Pedagogy at Scale
Past, present and future

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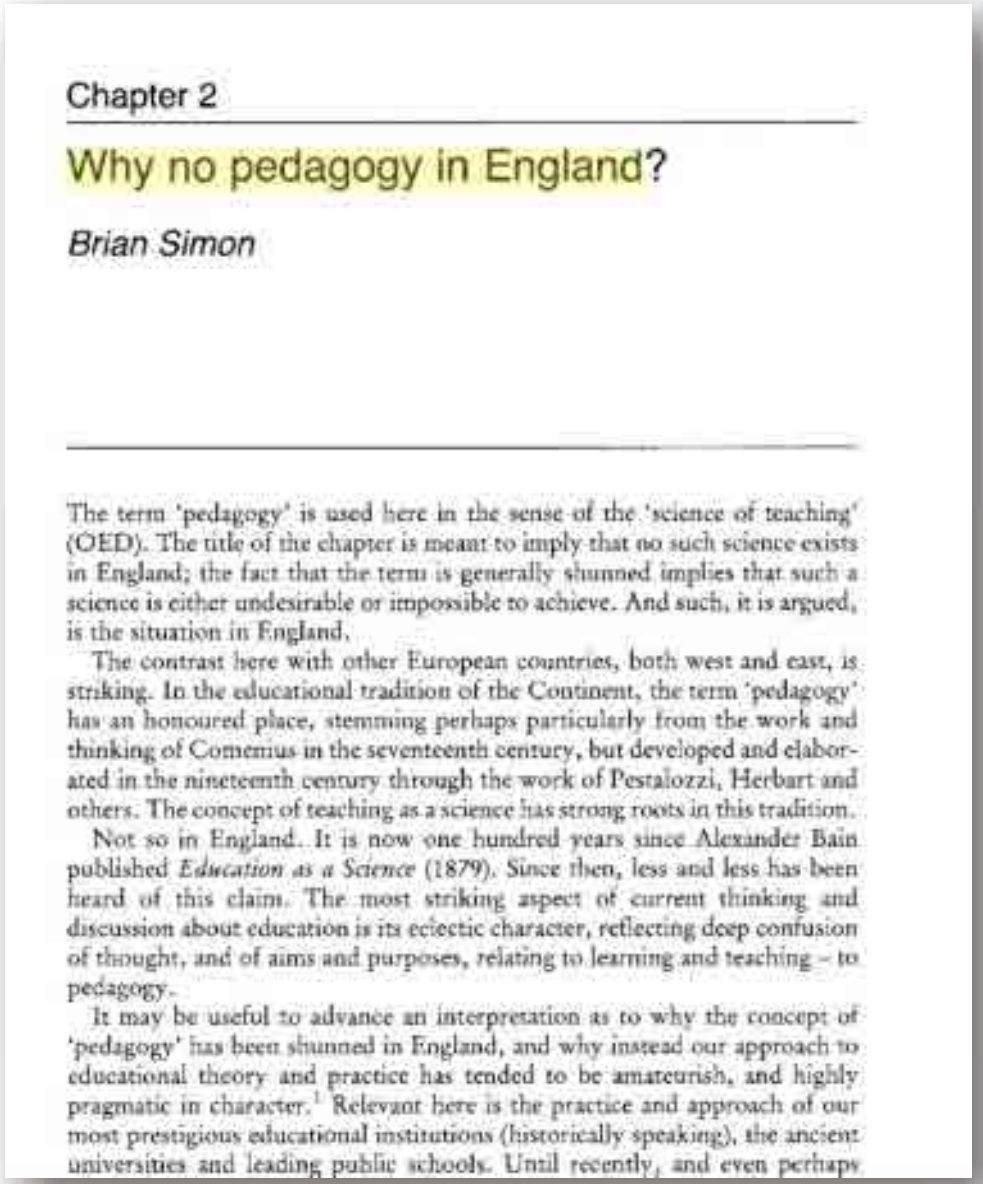
Past



Chapter 2

Why no pedagogy in England?

Brian Simon

The term 'pedagogy' is used here in the sense of the 'science of teaching' (OED). The title of the chapter is meant to imply that no such science exists in England; the fact that the term is generally shunned implies that such a science is either undesirable or impossible to achieve. And such, it is argued, is the situation in England.

The contrast here with other European countries, both west and east, is striking. In the educational tradition of the Continent, the term 'pedagogy' has an honoured place, stemming perhaps particularly from the work and thinking of Comenius in the seventeenth century, but developed and elaborated in the nineteenth century through the work of Pestalozzi, Herbart and others. The concept of teaching as a science has strong roots in this tradition.

Not so in England. It is now one hundred years since Alexander Bain published *Education as a Science* (1879). Since then, less and less has been heard of this claim. The most striking aspect of current thinking and discussion about education is its eclectic character, reflecting deep confusion of thought, and of aims and purposes, relating to learning and teaching – to pedagogy.

It may be useful to advance an interpretation as to why the concept of 'pedagogy' has been shunned in England, and why instead our approach to educational theory and practice has tended to be amateurish, and highly pragmatic in character.[1] Relevant here is the practice and approach of our most prestigious educational institutions (historically speaking), the ancient universities and leading public schools. Until recently, and even perhaps

"It may be useful to advance an interpretation of why the concept of 'pedagogy' has been shunned in England, and why instead our approach to educational theory and practice has tended to be amateurish and highly pragmatic in character."

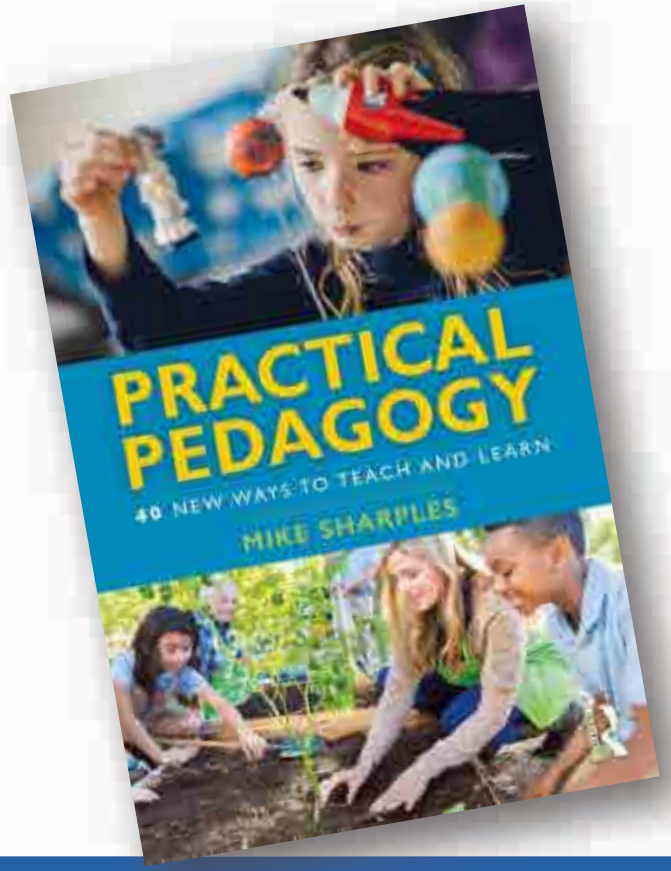
Simon, B. (1981) Why no pedagogy in England? in B. Simon & W. Taylor (Eds) *Education in the Eighties*. London: Batsford.

Amateurism and pragmatism don’t work for distance learning at scale

New educational technology needs innovative and effective pedagogy

Pedagogy

"Theory and practice of teaching learning and assessment"

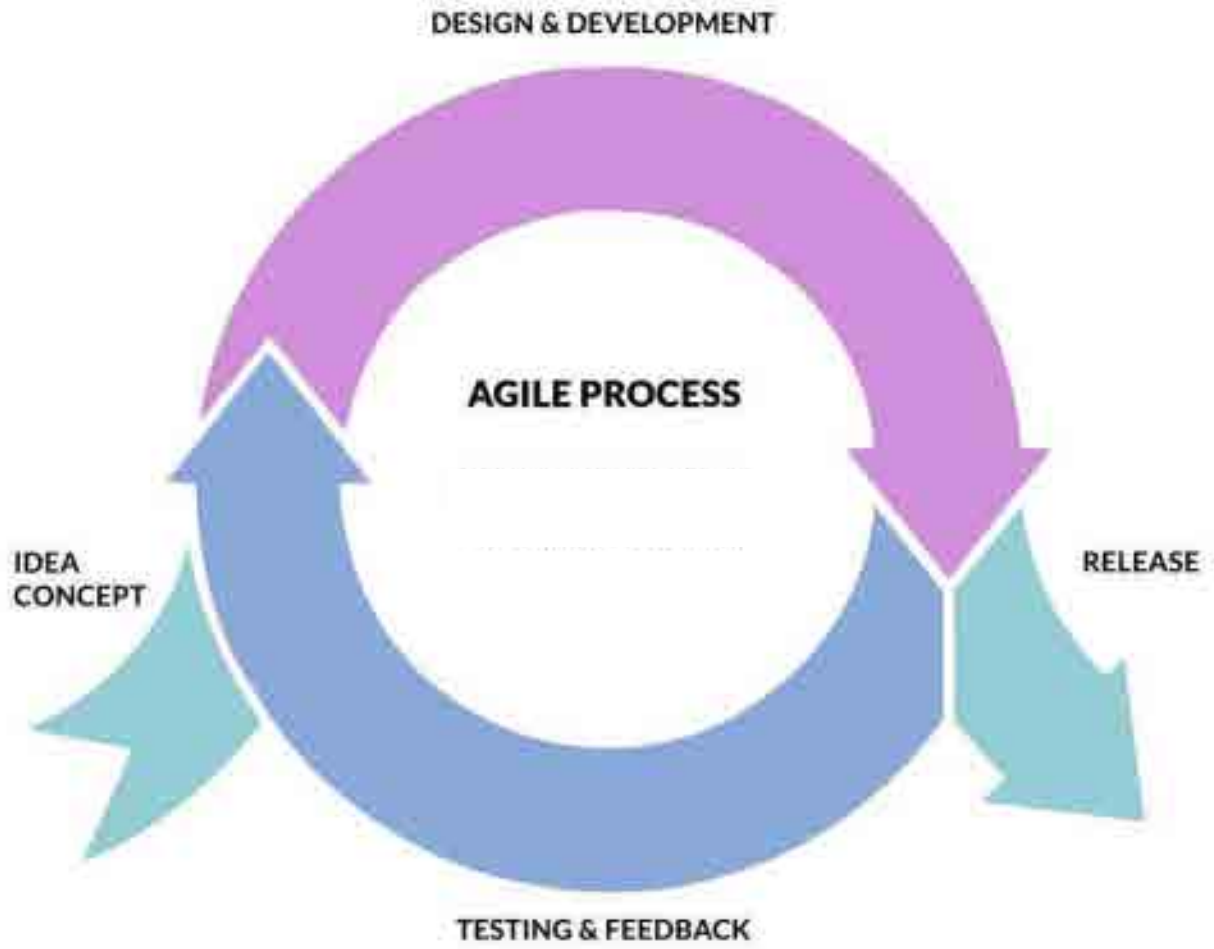


Pedagogies

Pedagogy	Learners…	Technology-based example
Assessing	give or receive constructive feedback	engaging in online peer review
Browsing	seek and collate information	using search engines to find educational materials
Case-based	investigate individual cases	investigating medical cases online
Collaborative	construct shared understanding	creating a shared Google doc
Construction	create artefacts	engaging with big construction set, e.g. Minecraft
Conversation	converse with others	engaging in online discussion
Cross-context	learn across different settings	learning between classroom and home with tablet
Delivered	comprehend information	watching an online video
Embodied	use their bodies to learn motor skills	monitoring exercise with Fitbit activity tracker
Game-based	engage with game environments	multiplayer educational game, e.g. Endless Ocean
Inquiry-driven	investigate authentic situations	using digital probes to collect and analyse data
Networked	interact with networks of peers	educational social networking
Performative	present for an audience	creating a video blogs of learning activities
Problem-solving	try to solve problems	working in online teams to solve problems
Reflective	reflect on information and activities	reviewing e-portfolio of learning activities
Simulation	interact with a simulated tool	learning science in a virtual world

Adapted from Appendix 1 of Sharples, M., Crook, C., Jones, I., Kay, D., Chowcat, I., Balmer, K. & Stokes, E. (2009). *New modes of technology-enhanced learning: Opportunities and challenges.* Becta. http://dera.ioe.ac.uk/1532/1/becta_2009_ht_cur_ped_new_modes_opps_challenges_report.pdf

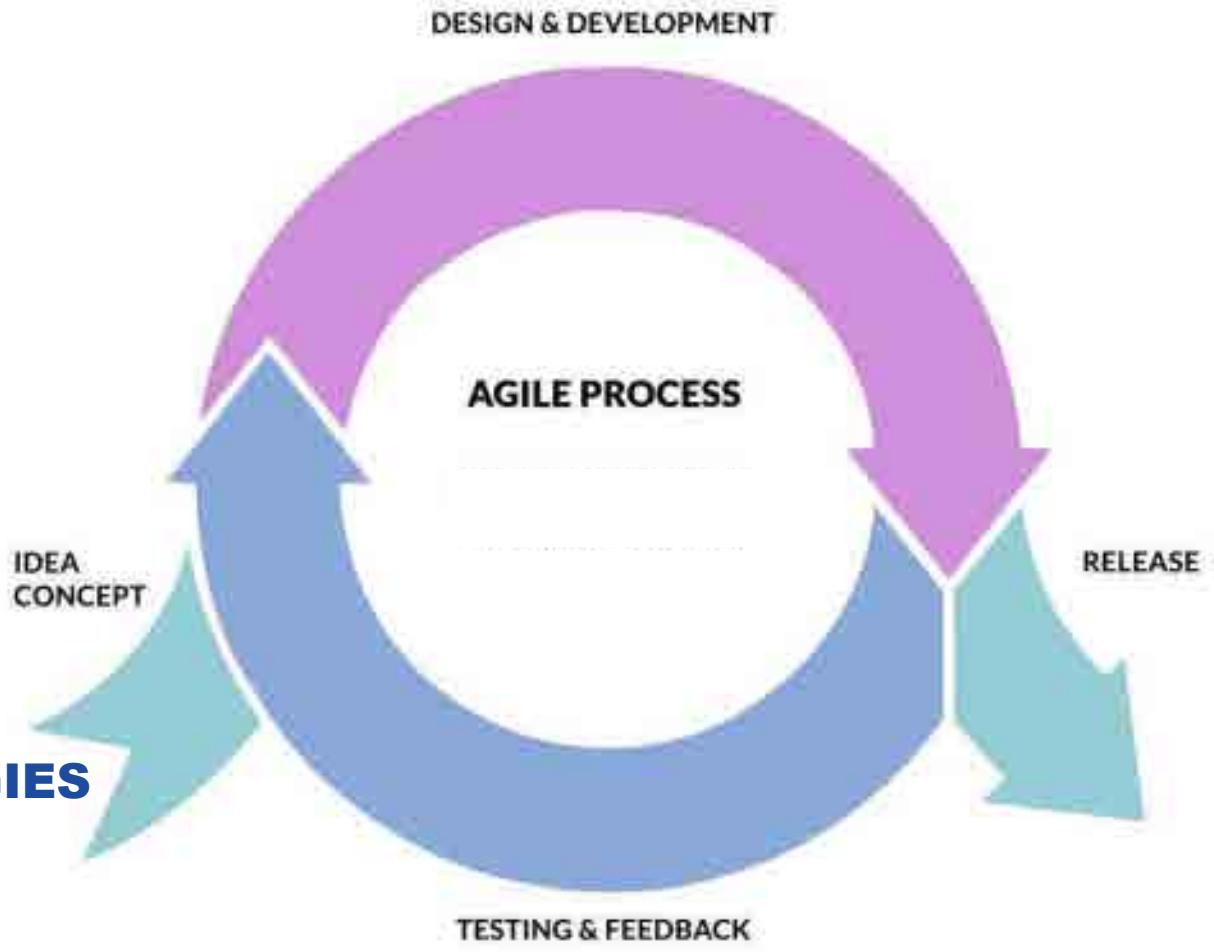
Pedagogy-informed design



Pedagogy-informed design

Assessing
Browsing
Case-based
Collaborative
Construction
Conversation
Cross-context
Delivered
Embodied
Game-based
Inquiry-driven
Networked
Performative
Problem-solving
Reflective
Simulation

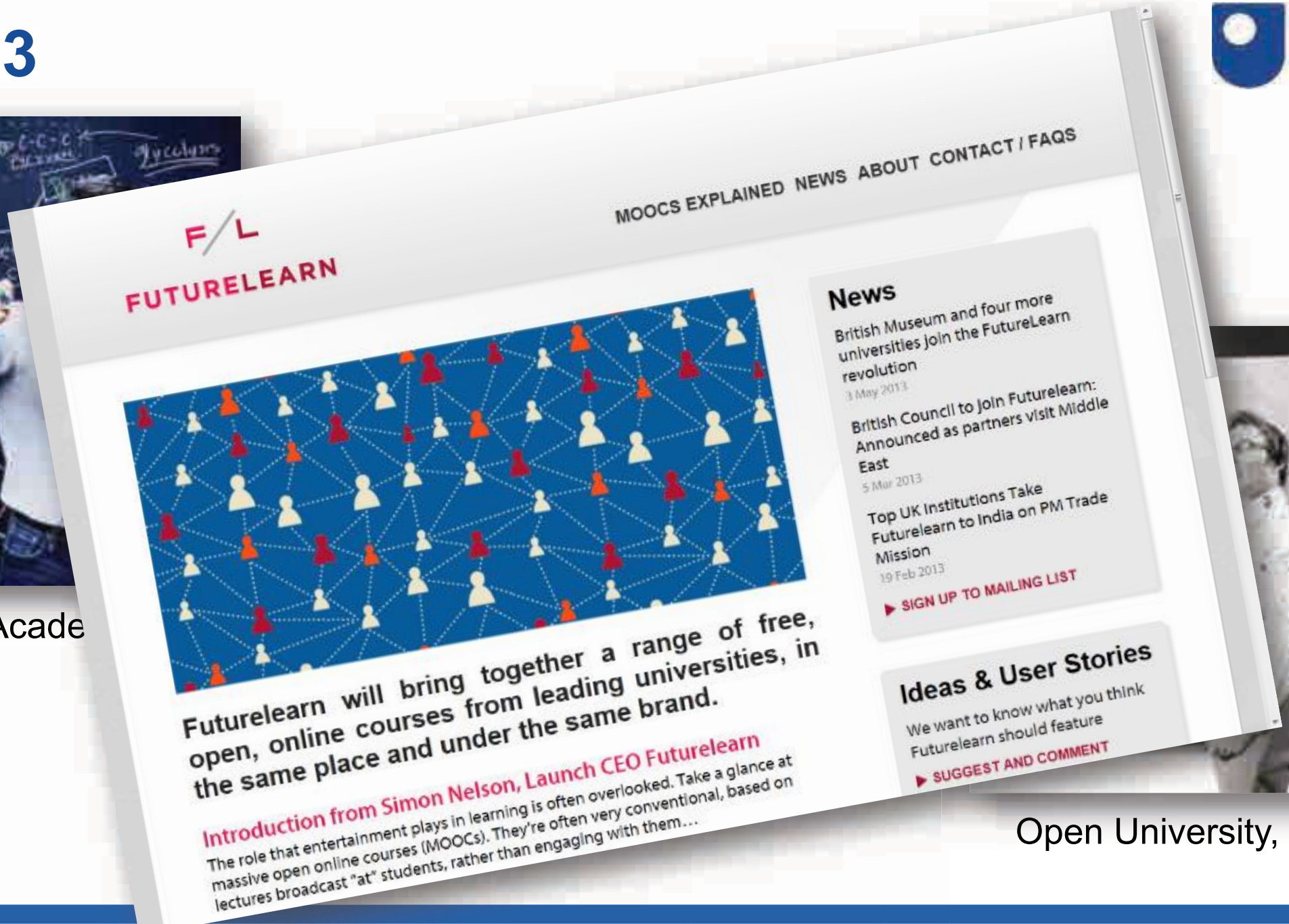
PEDAGOGIES



INCLUDING LEARNING PROCESSES AND OUTCOMES

2013

Khan Acade



Open University, 1970s

Building FutureLearn

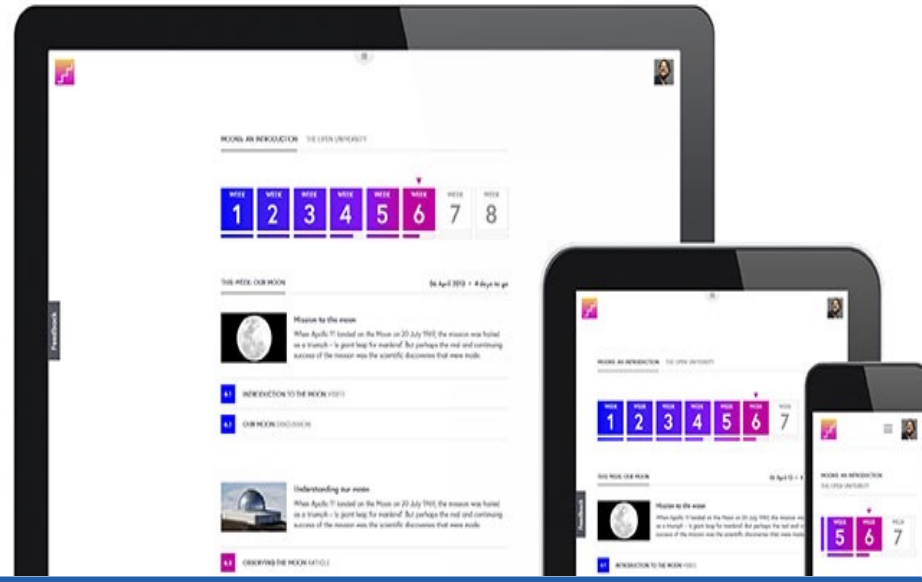
New software platform

For massive-scale learning

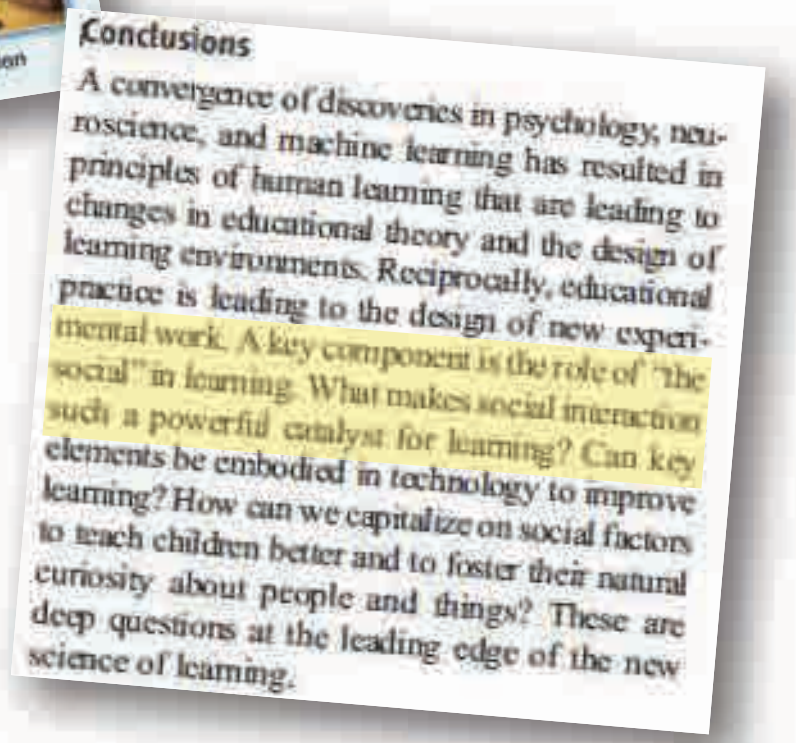
Millions of people across the world

Accessible on mobile devices

Innovative pedagogy



Social interaction and learning



Conclusions

A convergence of discoveries in psychology, neuroscience, and machine learning has resulted in principles of human learning that are leading to changes in educational theory and the design of learning environments. Reciprocally, educational practice is leading to the design of new experimental work. A key component is the role of "the social" in learning. What makes social interaction such a powerful catalyst for learning? Can key elements be embodied in technology to improve learning? How can we capitalize on social factors to teach children better and to foster their natural curiosity about people and things? These are deep questions at the leading edge of the new science of learning.

A.N. Meltzoff, P. K. Kuhl, J. Movellan, & T. J. Sejnowski (2009) Foundations for a New Science of Learning, *Science* 325 (5938), 284.

"What makes social interaction such a powerful catalyst for learning? Can key elements be embodied in technology to improve learning?"

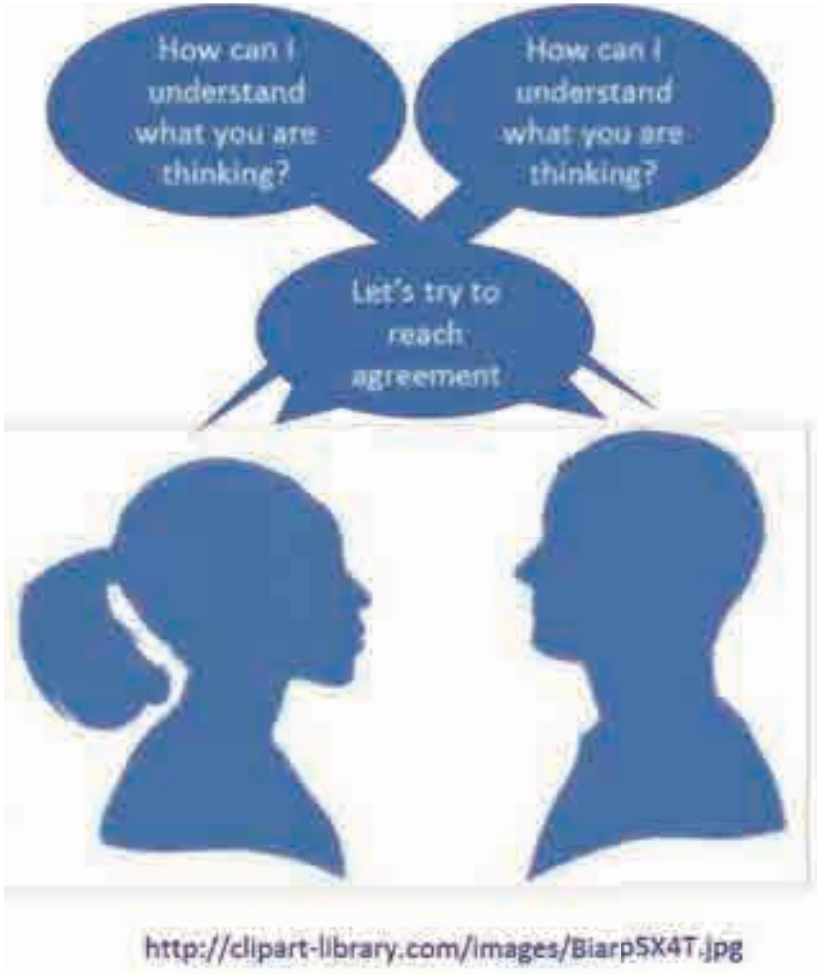
Learning as a conversational system

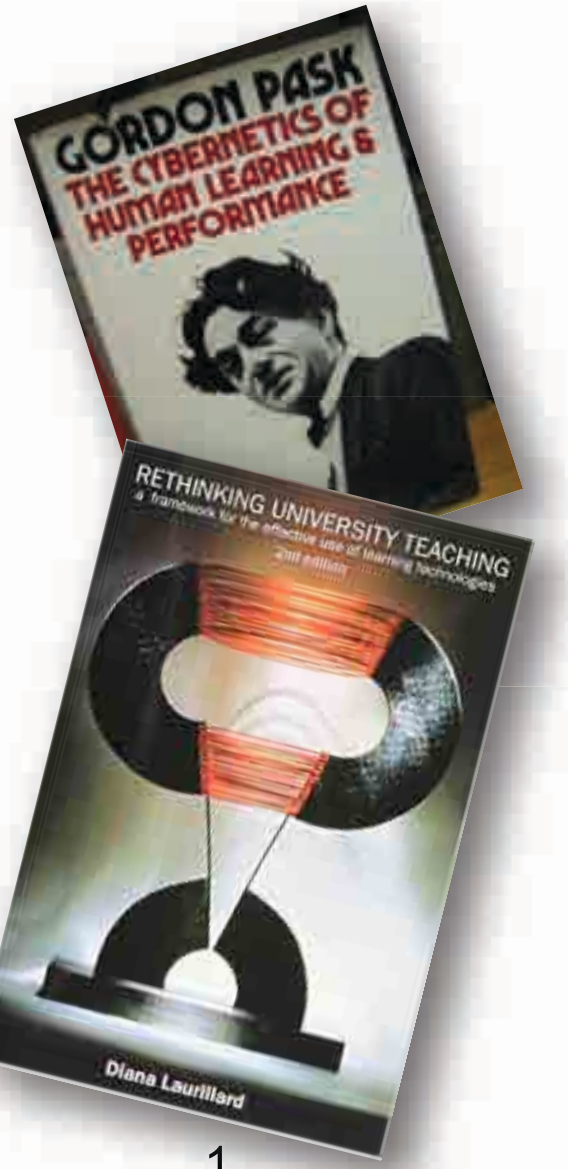
All human learning involves conversation

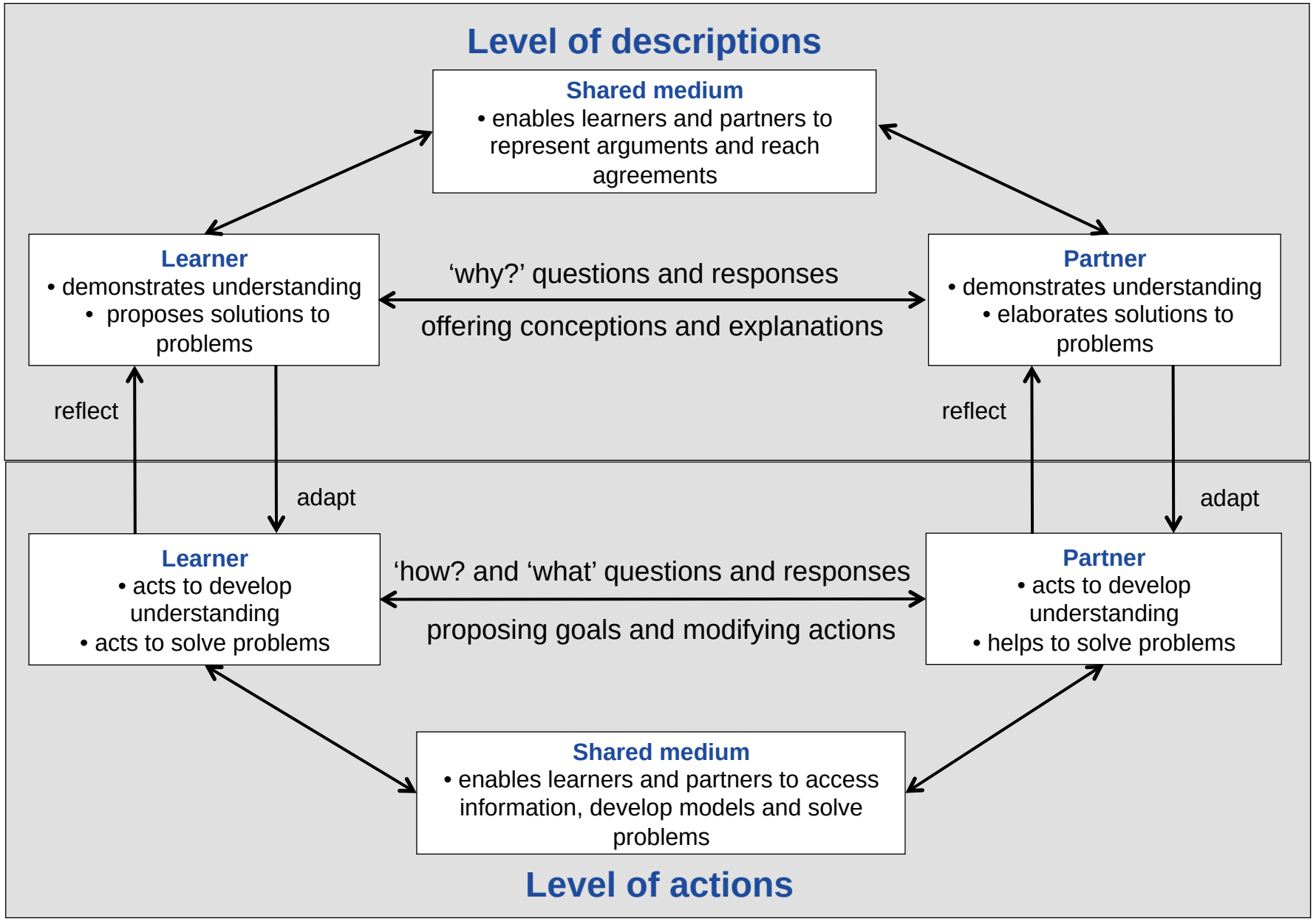
We converse with ourselves to reflect on experience

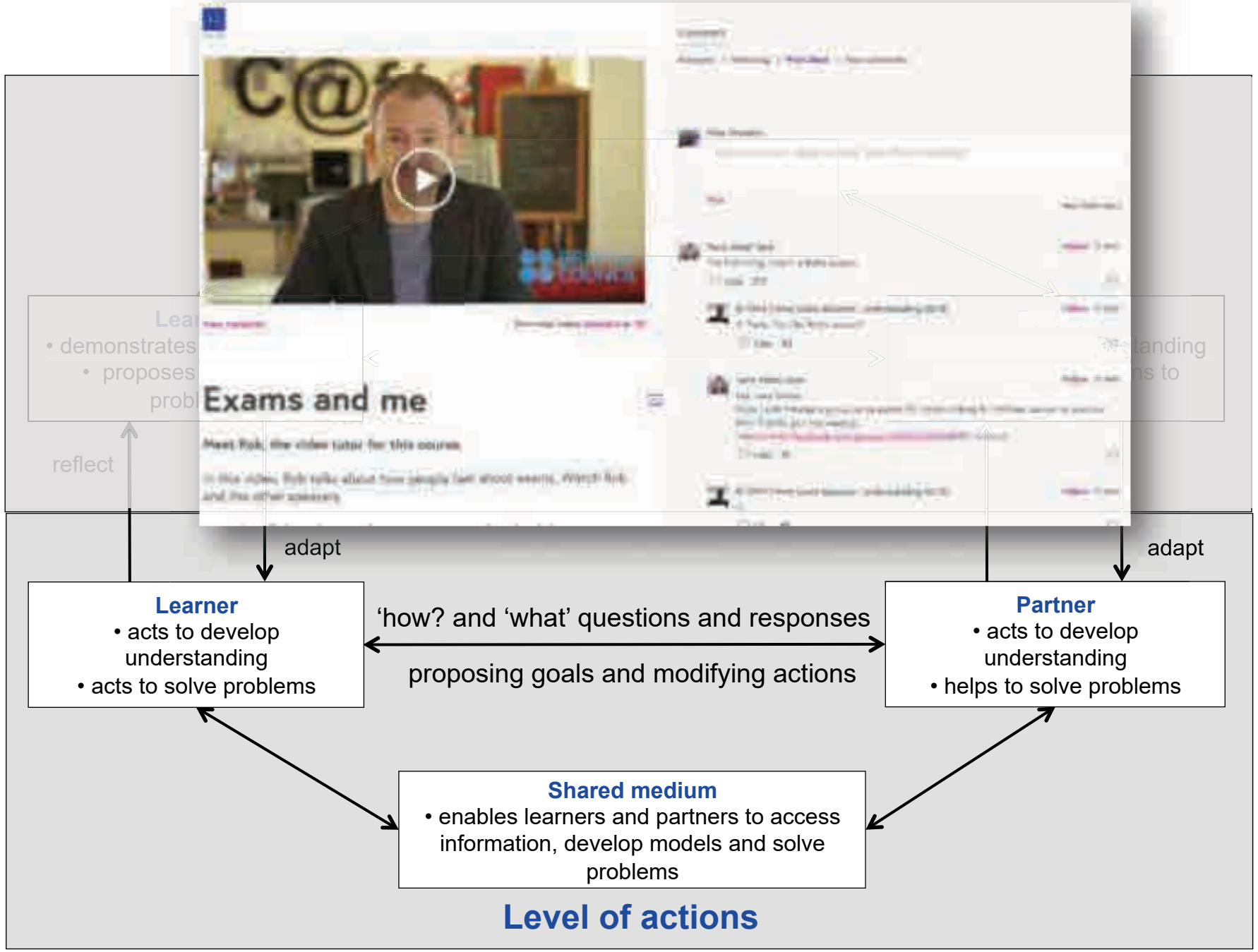
We converse with teachers to understand their expert knowledge

We converse with other learners to try and reach shared understanding






Level of descriptions
Shared medium
• enables learners and partners to represent arguments and reach agreements
Learner
• demonstrates understanding
• proposes solutions to problems
'why?' questions and responses
offering conceptions and explanations
Partner
• demonstrates understanding
• elaborates solutions to problems
reflect
reflect
adapt
adapt
Learner
• acts to develop understanding
• acts to solve problems
'how? and 'what' questions and responses
proposing goals and modifying actions
Partner
• acts to develop understanding
• helps to solve problems
Shared medium
• enables learners and partners to access information, develop models and solve problems
Level of actions


Exams and me
reflect
adapt
adapt
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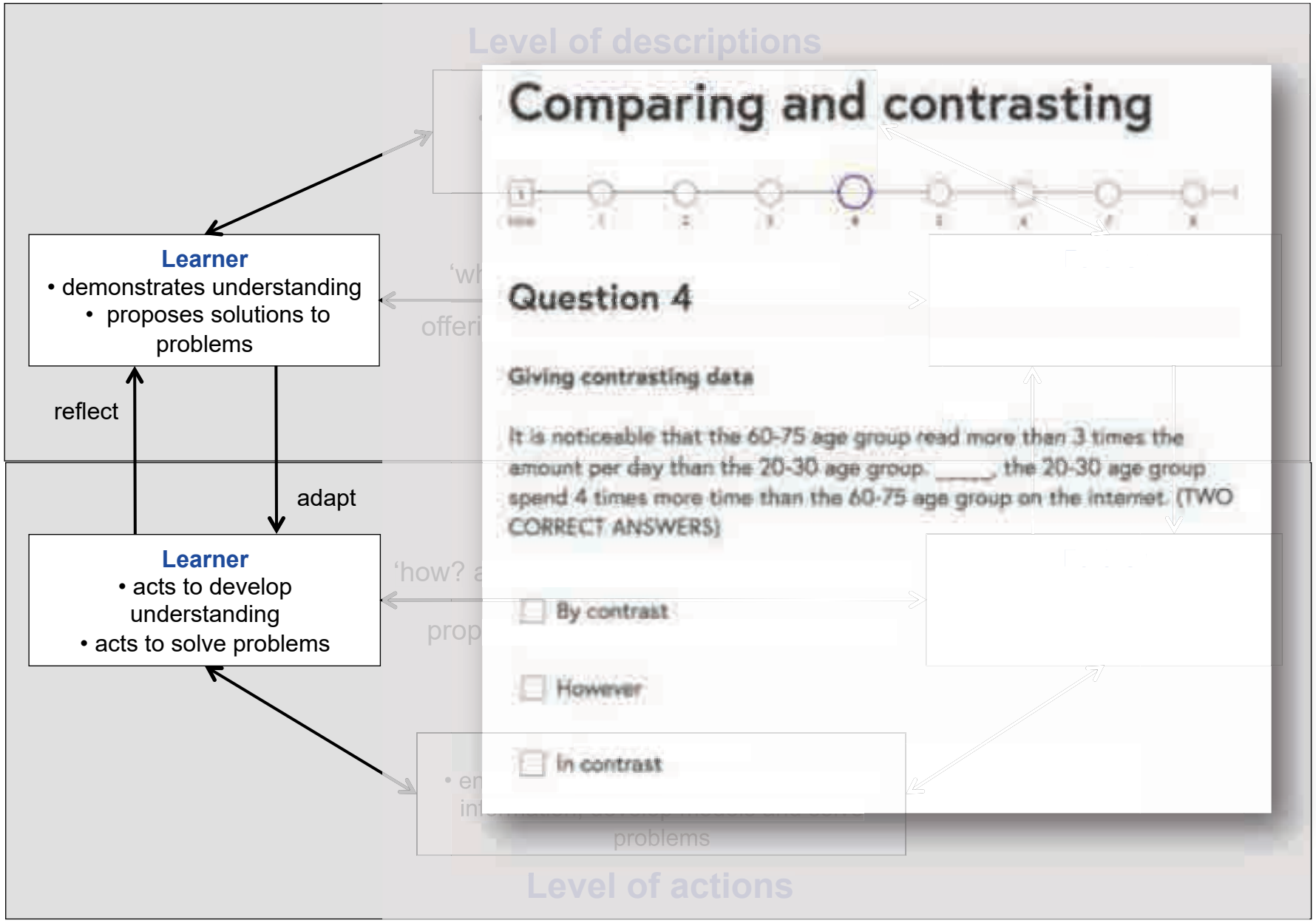
reflect

reflect

adapt


Level of descriptions
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reflect
adapt
Learner
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• acts to solve problems
Comparing and contrasting
Question 4
Giving contrasting data
It is noticeable that the 60-75 age group read more than 3 times the amount per day than the 20-30 age group. _____, the 20-30 age group spend 4 times more time than the 60-75 age group on the internet. (TWO CORRECT ANSWERS)
By contrast
However
In contrast
problems
Level of actions

Massive scale conversational learning

Understanding IELTS, British Council, May 2015

270,000 learners

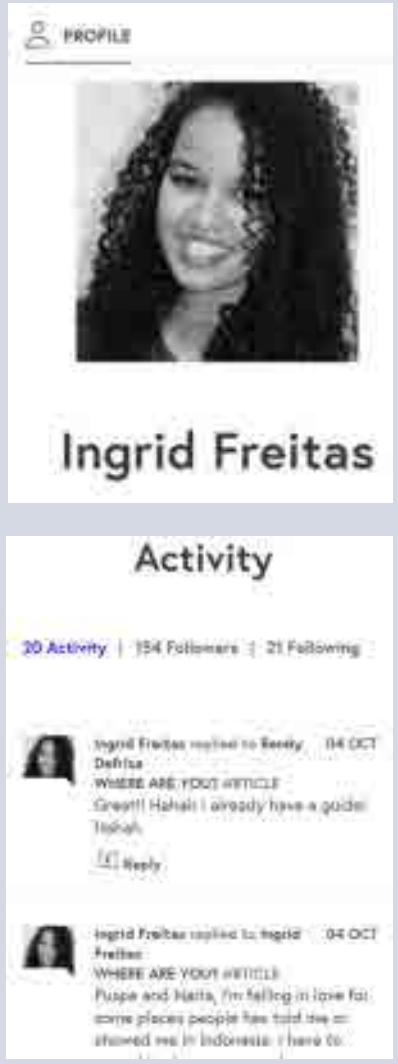
From 190 countries

For many, their first time learning online

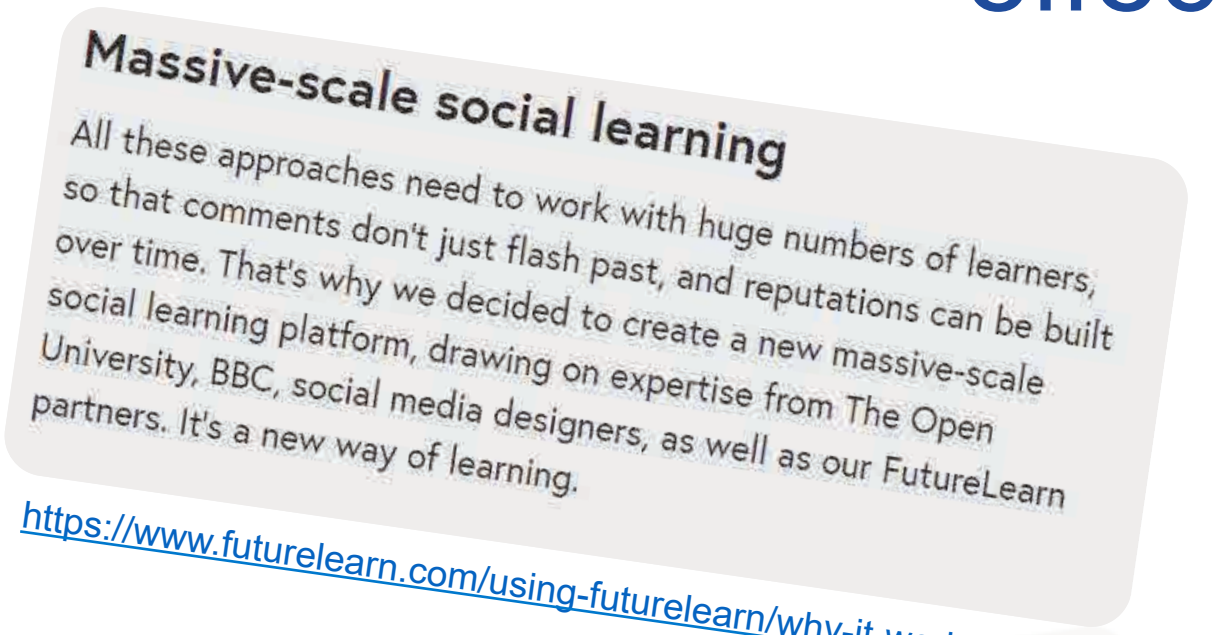
25% on mobile devices

65,000 comments on the first video of the course

Social learning

Filtering	Following	Moderating	Roles
			

Is social learning at massive scale effective?



Massive-scale social learning

All these approaches need to work with huge numbers of learners, so that comments don't just flash past, and reputations can be built over time. That's why we decided to create a new massive-scale social learning platform, drawing on expertise from The Open University, BBC, social media designers, as well as our FutureLearn partners. It's a new way of learning.

https://www.futurelearn.com/using-futurelearn/why-it-works

Comparison of MOOC platforms prior to March 2015

Group	Description	FutureLearn	Coursera	edX
Registrants	Mean number of people who register for a course	12,753	87,000	52,605
Learners (% of registrants)	Registrants who visit the course	53%	54%	65%
Active learners (% of learners)	Learners who engage with course material	83% 'Mark as complete'	83% 'Viewed lecture material'	N/A
Social learners	Learners who post at least one comment	36%	9%	12%
Completing learners	Learners who complete the course	17%	5%	8%

Present

To enhance social learning on FutureLearn:

Conversational peer review

Adaptive support for reflection

Collaborative annotation

Peer mentoring

Supported small group tutoring

Can other pedagogies work at scale?

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Construction

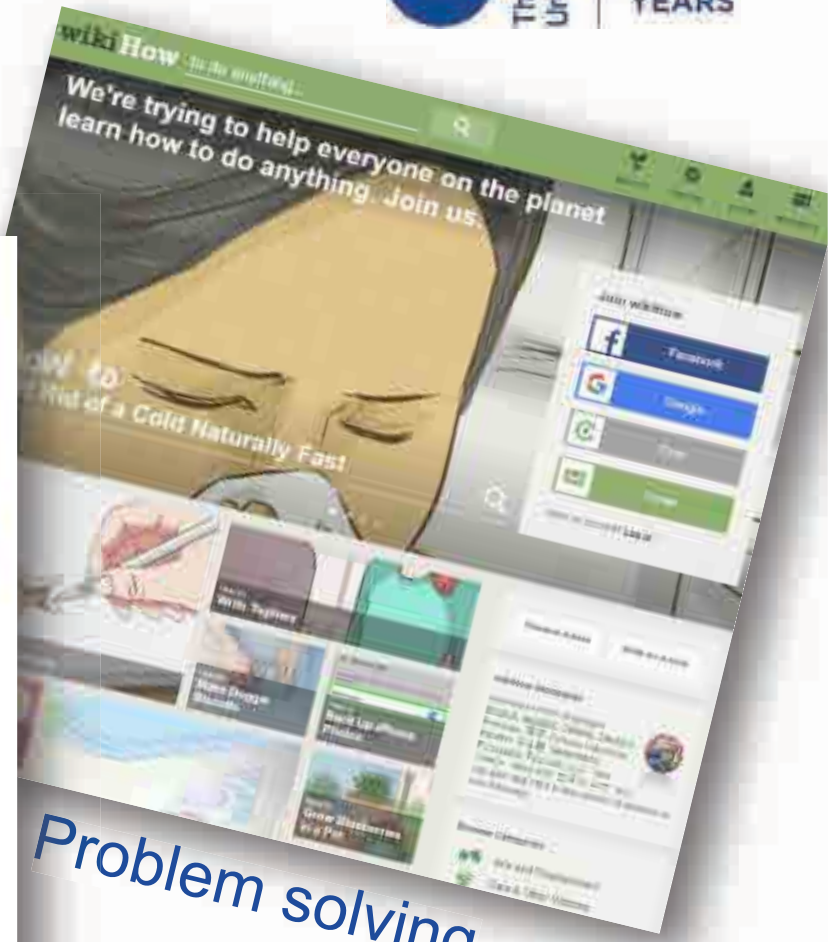
© Dr Matthew Nicholls, University of Reading 2017

Your impressions

We asked you to think about the range of facilities needed for the smooth running of the games. Did any of buildings surrounding the Colosseum surprise you?

Did you try 'sitting' in the various categories of seats within the digital model and did the different perspectives change your understanding of how people experienced the games?

Simulation



Problem solving

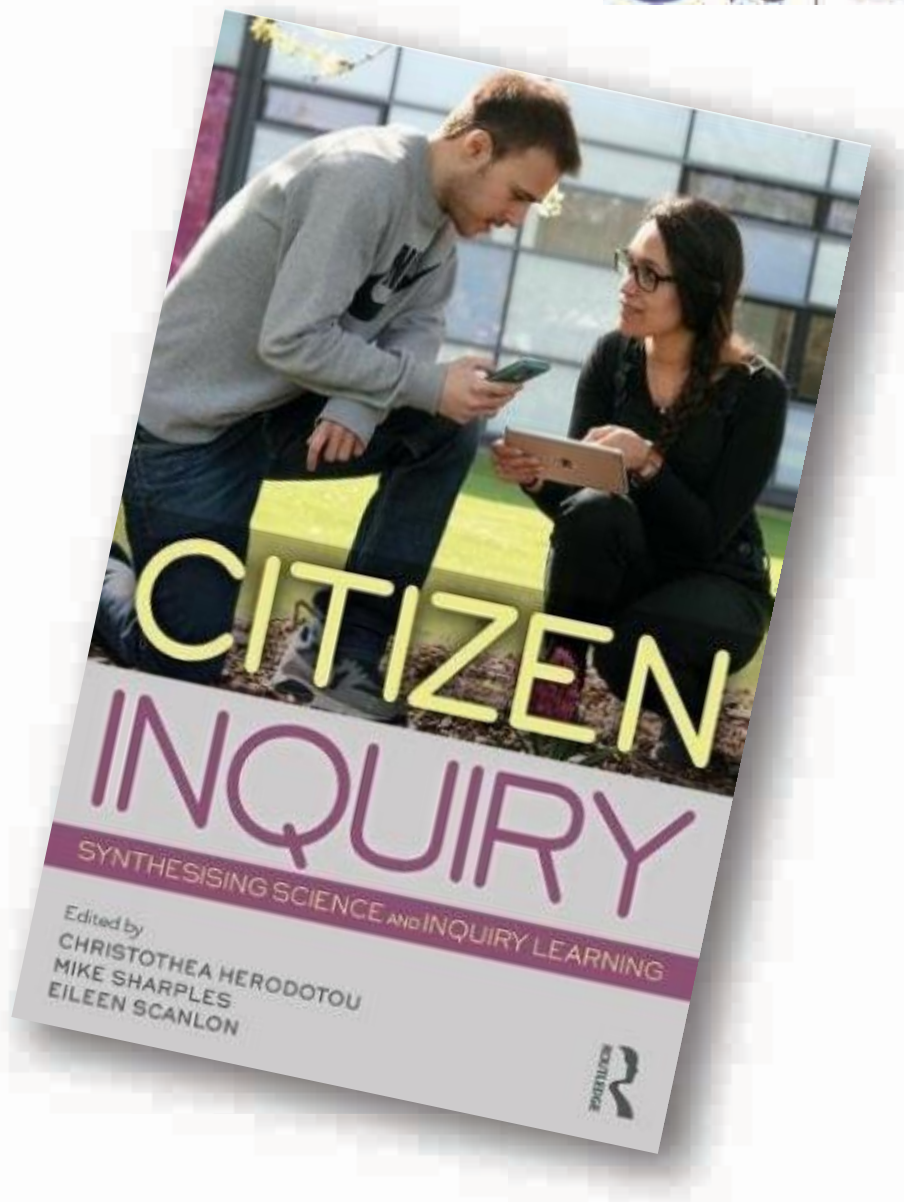
Inquiry at scale

Citizen Inquiry: Inquiry-led investigations into wellbeing and environment with members of the public

citizen science

\+ collaborative inquiry learning

\+ crowdsourcing



nQuire platform

www.nquire.org.uk

Collaboration with BBC

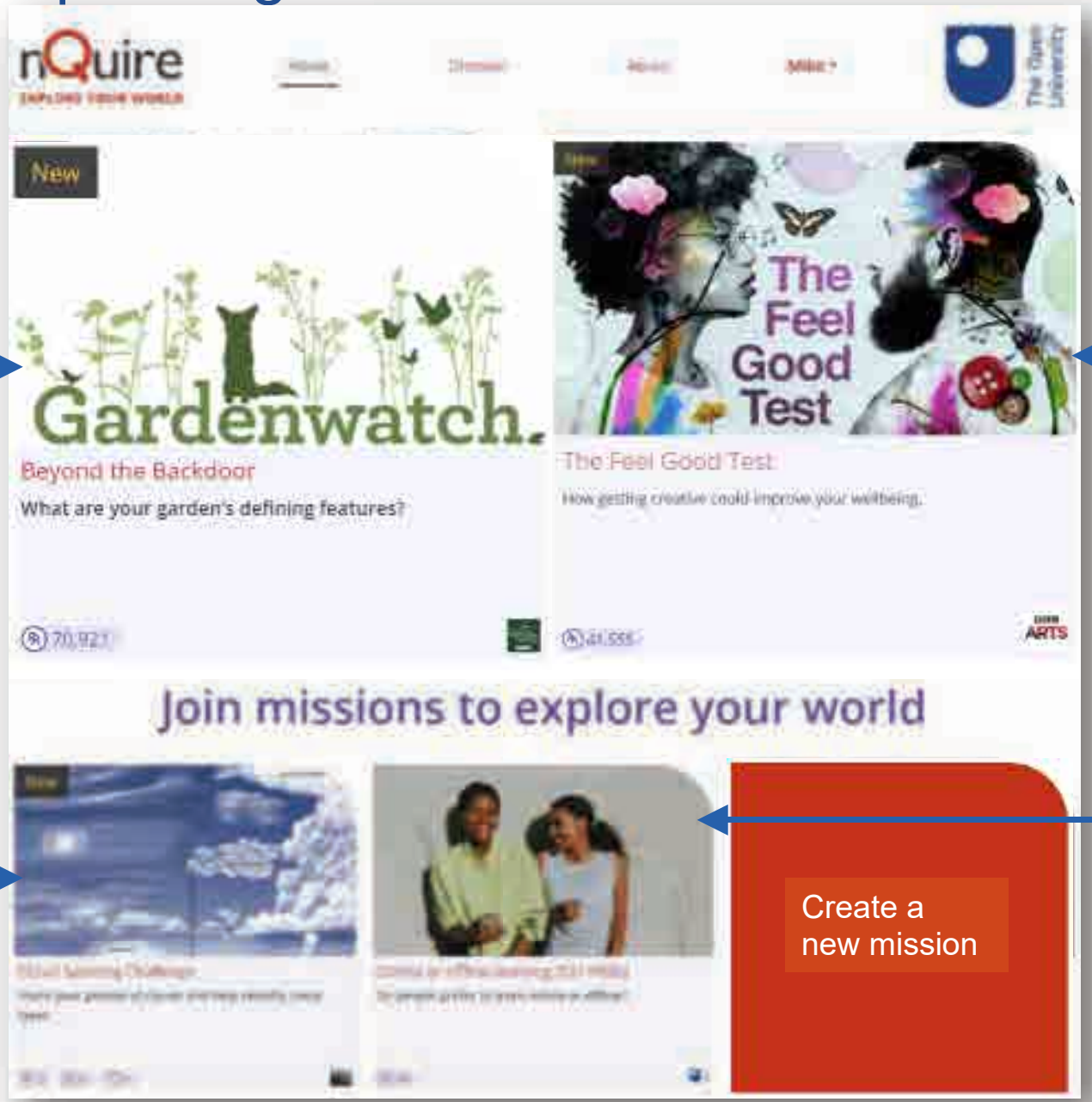
Extends citizen inquiry to include mass surveys

Confidential ‘survey’ missions, and open ‘social’ missions

‘Explore myself and my world’

www.nquire.org.uk

BBC/British Trust for Ornithology national survey of UK gardens. Over 70,000 completions.

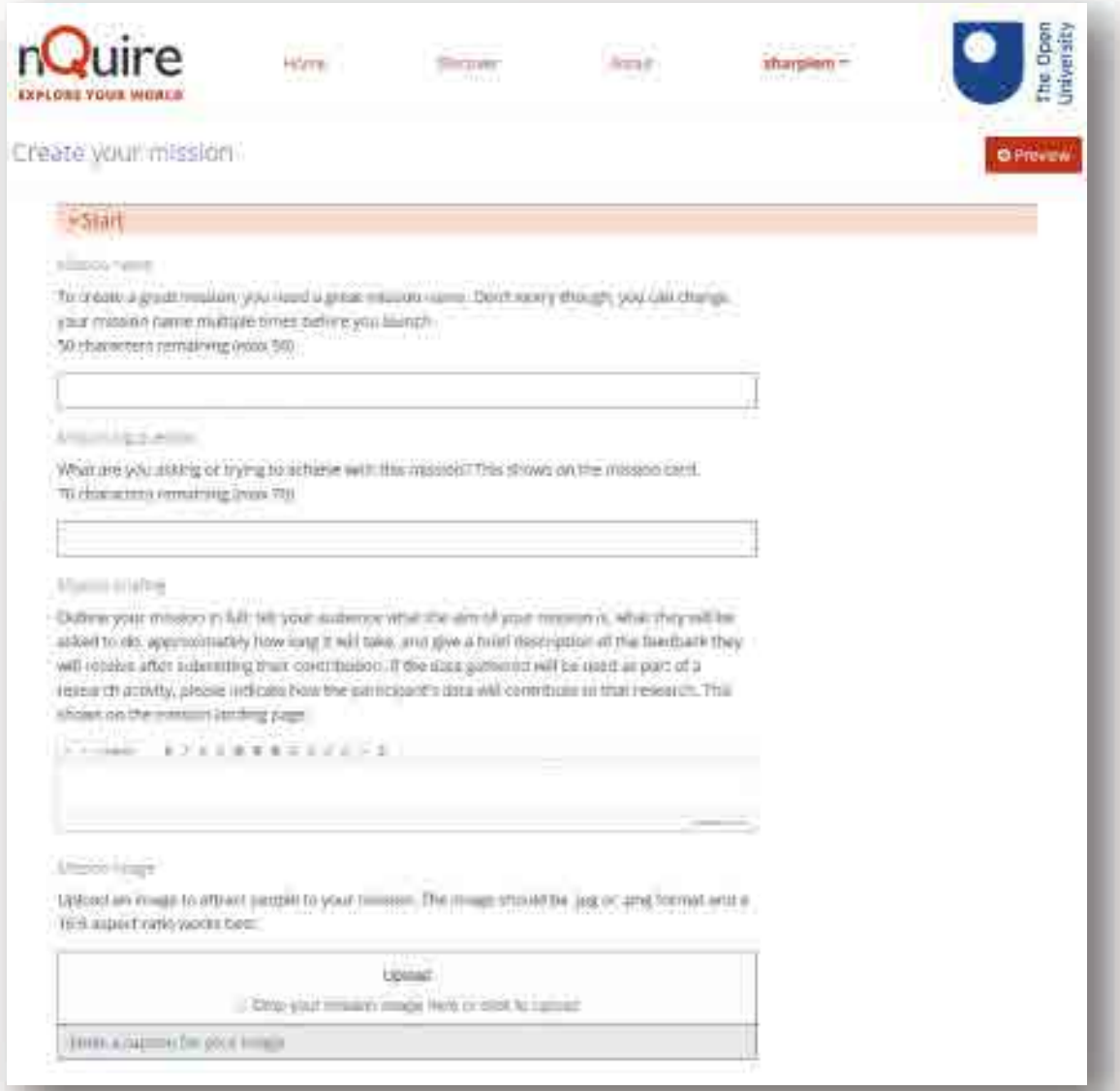


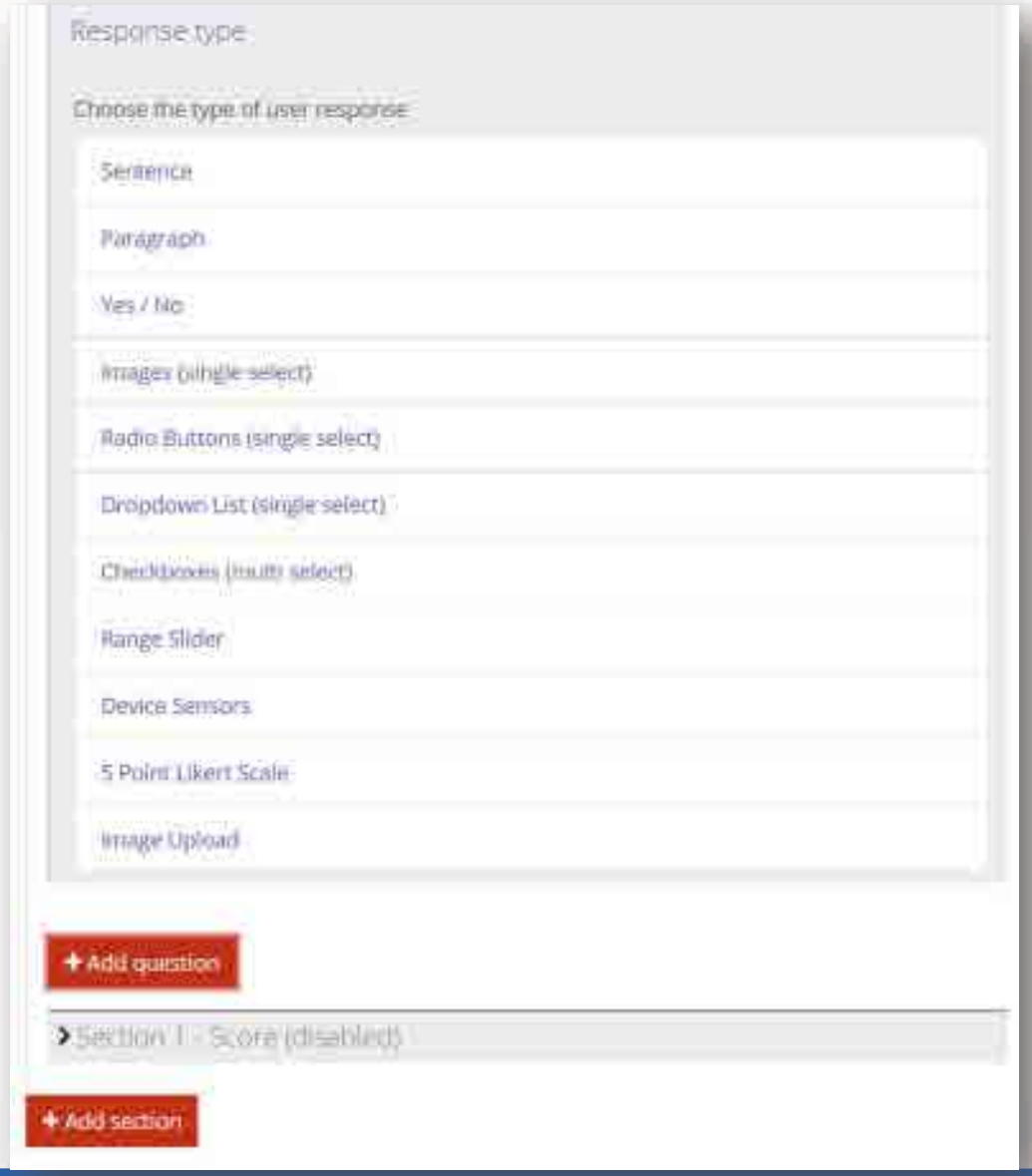
BBC/UCL investigation into creativity and wellbeing, with personalised feedback. 41,000 completions. 70% completion rate.

Open ‘social’ investigation to learn about clouds and weather

Students on OU FutureLearn course run investigations into online and offline learning

Open for authoring





Future

FutureLearn needs a pedagogy of professional development at scale, to extend the platform and fulfil its mission to “transform access to education”

Pedagogy of professional development at scale

Social learning

to share workplace knowledge

Coached team learning

to develop and practise specific skills

Case-based learning

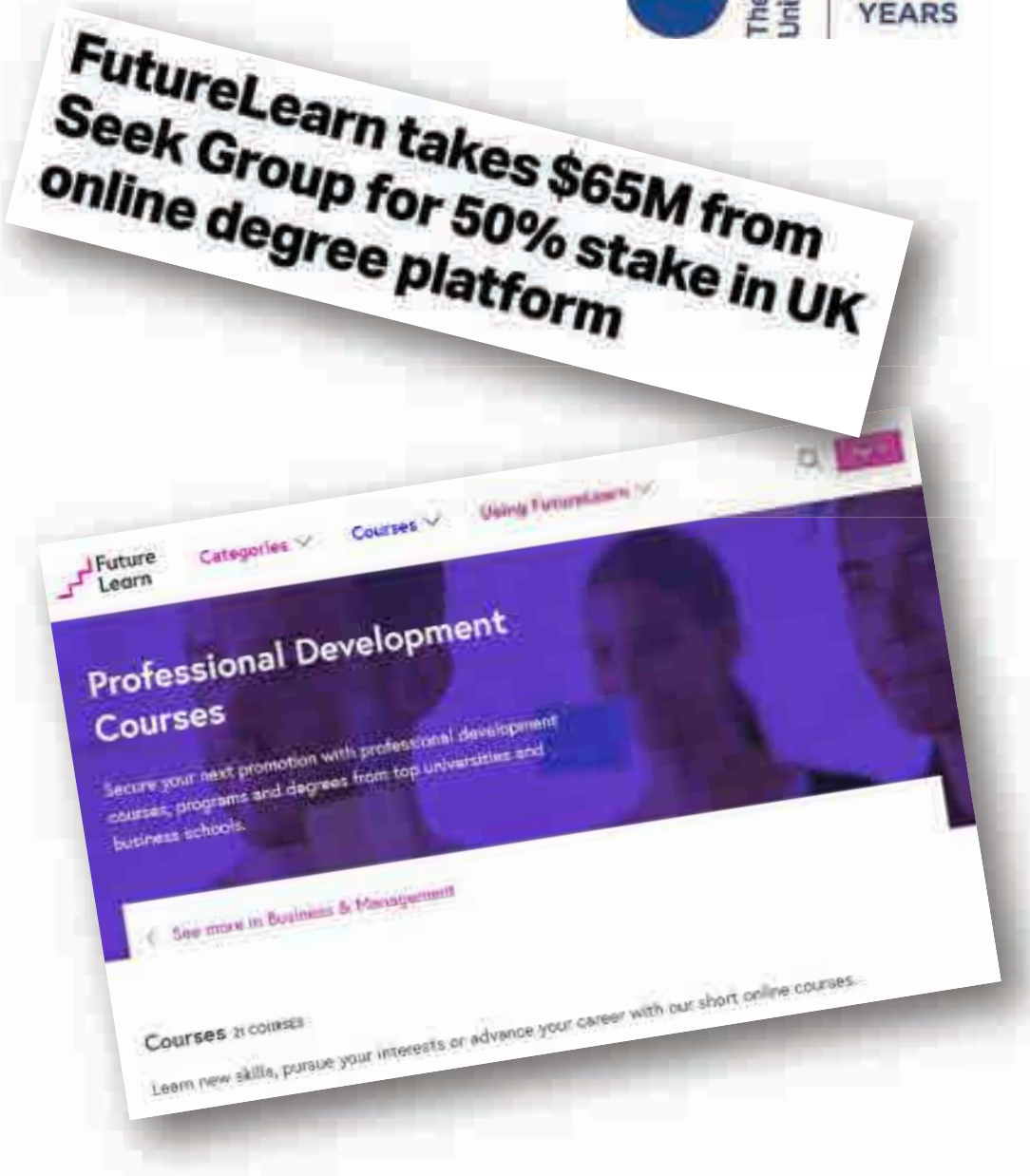
for problem solving and decision making

Experiential learning

to capture, share and reflect on situated experience

Competency-based learning

to achieve and demonstrate mastery



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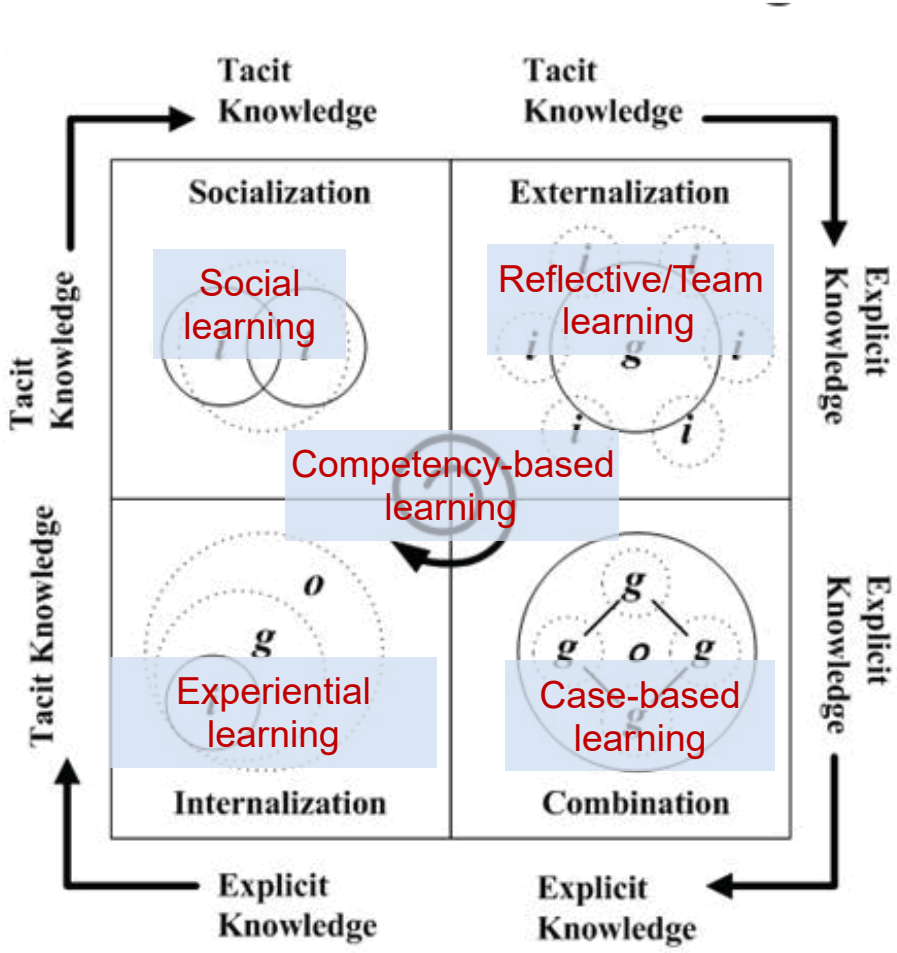

(Ikujiro Nonaka)

Legend

i - *individual*
g - *group*
o - *organization*

Pedagogy-informed design

Works for innovative educational technology

at massive scale