THEORY HEAVY

WHAT IS METACOGNITION?

Mr Metacognition

Contracting Session

- Ask questions at any time!

- Will be provided with time to ponder/consider.

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Who Am I?

- Nathan Burns
- Former Head of Maths/Pastoral Lead/MAT Lead
- Metacognitive researcher and author
- Full time training provider and consultant

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Session Aims

1. What metacognition is not
2. Metacognitive theory – deep dive
   a. Examples – a teachers perspective
3. Levels of metacognition
4. Issues of transferability
5. Myths of metacognition
6. Previous mistakes with metacognition
7. Top tips and takeaways

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Ponder...

Why does metacognition matter?

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Why Metacognition? The Headlines...

- Greatest positive attainment impact of any intervention (EEF, 2019)

- OFSTED (2018) suggested area of focus for high-quality CPD

- Benefits ALL students (regardless of: socio-economic status; prior attainment; sex; behaviour; SEN status; age) (many, many papers...)

- Free for schools to implement

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Anything Else?

- Works across phases (i.e. can be a focus for all)

- Works across curriculum areas (i.e. can be a whole school focus)

- Develops problem solving skills

- Improve skill transference across contexts

- Improves students self-regulatory abilities

- Increases revision effectiveness

- Compliments whole school work around feedback, modelling, questioning (and more...)

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Why Theory Matters?

- Understand the 'essence' of the theory (what makes it so)

- More appropriate implementation into the classroom

- Reduces risk of (lethal) mutation

- Allows for critical evaluation of strategies (removal of ignorance)

- Supports professional conversations (move beyond a surface level)

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Ponder...

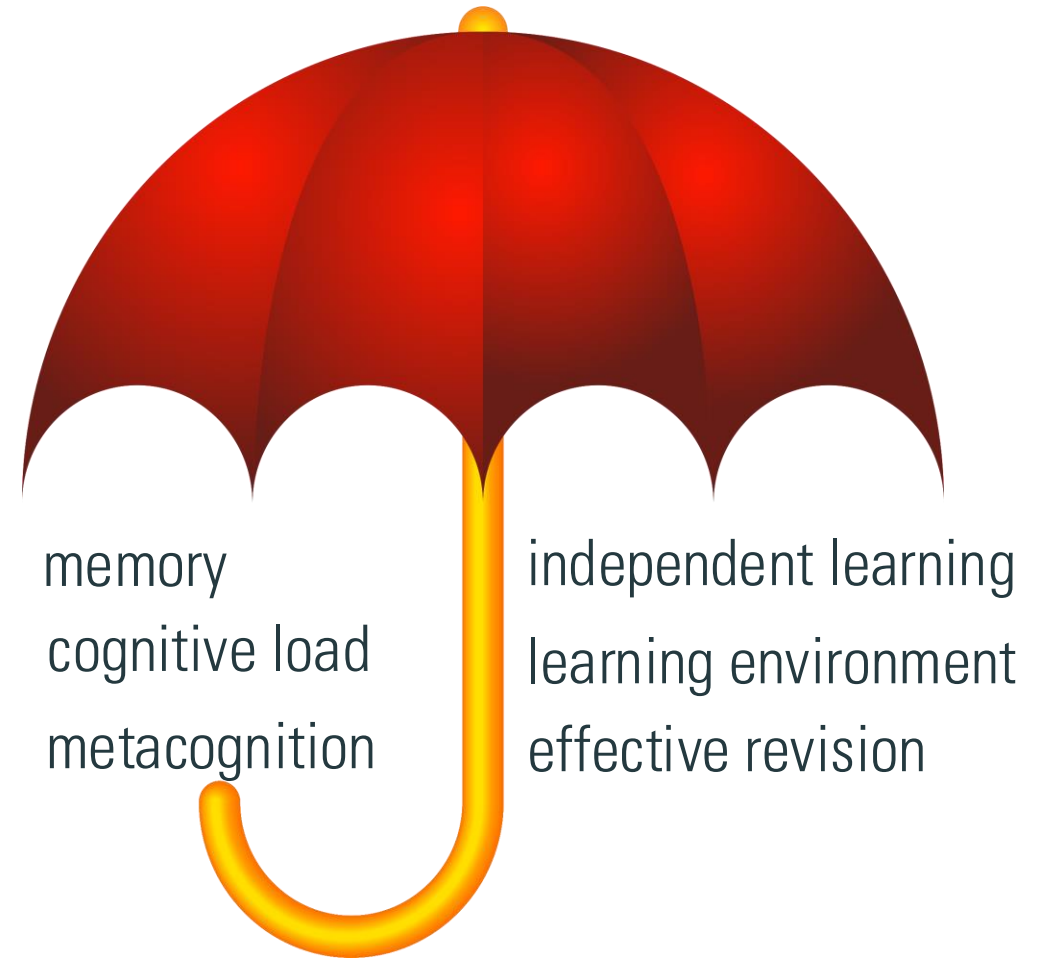*What is metacognition?*

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What Metacognition Isn't? (1)

- Metacognition is not the same as self-regulation

- Self-regulation is an umbrella that cover learning habits AND behaviours

impulsivity

planning

metacognition

control behaviour

explain feelings

motivation
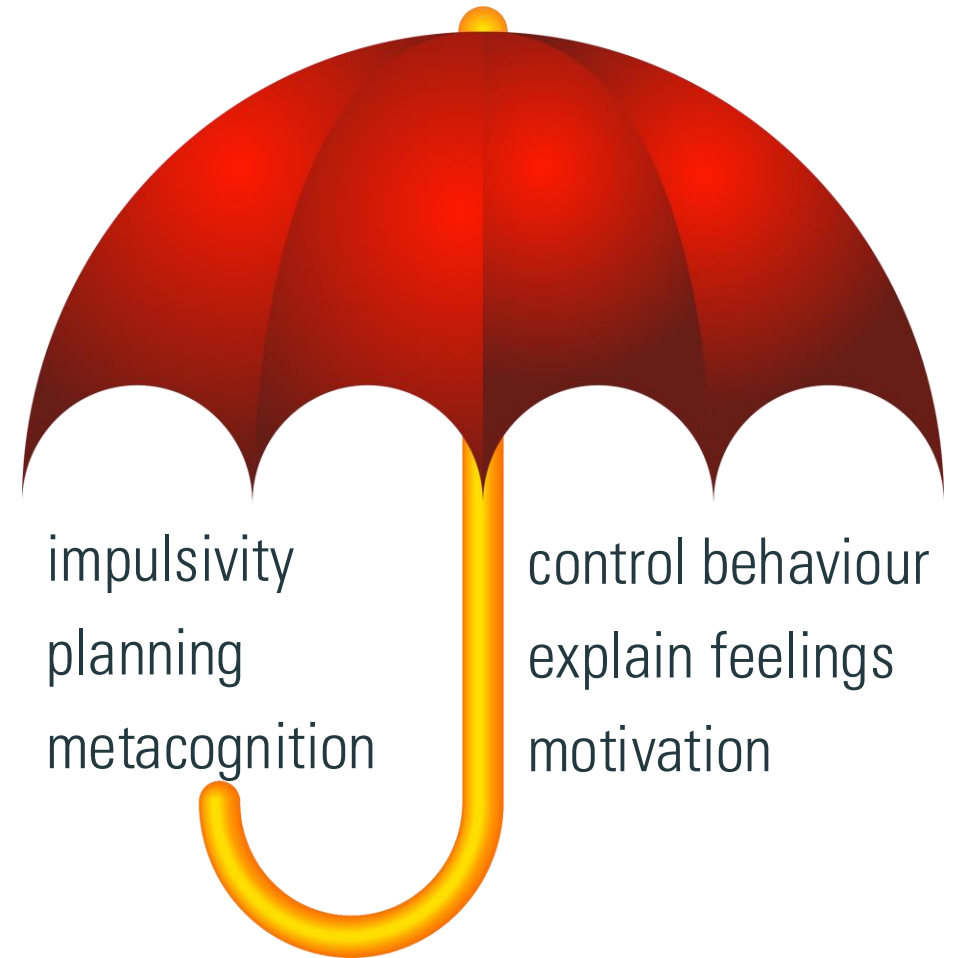
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What Metacognition Isn't? (2)

- Metacognition is not the same as learning to learn

- Learning to learn is an umbrella that includes all understanding of cognition and memory e.g. how memory works.

memory

cognitive load

metacognition

independent learning

learning environment

effective revision

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What Metacognition Is?

- Flavell (1972): 'I am being metacognitive if I notice that I am having more trouble learning A than B; if it strikes me that I should double check C before accepting it as fact'

- Burns (2023): '[Metacognition is] the little voice inside your head that constantly evaluates and informs your decisions.

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Why Is It So Difficult?

- It's invisible

- There are complexities to the theory

- It is reliant on cognition and motivation (i.e. it is not a standalone strategy or pedagogy)

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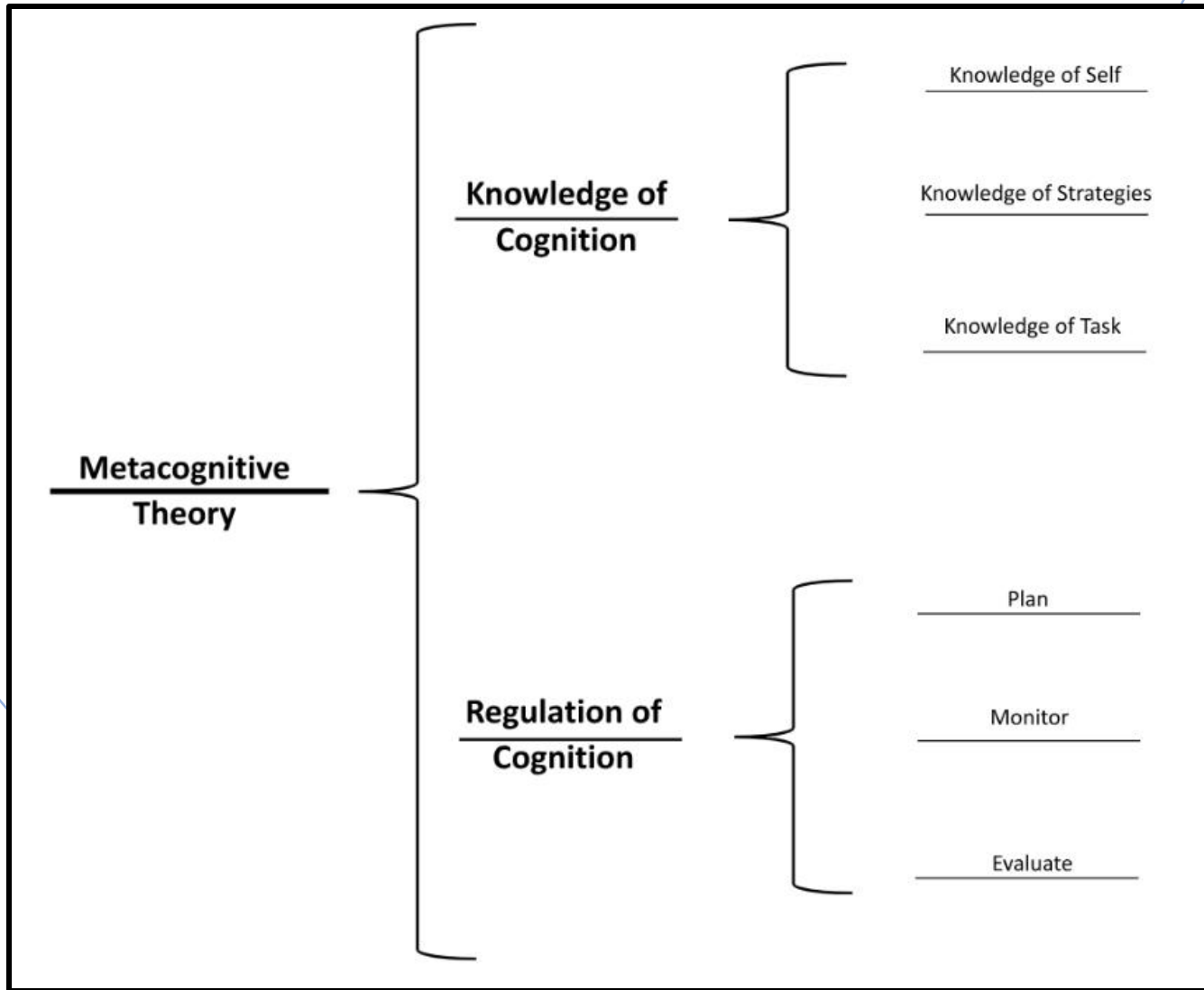
Knowledge

Vs

Regulation

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Knowledge Of Cognition

- **Knowledge of task – knowledge of requirements to meet to fulfill task criteria**

- Knowledge of self – knowledge of... knowledge

- Knowledge of strategies – knowledge of methods available to attempt a cognitive task

Consider the act of producing target grades...

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Regulation Of Cognition

- Planning – an approach for the task

- Monitoring – staying on track for successful task completion

- Evaluation – review of the efficiency and effectiveness of approach and outcomes

Consider the act of planning and delivering a lesson

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Levels Of Metacognition

- Metacognition is not a dichotomy

- We have Perkins' (1992) 4 levels: tacit; aware; strategic; reflective

Tacit – not aware of control of cognitive processes

Aware – aware of cognitive processes but don't actively engage with them

Strategic – begin to plan and evaluate cognitive action

Reflective – plan, monitor and evaluate cognitive action

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Translating Metacognitive Abilities

- Metacognitive abilities hinge upon cognition (*note, meta!)*

- Where cognitive function varies, so will the metacognitive evaluation
  - Thus, metacognitive abilities may fluctuate within a subject
  - Thus, metacognitive abilities can fluctuate between subjects

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Ponder...

What are the myths around metacognition?

Myths Of Metacognition (1)

Metacognition is only for high-attaining students

- Metacognition reliant on cognition – so more able are more metacognitive?

- Don't want to overload students?

- Don't believe they're capable?

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Myths Of Metacognition (2)

Metacognition is not for students with SEN

- Metacognition too complicated?

- Too many steps/stages or fear of overload?

- Don't believe they're capable?

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Myths Of Metacognition (3)

Metacognition is only for older students

- Older students have greater cognition?

- It's something complicated so you need to be older to understand it?

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Myths Of Metacognition (4)

Metacognition is only for girls

- Girls are academically better?

- Students are more studious?

- Girls make better notes?

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Historic Issues With Metacognition

- Early 00's 'L2L' curricula
  - Resilience skills
  - Group work skills
  - Mindfulness
  - Critical thinking skills

Done explicitly outside of the context of a lesson.

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Developing Metacognitive Skills

- Metacognitive development must be within the context of content

- Metacognition needs to be development within the wider curriculum

- Metacognition needs to be embedded – not a bolt-on or an enrichment opportunity

- Metacognition should not be taught as a discrete lesson

But

- Metacognitive strategies ought to be taught explicitly within the context of content

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Cognitive Load Implications

- Two inputs: curriculum and metacognitive

- To avoid cognitive load, focus on one area at once...

New curriculum + Known metacognitive strategy

Known curriculum + New metacognitive strategy

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For Example...

Solve:

$$3(x+2) = 17$$

Expand

Divide

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Key Takeaways

- Theory is crucial to supporting improved implementation

- Metacognition is the constant process of plan, monitor and evaluate

- Knowledge of task, self and strategies are crucial to supporting this

- Metacognitive skills have weak transfer power

- Myths around suitability for students – but all can (and should) benefit

- Previous implementation was poor and not true to the literature

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STAY IN TOUCH!

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Newsletter, books and feedback links...

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Ponder...

Any final questions?

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