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**Making the invisible visible**

Digital teaching is often framed around tools. Its deepest impact is cognitive.

- attention
- memory
- reading

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**What we assume when learning begins**

- Ready to focus
- Attention available
- Sustained thinking is easy

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**What actually arrives in the classroom**

- Attention trained for speed
- Switching feels normal
- Stillness feels difficult

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**Attention is shaped before learning begins**


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The illusion of engagement

busy – deep  
active - durable

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When attention keeps moving, meaning doesn't settle

Students who thought the details were relevant reported longer processing times, and in turn had worse learning outcomes. [...] Seductive details hamper learning when they make students activate and integrate prior knowledge that is inadequate to solve the (learning) task at hand. This finding underscores the importance of (correct) prior knowledge retrieval for successful learning as also conceptualized within the cognitive theory of multimedia learning.

Seductive details hamper learning even when they do not disrupt  
Kienitz A, Krebs MC, Eitel A.


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Engagement is not evidence of learning

How students feel vs what they remember


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The illusion of strategy


'They know what to do...'

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Right strategy, wrong mode

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Learning depends on transitions, not just skills

- We over-teach strategies
- We under-teach how to enter a task
- Transitions between thinking modes aren't automatic anymore

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## The illusion of understanding

'I can read it'  
'Can you explain it?'

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## Recognition feels like comprehension

- Digital reading habits train recognition
- It doesn't require building memory or meaning
- We need to build memory, not just where information came from

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## Understanding requires reconstruction

- Explain
- Recall
- Connect ideas



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## What changes when digital life reshapes learning?

- We stop asking 'What strategy should I teach?'
- We start asking 'What cognitive conditions does this task require?'

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## Designing for arrival

The problem isn't distraction in class. It's the attention students arrive with.

Our first job isn't teaching, it's helping students arrive cognitively

Where do our lessons assume students can sustain attention without helping them switch into that mode?

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## Examples

### Lesson entry point

- First 3 minutes of every lesson have same routine
- short reading / listening (5-6 lines / 30 seconds)
- a guiding question on the board
- No discussions = shift from noisy cognitive environment into sustained language processing before we ask for output

### Guided focus

- One task at a time  
e.g. Listening + choose heading, then listening and gap-fill
- Full-screen view
- Release each task when ready

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## Designing to stabilise attention

Memory and understanding depend on attention staying long enough to work

Does every moment need stimulation?

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## Examples

### No instant answers rule

- 10 seconds thinking time
- Everyone writes / draws something before anyone speaks

### Slow down key moments

- Write a sentence
- Underline the verb
- Then speak
- Type a response / Choose an option
- No instant feedback

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## Designing for cognitive transition

- Speed
- Depth
- Purpose

Clear signals: This is a thinking task

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## Examples

### Be explicit

- This is not a fast task
- This is a thinking task
- This task needs slow reading
- This task needs memory recall

### Reflect

- Today, I found it difficult to focus on...
- One thing that helped me focus was...
- Was it easy to focus on this task? Why?

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We performed an empirical study to investigate whether the context of interruptions makes a difference. We found that context does not make a difference but surprisingly, people completed interrupted tasks in less time with no difference in quality. Our data suggests that people compensate for interruptions by working faster, but this comes at a price: experiencing more stress, higher frustration, time pressure and effort. Individual differences exist in the management of interruptions: personality measures of openness to experience and need for personal structure predict disruption costs of interruptions.

The Cost of Interrupted Work: More Speed and Stress  
Gloria Mark, 2015

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## Designing for reconstruction

### Students aren't practising how to retrieve information

The working memory, encoding and retrieval skills are affected by immediate information

How do students remember information?


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The results of four studies suggest that when faced with difficult questions, people are primed to think about computers and that when people expect to have future access to information, they have lower rates of recall of the information itself and enhanced recall instead for where to access it.

Google Effects on Memory: Cognitive Consequences of Having Information at Our Fingertips  
Sparrow, Liu & Wegner, 2011

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### Examples


Recall	Processing
<ul style="list-style-type: none"> <li>- Write or say five words / ideas from the last lesson</li> <li>- Compare with a partner</li> <li>- Ask students to explain, not locate</li> <li>- Close texts before responding</li> <li>- Retrieve before presenting text/video/audio</li> </ul>	<ul style="list-style-type: none"> <li>- Multimodal</li> <li>- One instruction at a time</li> <li>- Time</li> <li>- Silence</li> </ul>

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Designing for depth in a distracted world

arrival – attention – transitions – reconstruction

Deep learning is still possible, it's just less automatic



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**Laura Broadbent**

Digital and SEN specialist

Educational teacher, author and consultant

lblaurabroadbent@gmail.com



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