Metacognition and self-regulation: harnessing the how of learning

Metacognition has become a trendy term to use in schools – but how can we develop it in a way that actually takes advantage of this approach? James Mannion explains.

It has become customary in UK educational discourse to mention the Education Endowment Foundation (EEF) at some point, so let's just get it out of the way.

Since they were set up in 2010 by the then-coalition government, one of their major projects has been a review of the existing research literature with regard to 'what works', forming the Teaching and Learning Toolkit: a kind of league table of educational practices ranging from the highly effective to the highly counterproductive.

Perched at the very top of this table we find something called 'metacognition and self-regulation', a dynamic duo with a rich history in the theoretical and research literature, but whose names had hitherto only been whispered in the geekiest corners of the staffroom.

The toolkit explains: 'Metacognition and self-regulation approaches (sometimes known as 'learning to learn' approaches) aim to help learners think about their own learning more explicitly. This is usually by teaching pupils specific strategies to set goals, and monitor and evaluate their own academic development.' Metacognition and self-regulation, we are told, provide 'high impact for very low cost, based on extensive evidence'; we are also told that these practices are 'widely applicable' across different subject areas.

So, what's not to like?

At this point, I should disclose that I have spent the last 6 years evaluating a whole-school Learning to Learn (L2L) initiative for my PhD. I'm about as convinced of the value of these practices as it is possible to be.

However, I do think there are two key problems with 'metacognition and self-regulation'.

First, there's the problem of language. If these concepts and the practices they underpin are going to be fully embraced by the teaching profession – and indeed by the young people we serve – we need to find ways of describing them that don't make you feel quite so sleepy.

And secondly, there is the problem of implementation. Doing something that's been found to be effective elsewhere is no guarantee that it will be effective in your context; in fact, you might be making things worse.

To understand how we can usher in a bright new future of widespread 'high impact for low cost' without falling into the implementation trap, we need to go back to the beginning – to the year of my birth, as it happens.

The dynamic duo defined

In 1976 John Flavell, a developmental psychologist from Stanford University, published a paper called 'Metacognitive aspects of problem solving'. Flavell defined metacognition as 'the active monitoring and consequent regulation and orchestration of [information processing], usually in service of some… goal or objective' (p232).

From the outset then, metacognition was defined as the co-ordination of multiple internal thought processes – 'thinking about thinking', if you will.

If metacognition is confined to the realm of, well, cognition, self-regulation has a somewhat broader focus, and is often defined as the monitoring and control of one's own motivations, emotions and behaviour (e.g. see Goleman, 1995; Baumeister, 2007).

Self-regulation can refer both to immediate situations, as with the pupil who asks to be moved because they are being distracted, and to longer time frames, as with those strange specimens who speak of 'deferred gratification' and start revising for the summer exams in October.

The metacognitive movement

In the last 40 years, and especially in the last decade, the literature on L2L has grown exponentially, as can be seen in Figure 1.

Figure 1: Published literature on 'learning about learning'*
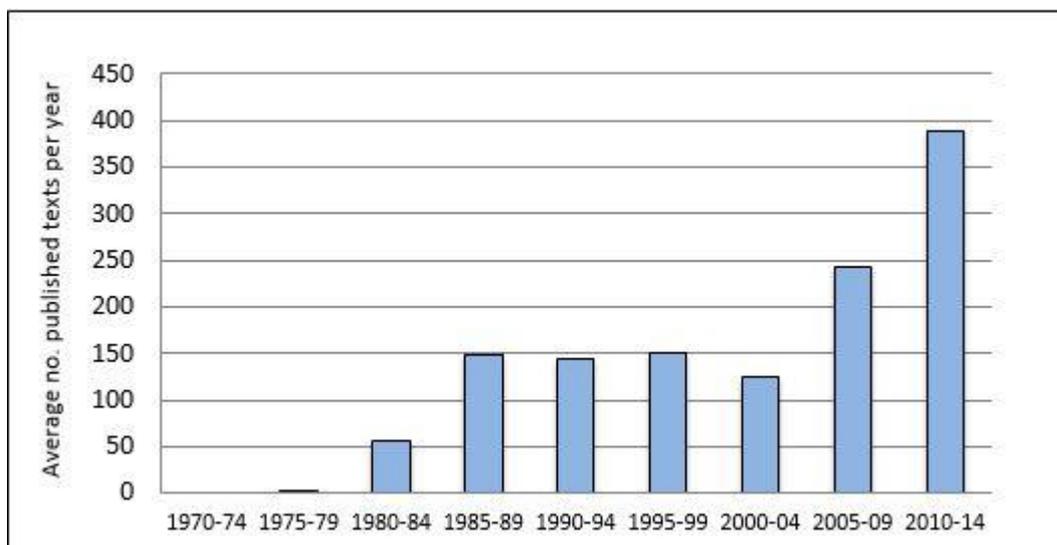
* Articles available via www.eric.ed.gov

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Throughout this period, a number of educational initiatives have sought to translate research findings into programmes of study, with the intention of replicating the success at scale.

There is not space here to review these initiatives in detail, and I have touched upon this elsewhere (Mannion & Mercer, 2016).

However, to distil the literature review down to two points:

1) some of these initiatives have been rather more effective than others

2) there is a general sense that L2L initiatives have not lived up to the hype suggested by the research literature. Yet!

Stepping-stones to 'high impact for low cost'

Step 1. Simplify the language

To my mind, the easiest way to embed metacognition and self-regulation in classrooms is to refer 'the how of learning'. We talk about the 'what' a lot in schools: lesson objectives describe 'what' we are learning, and lesson outcomes describe 'what' the pupils need to do in order to evidence their learning.

Too often, the 'how' is missing. Try book-ending activities with a discussion about the 'how' of learning. To do that it will be helpful to have the next step in place.

Step 2. A shared language of learning

If you want pupils to learn about electricity, you pre-teach the vocab – voltage, resistance, current etc. – and then you keep a glossary somewhere handy so you can refer back to it when needed. Likewise, if you want pupils to learn how to become more effective at learning, you need to teach them the vocabulary needed to describe themselves as learners. See Mannion & Mercer (2016) for an example of a shared language of learning that was co-constructed with teachers and pupils.

If you find the language of 'learning muscles' a bit too close to Brain Gym™ for comfort, ask your pupils:

- what 'processes of learning' will we need to engage in today?
- what 'learning behaviours' lead to effective learning?
- was it when you were writing that the penny dropped, or when you were asking a question?

Make it a whole-school expectation that at some point in every lesson, the 'how of learning' will be at least referenced, if not explored or reflected upon. Use it to enrich your plenaries.

When you do this regularly, pupils start to internalise this language and develop a stronger identity of themselves as learners.

Step 3. Use metacognitive resources to scaffold planning, monitoring and reflection

As well as a language of learning that elucidates 'processes of learning', display key phrases that pupils can use as metacognitive prompts. You can use metacognitive reflection tools like a KWL chart.

Step 4. Use classroom activities that promote metacognition

Journals, wrappers, annotated exams – there are loads of ways to teach knowledge while engaging pupils metacognitively. The key is to teach purposeful reflection and model it as a teacher.

Step 5. Opportunities to exercise agency

Where possible, set up tasks in such a way that pupils can plan, monitor and evaluate their learning. This might include allowing pupils to set their own homework, using reflective tasks in class, or recognising the value of well-designed project-based learning opportunities.

Step 6. Practice what you preach

Teacher research is essentially L2L for teachers, and provides a great framework for reflection and action. Think about your career to date.

- What practices, feelings and behaviours have characterised your practice over the course of your professional life?
- How do you feel about your practice currently?
- Why do you do things in the way that you do?
- Which aspects of your practice do you feel most confident about?
- Which do you feel least confident about?
- How do you know which aspects are effective, and which are less so?
- Is this knowledge based in evidence, intuition, or a combination of the two?

Take some time to picture an idealised future.

- What will your pupils say, think and feel?
- What will you say, think and feel?
- What strategies might help you make this idealised future a reality?
- How will you know when you've got there?
- What support/resources/expertise do you need?
- What can you do today to get the ball rolling?

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