

# Poor Proxies for Learning:

Looking good is  
not the same as  
being good

David Didau  
researchED Amsterdam  
21<sup>st</sup> January 2016



# Problems with certainty



# Certainties about learning

- Students are busy – lots of work is done (especially written work)
- Students are engaged, interested, motivated
- Students are getting attention – feedback, explanations
- Classroom is ordered, calm, under control
- Curriculum has been ‘covered’
- (At least some) students have supplied correct answers (whether or not they really understood them or could reproduce them independently.)

**Poor proxies for learning**

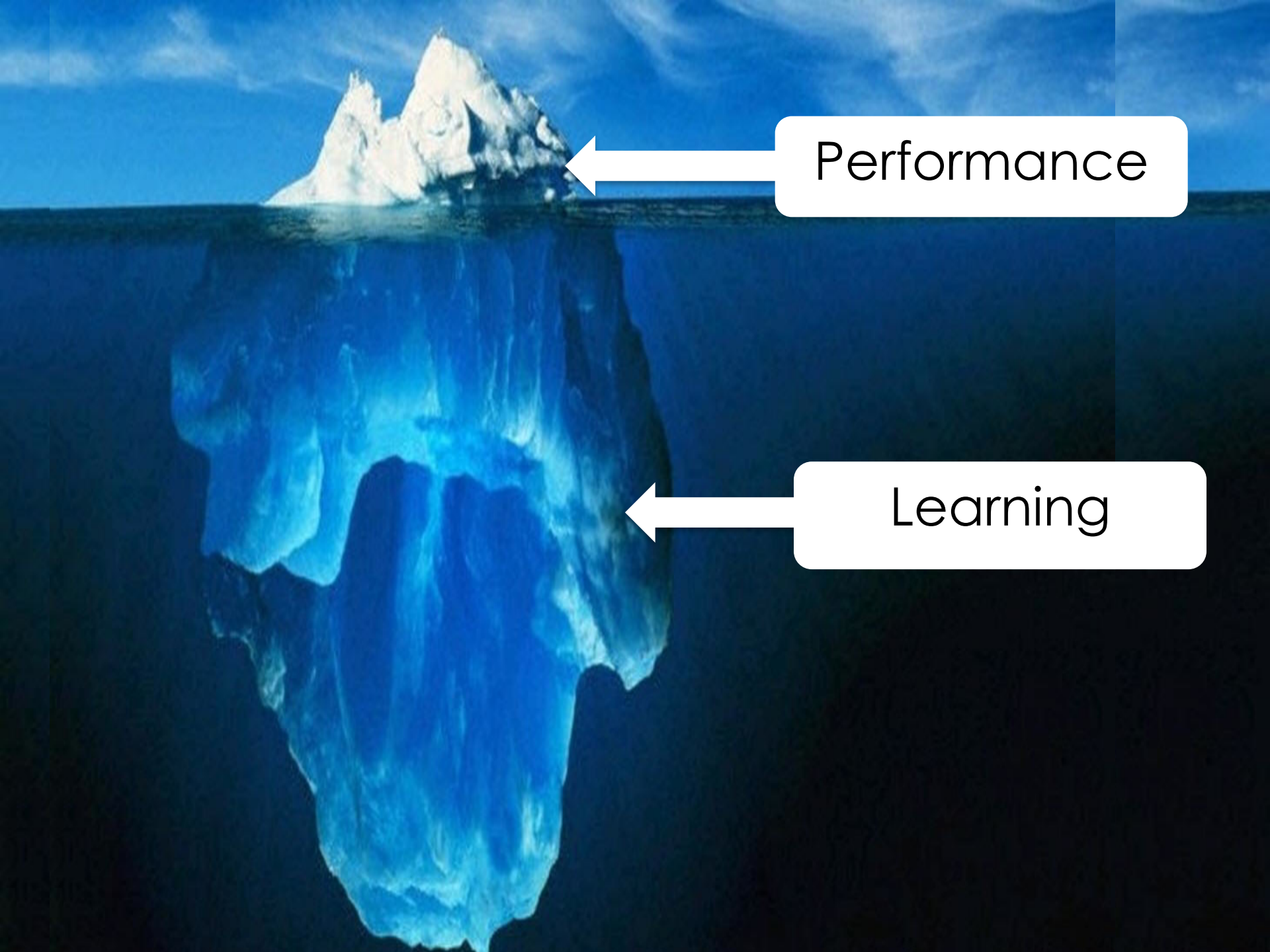
**[Coe \(2013\)](#)**



# A definition of learning

- Learning is the long-term retention and transfer of knowledge and skills.
- Retention = durability
- Transfer = flexibility





Performance

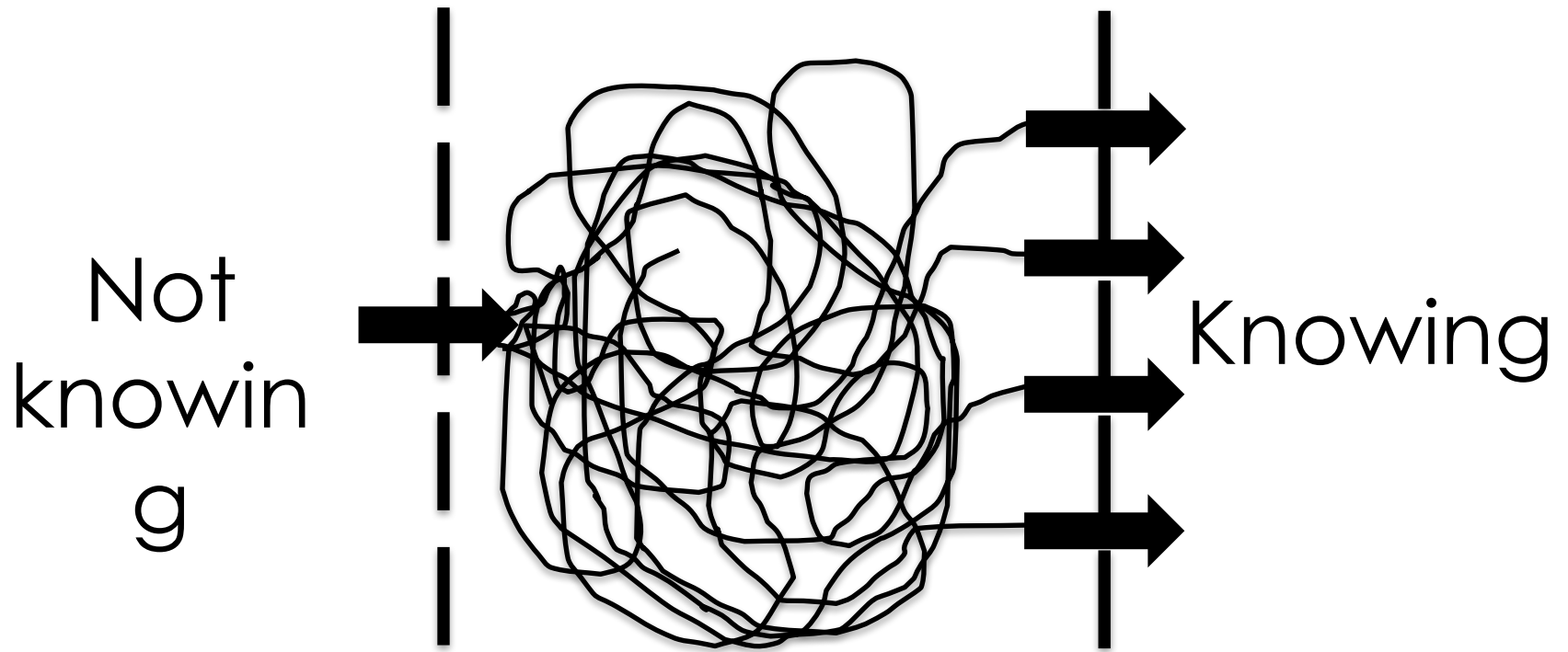
Learning

Warsaw

**MIMICRY**



# Learning is liminal



# Learning vs Performance

1. We can only ***infer*** learning from performance
2. Performance during instruction is a poor indicator of learning
3. ***Reducing*** performance might actually ***increase*** learning.





# What's a *good proxy* for learning?

**“Learning happens when people have to think hard.** Obviously, this is over-simplistic, vague and not original. But if it helps teachers to ask questions like, *‘Where in this lesson will students have to think hard?’* it may be useful.”

Coe et al (2013)



# Is this another poor proxy?

*Solving a problem requires problem-solving search and search must occur using our limited working memory... Thus, problem-solving search overburdens limited working memory and requires working memory resources to be used for activities that are unrelated to learning. As a consequence, **learners can engage in problem-solving activities for extended periods and learn almost nothing.***

[Kirschner, Sweller & Clark \(2006\) p. 80](#)



# Why learning should (probably) involve thinking

1. “If nothing has changed in long-term memory, nothing has been learned.”

1.

Kirschner, Sweller & Clark (2006)

2. “Anything that occupies your working memory reduces your ability to think.”

*Kahneman, Thinking, Fast and Slow*

3. “Memory is the residue of thought.”

Willingham, *Why Don't Students Like School?*



# Better proxies?

Learning (probably) happens when students have to:

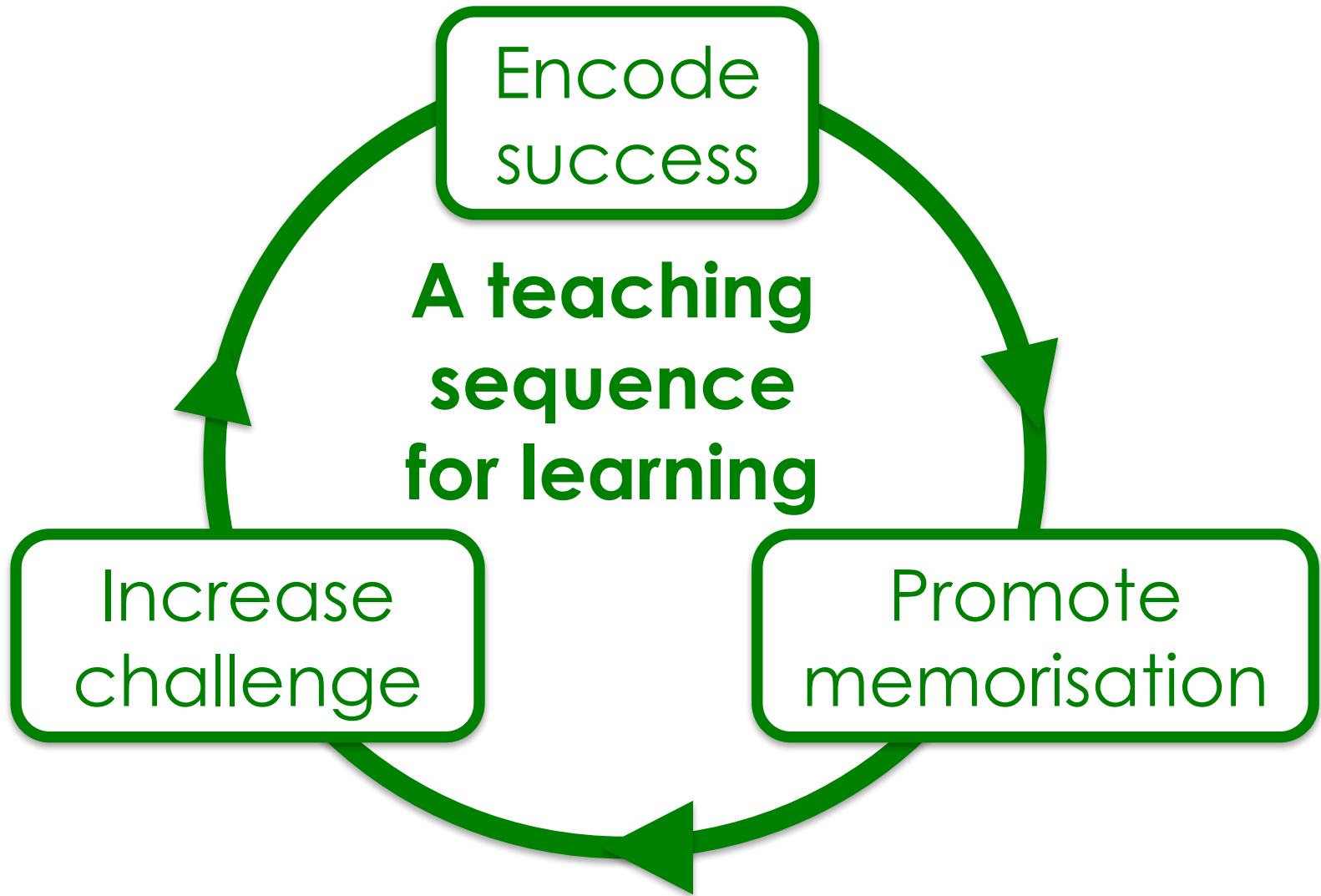
- concentrate on relevant examples and non-examples
- retrieve content they have previously been taught
- apply concepts to new examples
- engage in practice drills (which may involve repetition or formulas and procedures)
- answer questions without cues or prompts.



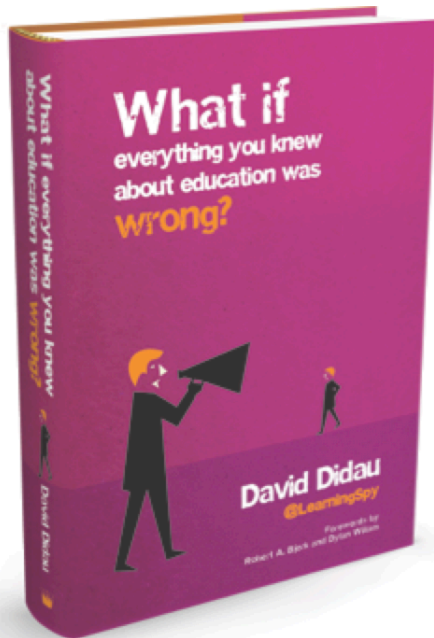
# Desirable difficulties

- Spacing
- Interleaving
- Testing (retrieval practice)
- Variation
- Generation
- Reducing & delaying feedback

[Bjork \(2007\)](#)



There's nothing good or bad  
but thinking makes it so.



@DavidDidau  
learningspy.co.uk  
ddidau@gmail.com

