# Metacognitive Monitoring

## Why Is This Strategy Useful?

Metacognitive monitoring aims to improve students' ability to monitor their comprehension of a text. Students more effectively regulate their study of a text when they can accurately tell better learned material from less learned material. Using metacognitive monitoring, students can decide what material to restudy or how long to study material. All students can benefit from this strategy, which can be applied in many different academic subjects.

## Description of Strategy

To begin the study of a text, teachers should ask students set a desired level of learning (or short-term goals) and then read the selected text. After having read the text, the teacher instructs students to generate a list of keywords capturing the essence of the text. Teachers should have students do so after a short delay, but not immediately after reading the text. If students are asked to generate this list after a short delay, they will not have as much access to short-term memory, and this activity will be a cue as to whether he or she understood the text well. Then students rate their own comprehension of the text. If a student meets or exceeds his or her goals, he or she is ready to move onto subsequent topics. A student who does not meet the desired state of learning should continue to study the material by rereading the text.

## Research Evidence

At least one randomized controlled trial provided evidence that the metacognitive monitoring strategy improves comprehension. A sample of 66 college students was randomly assigned to one of three groups: a group that generated keywords after a delay, a group that generated keywords immediately, or a group that did not generate keywords. Findings showed that the delayed-keyword group was more likely to select less learned texts to be reread over better learned texts than was either of the other two groups. The delayed-keyword group also had significantly greater test performance than the other groups after self-regulation of study. The measure was a test including three text-based knowledge questions and three inference questions.

## Sample Studies Supporting This Strategy

**Thiede, K. W., Anderson, M. C. M., & Therriault, D. (2003). Accuracy of metacognitive monitoring affects learning of texts.** *Journal of Educational Psychology, 95*(1), 66–73.

Metacognitive monitoring affects regulation of study, and this affects overall learning. The authors created differences in monitoring accuracy by instructing participants to generate a list of five keywords that captured the essence of each text. Accuracy was greater for a group that wrote keywords after a delay (delayed-keyword group) than for a group that wrote keywords immediately after reading (immediate-keyword group) and a group that did not write keywords (no-keyword group). The superior monitoring accuracy produced more effective regulation of study. Differences in monitoring accuracy and regulation of study, in turn, produced greater overall test performance (reading comprehension) for the delayed-keyword group versus the other groups.

## Sample Activity

**Modeling self-monitoring activities in mathematics**

On a handout or overhead, share a mathematics word problem with the students. For example, this problem might read:

*Alexander needs to practice his cello 150 minutes each week, Monday through Sunday. He skips practicing on Monday, but then practices 50 minutes on Tuesday. If he wants to practice the same number of minutes each day for the rest of the week, how many minutes should he practice each day?*

Read the math problem or passage to students. Think aloud and express you feelings. "Hmm, there is a lot of information here. Reading a math problem for the first time can feel confusing."

Recap everything you remember from the first reading without looking at the passage. "Alexander needs to practice his cello, and I need to figure out how many minutes he needs to practice each day. I think it told me how many minutes he needed to practice, and how many minutes he has already practiced."

Reread the passage aloud to students and then silently to yourself.

Next, explain the steps you think you will need to take in order to solve the problem, for example: "OK, so I see that Alexander already practiced 50 minutes. So I'm going to subtract 50 from 150, which leaves 100 minutes. If he skipped Monday, and already practiced on Tuesday, that leaves Wednesday, Thursday, Friday, Saturday, and Sunday that he needs to practice – so that's 5 more days. If he wants to practice the same number of minutes each day, I need to divide 100 minutes by 5 days, which equals 20 minutes per day." Point out how much more you remembered by rereading the passage. Explain that sometimes you have to reread a difficult passage three times—even more.

Organize students into pairs, and invite them to practice the strategy using materials that relate to your curriculum.

## Additional Resources

Reading Rockets: Instruction of metacognitive strategies enhances reading comprehension and vocabulary achievement of third-grade students.
http://www.readingrockets.org/article/21160