

COGNITIVE PSYCHOLOGY
L3 /ALL GROUPS
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LECTURE 04: COGNITION AND METACOGNITION

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1. COGNITION VS METACOGNITION

Since the study of cognition and metacognition is an interesting topic in a number of disciplines, one can have an interest to find out the difference between cognition and metacognition. However, for most people these two are very confusing. This is because the line of demarcation between the cognition and metacognition is often difficult to identify since these two tend to overlap. Basically, cognition deals with mental processes such as memory, learning, problem-solving, attention and decision making. However, the metacognition deals with an individual's higher order cognitive processes, where a person has active control over his cognition.

2. WHAT IS METACOGNITION ?

Metacognition is often defined as thinking about thinking. It allows us to complete a given task well through planning, monitoring, evaluating and comprehending. This means while cognitive processes allow normal functioning of individuals, metacognition takes it a level higher making a person more aware of his/her cognitive processes. For example, imagine a child who is completing a mathematical question. The cognitive process would allow the child to complete the task. However, the metacognition would double check through monitoring and evaluating the answer. In this sense, metacognition helps to verify and build the confidence of the child. This is why it can be said that metacognition helps successful learning.

According to **John Flavell** (1979), there are two categories of metacognition. They are metacognitive knowledge and metacognitive experience. The first category of **metacognitive knowledge** refers to the knowledge that helps to control the cognitive processes. This once again has been divided as knowledge of person variable, task variable and strategy variable. These deal with a person's awareness of his capabilities, nature of the task and the method that needs to be accompanied in order to complete the task. On the other hand, **metacognitive experience** involves the strategies used to control cognitive processes so that the individual can accomplish the task successfully. These allow a person to monitor and evaluate while engaging in the process. Now, let us try to identify the key difference that exists between cognition and metacognition.

3. THE DIFFERENCE BETWEEN COGNITION AND METACOGNITION

The main difference between these two stem from the fact that while cognition helps a person to engage in a variety of mental processes in order to make sense of the world around him metacognition goes a step further. It deals with the active control of cognitive processes. This is why metacognition usually precedes a cognitive activity.

Metacognition describes the processes involved when learners plan, monitor, evaluate, and make changes to their own learning behaviours. What does metacognition mean? The 'meta' refers to higher-order cognition about cognition, or 'thinking about one's thinking'. It is often considered to have two dimensions: metacognitive knowledge and metacognitive regulation.

- METACOGNITIVE KNOWLEDGE includes the learner's knowledge of their own cognitive abilities (e.g., I have trouble remembering people's names), the learner's knowledge of particular tasks (e.g., the ideas in this article are complex), and the learner's knowledge of different strategies including when to use these strategies (e.g., if I break telephone numbers into chunks I will remember them).
- METACOGNITIVE REGULATION describes how learners monitor and control their cognitive processes. For example, realizing that the strategy you are using to solve a maths problem is not working and trying another approach. Monitoring and control are described in more detail in the following section.

4. METACOGNITION IN LEARNING

- Metacognitive practices help learners to monitor their own progress and take control of their learning as they read, write, and solve problems in the classroom.
- Research indicates that metacognition is a powerful predictor of learning. Metacognitive practices make a unique contribution to learning over and above the influence of intellectual ability. The implication of this research is that improving a learner's metacognitive practices may compensate for any cognitive limitations they may have.
- Metacognitive practices have been shown to improve academic achievement across a range of ages, cognitive abilities, and learning domains. This includes reading and text comprehension, writing, mathematics, reasoning and problem solving, and memory.
 - Metacognitive skills help students to transfer what they have learnt from one context to the next, or from a previous task to a new task.

5. METACOGNITION IN TEACHING

- Make learning goals explicit and help students to plan strategies and ways of monitoring their progress towards achieving these goals.
- Encourage cooperative group work where set tasks require children to discuss their understanding, evaluate their own work and the work of the group, and reflect on their learning.
 - Use self-assessment in the classroom to promote metacognitive skills. Learners can assess the quality of their work based on learning goals, and make adjustments accordingly.
 - Try reciprocal teaching in reading. This is one of the most well-known reading interventions that use a metacognitive approach. This involves teachers working with small groups of learners and modelling the use of four key strategies: summarizing, questioning, clarifying, and predicting. The students are then asked to teach these strategies to other students.

- Use teacher- and peer-scaffolded interactions to support metacognitive development, and gradually encourage the transition from this external, supported monitoring and control, to more internalized metacognitive processes.
- Focus on developing learners' awareness of the strategies they use by encouraging the discussion of strategies in class. This could include when to use certain strategies, how they impact on their learning, and why the strategies work.
- Encourage the transfer of strategies across different domains of the school curriculum. For example, which strategies from the previous learning task could you also use for this task?
- Model as teachers the use of metacognitive strategies by thinking aloud. This could be related to metacognitive knowledge, e.g., What do I know about this task? Have I done a task like this before? Which strategies worked in the past on a task like this? Or, metacognitive talk could be related to metacognitive regulation, e.g., the teacher talking aloud while monitoring and evaluating what they are doing.
- Support the learners' autonomy by allowing them to make choices on the level of difficulty of certain tasks. Avoid giving answers where possible and instead prompt the students to think for themselves and choose an appropriate strategy for the task.