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RETRIEVAL PRACTICE IN FIRST YEAR OF SECONDARY EDUCATION

Authors:



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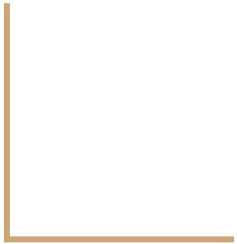
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Let's warm up!

Do you remember what concepts we recalled in the first session?

Now that several days have passed and we have started to forget them (short term memory), let's check if they still remain in our memory (long term = learning).

We pair up



1. 1-2-3 game in pairs (one answer each)

2. One of the two people writes the answers on a piece of paper.

3. If the partner can't come up with an answer and the other person can, he/she can give hints (don't tell the answer to the other person!).

4. We will have 1 minute and 30 seconds to try to fully answer the question (there are a number of correct and possible answers).

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South American countries (there are 13)

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We thank my partner for what we have learnt
together and...
Change partners!



Zodiac signs

This time it's going to be different, as I'm going to give you a clue with the illustrations.

Let's see if you manage to complete them all.



Zodiac signs



ARIES



TAURUS



GEMINI



CANCER



LEO



VIRGO



LIBRA



SCORPIO



SAGITARIUS



CAPRICORNUS



AQUARIUS



PISCES



Which keys do you remember from the first session?



Key ideas:

- Make the effort to retrieve without looking at class materials.

- All students participate

- Start individually = 100% participation, all students reflect, everyone has an opinion, etc.

- Teachers and students identify what is known and what is not known and can act accordingly (= formative assessment).

Key ideas:

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4 Methods of Retrieval Practice

@ImpactWales

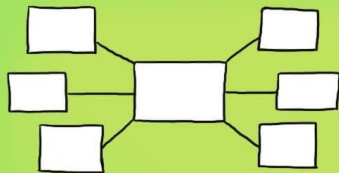
Before you start put away all your books & classroom materials.

Retrieval Practice Examples

- * Exit Tickets
- * Starter quizzes
- * Multiple choice quizzes
- * Short answer tests
- * Free write
- * Think, pair, share
- * Ranking & sorting
- * Challenge grids

BRAIN DUMP

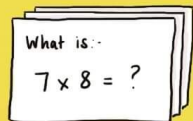
Write, draw a picture, create a mind-map on everything you know about a topic.



Give yourself a time limit, say 3 minutes, then have a look at your books & add a few things you forgot.

FLASHCARDS

Create your own flashcards, question on one side answer on the other. Can you make links between the cards?



You need to repeat the Q&A process for flashcards you fail on more frequently & less frequently for those you answer correctly

QUIZZING

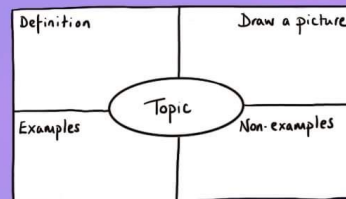
Create practice questions on a topic. Swap your questions with a partner & answer.

Question - What is a metaphor?

- A comparison using 'like, as, than'.
- A comparison where one thing is another.
- A comparison with a human attribute.


KNOWLEDGE ORGANISERS

Complete a knowledge organiser template for key information about a topic.




You can use knowledge organisers to learn new vocab & make links in between subjects or ideas.

After you have retrieved as much as you can go back to your books & check what you've missed. Next time focus on that missing information




6 key concepts for retrieval and learning based on a
large body of scientific evidence
(some are counter-intuitive, it's amazing!)




I will give each person two cards
(different for each person).




First, you will have two minutes to individually
write on the blank side (without looking at the
back) what you think the concept is, how it
applies, etc.





Now, in pairs, you have to show your partner what you have written on your cards, discuss it, make a contribution to your partner's cards, etc.



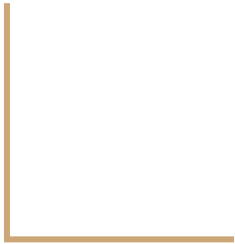


Let's take a look at these 6 keys to learning



6 keys to learning:

1. Dual coding



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1. Dual coding

Two different channels: verbal (or linguistic) and visual. When both channels are used simultaneously, so learning and retention can be enhanced.



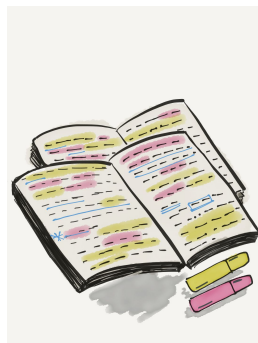
6 keys to learning:

1. Dual coding
2. Active recall & Testing Effect

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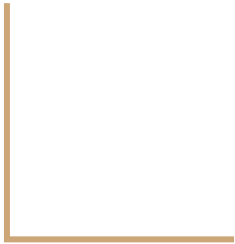
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The act of actively recalling information strengthens neural connections, making that information easier to access in the future. It is more beneficial than simply passively rereading or reviewing the material



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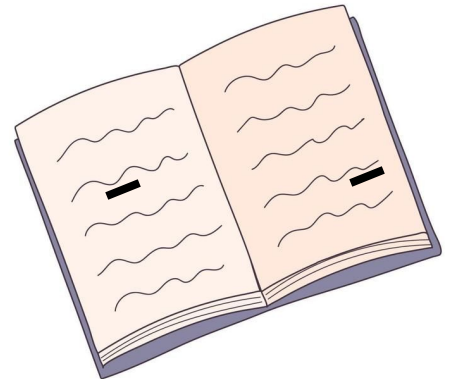
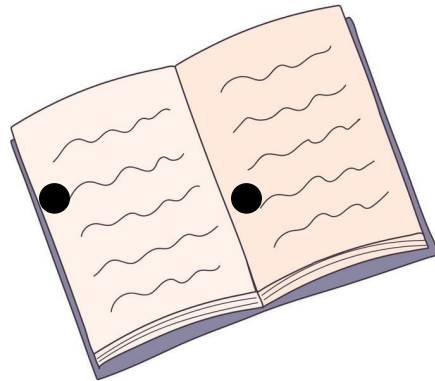
1. Dual coding
2. Active recall & Testing Effect
3. Cueing



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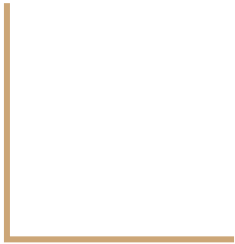
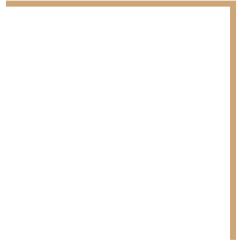
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If a student cannot remember something and we give him/her a hint, he/she will make a second cognitive effort. If he/she succeeds, it will be positive for later recall and success = motivation.



6 keys to learning:

1. Dual coding
2. Active recall & Testing Effect
3. Cueing
4. Spaced/distributed practice & forgetting curve

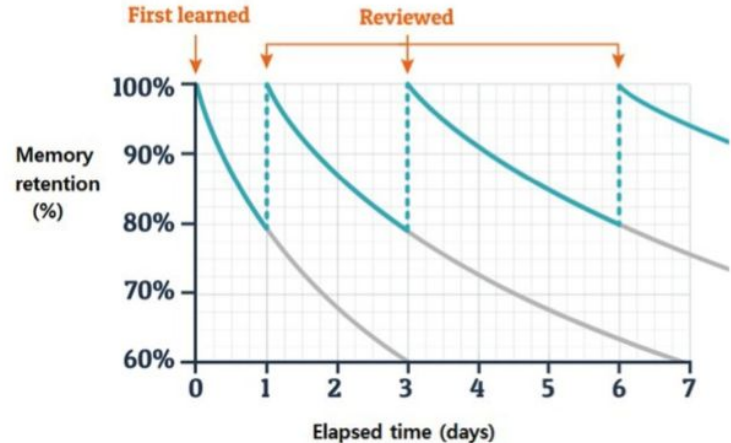


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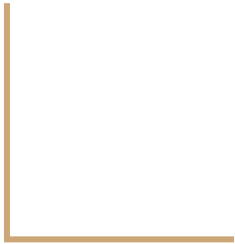
By re-exposure to the material after a period of time, when it has begun to be forgotten, neural connections to the content are strengthened.

Counter-intuitively, it is not better to review content every day, but to allow days to pass between reviews. In other words, forgetting something forces you to make an effort to remember it, and this will strengthen your long-term retention (long-term memory = learning)



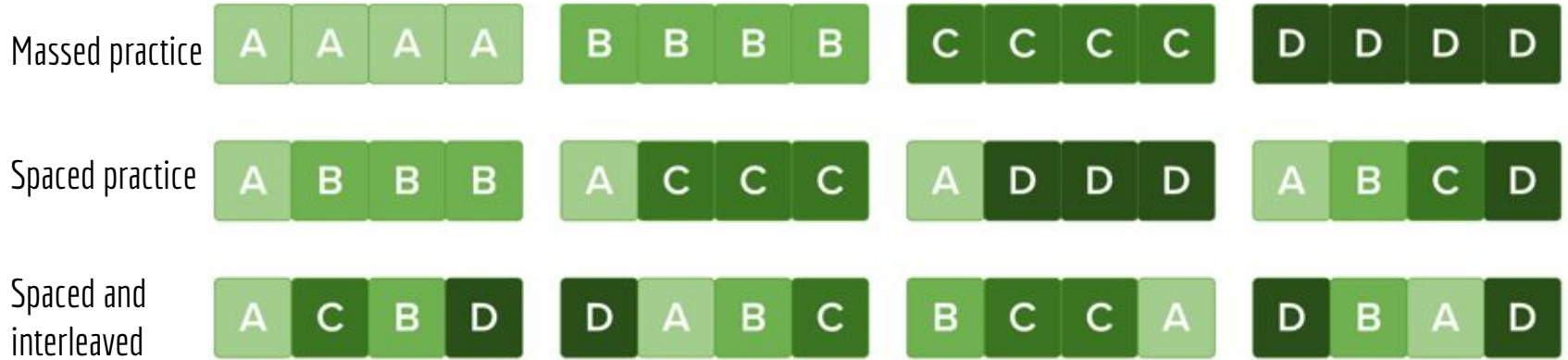
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In the early stages of learning a concept, massed practice may be more useful, but not always and even less so if our goal is not immediate academic performance, but learning.

Let's look at an example with mathematical problems that can be solved in four different ways:

6 keys to learning:

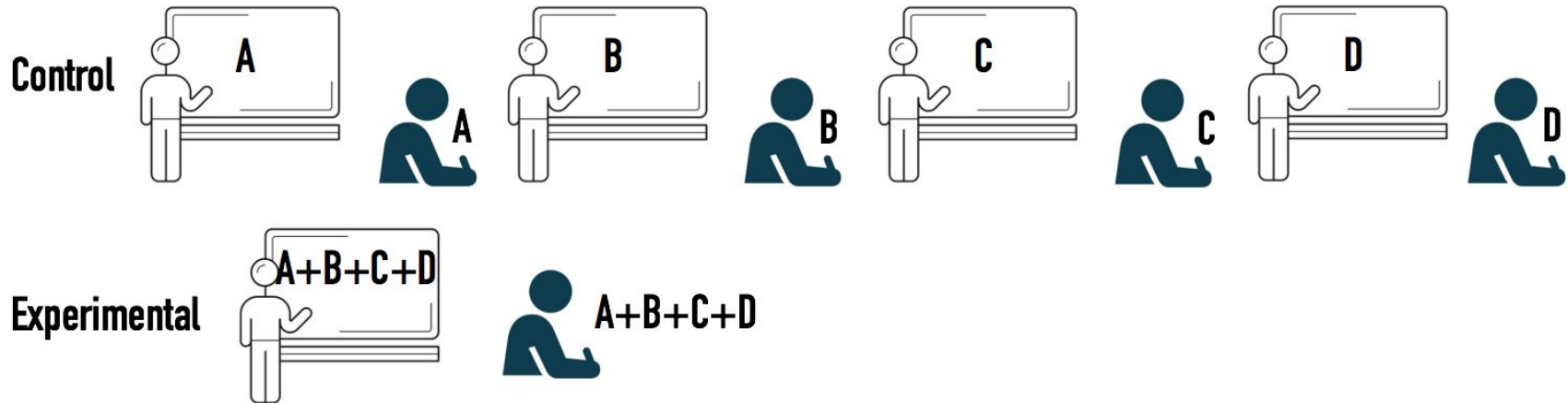
1. Dual coding
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4. Spaced/distributed practice & forgetting curve
5. Interleaved practice

In the control group the teacher explains strategy A and the students do exercises with strategy A. Then strategy B and the students do exercises with strategy B. So on and so forth.

In the experimental group, the teacher explains all strategies and the students do the exercises in a mixed way.

6 keys to learning:

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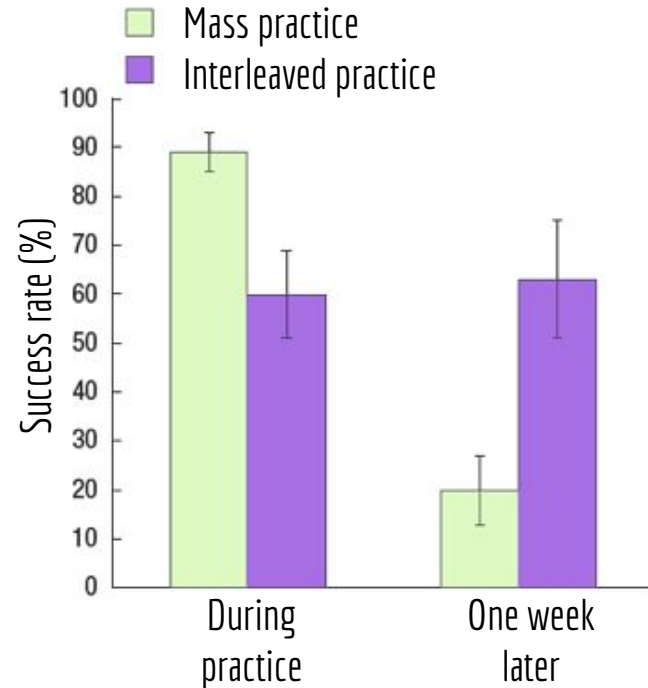


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In the control group, students performed better strategy by strategy at this point. A week later, however, the students in the experimental group who solved the problems using the mixed strategies outperformed those in the control group.

The effort of differentiating between strategies was rewarded. When we teach, do we teach for immediate performance or for learning?



6 keys to learning:

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Also, the more difficult the questions are, or the more difficult it is to differentiate between options, the better, as students will have to put more effort and attention to detail into creating the question.



With this in mind, how can you incorporate these learning keys into the retrieval practices you already implement?

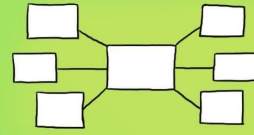
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5. Interleaved practice
6. Generation effect

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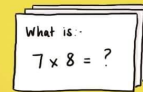
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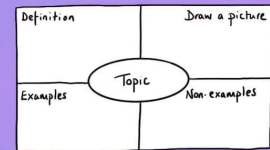
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Educational technology for retrieval practice



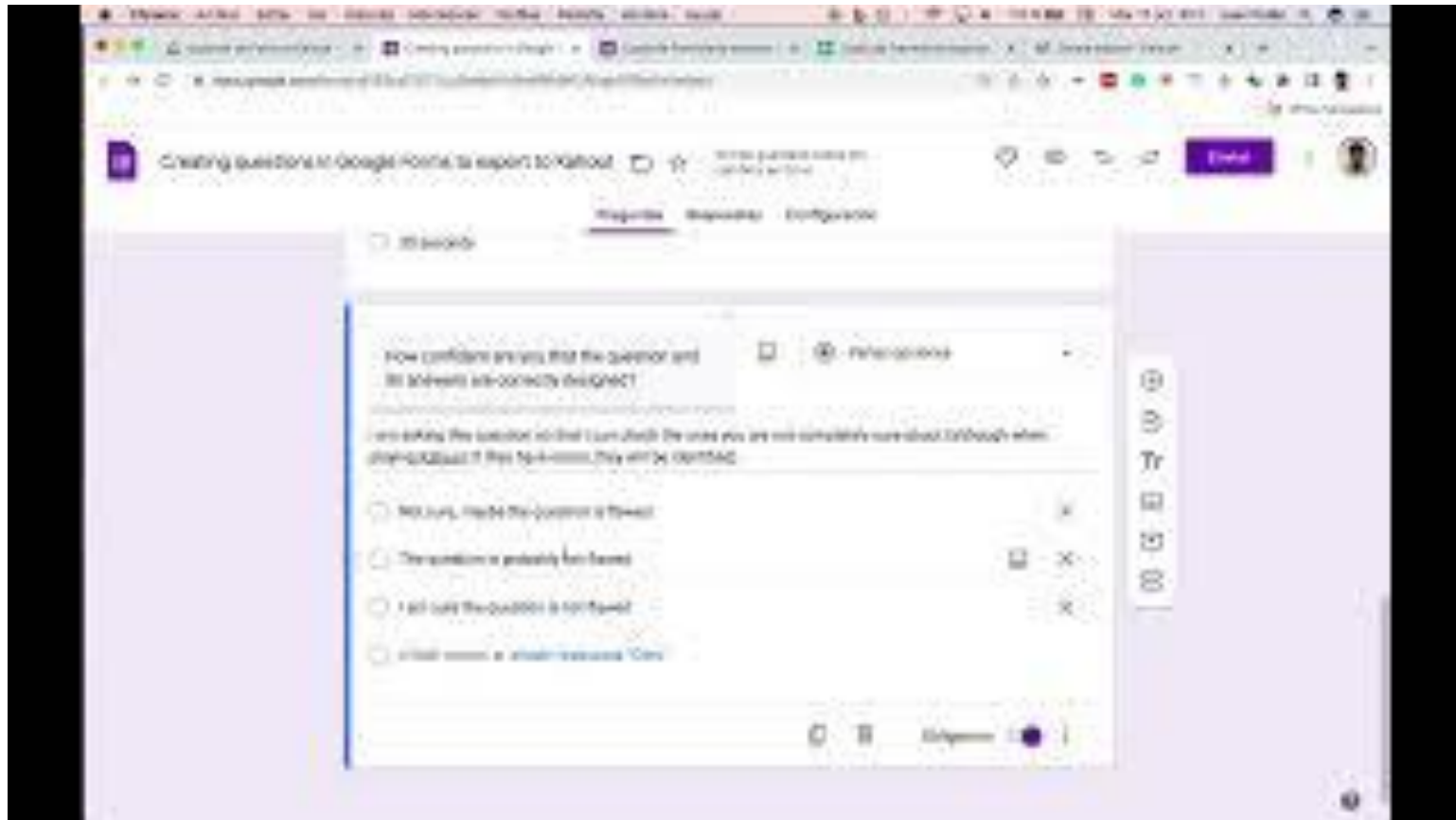
The Kahoot! logo is a square divided into four quadrants of different colors: red (top-left), blue (top-right), orange (bottom-left), and green (bottom-right). The word "Kahoot!" is written in a purple, sans-serif font across the center of the square.

Kahoot!

Kahoot (of course)

Extra tip: As we have seen, having students create questions on a topic can be very useful for their learning (especially if the questions are difficult and it is hard to differentiate between options).

In this video tutorial, you will learn how to create a Kahoot in 1 minute using the questions your students have created using through Google Forms.



<https://youtu.be/29YFrDo1G5E>

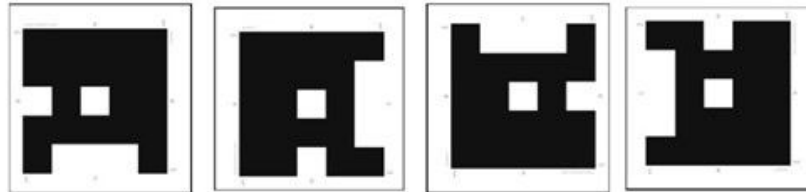


Plickers

An excellent resource so that students do not have to use any electronic devices at all.

Simply print out the free Plickers cards with different QR codes. Each student will have one.

The teacher scans the cards using their mobile phone and the Plickers app. The rest is very similar to how Kahoot works.



A

B

C

D



<https://youtu.be/iV7Fhn5dFuo?si=0oMH2YbPiIG0bISR&t=226>
(play from minute 3:46 for a good, short explanation)

A few more very useful

Socrative: possibility of open questions, feedback can be added when answering, randomisation of the order of the questions possible, each student at his own pace

Quizlet: great for flashcards




Explore the Playbook on Retrieval Practice that we
have prepared in the project




We need feedback
on the Playbook!



<https://forms.gle/LyBqRrKkaPgV6RLUA>



What retrieval practice activities could all teachers of the same year, subject, etc. implement to move in the same direction and reduce the cognitive load of the students?





Now that we have completed the training...



We need feedback
on the training!

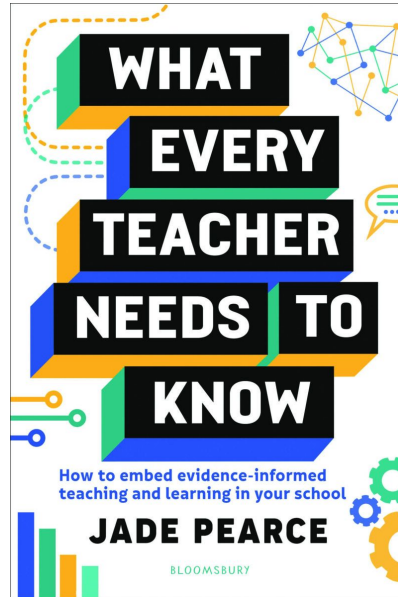
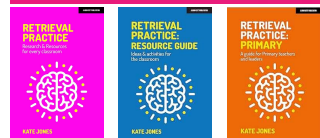
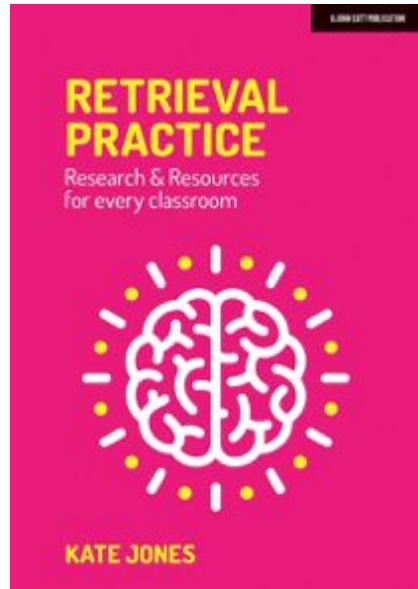


<https://forms.gle/7HcTr2GL4fWoJWk37>

At the end, can two of you stay to record a 1-2 minute video?

I will ask you about the usefulness of the training to incorporate retrieval practices into your lessons or key learning points you have learned in order to make modifications to your lessons.

Additional resources:



Playbook
of this
Erasmus+
project

Exit ticket

(we write individually and then share or, if there is no time, we share directly):

- **A doubt** that comes up for me from today's session: it could be something that hasn't been clear, it could be a doubt about how to fit it with some group, etc.
- **Something you'd like to address in the next session**, whether it's for doubt, to go deeper, to move forward, curiosity, etc.
- **Two golden nuggets that I take away**: said by Joos or said by a colleague who does it with his/her group and I found it wonderful.

Thanks!



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