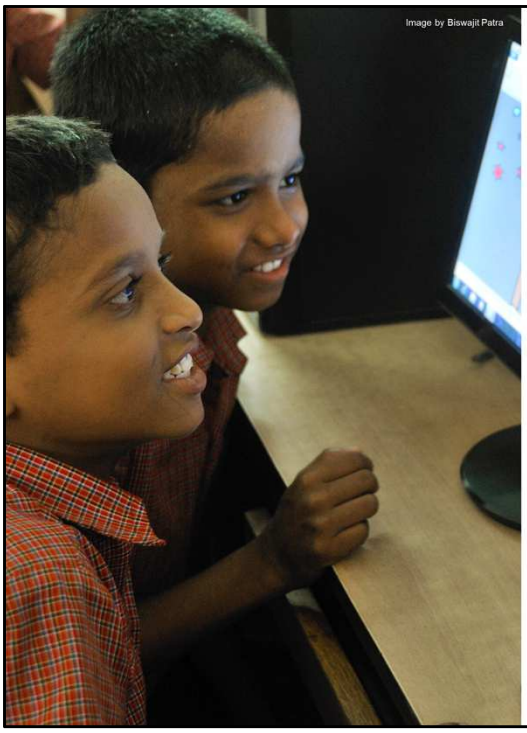
Introduce self and role in Pearson
Encouraged to respond, and perhaps disagree in spots – so I have tried to do this.
Set up Yes, and BUT



Responding to *Students, Computers and Learning*

"Yes, and… but…."

1. The Research on Learning Technologies
2. Pearson's Efficacy Agenda
3. Artificial Intelligence in Education

*"Overall, the most frequent pattern that emerges in PISA data when computer use is related to students' skills is a **weak or sometimes negative** association…."*

Students, Computers and Learning, p. 162

Pearson

Research on Learning
Technologies

Meta-analysis is a technique for combining the results of multiple experiments or quasi-experiments to obtain a composite estimate of the size of the effect.

Context does matter

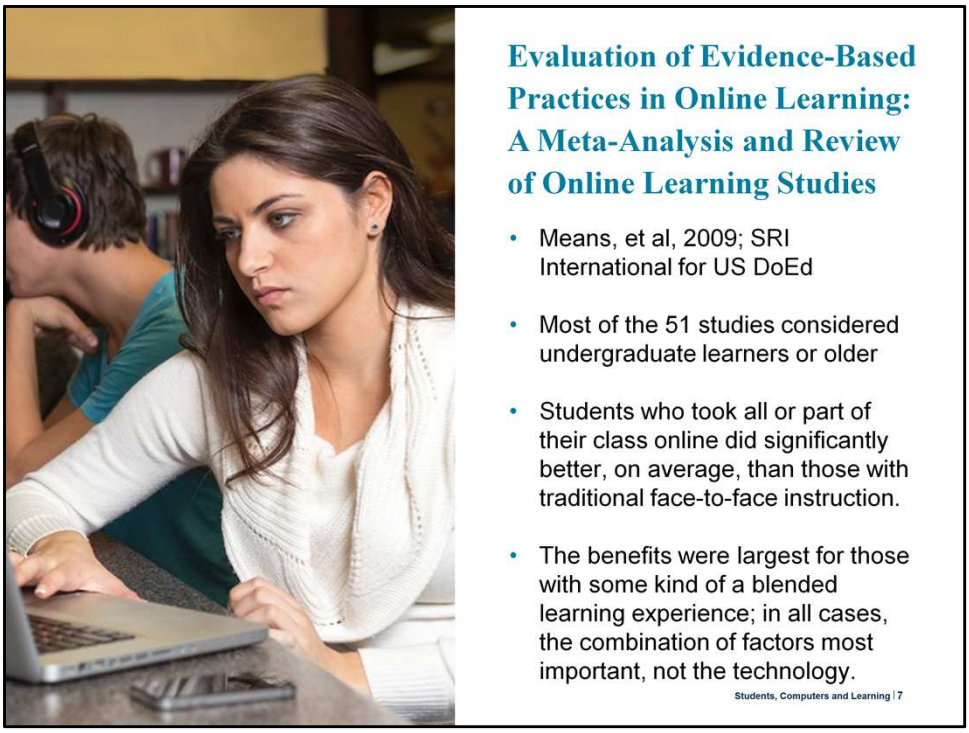
I'll mention two here.

Effectiveness of Intelligent Tutoring Systems: A Meta-Analytic Review

- Kulik and Fletcher, *Review of Educational Research*, March 2016.
- Evaluations across many contexts, age-levels, and subject matters.
- Students who used ITS outperformed students from conventional classes in 46 (or 92%) of the 50 evaluations.
- In 78% of these, the improvement was considered substantive
- Fairly strong effect size of 0.66, BUT much higher for local tests (0.73) vs. standardised tests (0.13)

Pearson

Interesting result, and not unusual across the research literature. Both standardised and localised test have their champions, but it makes sense that you would have stronger results from a local test that would assumedly be more likely to be testing for a specific learning outcome, than a standardised test.



Fortunate to work with Barbara and her team from the Center for Learning in Technology; applying their work from this study, and the book Learning Online, to a three part series with Pearson on building efficacy into learning technologies, which brings us to our next topic.

"Gaps in the digital skills of both teachers and students, ***difficulties in locating high-quality digital learning resources…, a lack of clarity on the learning goals,*** *and insufficient pedagogical preparation…create a wedge between expectations and reality."*

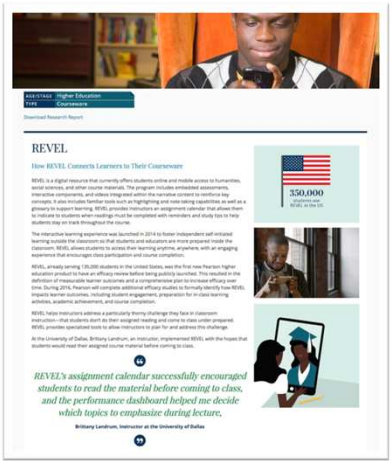
Students, Computers and Learning, p. 190

Pearson

Pearson's Efficacy
Agenda

Taking up the challenge: Demonstrating Efficacy

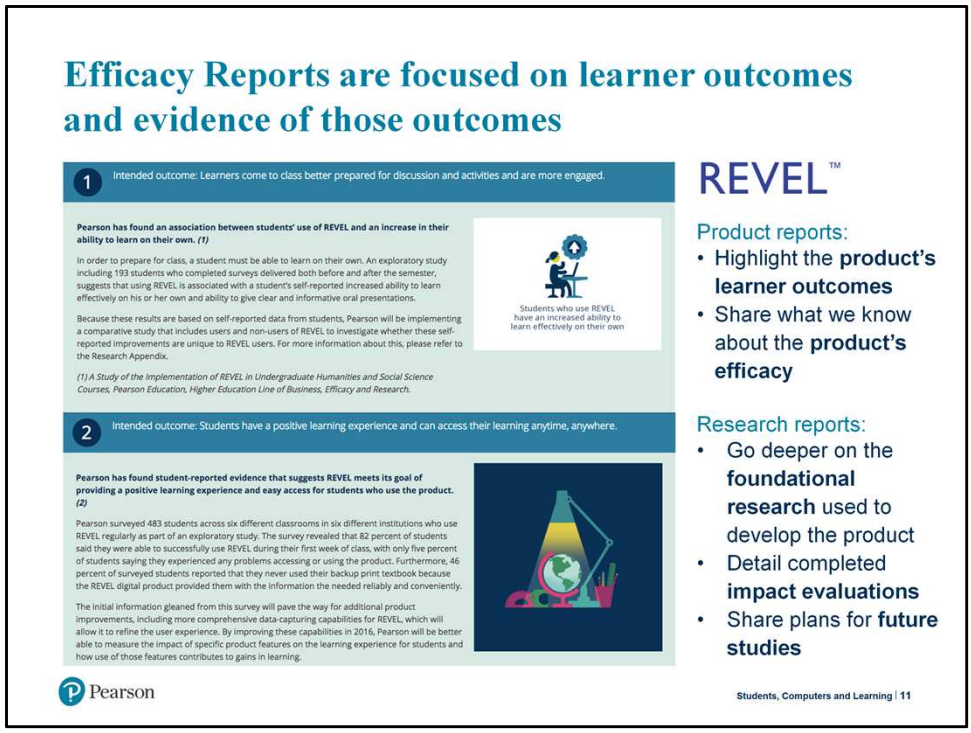
- **Efficacy** = defining the outcomes we intend to achieve for learners and building the capabilities to measure and improve those outcomes
- Committed to reporting on efficacy of our products, with **independent audit**, by 2018
- We are working to meet our commitments with **rigor, scale and transparency**
- Thirteen **new** reports published on the new Efficacy website
- **We are early in the process**, meaning there is limited robust evidence but plans for future studies fill these gaps



efficacy.pearson.com

Pearson

Fundamentally, efficacy is about defining what outcomes we intend to achieve for our learners and building the capabilities to measure and improve those outcomes.



Give examples of what is being found in Revel, and in My Math Lab

- MasteringChem:product was effective for students who already entered the course with higher science background.
- MML- Dev math also showed high correlation between use of MML-Dev Math and final scores, BUT a recent study where ML-Dev was used in a summer bridge course to help students who had scored low on the math entrance exam retake the test and place out of dev math
- MML-dev helped students score better on the subsequent placement test, those students did not do better in the first course-bearing course than similar students. Issue is dosage
- So, the moral of this study is, MML- dev could work, but it has to be used with enough intensity - often enough for it to be meaningful.

Impact evaluations – back to prior point

Context matters: “Whether ed tech works depends on a variety of factors such as the context in which it is used, how it is used and the characteristics of instructors and students; that's why our impact studies will measure all of these things.”

"Technology can amplify great teaching, but great technology cannot replace poor teaching."
Students, Computers and Learning, p. 190
Pearson
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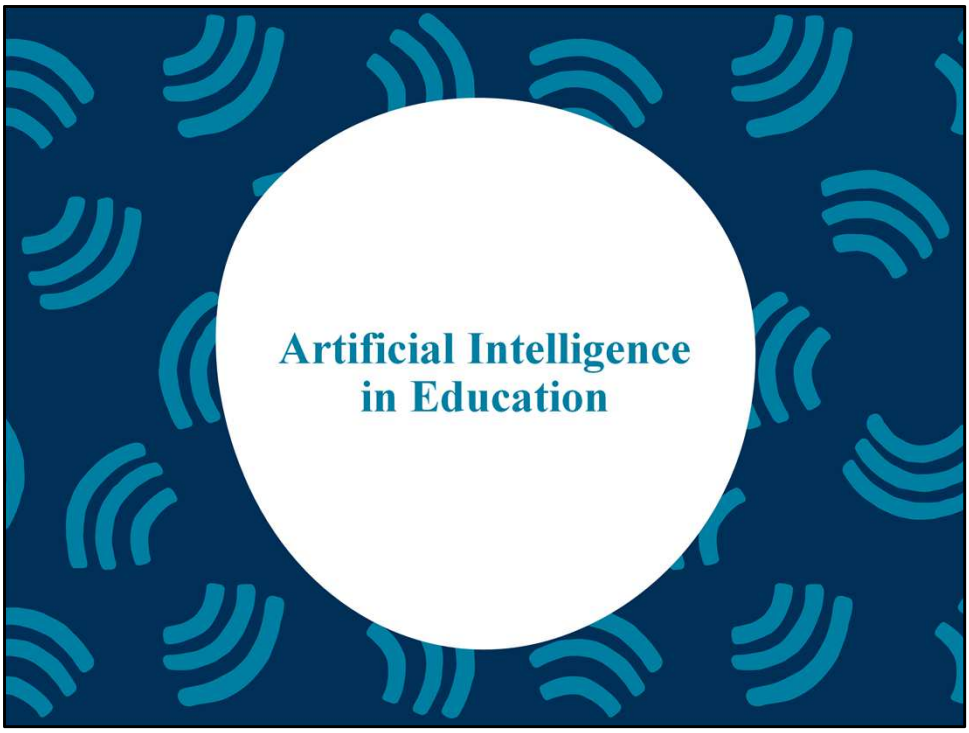
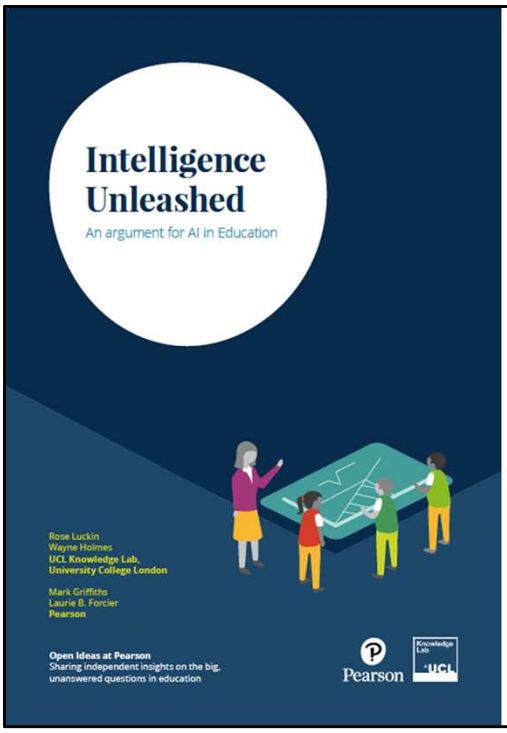

Artificial Intelligence
in Education



Artificial Intelligence in Education (AIEd)

- What is it?
- What can it do now?
- What could it do in the future?
- What problems could it help us solve?
- How do we make the possibilities of AIEd reality?

bit.ly/IntelligenceUnleashed

What AIEd can offer learning right now

- **An intelligent personal tutor for every learner**
- Intelligent support for collaborative learning
- Intelligent virtual reality to support learning in authentic environments

Pearson

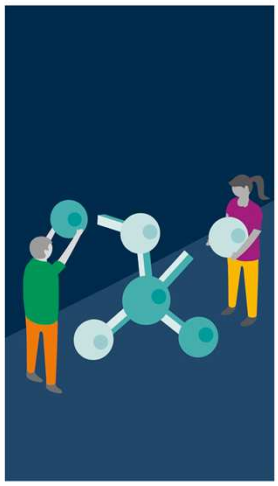
Technology available today could be applied to support student learning at a scale previously unimaginable by providing one-on-one tutoring to every student, in every subject.

Existing technologies also have the capacity to provide intelligent support to learners working in a group,

and to create authentic virtual learning environments where students have the right support, at the right time, to tackle real-life problems and puzzles.

The next phase of AIEd

- Help learners gain 21st century skills
- Support a "Renaissance in Assessment"
  bit.ly/renaissanceinassessment
- Embody new insights from the learning sciences
- Provide lifelong learning companions that support individual learners throughout their studies



How AIEd could help us respond to the big unsolved issues in education

- School readiness and achievement gaps
- Developing teacher expertise
- Teacher retention
- **Addressing teacher shortage**

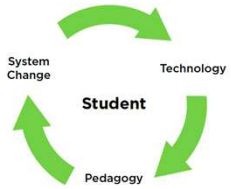
Pearson

The but – it cannot replace poor teaching. Well no, and I take the point. But, in the absence of good or experienced teaching, AIEd may provide us with the opportunities for students who would have nothing to have something much better.

Technologies don't have impact in isolation

"The future will belong not to those who focus on the technology alone but to those who place it in this wider context and see it as one element of a wider system transformation."

- Sir Michael Barber
Chief Education Officer, Pearson
Foreword, *Alive in the Swamp*



bit.ly/AliveintheSwamp

Pearson

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Francesco started with a quote, so I will end with one…

Three things need to come together for digital innovations to take hold:
technology, pedagogy, change knowledge or how to secure transformation across an entire school system.

Thank You!
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ALWAYS LEARNING