

# An Introduction to Cognitive Science for English Teachers

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# The Plan

- **Overview:**
  - Caveats and disclaimers
  - Why this webinar?
  - Some principles.
- **Key ideas:**
  - Neuroscience: Barbara Oakley.
  - Cognitive architecture: the basics of memory. Daniel Willingham.
  - Key principles: Sarah Cottingham.
- **Individual elements.**
  - Schemas: meaningful long-term learning.
  - Retrieval practice.
  - Cognitive Load Theory.
  - Dual Coding.
  - Spaced practice.
  - Reading and attention: Maryanne Wolf.
  - Neuromyths [Learning Styles!]
- **Further reading: recommendations.**
  - Newsletters, books, resources.

# Caveats and Disclaimers

- I am not a cognitive scientist.
- I am not a neuroscientist.
- ... I am an English teacher.
- There are crude simplifications here.
- Cognitive science is not a physical science.
- This is a very big area to cover in 50 minutes .... I am skimming.
- The path between academic research and the classroom is not smooth. There are no magic bullets.
- There is a science of learning, but not a science of teaching.
- English is an 'ill-structured learning domain' (John Sweller). It is not Mathematics or Chemistry.
- I am mostly prompting you to look further. This is mainly a road-sign webinar.

# Why this webinar?

- Teacher training programmes (how much has changed?).
- Our most precious resource: Time.
- Lack of 'official' resources.
- Widespread misunderstandings about cognition (neuromyths).
- Fundamental ideas can be transformative.
- Principles, heuristics.
- 'The best teaching appears fluid and artful but is always built on sound techniques deployed with purpose.' (Tom Sherrington).
- To spread the word: *Go forth and multiply.*



**NEW STUFF**

**EDUCATION**

**3500 YRS  
OF EDUCATION  
HISTORY**

# Some principles

- Does this help my students think critically and interestingly?
- Does this make their knowledge more secure and embedded?
- Are they learning long-term, or are they just ‘performing’?
- ‘Meaningful learning’.
- Am I always conscious of the ‘curse of knowledge’?
- The line from novice to expert.
- Make the purpose and reasoning *explicit*.
- Hard thinking is effective. A level of challenge.
- Classroom: probing questions. A culture of discussion. Make ‘em think.
- Intellectual fitness. Compare to sports practice.

*Macbeth* quotation practice grid.

**4. 'His virtues / Will plead like angels, trumpet-tongued, against / The deep damnation of his taking off.' I vii 18-20.**

<p>1. What are the first words of this soliloquy?</p>	<p>2. What does Macbeth mean by saying that Duncan's virtues will be 'trumpet-tongued'?</p>	<p>3. What is the missing phrase from earlier in the speech: 'If th'assassination / Could ????? ?? ??? ??????', and catch / With his surcease, success.' Explain the missing phrase.</p>
<p>4. Write down 3 or 4 words which encapsulate Macbeth's state of mind in this speech and at this point of the play.</p>	<p>5. At the end of this speech, Macbeth has decided not to kill Duncan. Some lines later he changes to 'If we should fail?'  How many lines later? Tick one - a) 37  b) 62  c) 109</p>	<p>6. What does the phrase: 'the deep damnation of his taking off' show us about Macbeth?</p>
<p>7. Complete the last line of the scene: 'False face must hide ???????'</p>	<p>8. Make the case for this speech being one of the most important moments in the play as a whole.</p>	



# UNCOMMON SENSE TEACHING



Practical Insights in  
Brain Science to  
Help Students Learn

From the Creators of the Popular Online Course *Learning How to Learn*

Barbara Oakley, PhD; Beth Rogowsky, EdD;  
Terrence J. Sejnowski, PhD



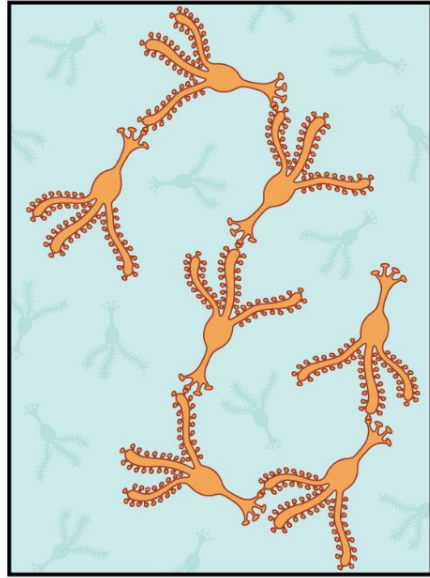
# Learning How to Learn: Powerful mental tools to help you master tough subjects

🗣️ Taught in English | [18 languages available](#) | Some content may not be translated

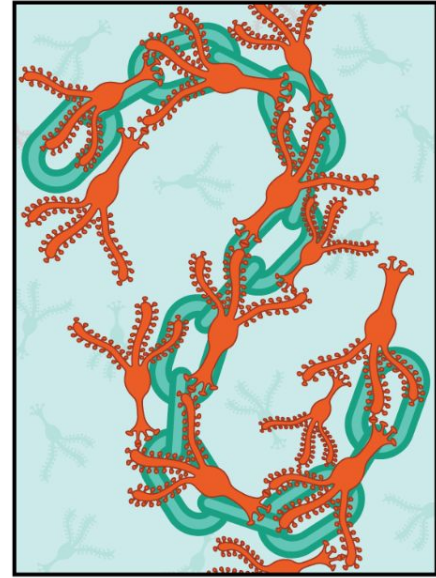
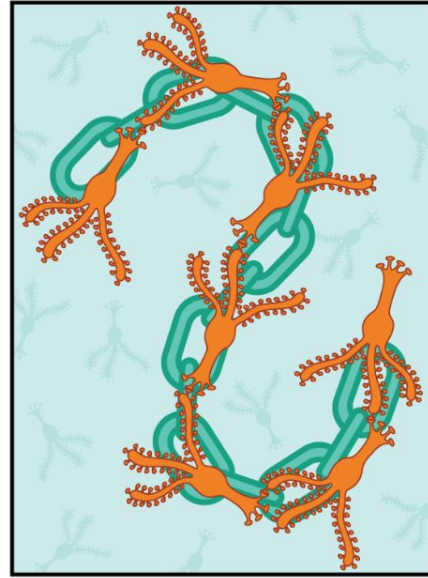
**Enroll for Free**  
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Financial aid available

**3,661,807** already enrolled



Learn it



Link it

“Brilliant analysis.”  
—*Wall Street Journal*

“A triumph of critical thinking.”  
—*Washington Post*

DANIEL T. WILLINGHAM

# WHY DON'T STUDENTS *Like* SCHOOL?

SECOND EDITION

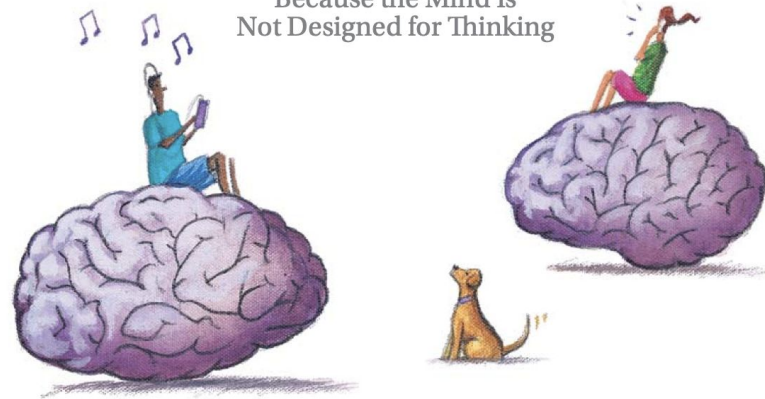


A **COGNITIVE SCIENTIST**  
ANSWERS QUESTIONS ABOUT HOW  
**THE MIND** WORKS AND WHAT IT  
MEANS FOR **THE CLASSROOM**

**JOSSEY-BASS™**  
A Wiley Brand

## Why Don't Students *Like* School?

Because the Mind Is  
Not Designed for Thinking



By DANIEL T. WILLINGHAM

**Question:** Most of the teachers I know entered the profession because they loved school as children. They want to help their students feel the same excitement and passion for learning that they did. They are understandably dejected when they find that some of their pupils don't like school much, and that they, the teachers, have great difficulty inspiring them. Why is it difficult to make school enjoyable for students?

**Answer:** Contrary to popular belief, the brain is not designed for thinking. It's designed to save you from having to think, because the brain is actually not very good at thinking. Thinking is slow and unreliable. Nevertheless, people enjoy mental work if it is successful. People like to solve problems, but not to work on

unsolvable problems. If schoolwork is always just a bit too difficult for a student, it should be no surprise that she doesn't like school much. The cognitive principle that guides this article is: *People are naturally curious, but they are not naturally good thinkers; unless the cognitive conditions are right, people will avoid thinking.* The implication of this principle is that teachers should reconsider how they encourage their students to think in order to maximize the likelihood that students will get the pleasurable rush that comes from successful thought.

**W**hat is the essence of being human? What sets us apart from other species? Many would answer that it is our ability to reason—birds fly, fish swim, and humans think. (By “thinking,” I mean solving problems, reasoning, reading something complex, or doing any mental work that requires some effort.) Shakespeare extolled our cognitive ability in *Hamlet*: “What a piece of work is man! How noble in reason!” Some 300 years later, however, Henry Ford more cynically observed, “Thinking is the hardest work there is, which is the probable reason why so few people engage in it.” They both had a point. Humans are good at certain types of reasoning, particularly in comparison with other animals. But we

ILLUSTRATED BY PAUL DODAK

*Daniel T. Willingham is professor of cognitive psychology at the University of Virginia and author of numerous articles, including his regular “Ask the Cognitive Scientist” articles for American Educator. To read more of his work on education, go to [www.danielwillingham.com](http://www.danielwillingham.com). This article is excerpted from his new book, *Why Don't Students Like School?* Copyright © 2009 John Wiley & Sons. Content reprinted by permission of Jossey-Bass: [www.josseybass.com](http://www.josseybass.com).*

# Daniel Willingham

- ‘We are not naturally good thinkers; unless the cognitive conditions are right, we will avoid thinking.’
- ‘Memory is the residue of thought.’
- ‘All of the information in long-term memory resides outside of awareness. It lies quietly until it is needed and then enters working memory and so enters consciousness.’
- ‘Thinking occurs when you combine information (from the environment and long-term memory) in new ways. That combining happens in working memory.’



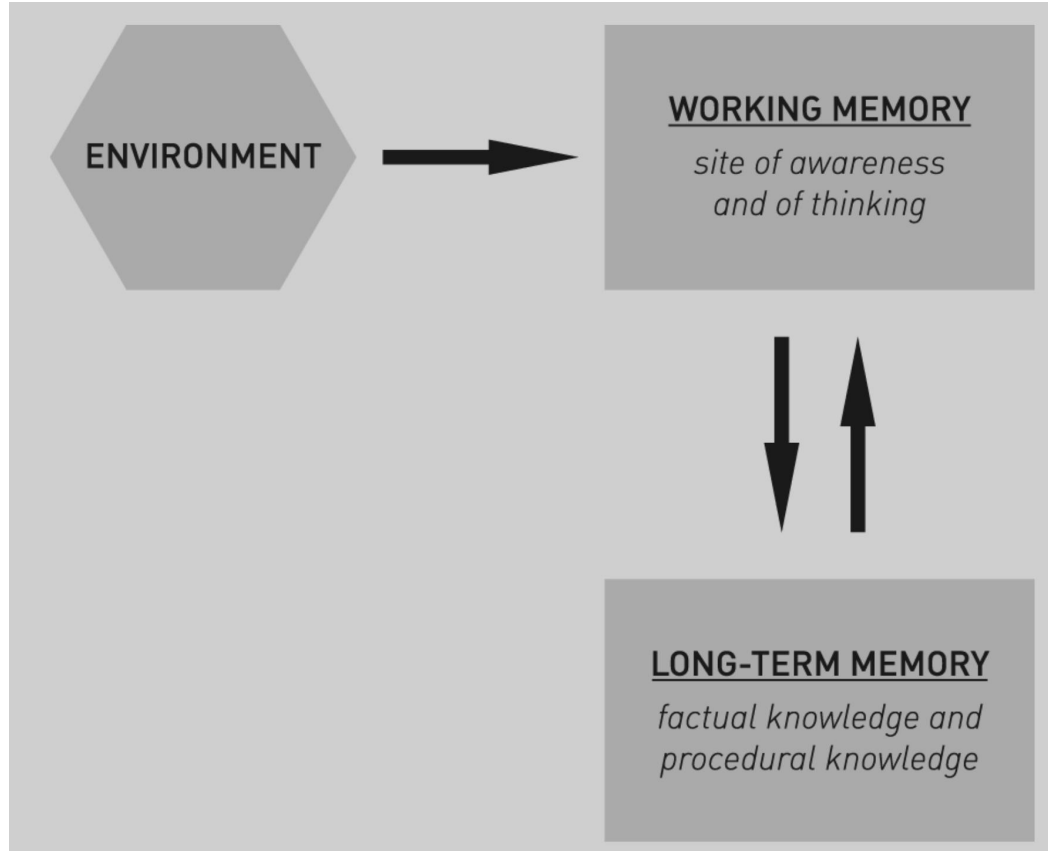
# Barbara Oakley

- ‘If a person with a lesser-capacity working memory creates and strengthens neural links in long-term memory, those links can extend their working memory on that topic.’
- ‘The more assistance working memory gets from the prior knowledge stored in long-term memory, the easier it is for students ... to learn new material.’

SNACBAAP1SSE

# Daniel Willingham:

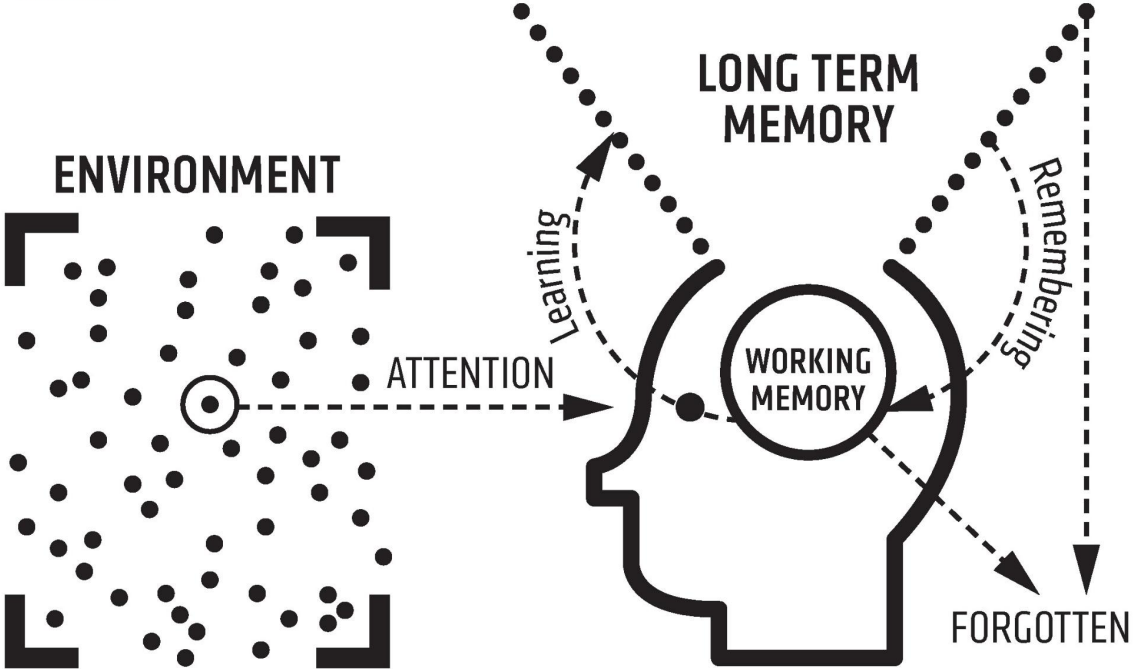
‘Just about the simplest model of the mind possible’



# Oliver Caviglioli:

## Willingham's Simple Memory Model

**OLI  
CAV** OLIVER CAVIGLIOLI  
@olicav  
olicav.com  
WILLINGHAM'S SIMPLE  
MEMORY MODEL



# For English?

- What does 'knowledge' look like in our subject? How might that be different from Science/Maths for instance?
- 'Critical thinking processes are tied to background knowledge'. DW
- What can we best do to build it in long-term memory?
- What do students need for thinking about and discussion of literary texts?
- How can we build schemas of knowledge across the years?
- Jump in complexity from Primary, vocabulary, syntax, sentence formation, academic language, ability to read by implication, classroom talk, literary genres, grammar, literary techniques, construction of long essay responses, PCLM.

SNACBAAP1SSE

**SNA CBA AP1 SSE**



bed

rest

awake

tired

dream

wake

snooze

blanket

doze

slumber

snore

nap

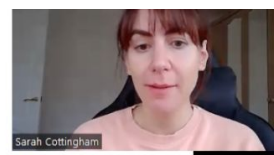
peace

yawn

drowsy







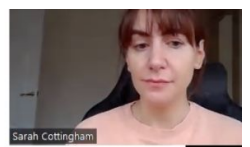
# ***Key principles of cognitive science that all English teachers should consider***

Sarah Cottingham

@overpractised  
overpractised.wordpress.com



Litdrive  
Better balance



# Principles not prescriptions

Principle 1: existing knowledge is the key to learning

Principle 2: organising knowledge supports stability and accessibility

Principle 3: retrieval uniquely strengthens memory



## **Peps Mccrea in 'Evidence Snacks'**

The more connections we forge, the deeper our understanding and the more durable our memory. The opposite of *meaningful learning* occurs when we learn things by rote and build isolated islands of knowledge.

## **David Ausubel**

In rote learning, we acquire isolated facts and rules that we can parrot back in an exam but that we cannot necessarily use.



PERSPECTIVES ON THE  
Teaching of English in  
Post-Primary Education



EDITED BY  
Kevin Cahill and Niamh Dennehy

YEAR	CONTENT	CONCEPTS
First Year	Introduction to film as genre.	Sight – types of common shots. Sound – use of music, use of sound effects.
Second/Third Years	Build on and apply knowledge through creation and analysis.	Sight – editing/montage, lighting, colour, camera movement, set design, costume. Sound – silence, sounds raised, sounds left out, music as counterpoint, music as emotional manipulator.
Transition Year	Analysis of Hollywood and world cinema. Creation for/with purpose.	Classic Hollywood styles, The Hero's Journey, casting, rejection of Hollywood norms.
Fifth/Sixth Years	Utilise all knowledge up to this point to analyse, in depth, a film from the text list. Film as art.	Sight, Sound, Casting, Story.

# Conor Murphy on film in the Irish curriculum

- ‘One way to manage the curriculum demands and ensure that the genre of film is taught in a comprehensive way is to align the study of poetry and film, to the enhancement of both.’
- (Junior Cycle) ‘It is worth noting that we should not expect the students to be experts ... this is just the end of the first phase, the ground level needed, before they go on to be able to fully appreciate and express themselves within this area.’
- (Senior Cycle) ‘If we delve fully into the text we discover that the students move more freely from text to text as they understand them on a fundamental level rather than compartmentalising study into a series of notes.’
- (Finally) ‘Over the six years ... we are building on this comparative understanding of these cross-genre connections. We are bringing the whole of the subject together. Gone are the days where we look at each text in isolation.’

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# Reflection point

Does a student in my school move coherently through the years in English, building his/her knowledge incrementally?

Is my department aligned with this purpose?

How?



# Retrieval Practice

- Kate Jones: ‘the act of recalling information from memory without (or with minimal) support.’
- Robert Bjork: ‘When information is successfully retrieved from memory, its representation in memory is changed such that it becomes more recallable in the future.’
- Robert Bjork: ‘Using our memory, shapes our memory.’

# Reflection point

What does retrieval look like in our subject, given that it is an 'ill-structured learning domain' (Sweller)?

An example of retrieval practice in any of your classes?

# Flashcards / test side

💡 Get a hint



21). 1.v. Hamlet: "The time is out of joint. O **???? ????,** / That I was ever born to set it right!"

# Flashcards / answer side

↕ Explain this



21) 1.v. Hamlet: "The time is out of joint. O **cursed spite** / That I was ever born to set it right!" His distaste at his fate, and how now he is no longer free, but 'bound' to his revenge.

# Pooja K. Agarwal's 3 flashcard tips -

- Retrieve (don't cheat!).
- Re-order (shuffle and interleave).
- Repeat (at least three times).






**Hamlet: sequence of events. Write in and highlight key events, and a small number of key quotations per scene.**

<p>1) I.i: Barnardo, Francisco/ Horatio on battlements.</p> <p>→</p>	<p>2) I.ii: Claudius with the court/ Soliloquy 1 / Hamlet and Horatio.</p>	<p>3) I.iii: Ophelia: advice from Laertes/ then Polonius.</p>	<p>4) I.iv: Hamlet sees Ghost, with Horatio etc</p> <p>→</p>	<p>5) I.v: follows on: Hamlet &amp; Ghost talk.</p>	<p>6) II.i: Polonius &amp; Reynaldo/ Ophelia 'affrighted'.</p> <p>←</p>
<p>7) II.ii: King with R&amp;G; <u>ambassadors</u> return/ Polonius to King on Hamlet's madness / Hamlet &amp; Polonius ('Fishmonger') / Hamlet with R&amp;G on the world / Players / the Pyrrhus story / Soliloquy 2.</p> <p>→</p>			<p>8) III.i: The King's conscience / Soliloquy 3 / H &amp; Ophelia - nunnery</p>	<p>9) III.ii: H and Players / The Play</p>	<p>10) III.iii. King &amp; Rosencrantz / Claudius soliloquy / Prayer scene</p> <p>←</p>
<p>11) III.iv: Hamlet and Gertrude – closet scene. Death of Polonius</p> <p>→</p>	<p>12) IV.i: King &amp; Queen; R&amp;G. Aftermath of III.iv</p>	<p>13) IV.ii: Hamlet with R&amp;G – 'sponge'.</p> <p>→</p>	<p>14) IV.iii: King &amp; Hamlet; the body.</p>	<p>15) IV.iv: Fortinbras &amp; Army; Soliloquy 4.</p>	<p>16) IV.v: Queen, &amp; Ophelia in distress / Laertes bursts in.</p> <p>←</p>
<p>17) IV.vi: Horatio reads letter from H.</p> <p>→</p>	<p>18) IV.vii: King &amp; Laertes / Ophelia's death.</p>		<p>19) V.i: Graveyard / Ophelia's funeral</p> <p>→</p>	<p>20) V.ii: Hamlet &amp; Horatio / <u>Osric</u> /duel etc and the end.</p>	

**Hamlet: sequence of events. What happens in the yellow scenes? Brief quotations to identify these?**

<p>1) I.i: Barnardo, Francisco/ Horatio on battlements.</p> <p>→</p>	<p>2) I.ii: Claudius with the court/ Soliloquy 1 / Hamlet and Horatio.</p>	<p>3) I.iii: Ophelia: advice from Laertes/ then Polonius.</p>	<p>4) I.iv: Hamlet sees Ghost, with Horatio etc</p> <p>→</p>	<p>5) I.v:</p>	<p>6) II.i: Polonius &amp; Reynaldo/ Ophelia 'affrighted'.</p> <p>←</p>
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**Hamlet: sequence of events. What are the key events in each scene? Identify them by the quotations.  = major soliloquy**

<p>'This bodes some strange eruption to our state'</p> <p>→</p>	<p>'Heaven and earth, / Must I remember?'</p> <p></p>	<p>'From this time / Be somewhat scanner of your maiden presence.'</p>	<p>'Why, what should be the fear? / I do not set my life at a pin's fee.'</p> <p>→</p>	<p>'Haste me to know't, that I with wings as swift / As meditation or the thoughts of love, / May sweep to my revenge.'</p>		<p>'I did repel his letters, and denied / His access to me.'</p> <p>↙</p>
<p>1) 'Lord Hamlet is a prince, out of thy star:/ This must not be.'                  2) 'O God, I could be bounded in a nutshell and count myself a king of infinite space, were it not that I have bad dreams.'                  3) 'The hellish Pyrrhus / Old grandsire Priam seeks.'                  4)  'Am I coward? Who calls me villain?'</p> <p>→</p>				<p>'How smart a lash that speech doth give my conscience!'</p> <p></p>	<p>'The purpose of playing, whose end... is to hold as 'twere the mirror up to nature.'</p>	<p>'O my offence is rank, it smells to heaven.'</p> <p></p> <p>↙</p>
<p>'O shame, where is thy blush?'                  'O Hamlet, thou hast cleft my heart in twain.'</p> <p>→</p>		<p>"A weeps for what is done."</p>	<p>'The King is a thing... of nothing.'</p> <p>→</p>	<p>'Do it England, for like the hecic in my blood he rages.'</p>	<p>'Examples gross as earth exhort me.'</p> <p></p>	<p>'O, this is the poison of deep grief; it springs/ All from her father's death.'</p> <p>↙</p>
<p>[Horatio reads out Hamlet's letter about the pirates]</p> <p>→</p>	<p>1) 'No place indeed should murder sanctuaries.' 2) 'As one incapable of her own distress.'</p>	<p>'What is he whose grief/ Bears such an emphasis?'</p> <p>→</p>	<p>1) 'The readiness is all.' 2) 'He is justly served./ It is a poison tempered by himself.'</p>			



# Brain Dumps (Free Recall)

- Pooja K. Agarwal (Retrieval Practice): *A small strategy that makes a big impact on student learning – based on decades of cognitive science research .... Free recall facilitates learning of past content, future content, and even students' organization of knowledge for a variety of subject areas, basic knowledge, and complex learning.*
- Sheet of A3 paper.
- Choose a scene / theme / character / poem.
- 10 minutes.
- Write down *everything* you know (ideas, connections, quotations).
- Then a general share / send back to the book, notes to add more (different colour?). Or swop with a partner and add 3 new things.

# Jamie Clark's Posters and Teaching One-Pagers book

“ Retrieval practice, like exercise, must be consistent, regular and the level of challenge should be appropriate with desirable difficulties.

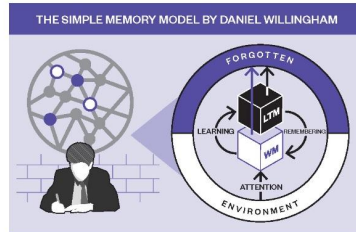


**KATE JONES**

## RETRIEVAL PRACTICE

### RECALL LEARNED INFORMATION FROM MEMORY

Retrieval practice is a learning strategy where learned information is recalled from memory. The act of retrieving information boosts learning as we are challenged to think about what we know. This process not only identifies gaps in knowledge, but strengthens our memory over time. We would like to think that once we have learned something, it stays with us forever. However, research shows that unless we retrieve it from long term memory from time to time, we tend to forget what we have learned. As a learning strategy, retrieval practice enables learners to revisit what they have learned, ensuring it is not forgotten and can be used as a foundation for further learning.



- E ENVIRONMENT AND ATTENTION**  
To learn something, students must first pay attention to it. Attention brings information from the environment, into WM.
- WM WORKING MEMORY**  
The working memory is limited. If it is overloaded, successful learning will not take place.
- LTM LONG TERM MEMORY**  
Students build networks of knowledge (schemas) in LTM as they select, organise and integrate new information.
- L&R LEARNING AND REMEMBERING**  
Students need to learn material multiple times and practise repeatedly to develop automaticity and solid mental models.

**FURTHER READING:** RETRIEVAL PRACTICE: RESOURCES AND RESEARCH FOR EVERY CLASSROOM BY KATE JONES | 10 TECHNIQUES FOR RETRIEVAL PRACTICE BLOG BY TOM SHERRINGTON

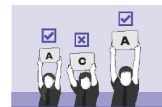
# RETRIEVAL PRACTICE

## USING YOUR MEMORY, SHAPES YOUR MEMORY



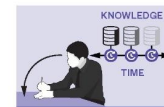
### THE KEY PRINCIPLES TOM SHERRINGTON

- 1 **INVOLVE EVERYONE**  
Engage ALL students in checking their knowledge.
- 2 **MAKE CHECKING ACCURATE AND EASY**  
Make it easy for students to check and evaluate their answers.
- 3 **SPECIFY THE KNOWLEDGE**  
Clarify the specific knowledge being tested to support preparation.
- 4 **KEEP IT GENERATIVE**  
Encourage students to rely on memory, avoiding supports.
- 5 **MAKE IT TIME AND WORKLOAD EFFICIENT**  
Keep it simple so it doesn't take too long and require marking.



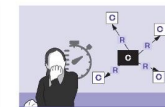
### STRATEGY 1 USE A VARIETY OF LOW-STAKES QUIZZES

Quizzes and practice tests aid students in assessing their grasp of recently learned material, highlighting strengths and areas for improvement. Relying solely on strategies like re-reading can lead to an inaccurate self-assessment of knowledge. Doing quizzes immediately after a lesson and revisiting the content regularly throughout the year enhances learning. Try simple paper quizzes or whole class 'show me' quizzes (using mini-whiteboards). Try tech tools (such as Quizizz) to get more nuanced data on all students.



### STRATEGY 2 INTERROGATE WITH 'HOW' AND 'WHY' QUESTIONS

Elaborative interrogation centers on improving memory retention by prompting students to generate 'how' and 'why' questions following learning. After formulating these questions, students explore potential answers that bring to light cause-and-effect relationships. For example, when studying the physics of flight, students might ask: 'How does the upward force (lift) work?' and 'Why does a plane need an engine?'. This engages students in the learning process, fostering a deeper understanding of the content.



### STRATEGY 4 MAKE LINKS WITH GRAPHIC ORGANISERS

Concept mapping involves visually representing the relationships between concepts. Typically, a concept map includes two or more concepts ('C' above), a relationship descriptor ('R' above), and connecting directional arrows. By reading the map, learners form concise sentences. Concept maps help students assess their knowledge, identify gaps, and comprehend important relationships. Develop routines by modelling the mapping process. Over time, students should create maps in a quick, brain dump style before checking their answers against a reliable resource.

# Oliver Caviglioli

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## THE MODERN EUROPE PROJECT

Jenny is head of the Humanities faculty.

Fatima is the head of the History

department. Tom, Joe and Sue work for

Fatima. Harry is the head of the Geography

department. Jo, Chaz and Tarnia report to

Harry. Sue, Jo, Chaz and Harry are working

together on the joint Modern Europe Project.

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Who is the highest ranking person on the Modern Europe Project?

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Which department has the most people on the Modern Europe project?

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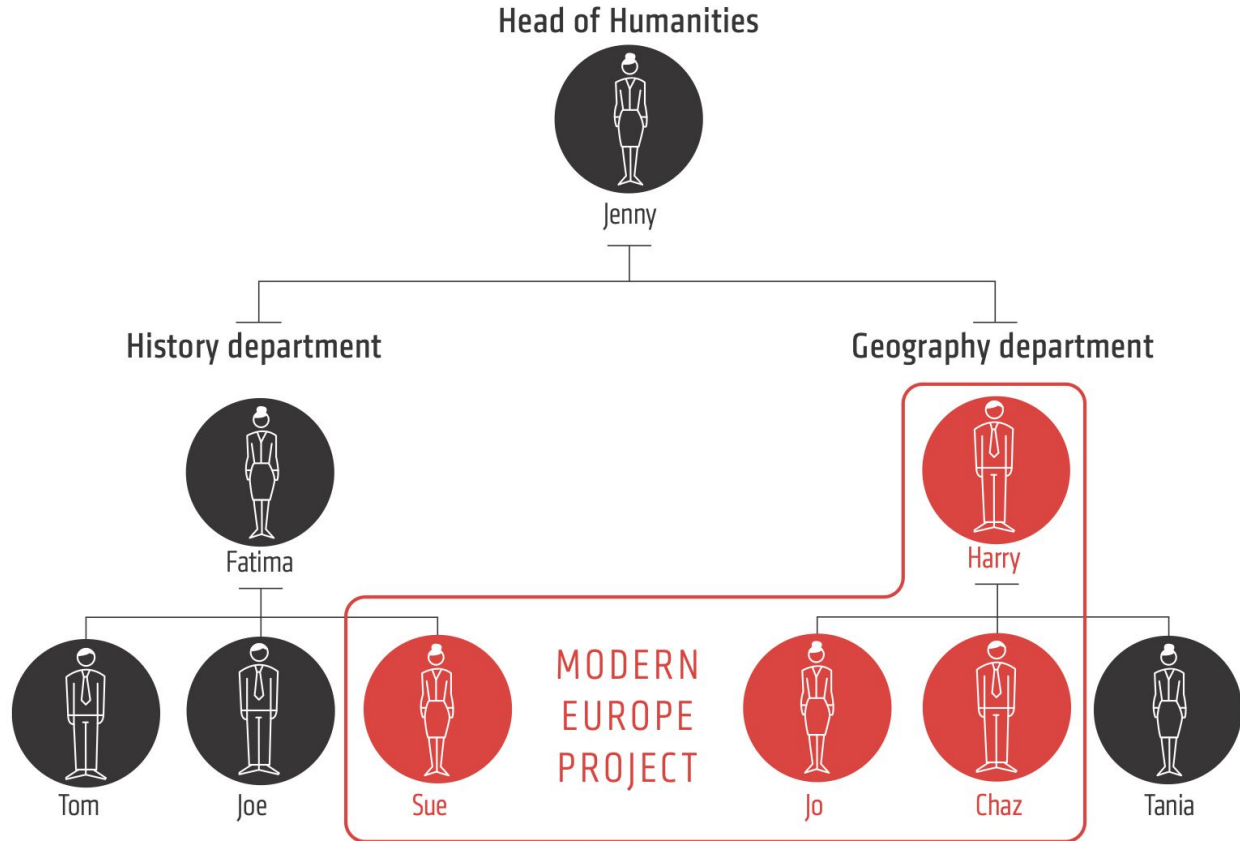
Which people are not involved with the Modern Europe project?

# Oliver Caviglioli

Who is the highest ranking person on the Modern Europe Project?

Which department has the most people on the Modern Europe project?

Which people are not involved with the Modern Europe project?



# Cognitive Load Theory

- Professor Dylan Wiliam: ‘I’ve come to the conclusion that Sweller’s Cognitive Load Theory is the single most important thing for teachers to know.’
- Oliver Lovell: ‘Working memory is the bottleneck of our thinking.’
- Greg Ashman: ‘Cognitive load theory assumes that all new biologically secondary knowledge must pass through working memory before entering long-term memory. This means it is subject to the constraints of working memory. If we overload working memory, then little will be learnt.’

# Cognitive Load: for English

- The complexity of the writing process.
- The complexity of the reading process.
- The curse of knowledge. e.g., a Shakespeare text.
- Balance between front-loading information and letting it emerge?
- How much historical/cultural background information is helpful?  
Does it overburden or alleviate?

**Hamlet: sequence of events. Write in and highlight key events, and a small number of key quotations per scene.**

<p>1) I.i: Barnardo, Francisco/ Horatio on battlements.</p> <p>→</p>	<p>2) I.ii: Claudius with the court/ Soliloquy 1 / Hamlet and Horatio.</p>	<p>3) I.iii: Ophelia: advice from Laertes/ then Polonius.</p>	<p>4) I.iv: Hamlet sees Ghost, with Horatio etc</p> <p>→</p>	<p>5) I.v: follows on: Hamlet &amp; Ghost talk.</p>	<p>6) II.i: Polonius &amp; Reynaldo/ Ophelia 'affrighted'.</p> <p>←</p>
<p>7) II.ii: King with R&amp;G; <u>ambassadors</u> return/ Polonius to King on Hamlet's madness / Hamlet &amp; Polonius ('Fishmonger') / Hamlet with R&amp;G on the world / Players / the Pyrrhus story / Soliloquy 2.</p> <p>→</p>			<p>8) III.i: The King's conscience / Soliloquy 3 / H &amp; Ophelia - nunnery</p>	<p>9) III.ii: H and Players / The Play</p>	<p>10) III.iii. King &amp; Rosencrantz / Claudius soliloquy / Prayer scene</p> <p>←</p>
<p>11) III.iv: Hamlet and Gertrude – closet scene. Death of Polonius</p> <p>→</p>	<p>12) IV.i: King &amp; Queen; R&amp;G. Aftermath of III.iv</p>	<p>13) IV.ii: Hamlet with R&amp;G – 'sponge'.</p> <p>→</p>	<p>14) IV.iii: King &amp; Hamlet; the body.</p>	<p>15) IV.iv: Fortinbras &amp; Army; Soliloquy 4.</p>	<p>16) IV.v: Queen, &amp; Ophelia in distress / Laertes bursts in.</p> <p>←</p>
<p>17) IV.vi: Horatio reads letter from H.</p> <p>→</p>	<p>18) IV.vii: King &amp; Laertes / Ophelia's death.</p>		<p>19) V.i: Graveyard / Ophelia's funeral</p> <p>→</p>	<p>20) V.ii: Hamlet &amp; Horatio / <u>Osric</u> /duel etc and the end.</p>	

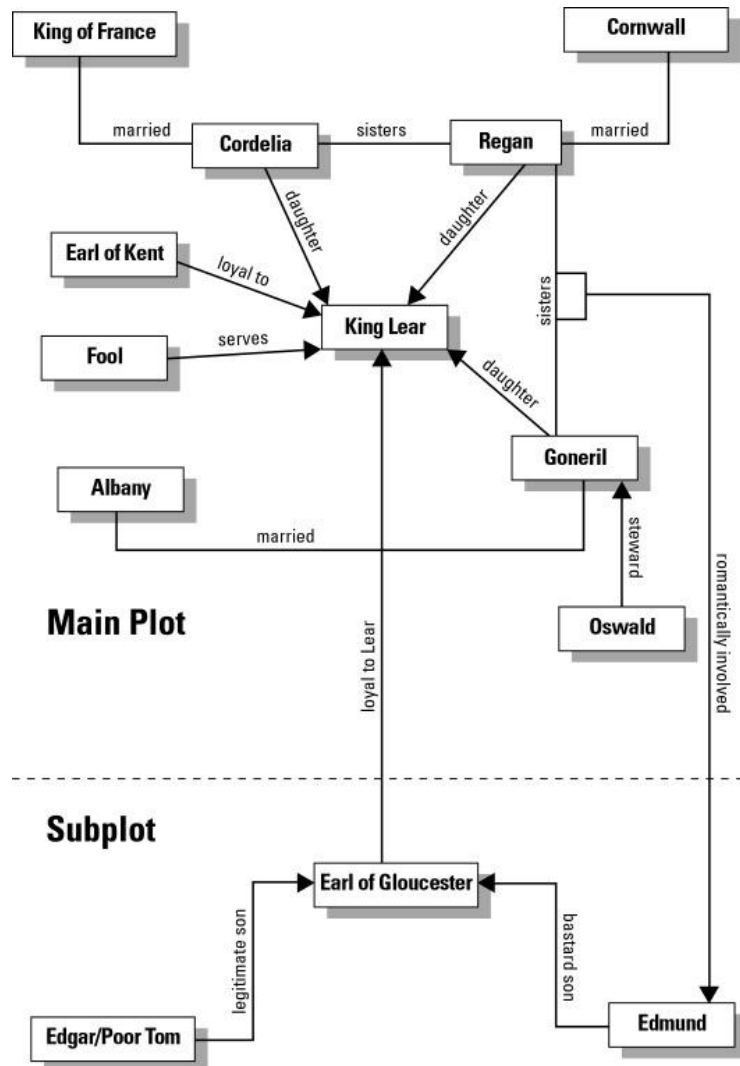


Image from cliffnotes.com



## Antarctica

'I am just going outside and may be some time.'  
The others nod, pretending not to know.  
At the heart of the ridiculous, the sublime.

He leaves them reading and begins to climb,  
goading his ghost into the howling snow;  
He is just going outside and may be some time.

The tent recedes beneath its crust of rime  
And frostbite is replaced by vertigo:  
At the heart of the ridiculous, the sublime.

Need we consider it some sort of crime,  
This numb self-sacrifice of the weakest? No,  
He is just going outside and may be some time –

In fact, for ever. Solitary enzyme,  
Though the night yield no glimmer there will glow,  
At the heart of the ridiculous, the sublime.

He takes leave of the earthly pantomime  
Quietly, knowing it is time to go:  
'I am just going outside and may be some time.'  
At the heart of the ridiculous, the sublime.

- Abrupt unexplained start - the voice?
- Historical background: Scott's expedition.
- Captain Laurence Oates.
- Proverb: 'From the sublime to the ridiculous'.
- Changes of perspective.
- Vocabulary: 'sublime', 'goading', 'rime', 'vertigo'.
- 'Some sort of crime' (10) - why?
- Why the 'earthly pantomime'? (16)
- Repetitions: the pattern of the villanelle. Why?
- Connections with other Mahon poems (H)?

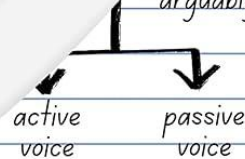
**LITERARY GENRE (2023). There are some notes here already.**

	PERSPECTIVES	NARRATIVE TECHNIQUES/TENSION	ACTIONS REVEALING CHARACTER	A KEY MOMENT WHICH OPENS UP THE TEXT
<i>Philadelphia, Here I Come!</i>	Primarily the point of view of Gar through his private self; we rarely see directly inside the heads of SB, Madge or other characters (any exceptions?)			
<i>Never Let Me Go</i>			Kathy looking after Ruth towards the end of her life, despite Ruth's selfishness and difficult nature: Kathy's fundamental decency.	
<i>Purple Hibiscus</i>		Starting from the crucial moment and then looping back to the lead-up to that.		

# ESSENTIAL GRAMMAR

The Resource Book  
Every English  
Teacher Will Need

ment n.  
gue v.  
arguable adj.  
arguably adv.



**JENNIFER WEBB AND  
MARCELLO GIOVANELLI**



# Modelling writing (Webb & Giovannelli)

- ‘Writing is immensely complex because much of the process of writing is invisible or private ... the modelling process enables students to see the synthesis of knowledge at the moment of composition.’
- Live modelling can make explicit the endless choices of language.
- Use a visualiser [board, tablet etc], and provide a live commentary.
- [me: Use the iOS app Notability (and for annotation).]
- Set your intention / use variation / embrace imperfection / annotation / metacognitive reflection.

AFTER THE TITANIC

Annotation via Notability

self-centred  
justifying

ENJAMBEMENT  
(run-on  
lines)

They said I got away in the boat  
 And humbled me at the inquiry. I tell you  
 I sank as far that night as any hero  
 Hero As I sat shivering on the dark water  
 I turned to ice to hear my costly  
 Life go thundering down in a pandemonium of  
 Prams, pianos, sideboards, winches,  
 Boilers bursting and shredded ragtime, Now I hide  
 In a lonely house behind the sea  
 Where the tide leaves broken toys and hat boxes  
 Silently at my door. The showers of  
 April, flowers of May mean nothing to me, nor the  
 Late lights of June, when my gardener  
 Describes to strangers how the old man stays in bed  
 On seaward mornings after nights of  
 Wind, takes his cocaine and will see no one. Then it is  
 I drown again with all those dim  
 Lost faces I never understood. My poor soul  
 Screams out in the starlight, heart  
 Breaks loose and rolls down like a stone.  
 Include me in your lamentations.

reliving  
obsession

self-pity

HYPERBOLE



## Hopkins intro

'Gerard Manley Hopkins is the most distinctive poet I have read. His poetry is extraordinarily unorthodox and always unmistakable. These qualities are not due to what he writes about, but how ~~how~~ he writes: his spectacular style is built around sound systems, and his poems demand to be read aloud. In particular, his intense use of alliteration and other effects such as assonance, unusual syntax and surprising vocabulary combine in a truly memorable way. He writes as he does for a purpose: he has a very deep and absolute <sup>faith</sup> in God, and his greatest creation, nature. The only way he can celebrate this relationship is by pushing language to an extreme: mere ordinary expression is not enough.'



# Sentence models for creative writing

A practical resource  
for teaching writing

Christopher Youles

## CHARACTER – NARRATOR'S VOICE

What she did next, however, changed everything.

## CHARACTER + EXPOSITION (NARRATOR'S VOICE)

Emily believed that she was always the smartest person in the room.

Emily prized her new car more than anything in her life.

Emily thought that they were mean.

## SEEING ANOTHER CHARACTER INTO EXPOSITION

Her face was friendly and familiar, and there was something about that expression on her face that reminded me of my mother.

## CHARACTER + CHANGE OF HEART

At first, Ben found the man strange, but the longer he spent in his company, the more he grew to like him.

## CHARACTER – INSIDE/OUTSIDE

Beneath the fearful expression on her face, there was a spark of hope.

Inside she was shaking, but she moved forward with a resolute look on her face.

## CHARACTER – DESIRE/GOAL

He was rich beyond his wildest dreams, yet he wanted more.

## CHARACTER – SHOW WHAT THEY ARE LACKING

He was rich beyond his wildest dreams, yet he felt like the loneliest man in the world.

The boys were hoping to get their ball back.

## CHARACTER – FLAWS (WHAT AREN'T THEY?)

I was not the bravest person in school. I was not the smartest person. But I was determined to prove them wrong.

## SETTING + INTO CHARACTER

The castle was home to Professor Peregrine.

# DUAL CODING WITH TEACHERS



CHAPTERS

## WHY?

The theories and evidence behind the benefits

## WHAT?

Discover 12 different formats and how they work

## HOW?

Develop your skills with step-by-step WalkThrus

## WHICH?

Take-aways and principles of effective visuals

## WHO?

Double-page spreads on dual coding practice today

## WHEN?

Identify the best moment dual coding aids learning

## WHERE?

References and resources to continue your learning

A JOHN CATT PUBLICATION

OLIVER CAVIGLIOLI

with

Teachers

Andrew Steed: Primary  
Ben Newmark: History  
Blake Harvard: Psychology  
Charlotte Richards: Combined Science  
Dawn Cox: Religious Education  
Gay Lamb: Maths  
Gwen Nelson: English, FE  
Helen Jennings: Primary  
Karen Parham: Philosophy, FE  
Mark Enser: Geography  
Mike Tyler: Sport, FE  
Noel Hitchcock: Science  
Pritesh Raichura: Science  
Rebecca Foster: English  
Ruth Robber: Physics  
Sunny Pamby: Religious Education

Teacher Developers

Andy Burck: Leadership  
Christine Counsell: Curriculum Design  
Dan Williams: Initial Teacher Training  
David Weston: In-service development  
Emma McCrea: Trainer, Maths  
Eva Hurtel: STEM subjects  
Fergal Roche: Strategy  
Harry Fitches Wood: Initial Teacher Training  
Jules Daubly: SEND  
Ruth Swales: Consultant Early Years  
Ticia Taylor: Metacognition, Primary

Psychologists

Carolina Kuepper-Iretzel: G: Organisers  
Elrot Fursk: Abstract concepts  
Megan Smerack: Scaffolded G: Oeps  
Paul Kirschner: Dual Coding Theory  
Yana Weinstein-Jones: Live sketching

Informative Developers

Francis Miller: Book structure  
Michael Babwahorogh: Design Process  
Peter Stoyko: Dialogue WalkThru  
Sheila Pontis: Design Process  
Trevor Flynn: Drawing

# PERSPECTIVES ON THE Teaching of English in Post-Primary Education



EDITED BY

Kevin Cahill and Niamh Dennehy



# Dual Coding

Clare Madden: *‘Visual Literacy in the English Classroom: what can we learn from cognitive psychology?’*

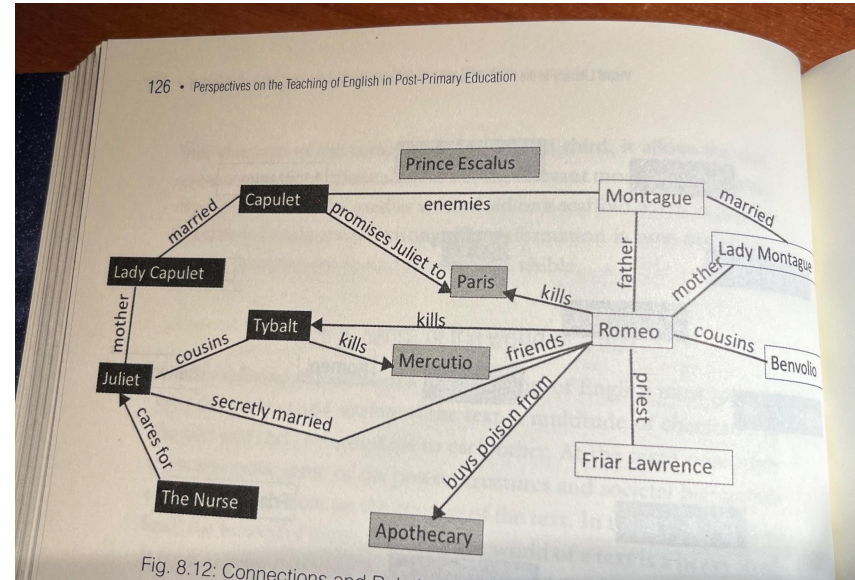
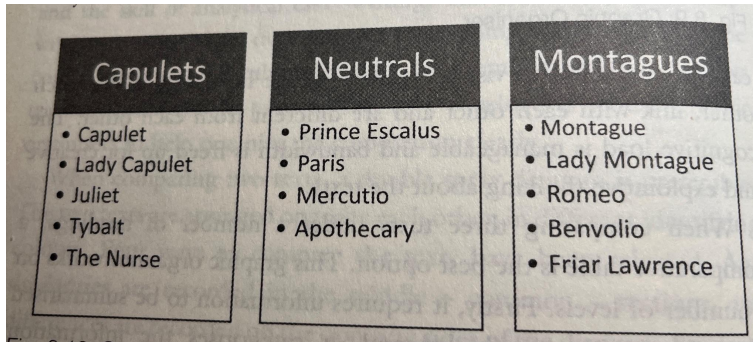
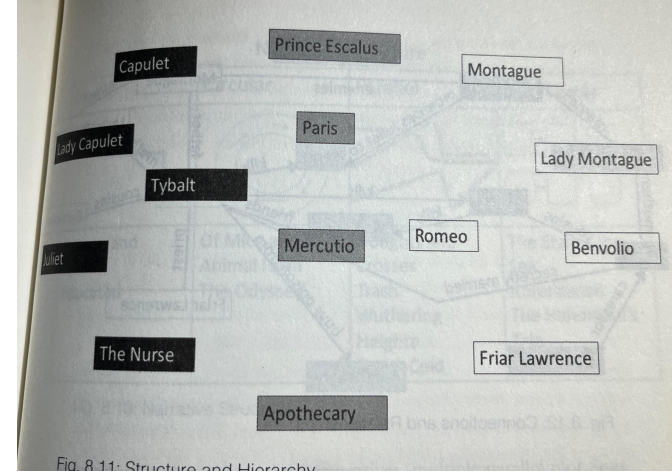
1. ‘The working memory has two separate “channels” through which it gets information - one for dealing with visual information, and one for dealing for auditory information.’
2. ‘Dual coding is one effective way to reduce the cognitive load on students during the learning process.’
3. ‘Using visual strategies helps students to manage, process and organise the intricate and difficult tasks we set them as English students.’

# Dual Coding - for English?

- *Caveat: beware the 'lethal mutation' of distracting/purposeless visual elements.*
- Visually exploring the morphology of a word. 'Promoting familiarity with word morphemes' ['patriarchy'].
- Comparing texts using a graphic organiser.
- Making sense of *Romeo and Juliet*: 'The creation of a text map ... allows students to begin to see the bigger picture of the text and gain insight into the characters.'

# Dual Coding - for English 2

## Clare Madden - *Romeo and Juliet*



# www.learningscientists.org

## Six Strategies for Effective Learning Videos

### Strategy Videos for the Classroom

The videos below were designed to be used by teachers in the classroom to teach students about how to use the strategies. The below set of videos moves at a lecture pace.

#### Retrieval Practice

The screenshot shows a YouTube video player interface. At the top, the video title is "Retrieval Practice: A video for Students" with a "Copy link" button. The video content displays the text: "We come up with rules of thumb to help you study *well* and *without spending too much time*". Below the text is a diagram of a brain with a lightbulb inside, connected to a cloud by several colored arrows (red, blue, green, yellow). A "More videos" overlay is visible at the bottom, showing three video thumbnails: "RETRIEVAL PRACTICE", "Interleaving", and "Mind Mapping". The video player controls at the bottom show a play button, a volume icon, a progress bar at 0:19 / 3:21, and the YouTube logo.

#### Interleaving

The screenshot shows a YouTube video player interface. At the top, the video title is "Interleaving: A Video for Students" with a "Copy link" button. The video content displays the title "Interleaving" and a diagram illustrating interleaved study sessions. The diagram shows three columns: "TOPICS A B C" for "STUDY SESSION 1", "TOPICS C B A" for "STUDY SESSION 2", and "TOPICS A C B" for "STUDY SESSION 3". Each session includes an icon of a student with books. Below the sessions are three lightbulb icons labeled B, C, and A. A large red play button is overlaid on the diagram. The video player controls at the bottom show "Watch on YouTube" and the YouTube logo.



# Spaced practice

- The Ebbinghaus forgetting curve.
- ‘Instead of reading and re-reading right before the exam, spaced practice builds in opportunities to look over the material and practise it for weeks before the exam.’
- ‘Its effectiveness depends on the delay between the study sessions and the final test or exam.’
- ‘If we forget a little before we restudy information, this allows us to boost that storage strength when we re-encounter that information.’

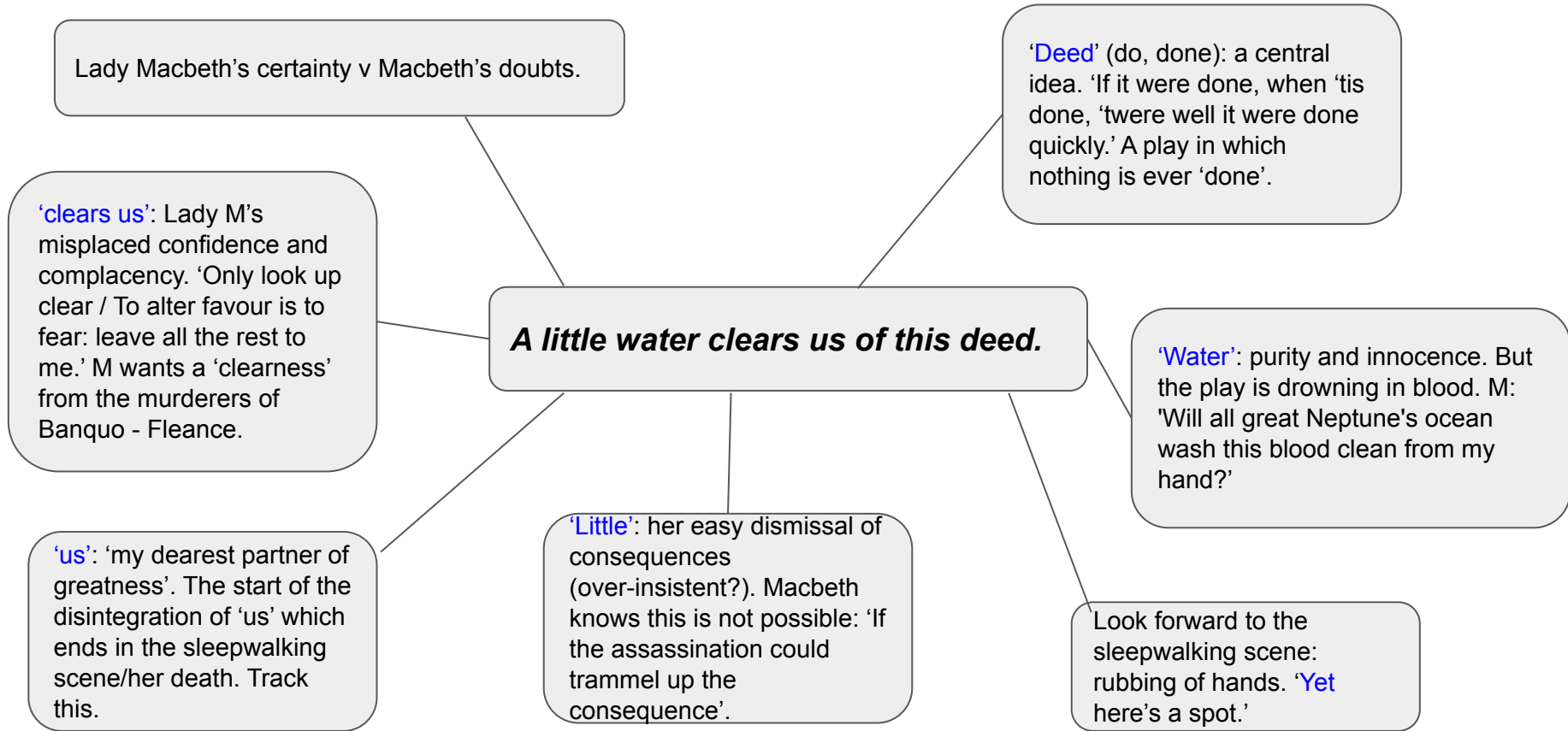


old

1	2	3	4	5	6

new

1	2	3	4	5	6





# Reflection point

In class, how often and when do I return to material studied in the past and check on my students' understanding?

What are the most effective ways to do that in English?

# Brian Klass: 'The Garden of Forking Paths', 3.1.24

*If the history of humanity were condensed into a single 24-hour day, this is roughly what it would look like:*

- The Hunter-Gatherer Age—23 hours and 3 minutes.
- The Agrarian Age—55 minutes and 32 seconds.
- The Industrial Age—1 minute and 17 seconds.
- The Information Age—11 seconds.

*More than half of the world's population is under the age of 30, meaning that more than half of us have only lived in those 11 seconds.*



# READER, COME HOME



The Reading Brain in  
a Digital World

**MARYANNE WOLF**

*Author of Proust and the Squid*

# Reading and Attention: Maryanne Wolf

UCLA Professor-in-Residence of Education, Director of the UCLA Center for Dyslexia, Diverse Learners, and Social Justice

- Human beings were never born to read. No other animal species has learned to read.
- Because reading is only about 6,000 years old, and is not naturally learned, the implication is clear: our brains can be, as it were, re-re-wired. ‘Neuroplasticity.’
- ‘It is more difficult still with children, whose attention is continuously distracted and flooded by stimuli that will never be consolidated in their reservoirs of knowledge.’
- ‘What few people ever appreciate is how central attention is for every function that we perform and that multiple forms of attention go into action before our eyes even see the word.’

# Maryanne Wolf 2/2

- ‘As a society, we are continuously distracted by our environment, and our very wiring as hominids aids and abets this. We do not see or hear with the same quality of attention, because we see and hear too much, become habituated, and then seek still more.’
- ‘Anyone who still believes the archaic canard that we use only a tiny portion of our brains hasn’t yet become aware of what we do when we read.’
- ‘We are splitting our attention too much for our working memory to function optimally; and ... we assume that in a digital world, we do not need to remember in the ways we remembered in the past.’
- ‘Switching between sources of attention for the child’s brain makes the perfect biological-cultural storm for adults look like a gentle downpour.’

# Reading and cognitive patience

- We are swimming against a strong current, but we can't give up.
- Making 'space' in our classrooms, in our schools. We need to make an extra effort now.
- Book clubs, displays.
- All the challenges: phones, disadvantage, resources, lack of school libraries.
- But the Irish public library service is magnificent.
- Making explicit the importance of reading.
- Kenny Pieper: *Reading for Pleasure*. Donalyn Miller: *The Book Whisperer*.
- Making time for reading in class.
- Adult (teacher, parent) example.
- Harnessing peer enthusiasm (Book-Tok).

Jonas Salk:

**Our greatest responsibility is to be good ancestors.**

# Examples of neuromyths

## ‘Fatal mutations from kernels of truth’

- Humans use only 10% of their brains.
- You are ‘left-brained’ (analytical) or ‘right-brained’ (creative).
- Dyslexia can be helped by using coloured overlays.
- 21st century skills.
- And the most persistent one...
  - We all have a ‘learning style’ (Visual, Auditory, Kinaesthetic - VAK).
  - Learners are different; they have personal preferences, varying abilities and background knowledge, *but...*
  - there is no evidence that matching the mode of instruction to the ‘LS’ has any benefit for learning.





Ethan Mollick  
@emollick

Depressingly, a debunked theory is believed by the vast majority of teachers. The belief in Learning Styles (that some people are auditory learners, visual learners, etc) is not only wrong, it can hurt. But the research shows that when teachers learn why, they change. So, a 📖/

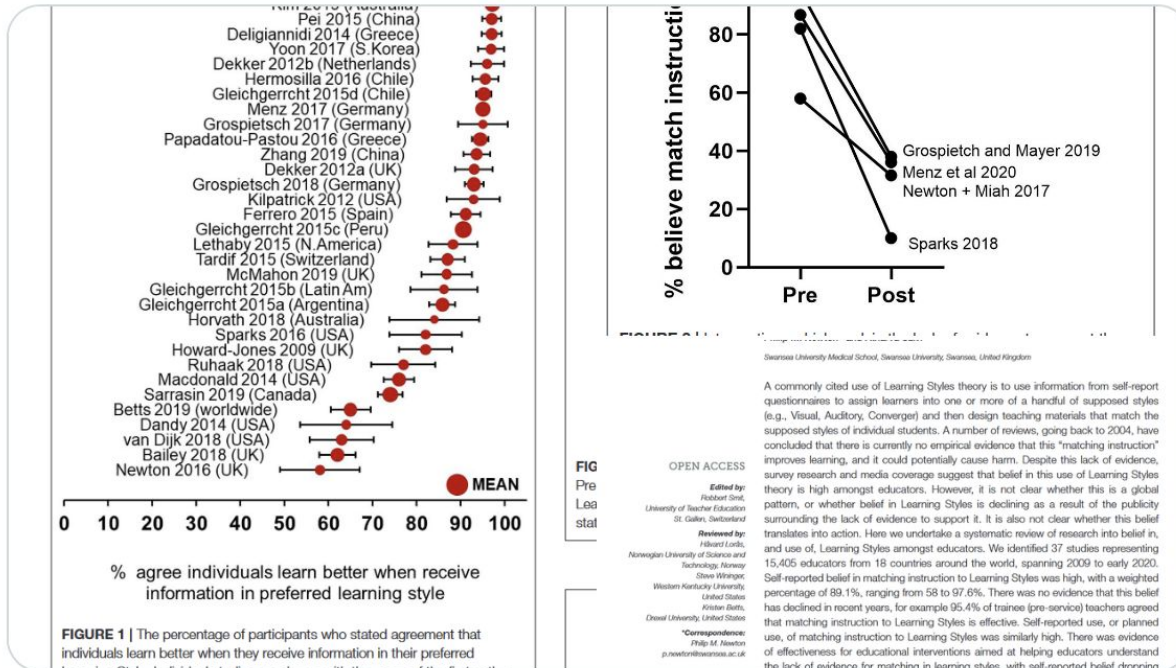


FIGURE 1 | The percentage of participants who stated agreement that individuals learn better when they receive information in their preferred

FIG  
Pre  
Lea  
stat

OPEN ACCESS

Edited by  
Filbert Sind,  
University of Teacher Education  
St. Gallen, Switzerland  
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Technology, Norway  
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Swinssea University Medical School, Swinssea University, Swinssea, United Kingdom

A commonly cited use of Learning Styles theory is to use information from self-report questionnaires to assign learners into one or more of a handful of supposed styles (e.g., Visual, Auditory, Converger) and then design teaching materials that match the supposed styles of individual students. A number of reviews, going back to 2004, have concluded that there is currently no empirical evidence that this "matching instruction" improves learning, and it could potentially cause harm. Despite this lack of evidence, survey research and media coverage suggest that belief in this use of Learning Styles theory is high amongst educators. However, it is not clear whether this is a global pattern, or whether belief in Learning Styles is declining as a result of the publicity surrounding the lack of evidence to support it. It is also not clear whether this belief translates into action. Here we undertake a systematic review of research into belief in, and use of, Learning Styles amongst educators. We identified 37 studies representing 15,405 educators from 18 countries around the world, spanning 2009 to early 2020. Self-reported belief in matching instruction to Learning Styles was high, with a weighted percentage of 89.1%, ranging from 58 to 97.6%. There was no evidence that this belief has declined in recent years, for example 95.4% of trainee (pre-service) teachers agreed that matching instruction to Learning Styles is effective. Self-reported use, or planned use, of matching instruction to Learning Styles was similarly high. There was evidence of effectiveness for educational interventions aimed at helping educators understand the lack of evidence for matching in learning styles, with self-reported belief decreasing



**Daisy Christodoulou** @daisychristo · 5h



Am I missing something?

Here is a GPT idea generator.

It's asked to generate ideas for how to use AI in education.

Its first suggestion is an AI assistant that adapts to learning styles.

Surely this is a great example of the flaws of AI idea generation??



**Ethan Mollick** @emollick · Jan 12

Here's a GPT I made that has the AI generate ideas

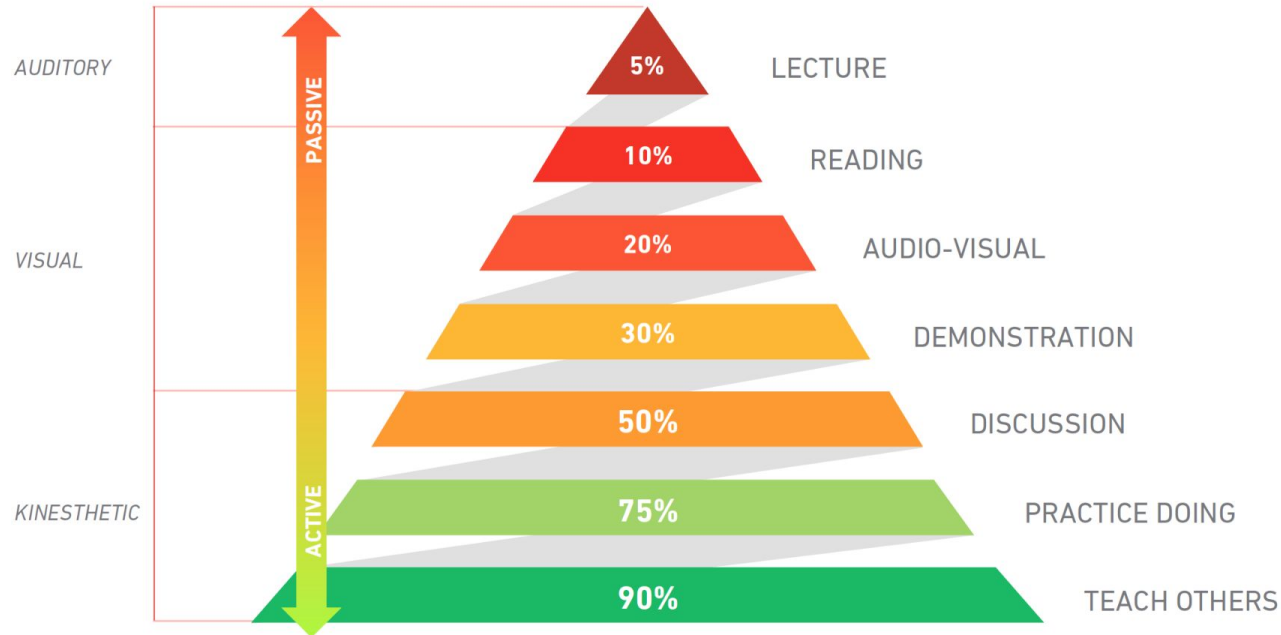
It takes a problem space & then walks GPT-4 through multiple types of divergent & convergent ideation approaches

...

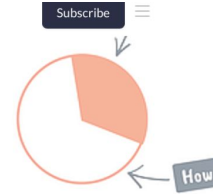
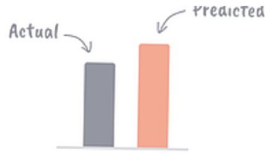
[Show more](#)

# The 'Institute of Applied Behavioral Science Learning Pyramid'

## HOW LEARNING WORKS TODAY



Adapted from the NTL Institute of Applied Behavioral Science Learning Pyramid



## Evidence Snacks

A weekly 5-min email for research hungry teachers

Written By  
Peps Mccrea

Connect  
X in

Search posts...

A line graph showing a bell-shaped curve. The y-axis is labeled 'Performance' and the x-axis is labeled 'Perceived stakes'. A dashed line follows the curve, and a solid line is below it. A small note at the bottom reads: 'Note: There are several factors which influence the shape of the general curve.'

### Stakes sweet spot

Perceived consequences & motivation

Peps Mccrea  
19 days ago

A diagram showing a target with three arrows. One arrow is labeled 'Incentives' and points to the center. Another is labeled 'Expected' and points to the outer ring. A third is labeled 'Proportional' and points to the center. A small 'V<sub>0</sub>' is written at the end of the 'Incentives' arrow.

### Targeted praise

Getting extrinsic motivation right

Peps Mccrea  
a month ago

A stylized sun icon with rays, positioned above a horizontal bar with a gradient from orange to grey.

### Effective incentives

How to maximise extrinsic motivation

Peps Mccrea  
a month ago

# firth.substack.com

## Memory and Metacognition Updates

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### Getting Ideas to Stick

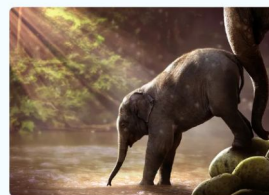
Jonathan Firth's Memory & Metacognition...  
DEC 4, 2023



### Onwards, To The Holidays

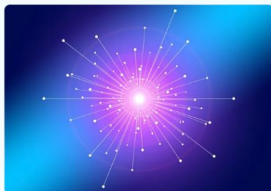
Jonathan Firth's Memory & Metacognition Updates #61

DEC 11, 2023



### Evidence-Based Techniques and Understanding

Jonathan Firth's Memory & Metacognition...  
NOV 20, 2023



### How a Starter Can Activate a Schema

Jonathan Firth's Memory & Metacognition...  
NOV 27, 2023



### Memory, Memorisation and Education

Jonathan Firth's Memory & Metacognition...  
NOV 13, 2023



# Go Forth and Multiply



EDITED BY KATE JONES  
SERIES EDITOR TOM BENNETT

THE research & **ED** GUIDE TO  
**COGNITIVE  
SCIENCE**

AN EVIDENCE-INFORMED  
GUIDE FOR TEACHERS

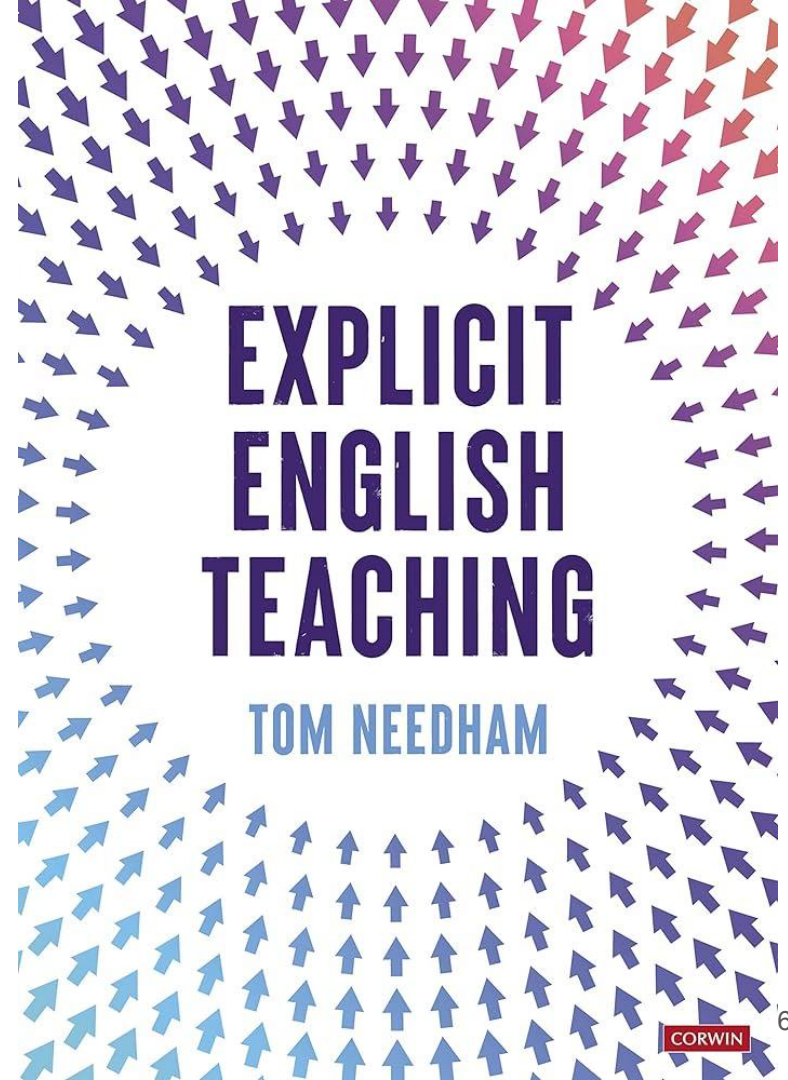
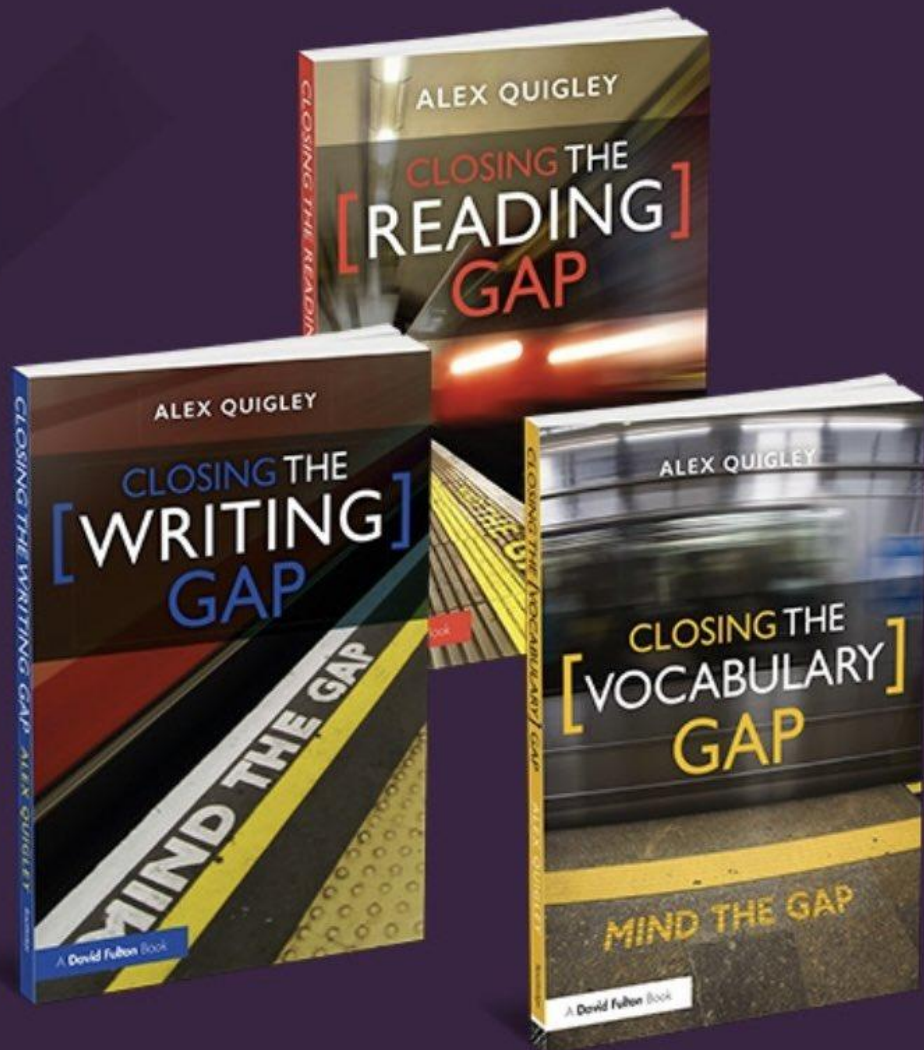


the research & **ED** series

WHAT TEACHERS NEED  
TO KNOW ABOUT  
**MEMORY**

JONATHAN FIRTH AND NASIMA RIAZAT

CORWIN





Tom Sherrington

# ROENSHINE'S PRINCIPLES IN ACTION



## Principles of Instruction

Research-Based Strategies That All Teachers Should Know

BY BARAK ROENSHINE

**T**his article presents 10 research-based principles of instruction, along with suggestions for classroom practice. These principles come from three sources: (a) research in cognitive science, (b) research on master teachers, and (c) research on cognitive supports. Each is briefly explained below.

**A. Research in cognitive science:** This research focuses on how our brains acquire and use information. This cognitive research also provides suggestions on how we might overcome the limitations of our working memory (i.e., the mental “space” in which thinking occurs) when learning new material.

**B. Research on the classroom practices of master teachers:** Master teachers are those teachers whose classrooms made the highest gains on achievement tests. In a series of studies, a wide range of teachers were observed as they taught, and the investigators coded how they presented new material, how and whether they checked for student understanding, the types of support they provided to their students, and a number of other instructional activities. By also gathering student achievement data, researchers were able to identify the ways in which the more and less effective teachers differed.

**C. Research on cognitive supports to help students learn complex tasks:** Effective instructional procedures—such as thinking aloud, providing students with scaffolds, and providing students with models—come from this research.

*Barak Roenshine is an emeritus professor of educational psychology in the College of Education at the University of Illinois at Urbana-Champaign. A distinguished researcher, he has spent much of the past four decades identifying the hallmarks of effective teaching. He began his career as a high school history teacher in the Chicago public schools. This article is adapted with permission from Principles of Instruction by Barak Roenshine. Published in the International Journal of Education in 2010, the*

Even though these are three very different bodies of research there is *no conflict at all* between the instructional suggestions that come from each of these three sources. In other words, the three sources supplement and complement each other. The idea that the instructional ideas from three different sources supplement and complement each other gives us faith in the validity of these findings.

Education involves helping a novice develop strong, readily accessible background knowledge. It's important that background knowledge be readily accessible, and this occurs when knowledge is well rehearsed and tied to other knowledge. The most effective teachers ensured that their students efficiently acquired, rehearsed, and connected background knowledge by providing a good deal of instructional support. They provided this support by teaching new material in manageable amounts, modeling, guiding student practice, helping students when they made errors, and providing for sufficient practice and review. Many of these teachers also went on to experiential, hands-on activities, but they always did the experiential activities *after*, not before, the basic material was learned.

The following is a list of some of the instructional principles that have come from these three sources. These ideas will be described and discussed in this article:

- Begin a lesson with a short review of previous learning.<sup>1</sup>
- Present new material in small steps with student practice after each step.<sup>2</sup>
- Ask a large number of questions and check the responses of all students.<sup>3</sup>
- Provide models.<sup>4</sup>
- Guide student practice.<sup>5</sup>
- Check for student understanding.<sup>6</sup>
- Obtain a high success rate.<sup>7</sup>
- Provide scaffolds for difficult tasks.<sup>8</sup>

- Engage students in weekly and monthly review.<sup>9</sup>

# Building subject knowledge in English.

- Reading. The iceberg principle.
- English-teacher organisations - INOTE, LitDrive, Teachers Talk Radio English.
- CPD from Education Centres.
- Our departmental colleagues: sharing of knowledge, resources and ideas.
- English Meets (Dublin, Bandon...).

**Thank you!**

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