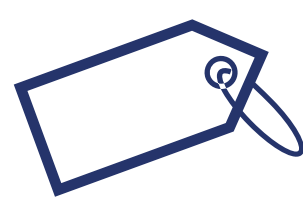


Using cognitive load theory to improve slideshow presentations



Less is more.

Reduce the amount of text and diagrams to as few as necessary, but no fewer. This will ensure that you do not overload your students' limited working memory capacity.



Ensure that labels are integrated into diagrams and ensure that information is presented in close physical proximity to related information.

This way, students can look at text and images simultaneously. This helps to avoid the 'split-attention effect', which occurs when learners have to mentally integrate information by holding one thing in working memory while they search for another (Chandler and Sweller, 1992).



Avoid reading out text that is already written on the slide

(unless you think that students are unable to read it independently). Studies have shown that you should avoid reading aloud text that is written on the board or a slide. This overloads working memory because students cannot process two types of language input simultaneously.



Remove distracting or superfluous images.

Only use those that directly support learning, because unnecessary images create extraneous cognitive load.



Use images to support complex and conceptual ideas.

The dual coding theory suggests that presenting language and images together enhances learning (Paivio, 1971).



If you intend to explain an image, it is best not to include written text at the same time

(especially when you intend to be brief). Again, this can create extraneous load.



Never expect students to read something from the board while you are talking

at the same time! It is not possible to split attention between both.



Reveal processes stage by stage on the same slide,

rather than on consecutive slides. This way, students have a prompt to remind them of earlier stages and do not have to juggle too much information in working memory.



Remember that spoken words and slides are fleeting and transient

and that your students' innate cognitive architecture means that they will be unable to hold on to them all at once. Slide-show handouts and shortened 'bursts' of teaching can reduce this problem.