

Tech Snacks: The Six Facets of Understanding

This semester, OTLE's Faculty Reading Group is reading *Understanding by Design* by Grant Wiggins and Jay McTighe.¹ An important question that this framework poses is: What does it mean to “understand” something? “The Six Facets of Understanding” give us categories that help make it easier to recognize student understanding. Each facet helps enforce the idea that students must use their knowledge to perform effectively in order to prove their understanding of something.

What are the Six Facets?

In teaching for understanding, complete and mature “understanding” ideally involves a full development of all six facets for a given subject area — similar to how students must develop fully in all criteria levels of a grading rubric.

Facet 1: Explanation

This facet of understanding can be revealed through performances and products that clearly and thoroughly explain how things work, how components connect, and why events happen.

Assessment — Provide students with assessments that require them to explain what they know about how things work, including robust supporting argumentation. Examples:

- *A student in physics explains why the car on the air track accelerates the way it does when the incline of the roadway is varied.*
- *A student in welding explains how they welded different joints on a project and why they chose the methods they did (and/or correctly identify reasons why some joints failed).*
- *A student in diesel tech is able to explain the cause of a faulty system/part to a customer.*

Facet 2: Interpretation

Students possessing this facet of understanding can articulate the meaning of something beyond face value: an event's cultural significance, a data point's indications, or a symbol's meaning. Likewise, the student can produce creative work that strikes a deep chord of recognition and resonance within a given cultural context.

Assessment — Provide students with assessments that ask them to interpret questions that have no clear answer or require a firm grasp of a context (e.g., historical, cultural, political, data structure). These might be analytical or creative interpretations. Examples:

- *A student in British literature gives a speech about how *Gulliver's Travels* can be read as a satire on British intellectual life; it's not just a fairy tale.*
- *A student in statistics explains what a 98.2% Covid survival rate or 72% freshman retention rate means and doesn't mean at a level of individual probability.*
- *Caleb (former OTLE staff) created and circulated comics each week that gently poked fun at Northern's social culture while communicating that week's Tech Snacks topic.*

Facet 3: Application

Application conveys the ability to use knowledge effectively in new situations and diverse realistic contexts—to assemble the appropriate ideas, knowledge, and actions to address and solve a new problem.

Assessment — Provide students with opportunities to perform authentic tasks and engage in “real-world” problem-solving scenarios. Examples:

- *A student in accounting prepares a financial statement or an operating budget based off of a realistic case study.*

¹ Wiggins, G. & McTighe, J. (2005). *Understanding by design* (2nd edition). ASCD.

- *A student in graphic design creates a new logo for a local company based on their business goals, values, and style preferences.*
- *A student in education/teacher training develops and delivers live lesson plans to real classrooms within the community.*
- *Students in engineering perform a simulated stress test on a bridge they designed.*

Facet 4: Perspective

Students with “perspective” can develop and articulate insightful points of view. They possess mature recognition that any answer to a complex question typically includes varying points of view; an answer is often one of many possible answers, depending on different worldviews.

Assessment — Provide students with explicit opportunities to confront diverse points of view: arguments for and against an issue, or varying perspectives based on culture, gender, class, power dynamic, etc. Examples:

- *A student in a Middle Eastern history course explains the Israeli and Palestinian arguments for and against new settlements on the Gaza Strip.*
- *A student in criminal justice can explain the advantages and disadvantages of different models of criminal rehabilitation that exist in different countries and cultures.*

Facet 5: Empathy

Students with empathy can enter another person’s feelings and worldview and can anticipate or imagine their thoughts, feelings, and actions.

Assessment — Provide assessments that invite students to overcome egocentrism, ethnocentrism, and present-centeredness in their answers and explanations. Examples:

- *Students in drama/theater imagine themselves as Juliet from Romeo and Juliet, Act 4, and write an explanation for why they have to take this desperate action.*
- *Students in poetry write from a lyrical perspective that is not their own.*
- *Students in business marketing create a social media marketing campaign that anticipates and incorporates the values and desires of a rural Gen Z audience.*
- *Students in electrical technology can explain a residential wiring problem to a customer in terms that they will understand (i.e., without jargon or too much technical complexity).*
- *Students in nursing are assigned a role play activity between a busy health care worker and a patient with a lot of fear about their medical situation. The class discusses the different perspectives and how to ensure empathy towards the patient.*

Facet 6: Self-Knowledge

Students with self-knowledge know how their own patterns of thought and action affect their understanding. Self-knowledge demands that we notice and question our own ways of seeing the world—and our own blind spots and inexpertise.

Assessment — Provide opportunities for metacognitive exercises, such as: self-assessments of intellectual performances; reflection on learning strengths, weaknesses, and habits; reflection on their own upbringing, biases, and worldviews. Examples:

- *An automotive instructor teaches students how to use graphic organizers (mindmapping, flowcharts, etc.) as a study aid for diagnostic processes.*
- *Students in math are prompted to do a formative assessment in class in which they describe one topic that they understand well, one topic that they don’t understand well, and one question that they have.*
- *Students in anatomy and physiology fill out a self-reflection after their first unit test that prompts them to describe how they prepared for the exam and what they will change the next time around.*
- *Students in nutrition reflect on their own eating habits and beliefs and discuss where they may have come from.*