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Understanding "Understanding"

by Michael S. Kirkpatrick

"Why did my students do so poorly on that? They really need to *understand* that material!" How many times have you said or thought something like this? You gave them reading and homework for practice, but their exam answers showed only a passing resemblance to what you were expecting. It's easy to blame the students: they didn't study enough or they just don't get it. It's also easy to blame ourselves: we gave a really shoddy [lecture](#), we didn't give enough [feedback](#), or we wrote a [bad question](#). While there are times this blame may be warranted, there's a third culprit to consider: the word "understanding." Wiggins and McTighe devotes the second chapter of [Understanding by Design \(2005\)](#) to "Understanding Understanding," examining three perspectives on the word:

- [Understanding as meaningful inferences](#): In this sense, understanding is the cognitive ability to use a basis of knowledge to link ideas. [Dewey \(1933, 137\)](#) describes this as the ability "to grasp the meaning of a thing, an event, or a situation," and "to see it in its relations to other things."
- [Understanding as transferability](#): We generally expect our students to do more than memorize facts. They must also make decisions about which fact is most appropriate to apply after evaluating the audience and goals of an activity. Wiggins and McTighe argue that understanding requires "the ability to transfer what we have learned to new and sometimes confusing settings" (40). Understanding is not just an internal mental activity, but requires demonstrating some form of new behavior.
- [Understanding as a mental state](#): After applying facts and knowledge to new problems, learners may develop a deeper appreciation for the significance of a concept within a larger context. In this form of understanding, the student integrates non-cognitive mental components--including students' values and emotional experiences--that leads to a changed view of the world.

With these different perspectives in mind, it becomes clear that students' failure to "understand" material may be a reflection of misaligned expectations. For example, our exam questions may be expecting students to transfer a concept to specific application or context, whereas they read the question as a simple task of identifying relevant terms or facts.

As an example, a student may respond to "How does antibacterial soap contribute to antibiotic resistance?" by simply stating that bacteria evolve in response to the presence of triclosan. This statement of facts might disappoint the biology instructor who was seeking an explanation grounded in the processes of evolution. Reframing the question as "Would it be justified to ban antibacterial soaps on the grounds that they contribute to antibiotic resistance?" would require students to apply their knowledge of the mechanisms of natural selection and to evaluate evidence regarding the

claim.

To overcome this mismatch and potential frustration (for instructors and students), let's start by banning the word "understanding" from our vocabulary when describing our learning expectations. Instead, we can strive to be more explicit about what students can do to demonstrate which form of understanding we have in mind. To help, Wiggins and McTighe created a taxonomy known as the "Six Facets of Understanding" (82-104):

1. **Explanation:** Provide knowledgeable and justified accounts of events, actions, and ideas. Answering these sample questions clearly provides evidence of mastering this facet: *How did that work? What explains such events? What is an illustrative example? How can we prove it?*
2. **Interpretation:** Create meaningful narratives and translations. Sample questions: *What does it mean? Why is this important? What does it illustrate about the human experience?*
3. **Application:** Use knowledge effectively in new situations and diverse, realistic contexts. Sample questions: *How can we use this new process? How should you behave differently to meet the demands of this particular situation? How would you fix this problem?*
4. **Perspective:** Establish critical and insightful points of view. Sample questions: *Whose point of view is at stake here? What is assumed that needs to be made explicit and considered? What is justified here? Is there adequate evidence? Is this approach plausible? What are the limits?*
5. **Empathy:** Try to get inside another person's feelings and worldview. Sample questions: *What do they see that you don't? What do you need to experience to appreciate their view? Who would be affected or left behind if this idea took off?*
6. **Self-knowledge:** Accept one's ignorance and the influence of one's personal thought and action. Sample questions: *How do my personal values shape my choices? What are the limits of my knowledge? What are my blind spots? What mistakes am I prone to make?*

When we reframe our desired learning outcomes in these terms, we can provide students with better opportunities to demonstrate multiple dimensions of learning. This [learner-centered](#) approach makes it possible to create [significant learning experiences](#). By examining multiple facets within the context of their prior knowledge, students could create richer and more enduring retention of the concepts.

Additional opportunity

Each summer, the CFI offers [jmUDESIGN](#), a five-day instructional design institute that helps instructors apply an integrated approach incorporating ideas similar to the work of Wiggins and McTighe. Applications for this year's institute will open in March.

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