Getting Students Thinking At Higher Levels

(Originally titled "Start with Higher-Order Thinking")

"Memorizing facts is boring," says consultant/author Susan Brookhart in this article in *Educational Leadership*. "Drill-and-practice is boring. But thinking, for most students most of the time, is actually fun." Brookhart suggests four strategies to engage students in higher-order thinking:

• ***Open questions*** – Every lesson should have two or three of these to highlight key content and thinking skills. Some examples: Ask students to describe similarities and differences that require analysis and reasoning:

- *How are 11 and 16 alike? How are they different?*
- *How was the political climate in President Obama's first term like that in his second and how were they different?*

Another idea: present the work of a fictional student – for example, the student's solution to an algebra problem – and have students analyze it and explain how to fix it. Or ask students to make an argument and explain their reasoning – for example, *Why do you think many people in the U.S. became isolationist right after World War I?* "Probably the simplest suggestion for designing open questions is to ask 'Why?' as often as you can," says Brookhart.

• ***Students to respond to one another*** – Wait time is important. *Think time, no hands up*, is a good admonition. "If you don't provide enough wait time, you'll get either no responses or surface-level responses," says Brookhart. Another strategy is having students think/pair/share. In all-class discussions, teachers should resist the temptation to comment themselves, instead asking specific follow-up questions to get other students involved. Or start a whole-class discussion and then have students follow up in groups.

• ***Students thinking, not just retelling*** – All too many student projects are simple regurgitation, says Brookhart – for example, students producing posters showing the natural resources of their state or artistically illustrating one element on the periodic table. "All students have to do is copy information onto their poster, make it colorful and attractive, and voilá, they have a completed assignment, with no evidence of what they understand about their topic," says Brookhart. The way out of this dynamic is posing a thought-provoking problem – for example, ask students to imagine they are astronauts who have been asked decide which planet they'd like to settle on and why. Students look at all eight planets, choose one, and make the case for the choice and the equipment and other steps needed to live there.

Another approach is asking "what if" and "what else" questions to push students to expand or elaborate on what they're studying – for example, *What might have happened in the 1968 presidential election if the U.S. had not been in the Vietnam War?* An even more open-ended question would be to let students choose an election year and develop their own what-if scenarios. In science, rather than a hum-drum project like making a model of the water cycle, ask

students, *What else would you need to know about a particular region to predict how the water cycle would function there?* In math, students might be asked for other ways to solve the problem, 46 ÷ 3 using drawings, counters, or different algorithms.

• ***Self-assessment*** – "Students who can self-assess are poised to be life-long learners," says Brookhart. "They are poised to use self-regulation strategies and to be their own best coaches as they learn. They are able to ask focused questions when they don't understand or when they're stuck." She suggests three ways to help students move to this level.

- Teach students to self-assess with rubrics. It's important that the rubric goes beyond the basic level and stipulates higher-level criteria like stating a position, defending one's reasoning, using supportive details.
- Use confidence ratings. For example, students might be asked to use the "fist of fives" on their chest to indicate how confident they are that they understand a particular term or concept (five fingers means very confident, a fist means no confidence, held close to the chest to avoid embarrassment or peer pressure).
- Have students co-create success criteria. Studying material with which students are familiar, they can jointly create what the teacher and students will look for in their work. "This higher-order, creative exercise," says Brookhart, "requires students to look at work samples, decide whether they are high or low quality, decide what makes them high-quality or low-quality, and describe those characteristics."

"Start with Higher-Order Thinking" by Susan Brookhart in *Educational Leadership*, October 2016 (Vol. 74, #2, p. 10-15), available for purchase at http://bit.ly/2dqECAZ; Brookhart can be reached atsusanbrookhart@bresnan.net.