

Powerful Pedagogies for a digital world

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Press release

UK aid funds world's biggest educational technology research project

The World Bank, University of Cambridge and UK tech companies partner with DFID to help improve education technology in developing countries.

Published 18 June 2019

From: [Department for International Development](#) and [Harriett Baldwin MP](#)

Future of Learning

Virtual field trips bring students face-to-face with Earth's most fragile ecosystems

First-person environmental experiences engage learners and foster empathy, teachers say



MEGAN CONN

Editor's note: This story led off this week's Future of Learning newsletter, which is delivered free to subscribers' inboxes Wednesday with trends and top stories about education. [Subscribe today!](#)

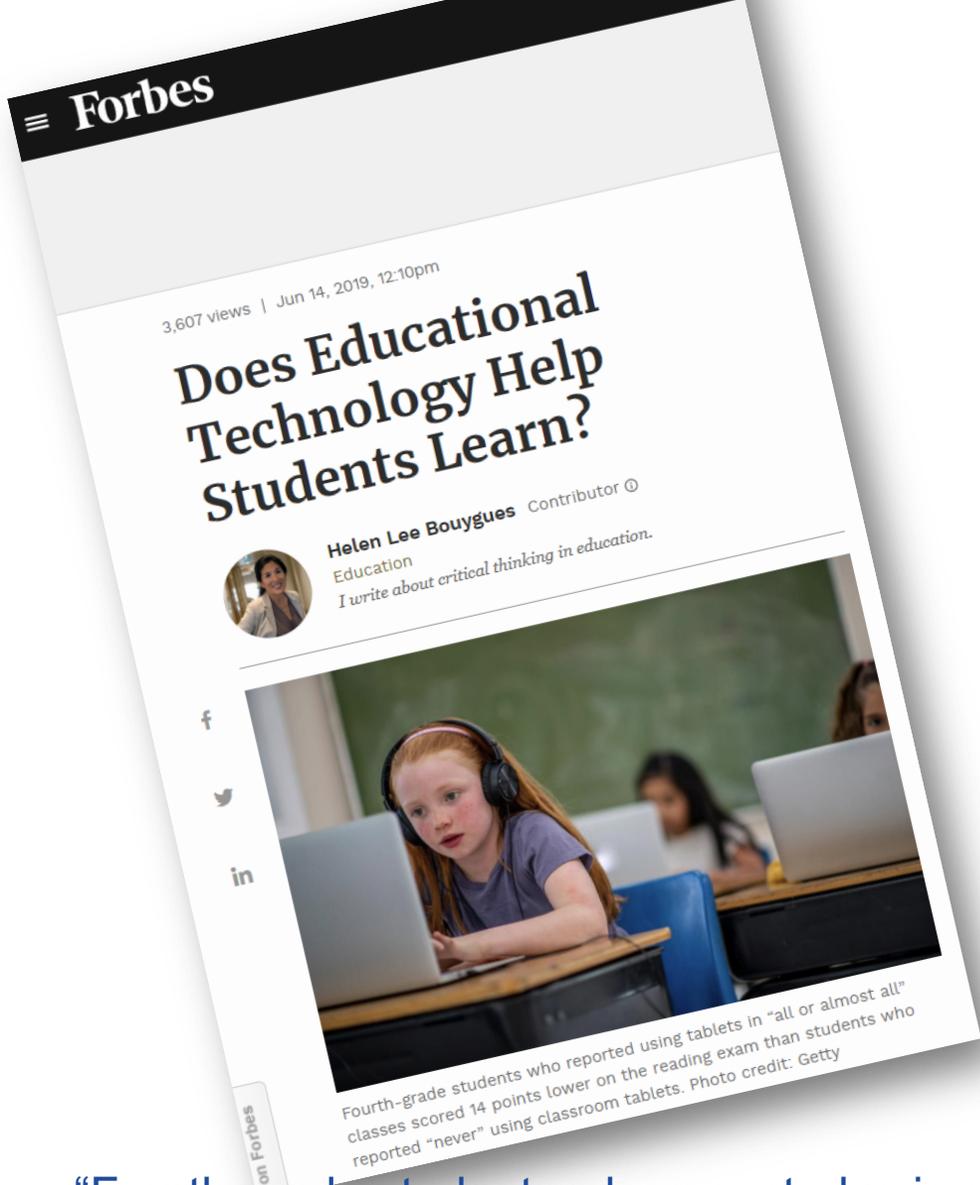
July 4, 2019

Laura McGinty, a high school biology teacher in Seattle, had a lot to fit into her students' first lesson on climate change: a visit to struggling penguin colonies in Antarctica, a flight over melting glaciers in Greenland and a walk through a disappearing oasis in the Sahara. But by slipping into new virtual reality headsets, they could do it all in a single class period.

"If you don't see it, if you're not experiencing it right now, then



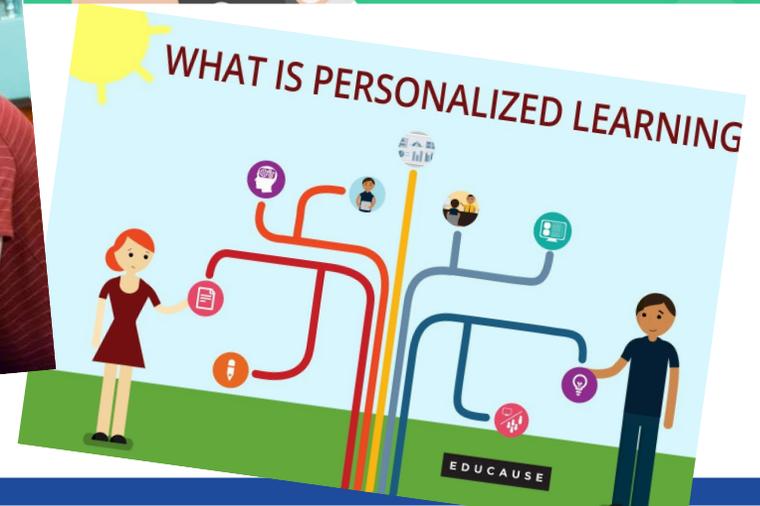
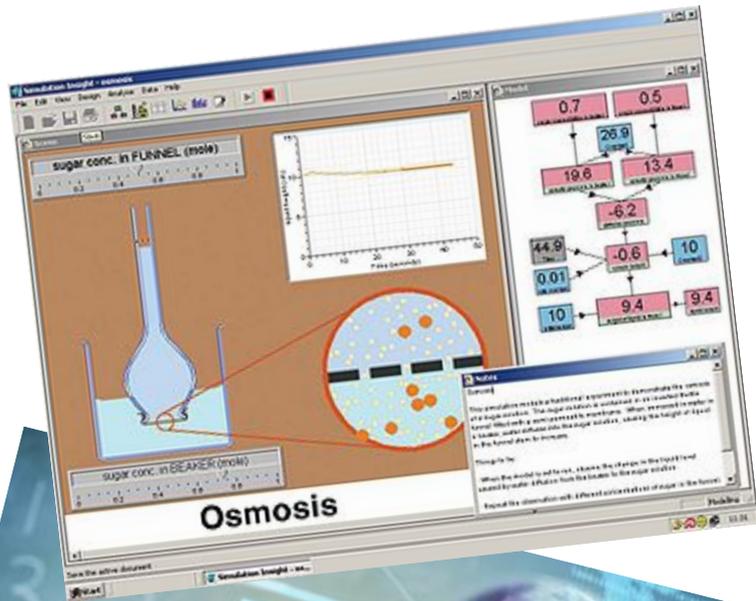
Ian Fairhurst, who integrates educational technology into grades K-6 at Knox Grammar Prep, showed a session participant how to use a VR headset at the ISTE conference in Philadelphia. Megan Conn/The Hechinger Report



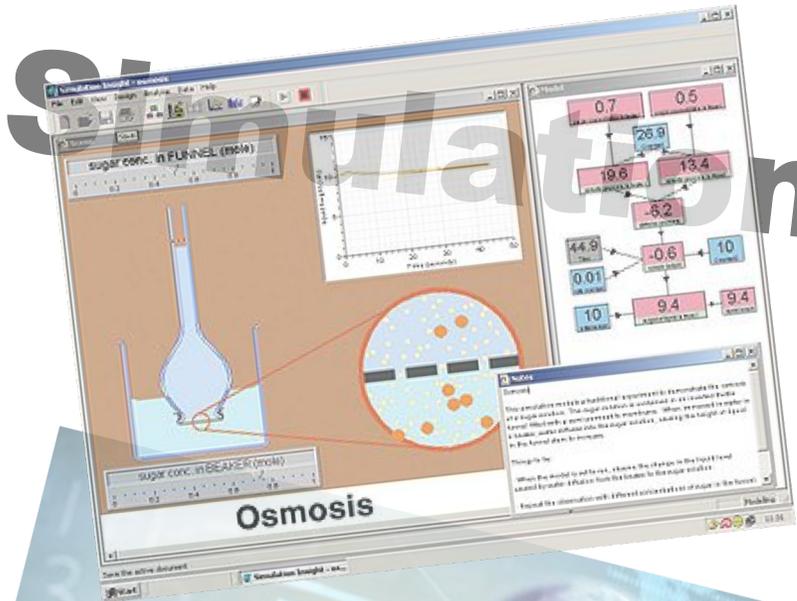
“Fourth grade students who reported using tablets in “all or almost all” classes scored 14 points lower on the reading exam than students who reported “never” using classroom tablets.”

“Our findings also indicate that schools and teachers should be more careful about when—and how—education technology is deployed in classrooms. And as a society struggling to prepare our children for an uncertain future, we need more deliberate implementation and **careful research on the connection between technology and learning.**”

Behind every educational technology ...

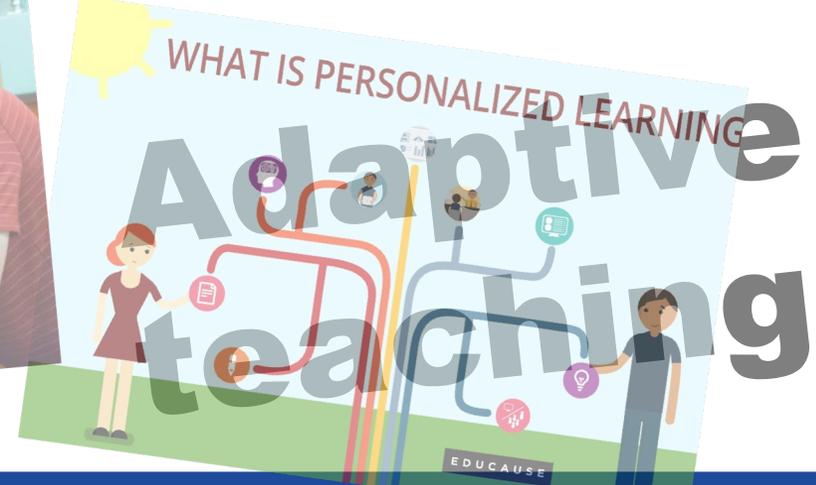


... is a pedagogy



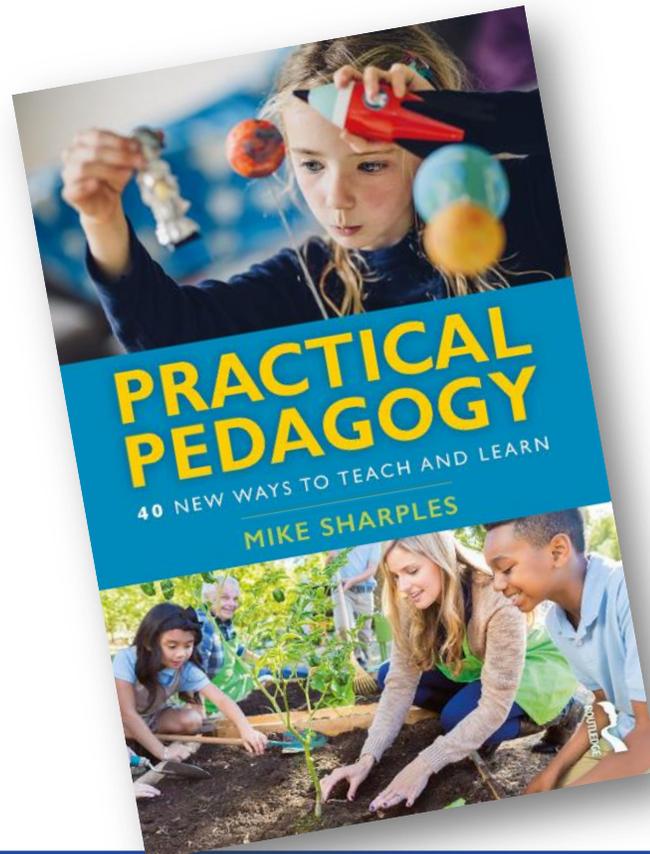
Lecture Capture?

Future Learn
edX
coursera



Pedagogy

“Theory and practice of teaching learning and assessment”



Powerful pedagogies: The Big Four

Personalised learning

Mastery learning works (Kulik et al., effect size 0.5)

AI-based tutoring works (Kulik & Fletcher, effect size 0.6)

Best when students are grouped, and can discuss

Cooperative learning

Cooperative learning works (Hattie, 2018, effect size 0.5)

Best when students have shared goals, know when and how to contribute, share rewards, and reflect on progress

Feedback for learning

Immediate feedback works well (Hattie, 2018, effect size 0.7)

Visible learning

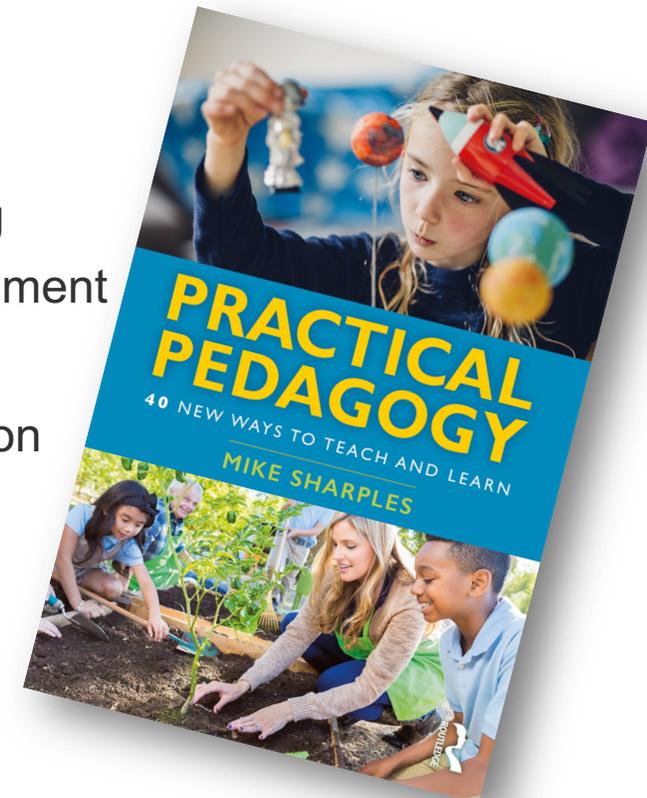
Goal setting and visible progress works (Hattie, 2018, effect size 0.5)

40 *new ways to teach and learn*

Adaptive teaching
Spaced learning
Analytics of emotions
Personal inquiry
Dynamic assessment
Stealth assessment
Translanguaging
Crossover learning
Seamless learning
Incidental learning
Learning from gaming
Geo-learning
Learning through social media
Epistemic education
Explore first

Teachback
Learning through argumentation
Computational thinking
Learning from animations
Learning to learn
Assessment for learning
Formative analytics
Threshold concepts
Learning through storytelling
Learning in remote labs
Context-based learning
Event-based learning
Learning for the future
Embodied learning

Immersive learning
Maker culture
Bricolage
Massive open social learning
Crowd learning
Citizen inquiry
Rhizomatic learning
Reputation management
Open pedagogy
Humanistic education communities



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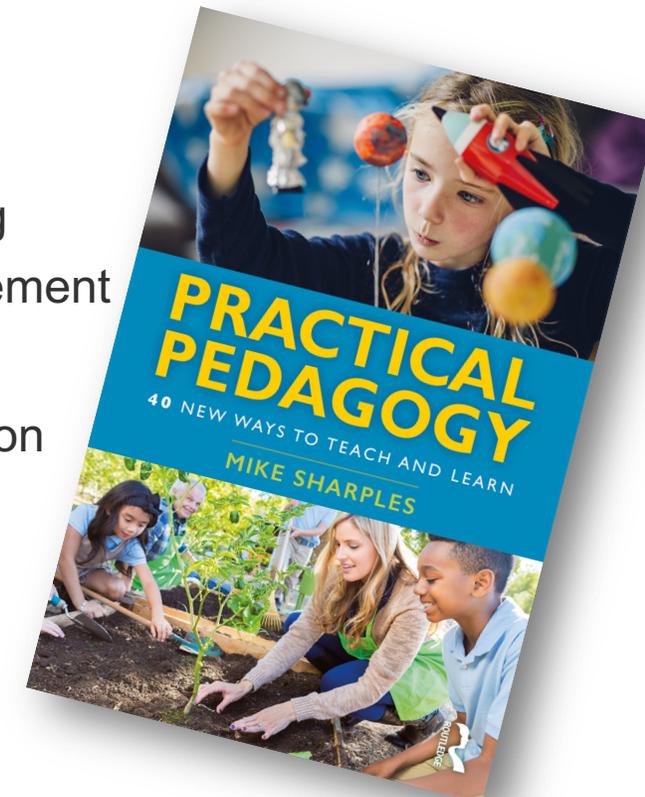
Citizen inquiry

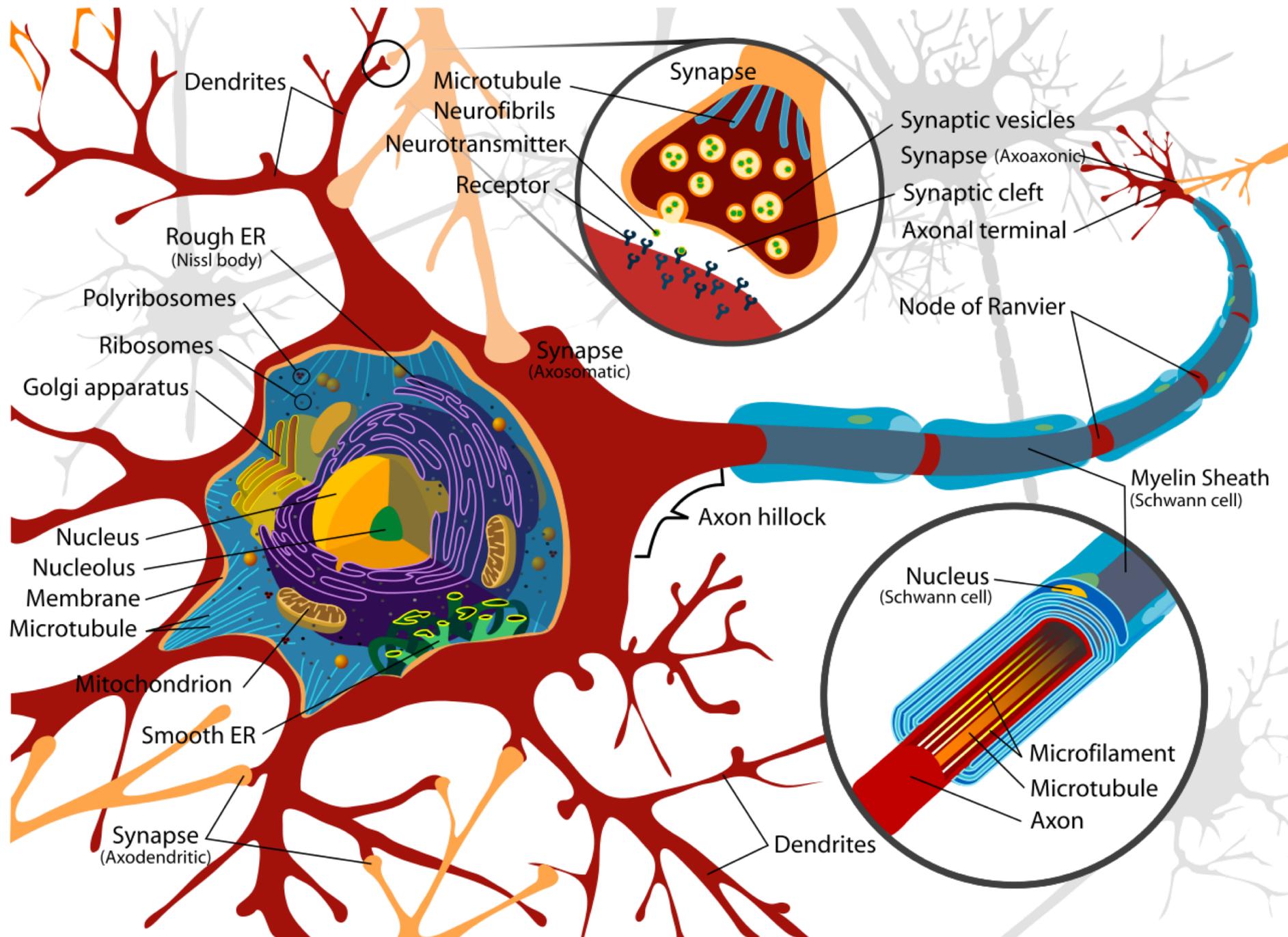
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Reputation management

Open pedagogy

Humanistic education communities





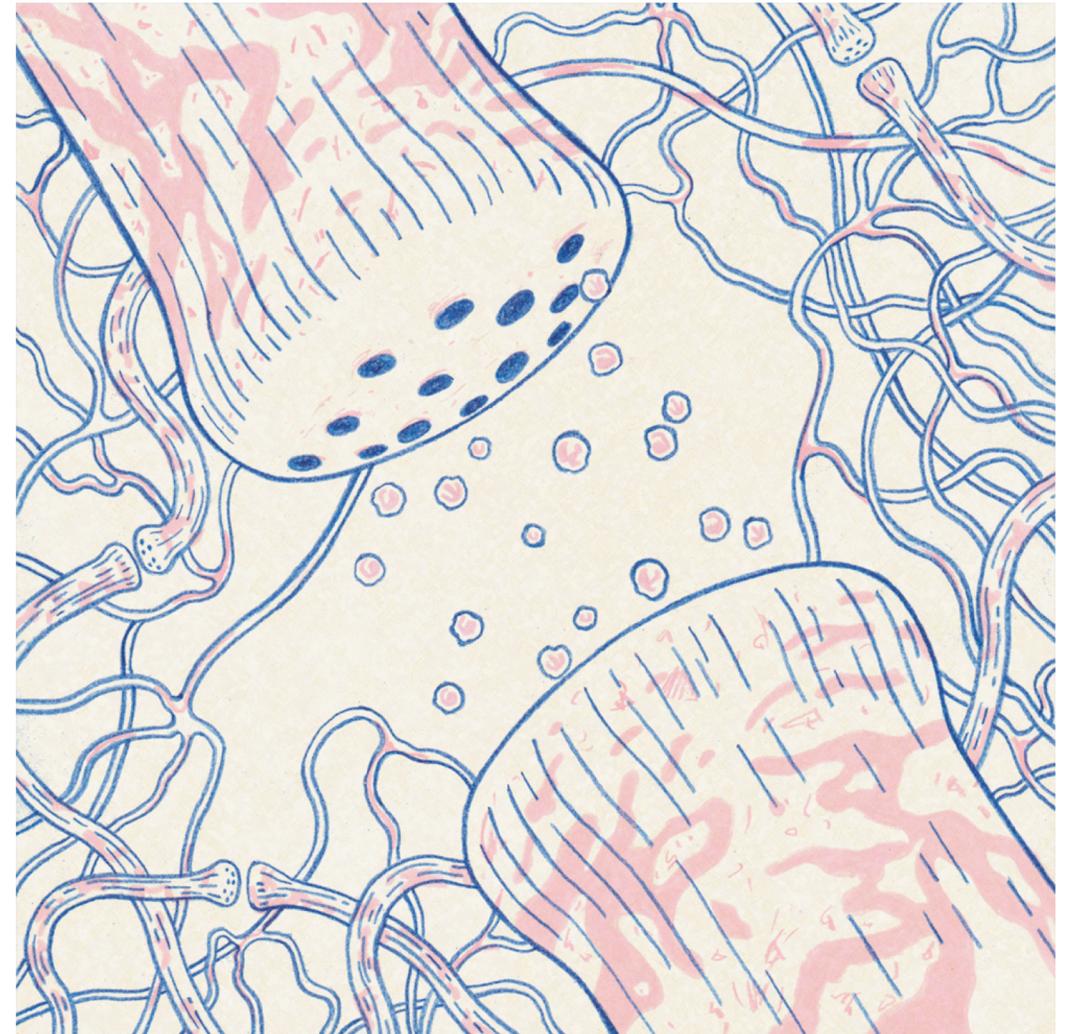
Spaced learning - neuroscience

Synapses link neurons

Learning involves strengthening synapse connections

Chemical connections can be formed in minutes, for networks of neurons

Neural learning works best when short sessions of stimulation are spaced with periods of other activity, to let the connections grow



Spaced learning - pedagogy

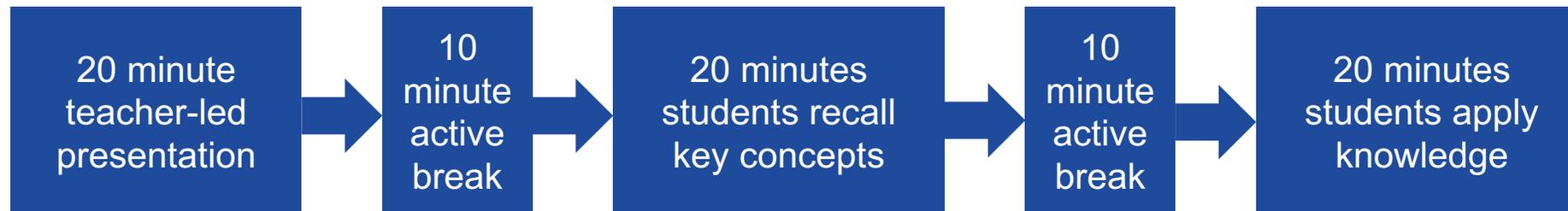
School biology course

Three 20-minute learning episodes spaced by 10 minutes of physical activity (e.g. clay modelling, or yoga)

Results:

1 hour of spaced learning was similar to 4 months of classroom teaching

Trials in 15 UK schools



“The spaced learning principle is supported by evidence from both the cognitive science and neuroscience literature.” (Education Endowment Foundation report)

Kelley, P., & Watson, T. (2013). Making long-term memories in minutes: a spaced learning pattern from memory research in education. *Frontiers in Human Neuroscience*, 7, 589.

Spaced learning in practice

www.futurelearn.com

Courses designed in 20-minute 'steps', with spaces for reflection and discussion

WEEK 1 WEEK 2 WEEK 3 WEEK 4

WEEK 1: THE BASICS OF FOOD

Why do we eat and what do we eat?
Find out about the processes in your body which make you feel hungry.

1.1 WEEK 1 GUIDE VIDEO (01:50)

1.2 WHY DO WE EAT? DISCUSSION

1.3 WHAT ARE THE REASONS FOR EATING? ARTICLE

1.4 GHRELIN ARTICLE

1.5 THE COMPONENTS OF FOOD ARTICLE

Protein and fat
Delve deeper into the roles that protein and fat play in your body and exactly what the difference is between a saturated and unsaturated fat.

1.6 PROTEIN ARTICLE

1.7 PROTEIN SEQUENCING ARTICLE

1.8 PHENYLKETONURIA ARTICLE

Technology alone will not transform education.

Focus on **pedagogy with new technology**, not just the technology.

Powerful pedagogies

are personal, exploratory, social, flexible

