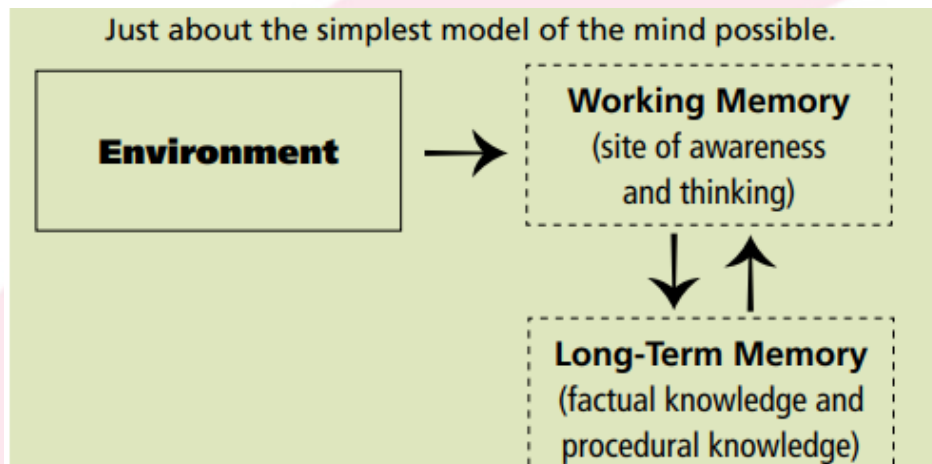


Welcome to the second edition of Central Learning and Teaching Newsletter!

In this edition, we will explore the role thinking hard and high challenge play in maximising the impact of retrieval practice.

What is thinking and why is it hard?



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In his article, " Why don't students like school" (American Educator, Spring 2009) , Daniel T Willingham states the following:

- "the brain is not designed for thinking"
- it is " slow and unreliable" but that "nevertheless people enjoy mental work if it is successful".
- This is because "thinking occurs when you combine information (from the environment and the long-term memory) in new ways. That combination happens in working memory"

Most critically:

- "Much of the time that we see people apparently engaged in logical thinking, they are actually engaged in memory retrieval...When faced with a problem, you will first search for a solution in memory, and if you find one, you will likely use it. "

In other words, thinking is always effortful and leans heavily on prior knowledge.

Access the full paper [here](#).



Planning for retrieval/thinking points

- How can you use the start/end of lessons for retrieval as a way to carry out a review of learning?
- How /where does the retrieval task fit with(in) your Scheme of Learning?
- How will you ensure students have to think hard?
- Could you use retrieval task to identify then clear students' misconceptions?
- How will you plan the feedback and what are you hoping to gain from it?
- Is your retrieval activity designed as a learning task as opposed to an assessment task?
- Do you routinely explain to students the rationale for this type of task? Why? Why not?
- What do students need to know to master new learning?
- Could you interleave or space your practice? How does your scheme of learning lend itself to this approach?



What are "Desirable Difficulties"?

"Any activities that involve testing yourself—that is, activities that require you to retrieve or generate information, rather than just representing information to yourself—will make your learning both more durable and flexible." Elizabeth L. Bjork and Robert Bjork- *Making Things Hard on Yourself, But in a Good Way: Creating Desirable Difficulties to Enhance Learning*. Full article [here](#)

DESIRABLE DIFFICULTIES
 & how to have an impact on learning
 @Impact Wales

From research by R. Bjork "Creating Desirable Difficulties to Enhance Learning" 2017

Introducing variation into the learning process, creating desirable difficulties strengthens learning creating deeper connections & associations. This variation leads to improved ability to remember learning & be able to use it effectively in novel contexts.

Experiment = bean bag throwing to a target

PREDICTABLE LEARNING - A

Step 1

Set distance = 6ft

Performance improves rapidly. Feels easier.

VARIED LEARNING - B

3ft Varying distance 12ft

Performance not as good initially. Feels hard.

Step 2 - Retest - A week later both group A & B tested over a novel distance. Group B, varied distance, able to hit the novel target much more often than Group A.

What strategy can I use?

LIST IT!

- Page 86, Retrieval Practice, Kate Jones.
- List as many: keywords/causes/consequences of/ facts about/characters/issues with...
- In a limited amount of time and without using class notes

Benefits

- A free recall task- broad task: students have to think about multiple aspects of the material to be learned- this fosters transfer of knowledge.
- Low effort, high impact.
- A versatile task: you can get students thinking deeper by providing multiple categories.
- Students have to think about multiple aspects of the material.



List your Knowledge



Keywords	Key individuals/events	Causes/Key facts/Consequences

Literacy and retrieval practice

- The visuals below are taken from Lisa's presentation.
- They are a good reminder that activating prior knowledge-which underpins solid retrieval practice- can be achieved through our use of questioning.
- Challenging students to predict by digging into their prior learning and to clarify by giving concrete examples is a way to embed reading skills and encourage students to think hard.
- Could we use these strategies in our lessons- virtual to face to face- to engage students in reflection?
- Could we use Forms as part of our remote provision to ask more questions and use them diagnostically?

PREDICT: Activate Prior Knowledge

Examples:

What did we learn last lesson about this topic?
What do you already know about...?
What do you think...
What methods might we need for this question?

Clarify : Define new vocabulary. Check understanding of previously learnt vocabulary. Check understanding of previously learnt concepts. Share clues about the text.

Examples:

Remind us whatmeans. Define...
What can you remember about...?
What multiple meanings does the word ... have?

Classroom Culture and retrieval practice

From the moment a student enters our classroom, virtually or in person (!), they should be challenged and our expectations for learning should be made clear. "When you enter our classrooms, we expect you to adhere to the 'Central Line on Classrooms.'"

An easy way to make sure our students are challenged is through the 'Do Now' activity. We all know that it begins the lesson in a focused manner which indicates to students that learning is our priority.

It's important that our 'Do Nows' are challenging. As this newsletter has already said, retrieval practice can be challenging, particularly if those desirable difficulties are in play. We should be applying those principles to our 'Do Now' activities to make sure that students are having to think hard, forging those links with their prior learning and making them stronger.

The image below is from 'Making Every Lesson Count'. We need to be mindful that we should be aiming for the struggle zone.

