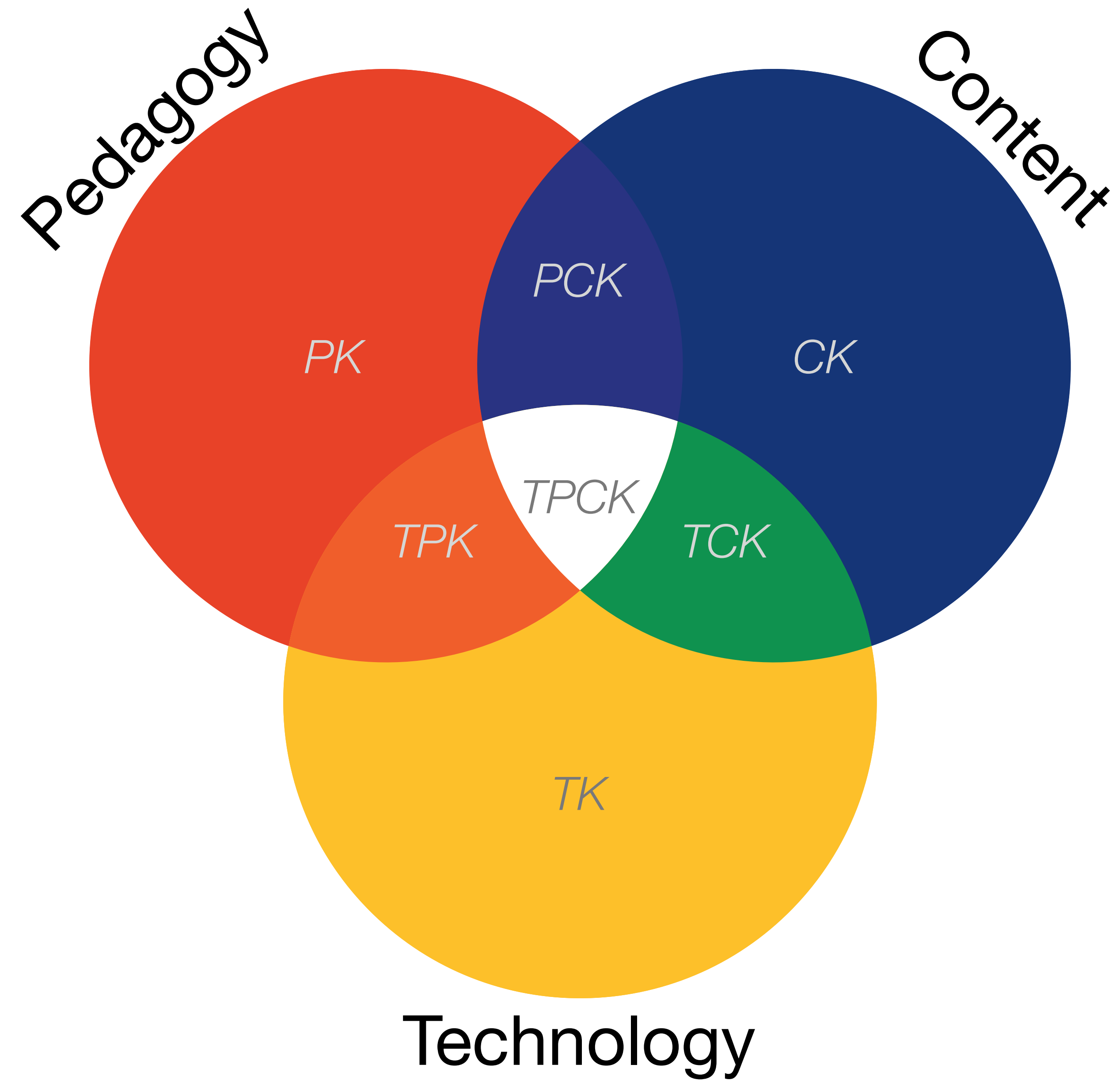*Tech allows for significant task redesign*

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

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

Transformation

Enhancement

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)

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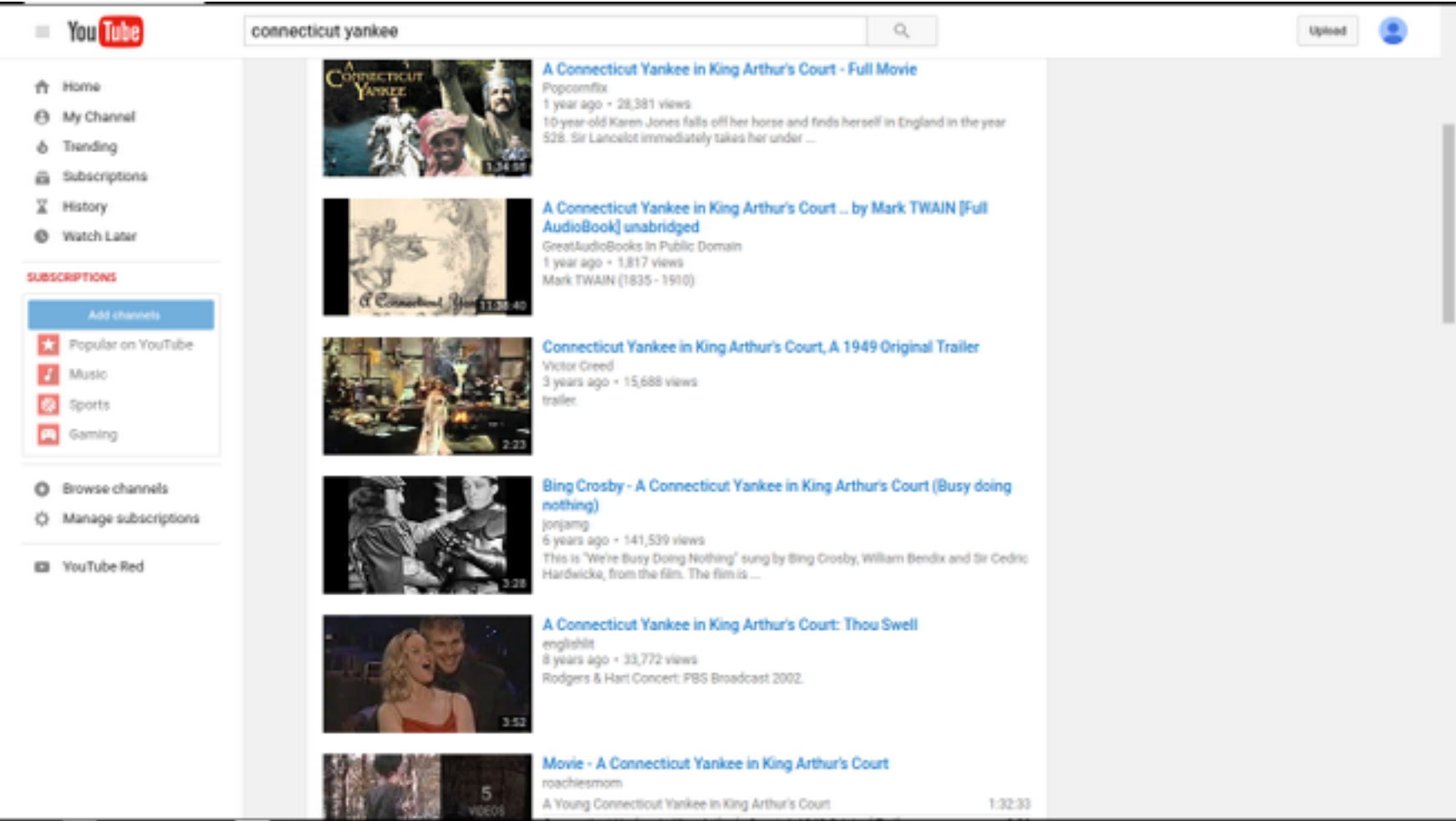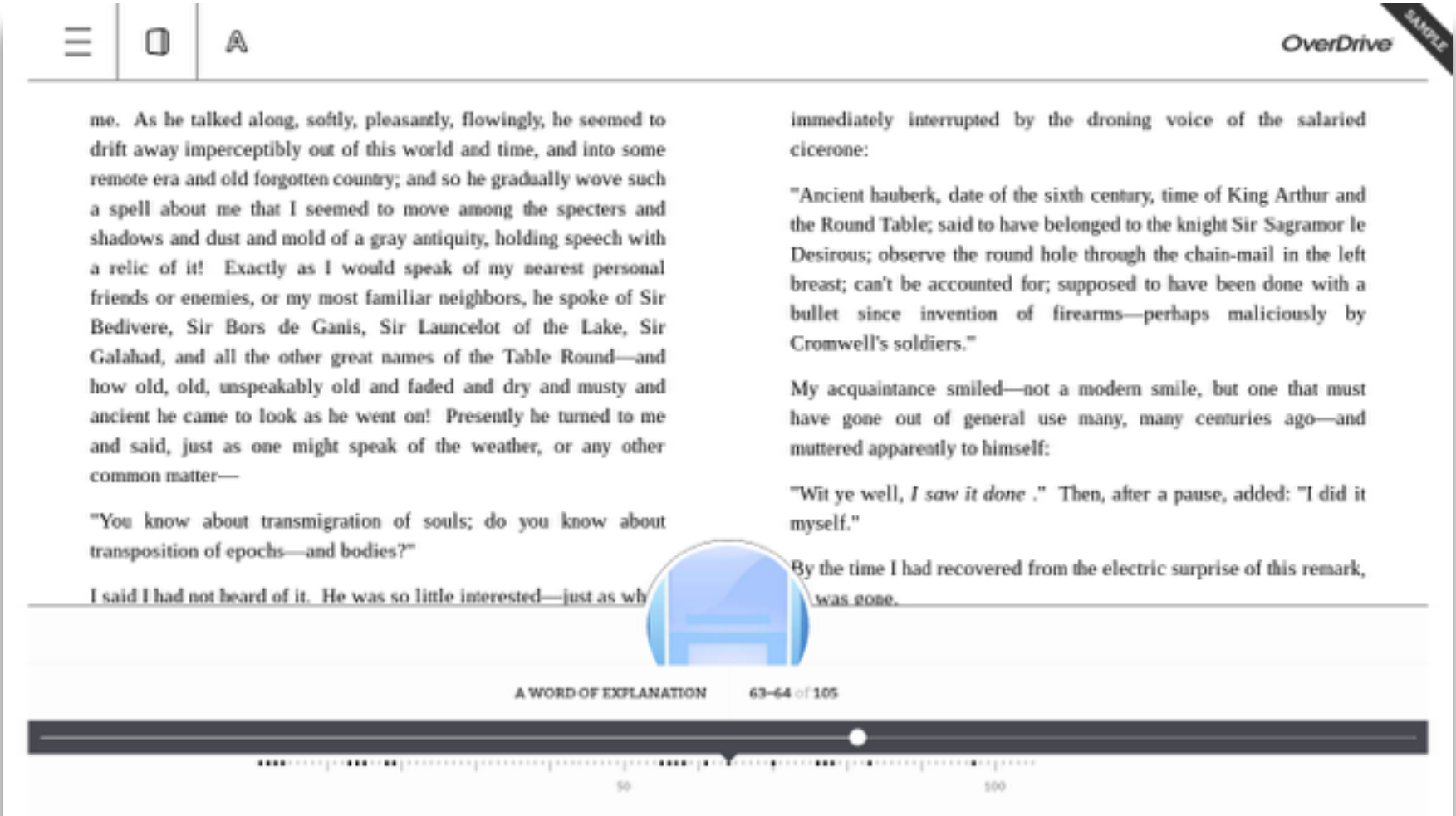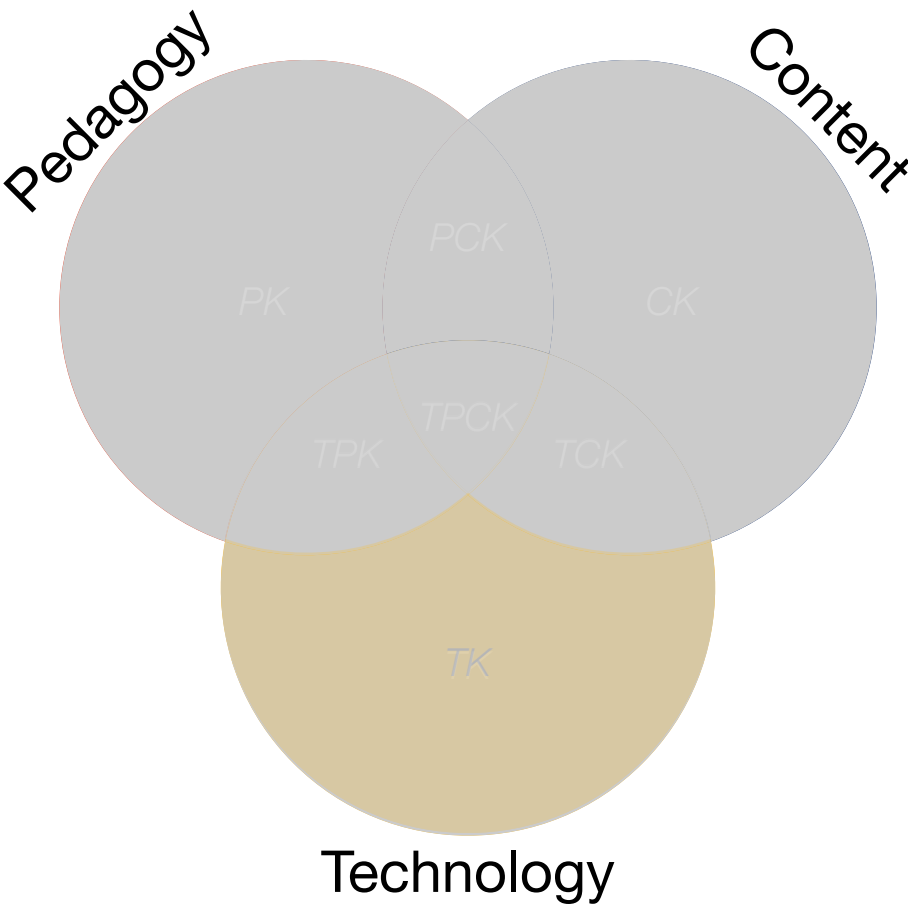
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Pedagogy

Content

PCK

PK

CK

TPCK

TPK

TCK

TK

Technology

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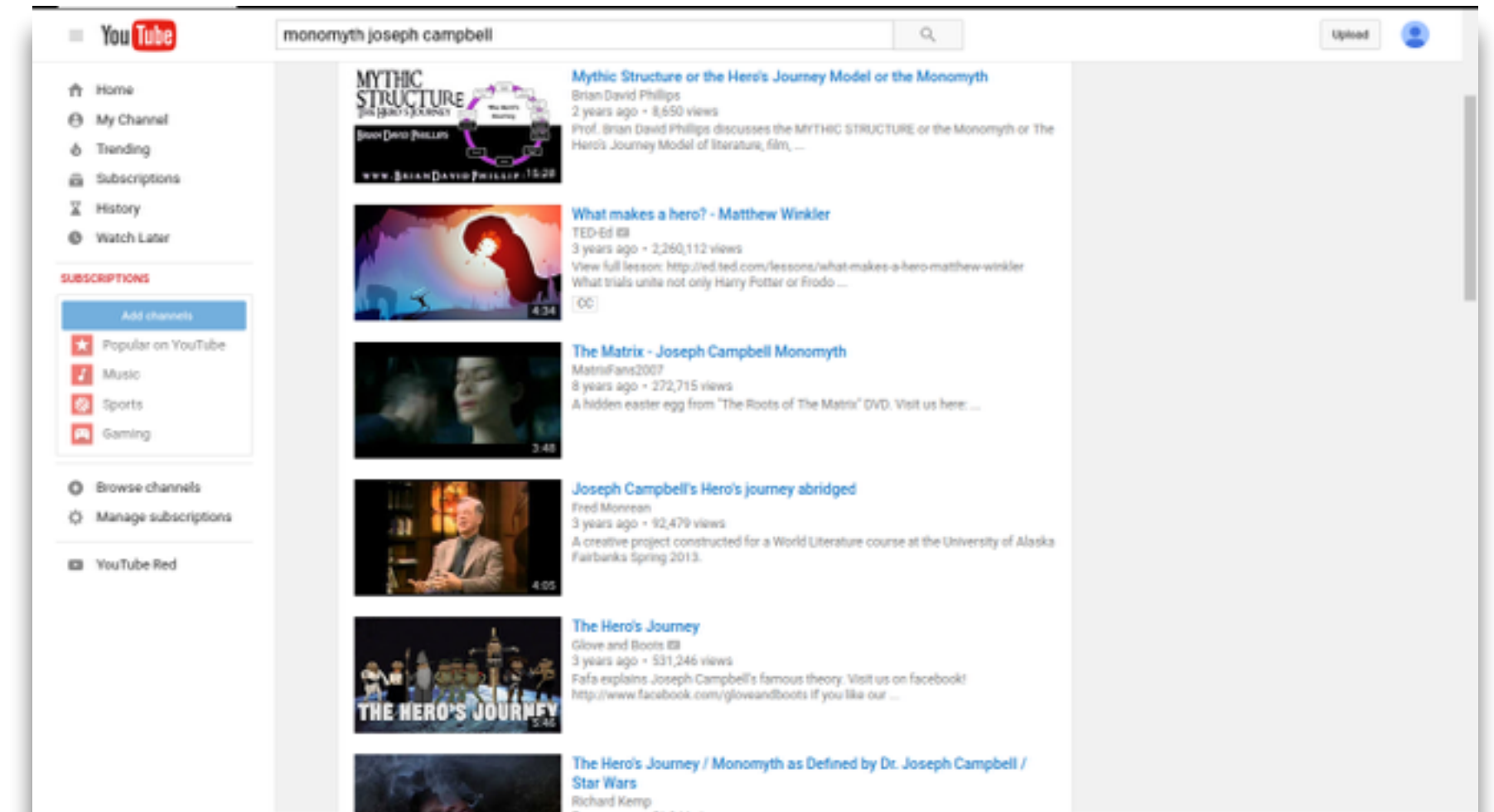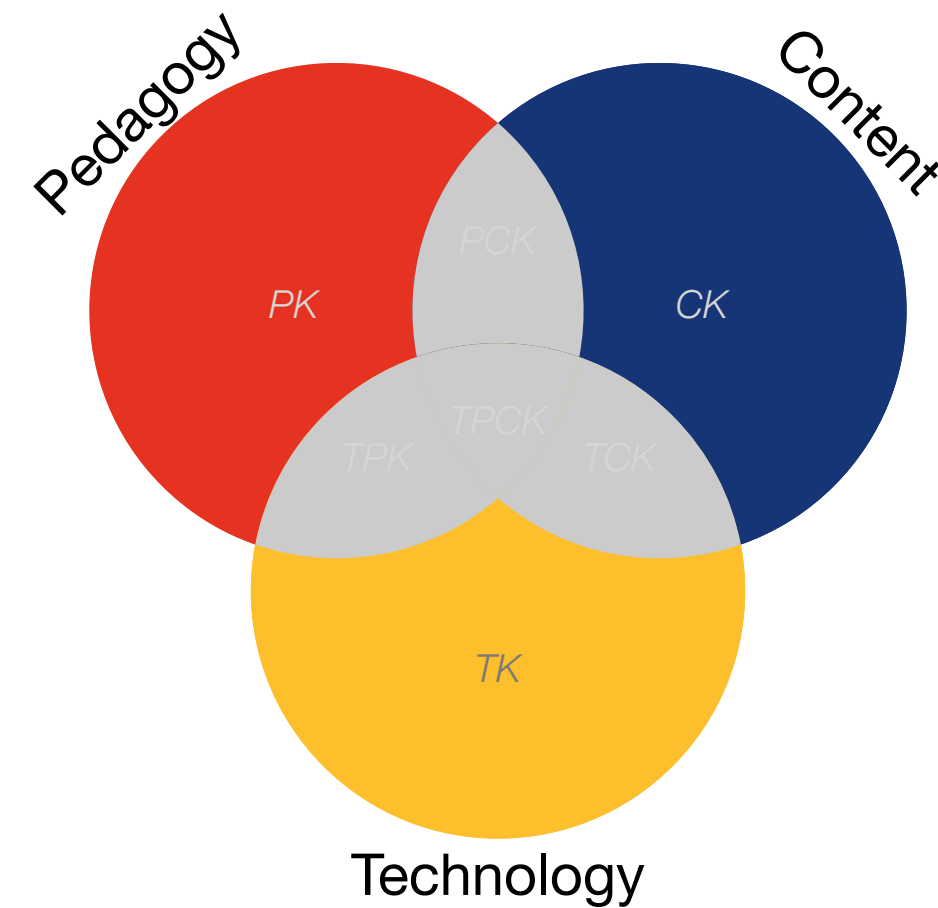*Tech allows for the creation of new tasks, previously inconceivable*

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The Monomyth in Action
All changes saved in Drive

QUESTIONS   RESPONSES

The Monomyth in Action

Form description

After watching Star Wars: the Force Awakens, do you think that Rey's meeting with Maz Kanata is best described as:

Multiple choice

○ The Call to Adventure

○ Refusal of the Call

○ Refusal of the Return

○ Add option or ADD "OTHER"

Required

SEND

Redefinition
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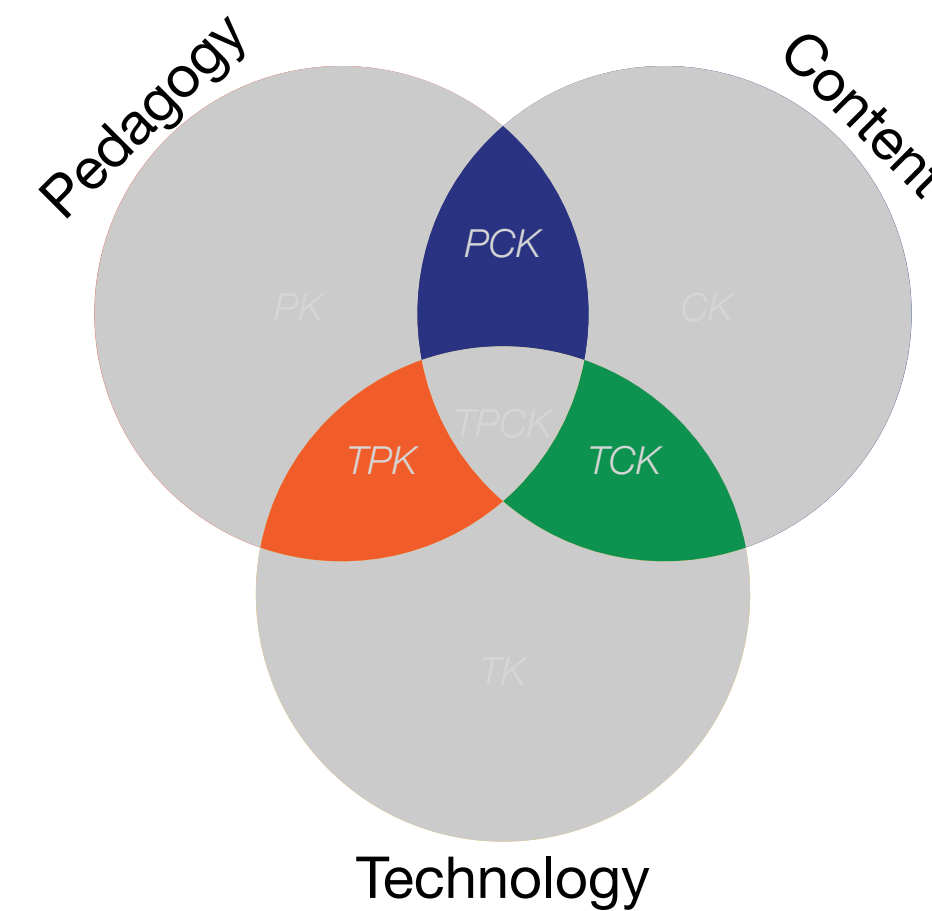*previously inconceivable*

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The Hero and the Lady of the Lake

https://docs.google.com/presentation/d/1puuYlHHvbZYK9Pv7W-djTZ2p1iXOIQho0pXCC7_Qjd8/edit#slide=id.g1176a955c2_0_3

The Hero and the Lady of the Lake

File   Edit   View   Insert   Slide   Format   Arrange   Tools   Table   Help   All changes saved in Drive

cattura

Record   Manage Media

Default

Off

Desktop

Resolution: 1280x720

Audio Quality: Med

Video Quality: Med

Show preview window

Record

Click to add notes
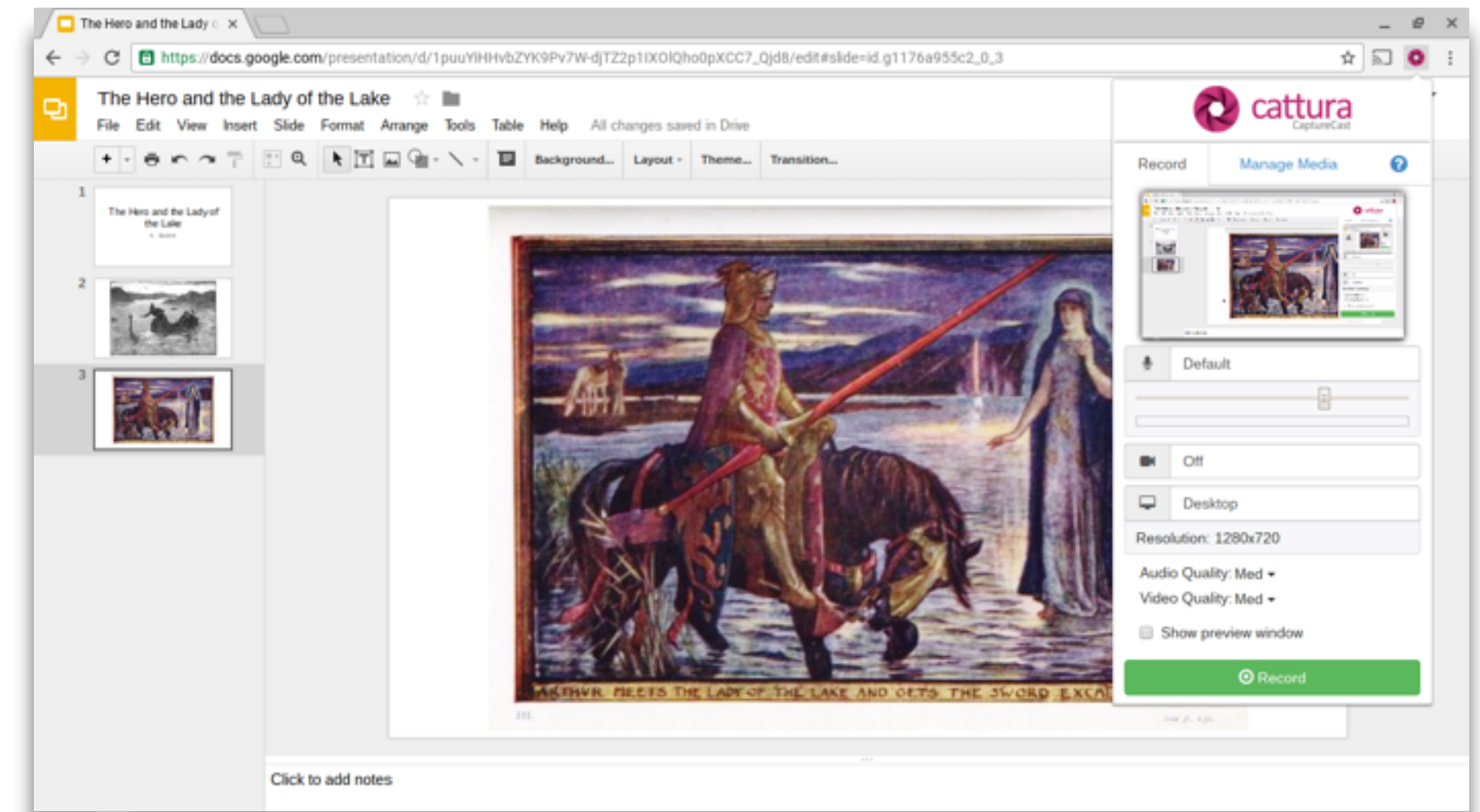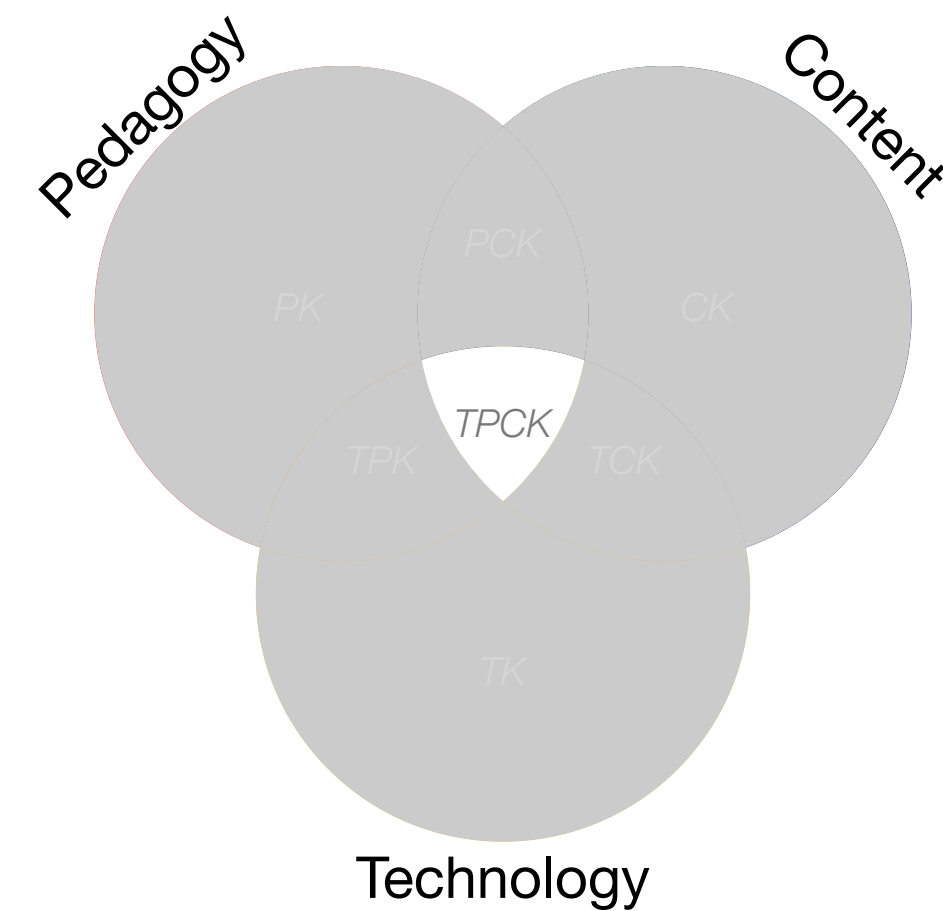
Meta-analysis	Number of studies	ES type	Mean ES	SE
Bangert-Drowns (1993)	19	Missing	0.27	0.11
Bayraktar (2000)	42	Cohen's d	0.27	0.05
Blok, Oostdam, Otter, and Overmaat (2002)	25	Hedges's g	0.25	0.06
Christmann and Badgett (2000)	16	Missing	0.13	0.05
Fletcher-Flinn and Gravatt (1995)	120	Glass's Δ	0.24	0.05
Goldberg, Russell, and Cook (2003)	15	Hedges's g	0.41	0.07
Hsu (2003)	25	Hedges's g	0.43	0.03
Koufogiannakis and Wiebe (2006)	8	Hedges's g	−0.09	0.19
Kuchler (1998)	65	Hedges's g	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
Michko (2007)	45	Hedges's g	0.43	0.07
Onuoha (2007)	35	Cohen's d	0.26	0.04
Pearson, Ferdig, Blomeyer, and Moran (2005)	20	Hedges's g	0.49[a]	0.11
Roblyer, Castine, and King (1988)	35	Hedges's g	0.31	0.05
Rosen and Salomon (2007)	31	Hedges's g	0.46	0.05
Schenker (2007)	46	Cohen's d	0.24	0.02
Soe, Koki, and Chang (2000)	17	Hedges's g and Pearson's r[a]	0.26[a]	0.05
Timmerman and Kruepke (2006)	114	Pearson's r[a]	0.24	0.03
Torgerson and Elbourne (2002)	5	Cohen's d	0.37	0.16
Waxman, Lin, and Michko (2003)	42	Glass's Δ	0.45	0.14
Yaakub (1998)	20	Glass's Δ and g	0.35	0.05
Zhao (2003)	9	Hedges's g	1.12	0.26

a. Converted to Cohen's d.

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

Effect Size

- ✕ S - 5 Studies
- ✕ A - 4 Studies
- ✕ M - 8 Studies
- ✕ R - 3 Studies

Pearson, P.D., Ferdig, R.E., Blomeyer Jr, R.L., & Moran, J. "The Effects of Technology on Reading Performance in the Middle-School Grades: A Meta-Analysis With Recommendations for Policy." *Learning Point Associates/North Central Regional Educational Laboratory (NCREL)* (2005).
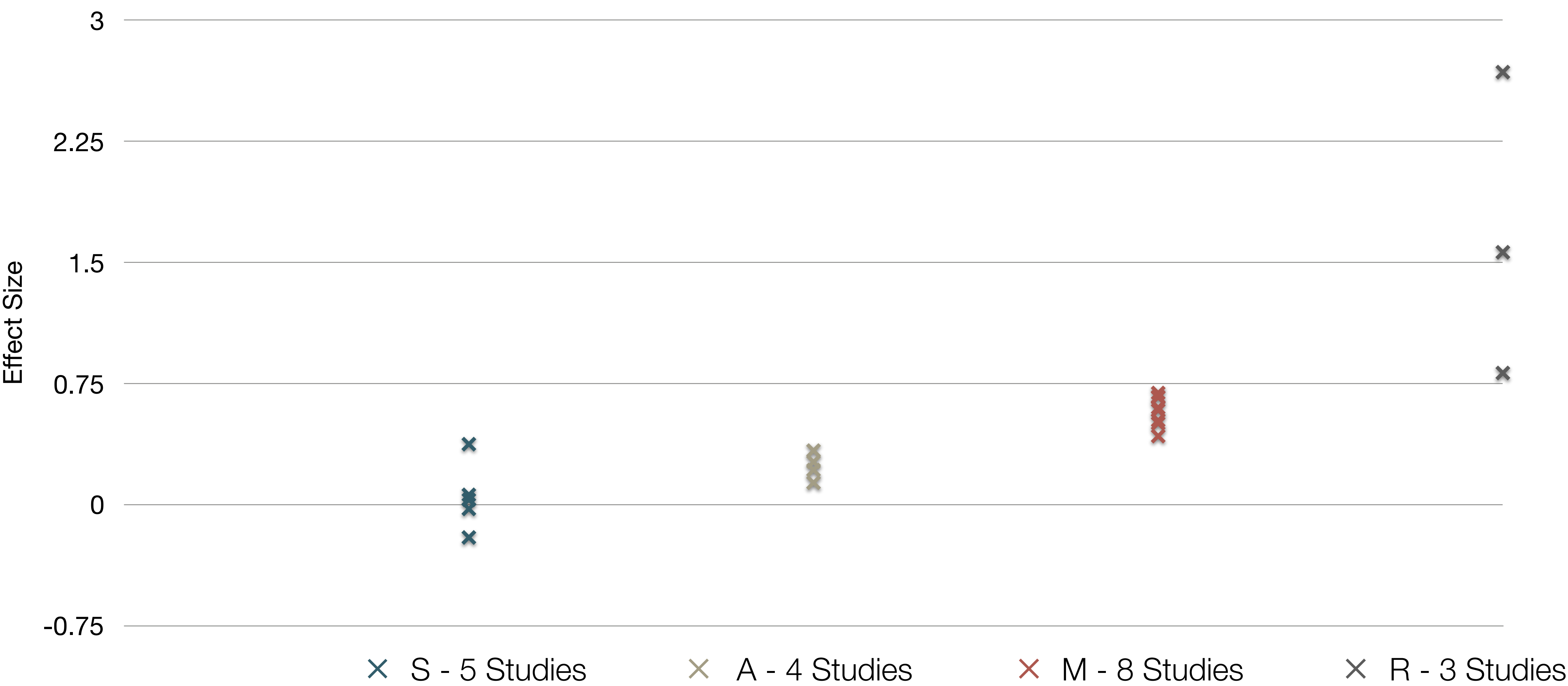
SAMR and the Use of Tablets in Education

Effect Size

- ✕ S - 14 Studies
- ✕ A - 7 Studies
- ✕ M - 4 Studies
- ✕ R - 2 Studies

Tamim, R.M., Borokhovski, E., Pickup, D., Bernard, R.M. & El Saadi, L. "Tablets for Teaching and Learning: A Systematic Review and Meta-Analysis." *Commonwealth of Learning (COL)* (2015).

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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Class

Homework

School

World

Home

Learning Environments

The Curiosity Amplifier

Contextual Search/Augmented Reality
Sensors/Recorders
Mobile Tools
Cloud Resources

The Lively Sketchbook

John Seely Brown. "A New Culture of Learning". *NMC Summer Conference, Closing Keynote.* (2010)

Ruben R. Puentedura, "The Lively Sketchbook". *Hippasus Blog.* (2010)

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Narrative sources;
Narrative constraints

Pictorial vocabulary;
Narrative transitions;
Text/image integration

CDS Seven Elements;
Montage structures

Narrative structures;
Narrative flows

Ludic elements

Image
Assembly

Sequential
Art

Moving
Image

Interactive
Media

Interactive
Fiction

Infinite Canvas

TIME

PLACE

CONNECTION

SOCIAL

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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."

Katie Salen and Eric Zimmerman. *Rules of Play: Game Design Fundamentals*. The MIT Press, 2003.

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

S to A: The Value of Shared Practices

- Checklists

- Augmented Note Taking Strategies

- Visualization Methods (5 Primary Domains)

- Simple Blogging

- Simple Digital Storytelling Video

- Flipped Classroom – Materials Creation

- Flipped Classroom – Peer Discussion/Instruction Methods

- LMS Practices

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Recall and Reproduction

Webb, Norman L. *Depth-of-knowledge levels for four content areas*. (2002)

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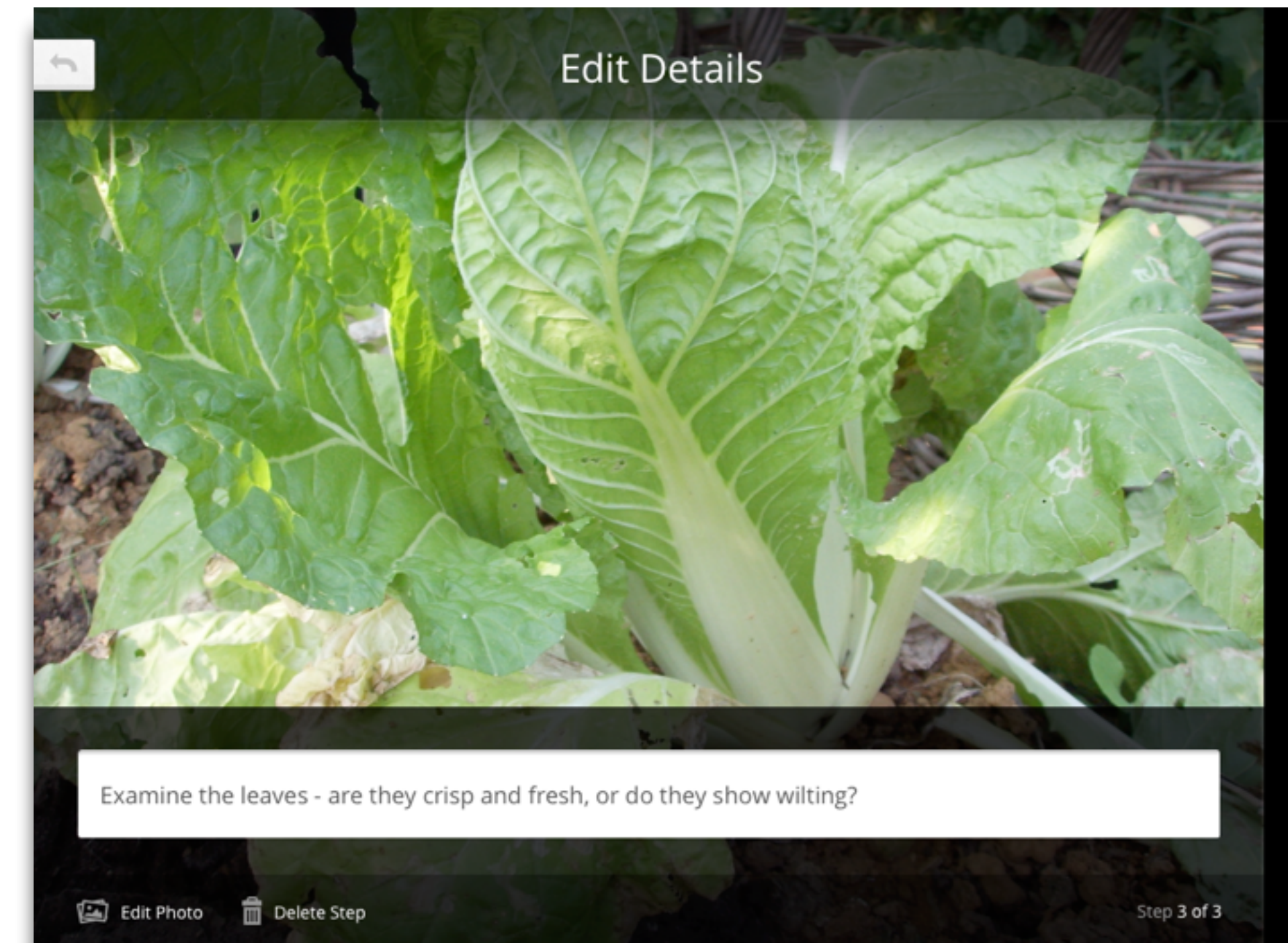*Tech allows for significant task redesign*

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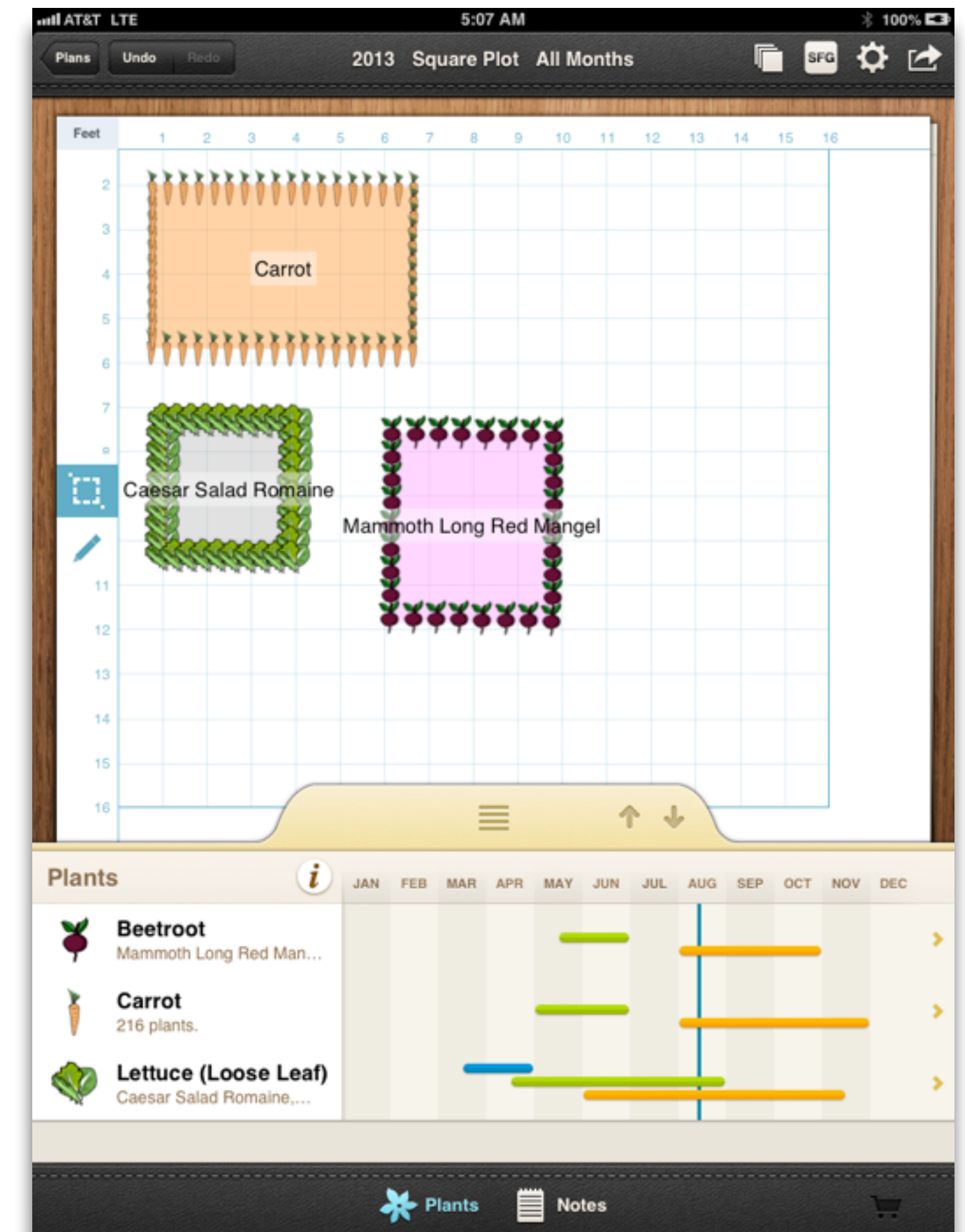*Tech allows for significant task redesign*

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Garden Analysis

Sheet 1

	Lettuce	Beets	Tomatoes	Carrots	Total
May	$25.00	$0.00	$0.00	$10.00	**$35.00**
June	$25.00	$0.00	$0.00	$20.00	**$45.00**
July	$25.00	$0.00	$10.00	$20.00	**$55.00**
August	$20.00	$10.00	$20.00	$10.00	**$60.00**
September	$10.00	$20.00	$30.00	$5.00	**$65.00**
October	$0.00	$40.00	$0.00	$5.00	**$45.00**

■ Lettuce ■ Beets ■ Tomatoes ■ Carrots ■ Total

Projected Income

Choosing the First SAMR Ladder Project: Three Options

· **Your Passion:**

　· If you had to pick one topic from your class that best exemplifies why you became fascinated with the subject you teach, what would it be?
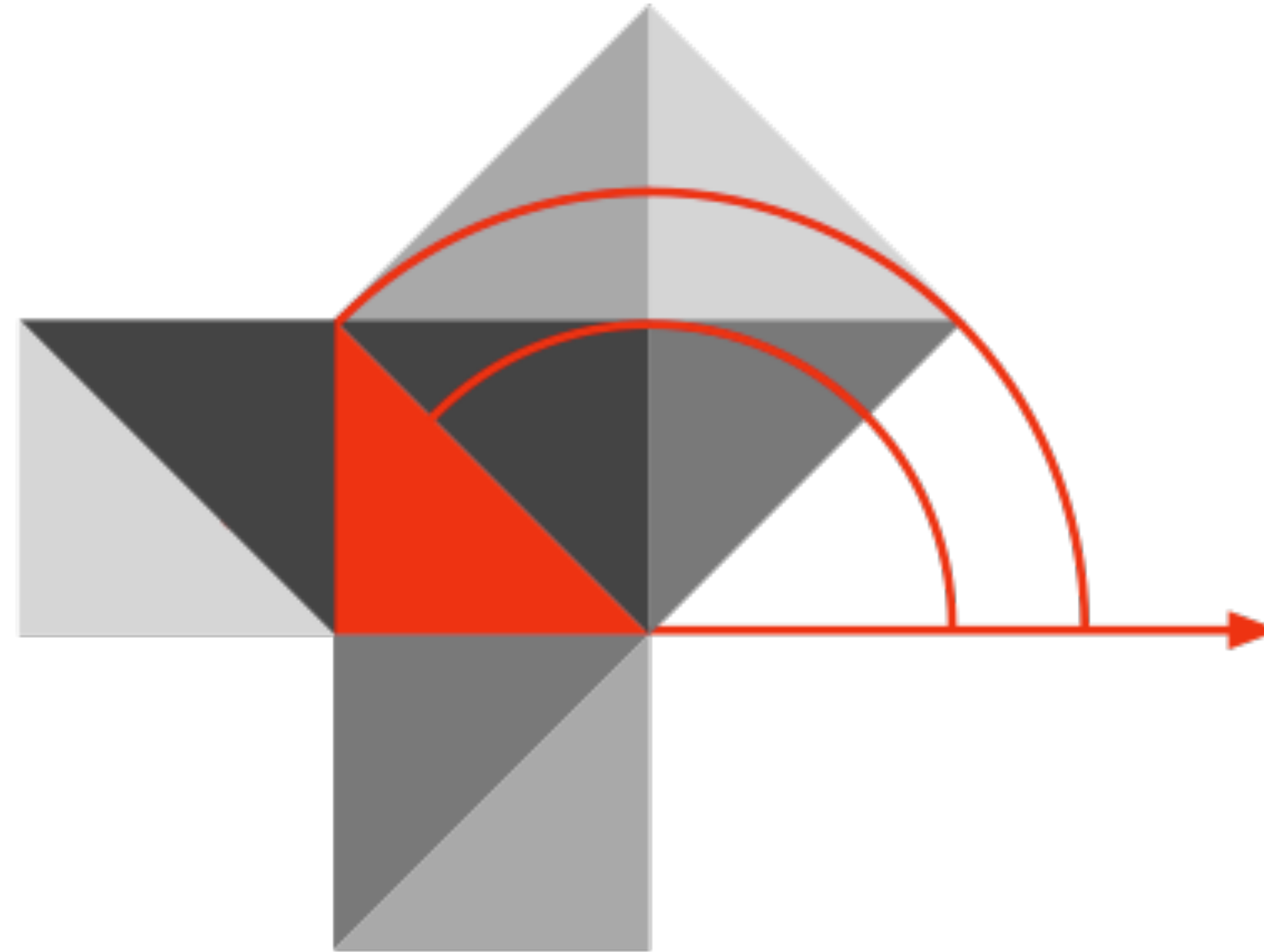
· **Barriers to Your Students' Progress:**

　· Is there a topic in your class that a significant number of students get stuck on, and fail to progress beyond?

· **What Students Will Do In the Future:**

　· Which topic from your class would, if deeply understood, best serve the interests of your students in future studies or in their lives outside school?

Hippasus

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