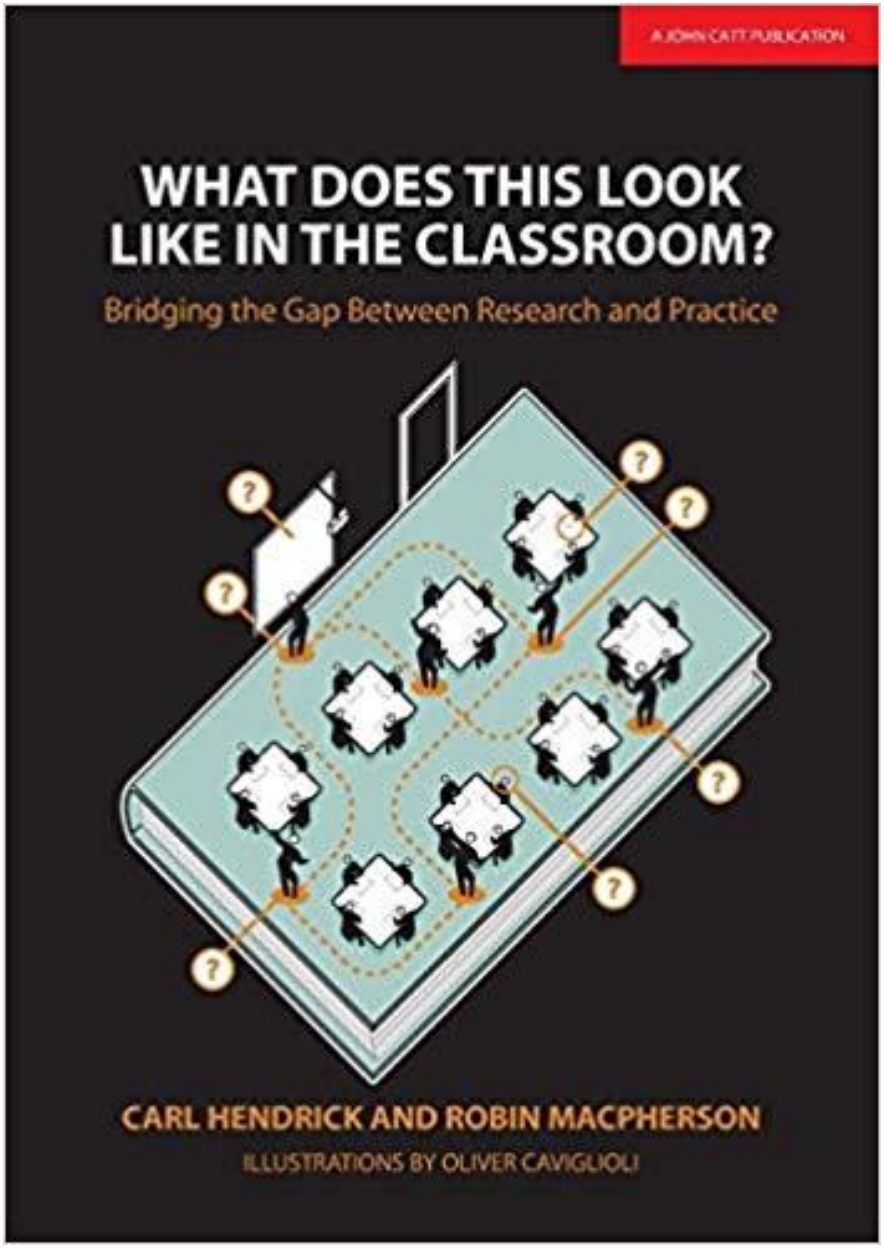


Journal Club no. 5

Spring Term 2019

M3, 4.15-5.15

Presentation (by Paula Lobo)

1. Memory and Recall (chpt 6)

- Cognitive load theory
  - The 'daily review'
  - Modelling
  - Chunking
  - Dual-coding
  - Split-attention
  - Avoiding unrelated information/decoration
  - **Spaced practice**
  - **Retrieval practice**

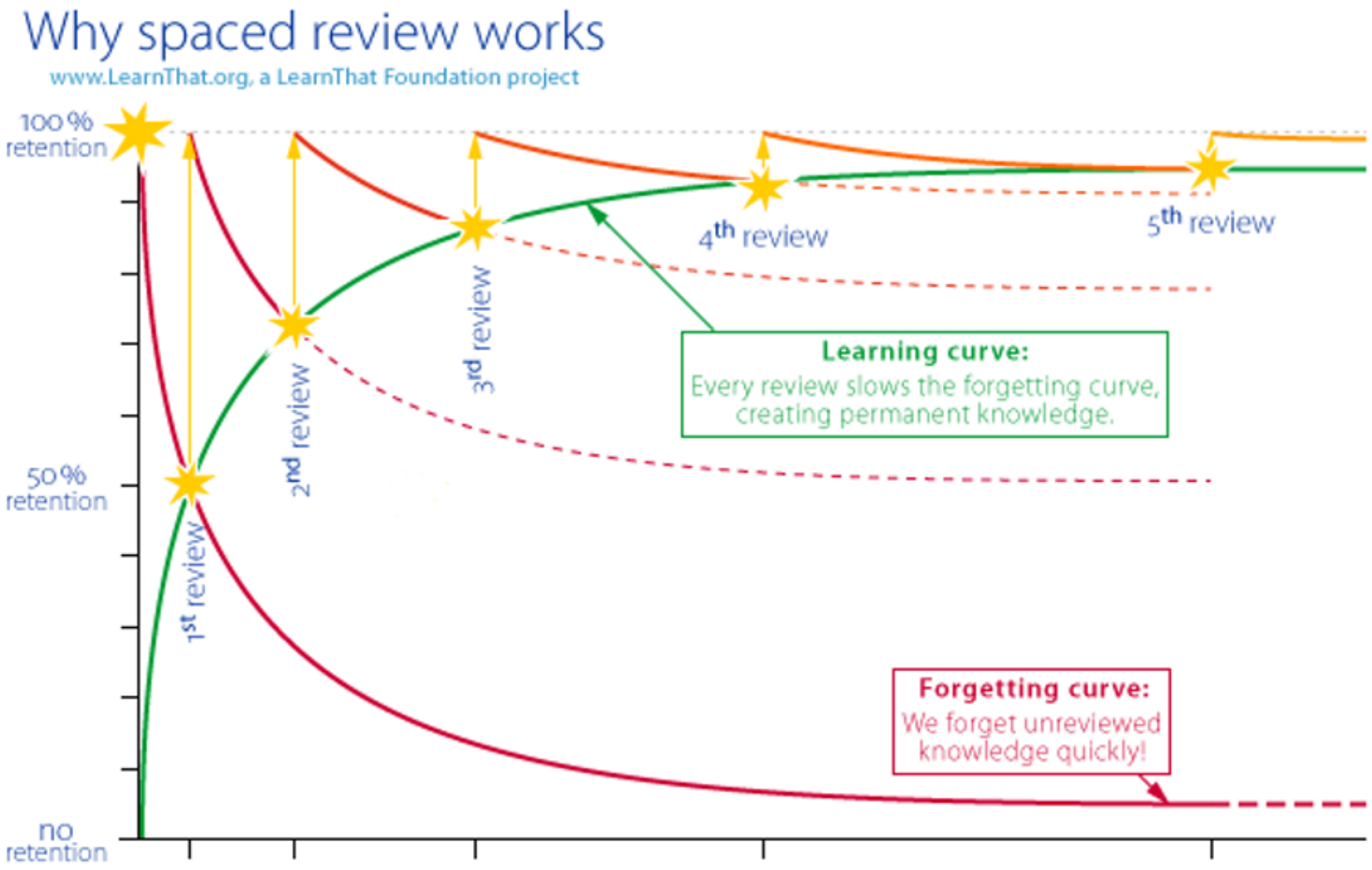
- A curriculum is <u>not just a mass of separate courses</u>

1. Memory and Recall (chpt 6)

- **Reducing 'cognitive load'** to an optimum state involves careful planning to ensure that lessons harness both long-term memory and the smaller bandwidth of working memory. Perhaps most crucially, the working memory must not be put under too much strain – this risks students getting confused and frustrated.
- Helpful techniques to avoid overloading the working memory include:
  - using a 'daily review' or 'starter quiz' at the start of every lesson (X-Ref Cleverlands)
  - modelling problem-solving through worked examples before allowing students to attempt the same task
  - chunking information and using 'dual coding' - combining two memory traces, semantic and iconic. There is a redundancy effect if you read from a slide, increasing cognitive load.
  - avoiding spatial split-attention with, for example, text on one page and a diagram on the other.
  - avoiding the use of unrelated information in your teaching materials (e.g. images that decorate a slide rather than illustrating)
  - **spaced practice*** (repeated exposure to the material at different times across the year, avoiding cramming). Multiple testing moments of smaller pieces of learning can be very helpful rather than one large exam at the end (why is this given more importance?), or using lagged homework (homework tasks set on material from previous lessons, rather than the current lesson). Interleaved practice can become a nonsense…
  - **retrieval practice*** (testing as opposed to shallow tasks such as re-reading or copying out notes)
- A curriculum is not just a mass of separate courses. It's important for teachers to co-ordinate their actions with each other. If I want my students to study on Friday, Monday and Wednesday for a test on Friday, but two of my colleagues give a test on Wednesday, there's a snowball's chance in hell they'll study for my exam in a spaced way if there are two other exams on these days.

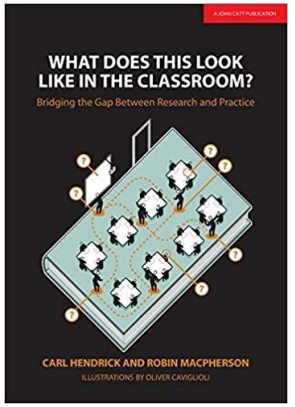
Forgetting curve

Regular revision and spacing out topics is more effective



The **ideal time** to revise something is just as you are forgetting it!

2. Classroom talk & questioning (Chpt 7)



- Didactic instruction has its place
- Good discussion involves:
  - A safe space and a teacher role-model
  - Clarity on the means of participation
  - Effective planning
  - Open and closed questions
  - Knowledge of different pupils' needs
  - Pupils listening as much as talking
  - Giving pupils time to prepare
  - Including a 'wait time' after asking a question
  - Feedback on conversation dynamics
  - Supporting oral discussion with technical lists

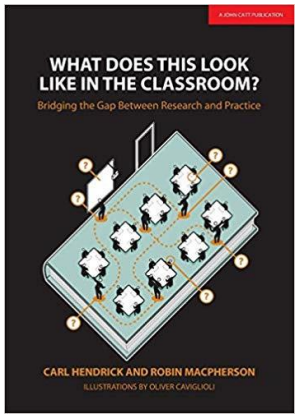
2. Classroom talk & questioning (Chpt 7)

- ‘Didactic instruction’ is unfairly maligned. It is necessary to good instruction. There needs to be a balance between teacher talk and pupil discussion. The idea of an arbitrary ‘ten minutes of teacher talk is enough’ is a nonsense.
- Good discussion is driven by:
  - A ‘**safe space**’ in which pupils feel safe enough to discuss their ideas, with a teacher who acts as a **role-model** for the classroom behaviours that they would like to see
  - **Clarity** on the means of participation (calling out, raising hands, cold calling, hands down – and there is a distinction between the latter two means)
  - Effective **planning**: first, teachers need to plan their key questions, and practice their answers - this ensures that teachers do not struggle with ‘follow-up’ because they have thought through their ultimate goal with where they want the discussion to go (writing the question on the board can help to avoid discussion meandering too far off topic; dialectic argument can also be an objective) ; second, teachers need to think carefully about when to have the discussion (they often bring discussion in too early) - pupils need to have something to say, they need knowledge to work with in order to make the discussion rigorous and purposeful
  - A **mixture of open and closed questions**; sometimes the former is preferred at the expense of the latter yet it is a mistake to rush in with the deepest question possible.
  - **Knowledge of different pupils’ needs**, avoiding ‘pounce and bounce’ or lollypop sticks and thinking instead about which pupils should be questioned at a particular point and probing students where appropriate; use of ‘the chair’ (a socratic style of questioning, a la Daniel Watkins – ‘you my boy’)
  - **Pupils listening as much as talking** (many teachers equate talking with participation, yet listening is just as important); this can be fostered by using strategies such as ‘managed turns’ or ‘habits of discussion’, or discussing archetypes such as the ‘leader-supporter’
  - Pupils being given **time to prepare**. Preceding a discussion with writing can help pupils participate because they will have already thought the question through. Telling pupils they will be called on ahead of time can help.
  - Space and time to reflect; we should not take a hand in the first two seconds (give a **wait time**), because how many really cerebral questions can you answer within two seconds?
  - Instant **feedback on conversation dynamics**, teaching pupils to develop and react upon each others’ ideas, and writing phrases or comments on the board when they are particularly good so others can refer back to them.
  - **Supporting oral discussion with lists of technical tier vocabulary** – on the wall of the classroom, or on laminated word maps, for example

Avoiding "Yeah but, no but, whatever. Yeah shut up." How can I argue constructively?

1. I would like to challenge what X has said…
2. Please would X clarify their last point…
3. I'd like to clarify what X has just said…
4. I have a query about X's point…
5. I wish to question X's argument…
6. I feel we ought to reconsider X's interpretation of…
7. I'm afraid I disagree with…
8. I feel I have to contradict…
9. I'd like to suggest that in fact…
10. I wholeheartedly agree with…
11. I would like to confirm…
12. I'd very much like to reaffirm…
13. To build upon X's argument about…
14. I'd like to expand upon what X said about…by…
15. I'd like to add to the evidence X has given about…

3. Independent Learning (Chpt 10)

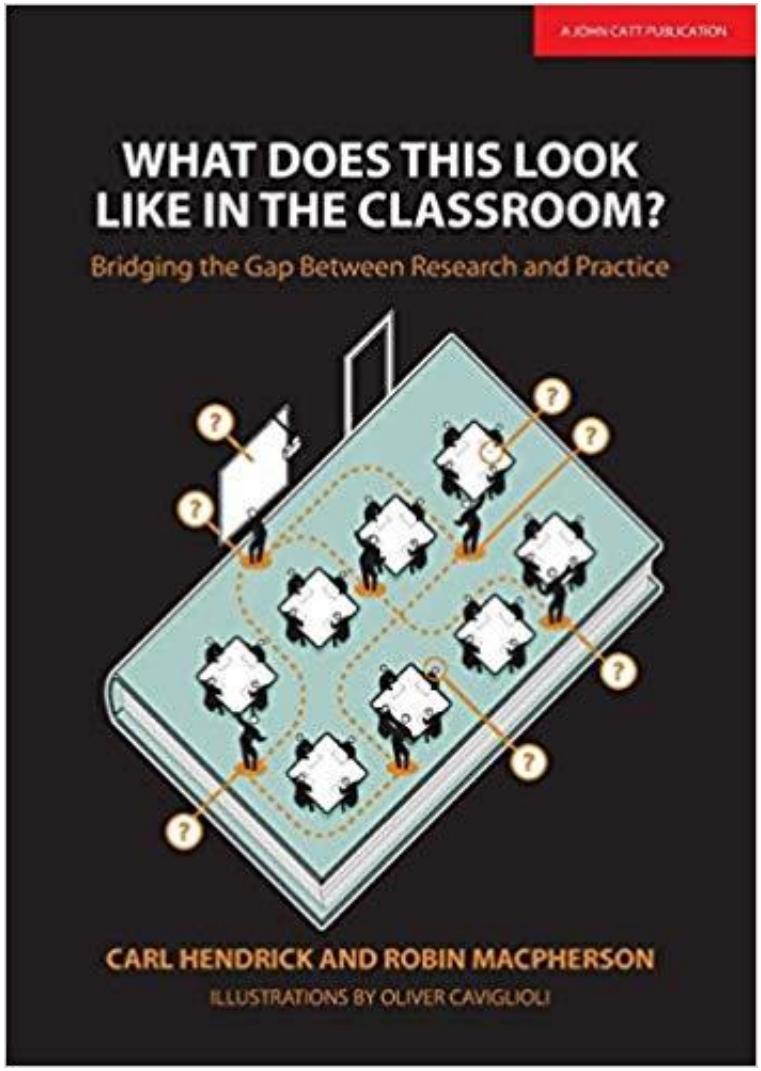


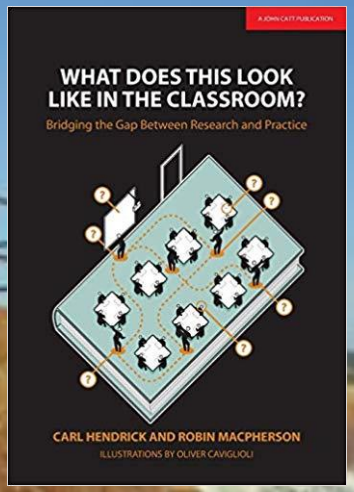
- The aim, *not* the method
- Methods have been damaging?
- Requires definition
- Develops over time, perhaps 5-6 years
- Requires scaffolding

3. Independent Learning (Chpt 10)

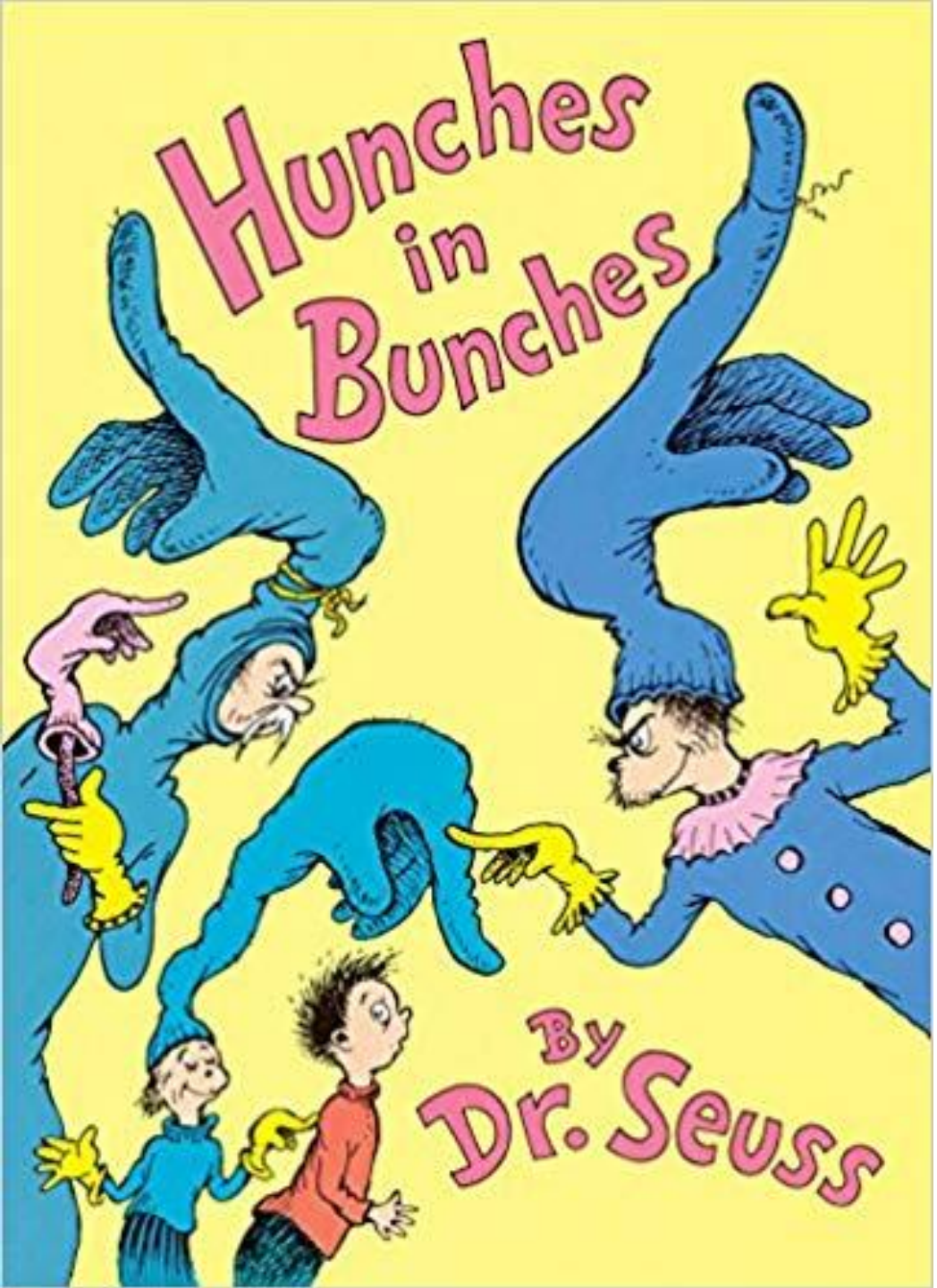
- **Counter-intuitively, independence does not seem to be the best way to become independent**: it may be the desired outcome, but it is not the best way to achieve it. In other words, it is the aim, not the method. It does not involve kids crammed around a computer looking stuff up on Google. If students do not have sophisticated schemas of knowledge about a particular area, then it is very hard for them to work independently in that area (much of this is to do with the limitations of working memory)– this can result in shallow tasks, where the activity is matched to what the student knows. Students cannot think critically about things they do not know. So, for anyone except experts, partial guidance during instruction is significantly less effective and efficient than full guidance.
- Skipping over the fundamental need to explain, model and scaffold in order to demonstrate the 'preferred' method of minimal teacher talk **and independent learning for its own sake may have done more damage to children's education than any other single idea**.
- **We need to be clear on what** 'independent learning' means. 'Independent learning' is not a generic skill (X-Ref Christodoulou's 'Making Effective Progress'). It cannot be divorced from context. It will look different in different subject areas. We also face difficulties in how to measure it, because true independence exists beyond the classroom.
- **Independent learning is a process that develops over time, perhaps across five or six years**, and it looks different at different stages. There is a shift across a continuum in responsibility between learner and teacher, whereby the learning assumes greater responsibility for their own learning by degrees.
- **It requires a lot of scaffolding.** Getting students to make shifts in responsibility for learning involves a degree of mental stress (or 'desirable difficulties'). Without these smaller shifts, pupils are left in the deep end before they are ready to swim.
- This scaffolding can involve:
  - Fostering effective study habits that students carry with them everywhere – it's about self-discipline and self-control as much as learning ability – and avoiding procrastination.
  - Sharing with students what we're learning about how we learn (cognitive psychology) – give them a manual for the brain, e.g. the value of practice testing about taking a break when you're stuff about being meta-cognitive

Conclusions

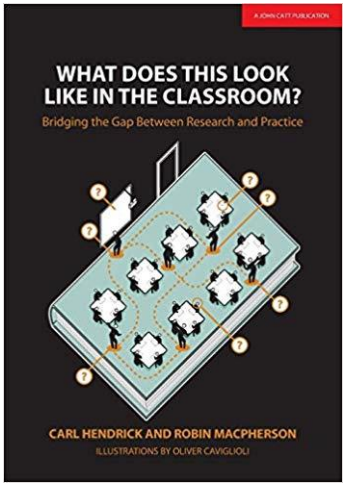


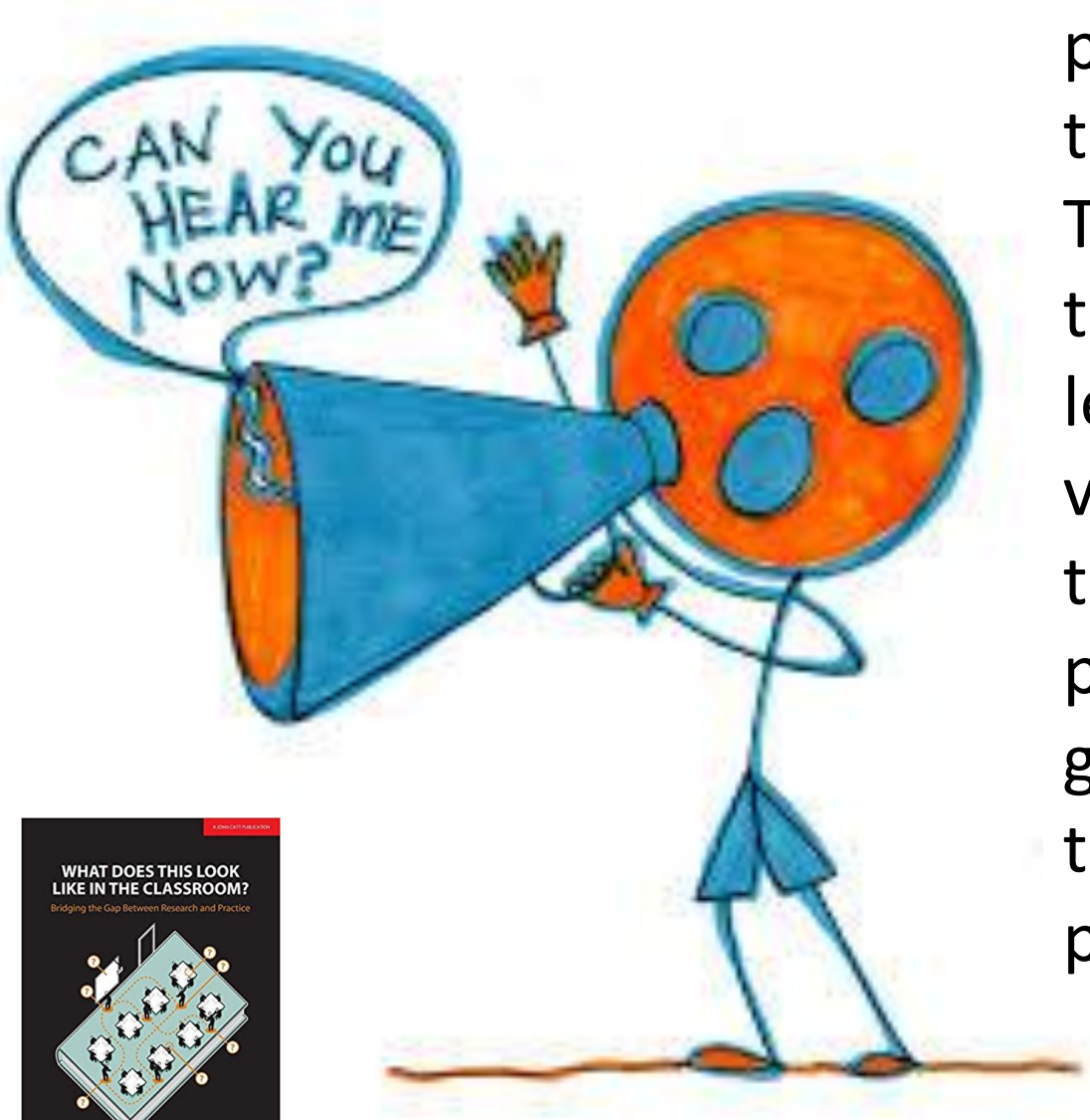


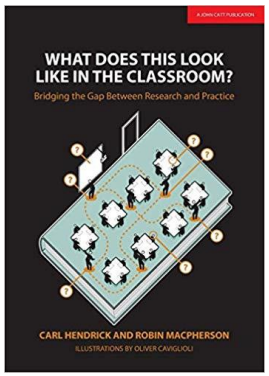
‘Research should act as a bulwark, a sea-wall against the tidal wave of edu-guff that has so often washed over our schools’



‘Researchers cannot tell teachers precisely what to do – there are too many variables – but it can point toward a series of ‘best bits’ that may yield better outcomes than hunches.’



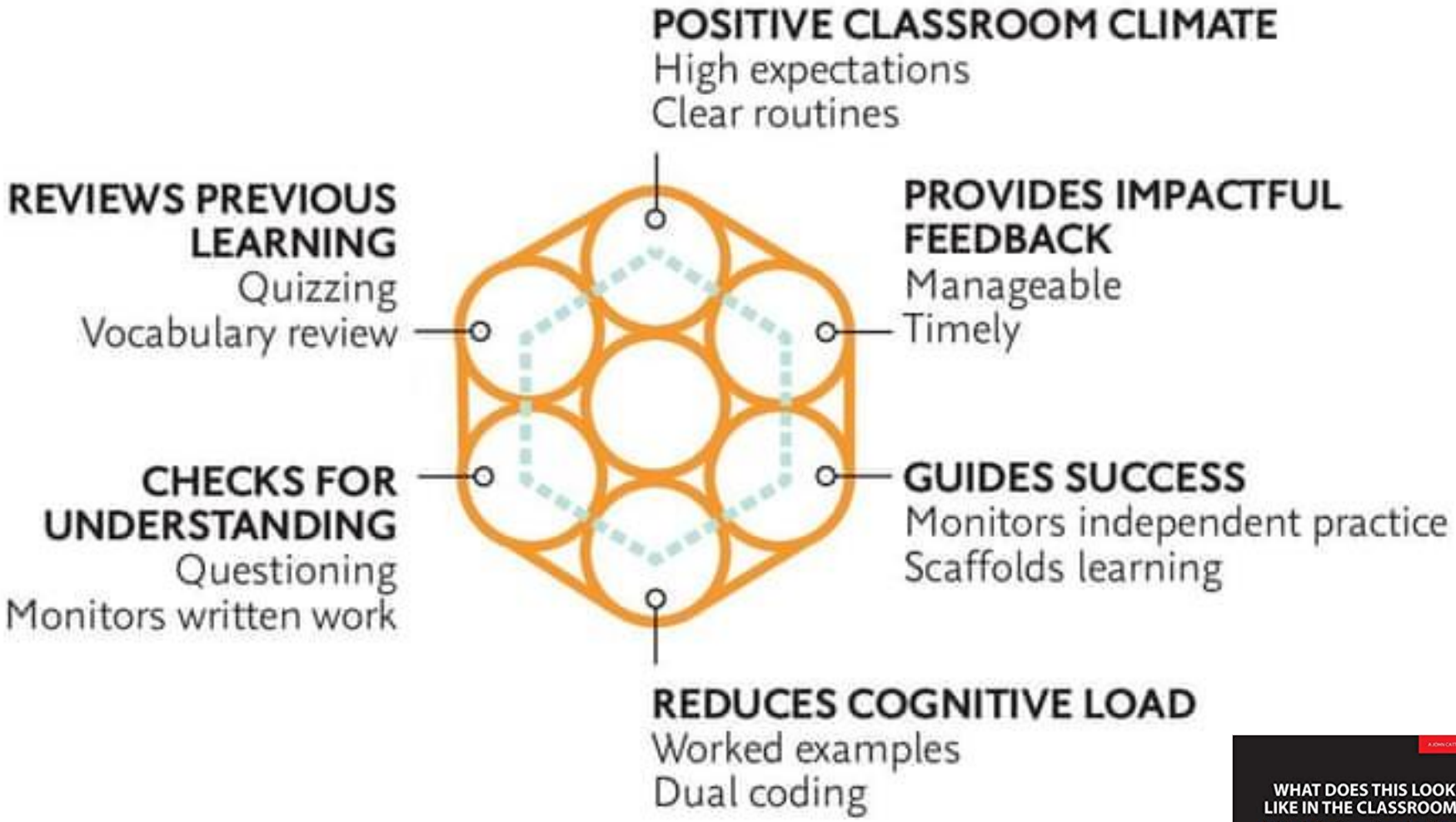




‘Can classroom practitioners influence the direction of policy? The people who spend the most time delivering lessons need to have a voice, and an opportunity to develop as professionals. If you can give them both of these things, the impact on pupils will be tangible.’

Any intervention, policy change or new strategy must be vetted heavily by asking these questions:

- What is the need for the change?
- What are the potential benefits?
- What is the evidence base for it?
- What impact will it have on teacher workload
- What effect will it have on pupil learning?
- Can a pilot be done before the initiative goes whole-school?
- Who needs to be consulted to ensure successful implementation?



What do we do well?
What is adiaphora?