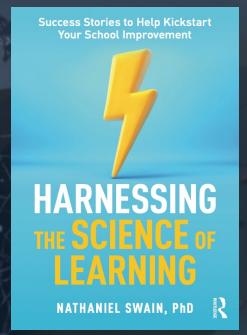
Breaking Boundaries between Teacher and Student-Centred Instruction+

Building Capability Rich Educators



QCPPA Conference 2026

DR NATHANIEL SWAIN

LUMINARY

NS

At a crossroads?

Student-Centred vs. Teacher-Centred

Student-Centred

Student-Centred

Flexible

Individualised

Collaborative

Interest-Driven

Culturally Responsive

Student-Centred

Inaccessible

Unsystematic

Loose

Leaving some behind

Time consuming

Student-Centred

Student-Centred vs. Teacher-Centred

Teacher-Centred

Teacher-Centred

Rigid

One size to fit all

Boring

Irrelevant

Not catering to diversity

Teacher-Centred

Structured

Systematic

Dynamic

Equitable

Efficient

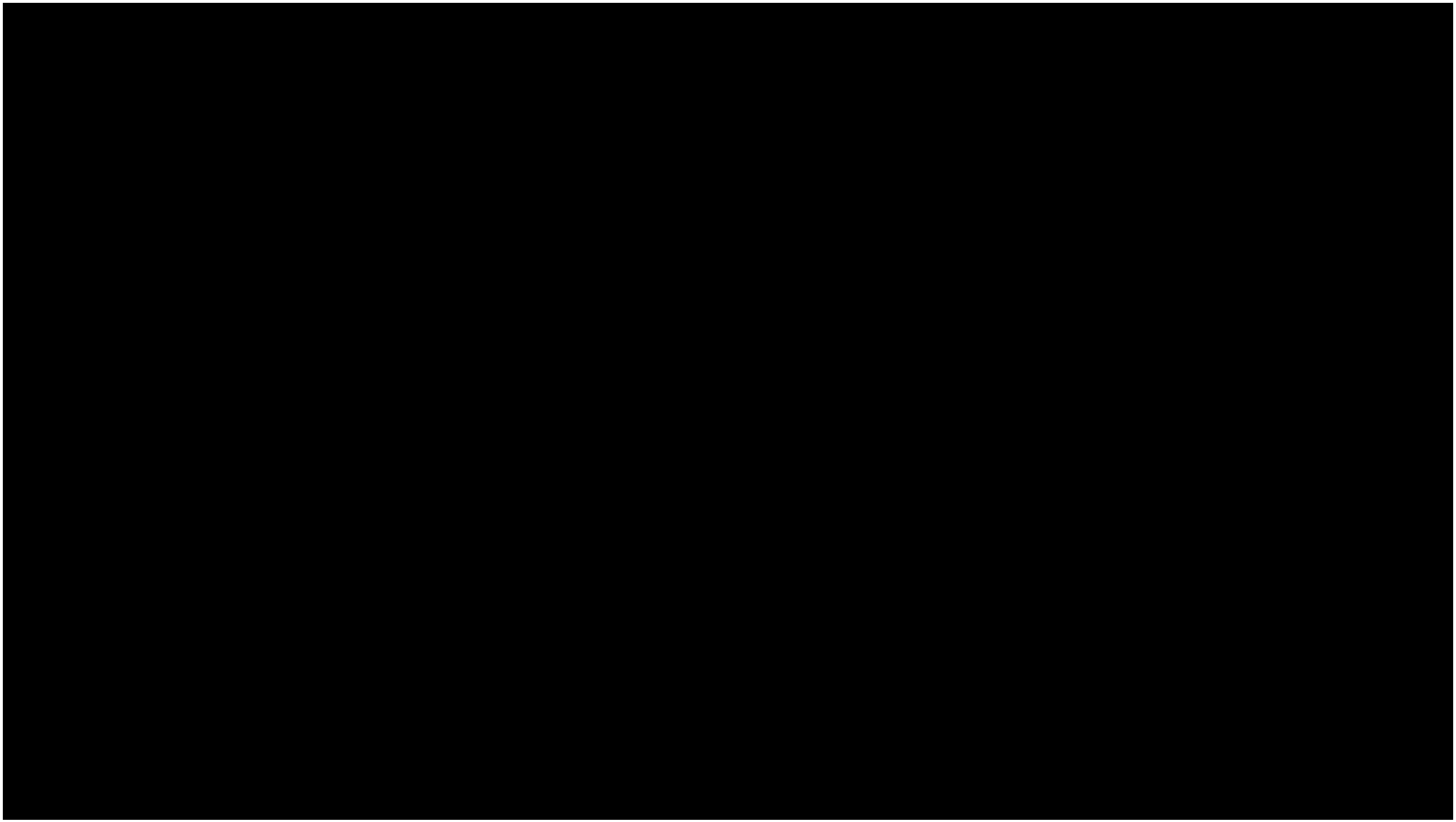
Meaningful

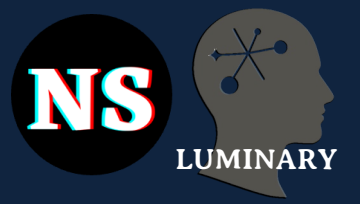
Teacher-Centred

Student-Centred vs. Teacher-Centred

Student-Centred vs. Teacher-Centred

How can be resolve this divide,
and break this boundary?





Can insights from research on learning help?

Making best decisions possible

- To benefit the greatest number of students
- To greatest level of effectiveness
- No matter what stage of learning

Swain (2024). *Harnessing the Science of Learning*

Reframing and refiguring explicit instruction

- A dynamic dialogue
- A structured but *flexible* approach
- Designed to guide novices into experts
- Using a progression of
  - Modelling
  - Guided Practice …
  - Then Independence, into Creative + Critical Application.

AERO (2022). Explicit instruction explainer.

Why should leaders be involved in instruction and curriculum implementation?

Hands on Leadership

Why do leaders need to know about teaching/learning?

Hands-on

Leader learns alongside the teachers, attends workshops and PL.

Leader is well-versed and knowledgeable in the details of theory and practice.

While leader does not need to implement the work in a classroom, they will know what good looks like.

Hands-off

Leader not in touch with reasons behind or impetus for change.

Leader may not know extent of change or skillset of staff required.

Leader may inadvertently undermine initiatives if they do not know about and assure the active ingredients are present.

How learning happens –
Simple Model of Memory

Simple model of memory

Information processing model (Dan Willingham)

Working memory bottle neck

Letter memory game

ABMWQ
LDNB
NCNNN
BCNYC

Letter memory game

A BMW
QLD NBN

CNN NBC
NYC

Letter memory game

meaningless


meaningless ful

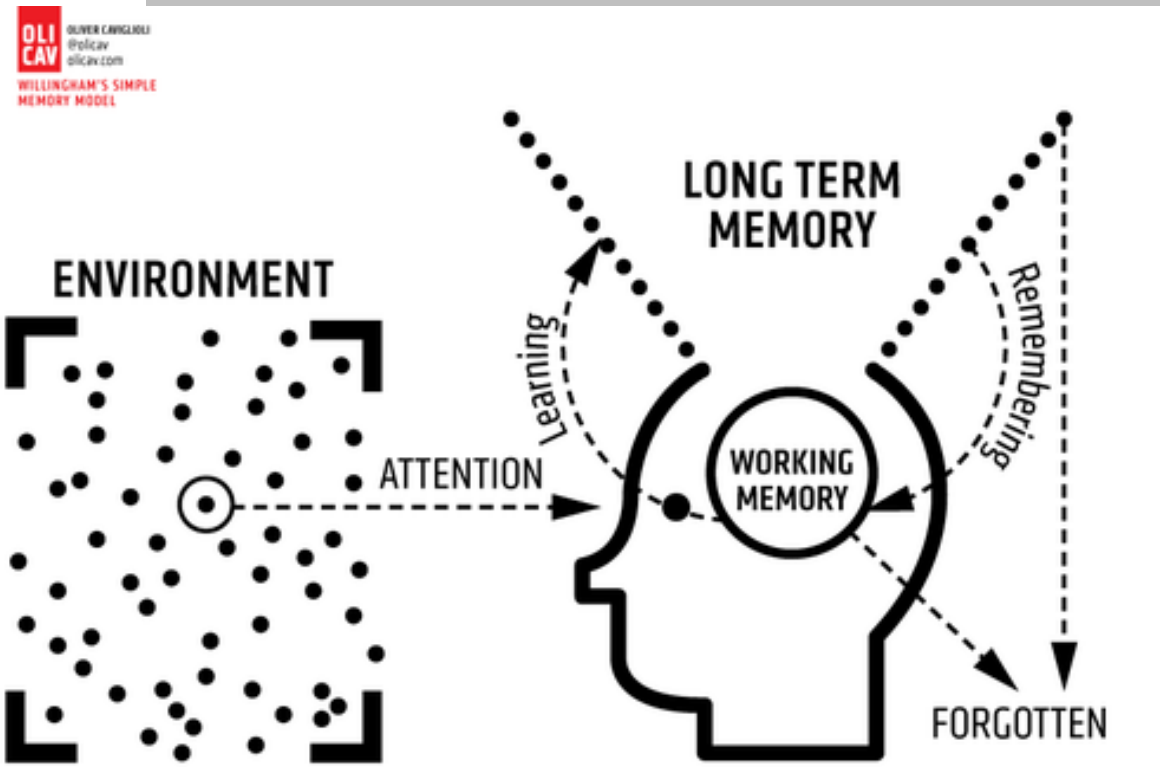
meaningful

Simple model of memory

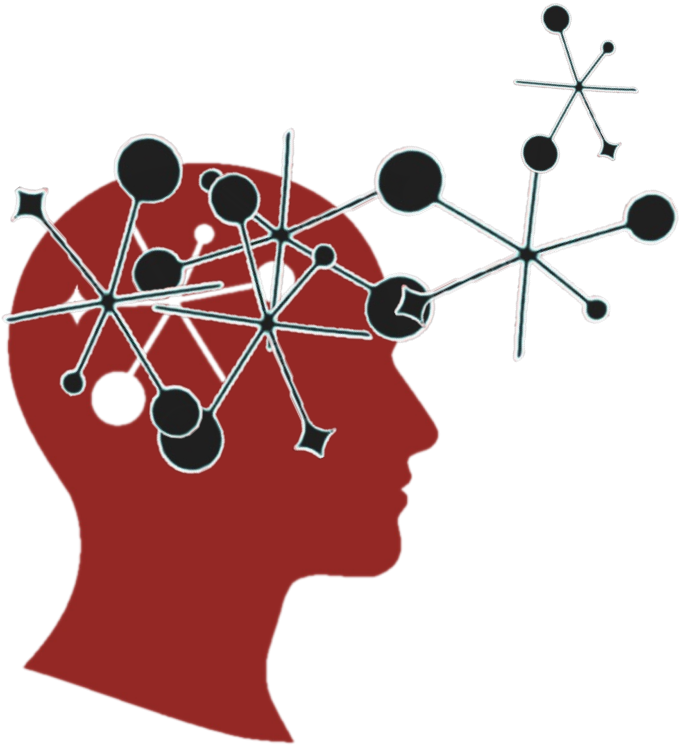
Information processing model (Dan Willingham)

Working memory bottle neck

Cognitive load theory (Sweller et al)



Meaningful Learning – The Goal !



See Ausubel

Key aspects from the science of learning

The Four Pillars of Learning

1. **Attention**
2. **Active engagement**
3. **Error feedback**
4. **Consolidation**

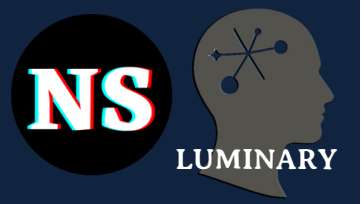
Dehaene (2020). How we learn: The new science of education and the brain.

Evidence synthesis

Australian Education Research Organisation

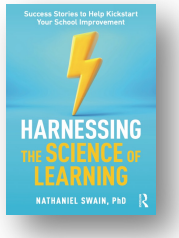
> The mechanisms of learning are the **same for all students**.
>
> Some students experience **persistent difficulties or differences** in processing information that necessitate more frequent, intense, and sustained scaffolding and support … but **all students benefit** from evidence-based practices that align with the processes of acquiring, retaining, retrieving, and consolidating learning.

Australian Education Research Organisation (2023). How students learn best.



Learning from others is our superpower – Importance of knowledge

Types of knowledge



Ch 4

BIOLOGICALLY PRIMARY KNOWLEDGE:

- Basic, universally acquired information
- Acquired from acculturation and interaction
- Serves as fundamental precursors to academic learning

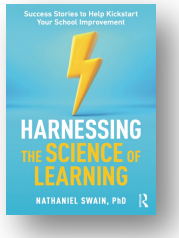
BIOLOGICALLY SECONDARY KNOWLEDGE:

- Not learnt naturally
- Acquired through deliberate instruction and explicit learning
- Still can be discovered but is harder, slower! And less reliable.

GEARY, As Cited

In Sweller, J. (2008) Instructional Implications of David C. Geary's Evolutionary Educational Psychology, *Educational Psychologist, 43*(4), 214-216,

Types of knowledge (examples)



Ch 4

BIOLOGICALLY PRIMARY KNOWLEDGE:

Speaking,
Social Communication
Facial Recognition
Navigating Local Area
Solving Problems

BIOLOGICALLY SECONDARY KNOWLEDGE:

Reading
Writing
Mathematics
Scientific Knowledge
Complex Academic Concepts

GEARY, As Cited
In Sweller, J. (2008) Instructional Implications of David C. Geary's Evolutionary Educational Psychology, *Educational Psychologist, 43*(4), 214-216,39

Why biologically secondary knowledge?

Geary, D. C. (2008). An Evolutionarily Informed Education Science. *Educational Psychologist*, *43*(4), 179-195. See This Blog

Humans:

Only species that can create a mental representation of a better life

In a short space of time we have accumulated countless pieces of knowledge about the world and ourselves

→ conflicts with folk knowledge

> Imagination has brought mankind through the Dark Ages to its present state of civilization... Imagination has given us the steam engine, the telephone, the talking-machine and the automobile, for these things had to be dreamed of before they became realities. So I believe that dreams – day dreams, you know, with your eyes wide open and your brain-machinery whizzing – are likely to lead to the betterment of the world.
> **L. Frank Baum**

Biologically secondary knowledge can be acquired through...

A) TRIAL AND ERROR

- Humans can learn things through trial and error
- We can keep trying something, through exploration and use of new logic
- This can take millennia, though.

B) BORROWING AND REORGANISING

- Humans also very good at learning from each other
- We borrow ideas we hear, and reorganise them in our own mental models

Sweller, Van Merrienboer, &Paas, (2019)

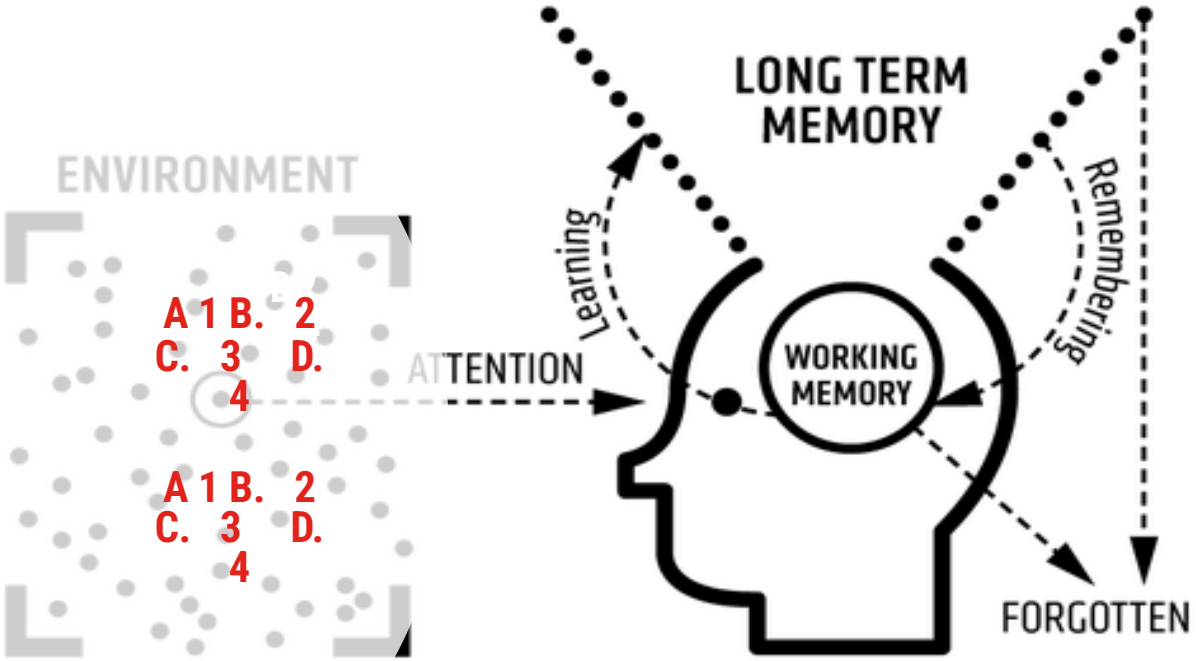
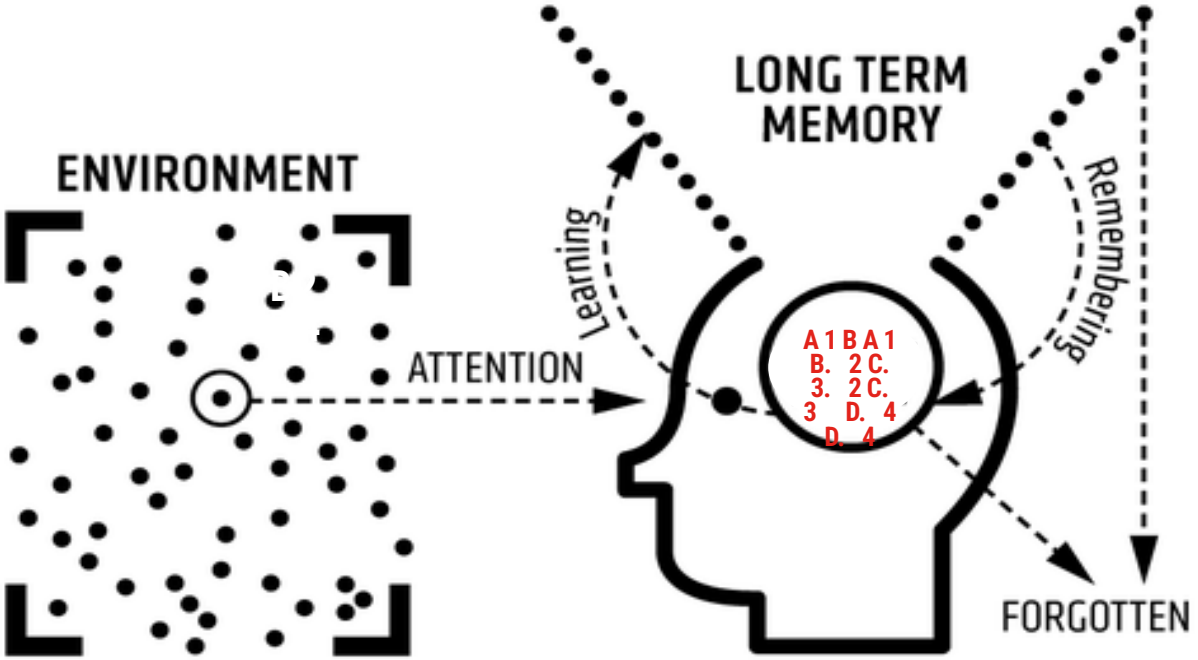
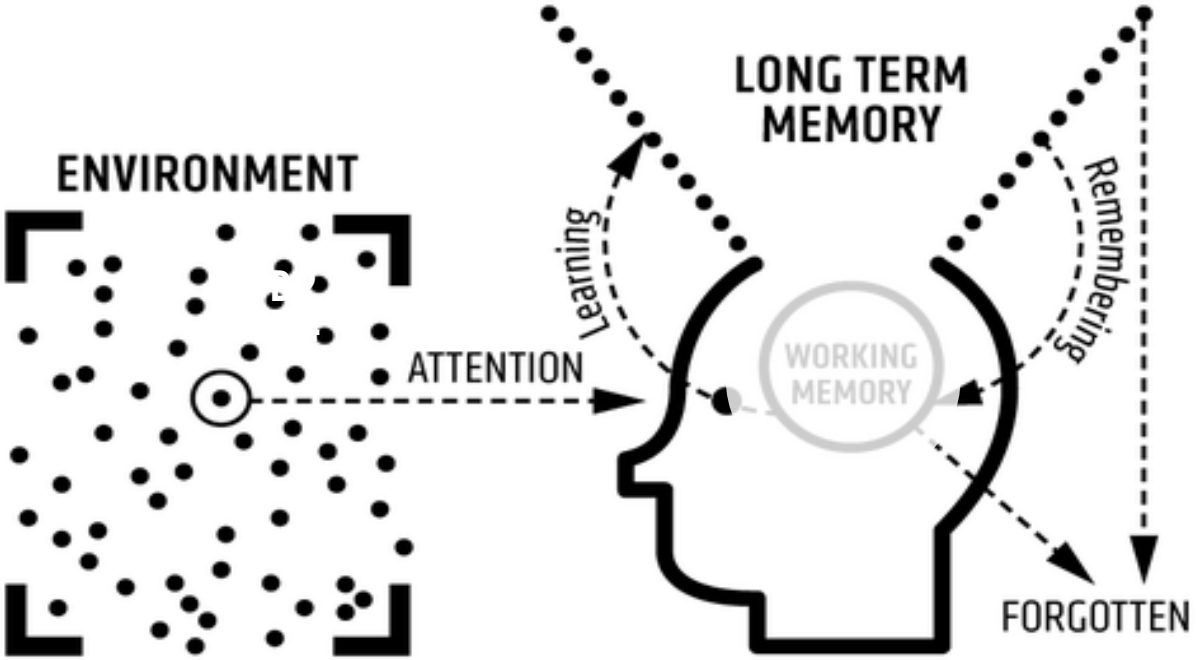
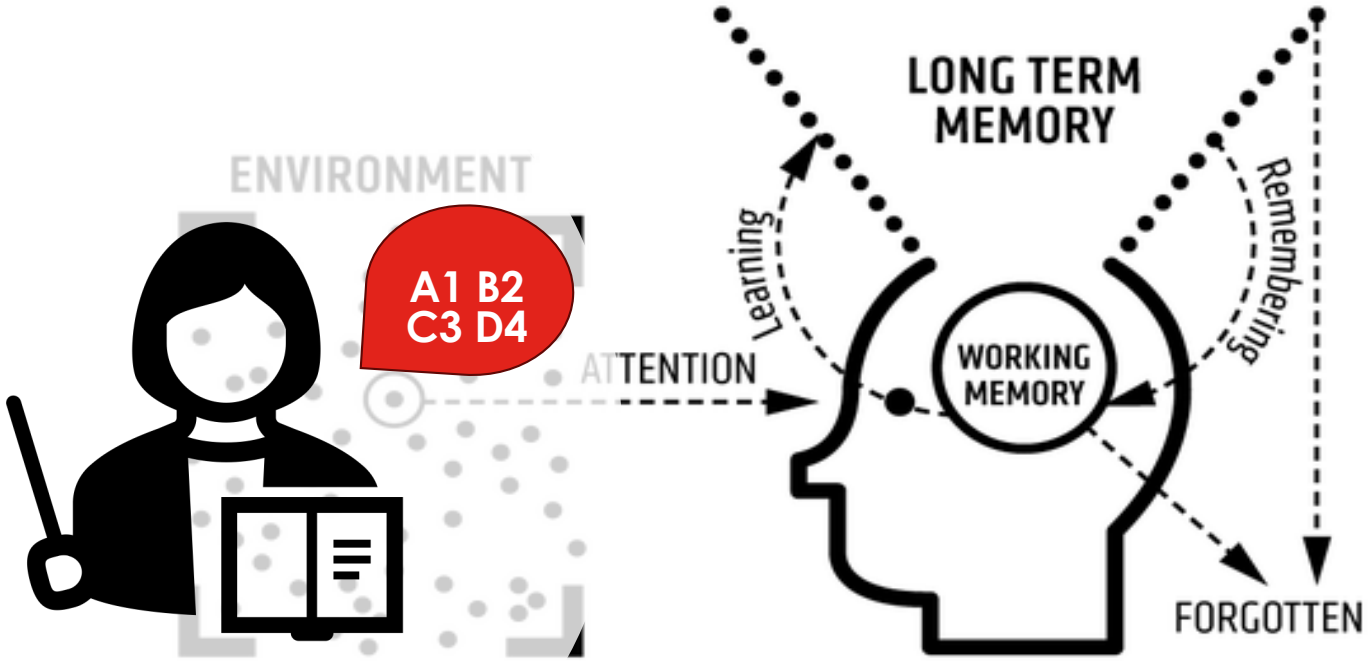


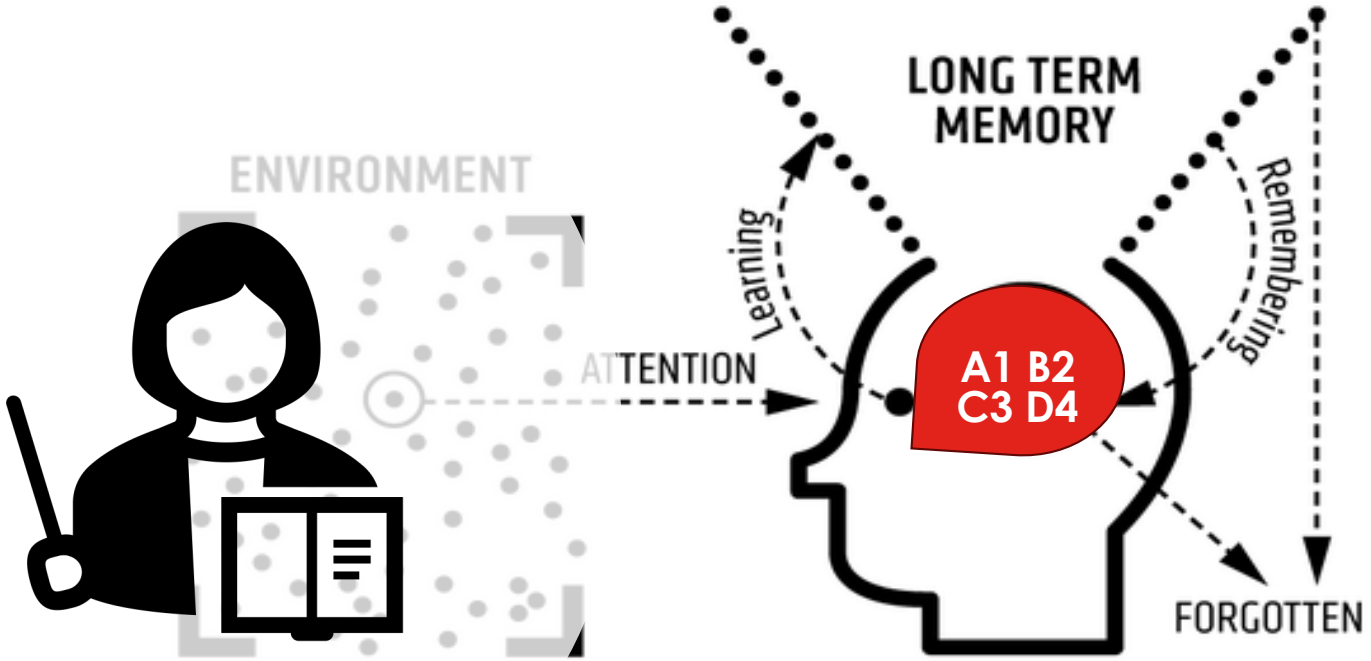
Diagram by Oliver Caviglioli

P. 273 Sweller, Van Merrienboer, & Paas, (2019)

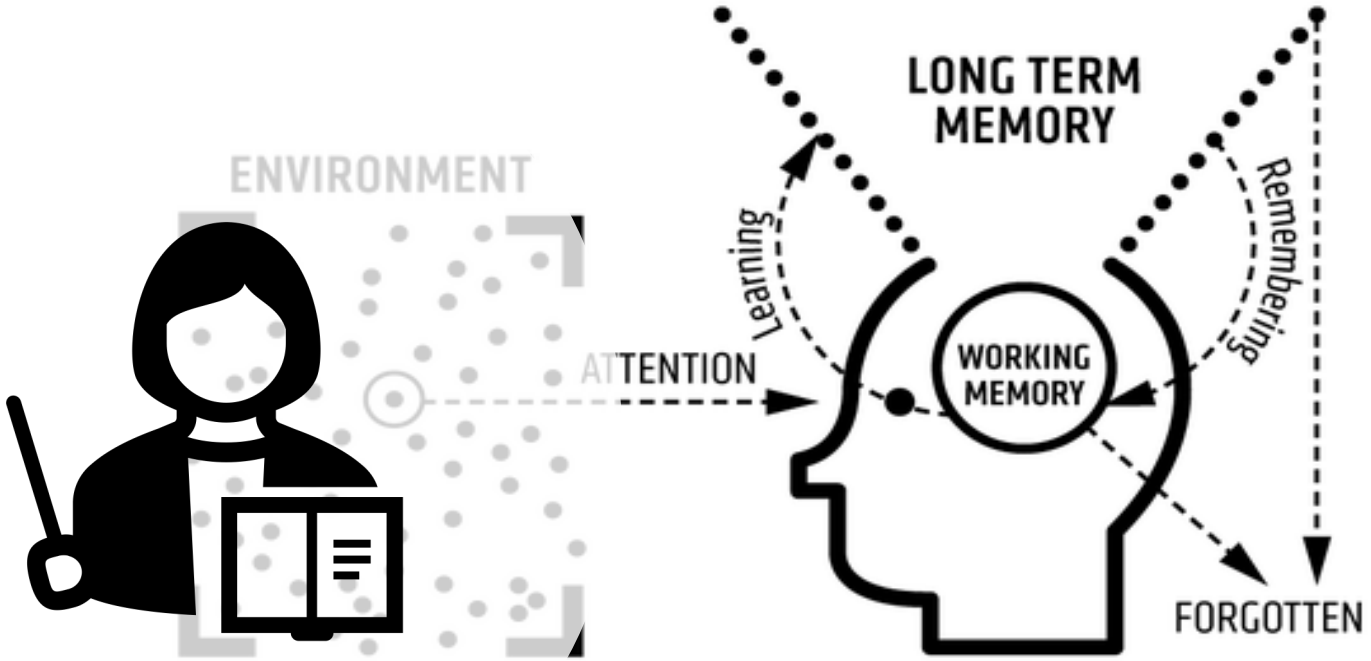

ENVIRONMENT
ATTENTION
LONG TERM
MEMORY
Learning
Remembering
FORGOTTEN
A 1 B A 1
B. 2 C.
3. 2 C.
3 D. 4
D. 4


ENVIRONMENT
ATTENTION
LONG TERM
MEMORY
Learning
WORKING
MEMORY
Remembering
FORGOTTEN

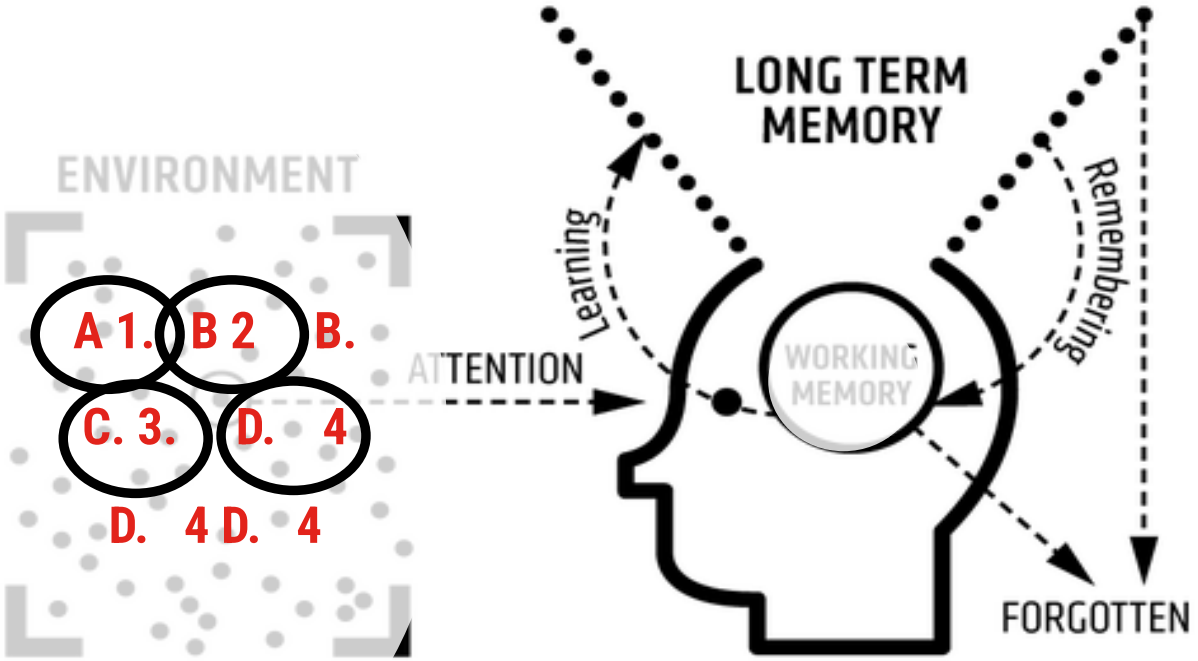

ENVIRONMENT
A1 B2
C3 D4
ATTENTION
LONG TERM
MEMORY
Learning
Remembering
WORKING
MEMORY
FORGOTTEN


ENVIRONMENT
ATTENTION
Learning
LONG TERM
MEMORY
Remembering
A1 B2
C3 D4
FORGOTTEN

A1 B2
C3 D4


ENVIRONMENT
ATTENTION
LONG TERM MEMORY
Learning
WORKING MEMORY
Remembering
FORGOTTEN

A1 B2
C3 D4


LONG TERM
MEMORY
ENVIRONMENT
Learning
Remembering
A 1.
B 2
B.
C. 3.
D. 4
D. 4 D. 4
ATTENTION
WORKING
MEMORY
FORGOTTEN

Knowledge sticks to knowledge

Students with rich knowledge get more out of learning every day…

The rich get richer (Matthew Effect)

Wexler (2020). Building knowledge.

What is explicit instruction?

Terminology differences – Explicit instruction is a set of pedagogies

NOT "The explicit part of the lesson"	Explicit teaching	Explicit instruction	Direct Instruction	Explicit Direct Instruction
• Sometimes seen as just a part of the lesson • The Launch/Explain part of lesson • Being clear • Seen as about having S.C and L.I.	• General term • Being clear about what is being taught • Breaking learning down into manageable chunks	• Similar to Explicit Teaching • Clearer on the fact that this is a PEDAGOGY (way of teaching whole lessons from start to finish) • E.g. Rosenshine, Anita Archer	• Usually associated with DI programs • Usually scripted • Engelmann	• Approach to enacting Explicit Instruction • Very accessible guidebook and approach for schools • Hollingsworth & Ybarra • DataWorks

Why **Explicit** *?*

- Working memory is limited
- Cognitive overload is always possible - more likely with new content
- ***Extraneous load*** → Reduced
- ***Intrinsic load*** → Optimised
- Once in long-term memory, more space to think!

- ***Biologically secondary knowledge*** is the most usual target
- Forgetting is the norm ! ***Cumulative learning*** required
- ***Checking for understanding*** keeps everyone on track

Rosenshine’s principles

Sherrington's Strands for Rosenshine	Rosenshine's 10 Principles (Grouped into strands)
Sequencing concepts and modelling	RP2 Small steps and practice RP4 Provide models RP8 Provide scaffolds

Rosenshine (2012). Principles of instruction: research-based strategies that all teachers should know.

Rosenshine's principles

Sherrington's Strands for Rosenshine	Rosenshine's 10 Principles (Grouped into strands)
Sequencing concepts and modelling	RP2 Small steps and practice RP4 Provide models RP8 Provide scaffolds
Questioning	RP3 Ask Questions and Check Responses RP6 Check for Understanding (CFU)
Reviewing Material	RP1 Daily Review RP10 Weekly and monthly review.
Stages of practice	RP5 Guide student practice RP7 Obtain a high success rate RP Monitor independent practice

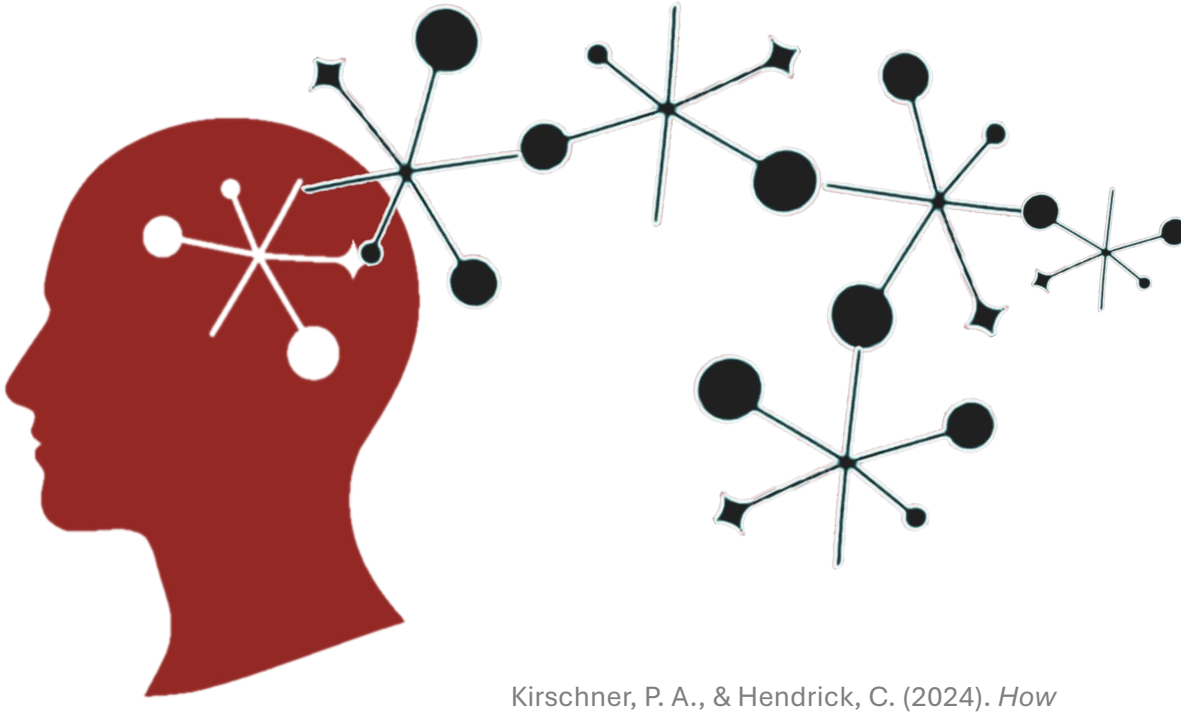
Rosenshine (2012). Principles of instruction: research-based strategies that all teachers should know.

Changing your view of explicit instruction??

- What has **resonated** with you?
- What has **challenged** you so far?

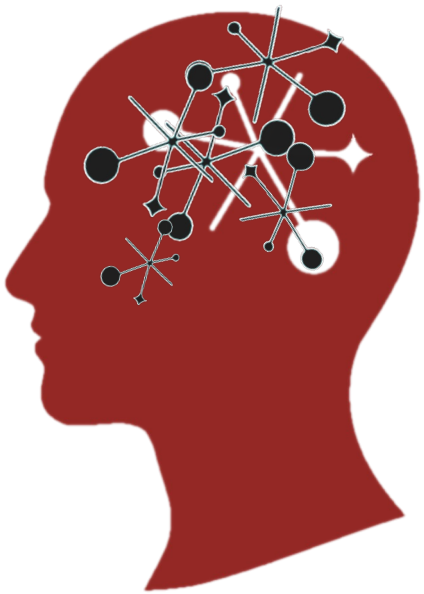
Who needs explicit instruction?

Novices vs. Experts



Kirschner, P. A., & Hendrick, C. (2024). *How learning happens: Seminal works in educational psychology and what they mean in practice*.

Novices vs. Experts



See Ausubel, e.g. Ausubel's Meaningful Learning in Action by Sarah Cottinghatt

Novice → expert continuum

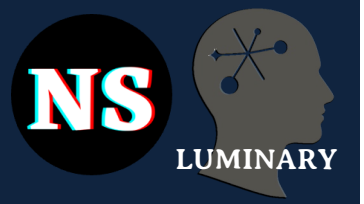
NOVICES
(in a particular domain)

- Lack sufficient knowledge in that domain
- Benefit from clear explanations, step-by-step instructions, and worked examples
- Struggle with problem-solving in that domain

EXPERTS
(in a particular domain)

- They have significant relevant knowledge, mapped and organised strategically
- Can work **without explicit guidance**, relying on stored knowledge for problem-solving.
- It is knowledge of the domain which sets novices and experts apart

A novice is not a little expert
In book: How Learning Happens (pp.4-12)
Paul Kirschner & Carl Hendrick (2020)



The best of both worlds?

Any caveats to inquiry / discovery / exploratory?

“Students should inquire from a place of knowledge”

- Swain and Pearson

- Knowledge rich curriculum

+ Responsive and explicit teaching levels the playing field.

- Gives learners chance build up knowledge and mental models for later generative, creative, or critical use.

Mode A vs. Mode B Teaching

MODE A ~80%

- You explain
- You model
- They practice
- Check and give feedback
- Test them. And again a bit later

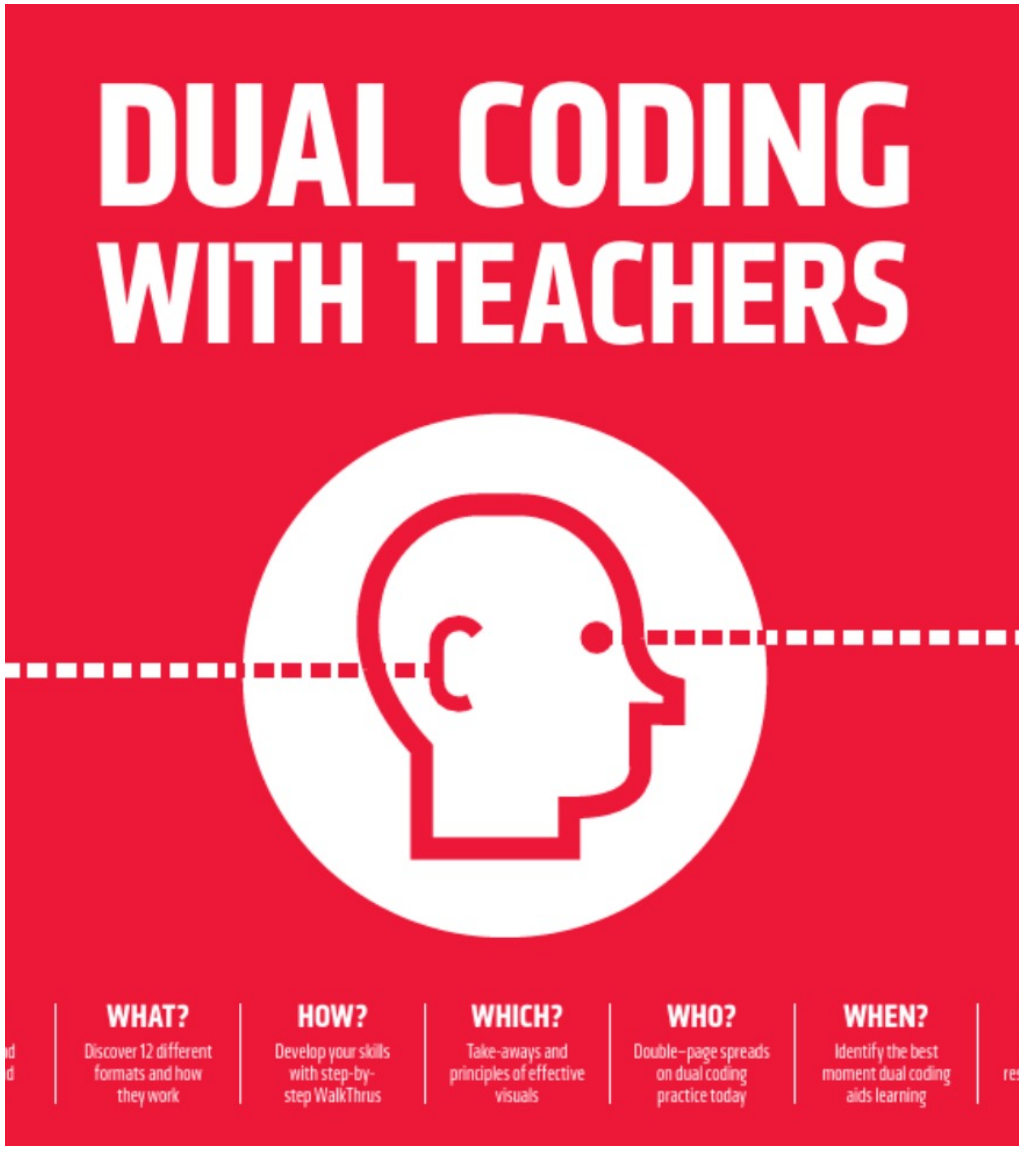
MODE B ~20%

- They Explore; Discover
- Hands-On Experience
- Inspire some AWE
- Go off-trail
- They make things;
  Do projects;
- You set open-ended tasks;
- Give choice

Sherrington

See this book -->

LET'S FOCUS ON MAPPING:



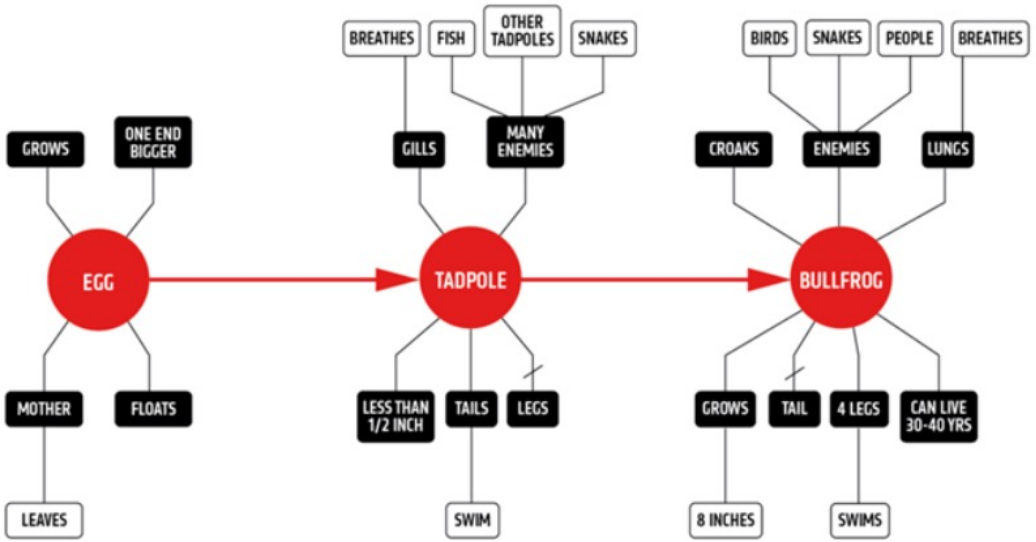
Mind maps

Beckfoot School Website

Mind-maps are useful if you want to chunk information or organise it into categories. In this example, the central idea is the 'The Three Pigs' and each branch is a theme within the story

Beckfoot School Website

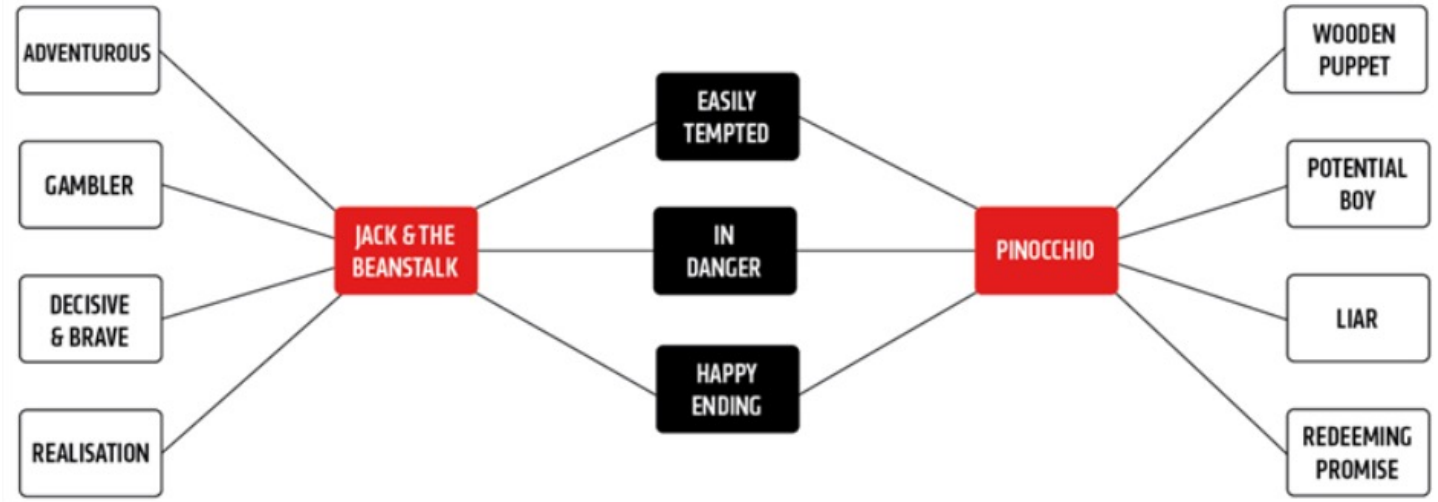
Flow sprays



Flow-sprays are useful if you want to show the events that happen in a particular sequence. In this example, the red boxes show the main event in the lifecycle of bullfrogs, and the order they happen in. The black and white boxes show what factors contribute to these main events

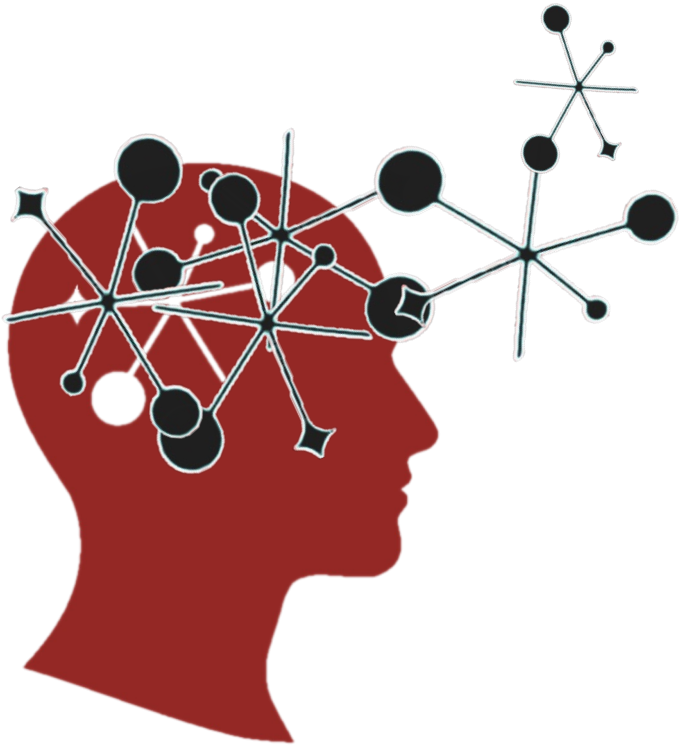
Double sprays

Beckfoot School Website



Double-sprays are useful if you want to show similarities and differences of information. In this example, the black boxes show what 'Jack & the Beanstalk has in common wit 'Pinocchio'. The white boxes show what is different about the two stories.

Meaningful Learning Theory

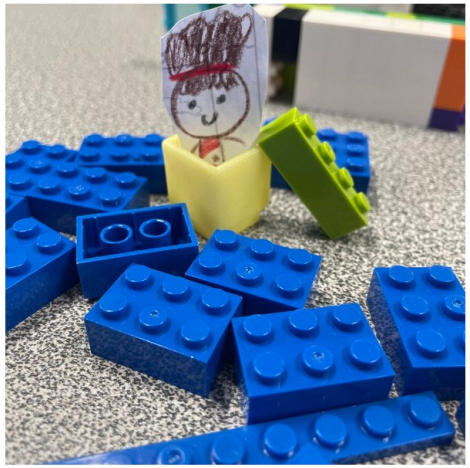


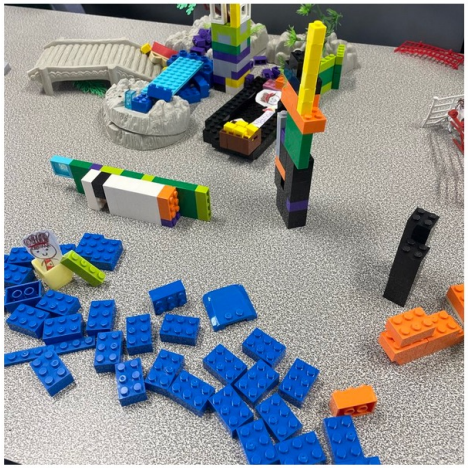
See Ausubel

KEY MESSAGE

Explicit teaching
and knowledge rich curricula
pave the way for independent
application and inquiry

HIGHLIGHTS FROM A MESOPOTAMIAN CITY BY SOME OF OUR YEAR 2 STUDENTS. FEATURING RIVERS, CANALS, FARMERS, PRODUCE, INFRASTRUCTURE, LIVESTOCK AND TRANSPORTATION





COGNITORIUM

A NEW BLOG ABOUT TEACHING

A GROUP OF LEARNERS IN THE FIRST YEAR OF PRIMARY SCHOOL.

Mar 24, 2022

"I LOVE reading... Now" - Content that gets kids hooked on literacy

Barwon Heads Primary School

Getting Mode A *to work* + *lead into* Mode B

Making engaging and effective teaching the norm

Checking for Understanding
and
Responsive Teaching

Adaptive Teaching
including
Pace and Challenge

What does engagement really mean?

Check for **listening**

Check for **understanding**

Check for **thinking**

Barwon Heads Primary School

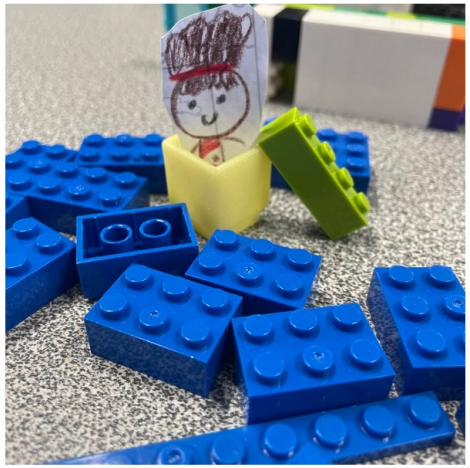

SAND MAN

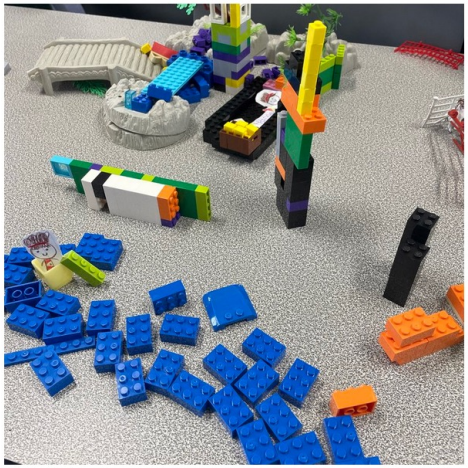
At a Glance

The most important ideas in Unit 2 are:

- Students should be able to locate major geographical features of the Mediterranean and major sections of the Roman Empire.
- The Romans created a legend (Romulus and Remus) to explain the city's founding.
- The Romans adopted and adapted Greek mythology and deities to their own culture.
- The Roman Republic evolved from one dominated by patricians to one in which plebeians also had power.
- The Romans not only defeated but destroyed Carthage in the Punic Wars.
- Julius Caesar was ambitious but also attempted to reform the government of the Roman state.
- The reign of Caesar Augustus ushered in the two-hundred-year *Pax Romana* and marked the end of the republic and the beginning of the Roman Empire.
- The Roman Empire ended for a variety of reasons: military, economic, political, and social.
- The Eastern Roman Empire lasted until 1453 as the Byzantine Empire.
- Roman political ideas, institutions, and works of literature (written in Latin) have had a tremendous impact on European history and culture.

HIGHLIGHTS FROM A MESOPOTAMIAN CITY BY SOME OF OUR YEAR 2 STUDENTS. FEATURING RIVERS, CANALS, FARMERS, PRODUCE, INFRASTRUCTURE, LIVESTOCK AND TRANSPORTATION





Mar 24, 2022

"I LOVE reading... Now" - Content that gets kids hooked on literacy

Breaking boundaries

Student-Centred vs. Teacher-Centred

Student-Centred

Teacher-Centred

Student-Centred vs. Teacher-Centred

Student-Centred vs. Teacher-Centred

How can be resolve this divide,
and break this boundary?

Making engaging and effective teaching the norm

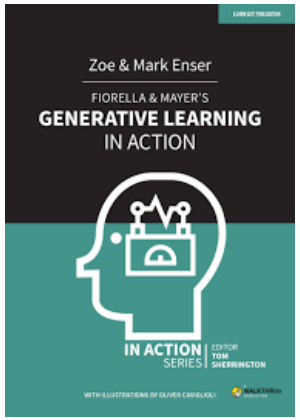
Combining **structure** and **responsivity** with *informed* **student choice ...**

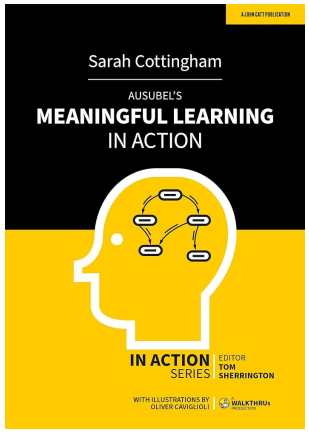
to improve **equity** and **excellence** for all

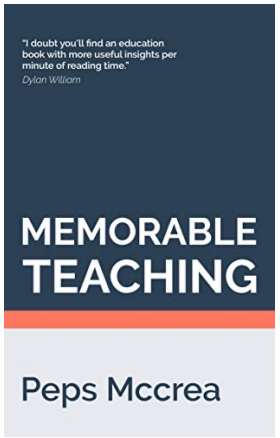
Great texts

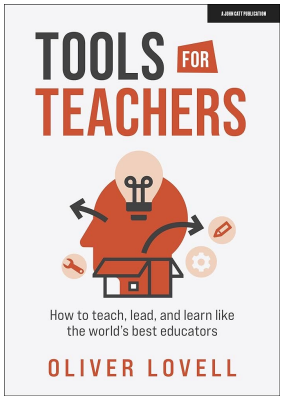

SECOND EDITION
EXPLICIT DIRECT INSTRUCTION
The Power of the Well-
Well-Taught Lesso
dataworks
Educational Research
John R. Hollingsworth • Silvia
HOW LEARNING HAPPENS
Seminal Works in Educational Psychology and What They Mean in Practice
PAULA K. RSCHNER & CARL HENDRICK
A David Fulton Book
DOUG LEMOV
Foreword by Norman Atkins
Teach
LIKE A
CHAMPION
3.0
62 TECHNIQUES THAT PUT STUDENTS ON THE PATH TO COLLEGE
75 VIDEOS INCLUDED
TEACHING
WALKTHRUs
TEACHING
WALKTHRUs 2
TEACHING
WALKTHRUs 3

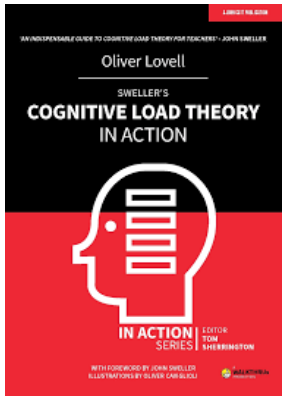
Other great texts

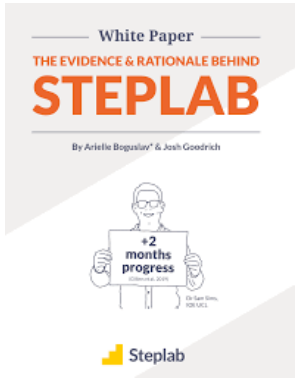


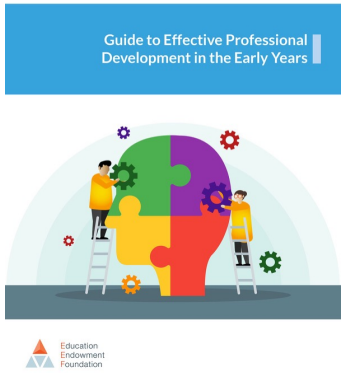


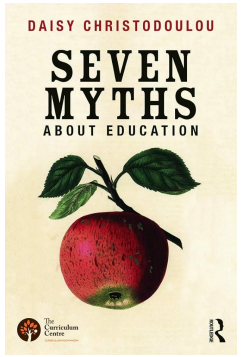


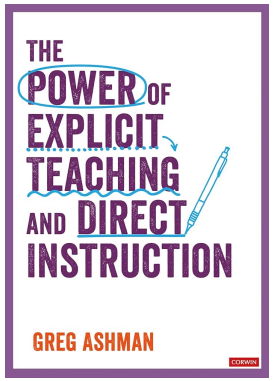


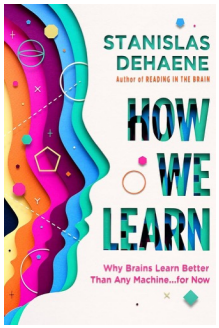


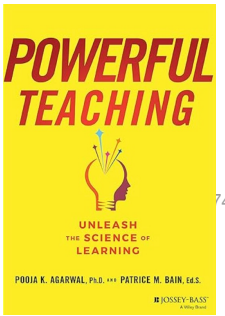












A Model for **Great Teaching**

1. Understanding the content

1. Having deep and fluent knowledge and flexible understanding of the content you are teaching
2. Knowledge of the requirements of curriculum sequencing and dependencies in relation to the content and ideas you are teaching
3. Knowledge of relevant curriculum tasks, assessments and activities, their diagnostic and didactic potential; being able to generate varied explanations and multiple representations/analogies/examples for the ideas you are teaching
4. Knowledge of common student strategies, misconceptions and sticking points in relation to the content you are teaching

2. Creating a supportive environment

1. Promoting interactions and relationships with all students that are based on mutual respect, care, empathy and warmth; avoiding negative emotions in interactions with students; being sensitive to the individual needs, emotions, culture and beliefs of students
2. Promoting a positive climate of student-student relationships, characterised by respect, trust, cooperation and care
3. Promoting learner motivation through feelings of competence, autonomy and relatedness
4. Creating a climate of high expectations, with high challenge and high trust, so learners feel it is okay to have a go; encouraging learners to attribute their success or failure to things they can change

3. Maximising opportunity to learn

1. Managing time and resources efficiently in the classroom to maximise productivity and minimise wasted time (e.g., starts, transitions); giving clear instructions so students understand what they should be doing; using (and explicitly teaching) routines to make transitions smooth
2. Ensuring that rules, expectations and consequences for behaviour are explicit, clear and consistently applied
3. Preventing, anticipating & responding to potentially disruptive incidents; reinforcing positive student behaviours; signalling awareness of what is happening in the classroom and responding appropriately

4. Activating hard thinking

1. Structuring: giving students an appropriate sequence of learning tasks; signalling learning objectives, rationale, overview, key ideas and stages of progress; matching tasks to learners' needs and readiness; scaffolding and supporting to make tasks accessible to all, but gradually removed so that all students succeed at the required level
2. Explaining: presenting and communicating new ideas clearly, with concise, appropriate, engaging explanations; connecting new ideas to what has previously been learnt (and re-activating/checking that prior knowledge); using examples (and non-examples) appropriately to help learners understand and build connections; modelling/demonstrating new skills or procedures with appropriate scaffolding and challenge; using worked/part-worked examples
3. Questioning: using questions and dialogue to promote elaboration and connected, flexible thinking among learners (e.g., 'Why?', 'Compare', etc.); using questions to elicit student thinking; getting responses from all students; using high-quality assessment to evidence learning; interpreting, communicating and responding to assessment evidence appropriately
4. Interacting: responding appropriately to feedback from students about their thinking/knowledge/understanding; giving students actionable feedback to guide their learning
5. Embedding: giving students tasks that embed and reinforce learning; requiring them to practise until learning is fluent and secure; ensuring that once-learnt material is reviewed/revisited to prevent forgetting
6. Activating: helping students to plan, regulate and monitor their own learning; progressing appropriately from structured to more independent learning as students develop knowledge and expertise

How students learn

Attention and focus

Students are actively engaged when learning

- Sensing, thinking and memory
- Readiness for learning
- Self-regulation
- Safety and belonging

Knowledge and memory

Learning is a change in long-term memory

- Novice learners
- The developing brain
- Working and long-term memory
- Consolidation

Retention and recall

Students process limited amounts of new information

- Cognitive load
- Recall and retention
- Additional learning needs

Mastery and application

Students develop and demonstrate mastery of their learning

- Application of knowledge
- Mental models
- Problem solving, critical and creative thinking
- Generative learning

Teaching that aligns with how students learn

Enabling

Foster the conditions of a learning-focused environment

- Rules and routines
- Respectful interactions
- Self-regulated learning
- Cultural safety
- Family engagement

Planning

Develop a teaching and learning plan for the knowledge students will acquire

- Define knowledge
- Chunk content
- Sequence instruction
- Plan to assess

Instruction

Manage the cognitive load of learning tasks

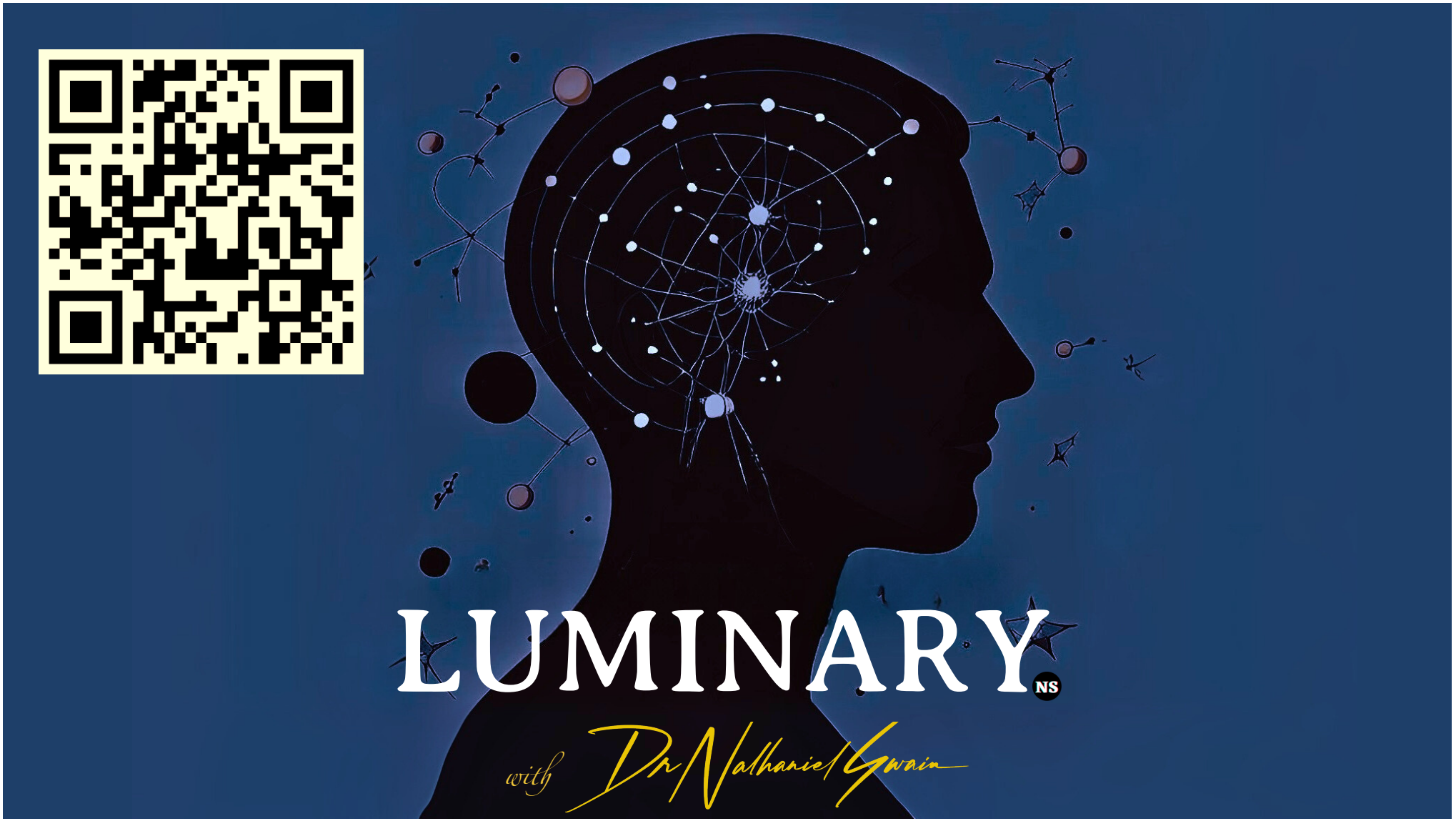
- Explain learning objectives
- Teach explicitly
- Scaffold practice
- Monitor progress
- Support tiered interventions

Gradual release

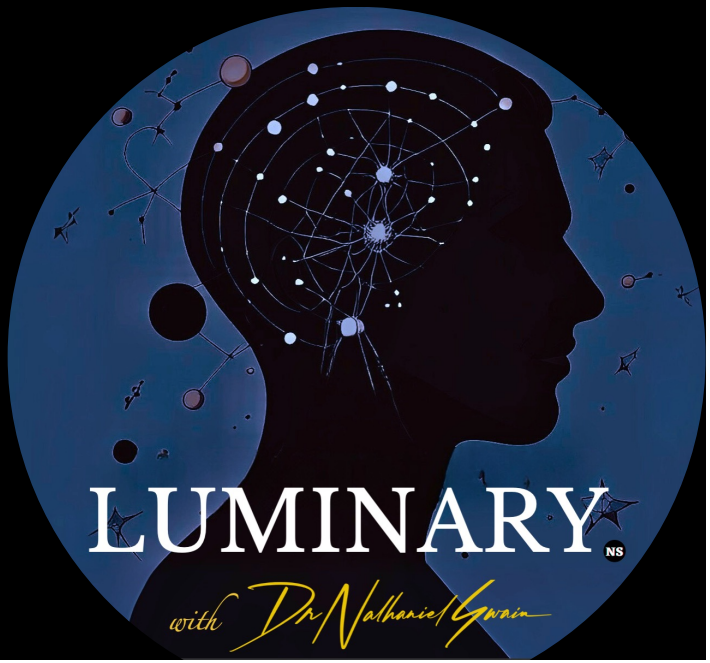
Maximise retention, consolidation and application of learning

- Revisit and review
- Vary practice
- Organise knowledge
- Extend and challenge


A PODCAST
CHALK DUST
WITH REBECCA BIRCH
& DR. NATHANIEL SWAIN


LUMINARY
NS
with Dr Nathaniel Gwain

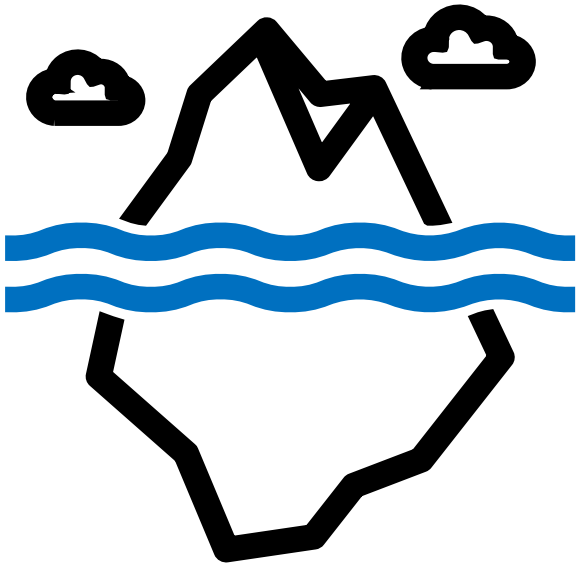
Targeted
Bite-Sized
Flexible PD Content
TO DRIVE
your learning



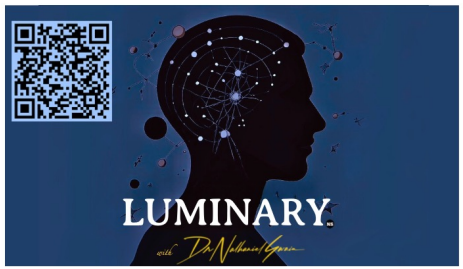
Accountable student talk

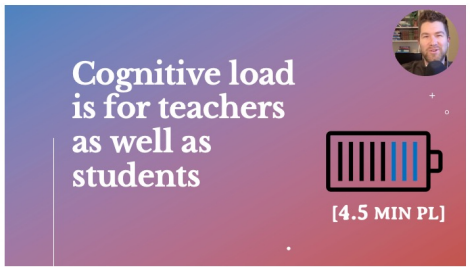
Warming up

cold call



[5 MIN PL]

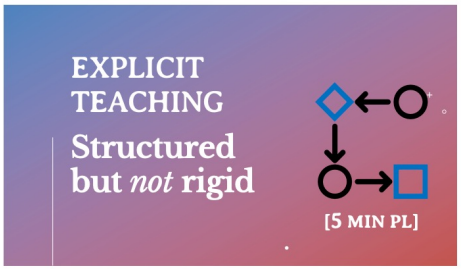

LUMINARY.


Cognitive load
is for teachers
as well as
students
[4.5 MIN PL]


Accountable
student talk
Warming up
cold call
[5 MIN PL]


Classroom
design for
focus and
warmth
[4 MIN PL]


Targeted
Bite-Sized
Flexible PL Content
TO DRIVE EVERY
Staff meeting
LUMINARY.


EXPLICIT
TEACHING
Structured
but not rigid
[5 MIN PL]

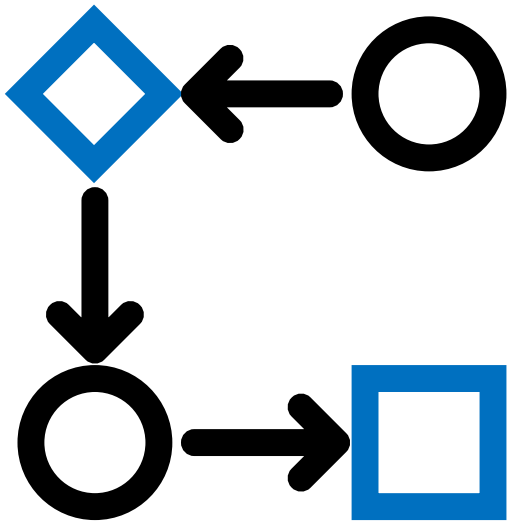

Lesson Structure +
I do, We do,
You do
and beyond
[5.5 MIN PL]


Adaptive Teaching
in every lesson
mild medium spicy
[4.5 MIN PL]


MAKE
LUMINARY
A PART OF YOUR
2026 PLANNING
LUMINARY
NS

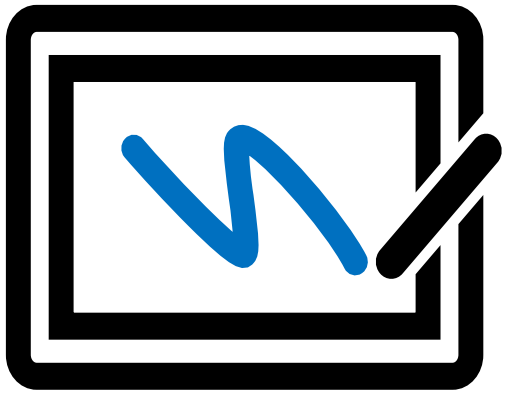
EXPLICIT TEACHING

Structured but *not* rigid



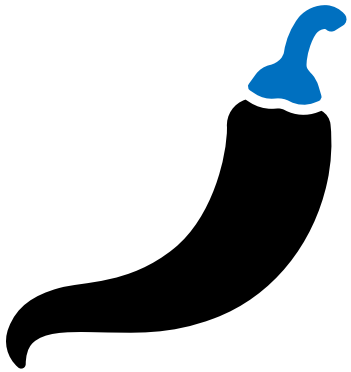
Lesson Structure +

I do, We do,
You do
and beyond



Adaptive Teaching in every lesson

mild medium spicy

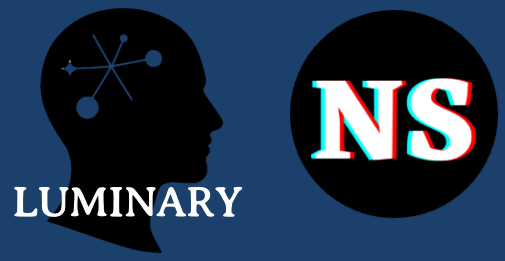


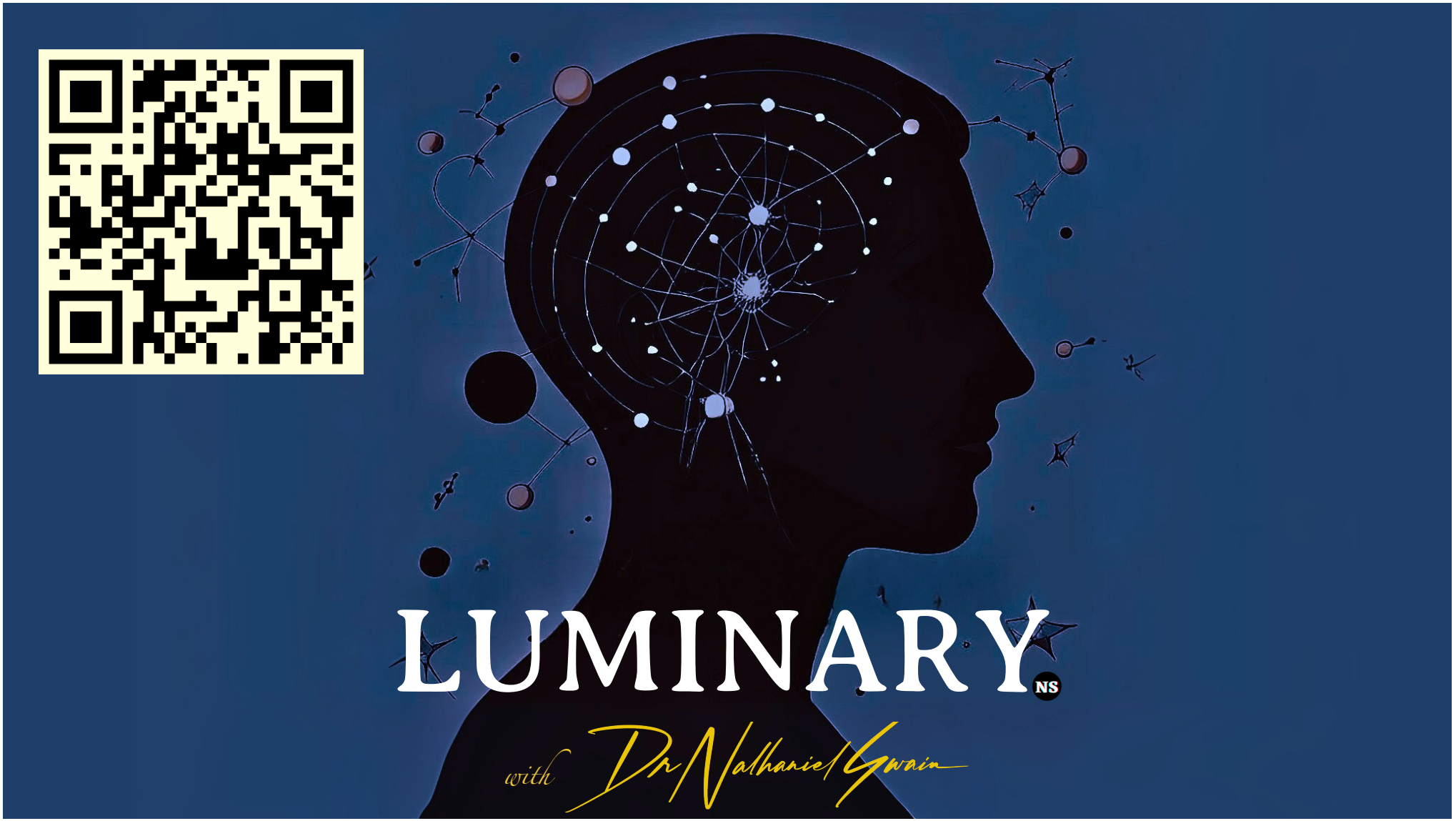
MAKE

LUMINARY

A PART OF YOUR

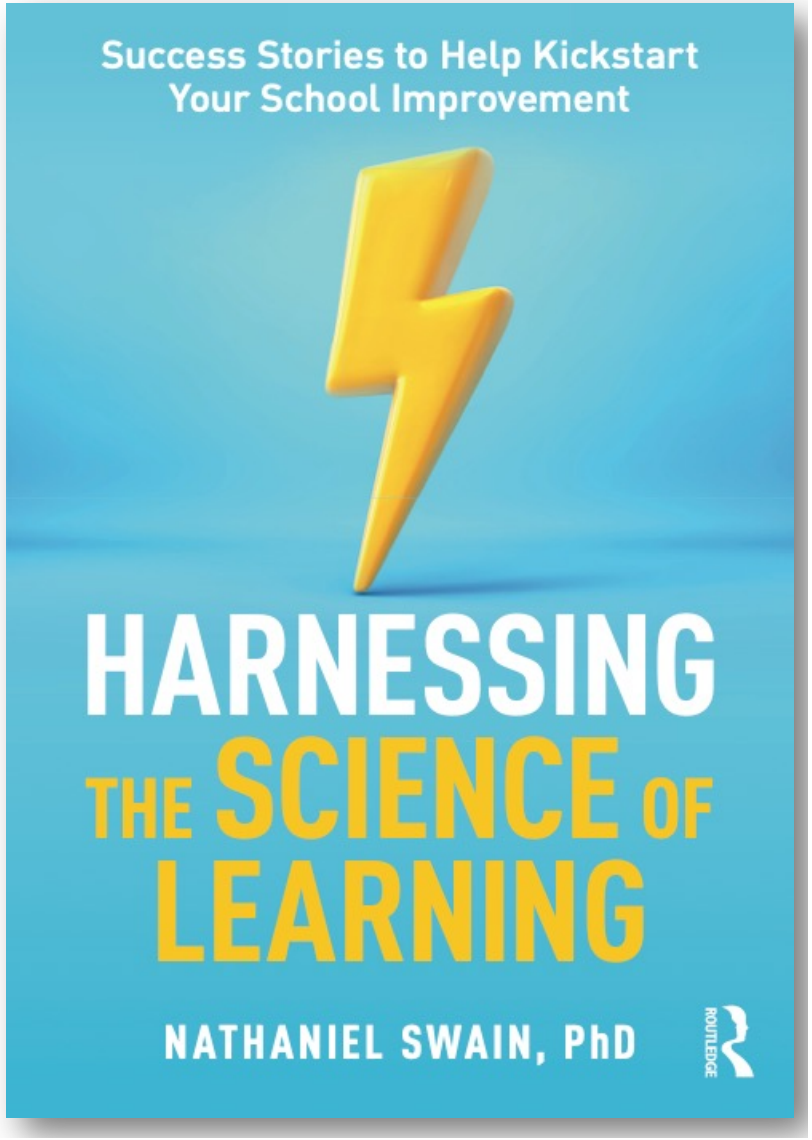
future PD




LUMINARY
NS
with Dr Nathaniel Gwain

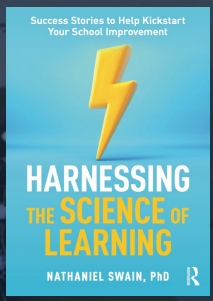
DR NATHANIEL SWAIN

@NathanielRSwain



Breaking Boundaries between Teacher and Student-Centred Instruction+

Building Capability Rich Educators



QCPPA Conference 2026

DR NATHANIEL SWAIN

LUMINARY

NS