

Oxford *Smart*

Curriculum

Research summary: Pillar 4 Metacognitive learning



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Research summary

PILLAR 4: METACOGNITIVE LEARNING



The Oxford Smart Curriculum supports engaged, self-regulated and metacognitive learning. It equips learners to succeed with a long-lasting understanding of learning techniques and strategies, and the ability to mobilise them, facilitating the development of independence and resilience.

“Too often we teach students what to think but not how to think.”

OECD Insights

Overview

Metacognition means thinking about thinking, and in education it involves learners becoming aware of how they learn, adapting their learning strategies when required, and learning to apply these strategies in new situations. Metacognition and self-evaluation have become increasingly important in education. Integrating cognitive and metacognitive skills into the curriculum in an explicit way can support learners to develop transferable strategies and promotes confidence, resilience, and independence.

What it means in practice

- Learners are self-aware, able to recognise when they are learning well, and are empowered to reflect on why this is so.
- Learners are able to recognise obstacles to their own learning and are equipped to change their learning strategies.
- Empower learners to regulate their emotions in relation to their learning, building resilience and enhancing wellbeing.
- Learners are conscious of the learning process and are aware of when they have thought differently about something.
- Teachers model their own thinking aloud and explicitly teach metacognitive learning strategies, including how to plan, monitor, and evaluate their learning.
- Teachers promote metacognitive talk in the classroom (but in the interests of avoiding jargon, they use the term ‘strategies’ with learners).



Learner identity

Research summary

Extensive research indicates that metacognition is high impact for low cost and has a proven impact on learners' academic performance, particularly for disadvantaged learners.

According to the Sutton Trust and Education Endowment Foundation (EEF), metacognition has a significant impact on learners' academic performance, beyond that predicted by prior achievement. To allow teachers to deliver this skill effectively, they should have access to excellent continuing professional development (CPD) and they should focus on teaching strategies explicitly – including how to plan, monitor, and evaluate learning. Teachers should model their own thinking aloud and promote metacognitive talk (i.e. classroom talk about 'strategies for learning'). Efforts are most powerful when there is a consistent approach to teaching metacognition across the school, supported by senior leadership.

Quigley, A., Muijs, D., & Stringer, E. (2020). [Metacognition and self-regulated learning](#)

Education Endowment Foundation

Literacy

Alex Quigley exemplifies this point further in his extensive work around literacy. In his book, *Closing the Reading Gap*, he argues that learners need to be taught an array of strategies (including deciphering and decoding) very explicitly to develop their reading skills. In an earlier book, *Closing the Vocabulary Gap*, he calls for a whole-school approach to explicitly teach vocabulary in a thoughtful, purposeful, and sustained way.

Quigley, A. (2020). *Closing the Reading Gap*.

Routledge

Quigley, A. (2018). *Closing the Vocabulary Gap*.

Routledge

Free support for closing the word gap across secondary subjects is available from OUP: [Language Boosting Resources for Secondary School](#).



Assessment

Assessment is another key tool in developing metacognition and this can be done through linking learning theory to formative assessment processes, for example through conversations with learners, diagnostic test items, and co-created rubrics.

Andrade, H. L., & Heritage, M. (2017). *Using Formative Assessment to Enhance Learning, Achievement, and Academic Self-Regulation*. Routledge

Transfer of skills

Even where learners have a rich range of metacognitive strategies, Watkins *et al.* show that they do not necessarily transfer these effectively across different learning situations. Learning to recognise when a particular skill is appropriate is crucial.

Watkins, C. *et al.* (2001). [*Learning about learning enhances performance*](#).
Institute of Education, The National School Improvement Network

Growing importance

In view of the profound environmental, social, and economic challenges that learners will face over the coming decade, metacognitive skills will become ever more crucial in enabling responses to a fast-changing world. Learners who can reflect on and evaluate how they learn will be more able to effectively transfer and apply their knowledge.

OECD (2018). [*The Future of Education and Skills: Education 2030: The Future We Want*](#).
OECD position paper

Cognitive science approaches in the classroom

The Education Endowment Foundation (EEF) carried out a systematic review of published literature and investigates approaches to teaching and learning inspired by cognitive science that are commonly used in the classroom, with a particular focus on acquiring and retaining knowledge. This review found that, when applied effectively, and considered in the context of wider practical and pedagogical considerations, cognitive science principles can have a positive impact on learning

and there is value in teachers having a working knowledge of the principles of cognitive science and there is a role for professional development resources to build this knowledge.

Education Endowment Foundation (2021). [*Cognitive science approaches in the classroom: a review of the evidence*](#)

Education Endowment Foundation

Students monitoring their own learning

Successful learning demands that students monitor their own learning, understand when they are taking a wrong direction, and know how to correct themselves. Such self-regulation is developed through strategies such as:

- planning
- evaluating others' proposed solutions to problems
- setting own learning goals
- knowing the most effective strategies to use in particular circumstances.

Vosniadou, S. (2001). [*How Children Learn, Educational Practices Series – 7.*](#)

International Academy of Education/International Bureau of Education

Case study:

Encourage students to develop a realistic understanding of themselves as learners: 'I am good in reading, but need to work on my mathematics'

Support students to check their own thinking and ask themselves questions: 'Why am I doing what I am doing? How well am I doing? What remains to be done?'

Vosniadou, S. (2001). [*How Children Learn, Educational Practices Series – 7.*](#)

International Academy of Education/International Bureau of Education

Research in practice

In one of many examples of current research in practice in the classroom, learners used a mnemonic to explicitly support their own writing process: IPEELL stands for Introductory paragraph, Points, Examples and elaboration, End, Links, and Language. This simple mnemonic encouraged learners to take ownership while monitoring and evaluating their work.

Led by the Calderdale Excellence Project, as cited in Quigley, A., Mujs, D., & Stringer, E. (2020). [Metacognition and self-regulated learning](#).

Education Endowment Foundation

References

- Quigley, A., Muijs, D., & Stringer, E. (2020). *Metacognition and self-regulated learning*. Education Endowment Foundation.
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Further reading

- OUP (2018). *Why Closing the Word Gap Matters: Oxford Language report*. OUP.
- OUP (2020). *Bridging the Word Gap at Transition*. OUP.
- Hattie, J., Biggs, J., & Purdie, N. (1996). *Effects of Learning Skills Interventions on Student Learning: A Meta Analysis*. Review of Educational Research, Vol. 66, No 2 (Summer 1996), pp99–136.
- Gibbs, G. (1981). *Teaching Students to Learn*. Open University Press.
- Daniel Willingham, including 'Knowledge Matters' and 'Why Don't Students Like School'.
- Hattie, J., & Donoghue, G. (2016). 'Learning strategies: a synthesis and conceptual model'. Nature Partner Journals (npj), Science of Learning 1, article number 16013.
- Marzano, R. J., Pickering, D. J., Pollock, J. E. (2001) *Classroom Instruction that Works: Research-based Strategies for Increasing Student Achievement*. Alexandria: ASCD.
- OUP (2019). *Global Skills: Creating Empowered 21st Century Citizens*. OUP.