

LEARNING & THE BRAIN

Pocketbook

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**Cartoons:
Phil Hailstone**

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Lesson structure and memory 1



The Von Restorff effect

So how can you plan lessons that will improve your chances of getting stuff from fickle old **working memory** into **long-term** memory?

When it comes to sensory input, brain science shows that all primates are predominantly visual.

You can tap into this potential resource by using plenty of visual content to help to stimulate attention, learning and memory. So make more use of:

- Visual imagery and metaphor
- Storytelling and visualisations
- Colourful mind mapping with visual images to sum up ideas

That the single most memorable and unusual image in a mass of other data is likely to be the most remembered thing was first noted in the 1930s by the psychologist **Hedwig von Restorff** – no, not the owl in Harry Potter.

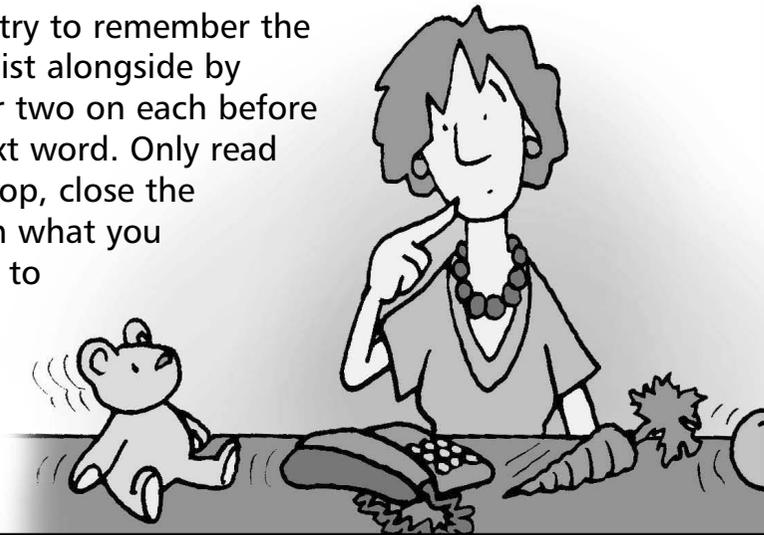
Lesson structure and memory 2



Cuddly toy, fondue set, kettle, cuddly toy

Whenever you're given a long list of things to remember, no doubt – like everyone else – you'll not be able to remember every item. The chances are, though, that the item you're most likely to recall will be very predictable.

To demonstrate this, try to remember the objects in the single list alongside by spending a second or two on each before moving on to the next word. Only read the list once! Then stop, close the book and write down what you remember. Then turn to the next page.



Apple
Wristwatch
Umbrella
Plantpot
Plate
Potato
Teddybear
Keys
Spoon
Screwdriver
Peach
Knife
Saucer
Wallet
Phone
Carrot
Toy

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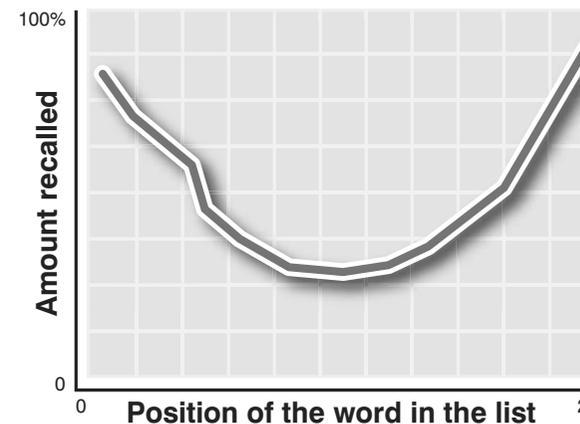


First and last things

You're much more likely to remember the first and last items but forget ones in the middle – because your brain is paying more attention at the start and the later items are not crowded in your memories with any subsequent ones. Did you find this?

The graph shows the proportion of words that a group recalled when given a similar list to those on the previous page.

This is known as the **primacy** and **recency** effect. It means extra effort must be applied during *the middle* of lessons (or any learning episode) to boost attention if learning is to take place.



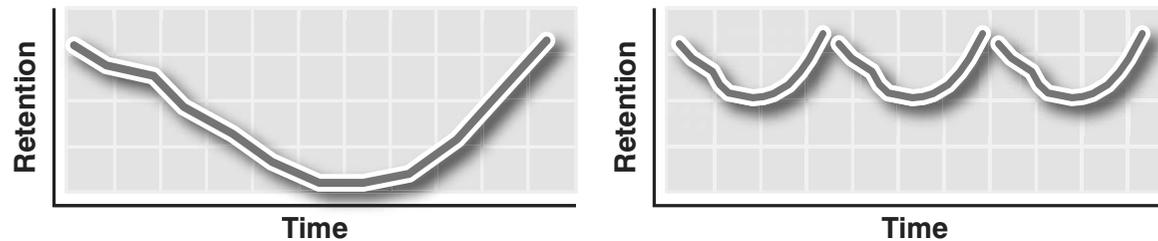
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Implications for the classroom

How to use the information from the last few pages in the classroom:

1. Structure lessons with a number of shorter **episodes** so there are more high points of retention. Although there will be dips, you will avoid that long low period in the middle.



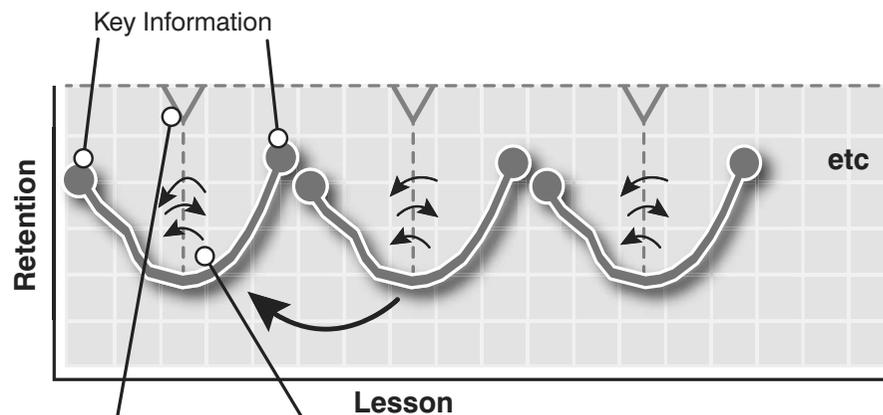
2. Apply some of the other principles discussed earlier by making sure that your first and last piece of input is presented in an interesting and novel way and that these moments contain summaries of the most important information.

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Association and connection

As we know, **interconnectivity** is also essential for effective learning, so add **associations, repetition** and interconnectivity to each learning episode and between episodes (especially in the middle).



Striking and unusual image that sums up the learning episode

Associations, connections and repetition

You could also add a **Von Restorff** image to each episode, ie a single striking unusual image that sums up the learning for that episode (see page 84). Do more association and repetition, and have your Von Restorff in the middle of the learning episode when retention is likely to be at it lowest!

Of course, this is not a magic formula; you will need to use your professional skills to apply the principles differently for different topics – but you get the idea.

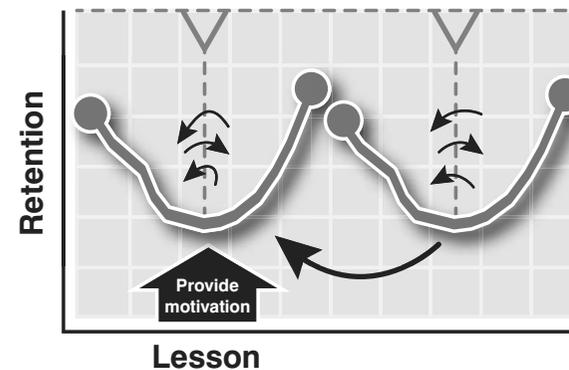
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Motivation

Motivation is also key to retention and memory so ensure that your learners can relate what you are teaching to where they are coming from and to their interests. You can increase the **salience** (attention-grabbing nature) of the content you teach by making it personally meaningful and relevant to your students and you can improve general motivation by maintaining a positive emotional climate and by using frequent specific praise to reinforce the behaviours that you want to see again.

Humour is also a great motivator.



Now take a few minutes to look back over the last few pages on lesson structure and memory. Notice how we have practised what we preach and in our explanation made use of the same principles described here. Look for the different elements, starting on page 84 and the Von Restorff effect. (Answers overleaf.)

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Here's what we did:

- We introduced **Von Restorff** first and came to **motivation** last as these are really key pieces of information (**primacy and recency effect**). You will have noticed the Harry Potter image also!
- The whole learning is summed up with a single striking visual (diagram on page 88)
- **Association** and **repetition** were used as we built up the diagram
- Everything was referred back to the classroom and your practice, making a connection to where you are coming from (**salience**)
- By getting you to read this answer we summed it all up again and made a final use of the **recency** effect.
- Having to look back over the pages added another sensory input as will the next task

Next:

See how easy it is to draw the diagram yourself and label it without looking!

Then go and tell someone else about it.

How could you do something similar in your next lesson?

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