WILDERN SCHOOL PROFESSIONAL DEVELOPMENT BULLETIN

THE ROUND

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RESEARCH DIGESTED: BJORK'S INFLUENTIAL 'ASSESSING OUR OWN COMPETENCE'

Who did the study and when?

Distinguished Professor of Psychology, Robert A. Bjork (1999).

Method

The study was a review of the evidence on the distinction between **learning** and **performance**, and focused on the illusions of competence we have based on interpreting *performance* during lessons rather than long-term retention and transfer (*learning*).

Overview

Bjork shows that humans frequently overestimate their own (and others') competence, in the form of overconfidence. When we make assessments of competence we are really predicting the future: we are estimating how well we might perform in a real or imagined future context. Bjork findings show that current performance can be highly unreliable for predicting future performance.

Bjork discusses the distinction between **performance** ("the current speed or accuracy of access to knowledge and skills that are the target of training") and **learning** ("the relatively permanent changes to understanding, comprehension, or competence that support long-term retention or transfer"). Changes in performance and changes in learning during lessons aren't correlated; our ability to produce answers quickly during lessons can be misleading if we interpret this as learning.

Implications

To avoid interpreting performance as learning, spaced testing would seem a more effective form of AfL than relying on self reporting strategies (traffic lighting, thumbs up, smile sheets, exit tickets**).**

If you want to know more, you can read the paper here. I've written a literature review of the paper that I can also send you if you email me.

DEANS FOR IMPACT

THE SCIENCE OF LEARNING

Deans for Impact are a nonprofit organisation, founded in the U.S.A. in 2015 to elevate the teaching profession and to help inform educators so they can be better prepared in the classroom.

The organisation is guided by data-informed improvement and empirically validated research.

They have released two reports to date, beginning with the well-received 'The Science of Learning' report in 2015.

The report summarises cognitive science research on how students learn, and connects it to practical implications for teaching. Whilst the page opposite gives an overview of the report's content, it is worth downloading the whole report here, to look at the implications for the classroom. The report is written in a very simple, bullet-pointed form and is a highly accessible read.

The link above also contains access to two case studies detailing how some teachers tried to embed these cognitive science principles in their classrooms, should you wish to use these ideas to inform your department.

On the page opposite are the six principles discussed in the report. Below I've picked out some of the key practical implications for the classroom, as highlighted in the report:

- A well sequenced curriculum is crucial for pupils to build new ideas on prior knowledge
- Teachers should use "worked examples" to reduce the cognitive burden on students
- Stories and mnemonics are particularly effective in helping pupils learn hard-to-remember content
- Teachers should space practice over time, with content being reviewed across weeks and months
- Trying to remember something makes memory more long-lasting than other forms of studying, so low-stakes quizzing or self-tests are the best ways to study
- Students should interleave practice of different types of content, rather than focus study on one type
- Learning sets of facts actually aids problem-solving by freeing working memory (e.g., times tables)
- There are common misconceptions of cognitive science that teachers should be able to recognise, such as the fact that novices and experts learn in different ways

JNT

The Six Principles

1. How do students understand new ideas?

Students learn new ideas by reference to ideas they already know.	Cognitive development does not progress through a fixed sequence of age-related stages. The mastery of new concepts happens in fits and starts.
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.	

2. How do students learn and retain new information?

Information is often withdrawn from memory just as it went in. We usually want students to remember what information means and why it is important, so they should think about meaning when they encounter to-be-remembered material.	Practice is essential to learning new facts, but not all practice is equivalent.

3. How do students solve problems?

Each subject area has some set of facts that, if committed to long-term memory, aids problem-solving by freeing working memory resources and illuminating contexts in which existing knowledge and skills can be applied. The size and content of this set varies by subject matter.	Effective feedback is often essential to acquiring new knowledge and skills.

4. How does learning transfer to new situations in or outside the classroom?

The transfer of knowledge or skills to a novel problem requires both knowledge of the problem's context and a deep understanding of the problem's underlying structure.	We understand new ideas via examples, but it's often hard to see the unifying underlying concepts in different examples.

5. What motivates students to learn?

Beliefs about intelligence are important predictors of student behavior in school.	Self-determined motivation (a consequence of values or pure interest) leads to better long-term outcomes than controlled motivation (a consequence of reward/punishment or perceptions of self-worth).
The ability to monitor their own thinking can help students identify what they do and do not know, but people are often unable to accurately judge their own learning and understanding.	Students will be more motivated and successful in academic environments when they believe that they belong and are accepted in those environments.

6. What are the common misconceptions about how students think and learn?

Students do not have different "learning styles."	Humans do not use only 10% of their brains.
People are not preferentially "right-brained" or "left- brained" in the use of their brains.	Novices and experts cannot think in all the same ways.
Cognitive development does not progress via a fixed progression of age-related stages.	

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BLOGROLL

ARTICLES AND BLOGS YOU MIGHT FIND INTERESTING

'Education research transformed my teaching. Now it can do the same for yours.' is an article by American teacher-author Eric Kalenze, describing how, out of desperation, he turned to research to improve his teaching.

'Seminal Papers in Educational Psychology' by Paul A. Kirschner, is a summary of the most important research papers in the field of educational psychology, a field which has seen great strides since the latter half of the 20th century. It is also a field from which schools have so much to learn.

'What Will Improve a Student's Memory?' is a widely influential article written by cognitive psychologist Daniel Willingham and published in the brilliant journal *American Educator*. It offers three principles of memory that have implications for the classroom, and includes tasks you can use to demonstrate them.

If you want to know a little bit more about any of the ideas in this edition, please don't hesitate to email me – j.theobald@wildern.hants.sch.uk - or come and find me in Block 9!

James