META COGNTIVE STRATEGIES TO ENHANCE TEACHING COMPETENCIES

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ABSTRACT

This paper discuss about the perspective challenges this assumption and in doing so casts meta cognition in a much more interesting light. In place of the view of meta cognitive teaching as a simple amount of caring, it proposes that there are qualitatively different motivational frameworks, driven by people's beliefs and goals, that affect basic attention and cognitive processes. By doing so, these meta cognitive teaching strategies can substantially change intellectual performance even among individuals who care very much about succeeding. Interestingly, the incremental theorists' grade advantage was mediated partially through their learning goals and partially through their greater belief in the efficacy of effort, both of which led to more vigorous, mastery oriented strategies in the face of difficulty.

Keywords:

meta cognition, intellectual performance, cognitive processes, cognitive creativity ,mastery oriented, divergent thinking ,etc.

Introduction

Metacognition is "cognition about cognition", "thinking about thinking", "knowing about knowing", becoming "aware of one's awareness" and higher-order thinking skills. The term comes from the root word meta, meaning "beyond".
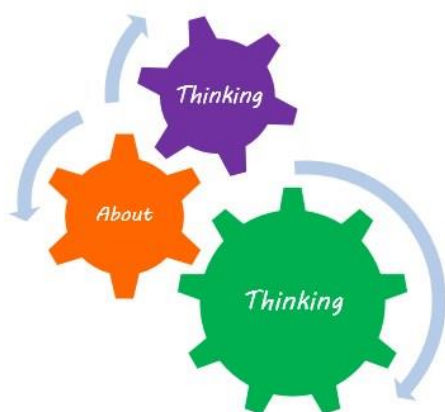
The metacognitive activities include planning how to approach a learning task, using appropriate skills and strategies to solve a problem, monitoring one's own comprehension of text, self-assessing and self-correcting in response to the self-assessment, evaluating progress toward the completion of a task.

Definition

This higher-level cognition was given the label metacognition by American developmental psychologist John H. Flavell(1976).

The term metacognition literally means 'beyond cognition', and is used to indicate cognition about cognition, or more informally, thinking about thinking. Flavell defined metacognition as knowledge about cognition and control of cognition. For example, a person is engaging in metacognition if he notices that he is having more trouble learning A than B, or if it strikes him that he should double-check C before accepting it as fact. J. H. Flavell (1976). Andreas Demetriou's theory (one of the neo-Piagetian theories of cognitive development) used the term hypercognition to refer to self-monitoring, self-representation, and self-regulation processes, which are regarded as integral components of the human mind. Moreover, with his colleagues, he showed that these processes participate in general intelligence, together with processing efficiency and reasoning, which have traditionally been considered to compose fluid intelligence.
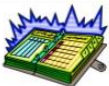
Metacognitive strategies

Metacognitive strategies refers to methods used to help students understand the way they learn; in other words, it means processes designed for students to 'think' about their 'thinking' the process consists of three main stages: (i) **planning** and **development** (ii) carrying out the plan and (iii) examining.

Teaching Metacognitive Skills

Metacognition has been defined as "one's knowledge concerning one's own cognitive processes or anything related to them" (Flavell, 1976, in Kaplan et al., 2013) and is commonly referred to as "thinking about one's thinking". Having well-developed metacognitive thinking skills is associated with improved learning. While some students develop metacognitive skills on their own, others need explicit instruction.

According to metacognitive theories, metacognition includes two domains: **knowledge of cognition** and **regulation of cognition** (Schraw & Moshman, 1995). **Knowledge of cognition** includes knowledge about oneself as a learner, knowledge about learning strategies, and knowledge about why and when to use a given strategy. **Regulation of cognition**includes the ability to plan, monitor, regulate and evaluate your learning process. Instructors can incorporate strategies to help students develop their self-

regulatory skills and/or they can use strategies that guide students to think metacognitively about course content (i.e., to think like a professional, approach problems as a professional in the discipline would).

General Approach to Incorporating Metacognitive Strategies

- **Be intentional about teaching metacognitive skills.** When designing course, identify opportunities in which to incorporate strategies to teach metacognitive skills. For example, you might decide to build metacognitive strategies into an assignment, or around your midterms. Decide when to focus on self-regulation skills and when to focus on guiding students to think metacognitively about course content.

- **Be explicit when teaching metacognitive skills**. Talking about metacognitive skills with the students; define metacognition and explain why developing metacognitive skills is important during and after university. If you have structured your course so that specific themes, relationships or contrasting perspectives emerge, give students your road map or use activities such as a concept map to help them identify it themselves. In other words, don't assume that students will automatically see relationships that might be obvious to teachers.

- **Don't overdo it.** Pick your spots and let other opportunities go.   Students would be overwhelmed if most or all of the following strategies were incorporated into one course.

Many of the following strategies are based on Kimberley Tanner's 2012 article "Promoting Student Metacognition".

Instructional strategies to foster self-regulation skills

- **Encourage goal-setting.** Prompt students to consider why they are taking your course, what grade they want to earn and how they plan to achieve that goal. For example, have students work in groups to brainstorm strategies for earning an "A" in the course.

- **Build in ways for students to "stop and take stock" during class.** During class, ask students to pause for 1-2 minutes and think about what they are doing at that moment (i.e., taking notes, engaging in off-task activities, working on another course). After the pause, this could be a good time for students to ask questions.

- **Prompt students to think about how they prepare for class.** At the beginning of class, show a slide with the prompt "How have I prepared for class today?" Ask students to write their answers, or respond via Clicker, to a set response options. Showing multiple response options enables students to see strategies that they might not have thought of on their own. Talk about your expectations regarding class preparation and why that is important to their learning.

- **Emphasize the importance of learning versus getting the correct answer.** After posing a question to the class, give students time to discuss how they arrived at the answer they chose. Specifically, ask them to consider their process, the main reason for choosing the response, why they discarded other possible steps or answers, how confident they were about their answer, etc. Follow up with an explanation of why you have asked students to spend time on this.

- **Use a lecture wrapper.** A wrapper is a strategy that immediately precedes and follows an activity, whether that activity is a class, assignment, or test. Wrappers are useful because they help students to self-monitor and reflect on the learning process. At the beginning of class, highlight an active listening strategy (e.g., how to take notes, the importance of keeping personal devices out of sight). At the end of class, ask students to submit the three most important ideas from class then present the three ideas that you consider to be the most important. The immediate feedback will help students to self-monitor their learning.

Strategies for Quizzes and Midterms

- **Tell students the format of their tests and exams.** Knowing what to expect can help students to plan how they study. Ask students to discuss how the format affects their study strategies (Dutke et al., 2010). Summarize and provide feedback on their points.

- **Give practice questions and prompt students to evaluate their readiness for a quiz through frequent self-assessment.** Explain that many students under-estimate how much they know and base their

assessment of quiz readiness on how much time they've spent studying. Students who self-assess while studying will develop a more accurate idea of how much they really know.

- **Before a quiz, ask students to analyze sample quiz questions.** Give students practice exam questions in the left side of a two column table. The questions should reflect the format of the questions they will encounter on their exams. In the right column, ask students to identify which level of Bloom's Taxonomy that question reflects. You could add a third column in which students identify how they would study for that type of question.

- **Use an Exam Wrapper.** Exam wrappers prompt students to consider 3 kinds of questions:

o   How did you prepare for the exam? Giving students a number of options to choose from (e.g., I read over my notes a few times, I completed practice questions, I created a concept map) might help those who aren't aware of strategies other than the ones they use.

o   Which questions did you find difficult to answer, and/or what kinds of errors did you make on the exam? Encourage students to look for patterns (e.g., on a multiple choice test, did they find application questions more difficult to answer than factual questions)

o   What will you do differently to prepare for the next exam?   Ask students to plan how they will use this information as they prepare for the next test. Point out the importance of using prior experiences to plan for future ones.

Strategies for Assignments

- **Use an Assignment Wrapper.** When giving an assignment, give students a self-assessment question that focuses their attention on the skills they need for the assignment. At the end of the assignment provide follow-up questions that prompt students to reflect on their skills and describe how they will use this experience to plan for future assignments. For example, if the assignment involves solving a set of problems, ask students how quickly and easily they were able to solve the problems.

- **Incorporate reflective questions at the end of an assignment.** As part of the assignment, ask students to evaluate the process they used when completing the assignment. See Tables 1 and 2 in Tanner, 2012 for prompts. Examples of reflective prompts are also provided in CTE's Critical Reflection Teaching Tip Sheet.

- **Ask students to reflect on assignment feedback.** After giving back a graded assignment, ask students to write one word on the back of their marked assignment that summarizes how they feel about their grade. Ask students to write a brief reflection using that word as their guide. Alternatively, give back comments only and ask students to estimate their grade based on those comments. Release the grade online after students submit their written estimate (Webb, 1997).

Instructional strategies to foster metacognitive thinking about course content

- **Give a diagnostic quiz early in the term.** Diagnostic quizzes help students determine what they already know and where they need to focus their attention. Frame the quiz with questions that prompt the student to think about their learning (see Tanner 2012).

- **Explicitly model metacognitive thinking.** Explain your thinking process out loud as you walk through the steps of how you, yourself, execute a skill that you are teaching (e.g., how you would search for a journal article, write a reflection, solve a physics problem, read peer feedback, etc.). Specifically, talk about how you decide what to do first, what you do when you are unsure of your work or when you get stuck, how you check your work, and how you know when the task is complete. Remember that many of these thinking skills have become automatic through years of experience and that students are still developing skills.

- **Use a concept map.** Concept maps can be used to show the relationship between concepts or topics. Students can work alone or in groups to create a concept map that illustrates the relationships between course topics or concepts. Alternatively, give students a partially finished concept map and have them fill it in during a lecture (or as homework) or ask students to create a concept map to show their prior knowledge of a topic.

- **Ask students to identify either the muddiest, most interesting, or most relevant point(s).** In this activity students identify which concepts from a lecture or reading that they find particularly complex or interesting. This not only helps students to engage with the course material, it also creates an environment where confusion is acceptable.

- **Link the purpose of an assignment to course objectives and professional skills.** When giving an assignment, ask students to think about why you chose that assignment and how it relates to their professional development. See Tables 1 and 2 in Tanner 2012 for prompts.

Think Aloud

Great for reading comprehension and problem solving. Think-alouds help students to consciously monitor and reflect upon what they are learning. This strategy works well when teachers read a story or problem out loud and periodically stop to verbalize their thoughts. This allows students to follow the teacher's thinking process, which gives them the foundation they need for creating their own strategies and processes that can be useful for understanding what they are trying to comprehend.

Checklist, Rubrics and Organizers

Great for solving word problems. These organizational tools support students in the decision-making process because they serve as an aid for planning and self-evaluation. Typically they ask what students know and need to know to arrive at an answer, and emphasize the need to reread the problem and self-check responses.

Explicit Teacher Modeling

Great for math instruction. Explicit teacher modeling helps students understand what is expected of them through a clear example/model of a skill or concept. When a teacher provides a easy to follow procedure for solving a problem, students have a memorable strategy to use for approaching a problem on their own.

Reading Comprehension

Truly comprehending reading involves students actively engaging with a text and accurately deciphering the layers of meaning. It is very important for students to develop solid reading comprehension skills because statistics show that people who have low reading comprehension ability suffer in academic, professional, and personal pursuits.

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