Welcome to Learning, Media, and Technology

DO NOW: Write down five things you are good at.

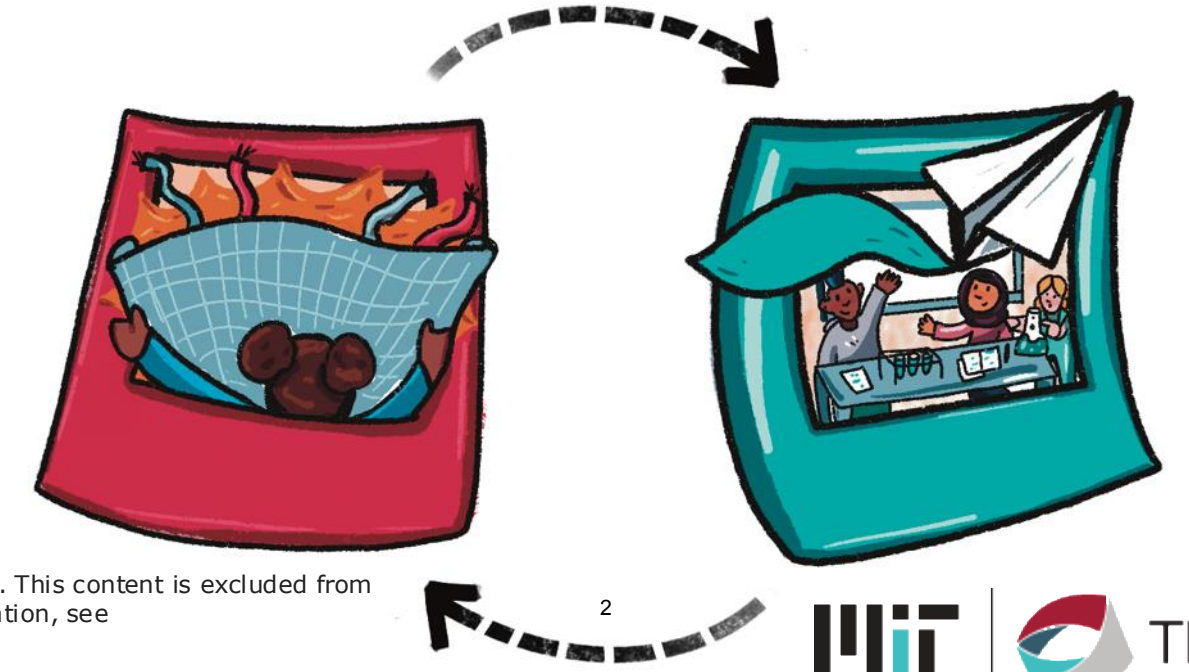
Put one thing per post-it note. Try to just write at the top.

Anything SFW is fair game:

(Writing bad first drafts quickly, top laning in League of Legends, teaching people to steer a canoe, interpreting quantitative education research for public audiences, etc.)

Learning Goals

1. look anew at **your own educational history**, and understand the ideas and practices that have shaped your own schooling and learning
2.develop familiarity with the **skills and practices of social science and analysis of social-technical systems**
3. peer into the marvelous **complexity and richness of the education field**..
4. seriously **consider a career in the education field**. It's one of the most rewarding ways you can spend part of your life.
5. get a **grounding in some foundational ideas in education**, as well as exposure to new research and thinking about learning, media, and technology



Attendance: (tl;dr- required)

The fundamental commitment that I'll ask you to make is to **attend every session** and complete the assignments. This isn't a class where there is a body of knowledge that I'm hoping you will master, however you manage to do that; rather, the participation of every student in the course is essential to a successful seminar.

Communication:

Early and often. When things come up, let me know and cc S3.

The Learning, Media, and Technology Thesis

Schools are socio-technical systems.

If you build tech for social systems, and you don't understand those systems, the tech you build won't work.

TEACHING SYSTEMS LAB

Structure of the Course

- PART I: Foundations
  - Assignment #1- EdTech From a Learning Science Perspective
- PART II- Three Genres of Learning At Scale
  - Assignment #2- Implementation Memo
- PART III: Four As-Yet Intractable Dilemmas
  - Assignment #3- Problem Finding (Final Project)

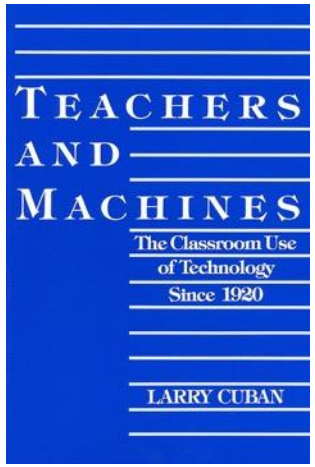
Part I: Foundations

Theories of Teaching and Learning:

Cognitive Load Theory (*Mens*)
Situated Learning (*Manus*)

EdTech and MIT

MIT Museum and Gen AI
CS and Equity in Mass.
Online Learning for Teachers



EdTech Before the Internet

Larry Cuban's *Teachers and Machines*

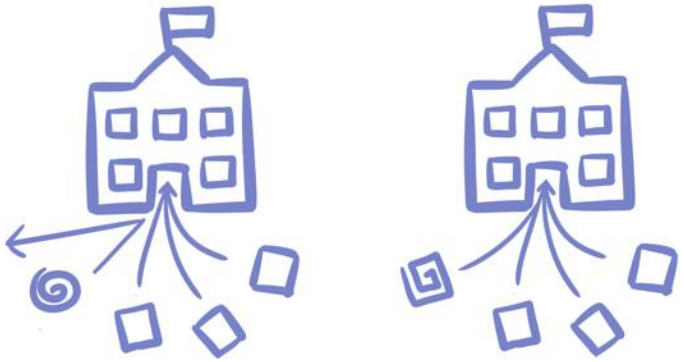
Changing Practices in Schools

Justin Reich's *Iterate: The Secret to Innovation in Schools*

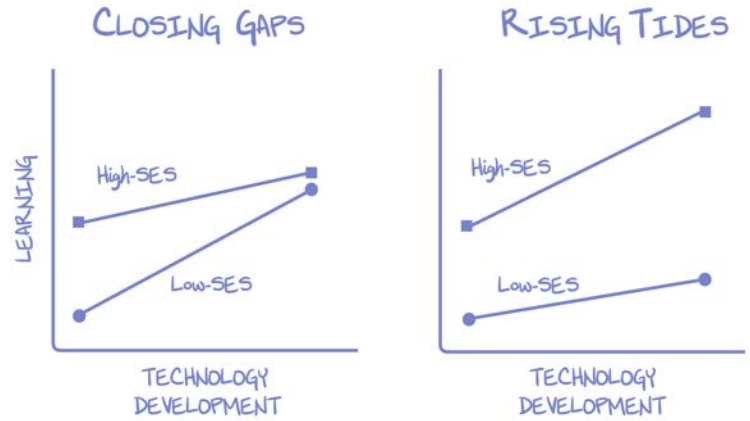
Part II: Three Genres of Learning@Scale

Who guides the sequence of learning activities?

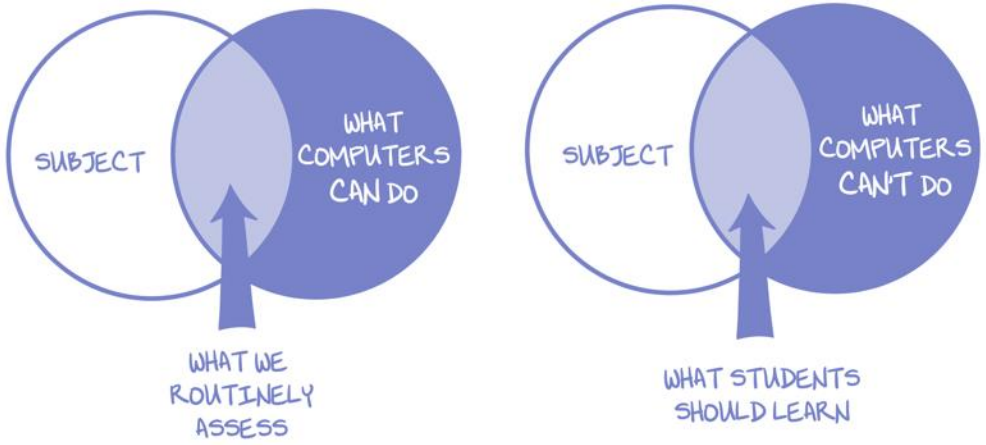
Part III: Four “As-Yet Intractable Dilemmas”



Curse of the Familiar



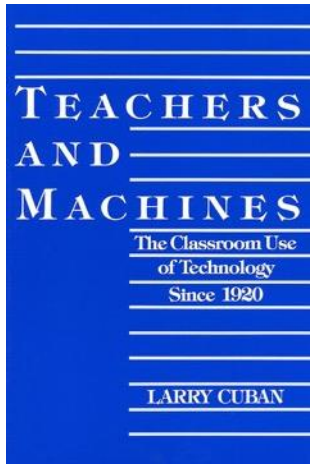
EdTech Matthew Effect



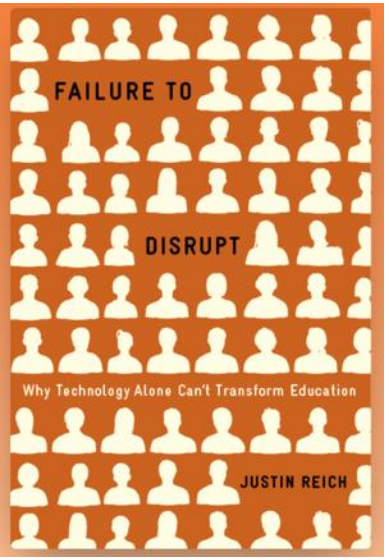
Trap of Routine Assessment

Toxic Power of Data and Experiments

Books!



Gotta buy it/get it. Used, ebook, or library. So good.



Two from me. I'll get you copies.

Assignments

- Assignment #1- EdTech From a Learning Science Perspective
  - Evaluate an education technology and identify its pedagogical roots. Then, reimagine the technology from alternative pedagogical perspective.
- Assignment #2- Implementation Memo
  - Recommend (or reject) a new technology to be implemented in a particular context.
- Assignment #3- Problem Finding (Final Project)
  - Anything you want that addresses an interesting topic in Ed Tech.

Wed, Feb. 7 (Slides)	*How People Learn: Cognitive Load Theory*
Journal Entry Due: Your own personal history of education technology. In your learning journal, describe in detail one memorable interaction/relationship with learning technology, or describe the arc of your interactions over your school career	
Readings • John Sweller, Jeroen J.G. van Merrienboer, and Fred Paas. (1998) Cognitive Architecture and Instructional Design. Link. • Michael Pershan, (2016) Not A Theory of Everything: On Cognitive Load Theory and the complexity of Learning Link • John Sweller. (2016) Story of a Research Program. *Education Review* Link.	*Rabbit Hole* • Bror Saxberg- 2023 Festival of Learning Talk. Link • John Bransford | National Research Council (2000), How People Learn Link. • Deans for Impact (2015) The Science of Learning. Link. • Jerone J.G. van Merrienboer & John Sweller (2005) Cognitive Load Theory and Complex Learning: Recent Developments and Future Directions *Educational Psychology Review.* Link.

Syllabus

- Do all the Readings.
- More resources in the Rabbit Hole. Grad students please do one Rabbit Hole per week.
- Learning Journal is a space for short writing/communicating assignments

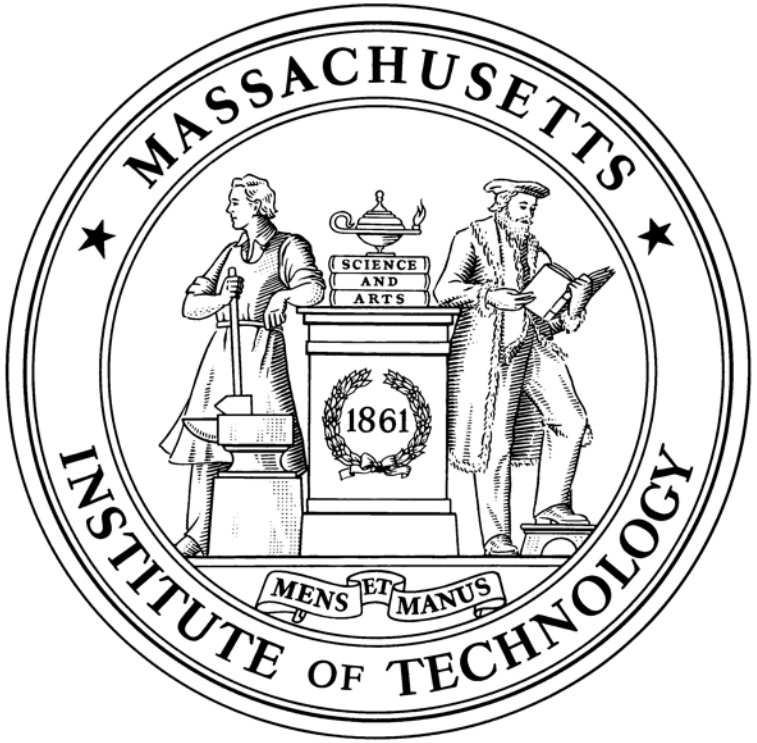
Assignments and Grades

For every class period, there will be a set of core **readings** that we will all complete, and then an additional set of "Rabbit Hole" readings for your continued exploration. Graduate students will be required to do at least one of these additional readings.

Some weeks there will also be a **short assignment**, asking you to reflect on your own educational history, imagine a new future, or read something closely. These assignments will typically be a few hundred words or their multimedia equivalent in images, audio, video, code, etc. **Short assignments will be completed in a semi-public learning journal, you can find the template here.**

Special Syllabus Dates

- Feb 14- Field Trip to MIT Museum
- Feb 28- On Zoom, with ISTE's Ed Prep Roundtable (https://iste.org/pledge-for-digital-equity-transformation)
    - Note- we need to decide soon if you all are interested in joining the whole thing, or just my intro lecture
- March 18/20 SIP week– maybe online, maybe something fun, maybe something else– (Most Flexible Dates for Non Class Related Travel/Interviews/etc.)
- April 8- No class, Go see the Eclipse
- May 13- Last class, mandatory



Education:
Filling Pails or Kindling Flames?

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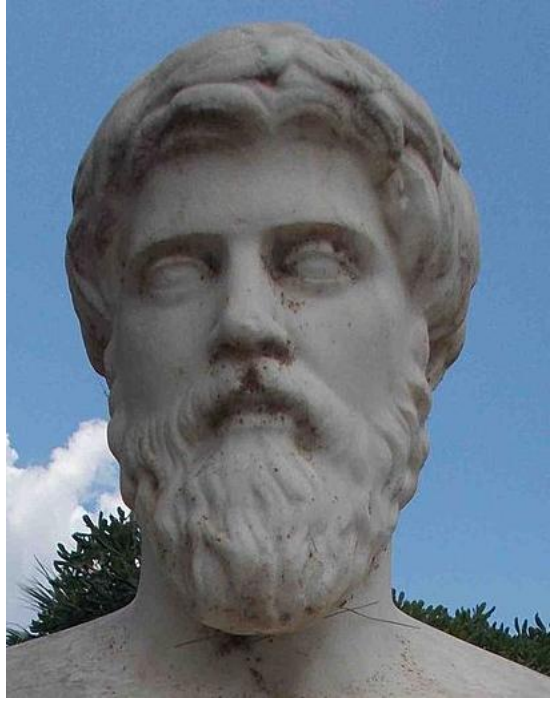


For the mind does not require filling like a bottle, but rather, like wood, it only requires kindling to create in it an impulse to think independently and an ardent desire for truth.
Plutarch (~50 AD), *On Listening*

Translation from 1927 Loeb Classic

SUCCESS ACADEMY'S RADICAL EDUCATIONAL EXPERIMENT

Inside Eva Moskowitz's quest to combine rigid discipline with a progressive curriculum.

By Rebecca Mead

For nearly a century, public education in America has been influenced by two opposing pedagogical approaches: traditionalism and progressivism. Broadly speaking, in the traditional approach to education a teacher imparts knowledge to students through direct instruction, and embodies a disciplinary culture in which obedience is both prized and rewarded. The purpose of the classroom is to equip all students to meet measurable academic standards. At a progressive institution, a teacher develops a curriculum but urges students to treat it as a staging ground for their own intellectual discoveries, often through hands-on activities and group work. Allowances are made for differences in the way individual students learn. Progressivism was inspired, in large part, by the work of John Dewey, the American philosopher and educational theorist, who died in 1952. For Dewey, the classroom was not simply a place for acquiring academic credentials; it was also a venue in which students learned crucial values about being citizens in a democracy. Traditionalism is easily caricatured as rote learning—or, in the contemporary classroom, as endless test prep. Progressivism, in its most exaggerated form, can look like an absence of standards and discipline, and an unhelpful abdication of authority on the part of the teacher.

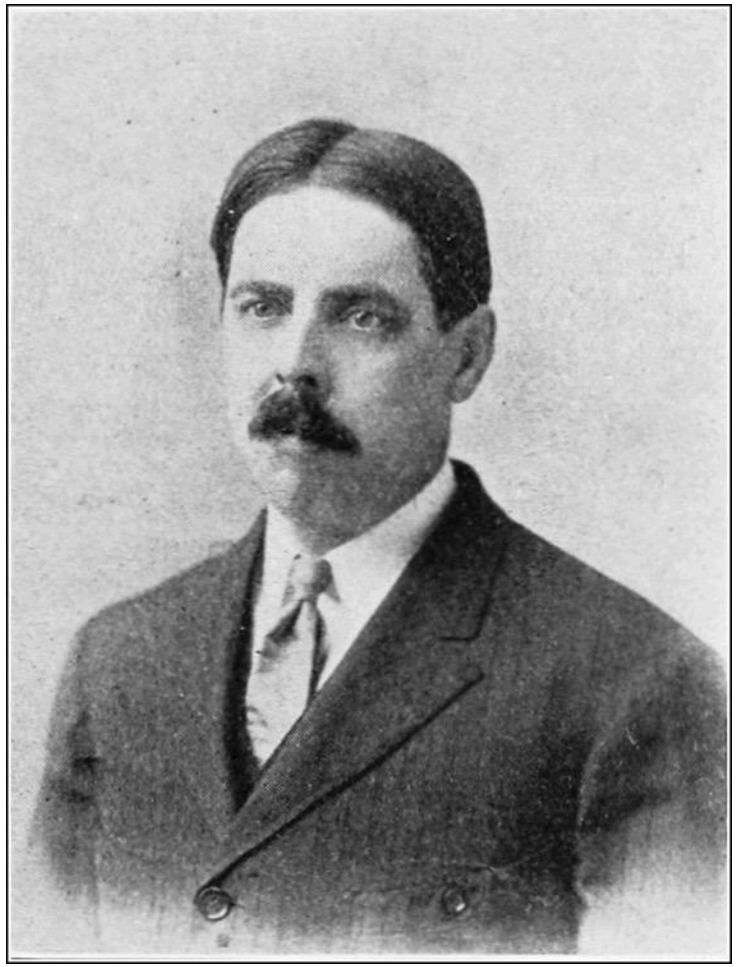
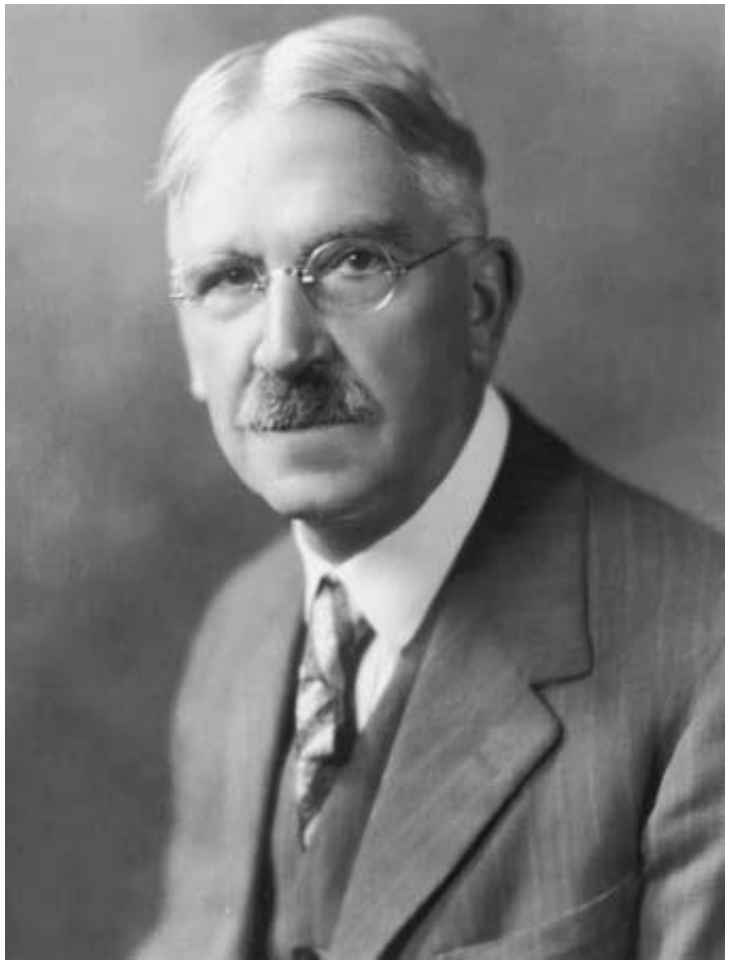


Image is in the public domain.

Edward Thorndike

Education as Science of Delivery

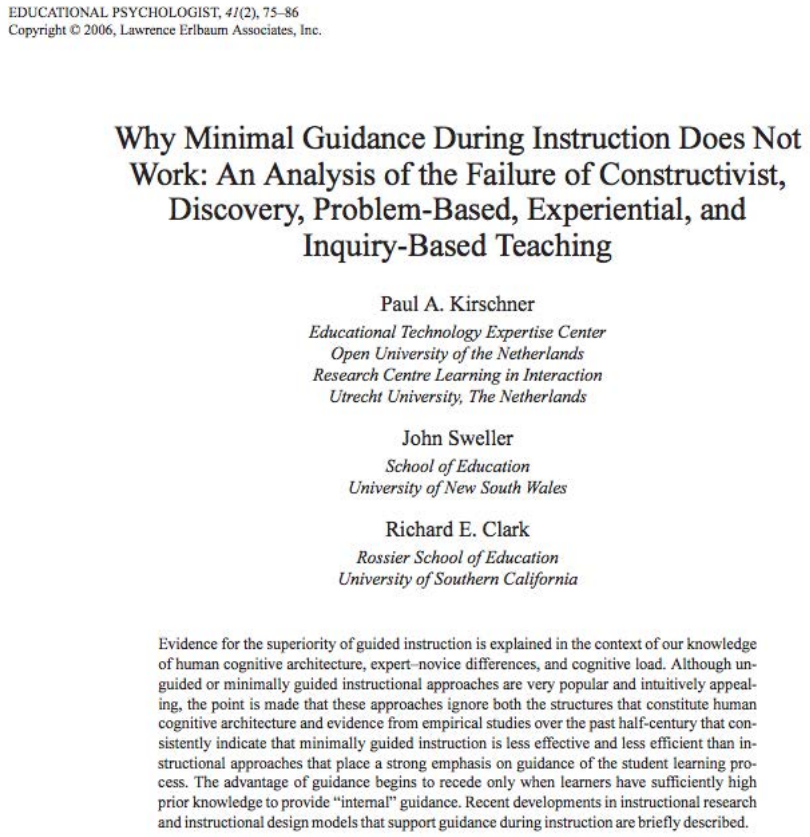


John Dewey

Education as Life

"One cannot understand the history of education in the United States during the 20th century unless one realizes that Edward L. Thorndike won and John Dewey lost."

-Ellen Lagemann



EDUCATIONAL PSYCHOLOGIST, *41*(2), 75–86

Why Minimal Guidance During Instruction Does Not Work: An Analysis of the Failure of Constructivist, Discovery, Problem-Based, Experiential, and Inquiry-Based Teaching

Paul A. Kirschner
Educational Technology Expertise Center
Open University of the Netherlands
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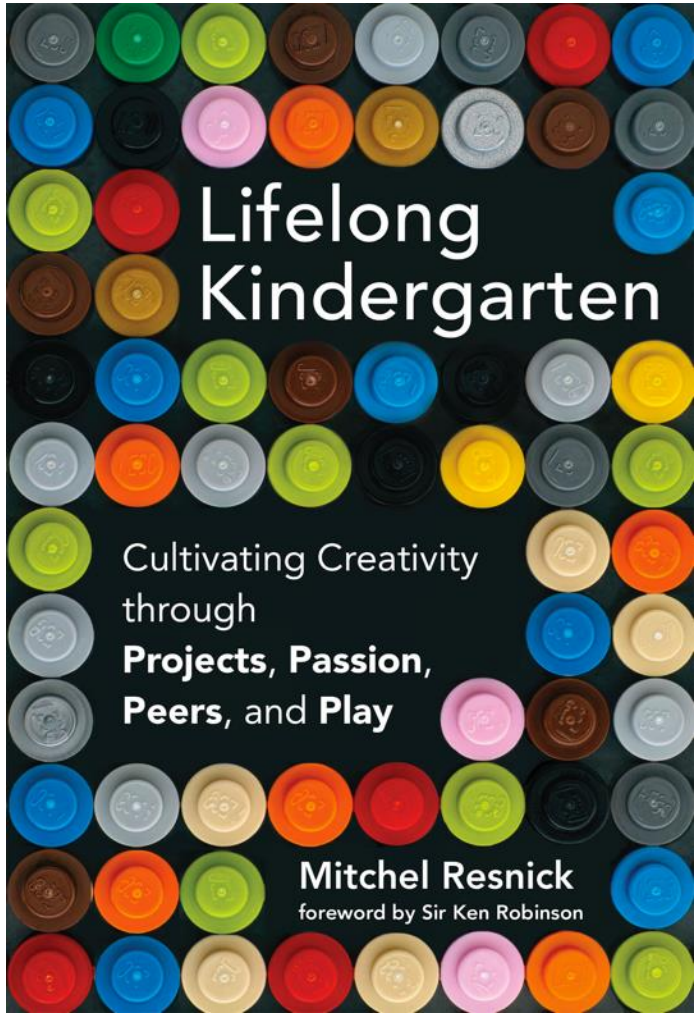
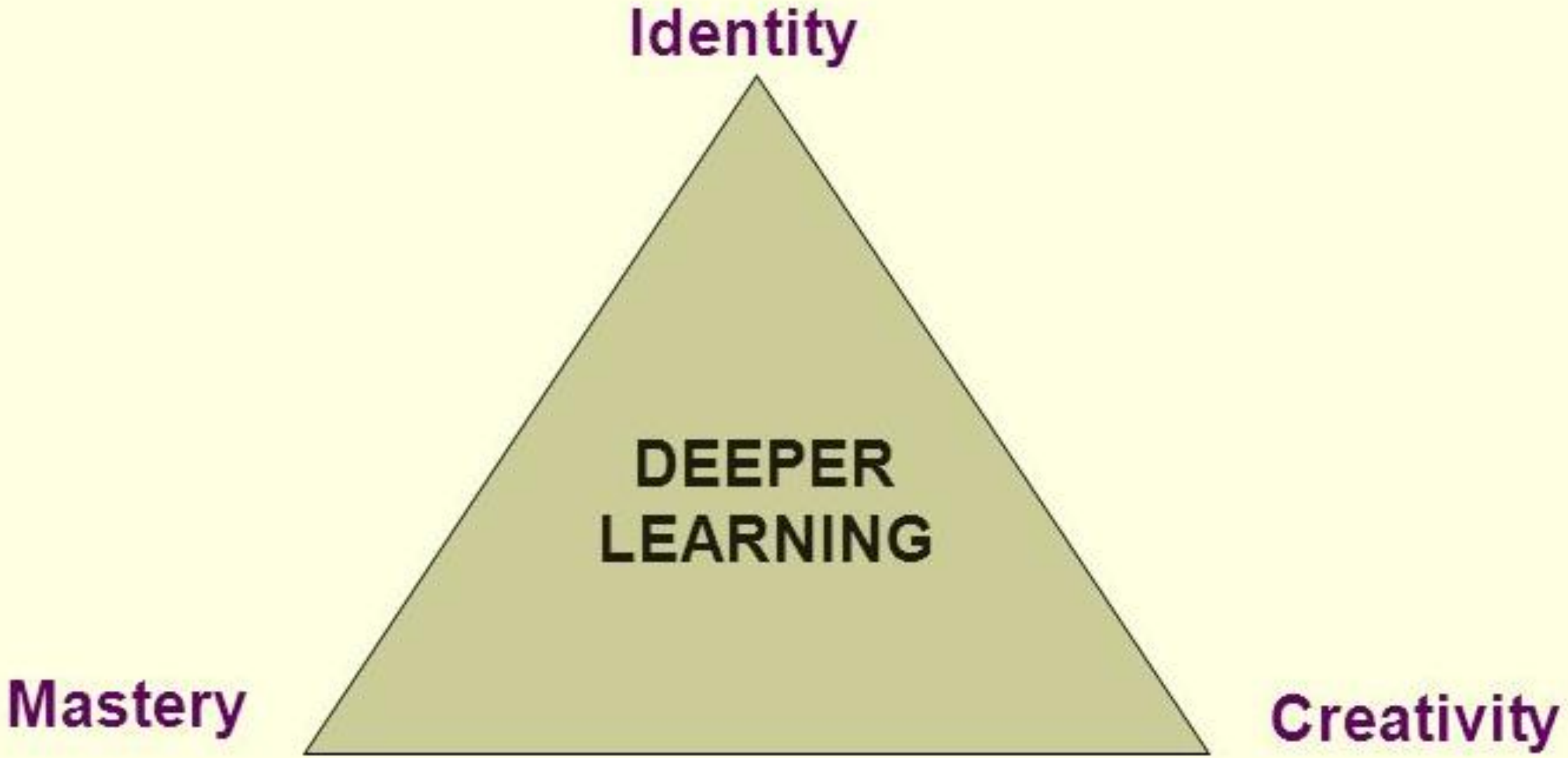
Utrecht University, The Netherlands

John Sweller
School of Education
University of New South Wales

Richard E. Clark
Rossier School of Education
University of Southern California

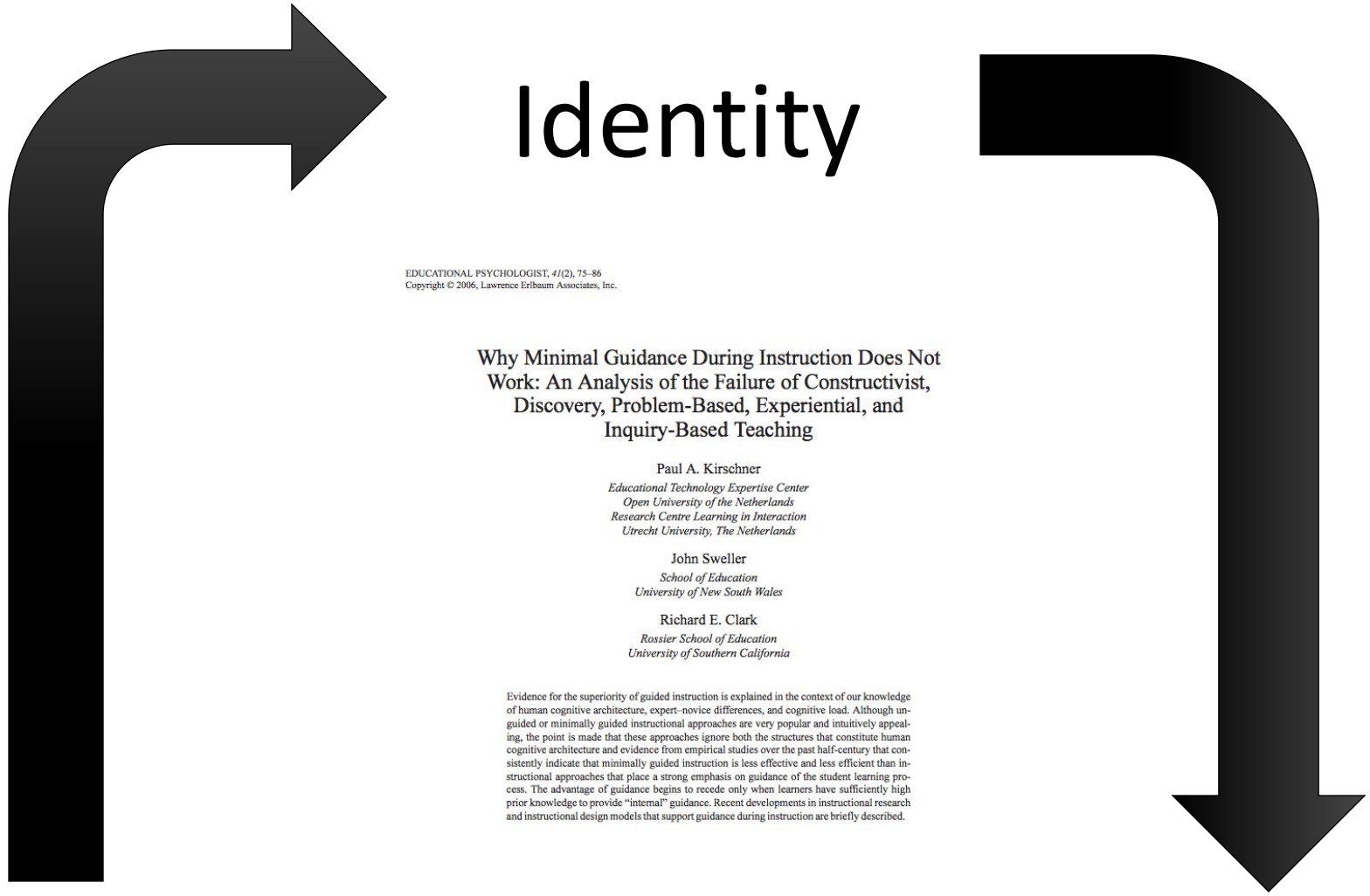
Evidence for the superiority of guided instruction is explained in the context of our knowledge of human cognitive architecture, expert–novice differences, and cognitive load. Although unguided or minimally guided instructional approaches are very popular and intuitively appealing, the point is made that these approaches ignore both the structures that constitute human cognitive architecture and evidence from empirical studies over the past half-century that consistently indicate that minimally guided instruction is less effective and less efficient than instructional approaches that place a strong emphasis on guidance of the student learning process. The advantage of guidance begins to recede only when learners have sufficiently high prior knowledge to provide "internal" guidance. Recent developments in instructional research and instructional design models that support guidance during instruction are briefly described.





Slide from Jal Mehta and Sarah Fine, Harvard Graduate School of Education

Identity



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Mastery

Creativity

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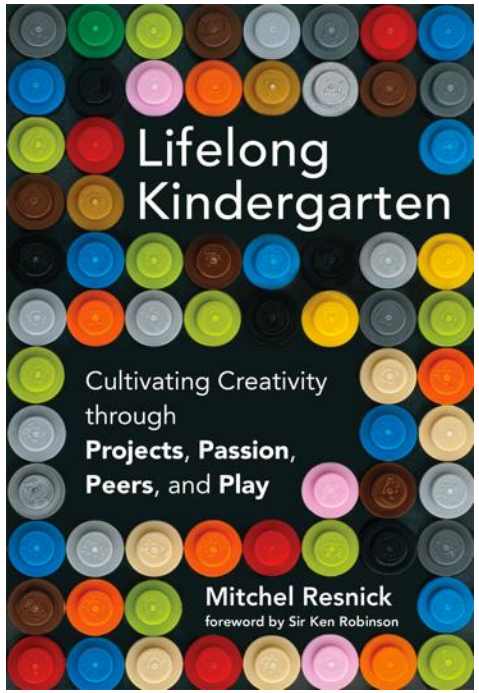
Identity



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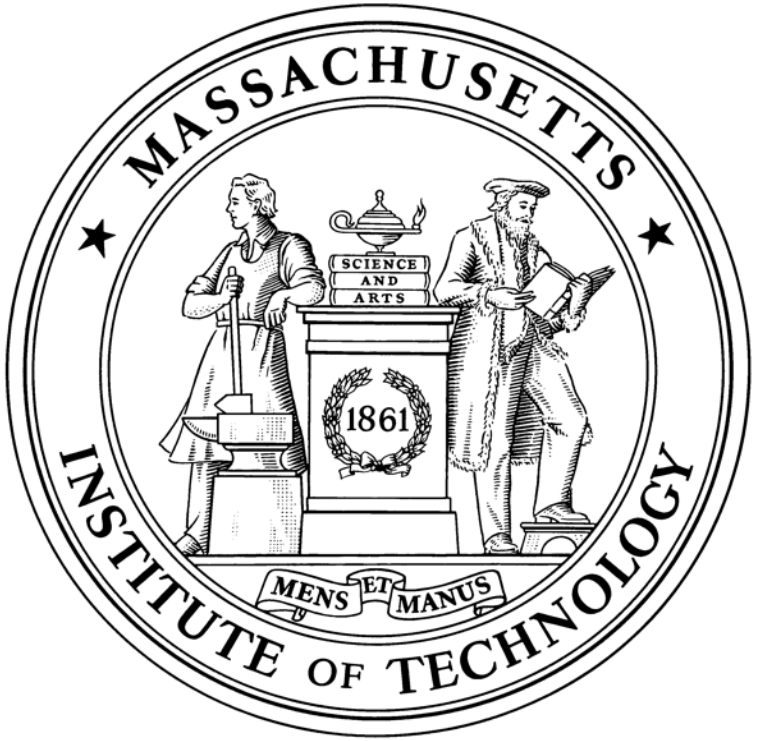

Mastery

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