




# Dynamic Teaching and Learning: *You are the Problem Solvers*

Laurie Forcier, Director of Thought Leadership, Pearson

## Partner Schools Global Network

**SCHOOLS NOW! CONFERENCE**  
28 February - 1 March,  
Colombo, Sri Lanka

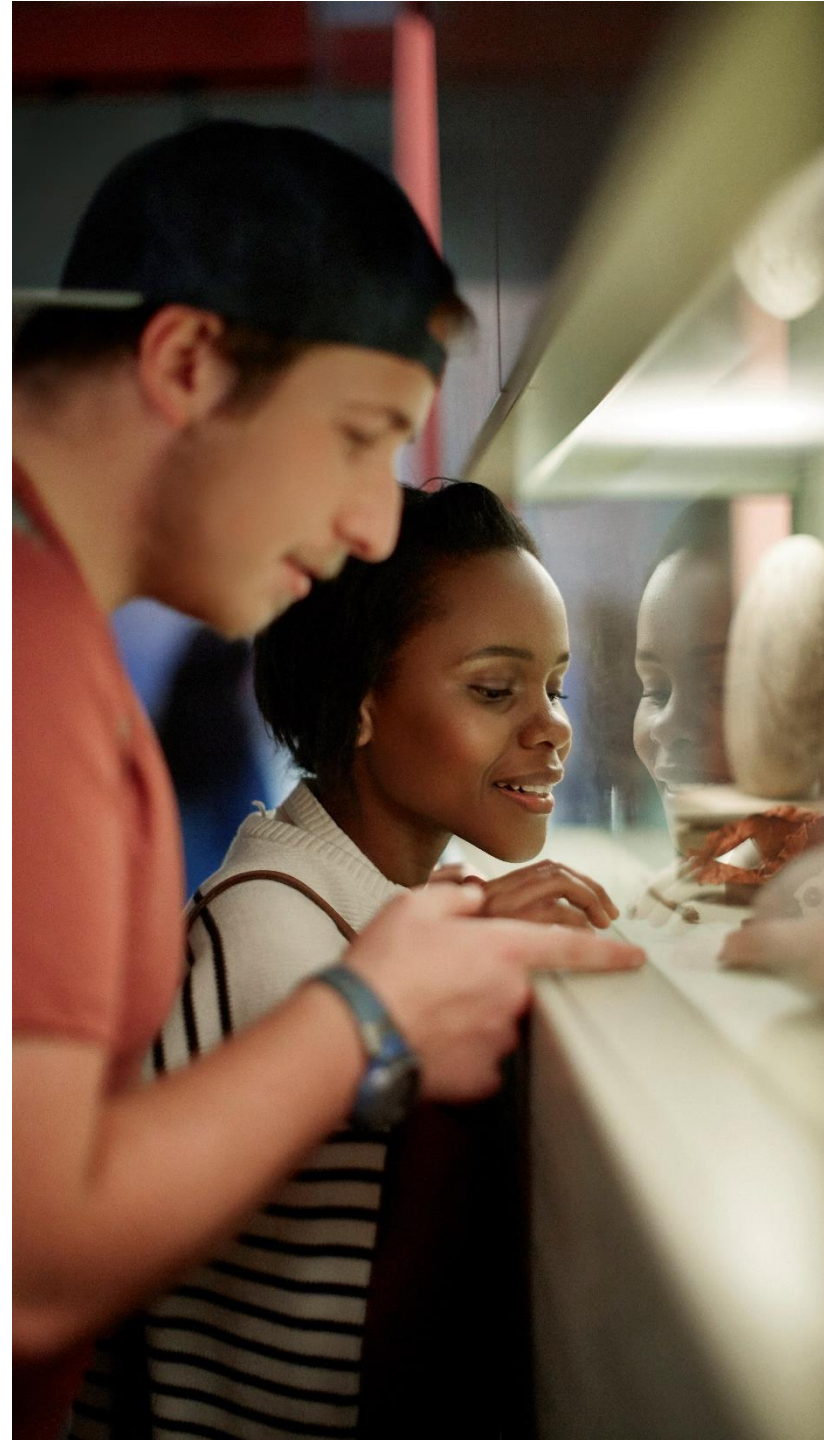




*Open Ideas at Pearson:*  
Sharing independent insights  
on the big unanswered  
questions in education

# Why Open Ideas at Pearson?

1. Shine a light on the good work that is happening at Pearson.
2. Shape and contribute to the global education conversation.
3. Bring ideas in-house to inspire, spur debate, and inform future work.



# How We Think About What We Commission

ACCESS	SUCCESS		PROGRESS
How we provide more students the opportunity to have a high-quality education	How we learn: insights from the learning & behavioural sciences	How we organize learning: curriculum, pedagogy, and assessment	The knowledge, skills & capabilities learners will need

## OPEN IDEAS FORMAT

**Popular** pieces with **global** appeal, targeting a general, interested audience

**Future**-oriented, with an emphasis on key themes:

- Smarter, digital tools
- Educator effectiveness
- Employability
- Innovation and scale

## Just some of the “big questions” we address

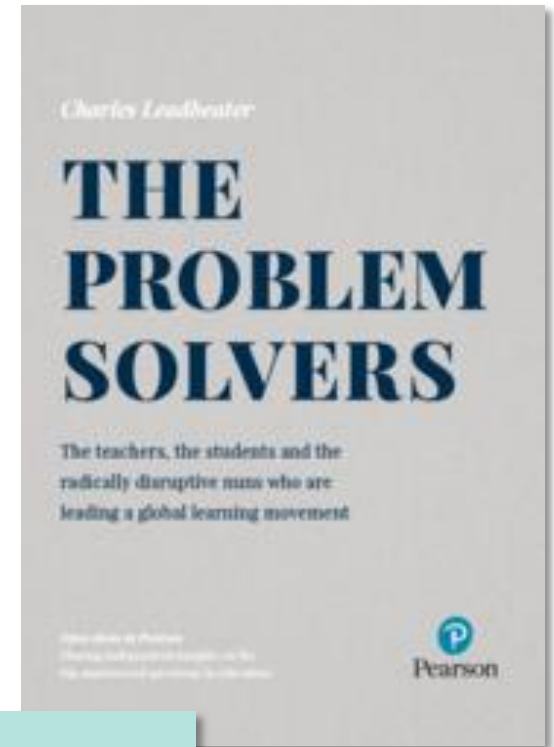
- How can smart digital technologies be best deployed to realise the goal of a more personalised education?
- How can we build education systems that provide high-quality learning opportunities to all?
- How do we learn, and what keeps us motivated to do so?
- What is the body of knowledge and skills that learners will need as we move into the second half of the 21st century?

# A Global Learning Movement: *The Problem Solvers*

Launched  
June 2016

## Key points:

- We live in an increasingly volatile and uncertain world, characterised by innovation and entrepreneurship.
- The purpose of education must shift, from teaching students to follow rules, to preparing students to identify and solve problems.
- There is a burgeoning global learning movement: excellent schools, of all shapes and sizes, that are engaging students in **dynamic learning**.
- Dynamic learning takes place in environments where skilled educators are able to orchestrate elements of knowledge and agency, the personal and the social.
- Call to action: **scaling up; focus on curriculum, teacher development, and assessment**

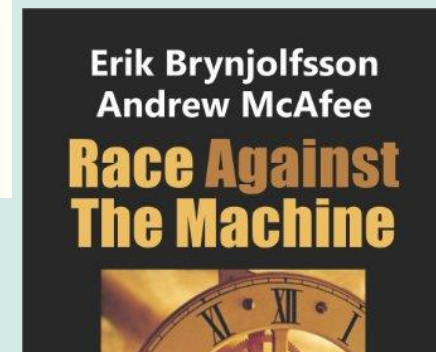
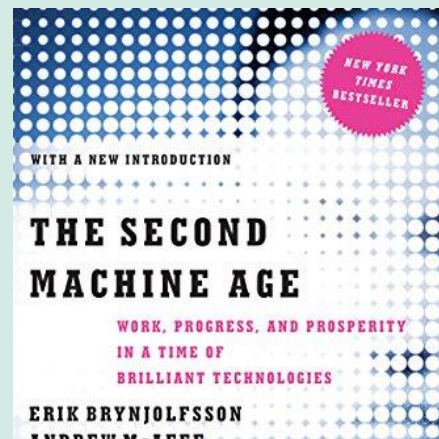
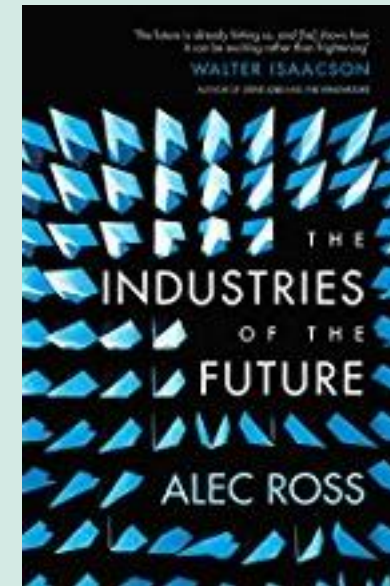
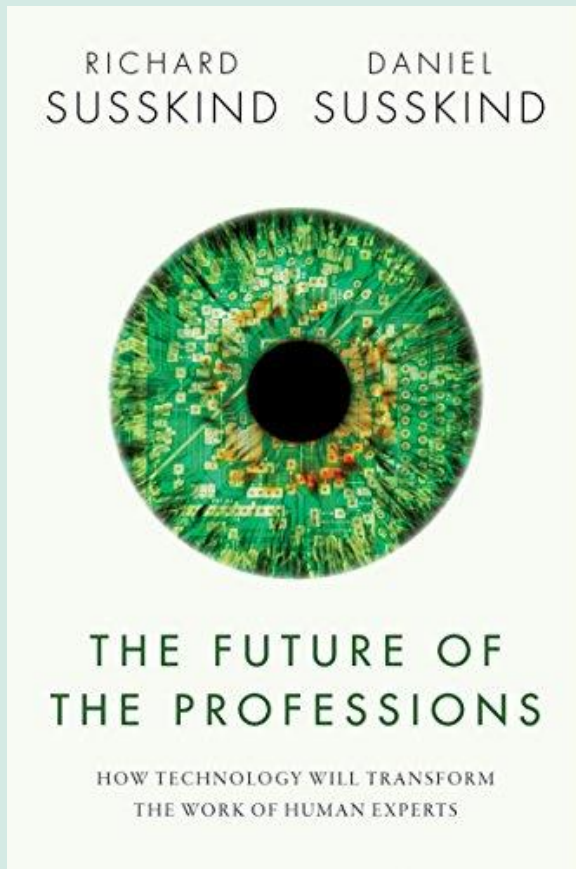


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# A TURNING POINT

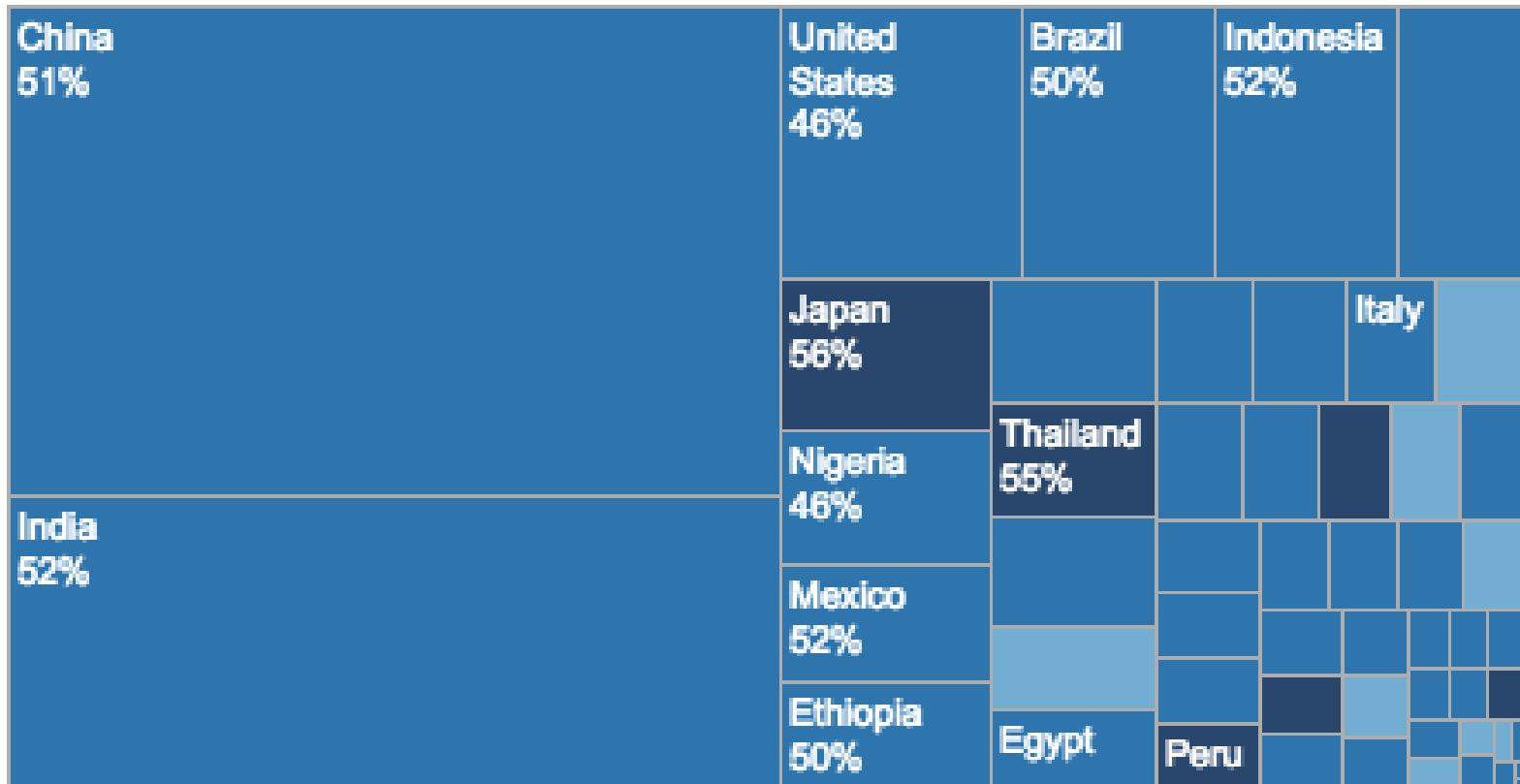


# A little light reading: automation and the future of work...





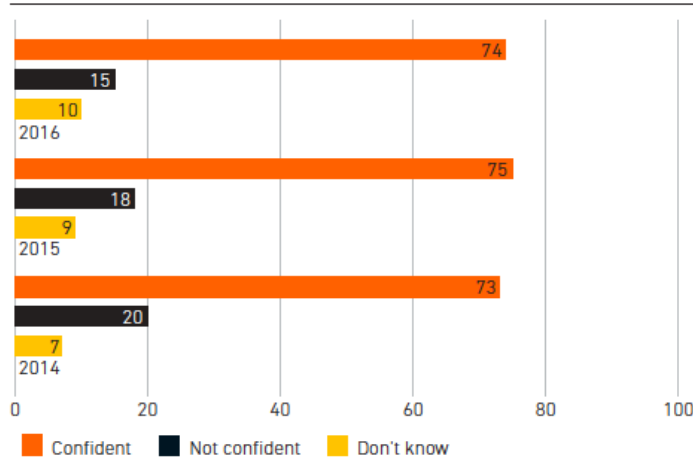
# Worldwide potential for automation, expressed as % of employees...



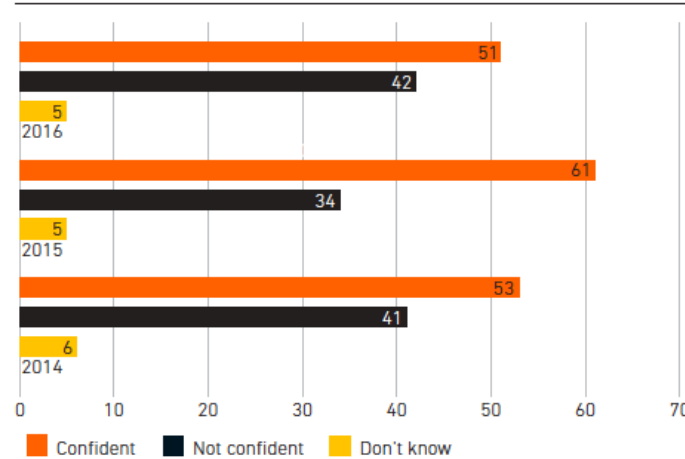
Source: EMSI; Oxford Economic Forecasting;  
US Bureau of Labor Statistics; McKinsey analysis

# The current perceived skills gap

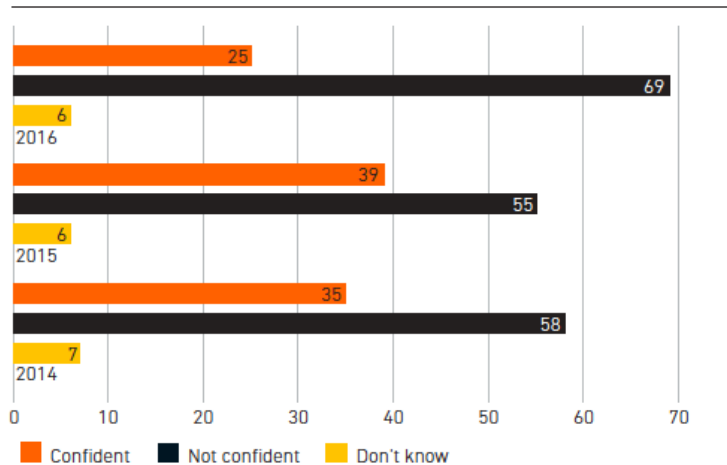
**Exhibit 6** Employer confidence about accessing low-skilled employees in future (%)



**Exhibit 7** Employer confidence about accessing intermediate-skilled employees in future (%)



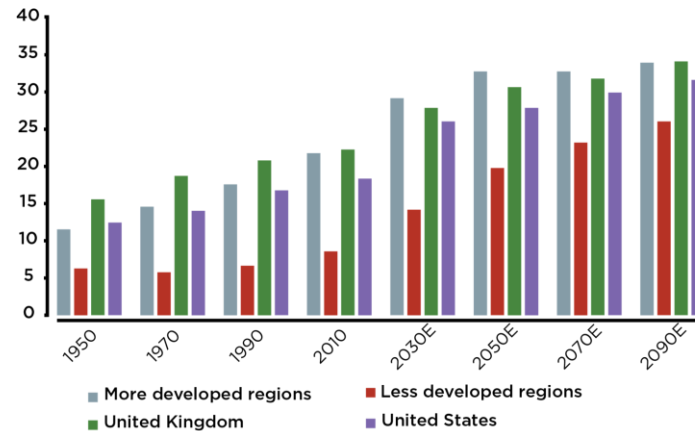
**Exhibit 8** Employer confidence about accessing high-skilled employees in future (%)



Source:  
CBI/Pearson  
Education  
and Skills  
Survey 2016

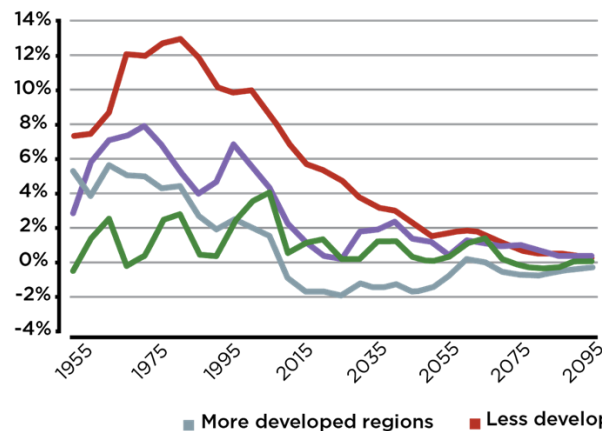
# Implications of our aging society

Proportion of population >60 years old

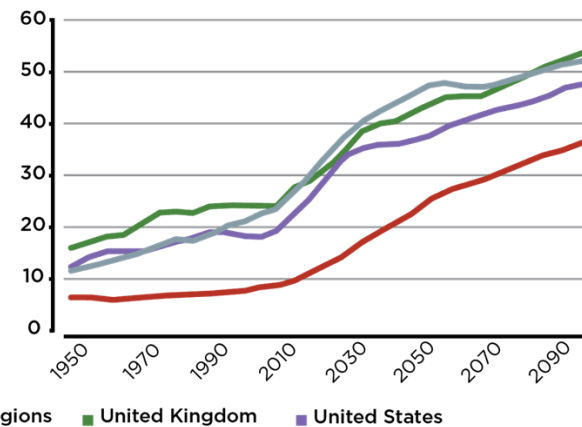


Source: United Nations, Population Division (2015)

Working age (15-64) population growth by regions



Dependency ratios across regions (ratio of population aged 65+ per 100 population 15-64)



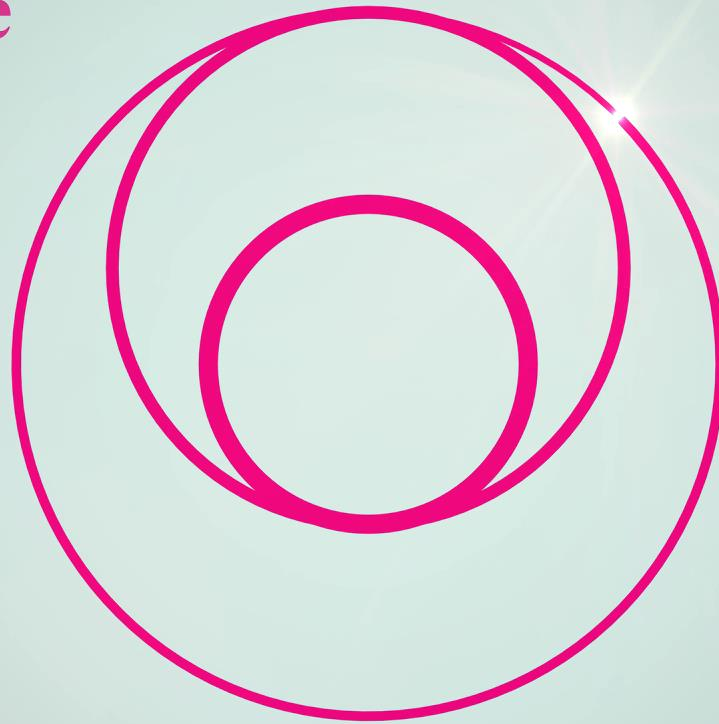
Source: United Nations, Population Division (2015)

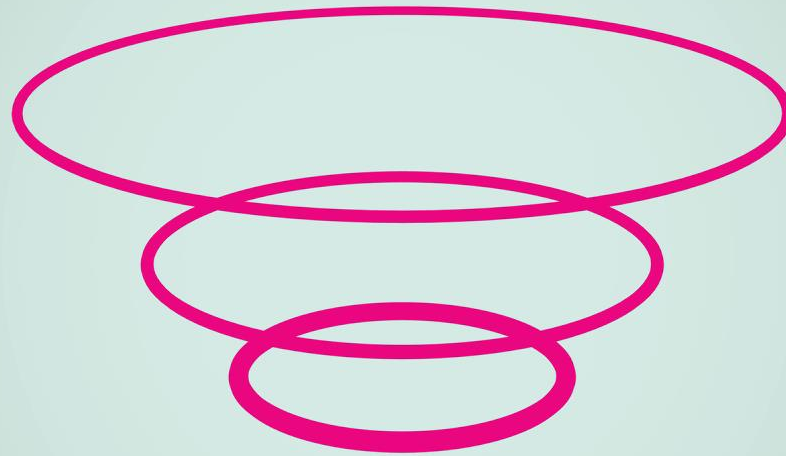
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# THE LEARNING DYNAMO



# Knowledge





# 1

## HOW DO STUDENTS UNDERSTAND NEW IDEAS?



### COGNITIVE PRINCIPLES

Students learn new ideas by reference to ideas they already know.<sup>1</sup>

To learn, students must transfer information from working memory (where it is consciously processed) to long-term memory (where it can be stored and later retrieved). Students have limited working memory capacities that can be overwhelmed by tasks that are cognitively too demanding. Understanding new ideas can be impeded if students are confronted with too much information at once.<sup>4</sup>



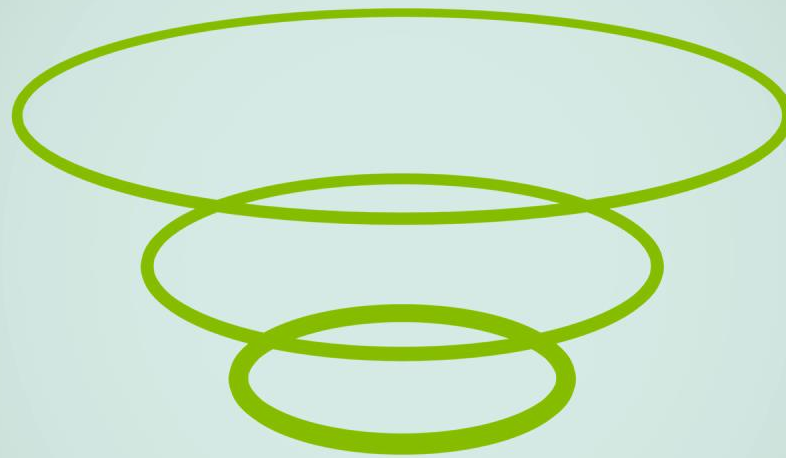
### PRACTICAL IMPLICATIONS FOR THE CLASSROOM

- A well-sequenced curriculum is important to ensure that students have the prior knowledge they need to master new ideas.<sup>2</sup>
- Teachers use analogies because they map a new idea onto one that students already know. But analogies are effective only if teachers elaborate on them, and direct student attention to the crucial similarities between existing knowledge and what is to be learned.<sup>3</sup>
- Teachers can use “worked examples” as one method of reducing students’ cognitive burdens.<sup>5</sup> A worked example is a step-by-step demonstration of how to perform a task or solve a problem. This guidance – or “scaffolding” – can be gradually removed in subsequent problems so that students are required to complete more problem steps independently.
- Teachers often use multiple modalities to convey an idea; for example, they will speak while showing a graphic. If teachers take care to ensure that the two types of information complement one another – such as showing an animation while describing it aloud – learning is enhanced. But if the two sources of information are split – such as speaking aloud with different text displayed visually – attention is divided and learning is impaired.<sup>6</sup>
- Making content explicit through carefully paced explanation, modeling, and examples can help ensure that students are not overwhelmed.<sup>7</sup> (Note: “explanation” does not mean teachers must do all the talking.)

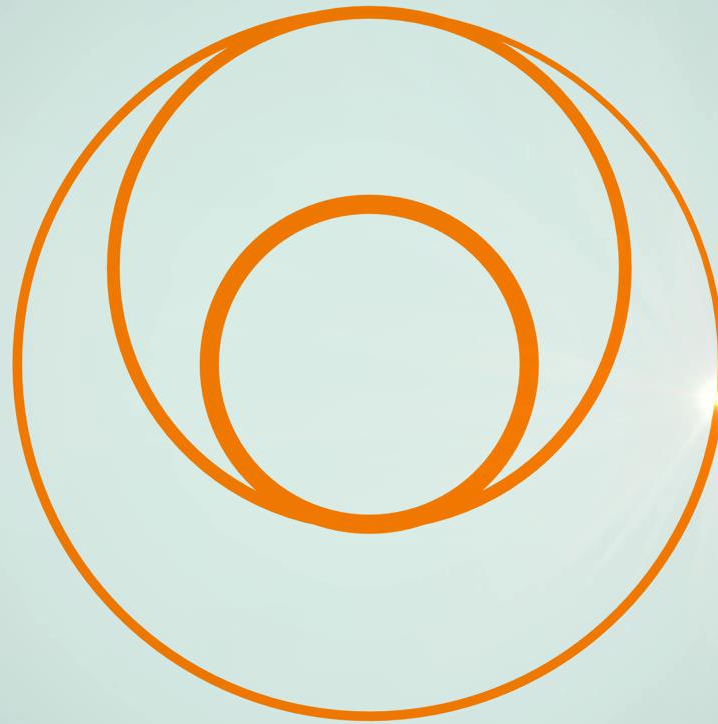
# Agency

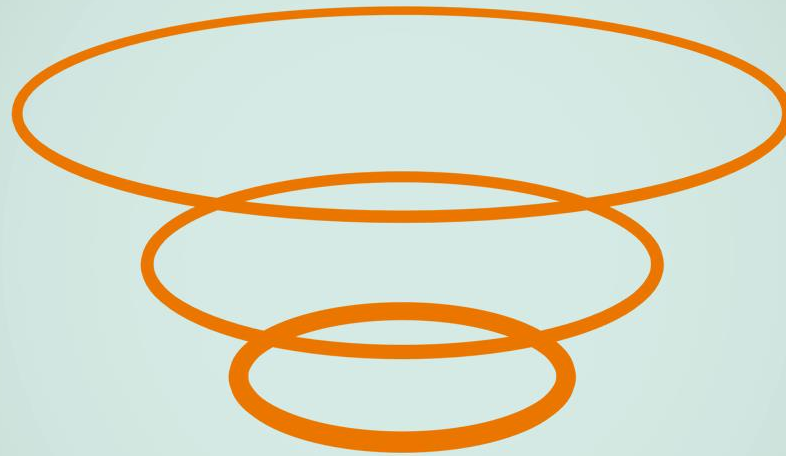




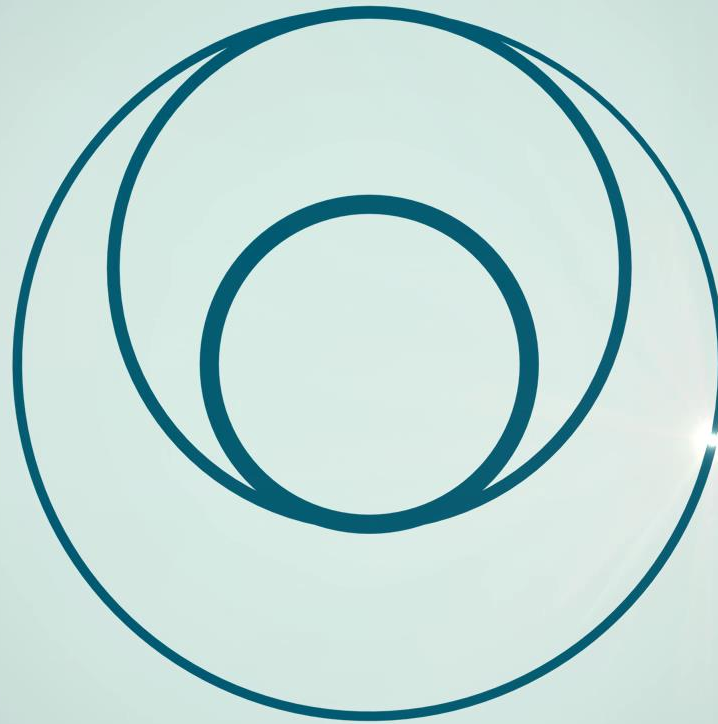


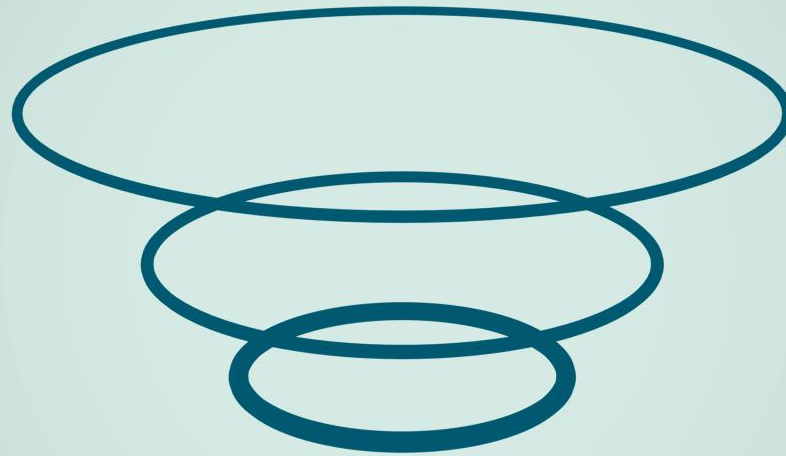
# Personal





# Social





# The Power of Combination

**Knowledge**

**Agency**



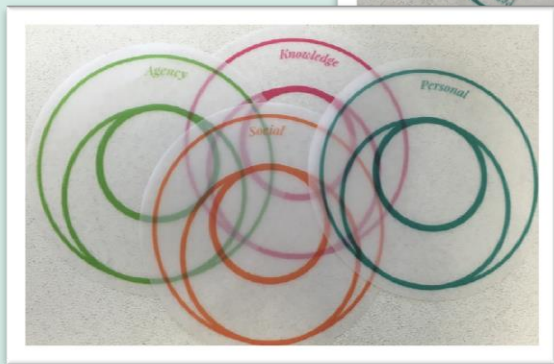
**Social**

**Personal**

# Activity: Dynamic Learning

1. Take these four circles, representing knowledge, agency, personal and social and arrange them to represent:
  - How learning takes place in your classroom
  - How learning takes place during a particular lesson
  - How your school believes learning should happen
2. From your point of view, is there an element missing? What would you add if you had a fifth 'blank' circle? A sixth?

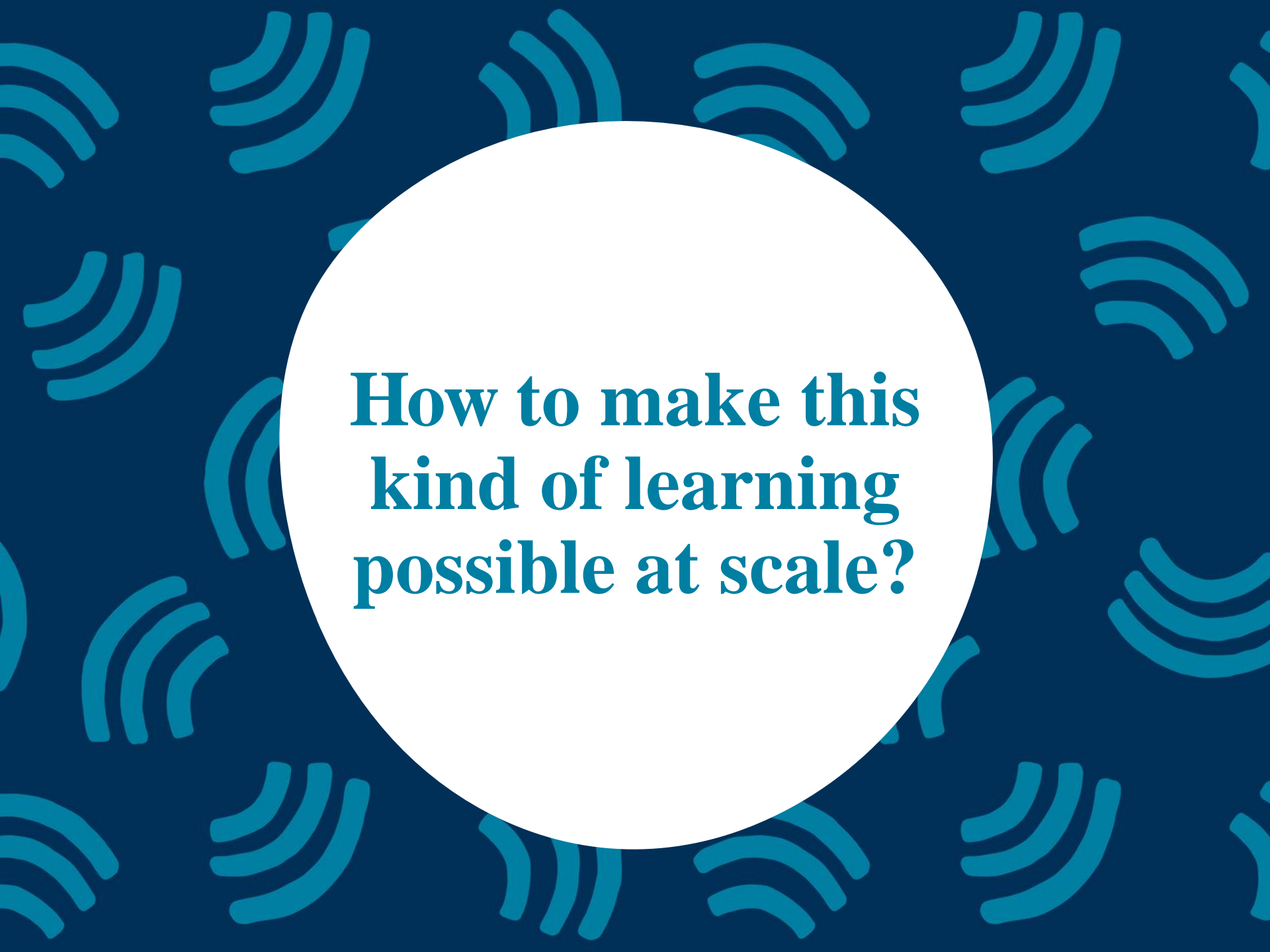
# What Does it Look Like in Your School?





# Activity: Discussion

1. Tell us about how this is happening in your class
2. What are the barriers?



**How to make this  
kind of learning  
possible at scale?**



**Dynamic teachers**

# Back to Hattie...

## *The Politics of Collaborative Expertise*

provides an eight point task list for starting to build collaborative expertise in your school.

The image displays the cover of the book 'WHAT WORKS BEST IN EDUCATION: THE POLITICS OF COLLABORATIVE EXPERTISE' by John Hattie, dated June 2015. The cover features a green and white color scheme with a path of icons leading to a central graphic. This graphic shows a balance scale where '1 year input' is equal to '1 year progress'. Below the cover is a green infographic titled 'Evidence-based solutions' which lists several key strategies for collaborative expertise.

**WHAT WORKS BEST IN EDUCATION: THE POLITICS OF COLLABORATIVE EXPERTISE**  
John Hattie  
June 2015

OPEN IDEAS AT PEARSON  
Sharing independent insights on the big, unanswered questions in education

ALWAYS LEARNING

**Evidence-based solutions**

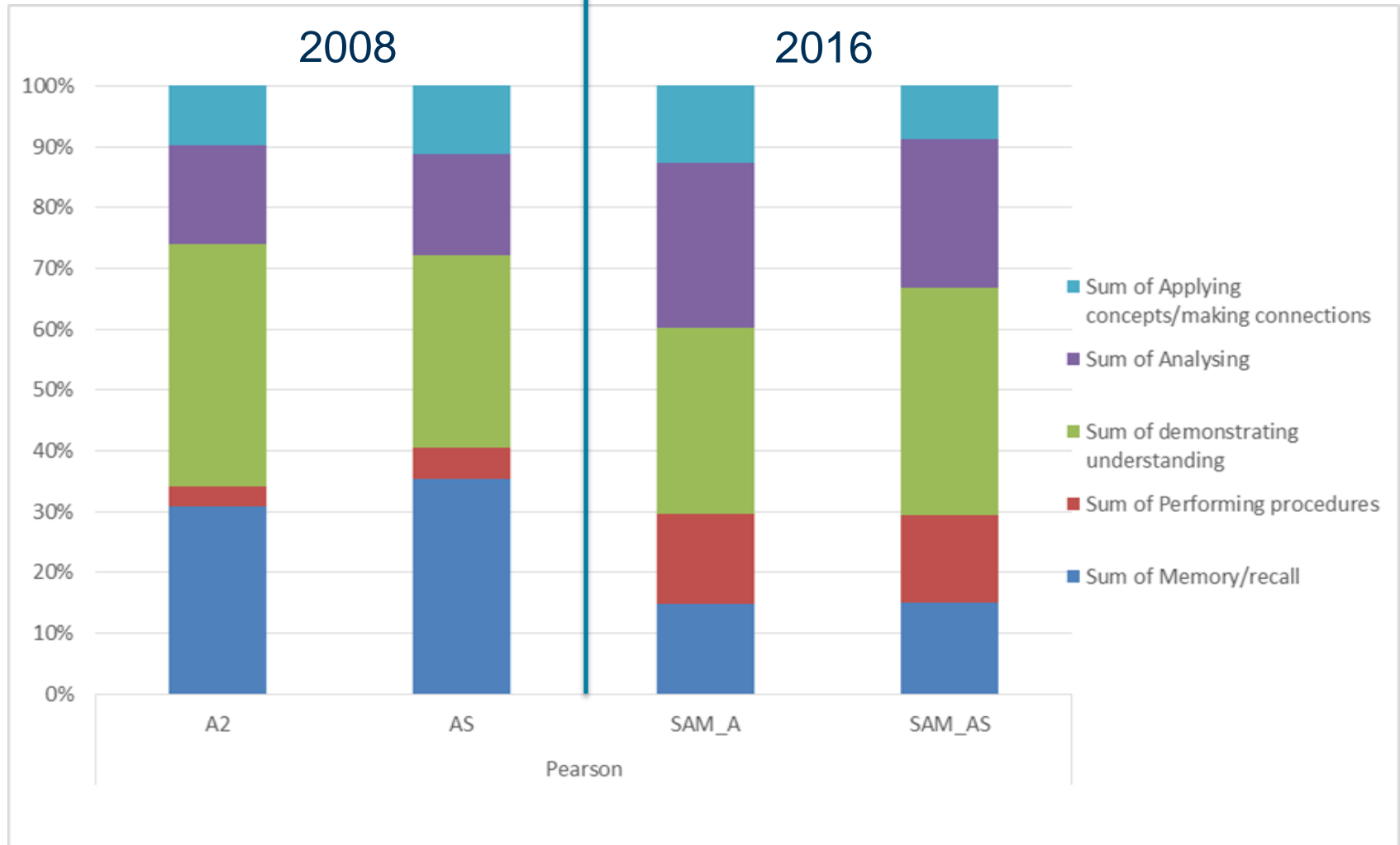
A culture of "collaborative expertise" can help every student achieve at least one year's progress for one year's input.

- Assessments that shape, not just measure, learning
- Higher expectations for both students and teachers
- Expert, inspired, passionate teachers
- Teachers sharing evidence of impact
- Shared understanding of what one year's progress looks like



**Dynamic  
assessment**

# Assessment that supports the application of knowledge

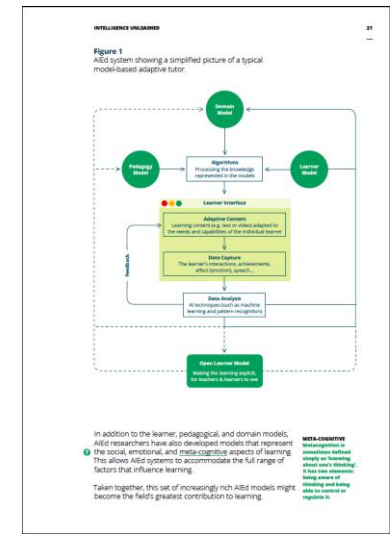


# AIEd and Assessment

“There are at least two salient challenges that need to be addressed if we are to realise [the 21<sup>st</sup> century skills] agenda:

1. We must develop reliable and valid indicators that allow us to track learner progress on... difficult to measure characteristics such as creativity and curiosity.
2. We need a better understanding of the most effective teaching approaches and the learning contexts that allow these skills to be developed.

**AIEd can help with both.”**



**“In the near future, we predict that AIEd will contribute to improving assessment in three ways. It will...**

1. provide just-in-time assessments to shape learning.
2. provide new insights into how learning is progressing.
3. help us move beyond much ‘stop-and-test’.”

# LEARNING TO BE MORE HUMAN





## *What's at stake?*

“We need to learn to be more human as society becomes more technological, to become more creative as work becomes more programmed, to be more empathetic as systems become more pervasive, to take the initiative rather than meekly follow instructions, to work together rather than go it alone.

We are not robots.

We must excel at being human.”

# Open Ideas at Pearson

<http://bit.ly/pearsonopenideas>

#ProblemSolvers

**ALWAYS LEARNING**