

### Welcome to Central Learning and Teaching Newsletter 7!

In this edition, we will dive into Richard Mayer's Research on multimedia instructions (that is screen presentation really) and how the 5 principles he identifies for presenting information supports retention and reduces extraneous load.

REMINDE  
ME  
AGAIN?

### What is extraneous load?

It is essentially the wasted cognitive effort created by the materials we use and the extra details we may add that do not support our learning outcomes.

Cognitive Load Theory- see Newsletter 5- reminds us that reducing this load is paramount to supporting students' recall in the long-run.

### What evidenced-based principles can I use in my lessons?

1. Coherence Principle: we learn better when extraneous material is removed.

**Applications:** use only graphics, texts or narration that support learning goals, resist the temptation to be anecdotal or to add any music or details to spice things up or make things "prettier"

2. Signaling Principle: if you are using a more complex resource or if your screen is displaying multiple sources of information, this can create a load.

**Applications:** signpost the essential information using a heading, an arrow or by highlighting the essential information students need to pay attention to.

3. Redundancy Principle: spoken word and visuals are best when presenting information. Speaking over text is distracting as students try to reconcile what they hear with what they read.

**Applications:** minimise text and narration at the same time, combine spoken words with visuals as much as you can. Let students read the content of the slide without speaking over it.

4. Spatial contiguity principle: the idea that students will learn better if corresponding words and graphics are next to each other rather than apart.

**Applications:** place your text right next to the graphic it links to, write your feedback right next to the question you are marking.

5. Temporal contiguity principle: present the words and the graphics together rather than one after the other.

**Applications:** demonstrate the action as you speak, if using video, look for one that talks students through the steps as they happen.

Article is [here](#), I would recommend pages 4- 6.

### How solid is the evidence?

Pretty strong! These strategies are also about making it as simple as possible for our students to access our material and removing any unnecessary obstacles to long-term recall. What marginal gains could you be making in your subject? What tweaks could you make to your resources (PowerPoint or handouts)? Could you review existing resources as a department and /or deliberately focus on one of these strategies? If you are interested in how effect sizes are measured, click [here](#)!

**Table 1**  
*Five Evidence-Based and Theoretically Grounded Principles for Reducing Extraneous Processing*

Principle	Definition	Effect Size (d)	Relative size	Effect size	% of control group below the mean of experimental group
Coherence	Reduce extraneous material.	0.97		0.0	50%
Signaling	Highlight essential material.	0.52	Small	0.2	58%
Redundancy	Do not add on-screen text to narrated animation.	0.72	Medium	0.5	69%
Spatial contiguity	Place printed words next to corresponding graphics.	1.12	Large	0.8	79%
Temporal contiguity	Present corresponding narration and animation at the same time.	1.31		1.4	92%



## Do now activity – retrieval practice

1. Date in books: 25<sup>th</sup> May 2021
2. List the steps required to make courgette gnocchi.
3. Minimum of 8 steps.

Central Lancaster High School

I was walking past our catering room when I noticed this beautiful "list it" retrieval task all set up for period 1! A reminder that planning for retrieval needn't be a time consuming affair. The task is clearly laid out, sequenced clearly and simply broken down. It does not require teacher talk and can be started straight away. Follow up feedback can help determine recall but also potentially link to new learning or to the practice of a specific practical set of skills.

## Literacy and retrieval practice

Lisa is sharing with us a couple of fundamentals when it comes to vocabulary learning.

### Dual Coding

- I suggest that you use dual coding to teach vocabulary. This is when you give students an image to represent a word/concept you are teaching, and then ask them why you have chosen this image. In the next lesson, you can show the image only and get them to try to remember the linked word. For example, I used this image in connection with the word **incessant**.



Make it memorable!

We know using visuals with written text is extremely powerful to aid recall and make it stick.

Pictures can prompt recall but also lead to more cognitively demanding work when asking students to elaborate and make more meaningful links.

Vocabulary learning is the bread and butter of a foreign language teacher: feel free to talk to us about it!

### How can I get students to engage with the meanings of words?

- The secret to getting students to remember new words is to force them to think about the words and apply them in other contexts.
- For example, after teaching the words *accomplice*, *virtuoso*, *philanthropist* and *novice*, you could ask students the following: Which word goes with crook? (*accomplice*) Which word goes with 'gift to build a new hospital'? (*philanthropist*) Which word goes with piano? (*virtuoso*) Which word goes with starting a new career? (*novice*). Students should be asked WHY they made a particular link.
- Another very useful idea (my favourite) is to get students to connect words with their own experiences so that they understand that the word fits into their world. For example, when have you felt like a *novice*?
- Instead of asking students to write a sentence using a new word, give them sentence stems that force them into applying the word's meaning to a context. For example, 'The audience asked the *virtuoso* to play another piece of music because...' or 'The skiing teacher said Maria was a *novice* on the ski slopes because ...'.

Gargantuan  
Evaluate

Feral  
Despot

Cajole  
Aspiration

Coming across with a new word and retaining it long-term takes time, repetition and practice over time. This is where embedding vocabulary can become an integral part of the retrieval tasks we set.

Martin's word of the week is a brilliant example: students have the opportunity to think of the word, manipulate it and think of it in different contexts. However, how can we ensure from one week to another that this learning sticks and that students not only recall meanings but also make active use of these words? Could the answer lie in subject specific retrieval tasks where these words are used? Can we use retrieval within our subjects to zoom in on subject specific terminology and ensure students can not only comprehend it but also use it well?