

Metacognition and Know-Want-Learnt

Ben Myers

As part of the working party on metacognition, I researched the literature around the concept to decide upon which metacognitive strategy to trial, and I then investigated that strategy to see if it is worth using in the classroom.

In conducting a review of the academic literature around metacognition, I found that the term was coined by the developmental psychologist John Flavell in 1979 who described it as 'knowledge and cognition about cognitive phenomena' (Flavell, 1979, p. 906) but the concept itself may go back as far as Plato (Lysaker and Moritz, 2018, p. 20). The term is a broad one which is used in different ways by different researchers (Lysaker and Moritz, 2018, p. 21), however one common conceptualisation splits it into two parts, knowledge of cognition and regulation of cognition (Schraw, 1998, pp. 113-115). While knowledge of cognition concerns what pupils know about cognition, regulation of cognition concerns skills which help pupils to control their learning (Schraw, 1998, pp. 114-115). Regulation of cognition skills concern planning, monitoring and evaluation (Schraw, 1998, p. 115) and the development of these skills has been frequently found to aid learning, remembering and problem solving among pupils (Chatzipanteli, Grammatikopoulos, and Gregoriadis, 2014, pp. 1224-1227; Cross and Paris, 1988, pp. 131-132; Flavell, 1979, p. 910; Schraw, 1998, p. 215). Thus, improving metacognitive skills such as planning, monitoring and evaluation has significant benefits for pupils.

I then reviewed the literature for strategies that had been employed to improve regulation of cognition skills among pupils and found that one particularly beneficial strategy was Know-Want-Learnt which was first articulated by Donna Ogle in 1986 (p. 565) and takes the form of pupils writing their answers to two questions before a task, 'what do I know?' and 'what do I want to know?', and a third question after the task 'what have I learnt?'. The strategy has been found to greatly benefit the regulation of cognition skills of planning, monitoring and evaluation. In terms of planning, the first two questions guide pupils to focus on particular aims that they want to achieve and to see what skills they already have which could help them to achieve those aims (Greenwood, 2019, p. 499). In terms of monitoring, the second question in which pupils list what they want to know ensures that throughout the task the pupils have clear guidelines to measure their progress against to see if they are learning what they wanted to or if there is a need to adapt their aims. And in terms of evaluation, the third part of the strategy in which pupils list what they have learnt makes explicit the relation between what they wanted to learn and what they actually learnt, helping them to make an accurate judgement concerning their success with regards to the task that they were completing. An important further benefit of the Know-Want-Learnt strategy is that pupils tend to recognise its usefulness and continue to use it independently of their teacher prompting them to do so (Greenwood, 2019, p. 501) which means that the pupils' planning, monitoring and evaluation skills with all the benefits that they bring will continue to improve even if the pupils are in lessons where the strategy is not used. On the basis of the strategy's substantial contributions to the development of the important skills of planning, monitoring and evaluation among pupils, I decided to investigate the employment of this strategy in my classroom to see whether it would improve the regulation of cognition skills of our pupils here at Westbourne.

I decided to carry out my investigation with my top set Year 7 class over one week of lessons on probability in line with the scheme of work. In order to assess whether the use of Know-Want-Learnt improved the pupils' regulation of cognition skills, I used the questionnaire that can be seen below which was agreed upon by the metacognitive working group as the way that all those who were members would assess the metacognitive strategy that they were investigating. Each member of the metacognitive working group used it to ask pupils to self-assess their planning, monitoring and evaluation skills both before and after the chosen strategy was employed so that a clear comparison could be made between the pupils' skills before and after the investigation.

To look at the results of the investigation, I have randomly selected three pupils from the class. The before and after questionnaires of Pupil A can be seen below. Before the use of the Know-Want-Learnt strategy at the start of the week of lessons, Pupil A answered 'Yes' to four of the statements reflecting planning, monitoring and evaluation skills as applying to them as a learner, and after the use of the strategy at the end of the week they answered 'Yes' to eight statements, an improvement of 100%.

METACOGNITION QUESTIONNAIRE

Look at the following statements. Think about yourself as a learner and tick the box which best represents how you feel.

	YES	NO	NOT CONSISTENT
I am aware of my strengths in this subject.			
I am aware of my weaknesses in this subject.			
I can plan for tasks independently.			
I can monitor and evaluate my learning.			
I can apply different strategies to tasks.			
If I am stuck on something, I try to find a solution before I ask the teacher.			
I respond to feedback from my teacher.			
If I get something wrong in a lesson, I will try and think about how I can improve or understand how to do the task better.			
I can look for connections between different topics within the subject.			

Before:

METACOGNITION QUESTIONNAIRE

Look at the following statements. Think about yourself as a learner and tick the box which best represents how you feel.

	YES	NO	NOT CONSISTENT
I am aware of my strengths in this subject.	✓		
I am aware of my weaknesses in this subject.	✓		
I can plan for tasks independently.			✓
I can monitor and evaluate my learning.	✓		✓
I can apply different strategies to tasks.	✓		✓
If I am stuck on something, I try to find a solution before I ask the teacher.			✓
I respond to feedback from my teacher.	✓		
If I get something wrong in a lesson, I will try and think about how I can improve or understand how to do the task better.	✓		
I can look for connections between different topics within the subject.			✓

After:

METACOGNITION QUESTIONNAIRE

Look at the following statements. Think about yourself as a learner and tick the box which best represents how you feel.

	YES	NO	NOT CONSISTENT
I am aware of my strengths in this subject.	✓		
I am aware of my weaknesses in this subject.	✓		
I can plan for tasks independently.	✓		
I can monitor and evaluate my learning.	✓		
I can apply different strategies to tasks.	✓		
If I am stuck on something, I try to find a solution before I ask the teacher.	✓		
I respond to feedback from my teacher.	✓		
If I get something wrong in a lesson, I will try and think about how I can improve or understand how to do the task better.	✓		
I can look for connections between different topics within the subject.			✓

Pupil B’s questionnaires can be seen below. They also show a 100% improvement, this time from three statements answered with ‘Yes’ to six statements.

Before:

METACOGNITION QUESTIONNAIRE

Look at the following statements. Think about yourself as a learner and tick the box which best represents how you feel.

	YES	NO	NOT CONSISTENT
I am aware of my strengths in this subject.		✓	
I am aware of my weaknesses in this subject.	✓		
I can plan for tasks independently.		✓	✓
I can monitor and evaluate my learning.	✓	✓	
I can apply different strategies to tasks.		✓	
If I am stuck on something, I try to find a solution before I ask the teacher.		✓	
I respond to feedback from my teacher.	✓		
If I get something wrong in a lesson, I will try and think about how I can improve or understand how to do the task better.			✓
I can look for connections between different topics within the subject.	✓		

After:

METACOGNITION QUESTIONNAIRE

Look at the following statements. Think about yourself as a learner and tick the box which best represents how you feel.

	YES	NO	NOT CONSISTENT
I am aware of my strengths in this subject.	✓		
I am aware of my weaknesses in this subject.	✓		
I can plan for tasks independently.			✓
I can monitor and evaluate my learning.	✓		
I can apply different strategies to tasks.		✓	
If I am stuck on something, I try to find a solution before I ask the teacher.	✓		
I respond to feedback from my teacher.		✓	
If I get something wrong in a lesson, I will try and think about how I can improve or understand how to do the task better.	✓		
I can look for connections between different topics within the subject.	✓		

Finally, Pupil C, as you can see below, saw an increase from five statements answered ‘Yes’ to nine, an improvement of 80%.

Before:

METACOGNITION QUESTIONNAIRE

Look at the following statements. Think about yourself as a learner and tick the box which best represents how you feel.

	YES	NO	NOT CONSISTENT
I am aware of my strengths in this subject.	✓		
I am aware of my weaknesses in this subject.			✓
I can plan for tasks independently.			✓
I can monitor and evaluate my learning.	✓		
I can apply different strategies to tasks.	✓		
If I am stuck on something, I try to find a solution before I ask the teacher.	✓		
I respond to feedback from my teacher.			✓
If I get something wrong in a lesson, I will try and think about how I can improve or understand how to do the task better.	✓		
I can look for connections between different topics within the subject.			✓

After:

METACOGNITION QUESTIONNAIRE

Look at the following statements. Think about yourself as a learner and tick the box which best represents how you feel.

	YES	NO	NOT CONSISTENT
I am aware of my strengths in this subject.	✓		
I am aware of my weaknesses in this subject.	✓		
I can plan for tasks independently.	✓		
I can monitor and evaluate my learning.	✓		
I can apply different strategies to tasks.	✓		
If I am stuck on something, I try to find a solution before I ask the teacher.	✓		
I respond to feedback from my teacher.	✓		
If I get something wrong in a lesson, I will try and think about how I can improve or understand how to do the task better.	✓		
I can look for connections between different topics within the subject.	✓		

Therefore, the data suggests that each pupil saw a substantial improvement in their regulation of cognition skills after the use of the Know-Want-Learnt strategy. However, it must be noted that the evidence collected is subjective in nature and based on the pupils’ self-assessment so some caution must be taken when interpreting it since there is no evidence for the pupils’ improvement beyond their own perception and this perception may have been influenced by a desire to show that they have improved whether they actually have done or not. Moreover, the data used is from three pupils from a particular class and the investigation lasted a week, so the scope of the study is limited. Therefore, I will use the Know-Want-Learnt strategy more widely across my classes in order to see whether the initial success shown in my investigation here is replicated over a longer period and in other classes.

Bibliography:

Chatzipanteli, A. Grammatikopoulos, V. and Gregoriadis, A. (2014) ‘Development and Evaluation of Metacognition in Early Childhood Education’, *Early Child Development & Care*, 184(8), pp. 1223-1232.

Cross, D. and Paris, S. (1988) ‘Developmental and Instructional Analyses of Children's Metacognition and Reading Comprehension’, *Journal of Educational Psychology*, 80, pp. 131-142.

Flavell, J. (1979) ‘Metacognition and Cognitive Monitoring: A New Area of Cognitive-Developmental Inquiry’, *American Psychologist*, 34(10), pp. 906-911.

Greenwood, R. (2019) ‘Pupil Involvement in Planning Topics Using KWL Grids: Opinions of Teachers, Student Teachers and Pupils’, *Educational Studies*, 45 (4), pp. 497-519.

Lysaker, P. and Moritz, S. (2018) ‘Metacognition – What did James H. Flavell Really Say and the Implications for the Conceptualization and Design of Metacognitive Interventions’, *Schizophrenia Research*, 210, pp. 20-26.

Ogle, D. (1986) ‘K-W-L: A Teaching Model that Develops Active Reading of Expository Text’, *The Reading Teacher*, 39(6), pp. 564-570.

Schraw, G. (1998) ‘Promoting General Metacognitive Awareness’, *Instructional Science*, 26(1), pp. 113-125.