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Using Webb's Depth of Knowledge to Increase Rigor

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The word "rigor" is hard to avoid today, and it provokes strong reactions from educators. Policymakers tout its importance. Publishers promote it as a feature of their materials. But some teachers share the view of Joanne Yatvin (http://www.washingtonpost.com/blogs/answer-sheet/post/what-schools-need-vigor-instead-of-rigor/2012/08/16/68be3d0c-e7fb-11e1-8487-64e4b2a79ba8_blog.html), past president of the National Council for Teachers of English. To them, rigor simply means more work, harder books, and longer school days. "None of these things is what I want for students at any level," Yatvin says. Part of the problem is that we have adopted the jargon without a clear understanding of what we really mean (http://hechingerreport.org/content/rigor-its-all-the-rage-but-what-does-it-mean_2222/).

Calculating Cognitive Depth

For classroom teachers, the more important question is one of practice: how do we create rich environments where all students learn at a high level? One useful tool, Norman Webb's Depth of Knowledge Levels (http://schools.nyc.gov/Academics/CommonCoreLibrary/ProfessionalLearning/DOK/default.htm), can help teachers meet that challenge. Depth of Knowledge (DoK) categorizes tasks according to the complexity of thinking required to successfully complete them.

Level 1: Recall and Reproduction

Tasks at this level require recall of facts or rote application of simple procedures. The task does not require any cognitive effort beyond remembering the right response or formula. Copying, computing, defining, and recognizing are typical Level 1 tasks.

Level 2: Skills and Concepts

At this level, a student must make some decisions about his or her approach. Tasks with more than one mental step such as comparing, organizing, summarizing, predicting, and estimating are usually Level 2.

Level 3: Strategic Thinking

At this level of complexity, students must use planning and evidence, and thinking is more abstract. A task with multiple valid responses where students must justify their choices would be Level 3. Examples include solving non-routine problems, designing an experiment, or analyzing characteristics of a genre.

Level 4: Extended Thinking

Level 4 tasks require the most complex cognitive effort. Students synthesize information from multiple sources, often over an extended period of time, or transfer knowledge from one domain to solve problems in another. Designing a survey and interpreting the results, analyzing multiple texts by to extract themes, or writing an original myth in an ancient style would all be examples of Level 4.

Recently, educators have begun applying Webb's DoK to help them design better instruction. Try this exercise to better understand the cognitive depth of the tasks you are using in your classroom and improve the rigor of your instruction:

1. Keep a list or collection of every task you ask students to do in a day (or in one subject for a week), including classwork, homework, and projects.

2. Sort the tasks into categories according to the four DoK Levels. Some resources which may help:
    - This DoK "wheel" (http://static.pdesas.org/content/documents/M1-Slide_19_DOK_Wheel_Slide.pdf) (PDF, 34KB)
    - These examples of DoK levels for four content areas (http://facstaff.wcer.wisc.edu/normw/All%20content%20areas%20%20DOK%20levels%2032
    (PDF, 39KB)
    - These examples of using DoK in the fine arts (http://www.stancoe.org/SCOE/iss/common_core/overview/overview_depth_of_knowledge/dc
    (PDF, 102KB).

3. Work with a team of colleagues to review the groupings. Many tasks are easily categorized, but some will require deeper discussion to clarify your understanding of the levels. Strive toward consensus. A few pointers:
    - The verb does not define the level. Instead, consider the cognitive effort that a student will use to complete the task. The verb "describe," for example, could be any level, depending on the kind of description.
    - It is common to find tasks that seem to fall in between levels. When in doubt, assign the higher level.
    - "Extended time" alone does not make a task Level 4. Lower-level tasks that are merely repeated over a period of time are still lower level.

4. Analyze your groupings. What patterns do you see? Is there a reasonable distribution of tasks across the four levels? Do you notice anything unexpected?

5. Rewrite a Level 1 or Level 2 task to be at least Level 3. These question stems are helpful in creating good tasks (http://svesd.net/files/DOK_Question_Stems.pdf) (PDF, 28KB).

Apply as Needed

You may be asking at this point, "Well, what *is* a reasonable distribution? How often should I be doing tasks at each level? What's the right sequence?"

DOK Levels are *not* sequential. Students need not fully master content with Level 1 tasks before doing Level 2 tasks. In fact, giving students an intriguing Level 3 task can provide context and motivation for engaging in the more routine learning at Levels 1 and 2.

DOK levels are also *not* developmental. All students, including the youngest preschoolers, are capable of strategic and extended thinking tasks. What they look like will differ, and what is Level 3 to a kindergarten student may be a Level 1 task for a middle schooler. All students, however, should have opportunities to do complex reasoning.

To find the right balance, ask yourself these questions:

- What kinds of thinking do I want students to do routinely?
- If my own child were participating, what would I want him or her to be doing?
- What's the most effective way to spend the limited classroom time I have?

Decide for yourself how often you should focus on tasks at each level so that students gain the most from the learning opportunities you design.

Regardless of how you define "rigor," the important thing is that students are thinking deeply on a daily basis. Webb's Depth of Knowledge gives you a framework and common language to make that happen in your classroom.

Source: www.edutopia.org/blog/webbs-depth-knowledge-increase-rigor-gerald-aungst