

UNDERSTANDING BY DESIGN

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- Twin sins of instructional design: activity-focused teaching and coverage-focused teaching.
- Big idea: concept, theme, ongoing debate and point of view, paradox, theory, underlying assumption, recurring question, understanding or principle or issue that gives meaning and connection to discrete facts and skills.
- E.g.: adaptation, good triumphs over evil, nature versus nurture, freedom must have limits, fractals for explaining apparent randomness, texts have meaning, Is that fair?, form follows function, the reader has to question the text to understand it)
- Curriculum: specific blueprint for learning that is derived from desired results
- Curriculum takes content from external standards and local goals and shapes it into a plan for how to conduct effective and engaging teaching and learning. It includes appropriate experiences, assignments and assessments that might be used for achieving goals. The best curricula are written from the point of view of the desired learnings, not merely what will be covered.
- Knowledge and skill do not automatically lead to understanding. Student misunderstanding is a far bigger problem than we may realize. Assessment of understanding therefore requires evidence that cannot be gained from traditional fact-focused testing alone.
- Teaching and assessment cannot be geared at all times toward deep and sophisticated understanding.
- Focus on learning, not teaching.
- Activity-based teaching is hands-on, but not minds-on.
- Coverage is not the same as purposeful survey.
- Stage 1: Identify desired results (enduring understandings)
- Stage 2: Determine acceptable evidence (think like an assessor)
- Stage 3: Plan learning experiences and instruction
- Collected evidence may include traditional quizzes and tests, performance tasks and projects, observations and dialogues, and student self-assessments gathered over time.
- A staff developer should determine what evidence will indicate that the adults have learned the intended knowledge or skill before planning the various workshop activities.
- A prevailing norm of our profession seems to be, “If I work hard on planning, it must be good.”
- Assessments are thought through prior to the lessons being fully developed. The assessments serve as teaching targets for sharpening the focus of instruction and editing past lesson plans, because they define in very specific terms what we want students to understand and be able to do.
- An understanding is a mental construct, an abstraction made by the human mind to make sense of many distinct pieces of knowledge.
- Evidence of understanding requires that students “extract” understandings and apply them in situated problems, in performance – something quite different from merely seeing if they can recall and plug in the underlying principles the teacher or textbook gave them.
- Paradoxically, you have to have knowledge and the ability to transfer in order to misunderstand things.
- E.g.: A fourth grader reported irritation at not ever seeing lines of longitude and latitude as she flew cross-country with her family.

- A very bright graduate of AP science courses thought “error” in science was a function of avoidable mistakes, rather than a principle inherent in the enterprise of induction.
- Content mastery is not the aim of instruction, but a means.
- A key finding in the learning and transfer literature is that organizing information into a conceptual framework allows for greater transfer.
- No skill can be integrated into a powerful repertoire unless the learner understands the big ideas related to using the skill wisely.
- In skill-focused courses of study, look for big ideas in:
 - The value of the skill – what the skill helps you do more effectively or efficiently
 - Underlying concepts (e.g. persuasion when teaching the skills of persuasive writing or debate)
 - Issues of strategy – effective tactics, including when to use a particular skill
 - Why the skill works – the theories underlying the skill
- E.g.: In cooking minimize waste and increase taste by using scraps for stocks.
- When reading to comprehend, practice “reading between the lines” instead of merely decoding.
- Core task: the most important performance demands in any field.
- Six facets:
 1. Explanation (Why is that so? What explains such events? What accounts for such action? How can we prove it? What is an illustrative example? To what is this connected? What is implied? How does this work?)
 2. Interpretation (What does it mean? Why does it matter? What of it? How does it relate to me?)
 3. Application: How and where can we use this knowledge, skill or process? How should my thinking and action be modified to meet the demands of this particular situation?)
 4. Perspective (From whose point of view? From which vantage point? What is assumed or tacit that needs to be made explicit and considered? What is justified or warranted? Is there adequate evidence? Is it reasonable? What are the strengths and weaknesses of the idea?)
 5. Empathy (How does it seem to you? What do they see that I do not? What do I need to experience if I am to understand? What was the writer, artist, or performer feeling thinking seeing and trying to make me feel and see?)
 6. Self-Knowledge (How does who I am shape my views? What are the limits of my understanding? What are my blind spots? What am I prone to misunderstand because of prejudice, habit or style?)
- The facets help us avoid the Expert Blind Spot at work when we fall victim to the thinking that says, “Because I understand it, I will tell you my understanding and render teaching and learning more efficient.”
- Essential Question: Core ideas and inquiries within a discipline that helps students effectively inquire and make sense of important but complicated ideas, knowledge and know-how.
- A question is essential if it is meant to
 - Cause genuine and relevant inquiry into the big ideas and core content
 - Provoke deep thought, lively discussion, sustained inquiry, and new understanding as well as more questions
 - Require students to consider alternatives, weigh evidence support their ideas, and justify their answers
 - Stimulate vital, ongoing rethinking of big ideas, assumptions, prior lessons
 - Spark meaningful connections with prior learning and personal experiences
 - Naturally recur, creating opportunities for transfer to other situations and subjects.

- Framing a unit with only topical questions that focus on particular ideas and processes does not ensure transfer, regardless of how provocative or related to core content the questions may be
- Framing the unit with only overarching and open questions may cause a drift into aimless discussion without ever touching down on the particular understandings related to content standards and core content.
- Framing units with only guiding questions makes it unlikely that students will have the intellectual freedom and invitation to ask questions need in a curriculum dedicated to understanding.

Overarching	Topical
In what ways does art reflect, as well as shape, culture?	What do ceremonial masks reveal about the Inca culture?
From whose perspective is this, and what differenced does it make?	How did Native Americans view the “settlement” of the West?
How do authors use different story elements to establish mood?	How does John Updike use setting to establish a mood? How does Toni Morrison use images and symbols to establish mood?

- Topical Essential Questions: What ideas can we express through dance? How can motion convey emotion?
- Overarching Essential Questions: In what ways do artists express what they think and feel? In what ways does the medium influence the message? What can the artist do that the non-artist cannot?
- An understanding is an important inference, dawn form the experience of experts, stated as a specific and useful generalization.
- An understanding refers to transferable, big ideas having enduring value beyond a specific topic.
- An understanding involves abstract, counterintuitive, and easily misunderstood ideas.
- An understanding is best acquired by “uncovering” (i.e. it must be developed inductively, co-constructed by learners) and “doing the subject (i.e. using the ideas in realistic settings and with real-world problems).
- An understanding summarizes important strategic principles in skill areas.
- An assessment ask, problem or project is authentic if it
 - Is realistically contextualized.
 - Requires judgment and innovation
 - Asks the student to “do” the subject
 - Replicates key challenging situations in which adults are truly “tested” in the workplace, in civic life, and in personal life.
 - Assesses the student’s ability to efficiently and effectively use a repertoire of knowledge and skill to negotiate a complex and multistage task.
 - Allows appropriate opportunities to rehearse, practice, consult resources, and get feedback on and refine performances and products.
- GRASPS Task Design: Goal, Role, Audience, Situation, Performance, Standards
- It is a common misconception that reform is about an exclusive reliance on authentic assessments. This is simply not the case. For evidence of many desired results, especially discrete knowledge and skill, objective quizzes, tests, and observations with checklists often suffice.

- Facet related Criteria

Explanation	Interpretation	Application	Perspective`	Empathy	Self-Knowledge
Accurate	Meaningful	Effective	Credible	Sensitive	Self-aware
Coherent	Insightful	Efficient	Revealing	Open	Metacognitive
Justified	Significant	Fluent	Insightful	Receptive	Self-adjusting
Systematic	Illustrative	Adaptive	Plausible	Perceptive	Reflective
Predictive	Illuminating	Graceful	Unusual	Tactful	Wise

- Many teachers confuse interesting and engaging learning activities with appropriate evidence form performance.
- Validity questions: How likely is it that a student could do well on this performance task, but really not demonstrate the understandings you are after or that a student could perform poorly on this task, but still have significant understanding of the ideas and show them in other ways?
- Validity is about inference, not the test itself. Validity is about our understanding of the results, not the test itself.
- In what ways do artists influence society? ION what ways does society influence artists?
- What makes art “great”? What is beauty? What is taste? Are they related? DO they matter?
- How do different conceptions of beauty influence the work?
- How do artists from different eras present similar themes? How does art change era by ear? How and why do artist choose tools, techniques and materials to express their ideas?
- What motivates artists? How and where do artists get their ideas? Is the artistic process primarily intuitive? Are artists made or born? Does an artist know, or need to know? Does the answer matter?
- How can we “read” a work of art? Can art be meaningfully explained? Critiqued/ Does art need to be explained and critiqued, or is it ruined by trying?
- Do artists have a responsibility to their audiences or to society?
- Do the arts have rules? Who should make them?
- Should we ever censure or restrict artistic expression?