



Metacognition Can Save Our Students

Technology has forced many educators to reimagine their classrooms, curriculums, and instructional practices. Educators have had to confront the ways technology has changed students' brains, as well as how the internet has changed the ways students interact with ideas. Technology, including the internet, has made it possible to have unlimited information at a person's fingertips; however, it has also kept human beings in a state of perpetual distraction and constant disruption, which can have a profound effect on the ways human beings think. It can be harder to pay attention, to think about one thing for a long period of time, and to think deeply when new stimuli are impacting you all day long. The internet in particular has changed the way younger students read; instead of consuming content in a linear fashion like the generations before them, younger students now scan for keywords, search for links, and grab small bits of information. They often do not think deeply about the materials they read.

The large quantities of information students must process each minute through environmental and digital input means that students may not be able to store, retrieve, or process new or old information as efficiently as students did in the past. To make students aware of the way they are processing information, instructors should encourage metacognition in their classrooms.

Metacognition

Metacognition is defined as thinking about your own thinking. More precisely, it refers to the processes used to plan, monitor, and assess an individual's understanding and performance. Metacognitive practices help students become aware of their strengths and weaknesses as learners, writers, readers, test-takers, and group members. As an English instructor at Nash Community College, I have found that teaching students how to process information using metacognitive strategies helps them understand complex ideas and activities.

Annotation

Students often read by only looking at words on pages. Reading by only looking at words on pages is not the type of reading instructors expect. Instructors expect students to think deeply about the texts they are reading, to have questions about the texts, and to make connections between the ideas being presented. Annotating allows students to

track how they are understanding content as they read and ensures that they are monitoring their own comprehension.

I assign my students reading passages I have marked up with underlined words or phrases, symbols such as question marks, and written text in the margins and in between lines. I do this to help students see how annotating passages helps me think through the text I am reading. The ability to use symbols, visual elements, and written statements encourages students to thoughtfully engage with the ideas in the text instead of only recognizing the words. Students can visualize their brains engaging with the text and internalize the type of reading instructors expect. Instructors can encourage metacognition in their classrooms by assigning annotation as homework, a classwork activity, extra credit, or as part of a final project.

Stimulus Materials

Stimulus materials are texts, images, videos, or podcasts that help students think more concretely about complex course ideas and current events. When looking for stimulus materials, instructors should look for current materials that enable students to make connections to their daily lives. I often go to Newsela, NPR, or Listenwise for such materials.

While in class, students read, view, or listen to the stimulus materials and complete a discussion with a partner about the materials. When you begin the lesson about the stimulus materials, provide your students with keywords to think about while discussing the materials that relate back to the course content. By doing this, students are able to make connections between the stimulus materials they are consuming and the academic content they are learning.

Reflection

Integrating reflection into assignments and assessments offers instructors insight into what students are thinking about and prompts students to use metacognition. Adding a final question to an assignment that requires students to reflect upon course content helps students become aware of themselves as learners while providing qualitative data instructors need to design future lessons. Several questions that can be used to promote reflection are:

- What specific confusions arose during this unit, test, or assignment?
- How does this assignment, content, or activity connect specifically to your professional or personal experiences?
- In what ways have you engaged with the content outside of the instructional activity?

Questioning

Questioning in the classroom involves instructors and students both posing questions during class to increase students' comprehension of the content being discussed. Many instructors use Bloom's Taxonomy as a framework to guide questioning in the learning environment. In Bloom's Taxonomy, there are six levels of thinking, ranging from lowest to highest in terms of complexity. The first two levels, *remember and understand*, are the most basic levels at which students recall facts and basic concepts. Typical questions asked about a topic during these levels are "Who?" "When?" "Where?" and "Why?" The middle two levels of Bloom's Taxonomy, *apply and analyze*, are when students use information they have learned and apply it to new situations or use it to draw connections among ideas. Questions often asked during these two levels include "Why is this significant?" "What is this an example of?" "How does this contrast with that?" and "What evidence can you present for that?" The final two levels of Bloom's Taxonomy, *evaluate and create*, are where students make educated judgments about the value of the material they've just learned, applied, and analyzed, and build something either tangible or conceptual to improve the results. Typical questions asked at these levels are "Do you agree with that?" "What is most important?" and "What ideas can you add?"

One way to use questioning to promote metacognition in the classroom is to provide students with one, high-level thinking question, and then require them to ask lower-level thinking questions to support the complex question. This helps students make connections between the low-complexity questions and the high-complexity question. For instance, an instructor provides students with the question, "What if cities and counties required citizens to recycle?" and then requires students to generate informed lower-level questions as homework to support the complex question. In the following class setting, while students are in groups of three to four, students edit, consolidate, and rank the complexity of their questions and then present their questions to the other groups, who decide which questions assist in understanding and answering the complex question. The purpose of this activity is to help students make connections between simple and complex questions and evaluate their thinking in comparison to their peers.

Action Plans

Each academic semester, students drop or fail courses. Many students cite personal reasons for abandoning their college goals, but some simply cannot manage their time or complete complex academic tasks. One way to increase students' success in their courses and encourage metacognition is by requiring them to create action plans. Action plans break down tasks into smaller, more manageable pieces, which requires students to think about their schedules, habits, misunderstandings, and weaknesses relevant to the course. By creating and using

action plans, students have to evaluate and assess how they need to prepare for projects, tests, quizzes, and activities. To incorporate action plans into a course, instructors can require action plans as part of a large assignment, extra credit, or for a grade for maintaining their action plans.

Conclusion

Considering the impact technology has had on our students' brains, it is our responsibility as educators to help students rewire their thinking and processing so they are able to assess the content they are consuming. By incorporating the metacognitive strategies mentioned above into their classrooms, educators can assist students think deeply about course content and make connections between simple and complex ideas.

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