Cognitive Load Theory

Information for Students

What is it?

SOCIAL AND COGNITIVE ENVIRONMENTS
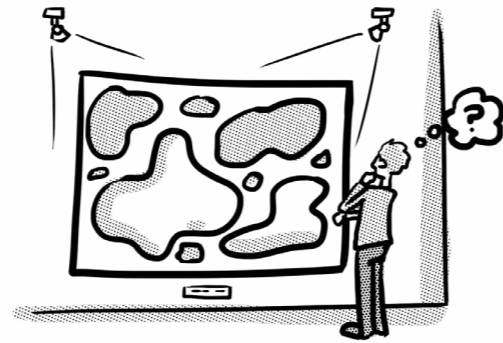
'Cognitive Load' Theory was developed by John Sweller out of the study of problem solving.

Cognitive load is the amount of information our working memory can hold at any one time. The working memory is where we process information and is key to learning.

We are Limited!

We must therefore manage our working memory using different strategies. There are 3 types of working memory:

1. Intrinsic Load – this means how complex a task is. If a task or problem is really complex then it can take over most of our working memory. If a task is simple, it uses less working memory.

2. Extraneous Load – these are the instructions you are given or how questions are written. Incomplete instructions take up space in working memory and don't help you learn.

3. Germane Load – This is the amount of work you put in to create a permanent store of knowledge.

What does this mean? You should **ALWAYS ASK** if you don't understand something.

Top Tips

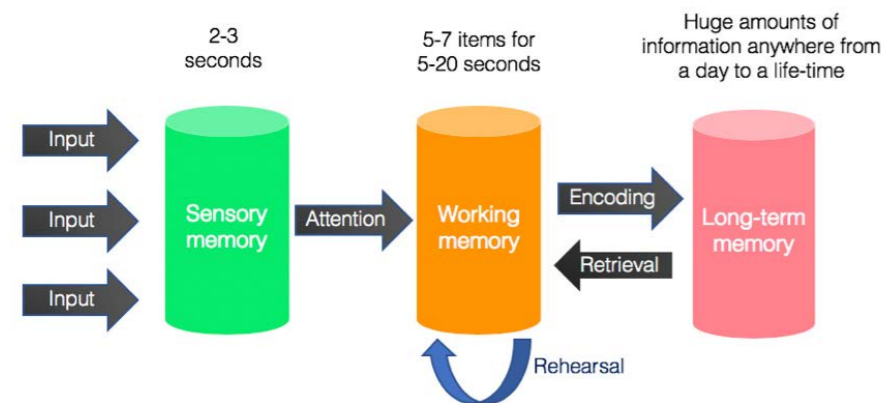Top 10 tips to help you apply the Cognitive Load Theory to revisit and learn new information:

1. Break the problem down into parts. This reduces the problem space and lightens the cognitive load, making learning more effective.

2. Look at worked examples to understand how to complete tasks.

3. Take advantage of auditory and visual channels in your working memory.

4. Start with learning simple information and build on it.

5. Create an environment with as few distractions as possible so turn off your phone, music or the TV. Distractions add to your working memory.

6. Avoid overloading your brain with too much information at one time.

7. Always review information from your lessons as you go along because this will help improve your retention and add knowledge to your long-term memory.

8. Focus on one task or topic at a time.

9. Rehearse the components of a complex task so that it becomes automated, thus freeing up working memory capacity.

10. Create stories from information to be remembered or group information into more memorable categories or more accessible chunks.

Did you know?

The mind processes visual and auditory information separately BUT too much visual and text displayed together compete with each other in your mind.

When you have multiple sources of visual information, such as diagrams, labels and explanatory text, your attention is divided between them. This adds to the cognitive load, making it more difficult for you to learn.

Top tips to help you revise:

- Incorporate labels into diagrams rather than writing text in separate boxes

- Use acronyms to help you learn so information can be 'retrieved' more easily from your memory
- Try talking through the problem out loud
- Watch videos with animation and voiceovers

How will using the Cognitive Load Theory affect your learning?

- Improve your long-term memory and knowledge
- Learn new skills more easily
- Remove unnecessary distractions
- Reduce anxiety and feelings of being overwhelmed

Don't overload your brain when you want to learn more efficiently