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# Metacognition in Action, 5<sup>th</sup> April 2019, Swaledale Alliance

## Session notes from Professor Rachel Lofthouse,

### Leeds Beckett University

Thinking is the basis for learning, and learning allows for better thinking. This reciprocal relationship is lived out in how we teach, and how learners engage and sustain progress.

These notes cover both the keynote 'Metacognition; supporting teachers and learners as thinkers' and the workshop 'Can coaching help teachers develop a metacognitive approach?' The keynote will draw on evidence that extends our understanding of the current EEF research and guidance, drawing on a short history of teaching thinking skills, and celebrating how teachers have worked collaboratively to develop effective practices. To bring this short history up to date evidence from the Swaledale Alliance Metacognition SSIF project will be shared, allowing a discussion of contemporary challenges and opportunities for change. I draw on work which extends over 20 years and articulate how I make sense of some of the current focus on metacognition. During the workshop I will offer a model of coaching through which schools can develop collective capacity for metacognitive practice. These notes are offered to stimulate reflection, discussion and action, but should not be considered as a template or route-map. All education contexts are unique and decisions about practice need to be nuanced to address the challenges and make most use of the opportunities in each setting. These notes are adapted from two previously published papers, which are fully referenced at the end. You will not be able to read these notes in full and pay attention to the event, but you may like to reflect on and discuss these during and after the day.

#### Terminology, insights and practice

In April 2018 the EEF published its much heralded guidance report on 'metacognition and self-regulated learning' on its website. It provides a renewed way of understanding the significance of metacognition, but it is useful to acknowledge to the wider body of professional work and research that existed prior to the application of randomised controlled trials (RCTs) in this area. In these notes I will offer insights into **metacognition and self-regulation**, which allow us to recognise the significance of learners as active and self-aware thinkers, and to deploy teaching approaches which frame and develop them as such. I will also discuss how **coaching, collaborative teacher enquiry and lesson study** have been used to create opportunities to expand professional knowledge and develop teaching practices in this area. Each one will be illustrated with a vignette from work that I have been involved with, but many other teachers, teacher educators and consultants could offer their own examples.

Teaching for metacognition has a strong history. As Wood (1998) explains both Vygotsky and Bruner propose that language and communication are at the heart of intellectual and personal development. Their work influenced a range of curricular and pedagogic approaches which share objectives to teaching thinking skills, including Dialogic Teaching (Alexander, 2017). Note the inclusion of 'teaching', which emphasises an active instructional and facilitative role of the teacher. Teaching for metacognition and self-regulation is a tight and skilled process, not a *laisse faire* pedagogy.

The phrase 'teaching thinking skills' as a pedagogic intention is less common in the current discourse as the terms 'metacognition and self-regulation', but it is worth recognising that this concept was well established and accepted in the recent past. Teaching thinking skills involves both the teacher and pupils paying attention to the cognitive processes that facilitate learning, and this demands pupils' active participation in learning activities and explicit talk about the learning process as well as the subject content of the lesson. Typically teaching thinking skills lessons involves group dialogue around a challenging task and whole class debriefing with some focus on metacognition. The teacher is active in modelling, scaffolding, facilitating and providing instruction and explanation which support pupils' thinking. Critically the teacher also debriefs the learning and the thinking that supported it during a debrief, usually conducted with a whole class through skilled questioning and prompting and giving pupils adequate opportunities to provide in depth responses. Thinking skills teaching can either be infused within the subject curriculum or be taught as an independent dimension, and the EEF's conclusion that there is evidence for infusing metacognition within subjects has greatest impact has validity.

This is illustrated by the 'Thinking through...' approach which was developed in teacher networks supported by teacher educators at Newcastle University. These networks created a subject-based infused approach to teaching thinking skills (e.g. Baumfield, 2002). These differ from many current interventions because they promote the teacher design and application of a repertoire of Powerful Pedagogic Strategies (Leat and Higgins, 2002), such as Odd One Out, Mysteries and Living Graphs. Critically, these are not deployed out of context, but are infused within schemes of work, and develop thinking skills attuned to subject knowledge and skills. For example, teachers can adapt the 'living graph' approach to a range of contexts in science, geography, history and sport science, as well as data handling and statistics. Developing the professional skills to design bespoke lessons using Powerful Pedagogic Strategies can make a huge difference to teaching and learning, often by making learning more visible. This was well evidenced by Leat and Nicholls (1999) who showed how students' thinking became visually articulated as they put their 'brains on the table' using Mysteries, allowing teachers' real time insight into their understanding and misconceptions.

When Leat and Higgins coined the term Powerful Pedagogic Strategies (PPS) they did so deliberately, demonstrating that;

- ▶ PPS represent manageable unit of change for teachers aiming to innovate;
- ▶ PPS are flexible across subjects, ages and curriculum contexts;
- ▶ PPS have no single correct answer so they encourage engagement with ideas;
- ▶ PPS extend our understanding of subject knowledge from something to be mastered to become the stimulus to reasoning;
- ▶ PPS encourage exploratory talk between pupils and provide rich learning experience suitable for metacognitive plenary (debrief).

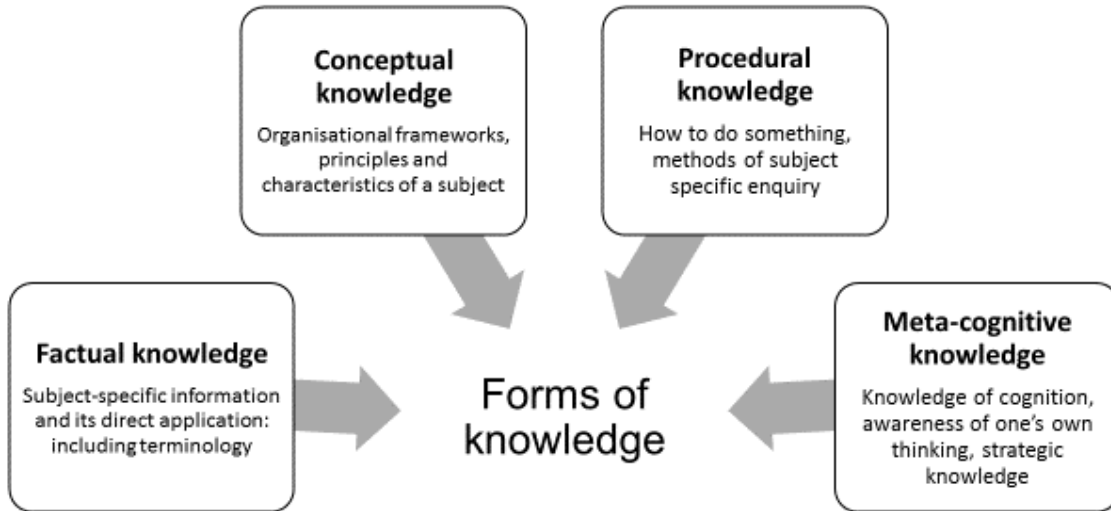
As such the power of PPS is that they can transform both the acts of teaching and learning, as well as the self-efficacy of both the teacher and learner.

But what do we mean by **metacognition**? One way that I have found useful to understand metacognition is to recognise it as a form of knowledge which is related to other forms of knowledge. For example, I have used the Revised Bloom's Taxonomy (Anderson et al., 2001) as a means of conceptualising this and also making it concrete in planning lessons and schemes of work. This taxonomy as illustrated in figure 1. Sometimes we use shorthand to describe metacognition as 'thinking about thinking', but this does have the disadvantage of sounding a little vague, so at least in the figure 1 some more flesh is put on the bones. It is worth stressing at this point that although the Revised Bloom's Taxonomy categorises forms of knowledge this is not meant to imply separation; each develops in conjunction with the other. While this taxonomy stresses metacognition as a form of knowledge we can also determine metacognitive skills which allow learners to self-regulate. These include the overall disposition and motivation that learners have towards activities that promote learning such as planning, questioning, monitoring and reviewing their own thinking, work and progress. Hence the current buzz-phrase of 'Metacognition and Self-regulation'.

I suggest three key ideas. Firstly, that to become metacognitive and self-regulating learners need to experience learning situations, activities and content that can best be resolved, understood and applied through opportunities to engage in dialogue with others. Secondly; that through engaging with collaborative learning learners become more adept at grappling with the complexities and challenges that they encounter through the curriculum and in life, in other words they practice and become more adept at thinking. And finally; that to teach for metacognition and self-regulation teachers need to experience both for themselves in their own ongoing learning to teach.

Figure 1

The nature of knowledge and ways of knowing:  
based on the Revised Bloom's taxonomy



### Putting teacher development first; coaching and collaboration

One of the strengths of the Swaledale SSIF project was its focus on how teachers can work **collaboratively**, in a structured fashion, to develop their own and each other's understanding of metacognition in Maths. The EEF recommend that 'Schools should support teachers to develop their knowledge of these approaches and expect them to be applied appropriately'. If you have been around long enough you may remember that this intent underpinned the National Strategies in England, which included explicit modules on metacognition as well as professional development structures such as teacher learning triads, and networked learning communities. However, it is good to see that this is where we have got back to nearly two decades later; and it would appear that the EEF and DfE expect the recently established Research Schools to get on with the job, supported of course by the Metacognition and Self-regulation guidance. Conversations with the lead practitioners of the Swaledale Alliance SSIF project demonstrated that the guidance had added real momentum to their work (coming several months into their project).

To elaborate on their instruction to schools to support teachers the EEF's more specific guidance can be summarised as follows;

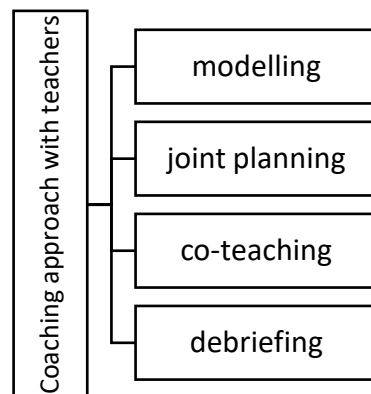
1. Sufficient time needs to be provided both to train teachers and to allow them to practise and embed the new methods.
2. High quality professional development is needed if teachers are going to make the difference in their classrooms.
3. Teachers need high quality tools, such as textbooks and resources, and support, such as on-going mentoring and coaching.
4. Support from senior leadership in the school is key to making that happen effectively and consistently.

I do not think there is anything new here, and many of us who have been working in this field would have concluded the same four points. However, we are often also able to point to examples of practice which lacked at least one of the 'fab four' elements, hence leading to less than effective implementation of

enhanced pedagogies. In my view it is particularly helpful to have mentoring and coaching highlighted as valuable tools, and the remainder of these notes focus on professional development activities which work when they enable teachers to work together and have focused professional dialogue.

In the SSIF project the lead practitioners took on multiple roles and developed what might best be called **Contextualised Specialist Coaching**. This worked for this pedagogy-led project because the lead practitioners first understood the contexts in which they were each working and designed pedagogic approaches appropriate to project's teachers and pupils, appropriate to the individual challenges in each school, the different year groups, different levels of experience and the different roles of the teachers they worked with. This was not 'clean coaching' model as it had elements of mentoring, guidance and feedback integral to it in it, aligning it with the 'specialist coaching' approach defined by CUREE (2005). The contextualised specialist coaching had 4 main components (figure 2).

Figure 2. The core components of the Swaledale coaching model



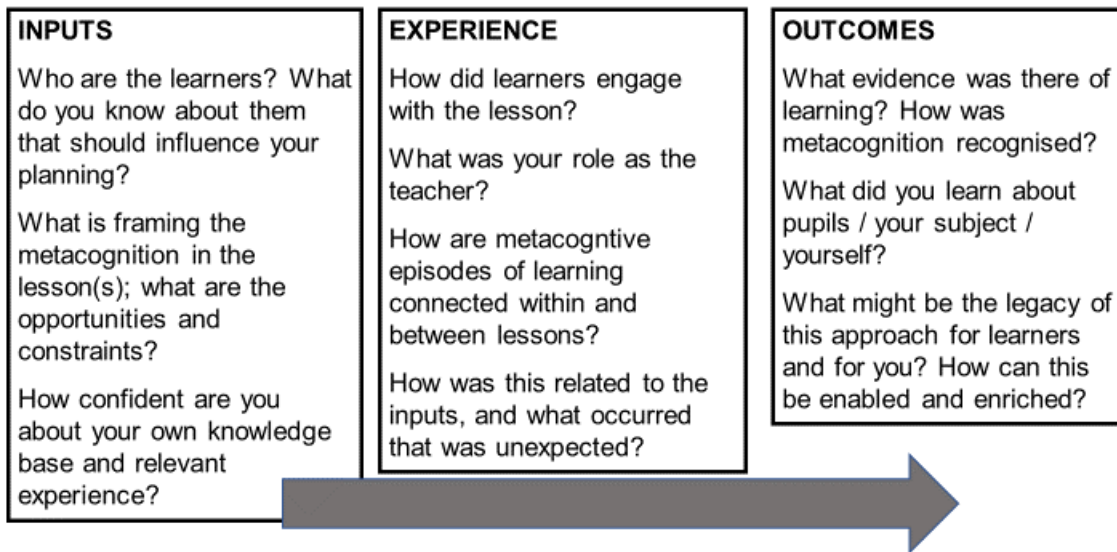
This approach, which evolved over the duration of the project. was valued by the lead teachers who they worked with, with one stating that

“Usually for the training sessions, you get half a day after the Christmas or summer holiday, whereas with this you get continued support. Other training sessions are an hour here and an hour there and there is no one afterwards to help you or check on you or to discuss it with. The difference between this project and anything else we’ve done in the past, is the support.” *Lead teacher*

There are lots of approaches to coaching, but it can be helpful to have some tools to deploy to ensure that the conversations are as productive as possible. Some teachers like to use video to support coaching, others have framing questions like the ones illustrated in the workshop (figure 3).

Figure 3. Potential coaching questions

Using ecological analysis to discuss metacognitive teaching in coaching



In a paper co-authored with former Newcastle University colleagues David Leat and Sally Taverner (Leat et al., 2006) called *The Road Taken: Professional pathways in innovative curriculum development*, we identified phases in teacher engagement in pedagogic innovation, from 'initiation', through 'developing questions from practice' and onto 'commitment'. These research conclusions drew on data from the Schools Based Research Consortium project referred to above. These phases of engagement do however seem to ring true in other contexts with similar aims. We argued that underpinning the transitions between the phases (which not all teachers made) was the necessary space and time for pedagogic creativity. This is fostered by access to new ideas, engagement in problem solving and professional conversations and the permission to think and act creatively to make connections between ideas and practice. From the same project we identified three stages which describe the development of collaborative practices which can be summarised as follows:

**Stage 1: the personal.** Teachers focused on their own understanding rooted in developing classroom practice and analysing data which emerged. They arrived at generalizations, and perceived its relevance to their teaching situations.

**Stage 2: the collegial.** The group setting (typically at a school level) became significant as a community in which research was designed, conducted and analysed, in an environment characterised by professional intimacy.

**Stage 3: the collective.** The collegial group had developed sufficient confidence to work with others across the consortium (in other schools, the Local Authorities and university), allowing the research evidence to be more commonly recognised, and collectively explored across a wider range of settings.

These stages are also evident through the Swaledale SSIF project.

This analysis reinforces the significance of teacher collaboration and solidarity, through the emergence of the collegial and collective networks. It also recognises the role of authenticity, in that the transitions happen when teachers learn to develop a metacognitive-based pedagogy in real time, with their own students, colleagues and in extended networks within which they became confident professionals.

I think what might be missing from the EEF's guidance on supporting teachers is a recognition of these stages of transition and how we support them. A 'train the trainers' to train the teachers to teach for metacognition approach is unlikely to gain much leverage. Yes, time is essential and high quality

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professional development and resources make a difference (although these cannot be conjured out of thin air), and real support from school leadership teams is critical. Coaches and mentors will make a difference but themselves need time and support to gain the skills and knowledge needed. Experience tells us that coaches and mentors often find themselves robbed of the time to do the job well, and are sometimes offered help in the form of a template or model to follow, which actually can just make the coaching or mentoring instrumental and formulaic. Professional collaboration in whatever form it takes needs real deliberation, development of expertise, supervision and an understanding of the many nuances in each context to work. Let's hope that these can be achieved. Long live metacognition and self-regulation....

### The two papers previously published which these notes draw on are

Lofthouse, R. 2018. Long live metacognition ...lessons learned from a life in the field, *CollectivED Working Papers*, 4, p70-76

Lofthouse, R. and Cowie, K. 2018. Joining the dots: Using lesson study to develop metacognitive teaching, *IMPACT Journal of the Chartered College of Teaching*,  
[https://impact.chartered.college/article/lofthouse\\_cowie\\_lesson\\_study\\_metacognition\\_teaching/](https://impact.chartered.college/article/lofthouse_cowie_lesson_study_metacognition_teaching/)

CollectivED working papers have many more papers from practitioners and researchers related to coaching. You can find them by googling **CollectivED Leeds Beckett** for our website.

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