



Cognitive load theory

What we really need to know

Centre for Education Statistics and Evaluation

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What is cognitive load theory?

What is it?

Built on two ideas:

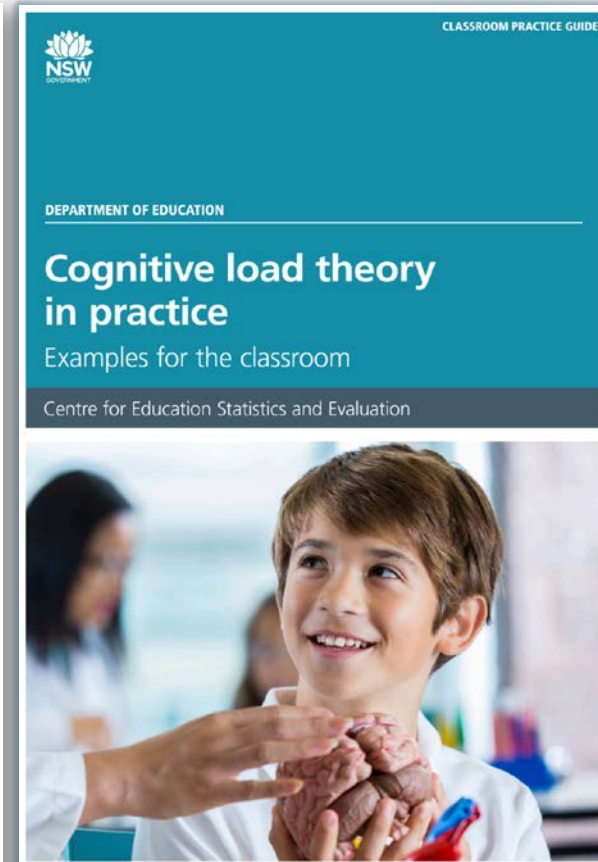
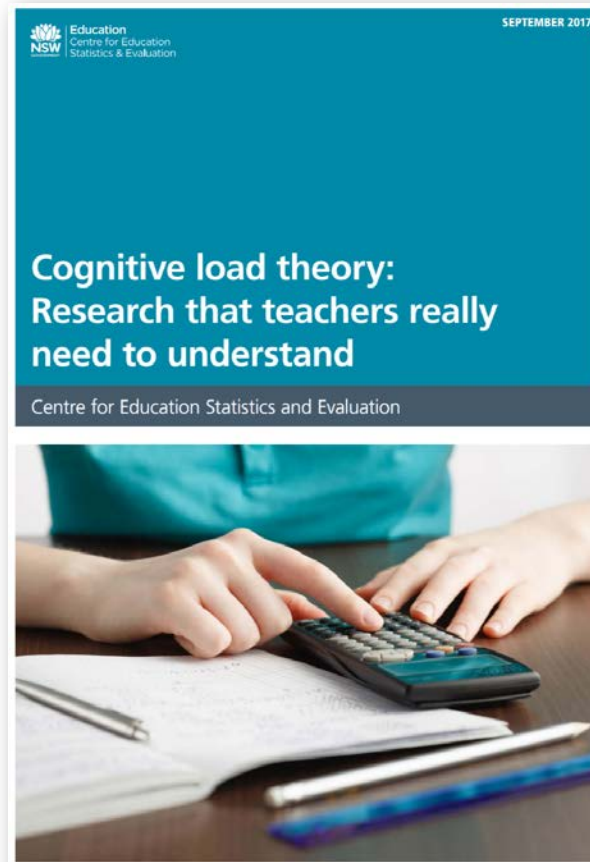
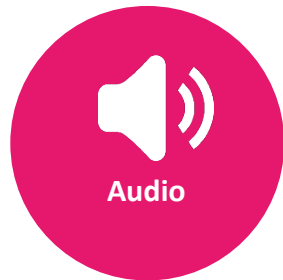
- limit to how much new information the brain can process at one time
- no known limits to how much information can be stored in long term memory.

What are the implications?

- Supports explicit models of instruction¹
 - Teachers showing what to do and how to do it. Not students discovering or constructing information for themselves.

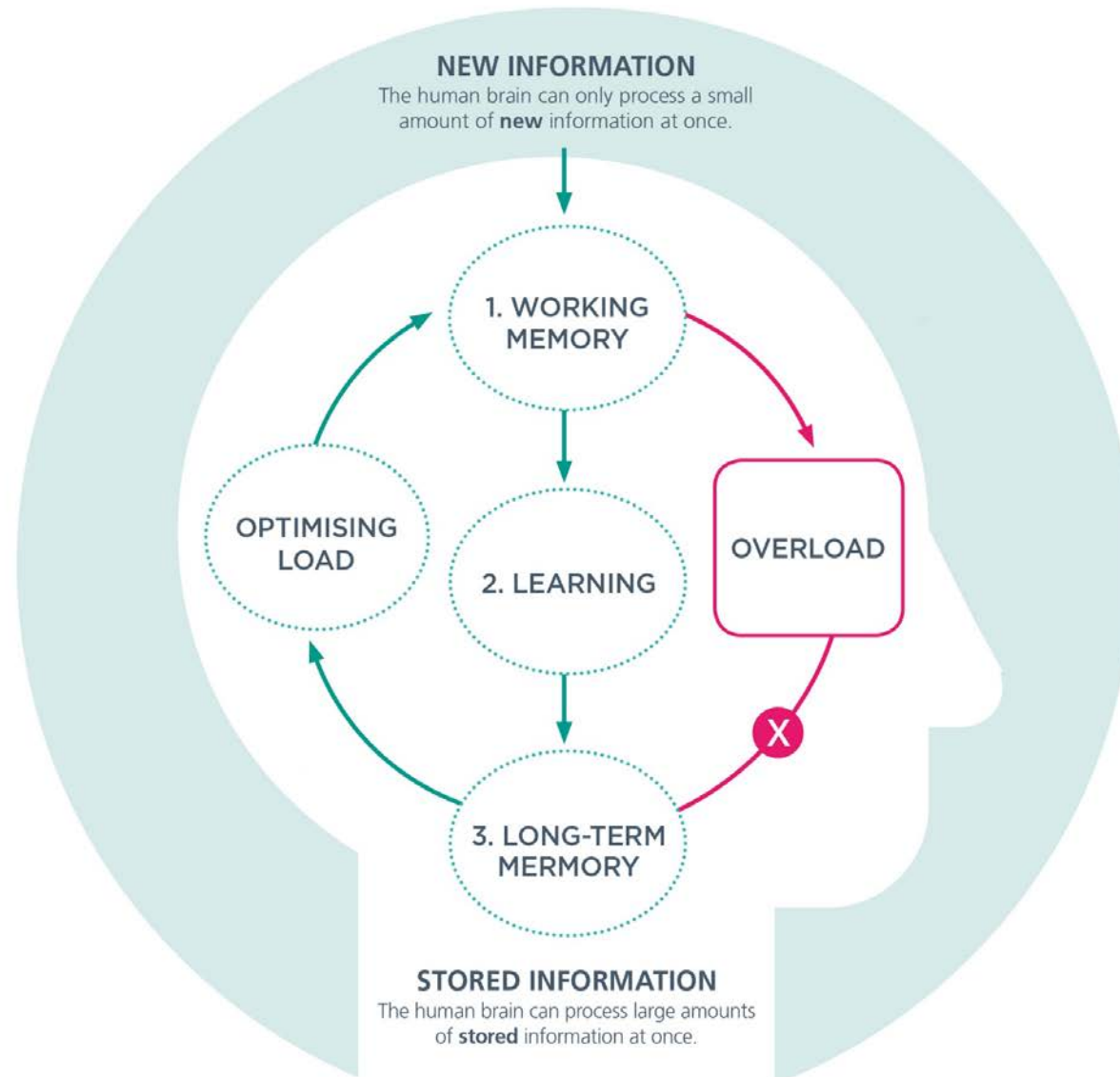
¹Kirschner, Sweller & Clark (2006)

CESE resources on cognitive load theory



- search 'Cognitive Load' on MyPL
- do it individually or as a group
- 1.5 hours registered at Proficient level

How do human brains learn and store knowledge?



Activity

S M B U A H I R T N R Y

Activity

M Y B R A I N H U R T S

Practical findings from cognitive load theory

	STRATEGY 1 Tailor lessons according to students' existing knowledge and skill 'Element interactivity effect'
	STRATEGY 2 Use worked examples to teach students new content or skills 'Worked example effect'
	STRATEGY 3 Gradually increase independent problem-solving as students become more proficient 'Expertise reversal effect'
	STRATEGY 4 Cut out inessential information 'Redundancy effect'
	STRATEGY 5 Present all the essential information together 'Split-attention effect'
	STRATEGY 6 Simplify complex information by presenting it both orally and visually 'Modality effect'
	STRATEGY 7 Encourage students to visualise concepts and procedures that they have learnt 'Imagination effect'

Strategy 4: Cut out inessential information

Either read the text out loud (without presenting it on the slide) or allow students to read it themselves – not both.

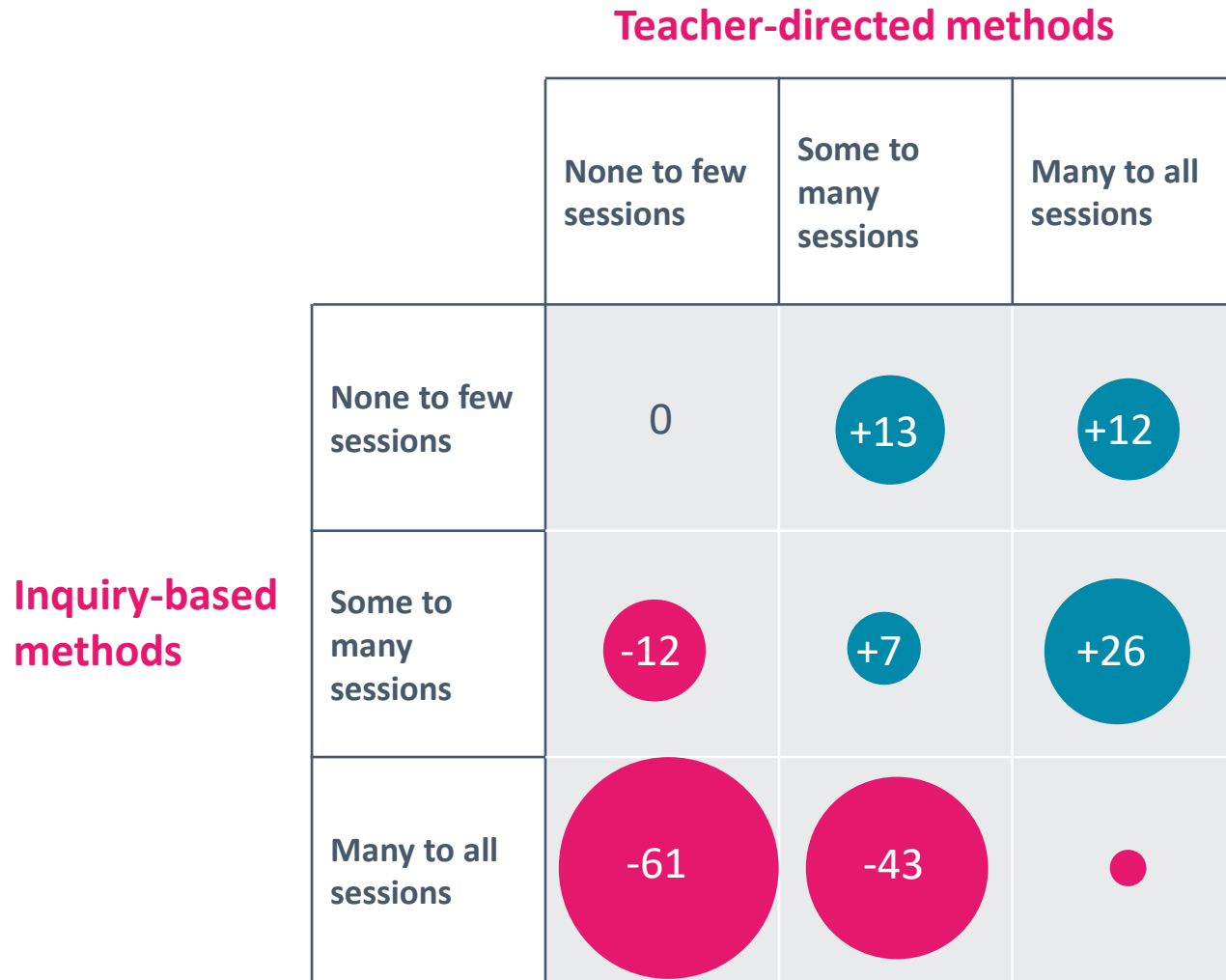

**Optimising
load**




Overload



Implications for inquiry-based learning approaches



The 'sweet spot' combines mostly teacher-directed instruction with some inquiry-based learning.

As learners' expertise increases, explicit instruction becomes less necessary. This is 'expertise reversal effect' in CLT.

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