

Understanding Webb's Depth of Knowledge Approach to Learning and its Use in State and Other Assessments

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Wondering what the big deal is about “Depth of Knowledge” (DOK) created by Dr. Norman Webb in 1997?

Are you curious because your state “adopted it” for assessment or that many publishers now use Webb’s Model to gage or rate test items in their extensive assessment item banks? Maybe you are curious because it is connected with State Content, Literacy and Career, and College Readiness Standards in your State, or perhaps your evaluation depends on student critical thinking at high levels. As an educator the most relevant question might be, does it benefit your students’ learning or is it just another swing of the pendulum in education?

I like Webb’s Depth of Knowledge approach to learning for four major reasons.

First, it is not done to describe what psychologists see as a developmental approach to thinking. It is about what a learner can DO with content and curriculum, which is the world we all live each day in our classrooms. Next, DOK is not linear, a series of steps, or a sequence. Dr. Webb is quite sensible and knows we need many ways to thoughtfully interact with content and demonstrate standards over time. Each of the four levels of DOK are essential to the students’ demonstration of learning as they move through the curriculum over the course of many days, weeks, or even months. Third, Webb’s DOK approach is not about what the teacher can do or level at which they perform. It is about the level of complexity with regard to content that a student can demonstrate. In learning, the focus should always be about what the student can do as a result of learning. Fourth, and perhaps most essential in this time of high stress teacher evaluations, Dr. Webb indicates to us that the higher levels of thinking and demonstration of learning to meet multiple complex standards NEVER occur in one lesson or one 3 to 10 minute walkthrough! Deeply complex thinking takes students time to demonstrate, sometimes weeks or months.

Understanding Webb’s Four Levels to DOK

The DOK level should reflect the complexity of the cognitive processes (load) demanded by the task outlined by the objective, rather than its difficulty. Ultimately the DOK level describes the kind of thinking required by a task, not whether or not the task is “difficult”. – Webb, 2014, YouTube, see reference below.

Level 1 is the student demonstration of Recall. Recall and basic concept acquisition are essential to learning. As a curriculum expert, Dr. Webb indicates that this comprises about 30% of curriculum and standards over time (not a lesson or unit). There is one right answer to any questions posed at this level or the answer is right in the text, video, or other source the student interacts with repeatedly. The emphasis is on vocabulary acquisition and correct use in performing known or routine tasks or assessments.

Level 2 is the student demonstration of Skills and Concepts. In level 2 curriculum work, students must link ideas and skills through comparison and demonstrate sequences or patterns and their use. Students can perform multiple steps, compare and contrast, infer, estimate or predict. Analytic thinking is essential for this level of demonstration. There are predictable (although not always stated) answers to questions at this level where students apply and integrate skills and concepts learned. This level is about 40% of the learning students must do across content or curricula, according to Webb.

Level 3 requires the student to do Strategic Thinking. The student can do non-routine demonstrations of learning or problem solving. Students can interact with a prompt, problem, critique, argument, experiment, a demonstration of writing, etc. that they have never seen before and apply the full justification or selection of approach to address learning that has an unpredictable result or answer (open-ended). Some research or experimentation may be required to demonstrate this level of thinking. Dr. Webb indicates that about 20% of the curriculum requires students to demonstrate strategic approaches to learning across time.

Level 4 requires the student to do Extended Thinking over longer periods of time. Demonstrations of learning require students to use what they know and are able to do along with a deep sense of complex change, creativity, and construction across categories of learning, not just a few of the standards. Detailed or in depth research, unique product or process creation, and a solution orientation characterize this extended level of deep thinking and reasoning. This level comprises about 10% of curriculum over time according to Dr. Webb.

Blooms Taxonomy versus Webb's DOK

Dr. Webb's Depth of Knowledge approach is about what level of complexity students can bring to the learning of content standards in the curriculum. So the focus is not on the questions the teacher can ask, but instead the questions students formulate. The first chart below gives you some stems to use with students. Students can formulate the question and see if peers can respond or the student questioner can answer. Also, unlike Bloom's Taxonomy, the focus is not on verbs. The focus is on students' demonstration of learning content, so any verb must be considered in the context of learning content. If we say that students must explain the leadership of Churchill in the WWII this is Level 1 DOK, but if we say explain the differences between the leadership of Churchill and Stalin during WWII it is Level 2 DOK. While we used "explain" in both examples, the second requires more analysis, although the answers will be predictable and therefore not raise to DOK Level 3. Bloom's Taxonomy is often used in teacher planning as a sequential series of thinking steps a student moves through. Webb's DOK is not linear, all of the levels are essential to the demonstration of curriculum standards over time. Order matters only to where the instruction and learning are in the stream of the curriculum. You can use DOK levels for non-product based tasks such as collaboration or dialog to help students practice thinking to use content. Please see the second tool below to help you with that frequent verbal rehearsal so essential for learning and memory.

Webb’s Depth of Knowledge Tool

*Primary Level of High Stakes State Assessments is DOK 2 and DOK 3, especially in Common Core States and Texas

DOK Level	Demonstrations of Learning in the Context – Add Content	Question Stem Examples for Students Question Creation
Concepts – DOK 1 Recall	Explain, draw, define, describe, recall, list, find, give examples	What? With what? Which? What time? How many? When? Where? Who?
Connections – DOK 2* Skills and Concepts	Authenticate sources, analyze for similarities and differences, to compare and contrast, to determine predictable cause and effect, and to infer, determine patterns, trends, or rules, generalize, summarize, classify, categorize, determine form and function, make connections, determine significance or importance	How? Why? What do...? When would...? How would/could...? What is your interpretation of? Why? How could you analyze...? How does...compare to...? What are the causes for...? What are the effects of...? What are the rules?
Complexity – DOK 3* Strategic Thinking	Evaluate, justify, use logic, reasonableness, use criteria, debate, develop generalizations, determine interdependence, defend, argue, critique, judge, assess future impact, adapt, non-predictable cause and effect, impact of change	Is this justified? Why or Why not? Why is this reasonable? How would you and Why? How would you judge or critique...? Why? Can you formulate a reason or hypothesis? How could you adapt...? What is your defense of... and Why?
Creativity - DOK 4 Extended Thinking Adapted from Webb’s Depth of Knowledge Model, 2005 by Lin Kuzmich, 2015	Demonstrate flexibility, develop criteria, derive original or unique reasoning, solution, process or product, create, produce independent adaptation, create multiple alternatives or solutions, and research to solve or argue significant issue in depth	What if...? What will happen next based on what you know or suspect? How did you arrive at that conclusion? How would you do this differently? Why? What would change your predication? Why? How could you persuade us...? What alternative explanations or solutions...? Justify this with research. How could you design or adapt...? How could you test the solution or design?

Student Dialog and Collaboration Tasks at DOK Levels – Lin Kuzmich, 2014

DOK 1 and 2 Correct or Predictable Thinking	Listen to Reflect or Recall	Summarize	Build on Each Other’s Answers	Analyze and Determine Importance or Significance
DOK 2 and 3 Less Predictable and Strategic Thinking	Verify Sources, Conclusions or Analysis	Unpack or Infer Using Multiple Sources or Examples	Support and Compare Answers, Data, Causes, or Effects	Link and Connect Beyond the Source
DOK 3 and 4 Strategic and Extended Thinking	Defend with Evidence	Challenge Each Other’s Thinking	Combine Ideas and Create Original Solutions, Process or Products	Predict Future Implications and/or Evaluate Adaptability, Use or Research

In Summary

Webb's Depth of Knowledge focuses on the complexity of the content standards in order for the student to demonstrate the assessment or task in a content context. The product or results of learning or demonstration of learning by the student is the focus of DOK.

What not to do with DOK

- Use it as a measure of difficulty of learning since it is a description of student demonstration of complexity.
- Use the typical wheel with verbs associated with DOK. DOK is not about verbs, it is about the content context and descriptions that come after the verb. The bottom of the chart with suggested student performance demonstrations are somewhat useful. Use the first reference below as it is more effective.
- The cross comparison charts and work between Bloom's Taxonomy and the DOK Levels do not seem to support Dr. Webb's model as they are two different things (these charts are often referred to as the "Hess Model" or "Matrix")
- Use it as a linear lesson planning tool. This model is about the tasks or assessments a teacher might create so that students can demonstrate the complexity of their thinking over time with content.

References

Webb, Norman L (March 28, 2002) Depth of Knowledge Levels for Four Content Areas. Download these excellent content based examples of all four levels for your use from:

<https://www.schools.nyc.gov/NR/rdonlyres/2711181C.../DOKFourContentAreas.pdf>

Dr. Norman Webb's DOK Overview: https://www.youtube.com/watch?v=qFXU6_TYIjc

A Keynote PowerPoint by Dr. Norman Webb on DOK:

<https://www.polkfl.net/staff/professionaldevelopment/.../WebbKeynote...>

Kuzmich, L. and Gregory, G. (2014) Data Driven Differentiation for the Standards Based Classroom, 2nd Edition Thousand Lakes, CA: Corwin Press, Inc.

Kuzmich, L. (2011) Stretch Learning in a Standards Based Classroom NY: ICLE.

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