

Bloom's Taxonomy and Understanding by Design

When we talk about understanding in the classroom, what exactly are we talking about? Does it entail the rote memorization of facts and figures? Is it when students can summarize key points from a lesson? Or is it something deeper and more complex?

Bloom's Taxonomy

The research of Benjamin Bloom in the 1950s established what is commonly referred to as Bloom's Taxonomy, or classification of genuine learning. Bloom critiqued the generality of teachers' expectations of student understanding and in his findings formulated six criteria that are often depicted as distinct cognitive levels in increasing order of complexity:

- The first level is knowledge, which involves the recognition and recall of facts. Material can be remembered for a short period of time, but it cannot be used as a foundation for further learning. An example of this is asking students to memorize or define terms.
- The next level is comprehension, which is the ability to explain or restate ideas, such as when we ask students to summarize something in their own words.
- Application is the ability to use a new concept to solve or address a problem. An example of this is when students organize a chart to demonstrate how they can produce an illustration or a diagram to explain a key point.
- In analysis, the fourth level of cognition for Bloom, learners are able to separate a concept into its individual components and recognize the difference between facts and inferences. At this stage students can begin to empathize with an author's intention for writing a poem or critical essay.
- Synthesis is where the creative dimension begins to develop and students become capable of creating new knowledge whereby they compose or design presentations.
- The final cognitive level for Bloom is that of evaluation, where there is an assessment about the overall value or significance of a concept, such as critiquing an author's argument.

When applying Bloom's Taxonomy to the classroom, we need to keep several important points in mind. First, these levels are not meant to be mutually exclusive; that is, one is not necessarily better than another. If they are to be linked to the construction of assessments and lesson planning, then as teachers we should be aware of what skill we hope to either introduce or build upon in our pedagogy. Second, these levels serve as helpful reminders about the types of questions we ask of our students and the ways in which we respond to theirs. If all we do is ask knowledge and comprehension questions, then we may be doing a disservice to the students' cognitive abilities to go deeper into the material. Or when a student asks an evaluative question about the rationale behind a topic and we revert back to a lower level of understanding, we may stifle a learning moment to meet a student where he or she is in his or her own cognitive development. Third, consider Bloom's Taxonomy as a question and assessment continuum, where each level represents types of prompts to use alongside potential activities for students to demonstrate their grasp of the material. For example, when we are measuring analysis, we may use terms



such as *distinguish*, *differentiate*, *classify*, or *infer* in asking the students either individually or collectively to develop a report, questionnaire, survey, or argument about a given topic. In this way we do not simply require that they demonstrate cognitive growth, but we equip them with the language and tools to accomplish the required tasks. If we are looking at synthesis, we may use terms like *design*, *compose*, *role-play*, or *produce* and ask the students to create a game, song, experiment, or invention to align the action with the product.

Understanding by Design

Understanding by Design (UbD) assumes a slightly different posture when examining what constitutes genuine understanding of material. Whereas Bloom's Taxonomy may be viewed as teacher-centered, with the instructor designing the prompts and assessments, UbD seeks to emphasize more of a student-centered focus by highlighting six facets of understanding. The term *understanding* itself is complex and multidimensional, but Grant Wiggins and Jay McTighe, the authors of *Understanding by Design, Expanded 2nd Edition* (Upper Saddle River, NJ: Pearson Education, Inc., 2006), articulate a useful multifaceted view to uncover what is meant by it. *We truly understand when we can explain*. This is where we make generalizations or provide examples to demonstrate a point. *We truly understand when we can interpret*. This is where we offer a personal anecdote to a historical event or compare to a visual. *We truly understand when we can apply*. This is where we use the information in a new context. *We truly understand when we have perspective*. This is where we have the ability to see and hear other points of view to imagine the larger issues. *We truly understand when we can empathize*. This is where we find value in what may appear other or different from our experiences. *We truly understand when we have self-knowledge*. This is where we achieve metacognitive awareness, the act of being able to look within ourselves and reflect on why we do or do not understand something.

The following bullet points describe these six facets of understanding in more detail:

- **Explanation** is where students do not simply recite concepts and theories but where they are able to process the reasons behind them—why do certain principles work the way they do? This first facet calls for students to be given assignments that allow them to state what they know but also to provide reasons to support their insights. This is the classic mathematics axiom of “showing your work.” Providing the rationale gives more complete answers to fundamental questions. The point behind this facet is that it is not simple recall of data.
- **Interpretation** is the ability to connect narratives and bridge the personal with the abstract. Stories do not become diversions or tangents when they reflect the most transcendent or deepest aspects of our lives and the world around us. This can come in the form of newspaper editorials or children's books that have a moral lesson. It recognizes that history is very much alive when it is interpreted. It is fundamentally a hermeneutical task, to interpret and make meaning by upholding the tension between author intention and reader reception. One of the most liberating moments in the classroom is when we witness students feeling empowered about their mastery of a work of literature or an abstract equation. This facet of understanding gives them the skill to truly make their own meanings.
- **Application** can connect knowledge to a context and is similar to what Bloom intended with his description. Many students need the freedom to use their new skills in a real-world environment. The emphasis on assessments here is for what is called performance-based learning, which consists of cumulative ways to measure a student's comprehension of the material, going beyond



the standard examination. Students who properly apply material to new situations can begin to recognize that merely doing the work or following directions does not suffice for truly understanding a concept.

- **Perspective** requires a level of maturity to not necessarily believe in another's viewpoint but to be able to speak from a different social, racial, or religious context. In other words, by giving an answer from multiple points of view, a student demonstrates her or his ability to look beyond the two views she or he is often inundated with—that of a textbook and that of the teacher. This critical thinking gives perspective thinkers the ability to move beyond reactionary insights or basic recall strategies.
- **Empathy** is more subjective than perspective when it comes to seeing something from another's context. It challenges us to look past our assumptions about a given topic and use creative reasoning to role-play in a first-person narrative, to move from the view of "they" to the view of "I" as a powerful shift in understanding. Empathy can be difficult to achieve with younger students who simply may not possess the same level of life experiences as others. The empathy facet addresses the social concern that students are somehow unable to look beyond their own sense of self.
- **Self-knowledge** is the manner by which we help students grow in their ability to internalize knowledge and become lifelong learners who can be critical practitioners of reflection. It is the practice of questioning our long-standing beliefs in an objective way. It demands that we uncover what understanding looks like beyond ourselves.

In their entirety, these six facets construct a holistic picture of understanding. Properly designing the curriculum will ensure that the learners can make sense of what the teacher is doing and be able to explain why they are doing it. At its core UbD is a constructivist framework for framing the conversation on curriculum; namely, that meaning must be apprehended by the learner and guided by the teacher.

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When you compare Bloom's Taxonomy with the facets of understanding in UbD, you can begin to see the value in becoming more aware of how we construct the craft of teaching. All too often the focus lies on the content being covered and the pace with which we cover it. But this ignores the personal dimension in the classroom by dehumanizing students into testers and stifling the creativity of many well-intended educators. Both approaches attempt to bring in the lived experience of students, beyond the compartmentalized textbook examples which may not speak to everyone. Moreover, they reclaim the integration of skills back into the secondary classroom. It is an approach elementary school teachers are very familiar with, but it gradually becomes less of a priority for teachers as students enter the higher grade levels. Granted, adolescents are capable of more abstract thought and teachers can process more content with them, but it should not mean that we bypass skill sets that will prepare students for post-secondary education and future careers. Any genuine discussion about curriculum should align standards with the skills and content knowledge base all students should have. When we are transparent and clear about our approach to teaching, students are affirmed because they recognize teachers as mentors who are guiding them to self-discovery. Teachers can utilize their time more effectively because of this clarity and the ability to know where students are in their understanding of the material. More important, when teachers spend quality time sharing resources and feedback on the essential questions, such as, "What are the big ideas



we want students to understand and how will we know they know these?" then they can focus on genuine results that will benefit everyone.

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