

Research, Myth, & Rhetoric

What do we know and not know about learning?



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Today's Mantra: Research, Not Rhetoric



Anticipation Guide

Directions: Please read each statement and decide if you **Agree** or **Disagree** with the statement, or how might you want to **Edit** the statement.

1. Higher education instruction is more art than science.
2. Integrated learning is only possible with upper level classes, where students have a greater knowledge base.
3. The instructor's job is to present; the student's job is to learn.

Overview

1. Introduction
2. Myth
3. Rhetoric
4. Research
5. Conclusion



Myths

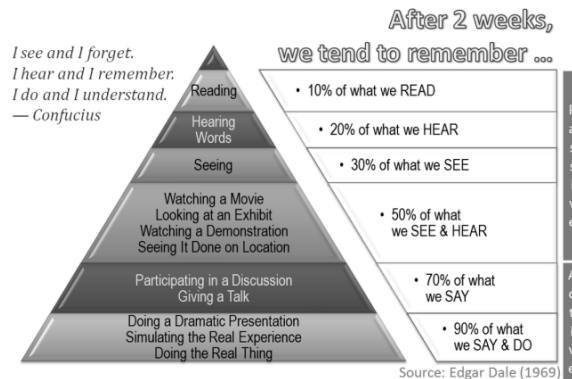


Just say no

Cone of Experience Cone of Learning

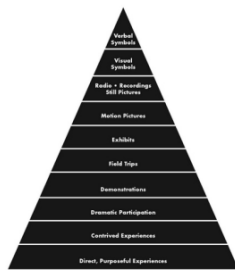
The Cone of Learning

sparkinsight.com

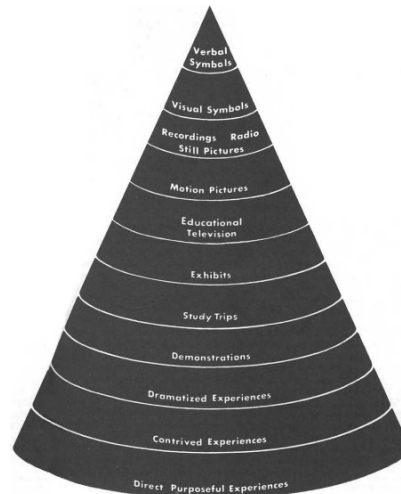


Cone of Experience/Learning

Dale, E. (1946, 1954). *Audio-video methods in teaching*. New York, NY: Dryden Press.



First Edition



Revised Edition

Cone of Experience/Learning

The device of the cone must be taken for nothing more than it is:

a visual metaphor of learning experiences, in which the various kinds of audio-visual materials appear in the order of increasing abstraction as one proceeds from direct experience.

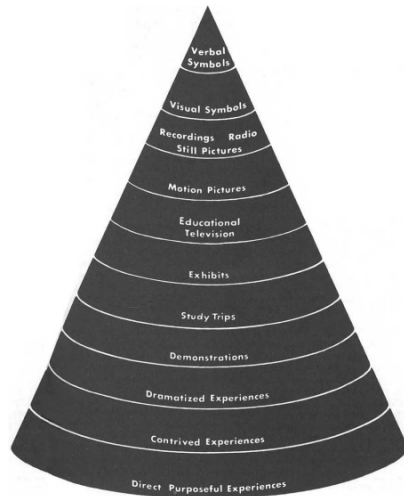
(Dale, 1946, p. 38).

If we realize now that the bands on the cone frequently interlap and blend into one another, and that a child who can read and write can use verbal symbols,

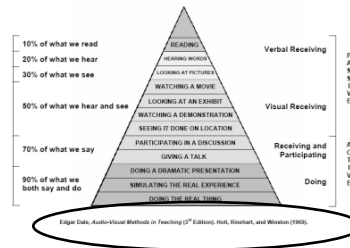
there will be no mistaking our cone-device for a hierarchy or rank order of learning processes.

(Dale, 1946, p. 47)

Cone of Experience/Learning



CONE OF LEARNING
WE TEND TO REMEMBER OUR LEVEL OF INVOLVEMENT
(developed and revised by Bruce Hyland from material by Edgar Dale)



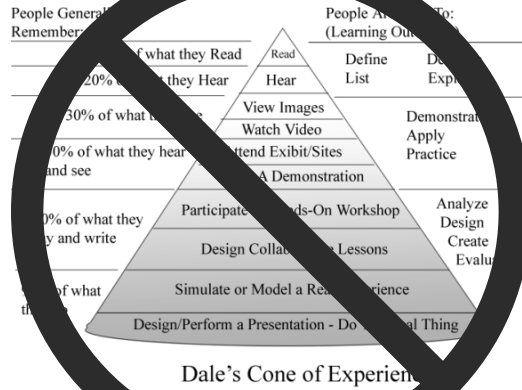
How did we get here ↑ from
← there?

Evolution of the Cone

- 1946 Edgar Dale
- 1967 Treichler
- 1969 Wiman & Meirhenry

- 1940s Paul John Phillips
- 1940s National Training Labs

Cone of Learning



MT →

Multitasking



Multitasking: The Myth

- Tapscott, 1998
 - multitasking
- Frand, 2000
 - “multitasking way of life”
- Prensky , 2001
 - “digital natives accustomed to the twitch-speed, multitasking “

Watson, C. E., Terry, K., & Doolittle, P. (2012). Please read while texting and driving. In J. Groccia (Ed.), *To improve the academy* (vol. 31) (pp. 295-310). Bolton, MA: Anchor.

Was Any Research Available?



“The greater the number of objects to which our consciousness is simultaneously extended, the smaller is the intensity with which it is able to consider each.”

Hamilton, Mansel, & Veitch (1861)

Multitasking and Research

“The truth to multitasking is evident in the empirical studies... humans lack the cognitive, behavioral, and cortical structures necessary to multitask effectively.”

-- Watson, Terry, & Doolittle (2012)

Multitasking and Research

“fMRI technology found that multitasking is not actually a concurrent process, but a sequential one that involves task-switching.”

-- Charron & Koechlin, 2010

A Few Multitasking Results

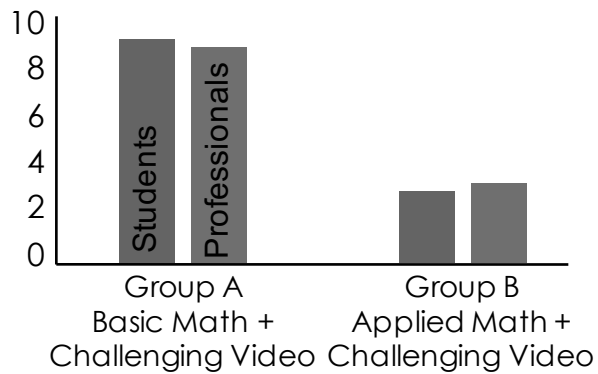
- ↑ MT with a laptop in class → ↓ retention & class performance
- ↑ MT while studying → ↓ class performance
- ↑ laptop multitasking → ↓ performance by multitasker (11 %)
- ↑ laptop multitasking → ↓ performance by nearby peers (17 %)
- ↑ MT associated with ↓ self-regulatory behaviors
- ↑ FB associated with ↑ MT associated with ↓ class performance

(Judd, 2013; Junco & Cotton, 2011; Sana, Weston, & Cepeda, 2012; Zhang, 2015)

Accounting Students & Professionals

24 years old

50 years old

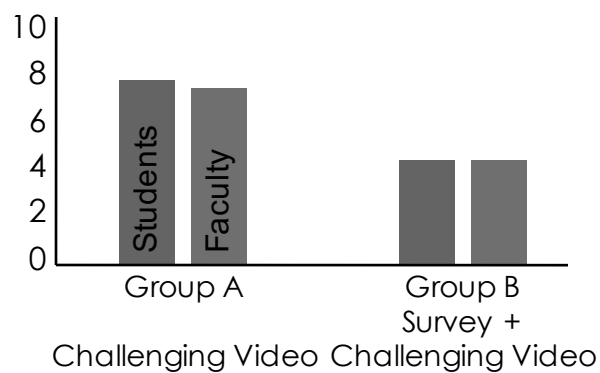


Negangard, Ozlanski, Pyzoha, & Doolittle (2015)

Students & Faculty

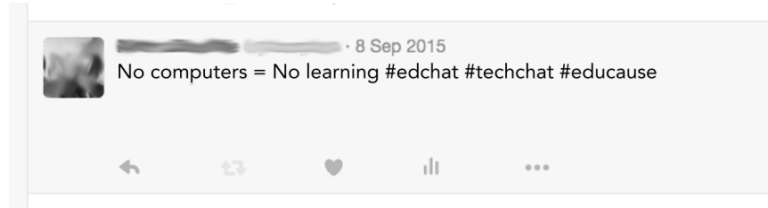
19 years old

41 years old

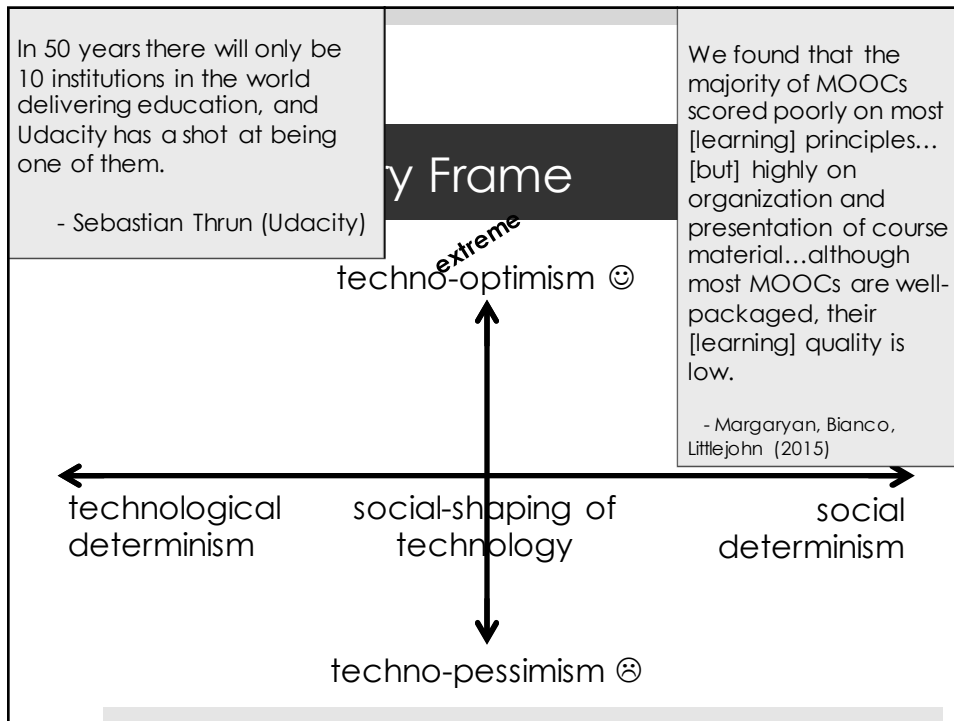


Doolittle (2015)

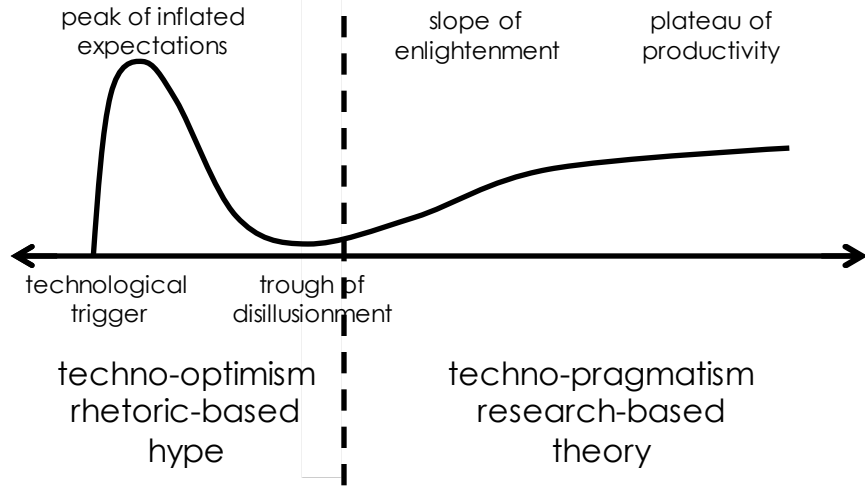
Rhetoric (Hype)



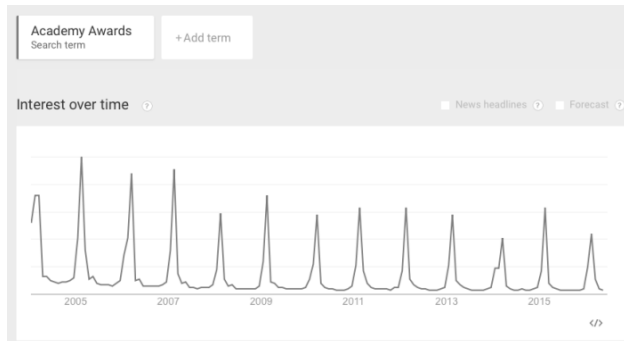
Technology is neither good nor bad, but using it makes it so.

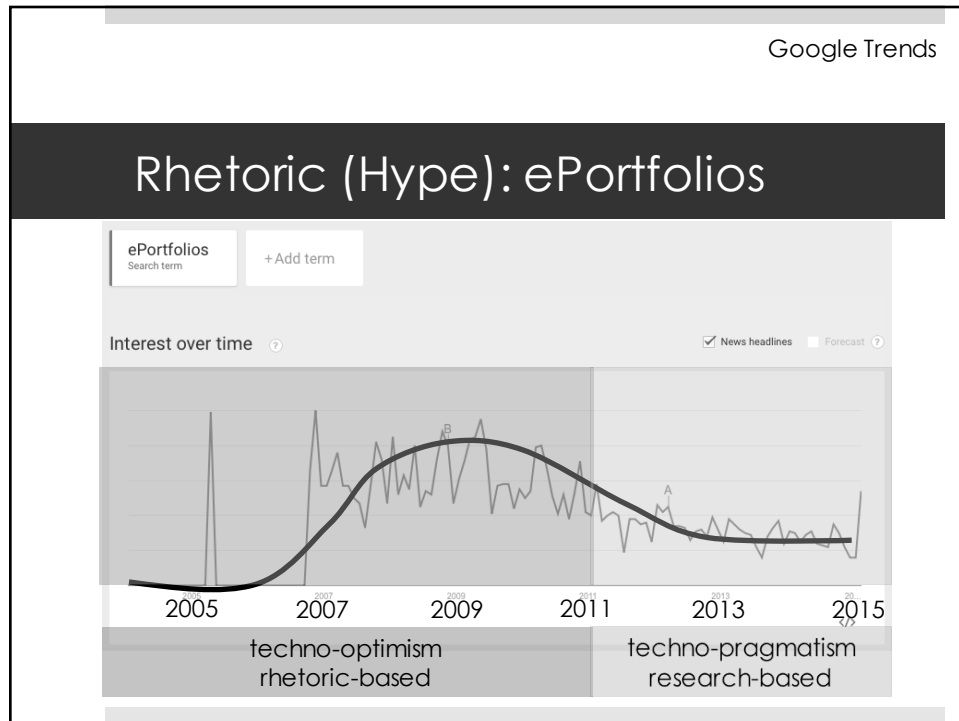


Rhetoric (Hype)



Google Trends





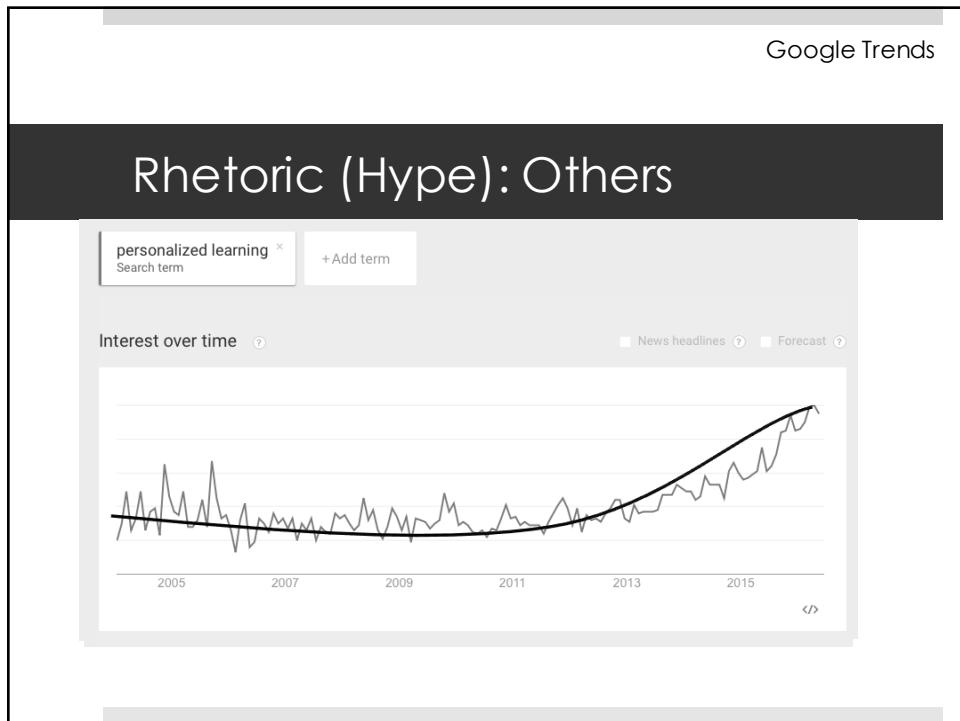
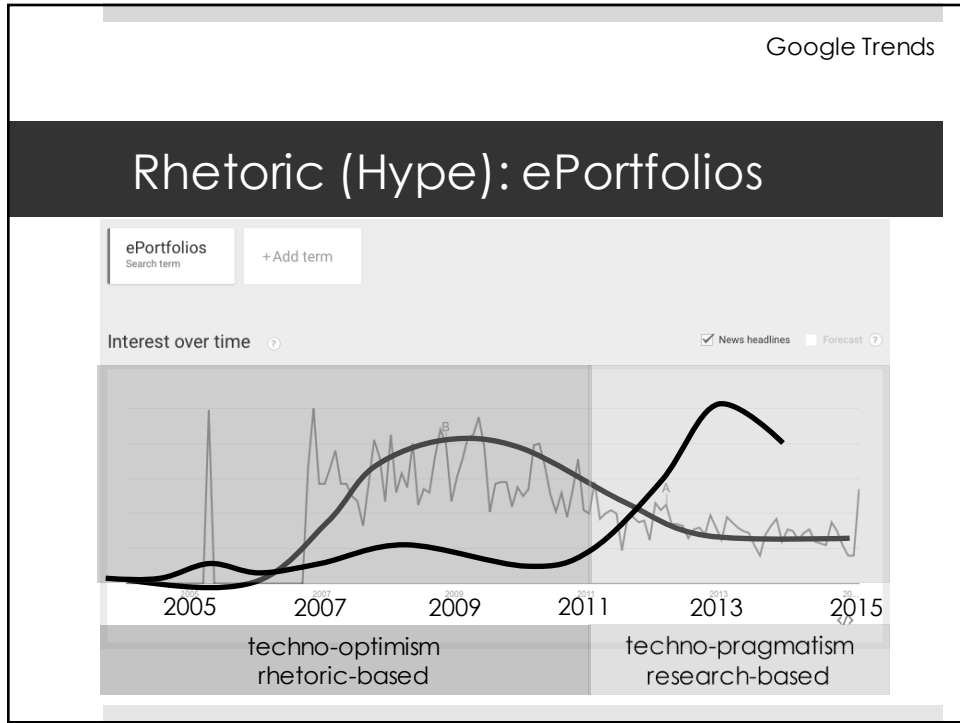
Rhetoric (Hype): ePortfolios

1996-2014

Article Type	N	%
Descriptive (examples, do/don't)	92	42
Affective (opinions, perceptions)	63	29
Outcomes (learning, motivation)	36	17
Technology (user interface, platform)	18	8
Assessment (use of rubrics/tools)	8	4
Total	217	

Bryant, L., & Chittum, J. (2013). ePortfolio effectiveness: A(n ill-fated) search for empirical support. *International Journal of ePortfolio*, 3(2),189-198.

Chittum, J., Woodyard, J., & Bryant, L. (2015).



Rhetoric (Hype)

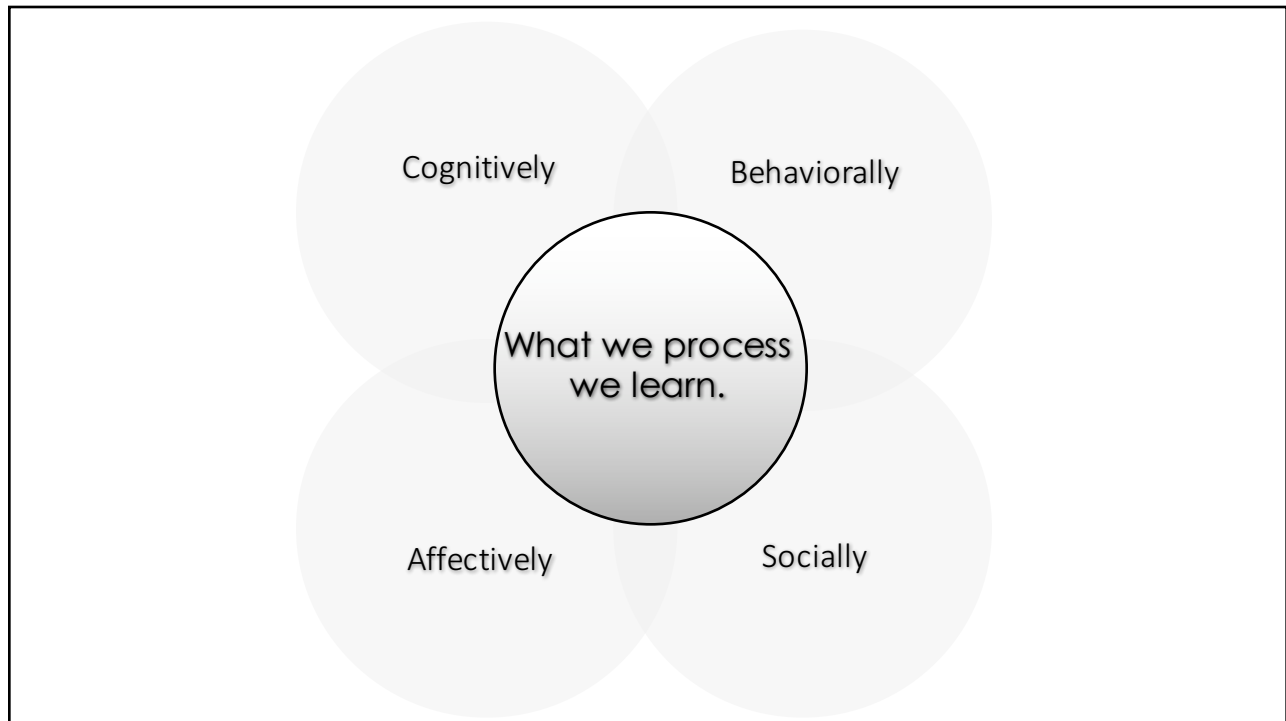
Utilize technology based on need (outcomes) and impact (research), not rhetoric.

Research



What does this experiment tell us?

- 1.
- 2.
- 3.
- 4.
- 5.



7 Principles for Developing Deep & Flexible Learning

1. Learning through practice at retrieval
2. Learning through varied tasks
3. Learning for varied purposes
4. Learning at the principle level
5. Learning awareness and control (metacognition)
6. Learning embedded in prior knowledge & experience
7. Learning in response to developmental feedback

(Engle, 2006; Halpern & Hakel, 2003; Mariano, Doolittle, & Hicks, 2009; Wagner, 2006)