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Week

4: Modelling metacognitive strategies

Session Elements

- self-assessment
- practical exercise
- scripting
- analyse artefacts

Learning Intentions for this session

You will learn that:

4.1 Effective teaching can transform pupils' knowledge, capabilities and beliefs about learning.

4.5 Explicitly teaching pupils metacognitive strategies linked to subject knowledge, including how to plan, monitor and evaluate, supports independence and academic success.

You will learn that:

4.11 Homework can improve pupil outcomes, particularly for older pupils, but it is likely that the quality of homework and its relevance to main class teaching is more important than the amount set.

Introduction

In the previous mentor session (week 3), your mentor guided you to extend your knowledge of how to introduce new material in steps, making links to pupils' prior knowledge, with an emphasis on expositions (explanations), for example the use of concrete representations for abstract ideas. In that session, you explored practical examples of using questioning for different purposes, in order for pupils to secure knowledge and understanding (for example, with 'stem questions' as a supportive tool). Finally, you were given guidance in order to consider expositions and questioning when introducing new material to pupils.

In this self-study session you will extend your knowledge of how to transform pupils' knowledge, capabilities and beliefs about learning through modelling the effective use of metacognitive strategies to enable pupils to self-regulate their learning. You will also reflect on the role that setting homework plays in the transformation of pupils' capabilities and knowledge about learning.

You can apply insights from these exercises to examples from your own past experience with pupils, and to future lesson plans.

Research and Practice Summary

This reading will help you understand some of the theory behind this week's topic. We will start by introducing some of the key concepts (these are in bold). You will also see some suggestions of how to put these concepts into practice. **When using these concepts in your own practice you will need to take account of your pupils' characteristics, the context of your classroom and the nature of the material that you are teaching.**

Modelling metacognitive strategies – Year 1 Science

Christine is teaching science to her Year 1 class. She wants them to be able to name a variety of common animals including fish, amphibians, reptiles, birds and mammals, and to identify the main differences between fish and amphibians. Earlier in the lesson she reminded them of work from Reception year on the differences between plants and animals, and she introduced the core vocabulary (fish, bird, amphibian, mammal, reptile) alongside example images of each type of animal.

How could she use metacognition and self-regulation strategies here to help her pupils?

You have previously seen how the gradual release of responsibility model can bring together some key ideas about teaching and learning. The stages in the model could be described in various ways. However, the central idea is that effective teaching begins with exposition and modelling, and provides extensive practice with fading of support with the end goal of achieving independence. Throughout the process, teachers check pupils' understanding to identify the best next steps in learning and dynamically move pupils between the stages.

Metacognition is often described simply as 'thinking about thinking'. We learn to control our thinking by monitoring what we know about people (self and others), tasks and strategies. Metacognitive knowledge grows through experience, by setting goals and by selecting strategies to achieve those goals. All of these components interact with one another, and through such interactions we develop metacognitive skills and further our metacognitive knowledge. In practical terms, a useful rule of thumb is to think of metacognition as focusing on the 'how' of learning.

To help you to teach your pupils metacognitive strategies, you could:

- 'think aloud': show your pupils what you are thinking when you are carrying out a complex task (e.g. 'When I come to write this conclusion, I need to remember to…')
- build opportunities in your lessons for your pupils to plan out their time, and for them to monitor (perhaps with a partner) their progress through a task
- get your pupils to evaluate their learning (e.g. pupils award themselves *WWW* [what went well] and *EBI* [even better if])
- when instructing them in a new task, remind your pupils how they will be thinking and learning in a similar way to one they have experienced before

Given the age of Christine's pupils, and what she wants them to learn, which of these strategies might work best for her? Which might work best for your own context?

Self-regulated learning, an associated concept, is about how pupils monitor their learning. Self-regulated learners are aware of their strengths and limitations, they set learning goals for themselves, they monitor their behaviour in terms of their goals and self-reflect on their increasing effectiveness. This enhances their self-satisfaction and motivation to continue to improve.

To help you to teach your pupils to self-regulate in their learning, you could:

- set yourself, or others, as an example (e.g. 'I self-regulate my learning by making a promise to myself to read about my subject for two hours every Sunday, and giving myself a treat when I do')
- make self-evaluation and target-setting a frequent feature of learning (e.g. by asking your pupils to use 'I can' and 'I will' statements after they have finished a topic)
- in verbal feedback, invite your pupils to express themselves in terms of their strengths, their development areas and their next steps
- closely monitor not just the quality of their homework, but how they do it (e.g. the total time they spend on it, the breaks they build in for themselves, how they chunk it, if they draft and re-draft. You could sample this with just a small number of your pupils)

Will any of these strategies be useful for Christine?

Modelling is an instructional strategy in which the teacher demonstrates a new concept or approach to learning and pupils learn by observing. It describes the process of learning or acquiring new information, skills, or behaviour through observation, rather than through direct experience or trial-and-error efforts. Modelling involves using a new method or concept as part of the instruction process, so that pupils can hear or see what you intend them to do. It helps them to understand more clearly how to solve a problem or construct a sentence, for example, by seeing it being done. It also enables them to practise more effectively, and therefore encode and consolidate the new learning in the long-term memory. Examples of modelling include written, visual or video guides, scaffolding, and worked examples.

What Christine did – a script of her lesson

'I want to see if I can remember the names of the different animal groups. I have a cool way of remembering them. It's linked to a pet shop I go to called FARM B. (show image of pet shop sign "FARM B"). Inside, all of the different animals are grouped together. In the F section are the fish. In the A section are the amphibians. In the R section, hmm let me think which of our animal groups begins with 'r'? (Refer back to images of different animals with names.) Oh yes, the reptiles. Then onto the M section. That's the mammals. Then finally we have the B section. What were they again? Birds. Let me check if I have them all, F – fish, A – amphibians, R – reptiles, M – mammals, B – birds. FARM B – what an easy way to remember the different types of animals!'

She then explored features of fish and amphibians through looking at both groups, sharing what the pupils know about each. She asked questions e.g. How do I breathe? How do I move? Where do I live?

'How can I tell a fish from an amphibian?

Now I know the names "fish" and "amphibian", I need to remember how to tell them apart. I know that the main difference is that amphibians can breathe in and out of water. How can I remember that difference? Let's look at the word: **Amphib I**n **an**d out

That's a great way of remembering that amphibians can breathe in and out of water! I love it when the names of animals tell us about their special features!'

Christine then showed the class a picture of an unnamed animal, with 'clues'.

'So, let me see if this works for animal x. The clue says "I can breathe out of water." Hmm, so can amphibians, so does this mean it is definitely an amphibian? No, because there are other groups of animals that can breathe out of water, like birds and mammals, so I must look at its other features.

Clue 2: "I can also breathe in water." Right, I'm happy to say it must be an amphibian now because only amphibians can breathe in and out of water.'

Christine narrated her thought processes by thinking out loud. This would model metacognition linked to subject knowledge for her pupils. Her use of mnemonics (FARM B, Amphib In and out) helped make the learning memorable. She alerted her pupils to the potential pitfall (of classing all animals that breathe out of water amphibians). To check their learning had

'stuck' she set the class homework to use the mnemonic to help them work out the features of another group of animals. She then used this homework task to revisit the learning and build upon their knowledge.

Self-Study Activities

Review: 10 mins

Read the Research and Practice Summary on this week's topic. As you read, reflect on:

1. the practices that you are already doing well
2. the practices you are doing some of the time, but could do more of/more consistently
3. the practices you don't use in your teaching yet

Plan: 10 mins

Self-assessment

Reflect on your classroom practice since the start of the year and complete this checklist: (look back at the Research and Practice Summary for examples)

I do this	Never/rarely	Sometimes	Often
'Think aloud'			
Time for pupils to monitor progress			
Peer- and self-evaluation			
Thinking in similar ways for different tasks			
Set myself as an example of a learner			
Self-target setting			

I do this	Never/rarely	Sometimes	Often
Monitor how they do homework			

Be ready to share this checklist with your mentor and to talk about one or two examples of how you have supported metacognition and self-regulated learning.

Theory to Practice: 20 mins

Use your self-audit from the start of this module and the checklist you just completed when deciding on which of the following options to select.

1. Scripting

Identify parts of a forthcoming lesson where explicit modelling is required. Develop a script for sharing your implicit thought processes in a way that makes your thoughts clear and explicit to the pupils. Have you made any common assumptions around concepts that may need to be explicitly highlighted to pupils?

Have a look again at Christine's Year 1 science lesson for an example of a script.

2. Practical activity

Look ahead to the next piece of homework that you will set for your class. When designing the homework, create a written model or worked example that demonstrates the implicit thought processes needed to successfully attempt the task. Pupils can use this model to scaffold their own thought processes.

To support this practical activity, you could look back at Week 2, when you considered worked examples.

3. Analyse artefacts

Review a series of homework tasks you have previously set. It would be useful to bring a small set of homework with you to your mentor meeting, where you have annotated in the margin:

- What range of learning tasks did you adopt?
- What did you learn about your pupils when they completed the homework?
- Was your (and their) focus more on the quality or the quantity?
- Was there evidence of pupils regulating their own learning?

Next Steps: 5 mins

Be ready to share this, and your other learning from this session, with your mentor in your next meeting with them.

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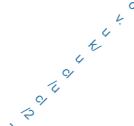
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