

It's Everywhere and Limitless...



Yet we stick with Powerpoint



Expanding Day-to-Day Engagement with Technology



Don't forget
my precious!!!





SCHOOL *of* EDUCATION
and HUMAN DEVELOPMENT



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imgflip.com



Let's talk about preparing teachers to use technology in effective ways to support student learning...



updated version
about to be released!

Use of Technology in the Preparation of Pre-Service Teachers

[cedar.education.ufl.edu/
innovation-configurations/](http://cedar.education.ufl.edu/innovation-configurations/)



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When it comes to PowerPoint



You won't believe how important this information is

- **I've taken care to put everything I've ever heard about this topic right here on this very slide.**
 - *The information is comprehensive, well-organized, and crammed (using Calibri Font) into as many lines as will fit.*
 - Which makes me think of strategies to make more fit – like shrinking the font – that's a good move.
 - 16 point font it is. I should start using Ariel Narrow font too. That won't distract anybody
 - If you have issues reading small print, uh... move closer? Squint?
 - Not my problem – I can see it from up here so sucks to be you.
 - Plus, I'm just going to read it out loud anyway so does it even matter?
- **When everything I need to say is right here on the slide, I can just read it without deviation – wouldn't want to accidentally say anything interesting.**
 - Has anyone gotten tired of reading this garbage yet? Good – because there's still half the slide to go and I'm not even close to being done making critical points nobody cares about.
 - What is the world record for time spent without advancing the slide? I fully intend to break that record right now. You are witnesses.
- **I'm running out of time so let me just start talking even faster while using slides with a dissertation printed on them.**
 - The doors are now locked, so don't even think about trying to escape.
 - If you somehow get past the locked doors, I will release the hounds.
 - Also, the hounds have bees in their mouths, and when they bark, they shoot bees at you.
 - Submit to the reality you are here for the next hour and I've flipped the switch to block all incoming WiFi signals to prevent Facebook or Twitter from loading.

I'm getting cute with backgrounds and colors – I think it's pretty if we're being honest.

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Or when what I am talking about doesn't quite match what is below... I love it - Good luck learning!!!

- It's fine to go off on tangents. Really – no consequences whatsoever. People are still smiling and nodding along – Big win for me. I said nodding – not nodding off.
- You will keep listening to me, but also keep reading all of this crap on the slide.
- Splitting your attention like that doesn't hurt your cognitive functionality one bit – trust me. People are super amazing at multitasking. Just ask the 1.6 million people involved in cell phone use related car crashes last year alone...
- Did you know the Eagles are going to win the Super Bowl on Sunday?
 - At least they better.
- Pizza is delicious. When I am king, I am going to ban all other foods from existence.
- What does that have to do with anything? Well, nothing – except your available cognitive resources are being twisted and consumed by absolute nonsense.
- I hereby vow to prevent everyone here from learning based solely on my presentation choices.
- Are you getting pissed or frustrated yet? You should be.
 - Now imagine how your teacher candidates feel.
 - And worse – Imagine how the students with disabilities and English Learners feel when those teachers are going to go and teach using this “method” they saw literally every professor and PD provider they've ever had...
- Did you just have an “oh shit” moment? Good.

Mando, about that...

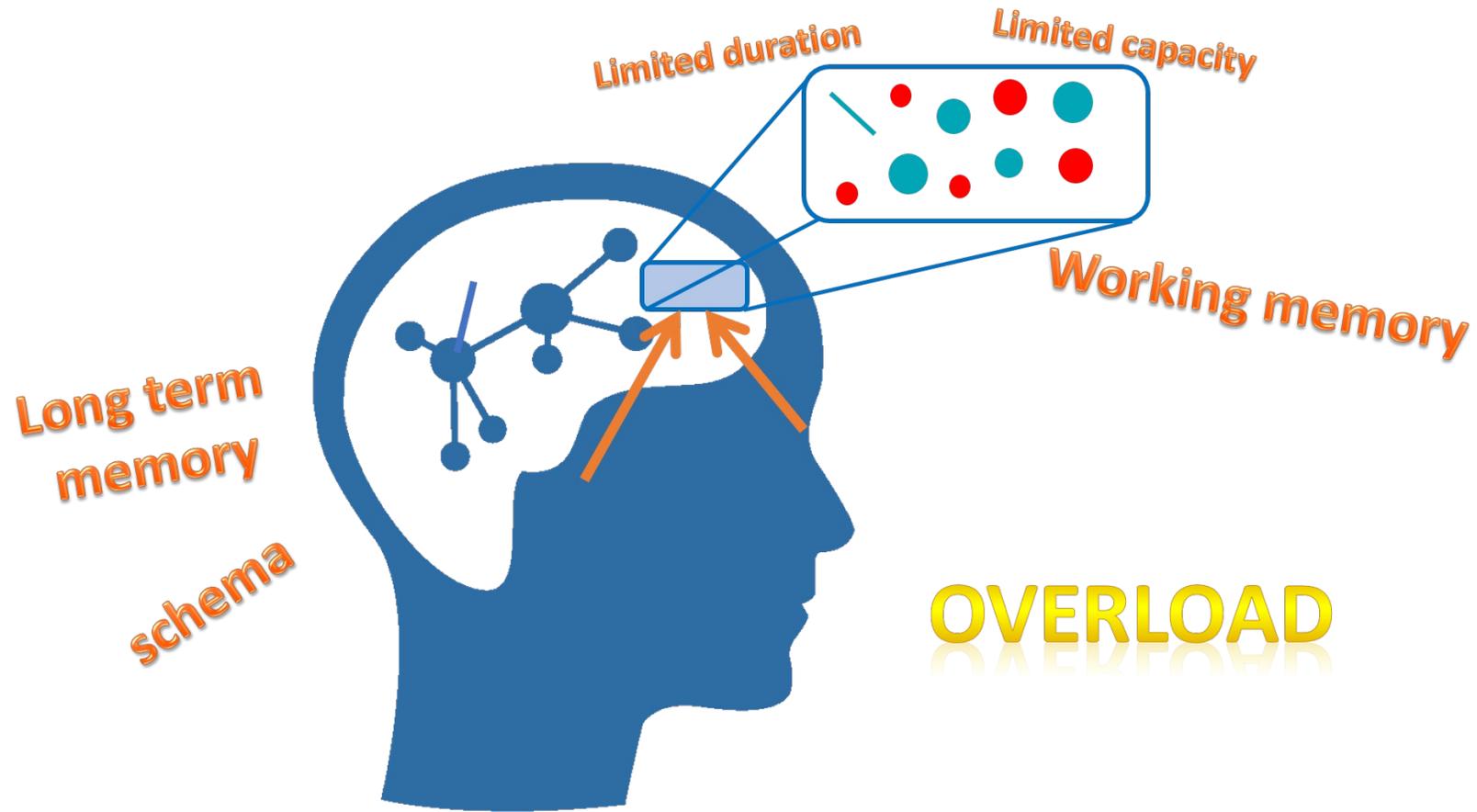


Quiíl has actual evidence



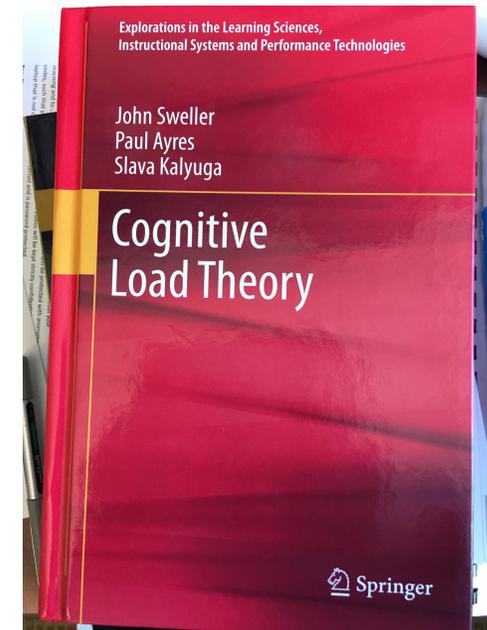
Key theories and instructional design principles



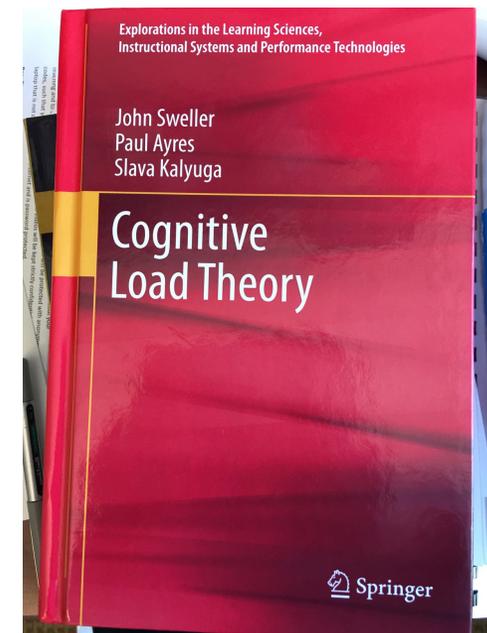


Cognitive Load Theory
Chandler & Sweller 1991

In plain English: Our short term & working memory resources are extremely limited in terms of what they can handle at any given time.



In plain English: Our short term & working memory resources are extremely limited in terms of what they can handle at any given time. Therefore, instruction we design and deliver should keep this in mind, because if the learning task is too complex, voluminous, fast, or disconnected from the learner's life, there's virtually no chance schemas in long-term memory will be updated...



This is true for him or her, across the lifespan



For many students
there is a **mismatch**
between
learning needs &
the demands of the
curriculum –
especially in content
area courses

Harbort et al., 2007; King-Sears et al., 2014;
Moin et al., 2009; Mutch-Jones et al., 2012



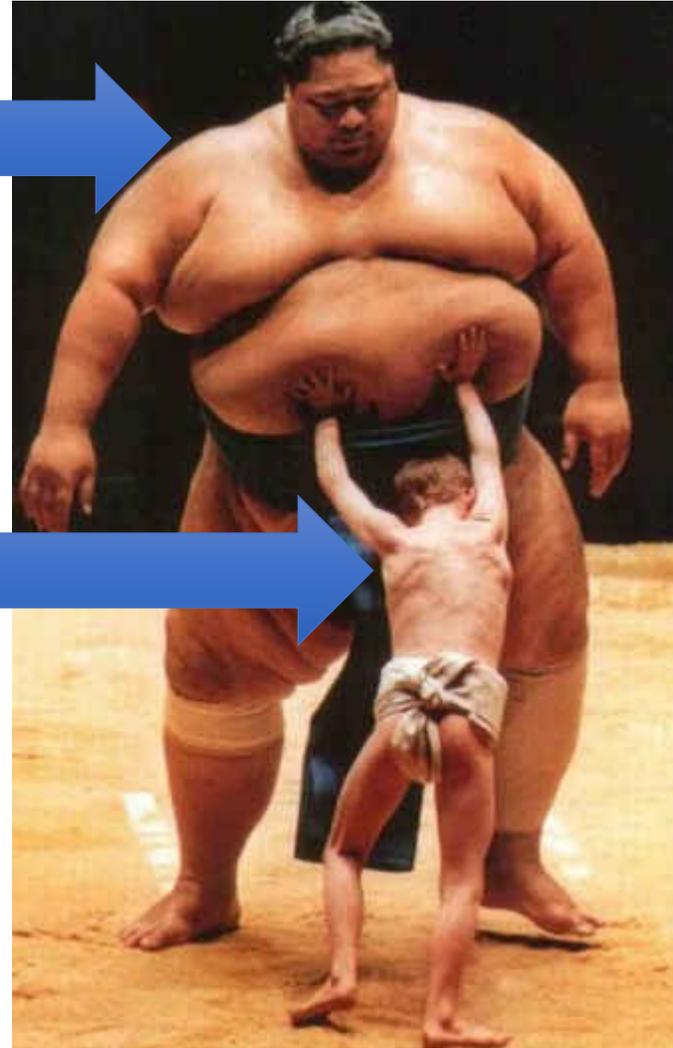
Demands of content
courses

Student's learning
needs



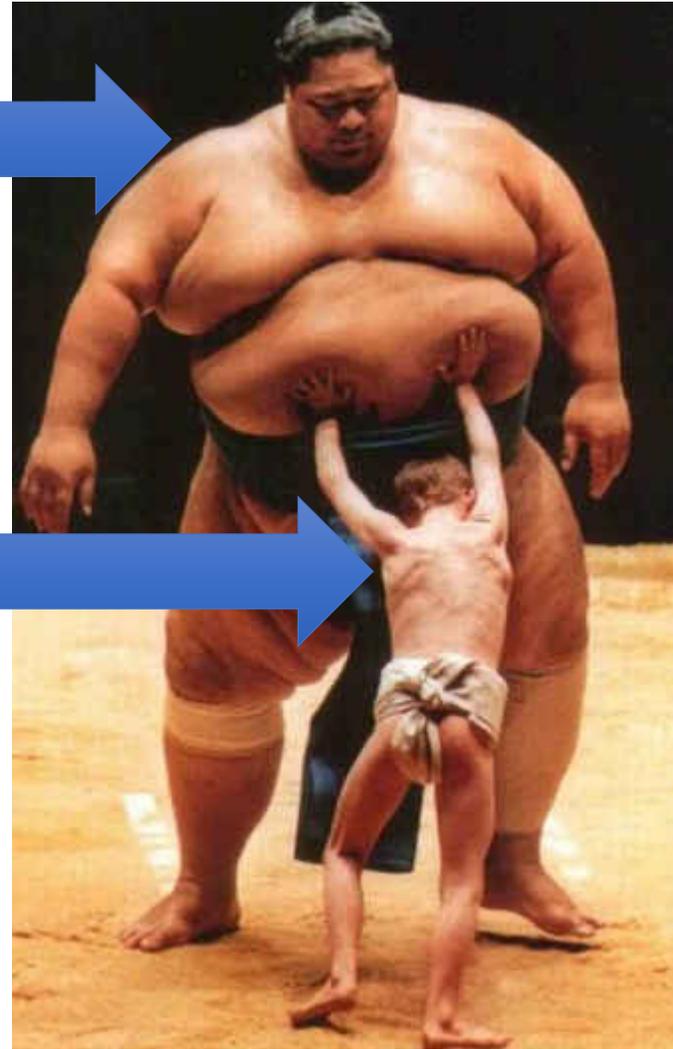
Prevailing pedagogy,
including multimedia

Student's learning
needs



Methods we use in prep
coursework & PD (e.g., crappy
PPT and other lectures without real
practice or application with FB)

Future professionals'
learning needs



Whoops...

It's apparently very easy to overload learner's limited cognitive capacity – This goes for teachers in training, PD, or students with and without disabilities.



Whoops...

It's apparently very easy to overload learner's limited cognitive capacity.

And when that happens... learning doesn't.

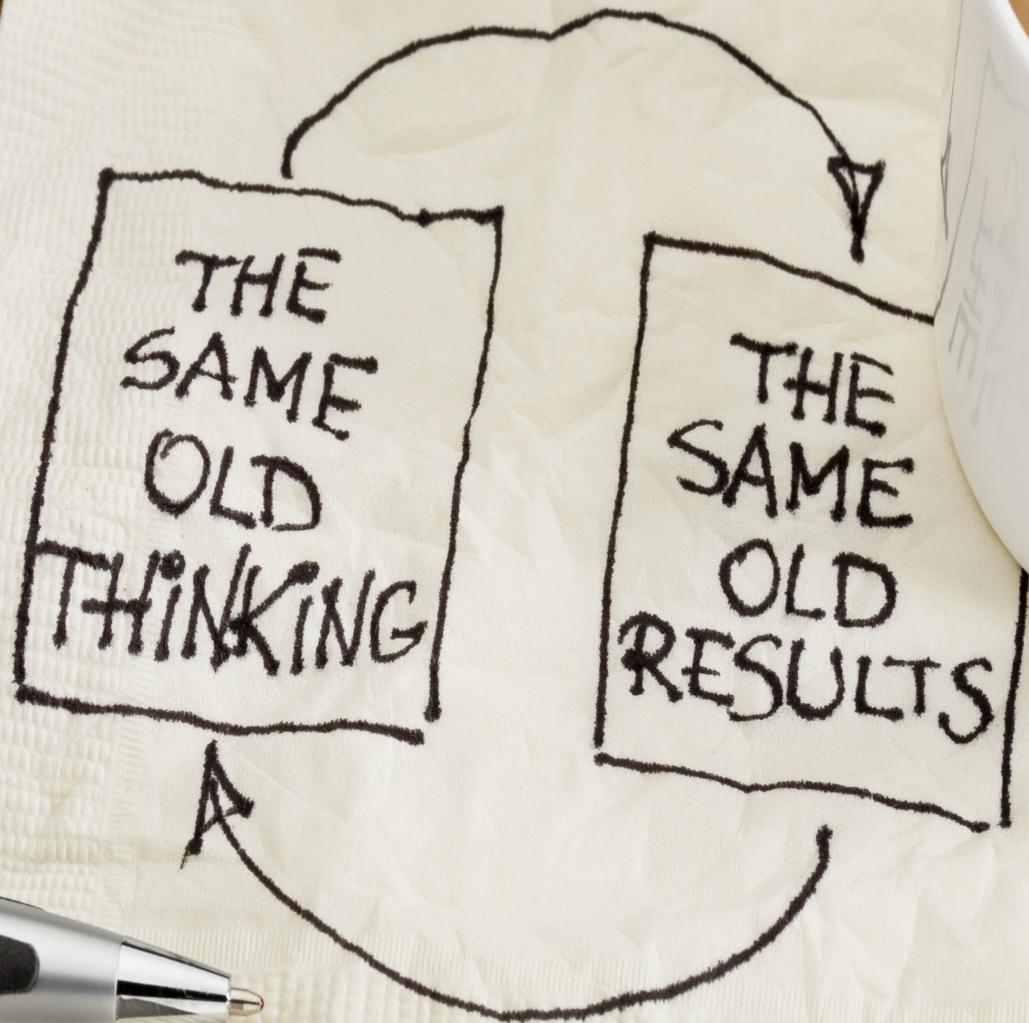


Also, teachers (at all levels) are subject to experiencing cognitive overload. When a teacher is overwhelmed, they are likely to stop using practices they find to be difficult to implement, and revert to whatever approach comes easiest to them (usually talking/lecturing).

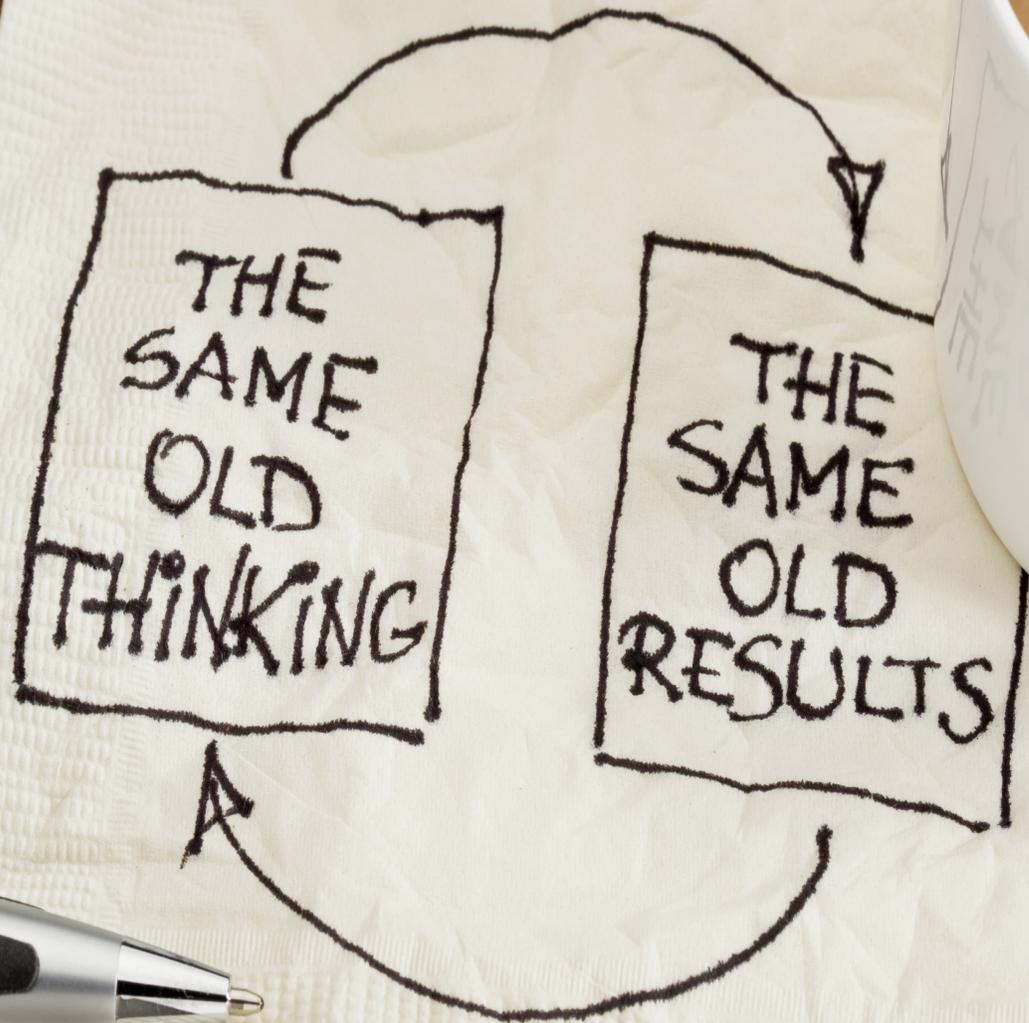


If cognitive overload for teachers had a picture, it would look like this





We should not and can not take for granted the old "I said it, therefore they learned it" approach.



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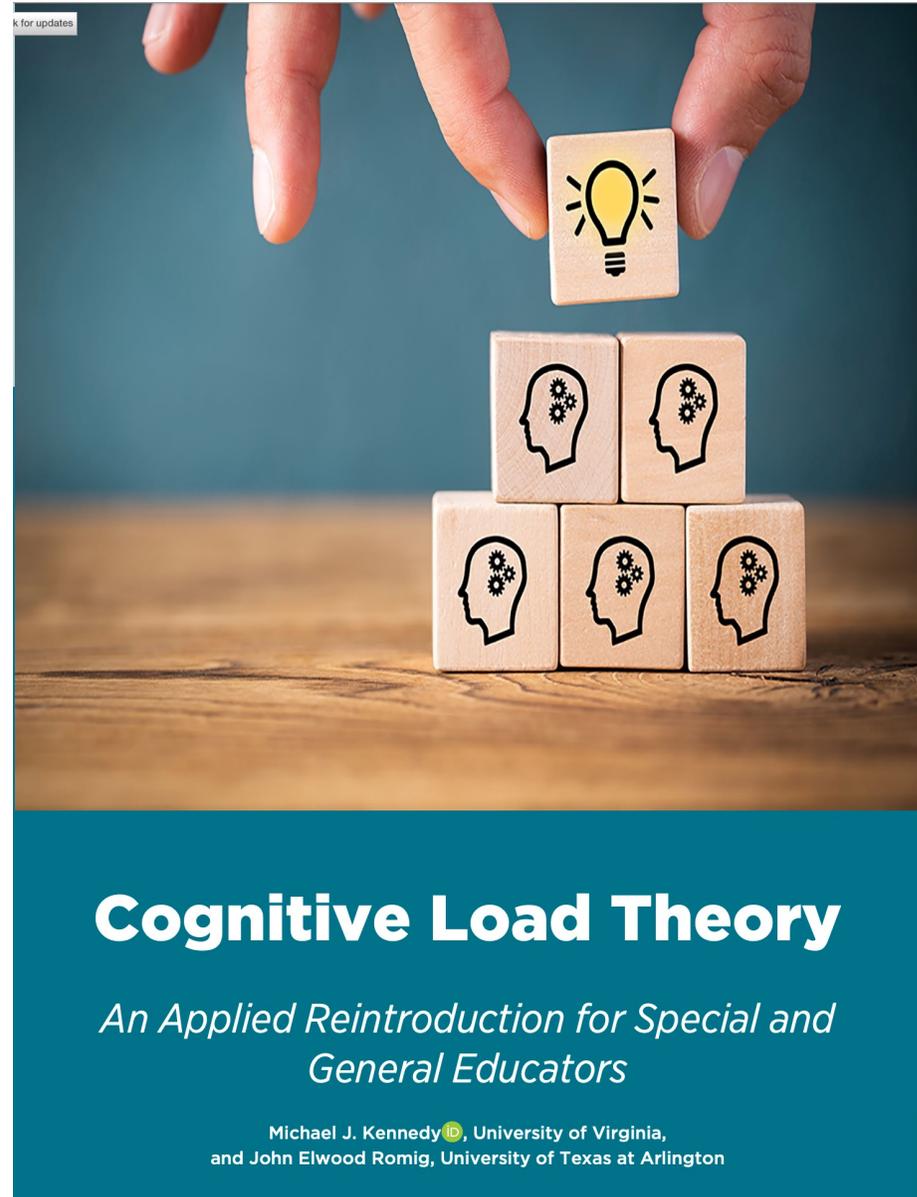
Very deliberate choices need to be made, based on empirically driven learning theories and instructional practices to support learning at all age levels...

Teaching Exceptional Children

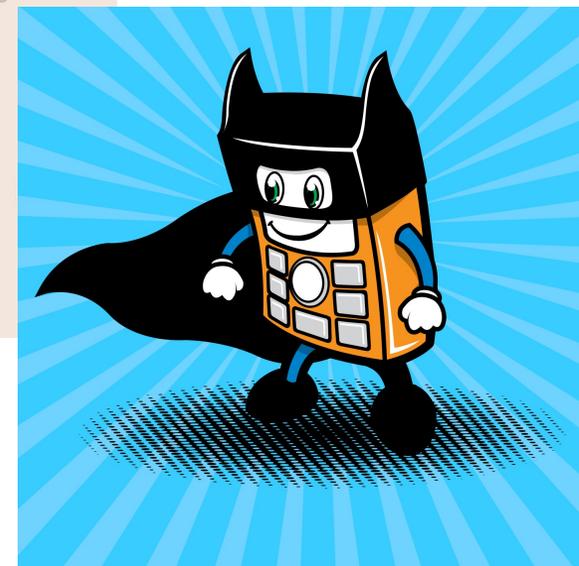
[https://journals.sagepub.com/doi/abs/
10.1177/00400599211048214](https://journals.sagepub.com/doi/abs/10.1177/00400599211048214)

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For a copy



Multimedia to the Rescue?





From Professor Richard Clark...

...media are “mere vehicles that deliver instruction but do not influence student achievement anymore than the truck that delivers our groceries causes changes in our nutrition” (Clark, 1983, p. 457).

MULTIMEDIA LEARNING

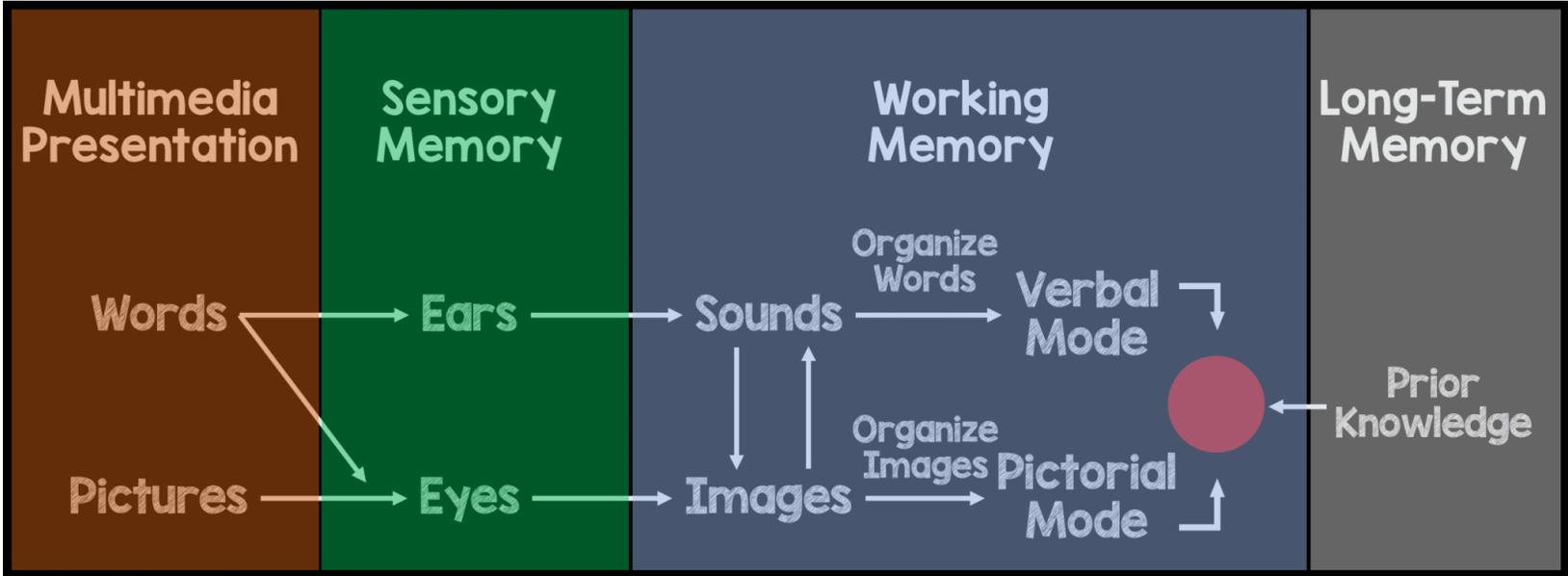
THIRD EDITION



Richard E. Mayer

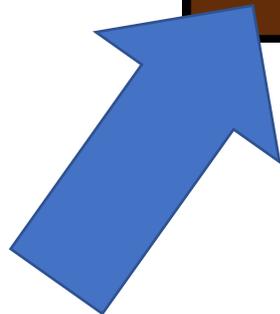
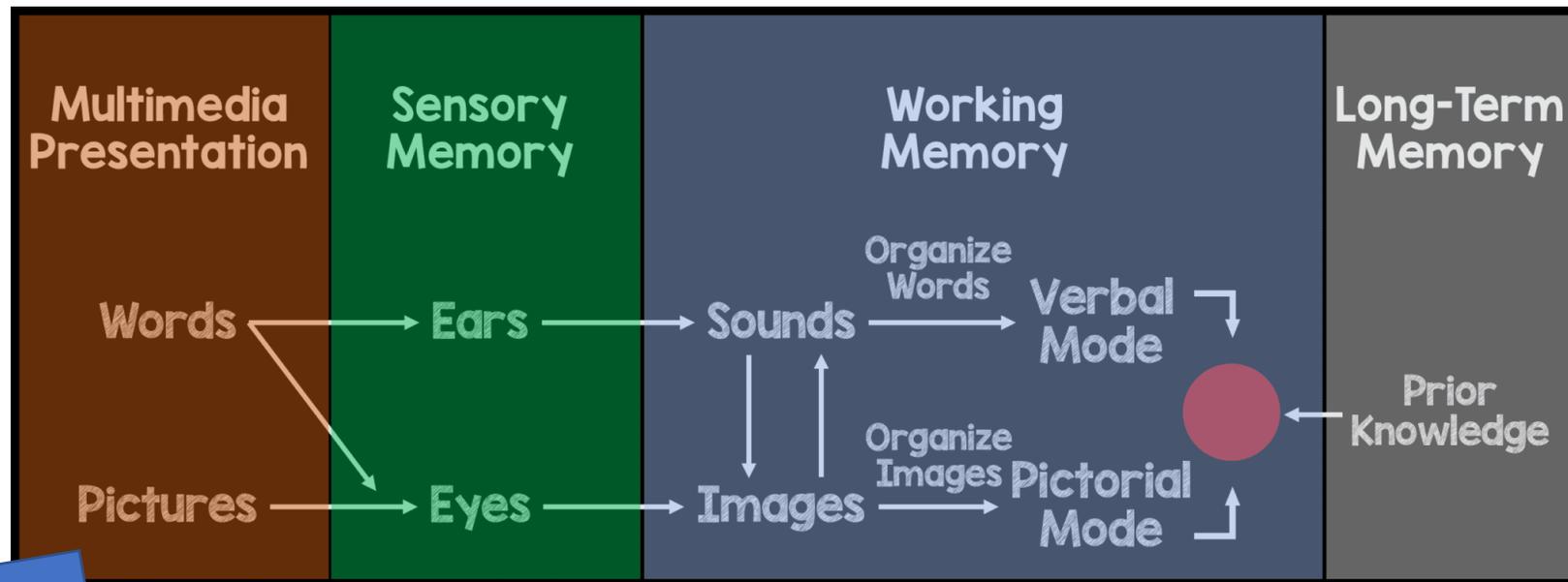


COGNITIVE THEORY OF MULTIMEDIA LEARNING





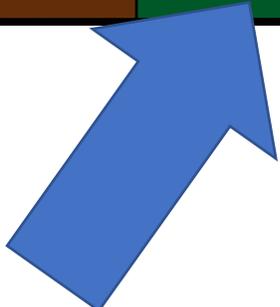
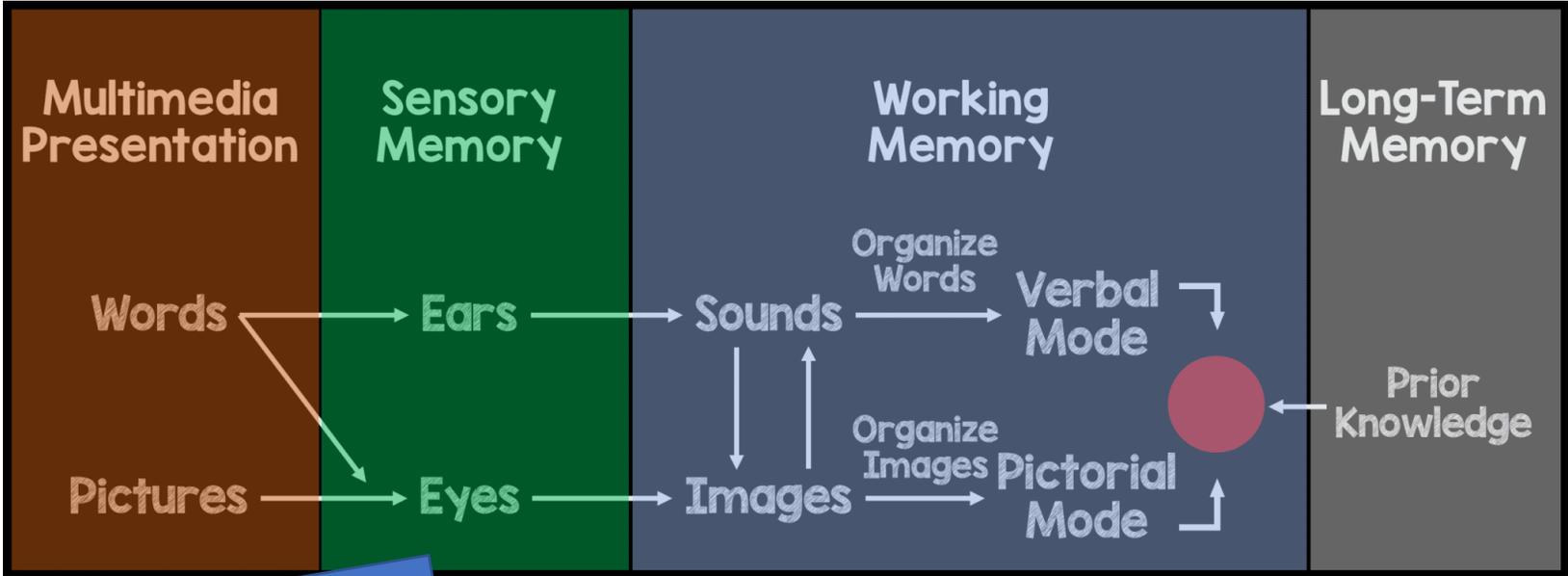
COGNITIVE THEORY OF MULTIMEDIA LEARNING



If the presentation is too fast, complex, boring, not connected to real world or student knowledge...



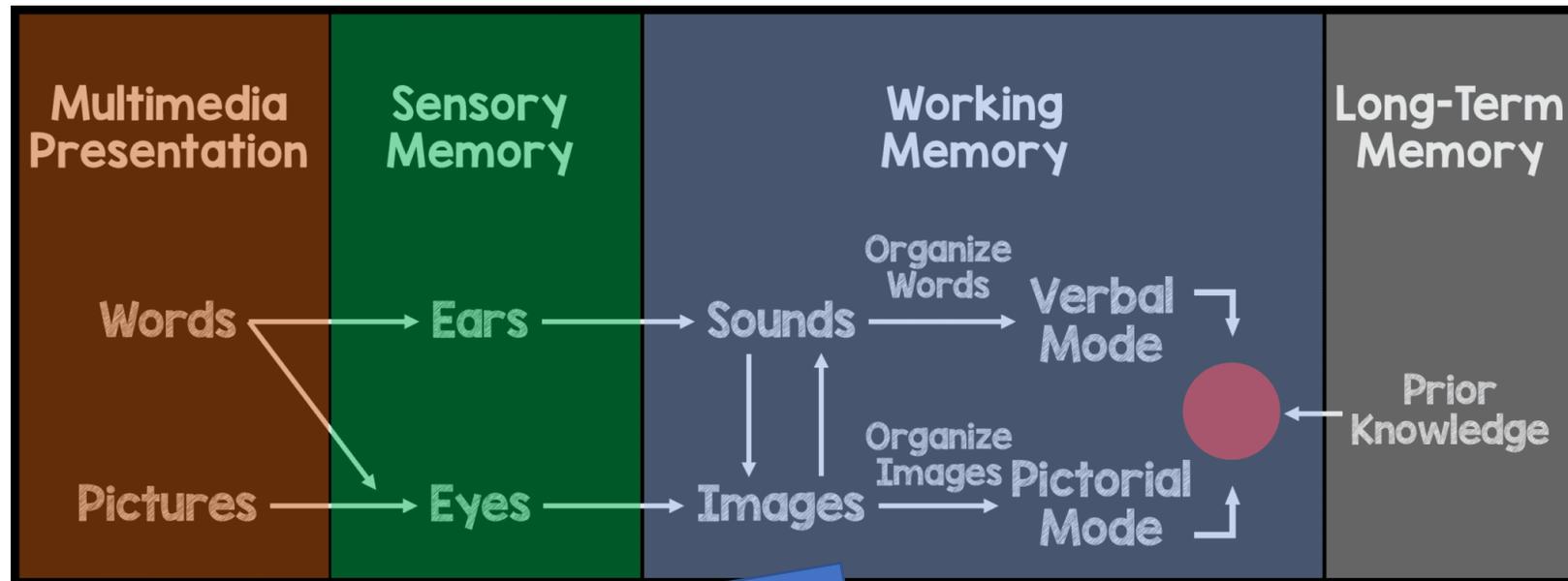
**COGNITIVE THEORY OF
MULTIMEDIA LEARNING**



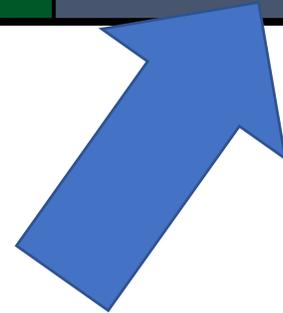
It really won't matter if the student viewing the content heard or saw it...



**COGNITIVE THEORY OF
MULTIMEDIA LEARNING**



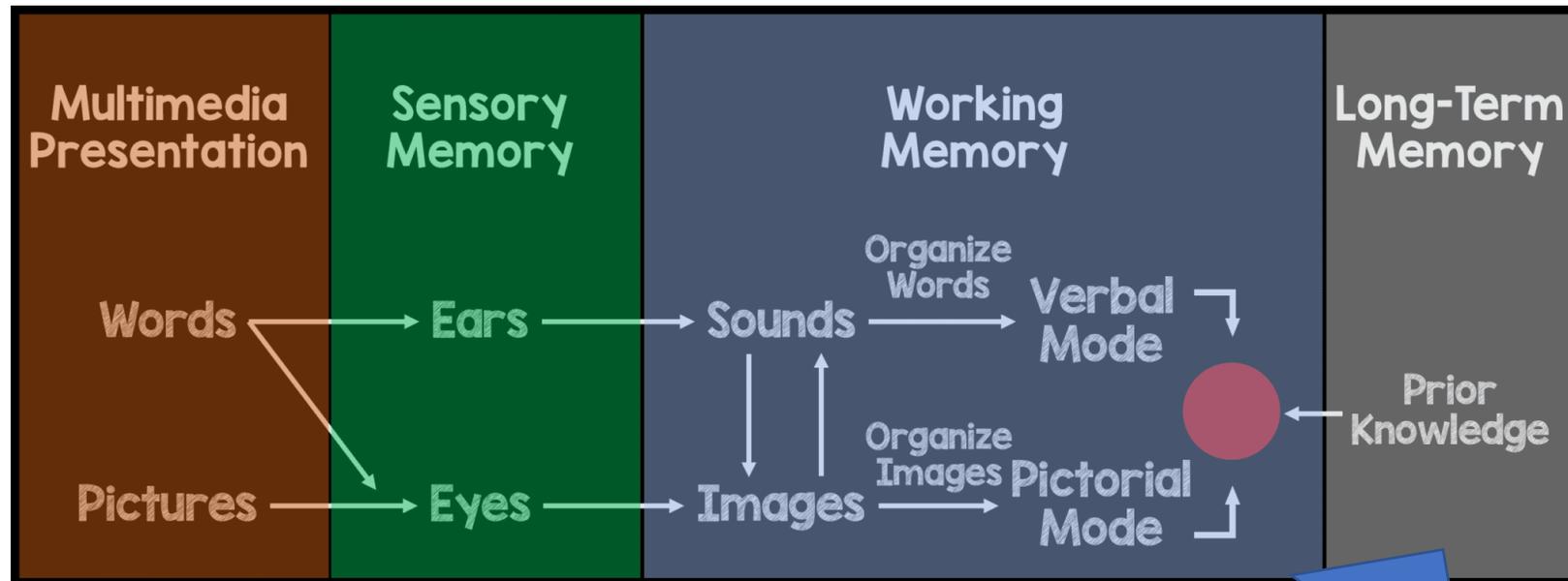
And the limited cognitive capacity of students won't be able to make quick work



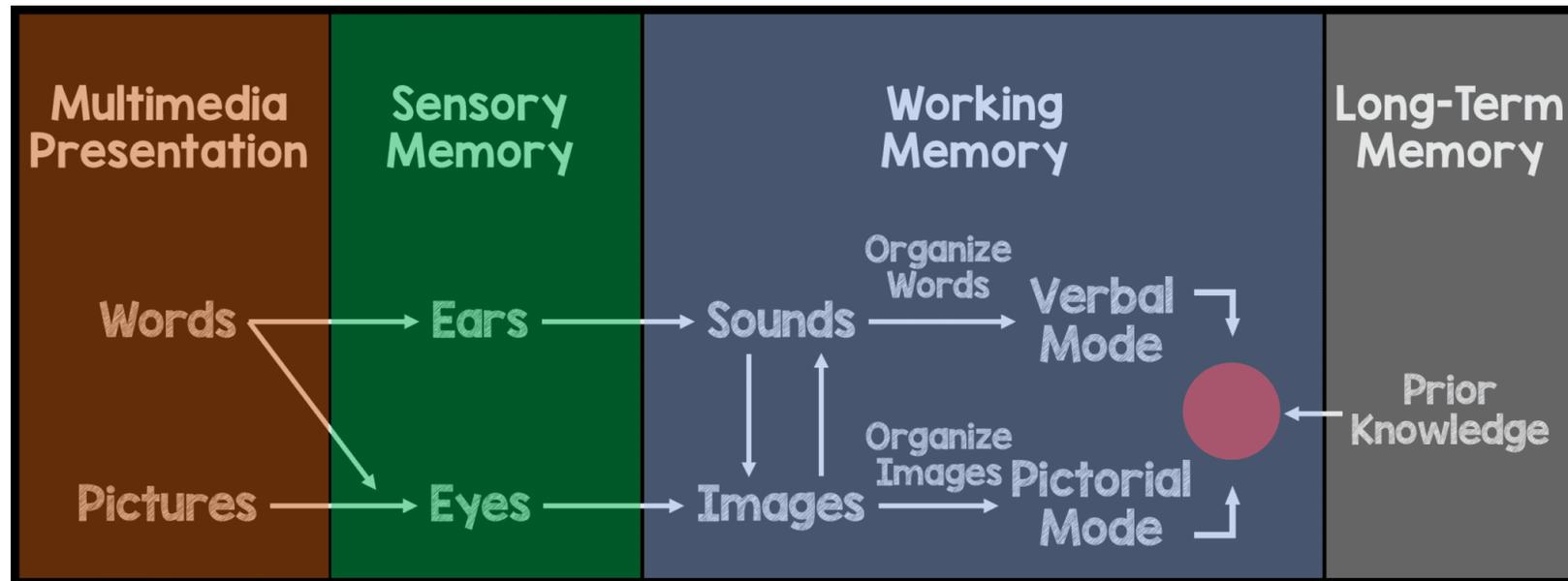
of what they are seeing and hearing and thus they can't organize and active LTM...



COGNITIVE THEORY OF MULTIMEDIA LEARNING



Existing schemas in long-term memory don't have a chance of being activated or updated.

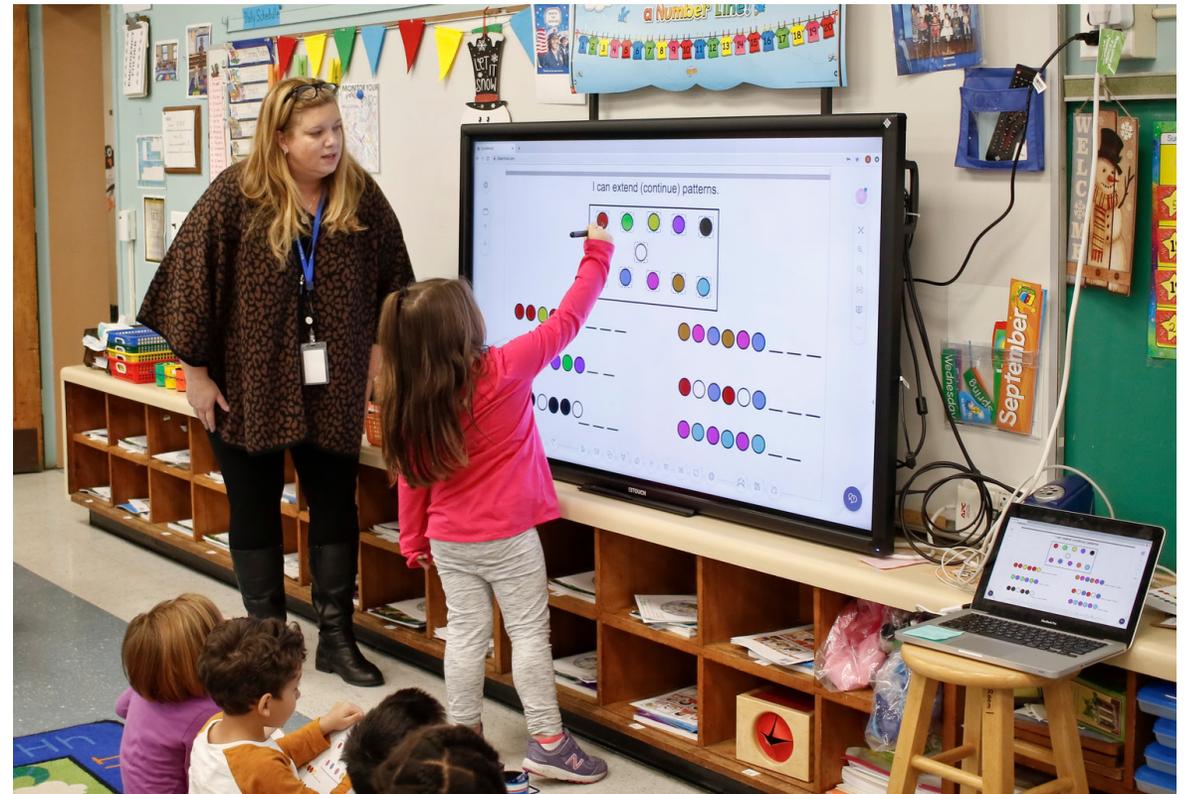


In other words: Mayer's model works under ideal learning circumstances, which almost never exist in the real world...

Something I constantly remind myself of is technology is not a panacea. It is the instruction that matters – the use of evidence-based or high-leverage practices specially designed for students and professionals in training – If we use multimedia to package that instruction: Great! But multimedia alone does not reach this high bar for effective teaching...



**Just a
reminder...**



Key Elements of Explicit Instruction

- Use clear language
- Use cues
- Break complicated content into chunks
- Make connections to prior learning
- Highlight relevant and varied examples (and non-examples)
- Use an engaging, deliberate, and predictable pace
- Provide lots of (varied) opportunities to respond (OTRs)
- Deliver high-quality feedback
- Model (I do) regularly
- Provide guided practice (we do) regularly
- Utilize independent practice (you do) when students are ready

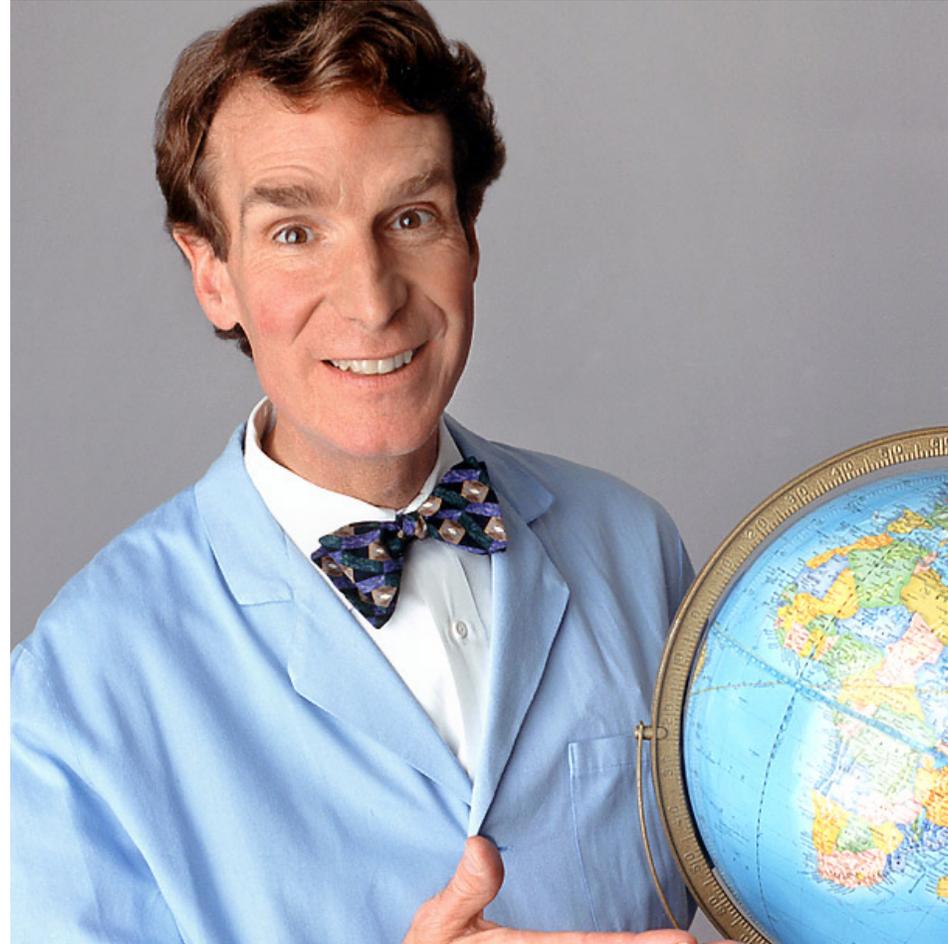


Integrate these principles with technology

- Use clear language
- Use cues
- Break complicated content into chunks
- Make connections to prior learning
- Highlight relevant and varied examples (and non-examples)
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I have no issues calling this great American into duty, but I need to be super clear about what I am asking him to do – and what I want students to achieve from his “lesson”



Students love watching videos off the rack like Bill Nye, yet he isn't exactly using evidence-based teaching practices for learning new concepts...



Have to be realistic about what future or current professionals can gain from watching ANY video or attending a single PD session



EXPLORE HLPs

FIND RESOURCES

ACCESS VIDEOS

EVENTS

VIDEO LIST

Introduction Video

Clarifying the Relationship Between HLPs and EBPs

HLP #7: Establish a Consistent, Organized and Respectful Learning Environment

HLPs #8 and #22: Provide Positive and Constructive Feedback to Guide Students' Learning and Behavior

HLP #11: Goal Setting

HLP #12: Systematically Design Instruction Toward a Specific Learning Goal

HLP #13: Make Adaptations

VIDEO LIST

HLP #14: Use Cognitive and Metacognitive Strategies

HLP #15: Use Scaffolded Supports

HLP #16: Use Explicit Instruction

HLP #17: Use Flexible Grouping

HLP #18: Use Strategies to Promote Active Student Engagement

HLP #19: Use Assistive and Instructional Technologies

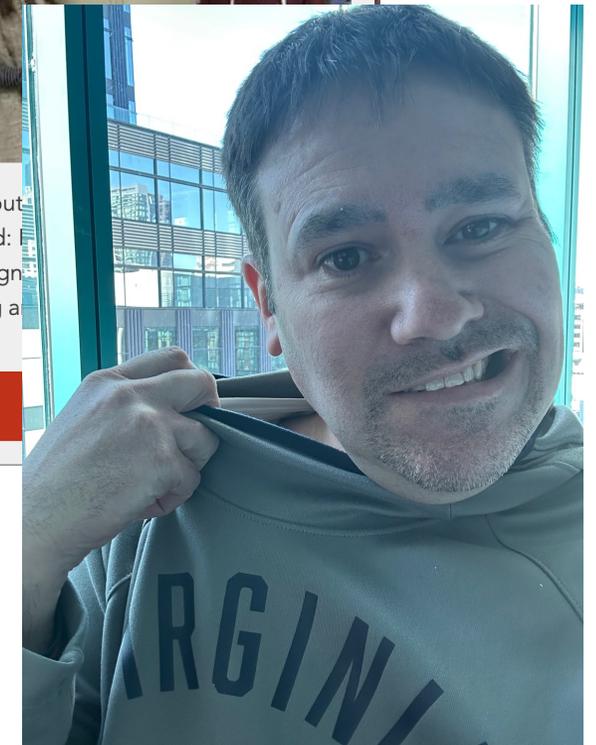
HLP #20: Provide Intensive Instruction

[VIEW UNEDITED CLIPS](#)

Latest Video



Check out the latest video released: metacognitive learning a



Combinations of effective design principles, and effective practices



updated version
about to be released!

Use of Technology in the Preparation of Pre-Service Teachers



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Building

Declarative

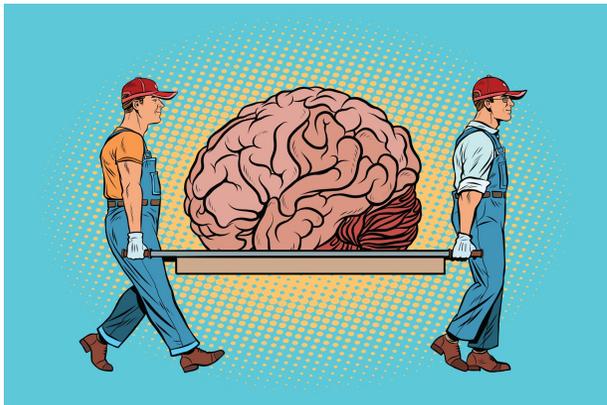
KNOWING
WHAT
TO DO

Procedural

Conditional

KNOWING HOW
TO DO IT

Knowledge

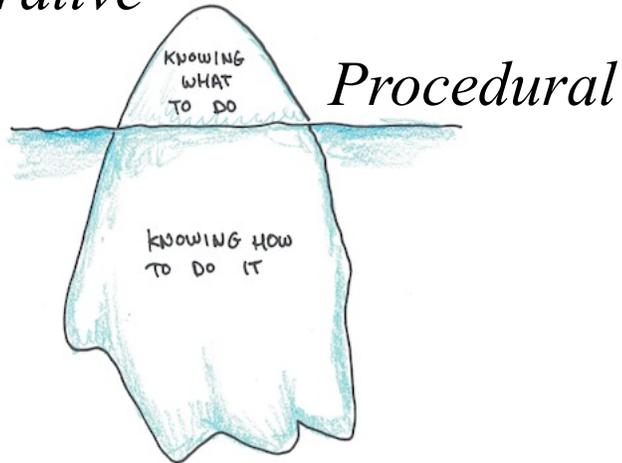


For Our Teacher Candidates & Teachers



Verbal + Gestural + Visual Prompt

Declarative



Content Acquisition Podcasts

spedintro.com

www.vimeo.com/mjk

Multimedia vignettes

Reflect CTML

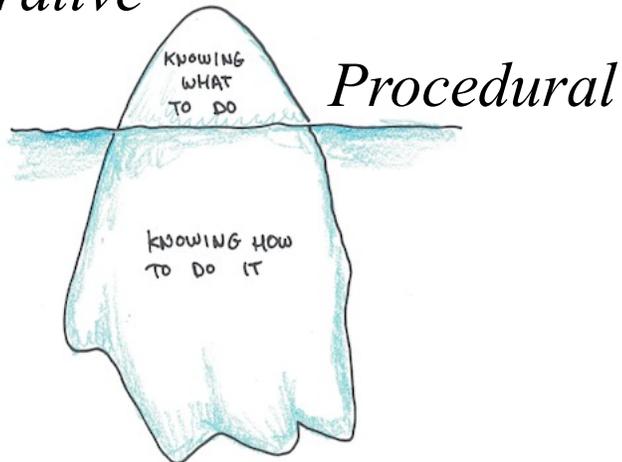
Explicit Instruction

Modeling



- highleveragepractices.org
- CTML
- Explicit Instruction
- Modeling
- Similar evidence-based format as CAPS

Declarative

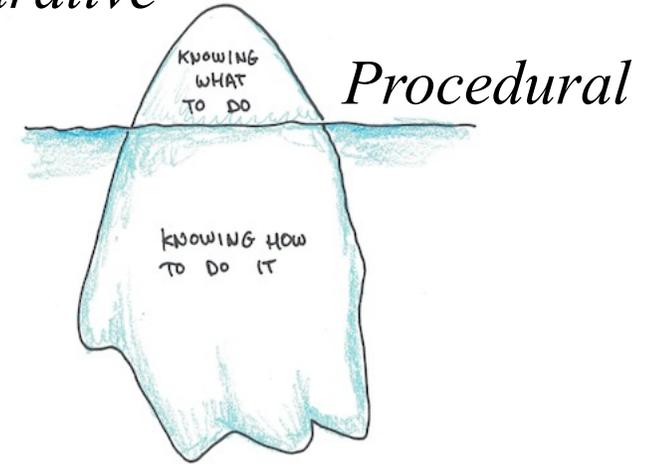


Online Modules



<https://iris.peabody.vanderbilt.edu/>

Declarative



Autism Focused Intervention
Resources & Modules

<https://afirm.fpg.unc.edu/afirm-modules>

National Center on
INTENSIVE INTERVENTION

at the American Institutes for Research® ■

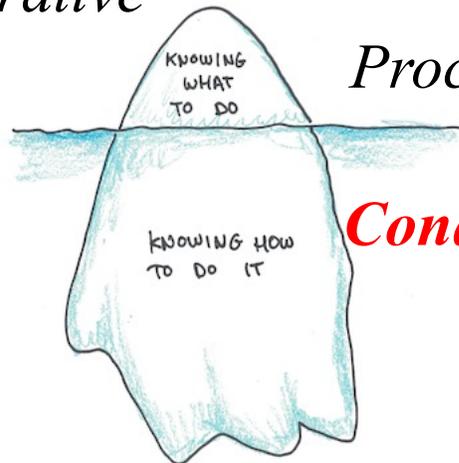
<https://intensiveintervention.org/>



Vehicles for candidates to use strategies & receive feedback

- Observation and feedback tools like COACHED, Go React, and Vosaic

Declarative



Procedural

Conditional

- Bug-In-Ear
- Mixed-Reality Simulations
- Video Reflections

<https://coachedweb.azurewebsites.net>



Michael J. Kennedy, Ph.D.

Rachel Kunemund, Ph.D.



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COACHED

- **Coaching Tools**



- CT Scan Observational Instrument
- CAP-TVs Multimedia Vignettes
- Interactive Feedback Form
- Self-Reflection Matrices



Bug-In-Ear Coaching

Live feedback to teacher during
instruction

Using Bluetooth or similar
technology

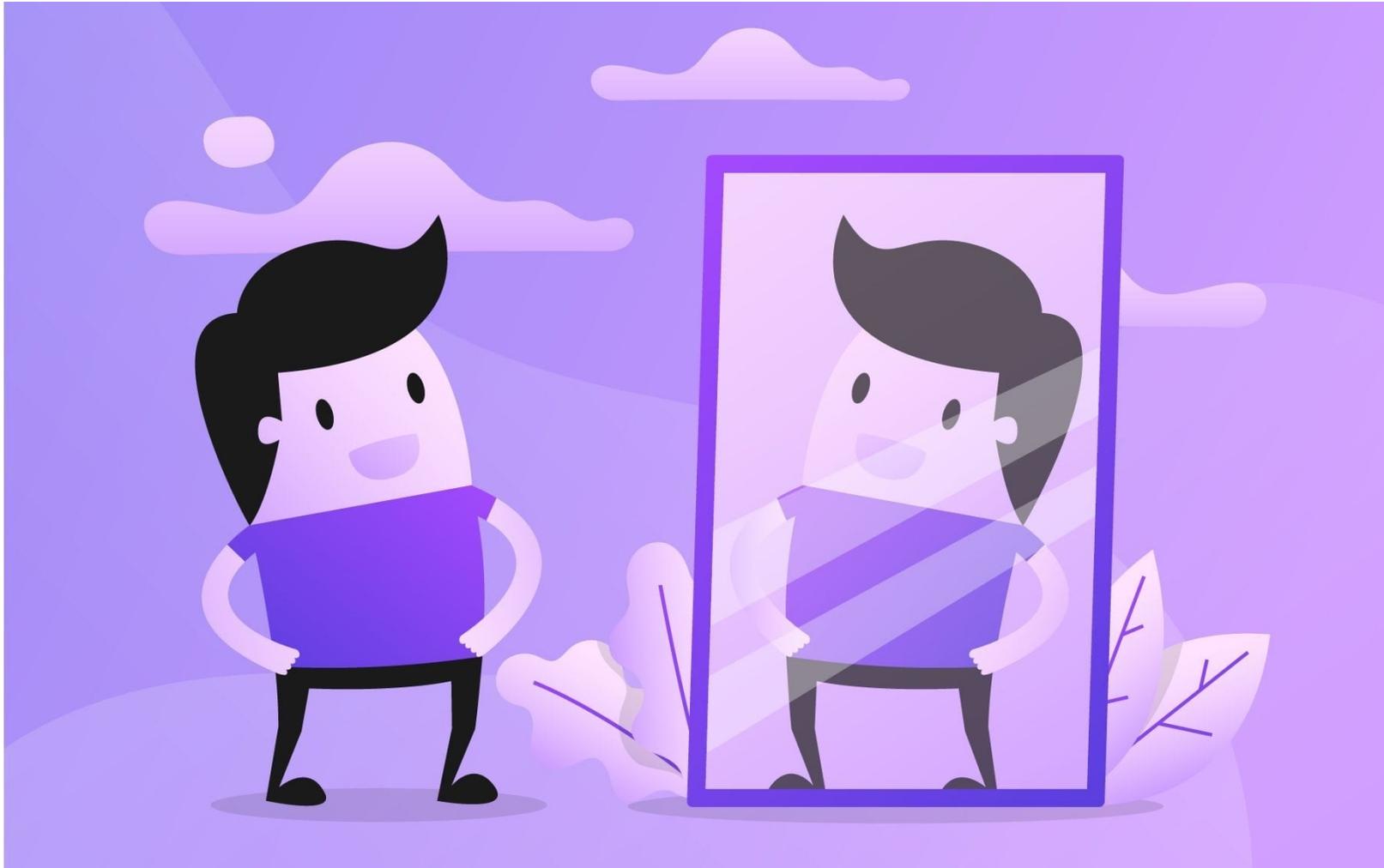




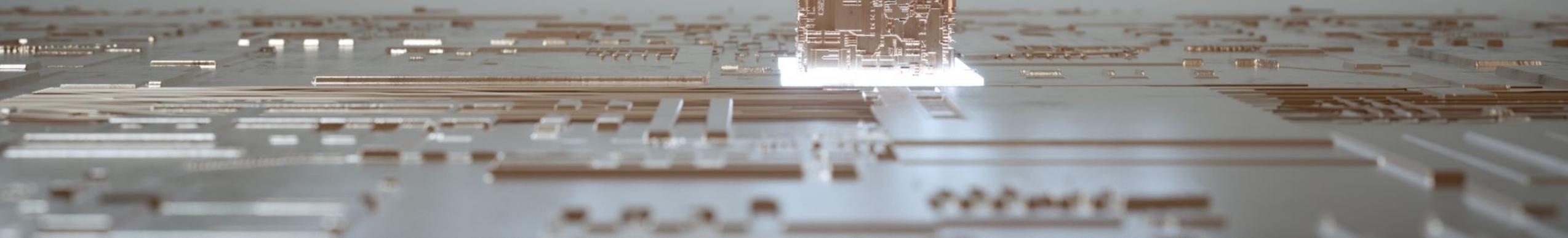
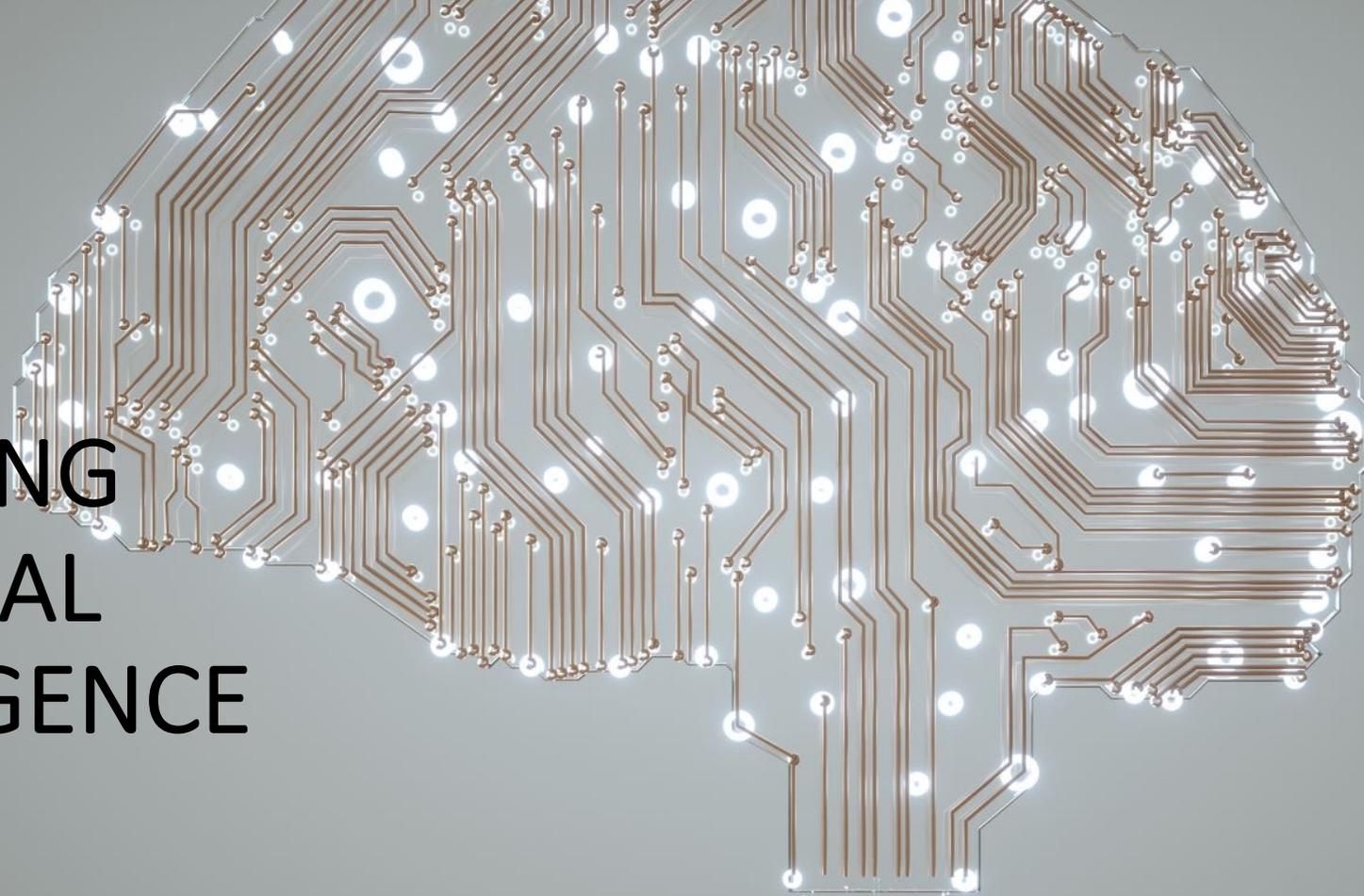
Mixed Reality Simulations

- Provides structured practice opportunities
- Interactive Virtual Training for Teachers (IVT-T)
- Mursion

Teacher reflection



EMERGING ARTIFICIAL INTELLIGENCE



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@MJK_PhD



Take 3-5 minutes

1. Please answer this survey so we can understand what you are implementing in your course or program.

<https://www.surveymonkey.com/r/HWRJQ30>



During the presentation, please enter your questions and thoughts:

<https://cedarcenter.padlet.org/micaylarkinder/lv7sc8w07gt2fjb6>



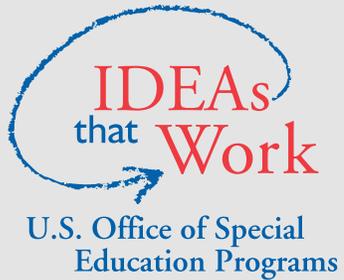
During the breakout:

- a. Please share one way your knowledge/thinking about technology has been expanded
- b. Discuss implementation strategies and challenges (add to Padlet)
- c. Describe supports you need to implement strategies (add to Padlet)
- d. Identify questions for Dr. Kennedy to respond to at the end of the session (add to Padlet)

<https://cedarcenter.padlet.org/micaylarkinder/lv7sc8w07gt2fjb6>



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