

Revisiting Bloom's taxonomy: Asking better questions

by Laverne Warner

After reading about literacy development in children, I decided to learn how to ask better questions in my classroom," says Freda. "But I don't know where to start."

"Ever heard of Bloom's Taxonomy?" asks Joan. "I learned about it in one of my education classes in college," she continues. "Ask your director, or Google™ it on the Web."

What is Bloom's Taxonomy?

Bloom's Taxonomy is a set of question-asking strategies, starting at the simplest rote level and ending at the highest evaluation level. It was developed by Benjamin Bloom, an education professor at the University of Chicago, in the 1950s.

He had observed teachers using similar types of questions over and over in their classrooms. He thought their questions were mundane and children were expected to give the "right" answer. He thought teachers needed to ask questions that would enhance children's thinking abilities and broaden their perspectives of their environments. When children move to higher-order thinking, their responses are more creative and show greater depth of learning.

Bloom (1956) identified six levels of thinking and called them a "taxonomy," which simply means a system of classification. The six levels form a hierarchy, from lowest to highest. Each higher level requires all the thinking levels needed at the lower ones.

After he published the taxonomy, it gained acceptance as a model for improving questions in the classroom.

What are the six levels?

Knowledge of content forms the basis of Bloom's Taxonomy, no matter where the question appears on the hierarchy. Below are the levels, with a brief explanation:

1. **knowledge** (or rote)—remembering basic information.
2. **comprehension**—understanding the basic information, being able to phrase it in one's own words.
3. **application**—using the information in a concrete way to solve a problem or complete a task.
4. **analysis**—breaking apart the information, sorting out facts, and drawing conclusions.
5. **synthesis**—putting together knowledge in novel, creative ways.
6. **evaluation**—judging content based on standards, which may be set by the learner or the teacher.

Bloom believed that the memory, comprehension, and application levels were lower-order questions. In his view, higher-order questions began with the analysis level and included synthesis and evaluation because they required children to do more intense thinking.

But more recently, another educator (Popham 2002) has proposed that any question beyond the knowledge level encourages children to do higher-order thinking. In other words, knowledge questions are at the rote level and require that children give the correct answer. According to Popham, all other questions are open, requiring children to show their understanding of knowledge through responses that indicate they are developing critical thinking skills.



Taking a closer look

Knowledge acquisition is essential to the development of thinking skills. All thinking is based on content knowledge. Because the knowledge-level question is the simplest, teachers can use it to find out what children know.

Knowledge: Answers come from *rote memory*.

Examples:

- What is the color of this apple (holding up an apple)?
- Where do apples grow?
- What is the name of this animal (while holding up a picture)?
- What is your address?

If a teacher holds up an orange and asks, “What is this?” an accurate response shows that a child has an understanding of oranges. If a child answers incorrectly, the teacher needs to provide the information and give the child some experiences with oranges for a basic concept to be formed.

WHERE DO APPLES GROW?

Comprehension: Answers indicate *how* the knowledge is known or *how much* understanding exists about the topic.

Examples:

- If six children are eating snack, how many napkins do they need?
- It’s daytime right now. How do we know it’s daytime?

- Name some animals that could be pets.
- Tell me everything you know about the American flag.

Just knowing that the American flag is a flag shows that a child can identify or name the object. To determine how much information children have about the topic of flags, the teacher will need to ask the question in a way that children can elaborate on their knowledge. For example, the teacher could ask, “What do you know about the American flag?” Or she could ask, “Name another country that has a flag. Do all countries have flags?”

Application: Answers *demonstrate* the information; that is, a child develops a product or performs.

Examples:

- Show me how a grasshopper moves in the grass.
- Draw a picture showing what you remember about the story.
- Use your manipulatives to show how much two plus three is.
- Pretend to be your favorite character in the story of *Goldilocks and the Three Bears*.

At the application level, children will show their knowledge with a product of some sort. Examples include drawing a picture, doing a skit, moving in some fashion, building a construction, or performing an action or skill to show what they know. The teacher might say, “Linus, show me what balls can do.” Then the child can bounce, roll, or toss the ball to show his understanding of balls.

Analysis: Answers require *taking apart knowledge* or *putting it together* in an organized manner.

Examples:

- Look at this collage and tell how it was put together.
- What comes next in this pattern of colors?
- Put this puzzle together.
- Name all the triangular shapes you can find in the classroom.

A common material in a preschool classroom that requires children to analyze information is a puzzle. Putting it together requires that children carefully look at pieces (in other words, analyze the pieces) to determine how they fit together. Children would use their familiarity with puzzle construction, their knowledge of colors and shapes, and their previous experience with the items pictured in the puzzle. The teacher could ask, "How did you know that the blue puzzle piece fits in that spot? Would another piece fit there as well?"

WHAT COMES NEXT IN THIS PATTERN OF COLORS?

Synthesis: Answers require describing or *developing a new product* based on information acquired. This is the creative aspect of thinking.

Examples:

- Goldilocks and the three bears are characters in a story you know. Could you use these same characters to make up a new story?
- Let's make up a new song for Earth Day.
- Tell what you think it would be like to be a tree.
- Imagine your mother when she was a baby. What do you think she was like?

The synthesis-level question generates a product, just as the application level does. The difference is that synthesis-level questions result in a novel product, never seen before. Children must have knowledge to answer a synthesis-level question, yet each child individually arrives at an answer. For example, children must know the story of *Goldilocks and the Three Bears* (knowledge) to create a new story like *Goldilocks Cleans Up Her Mess* or *Goldilocks Goes to School* (synthesis).

At the application level, children might construct a collage from magazine pictures. At the synthesis level, the child would design a new object with a new purpose. For example, the teacher asks a child to use construction paper, glue, and ribbon to design a ball for the sand table.

Evaluation: Answers require *judging the information* one has, taking a position, and defending the response.

Examples:

- What do you like best about your picture?
- Why do people need to know about safety signs?
- Why do you think Goldilocks went into the three bears' house?
- Why do you think children need to know how to add and subtract?

According to Bloom, the highest-level question is the evaluation level, but children need to defend the answer given. If a teacher says, "Mindy, describe the insect you like best," the teacher might also ask why it's her favorite. If the teacher asks, "Which insect will jump the highest?" a test needs to be developed to determine the result. Then the child can form a judgment based on the test.

Go beyond rote questions

Bloom's Taxonomy meets the needs of most classroom teachers and caregivers. When adults rely only on rote-level questions, they fail to capture the creativeness of children's minds. Their classrooms are humdrum, and their teaching styles risk becoming mundane.

Popham recommends the use of higher-order questions to add zest and enthusiasm to classroom learning. Asking better questions allows children to develop their minds and discover new knowledge and concepts.

References

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- Popham, W. James. 2002. *Classroom Assessment: What Teachers Need to Know*. Boston: Allyn & Bacon Inc.

About the author

Laverne Warner is a retired professor of early childhood education from Sam Houston State University's Department of Language, Literacy, and Special Populations. She lives in Huntsville, Texas.