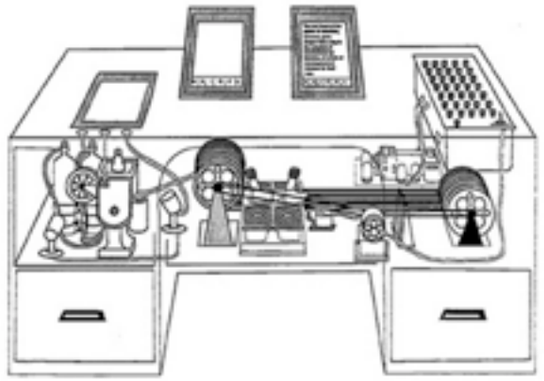
A Brief Introduction to TPCK and SAMR

Ruben R. Puentedura, Ph.D.

Metaphors



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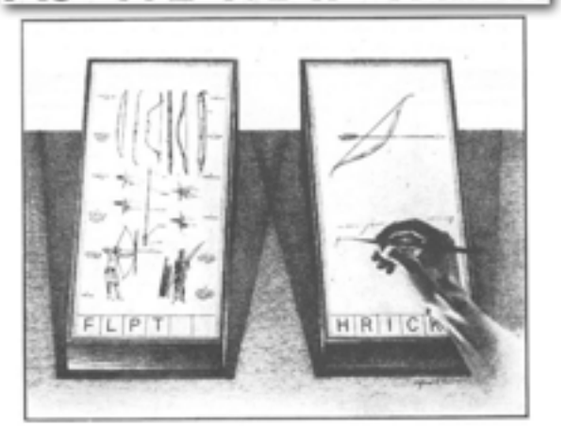

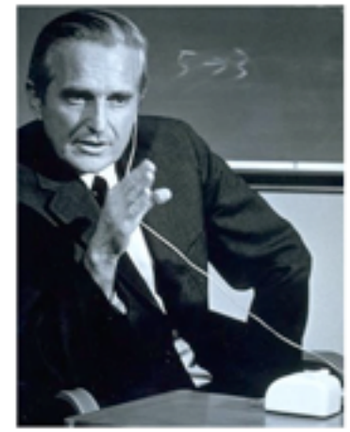

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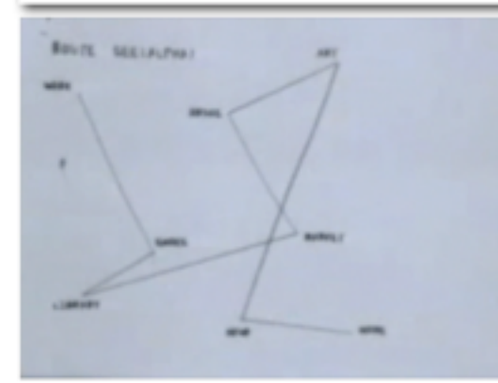

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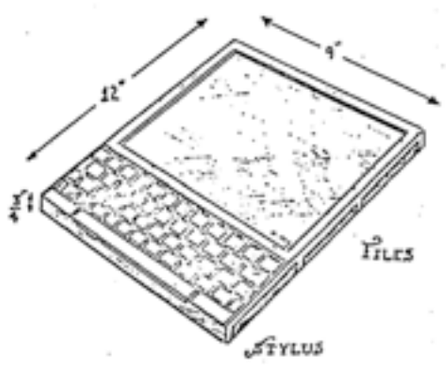

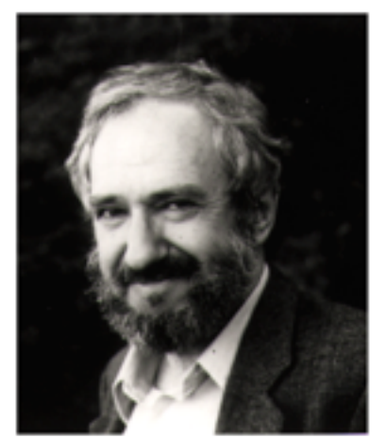

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TO POLY :ANGLE :STEP
1.  FORWARD :STEP
2.  RIGHT :ANGLE
3.  POLY :ANGLE :STEP

END
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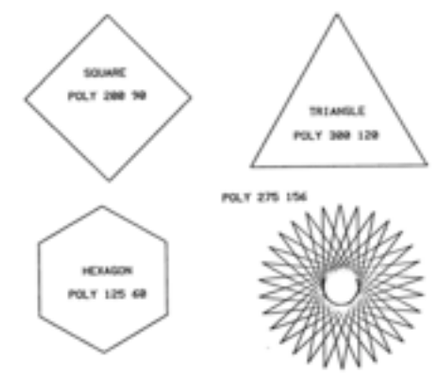
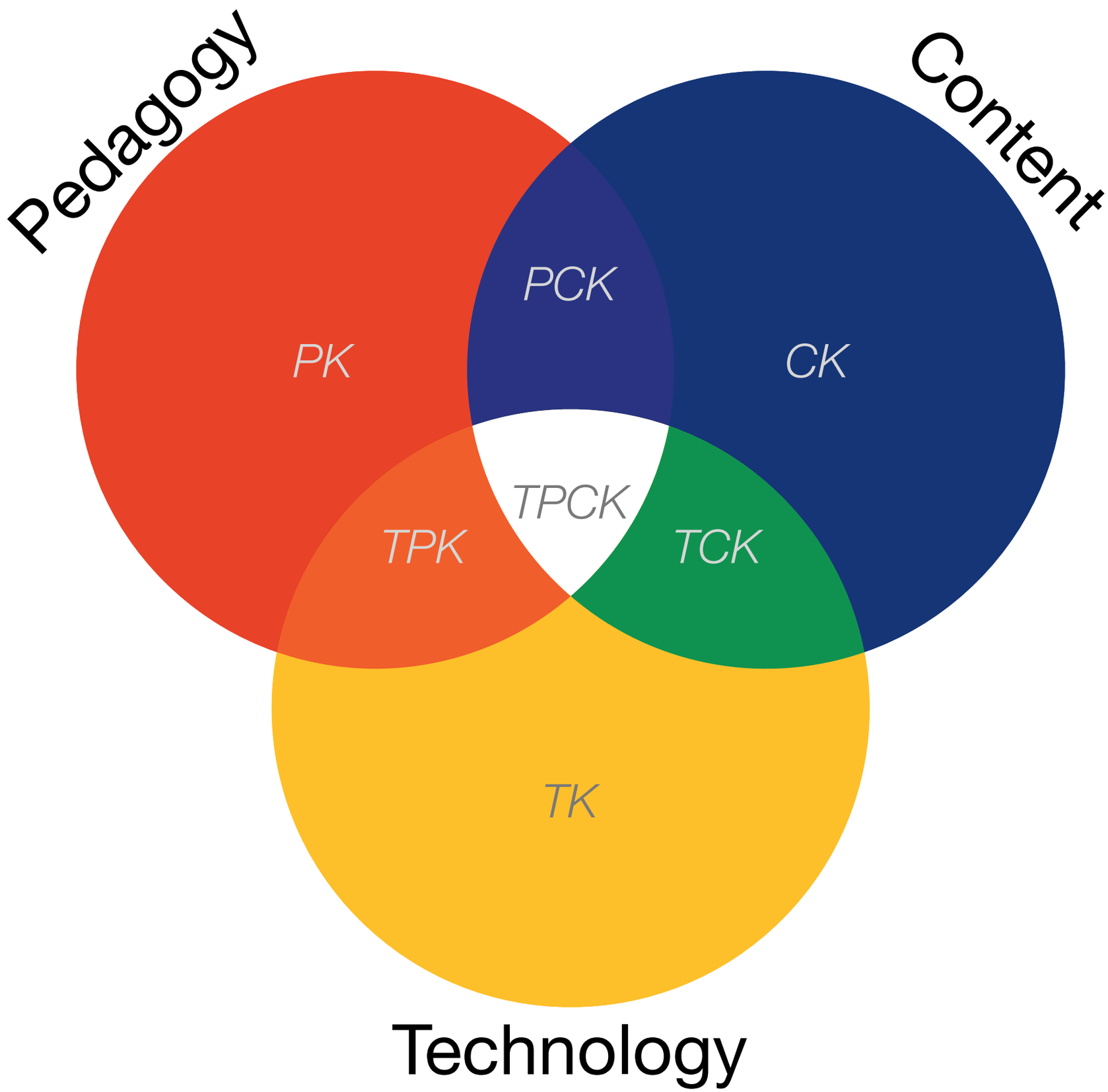
ON MAKING A THEOREM FOR A CHILD



The TPCK Model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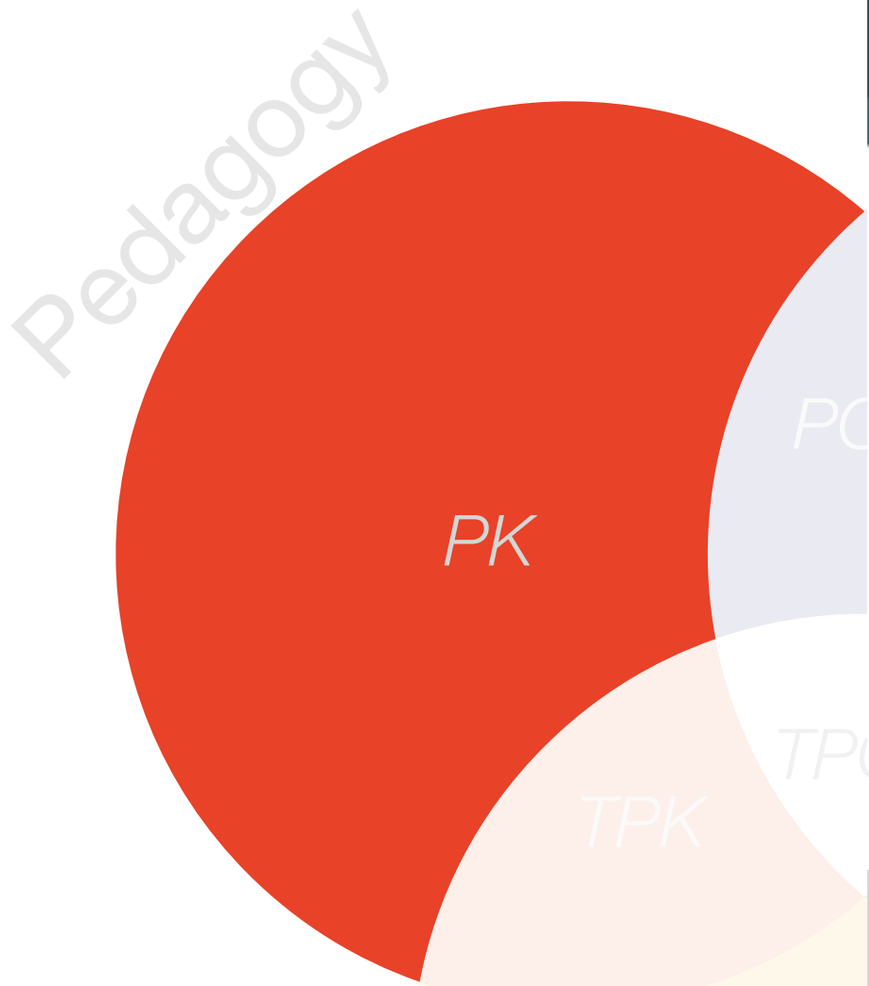
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NEW SCIENCE OF LEARNING
An article in Science magazine (July 17, 2009), entitled "Foundations for a New Science of Learning," was co-written by Andrew Meltzoff and Patrica Kuhl, LIFE Center Leads, with Javier Movellan and Terrence Sejnowski of the Temporal Dynamics of Learning Center. Read more.
LIFE Center
LIFE is a multi-institution NSF Science of Learning Center hosted at the University of Washington in partnership with Stanford University and SRI International. The LIFE Center seeks to develop and test principles about the social foundations of human learning in informal and formal environments with the goal of enhancing human learning from infancy to adulthood. Learn more.
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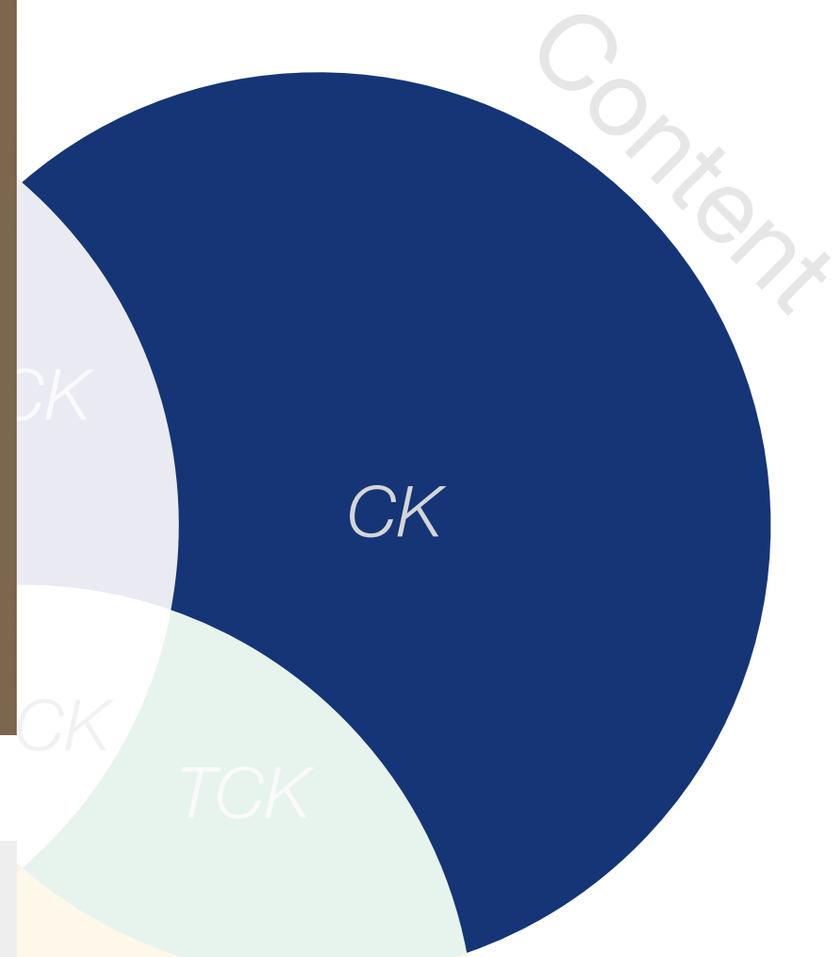
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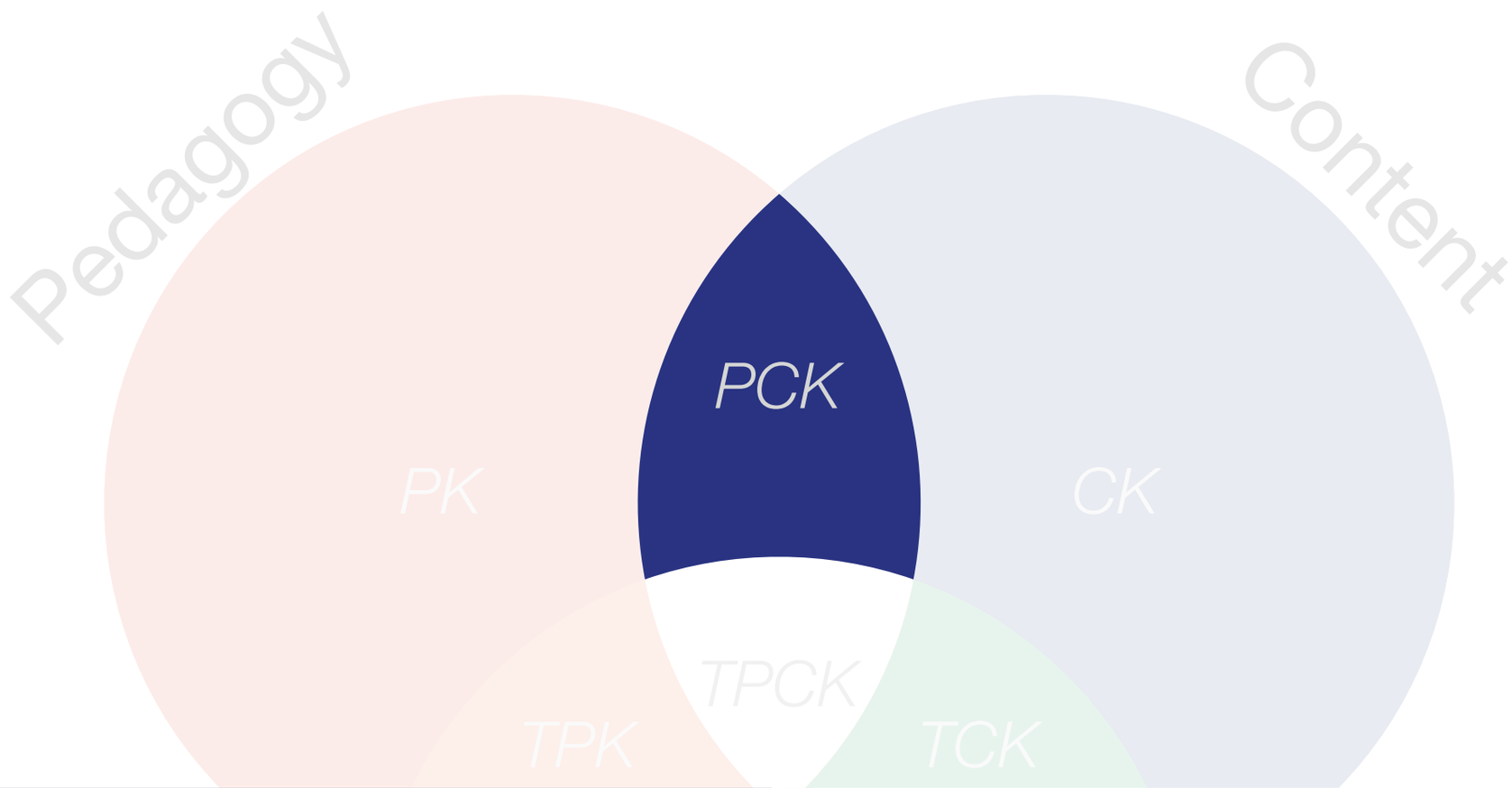

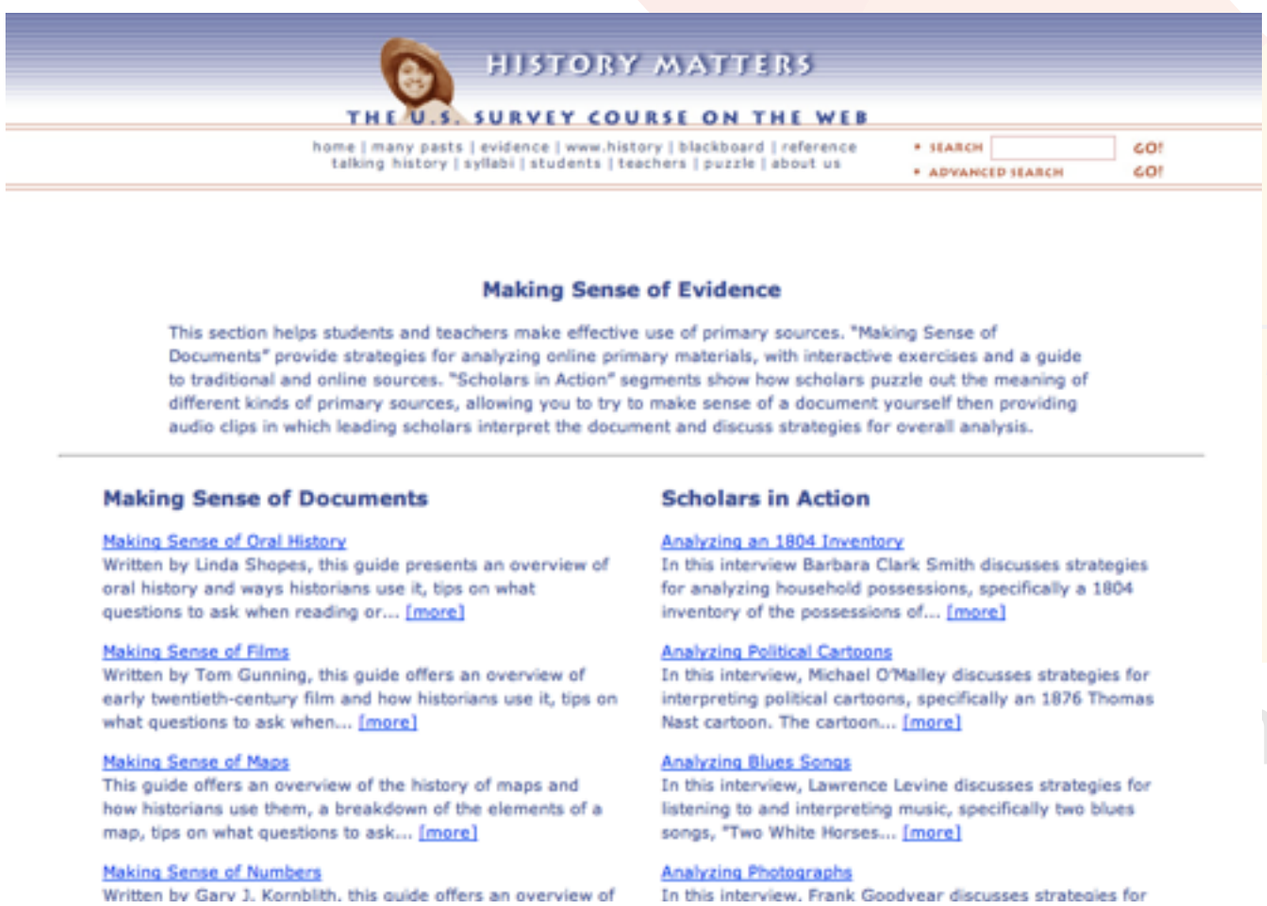

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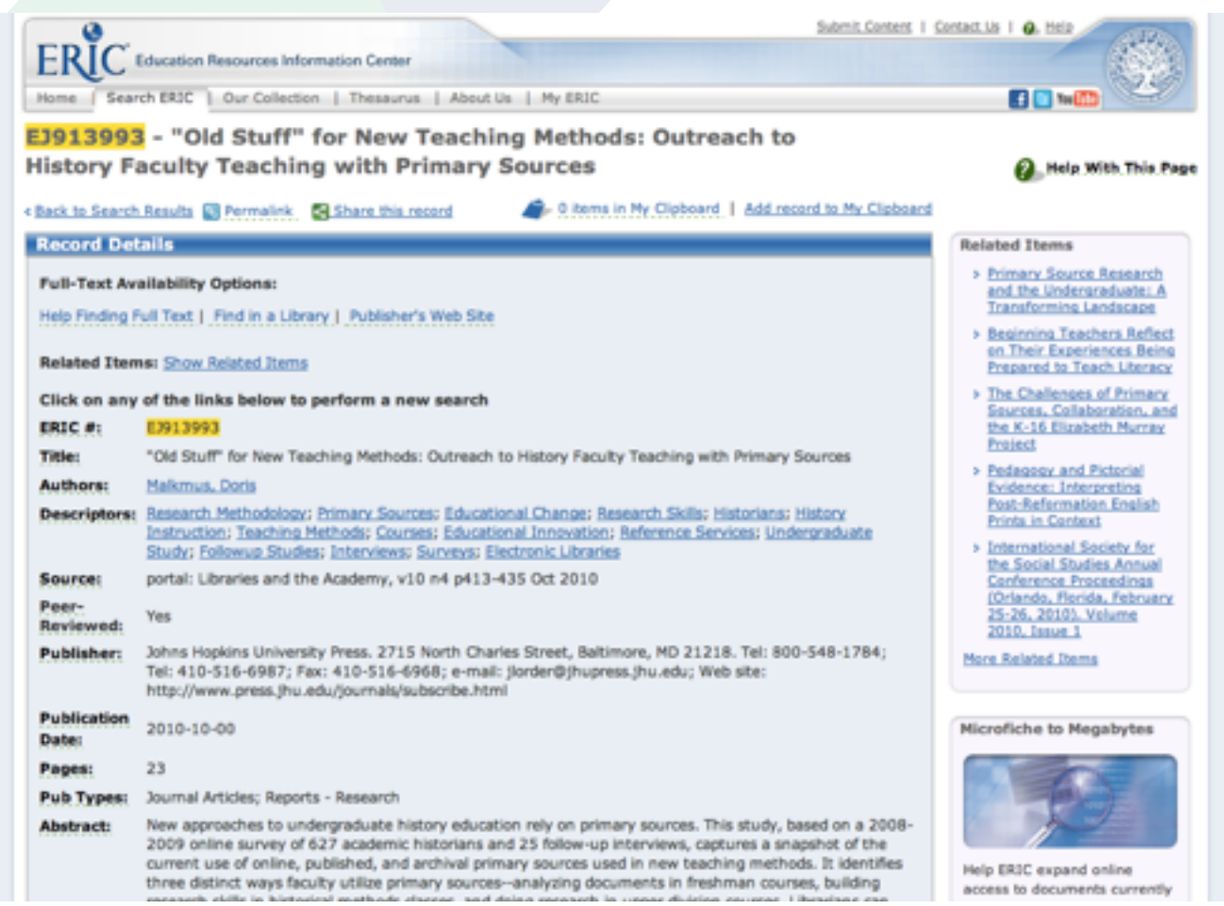

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Source: portal: Libraries and the Academy, v10 n4 p413-435 Oct 2010

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Abstract: New approaches to undergraduate history education rely on primary sources. This study, based on a 2008-2009 online survey of 627 academic historians and 25 follow-up interviews, captures a snapshot of the current use of online, published, and archival primary sources used in new teaching methods. It identifies three distinct ways faculty utilize primary sources--analyzing documents in freshman courses, building

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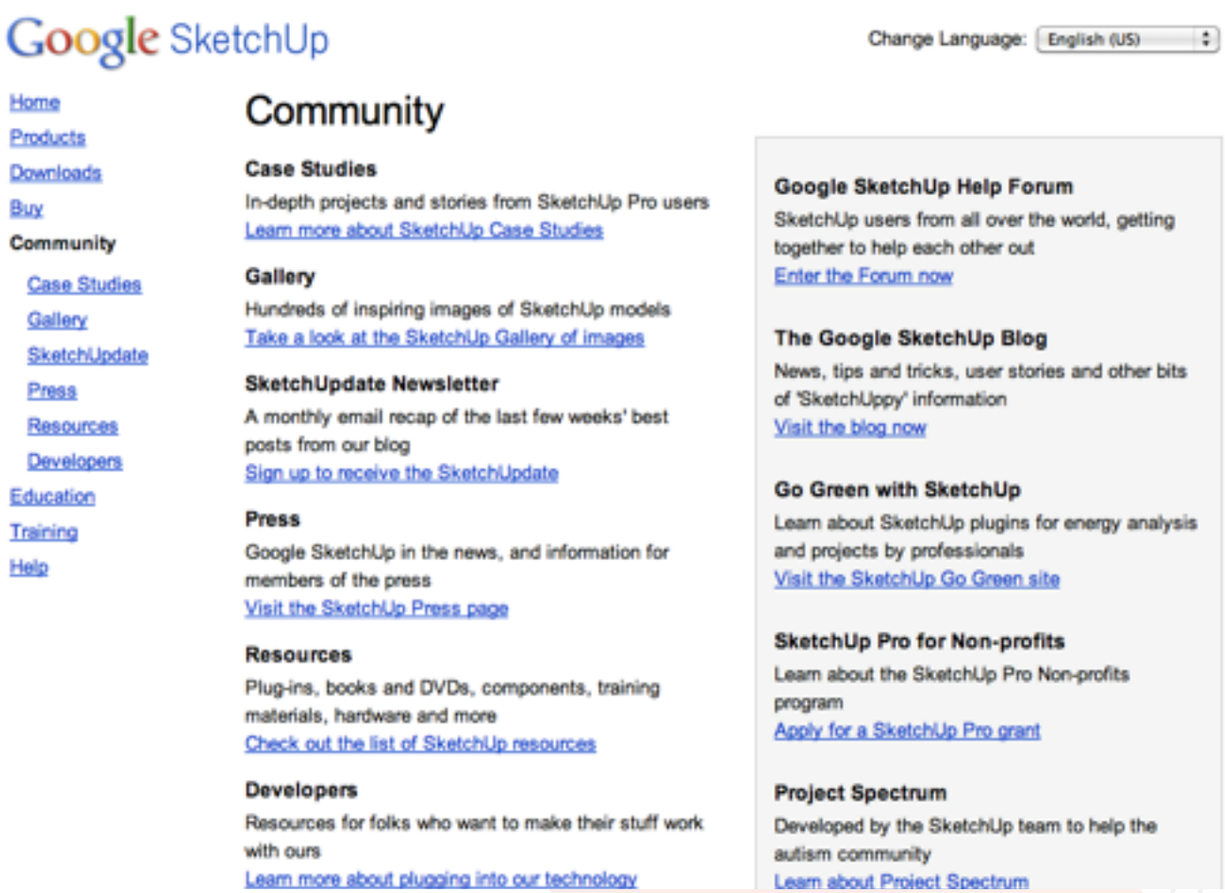
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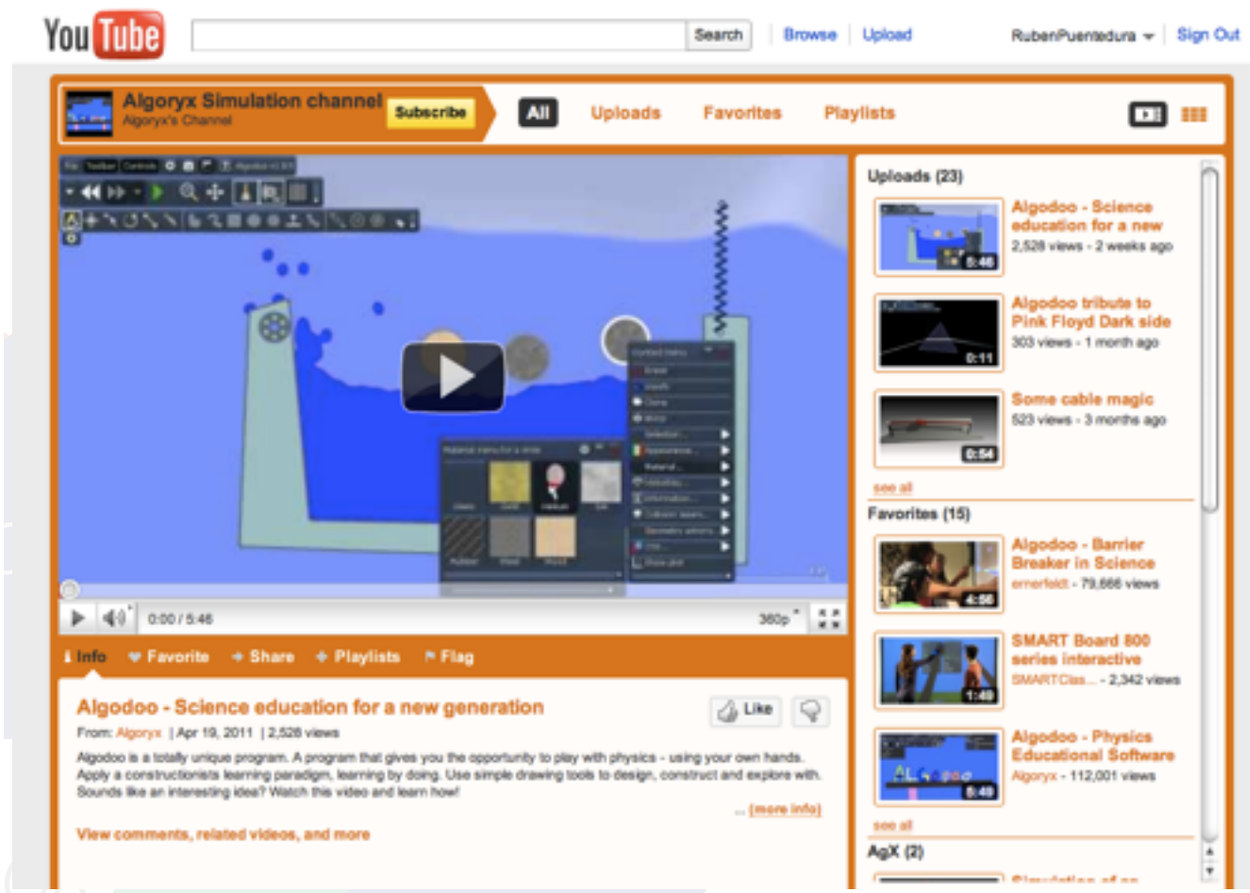
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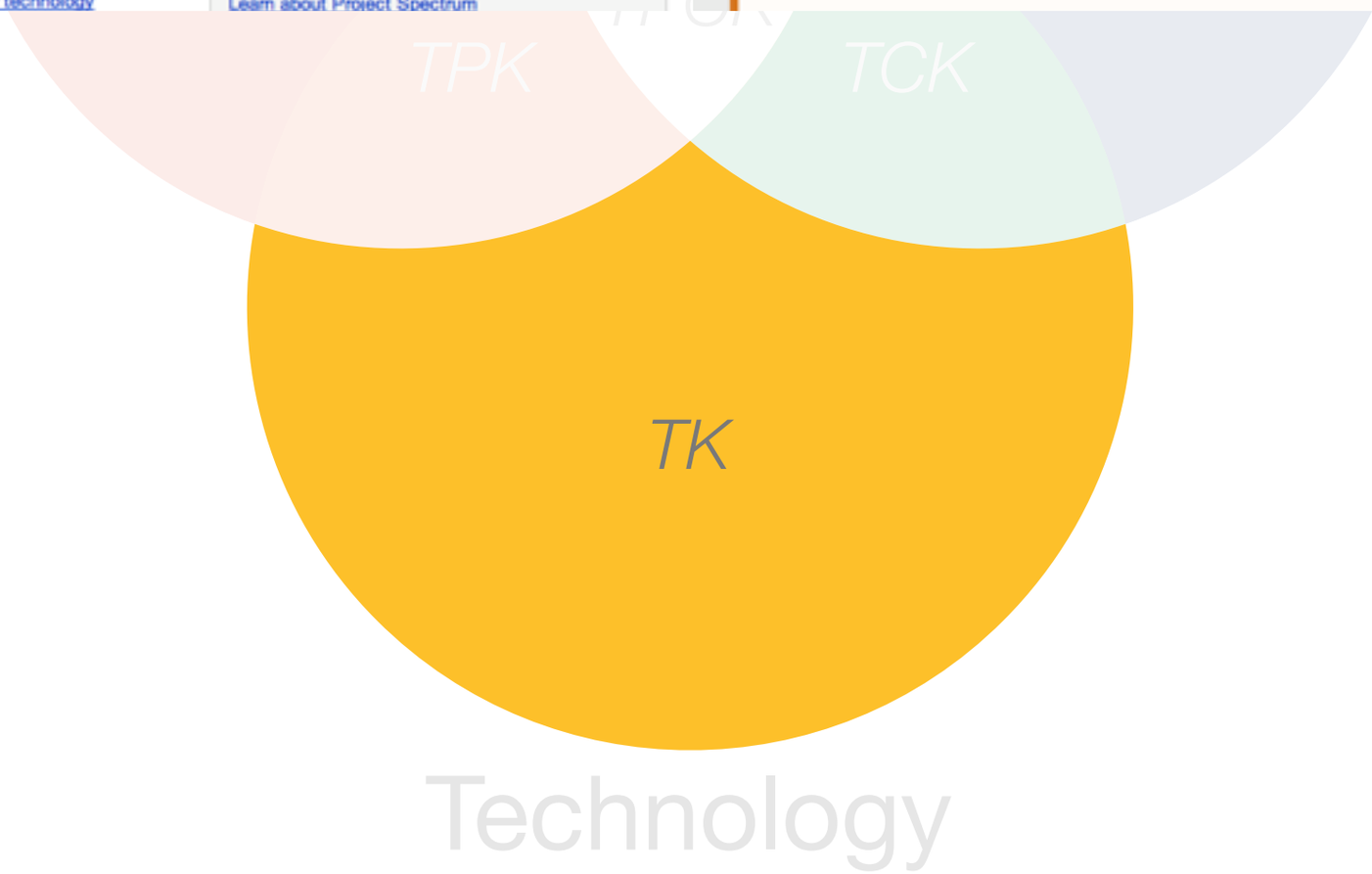
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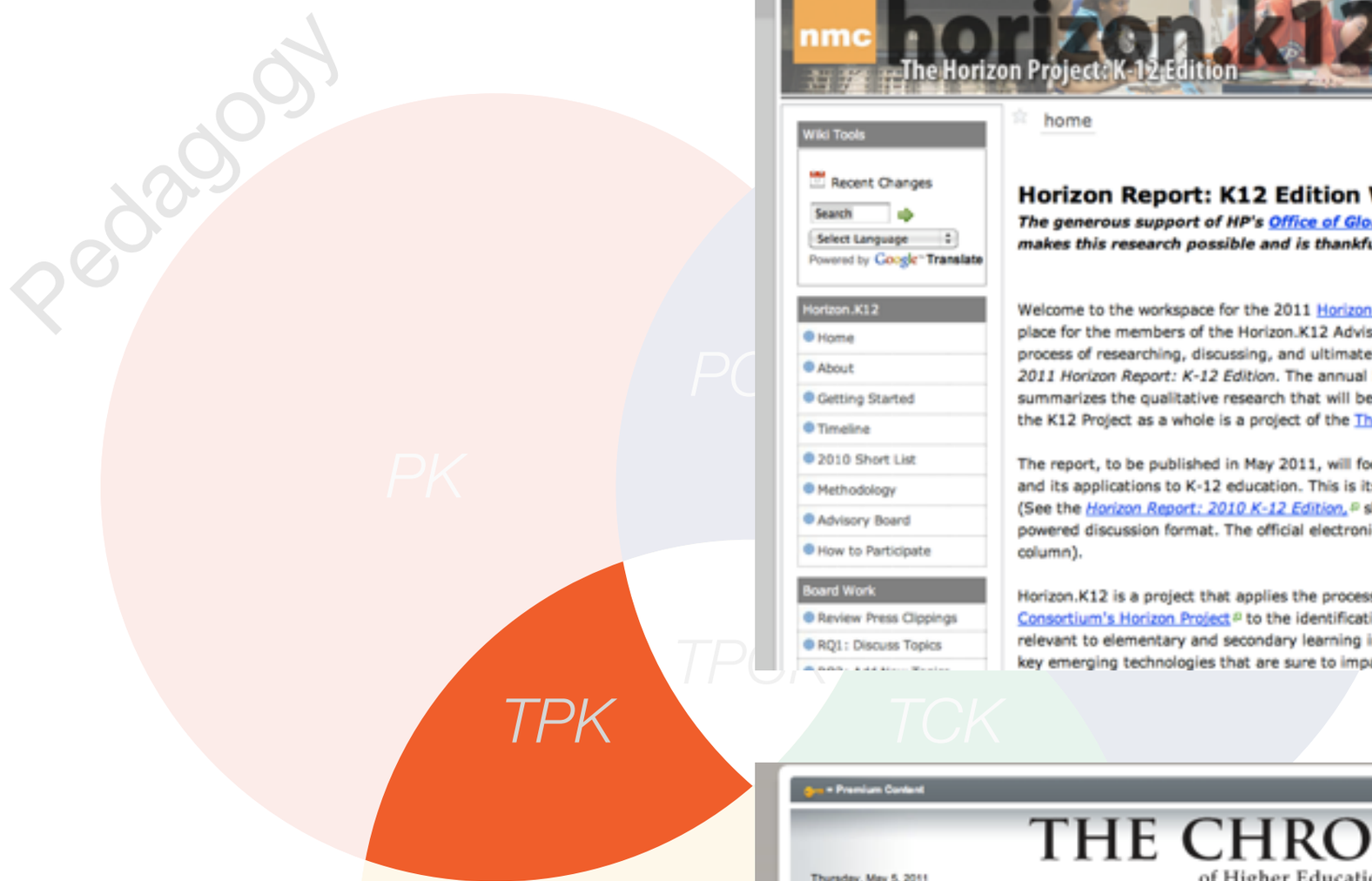
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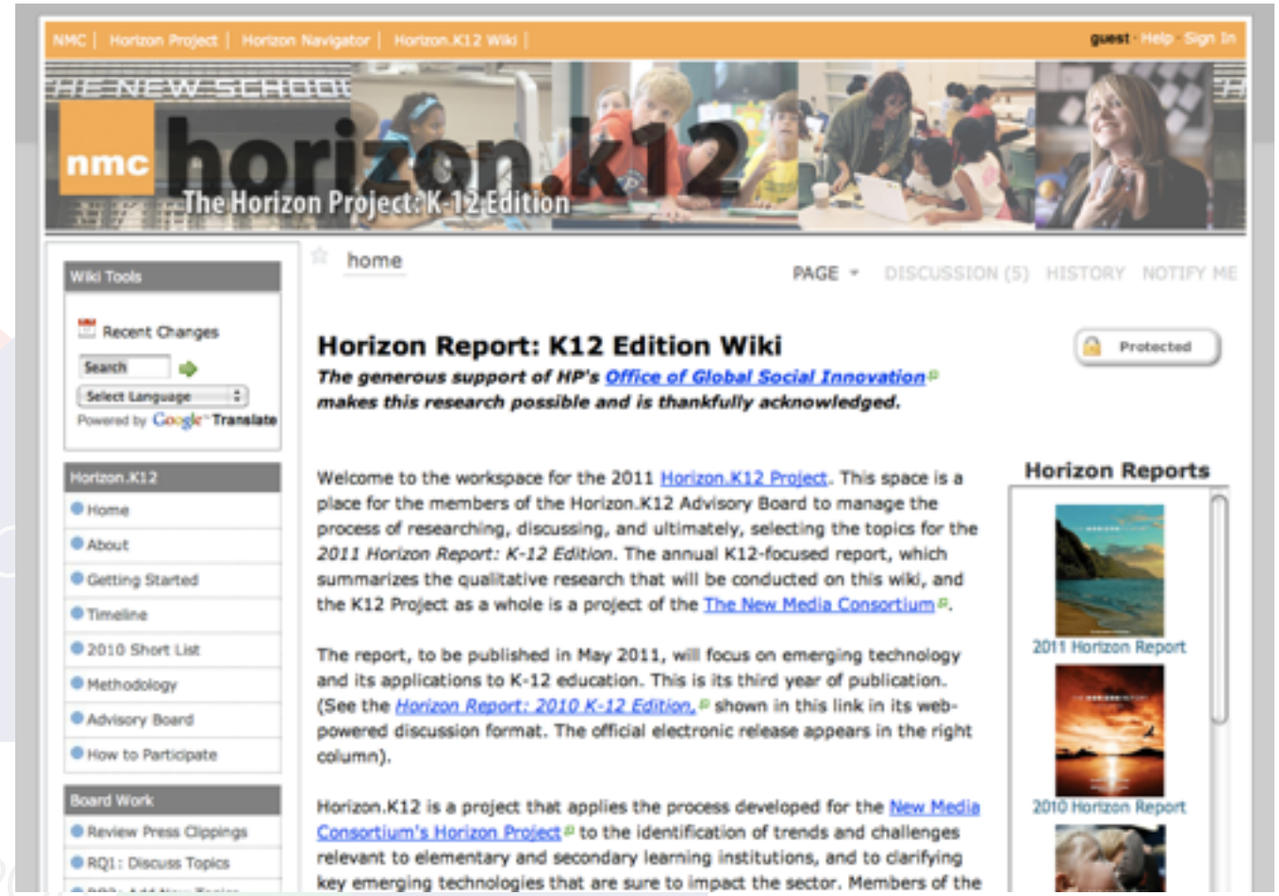
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Horizon Report: K12 Edition Wiki
The generous support of HP's Office of Global Social Innovation makes this research possible and is thankfully acknowledged.
Welcome to the workspace for the 2011 Horizon.K12 Project. This space is a place for the members of the Horizon.K12 Advisory Board to manage the process of researching, discussing, and ultimately, selecting the topics for the 2011 Horizon Report: K-12 Edition. The annual K12-focused report, which summarizes the qualitative research that will be conducted on this wiki, and the K12 Project as a whole is a project of the The New Media Consortium.
The report, to be published in May 2011, will focus on emerging technology and its applications to K-12 education. This is its third year of publication. (See the Horizon Report: 2010 K-12 Edition, shown in this link in its web-powered discussion format. The official electronic release appears in the right column).
Horizon.K12 is a project that applies the process developed for the New Media Consortium's Horizon Project to the identification of trends and challenges relevant to elementary and secondary learning institutions, and to clarifying key emerging technologies that are sure to impact the sector. Members of the
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May 4, 2011, 3:00 pm
Using Google Docs Forms to Run a Peer-Review Writing Workshop
By Ryan Cordell
Today in my literary theory and writing course I found yet another great use for Google Docs, one of our favorite subjects here at ProfHacker. Specifically, I used Google Docs Forms to structure an in-class peer review workshop.
I've asked my class to submit all of their writing via Google Docs this semester. Google Docs are easier to comment on and return to students. My students and I also don't need to worry about which version of a given document is attached to which email, since we share a online documents rather than exchanging files. Though there have been a few technical hiccups, on the whole, managing a revision-heavy class has been much easier through Google Docs than it ever was via email or CMS.
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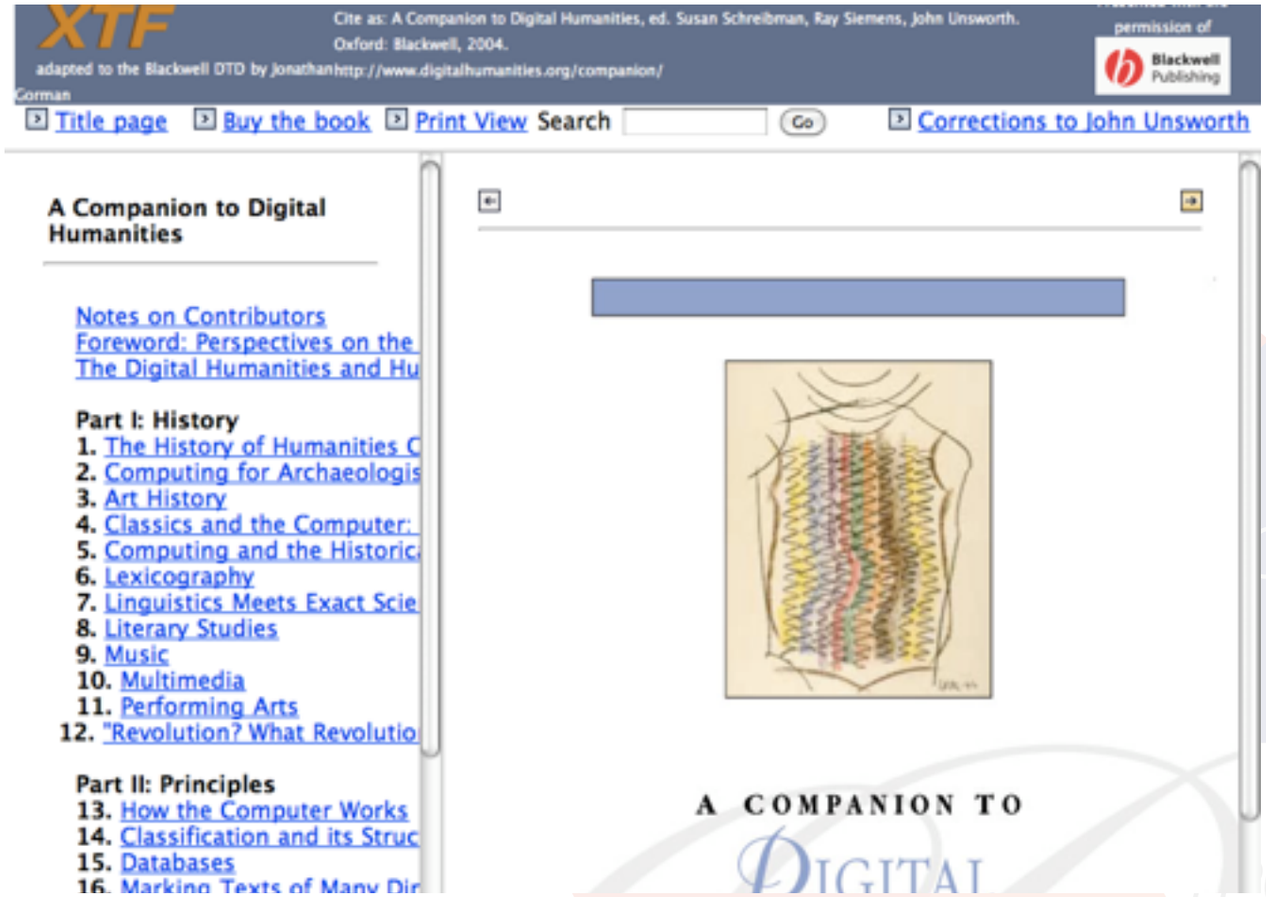
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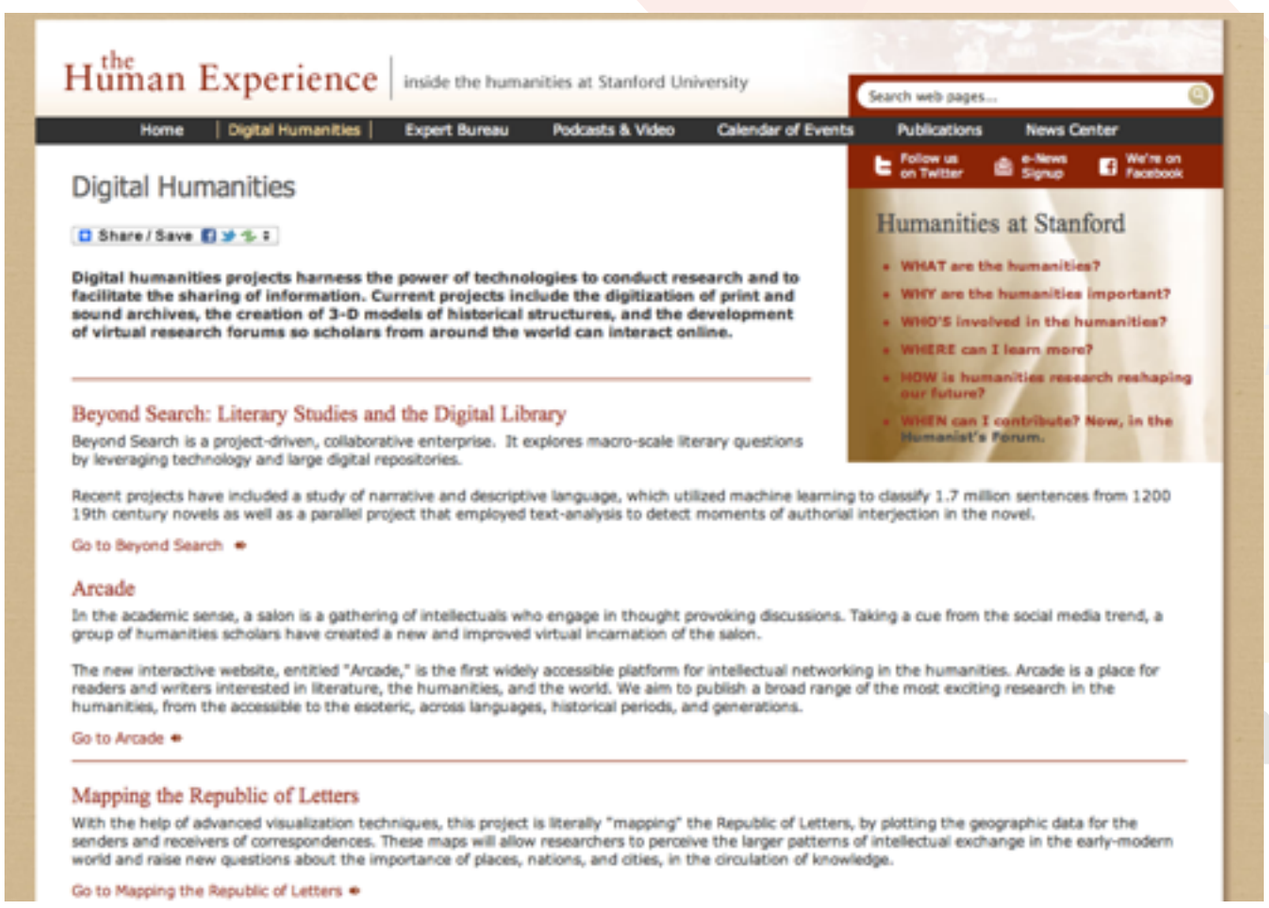
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Digital humanities projects harness the power of technologies to conduct research and to facilitate the sharing of information. Current projects include the digitization of print and sound archives, the creation of 3-D models of historical structures, and the development of virtual research forums so scholars from around the world can interact online.
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Beyond Search: Literary Studies and the Digital Library
Beyond Search is a project-driven, collaborative enterprise. It explores macro-scale literary questions by leveraging technology and large digital repositories.
Recent projects have included a study of narrative and descriptive language, which utilized machine learning to classify 1.7 million sentences from 1200 19th century novels as well as a parallel project that employed text-analysis to detect moments of authorial interjection in the novel.
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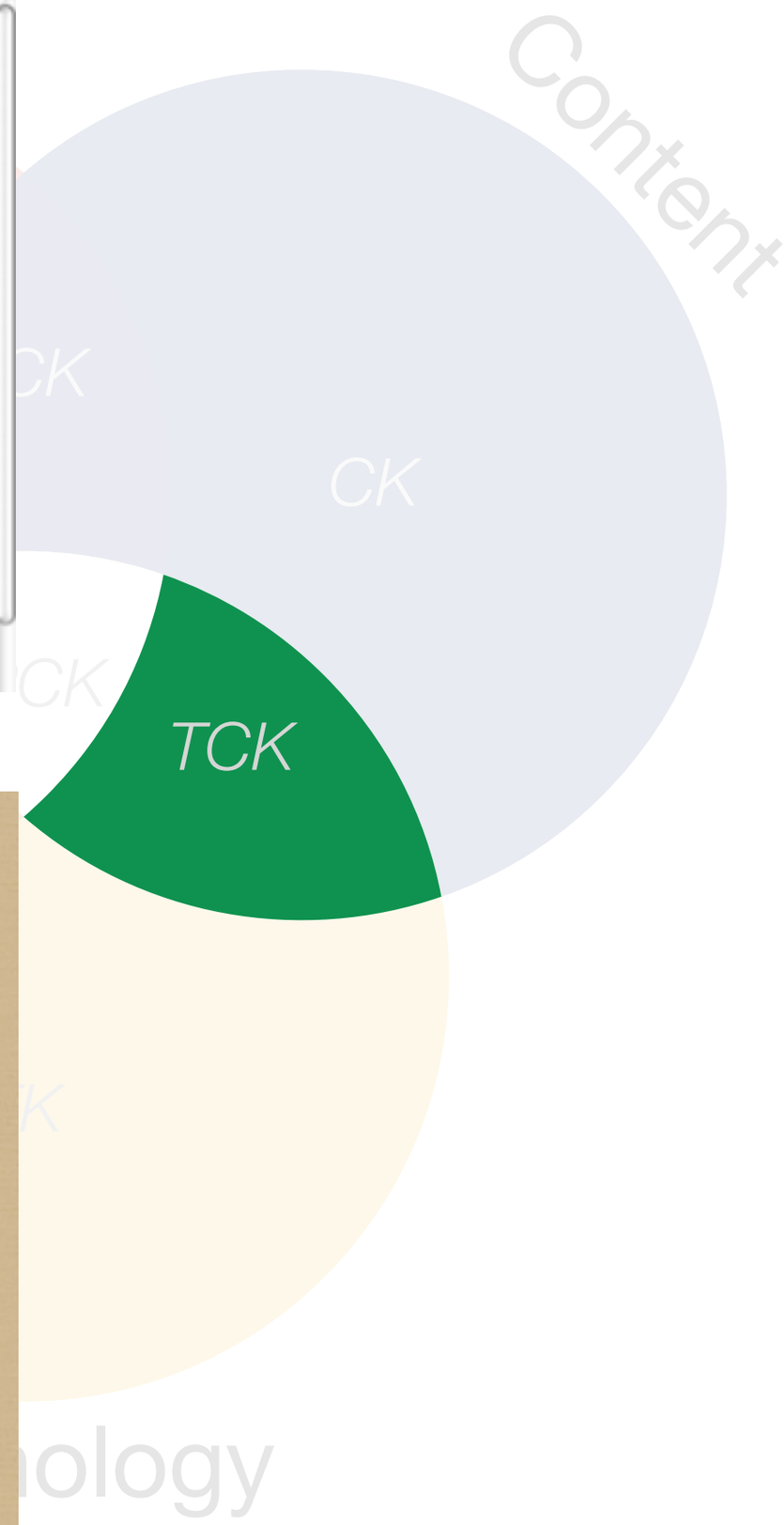
Arcade
In the academic sense, a salon is a gathering of intellectuals who engage in thought provoking discussions. Taking a cue from the social media trend, a group of humanities scholars have created a new and improved virtual incarnation of the salon.
The new interactive website, entitled "Arcade," is the first widely accessible platform for intellectual networking in the humanities. Arcade is a place for readers and writers interested in literature, the humanities, and the world. We aim to publish a broad range of the most exciting research in the humanities, from the accessible to the esoteric, across languages, historical periods, and generations.
Go to Arcade
Mapping the Republic of Letters
With the help of advanced visualization techniques, this project is literally "mapping" the Republic of Letters, by plotting the geographic data for the senders and receivers of correspondences. These maps will allow researchers to perceive the larger patterns of intellectual exchange in the early-modern world and raise new questions about the importance of places, nations, and cities, in the circulation of knowledge.
Go to Mapping the Republic of Letters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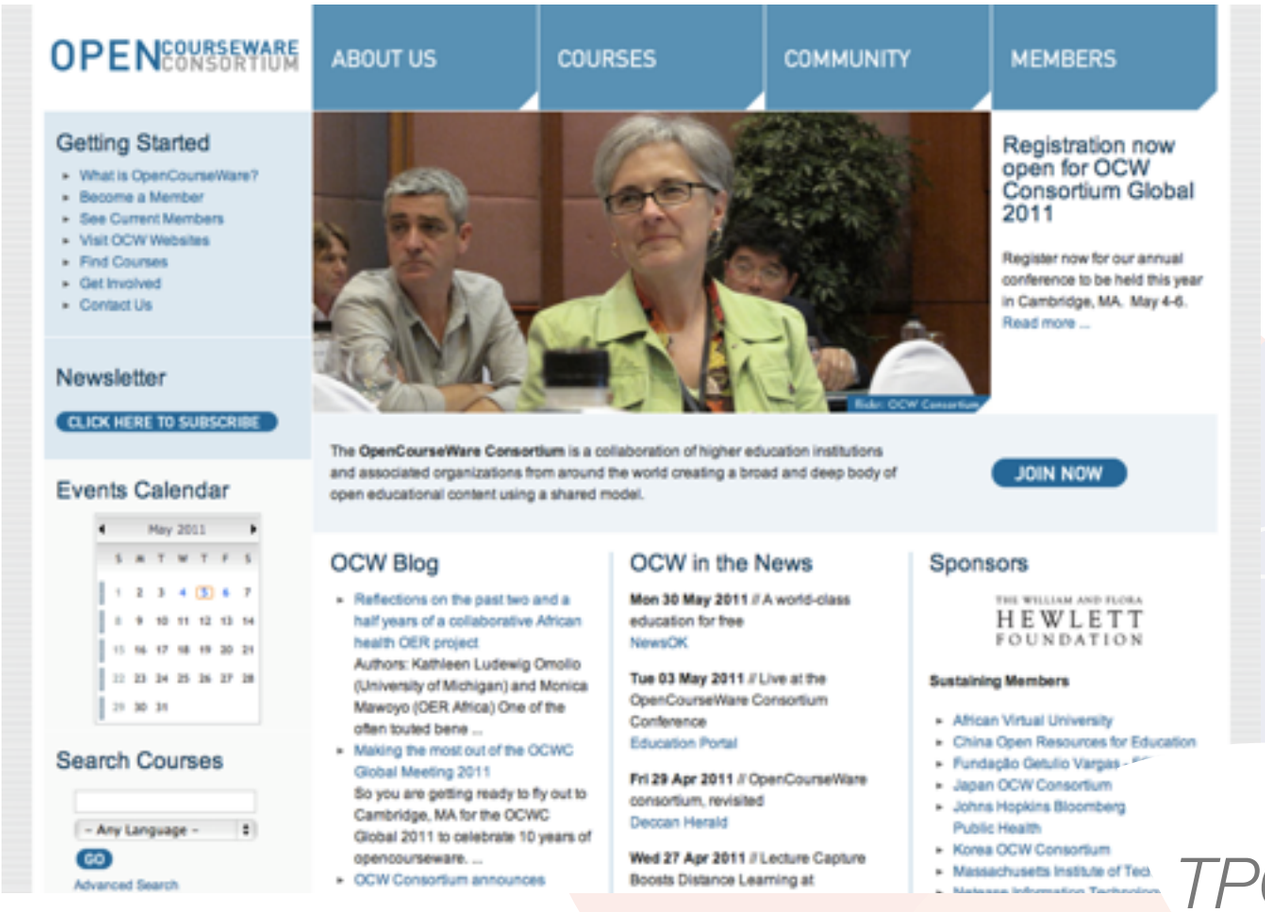
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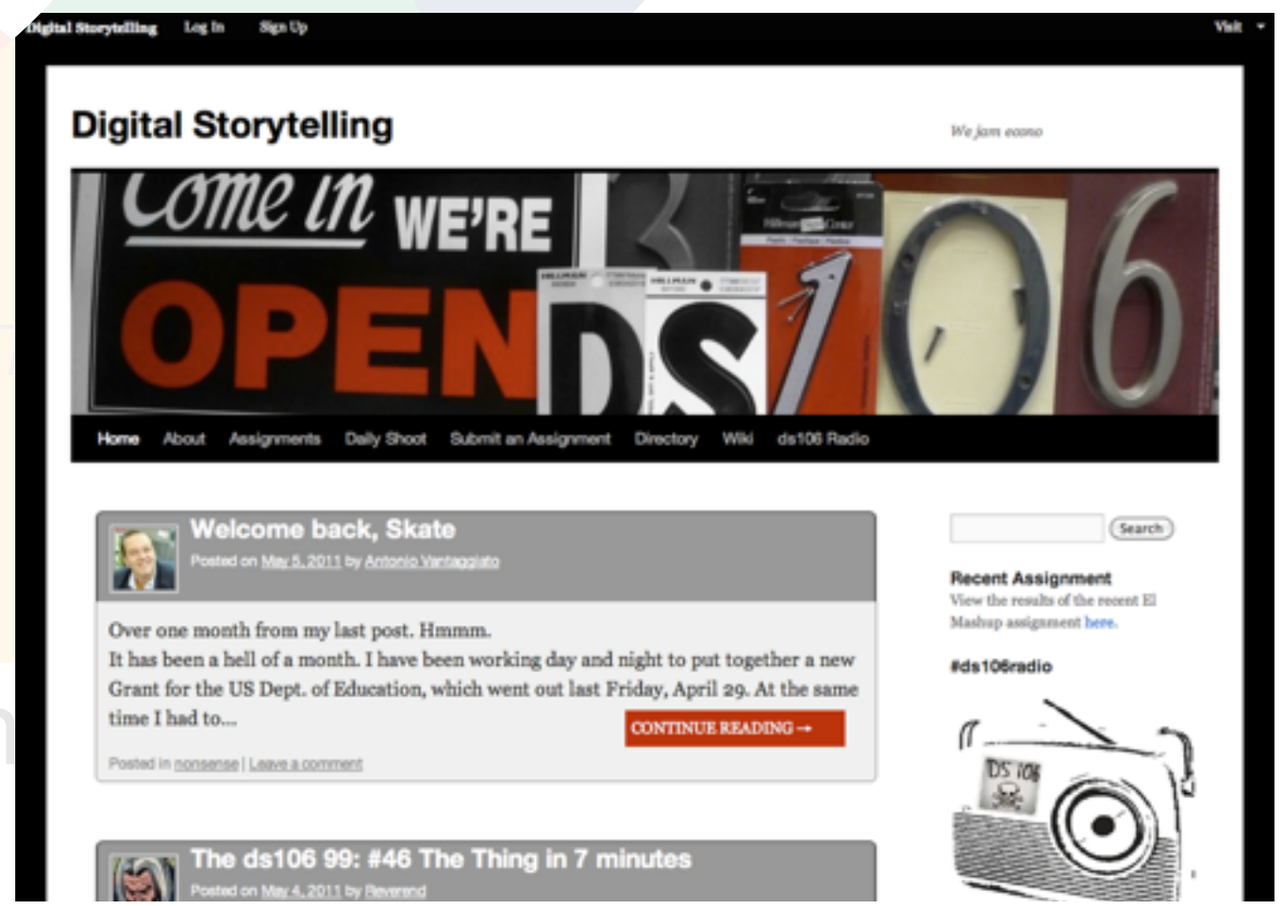
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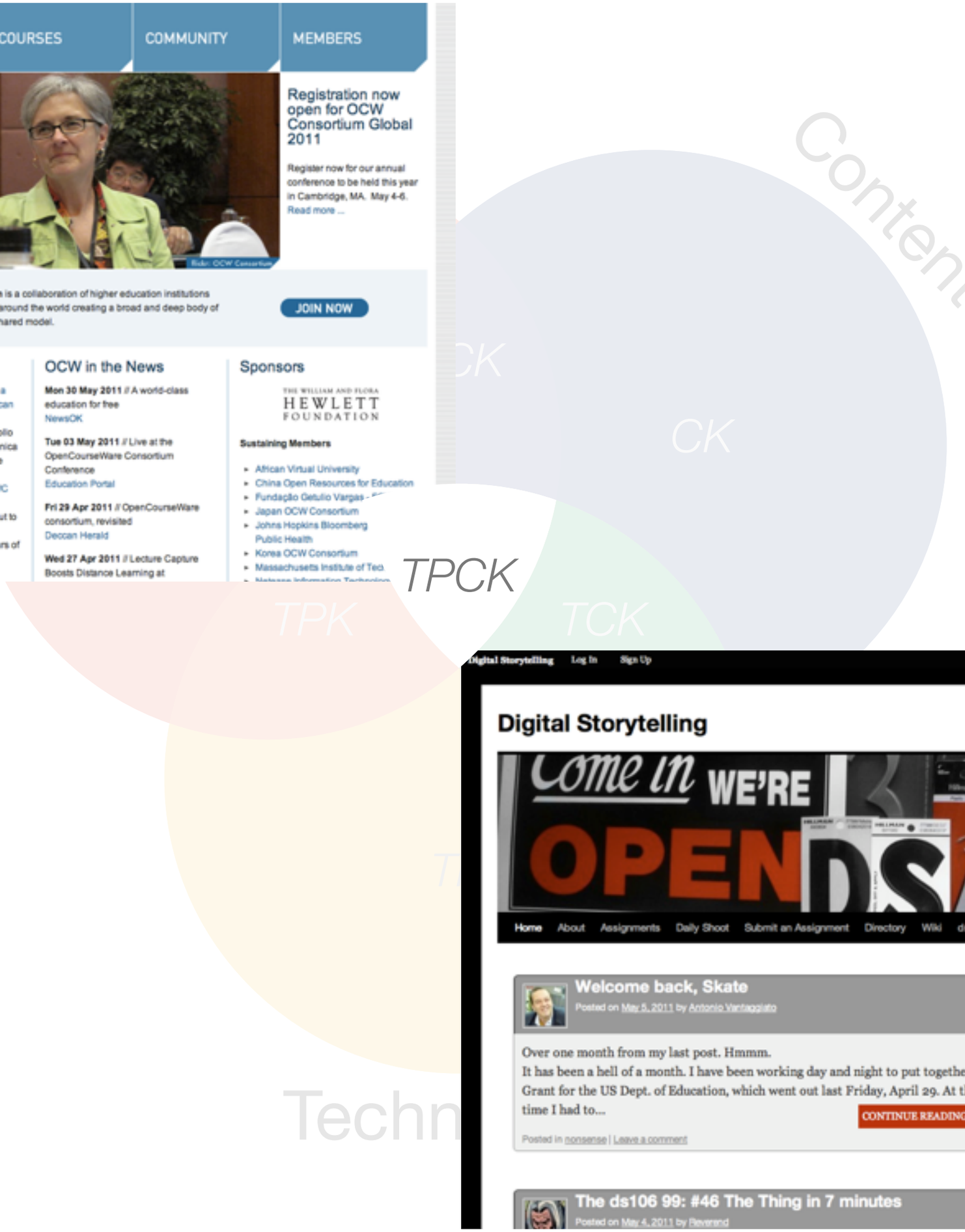
Content
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The SAMR Model

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

Modification
Tech allows for significant task redesign

Transformation

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

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

Enhancement

Marzano:
Six Steps to Effective Vocabulary Instruction

- 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 Periodically Do Activities That Help Them Add to Their Knowledge of Vocabulary Terms
- Step 5: Periodically Students Are Asked to Discuss the Terms with One Another
- Step 6: Periodically Students Are Involved in Games That Allow Them to Play with the Terms

R.J. Marzano. *Building Background Knowledge for Academic Achievement: Research on What Works in Schools*. Alexandria, VA: ASCD, 2004

Redefinition

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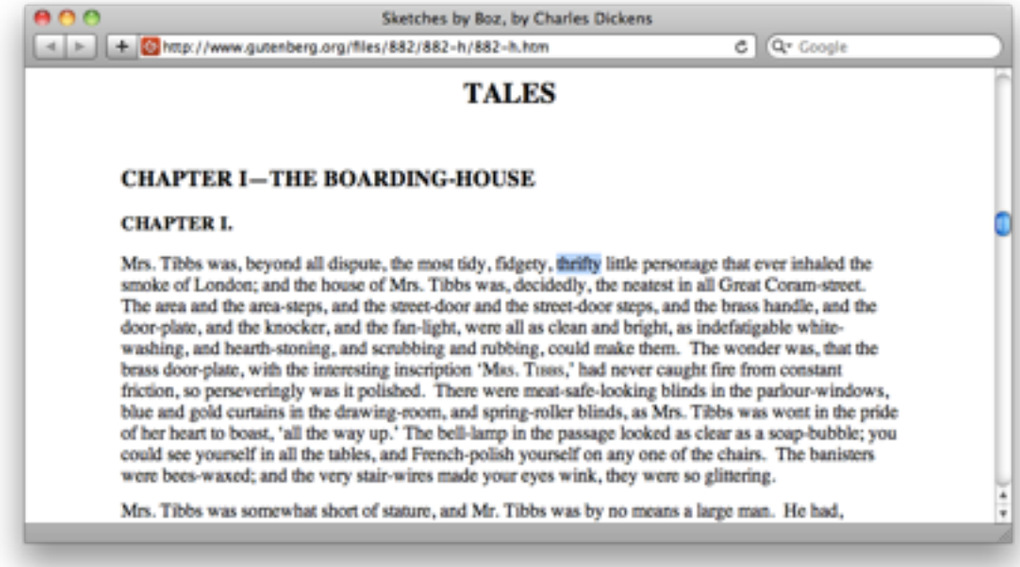
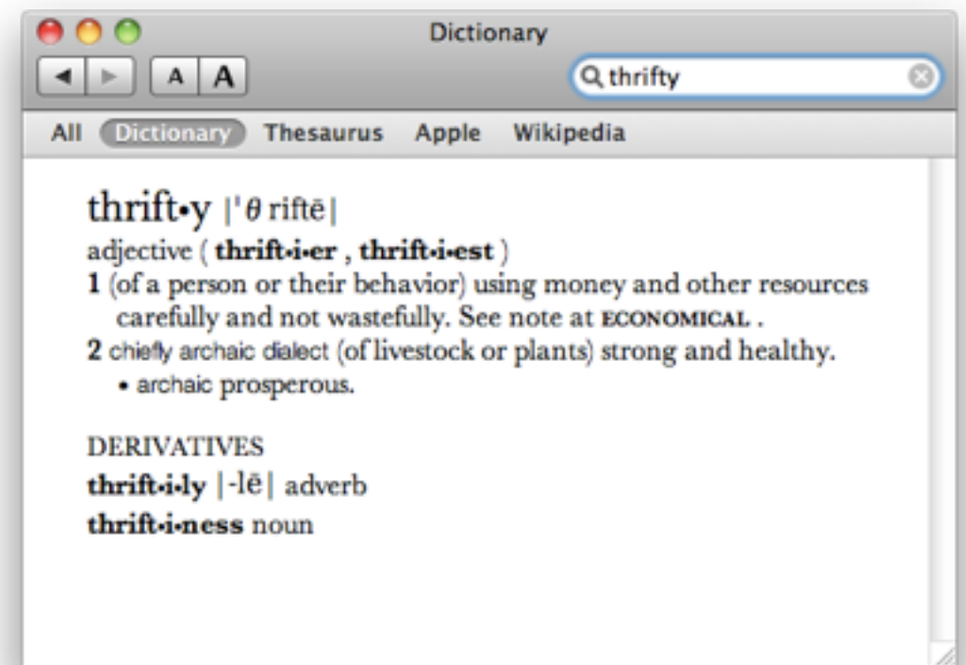


Modification

Tech allows for significant task redesign



Augmentation

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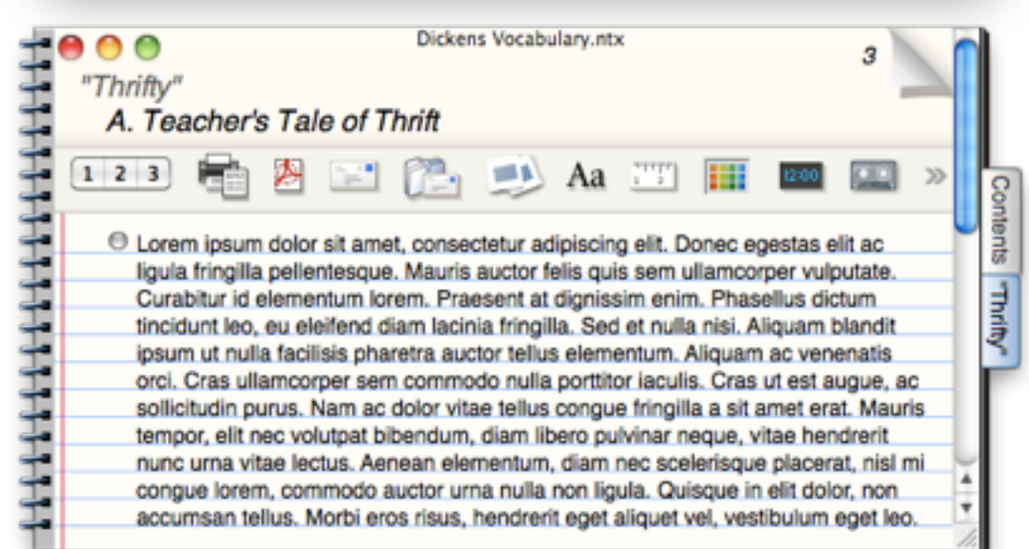

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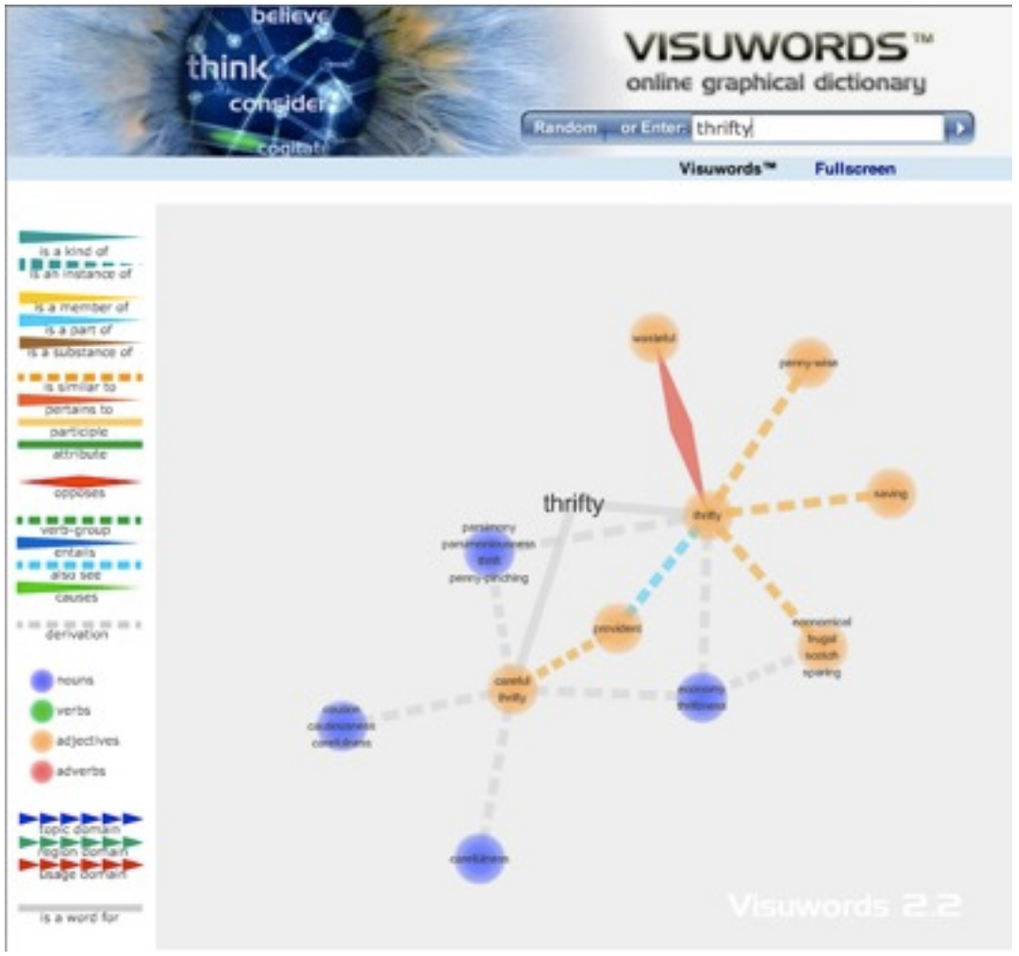

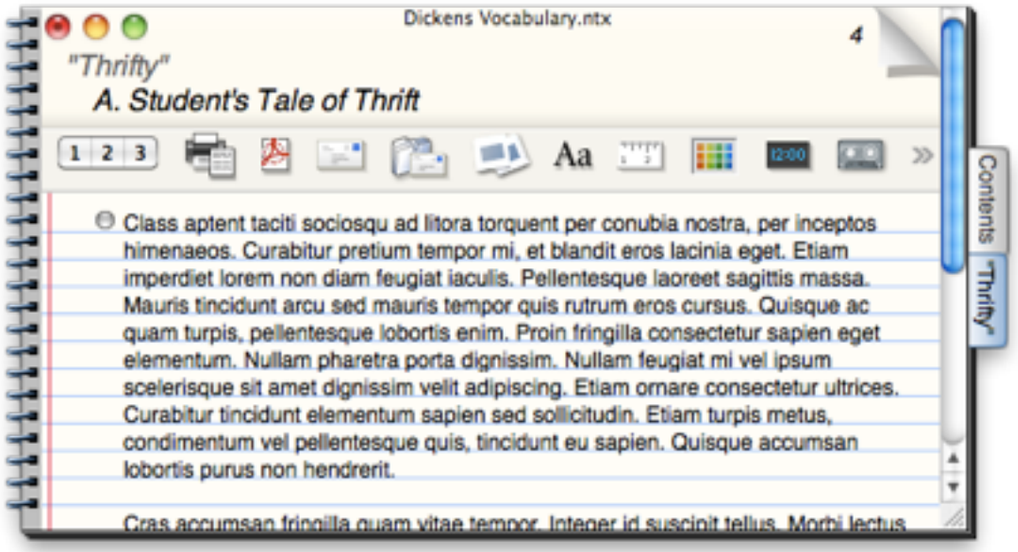

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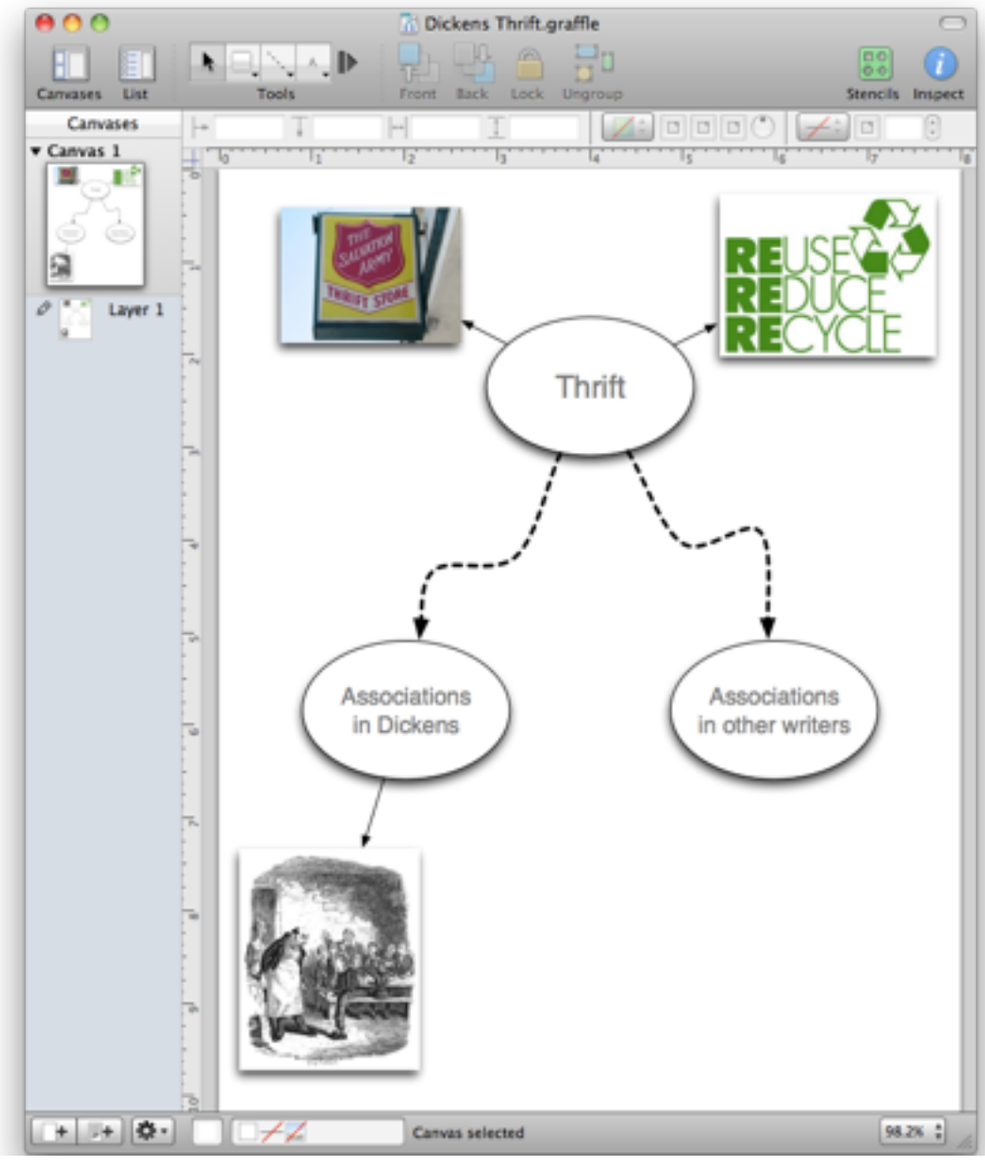

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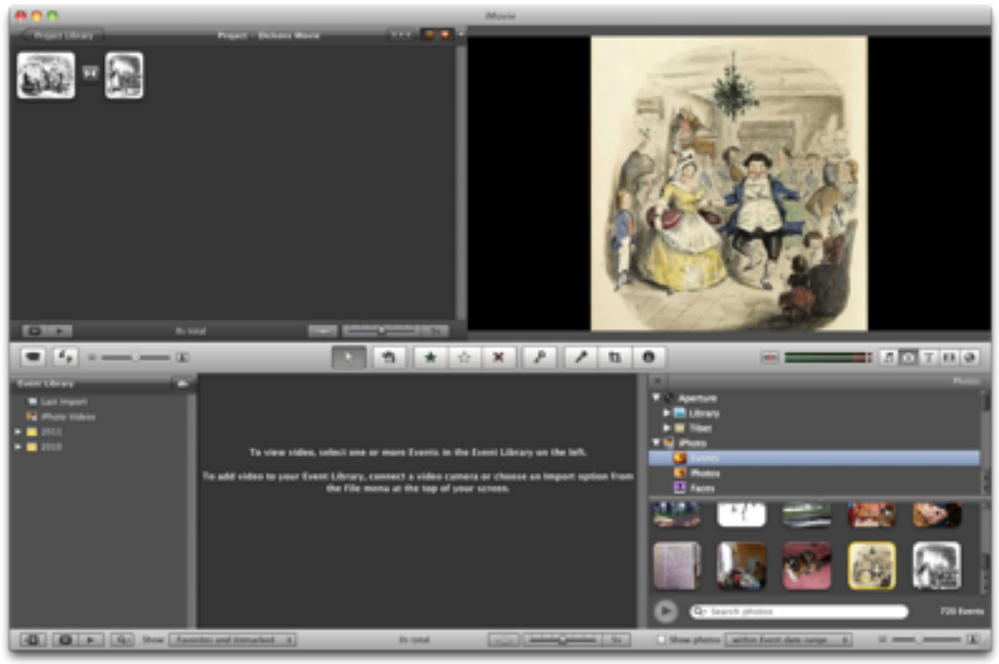

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Additional Resources

Resources

Metaphors:

- Vannevar Bush, “As We May Think”. *The Atlantic Monthly*. (July 1945) Online at: http://www.theatlantic.com/magazine/archive/1969/12/as-we-may-think/3881/
- Douglas C. Engelbart, *A Research Center for Augmenting Human Intellect*. (December 1968 live demo) Archived online at: http://sloan.stanford.edu/mousesite/1968Demo.html
- Alan Kay, “A Personal Computer for Children of All Ages”. *Proceedings of the ACM National Conference*. Boston (August 1972) Online at: http://www.mprove.de/diplom/gui/Kay72a.pdf
- Seymour Papert, “On Making a Theorem for a Child”. *Proceedings of the ACM National Conference*. Boston (August 1972) Online at: http://portal.acm.org/citation.cfm?id=569942

SAMR and TPCK:

- Ruben R. Puentedura, *Transformation, Technology, and Education*. (2006) Online at: http://hippasus.com/resources/tte/
- Ruben R. Puentedura, *As We May Teach: Educational Technology, From Theory Into Practice*. (2009) Online at: http://tinyurl.com/aswemayteach
- *TPCK - Technological Pedagogical Content Knowledge*. (2008-2010) Online at: http://www.tpck.org/
- AACTE (Eds.) *The Handbook of Technological Pedagogical Content Knowledge for Educators*. New York:Routledge, 2008.

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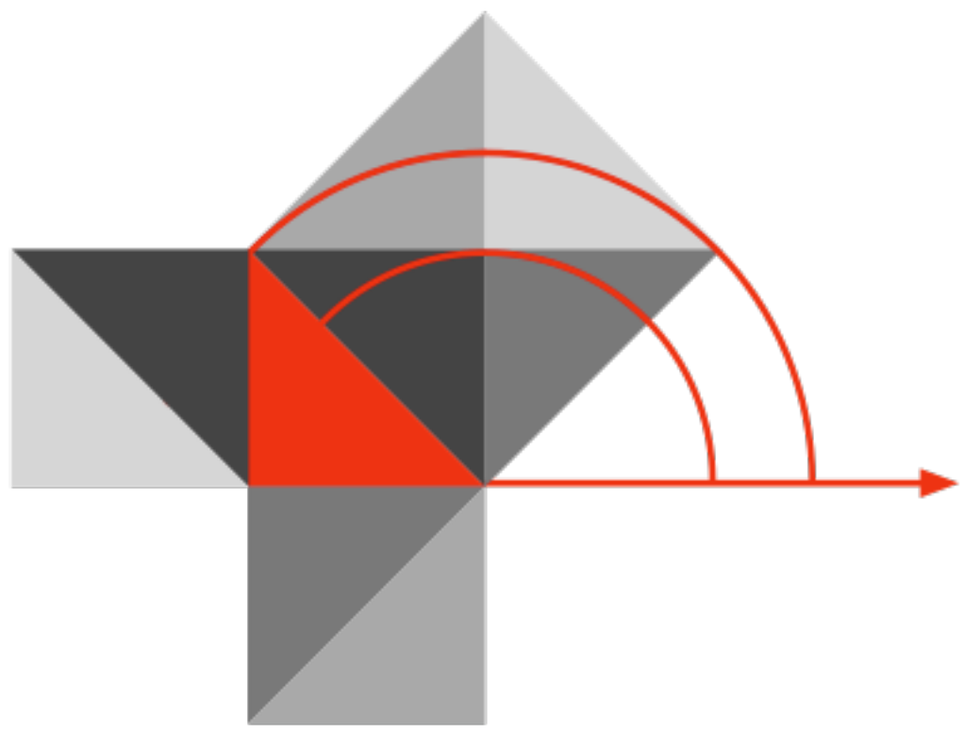

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