SECONDARY

TOOLS FOR TEACHING
Conceptual Understanding

Designing Lessons and Assessments
for Deep Learning

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Thank you
FOR YOUR INTEREST IN CORWIN

Please enjoy this complimentary excerpt from *Tools for Teaching Conceptual Understanding, Secondary,* by Julie Stern, Krista Ferraro, and Juliet Mohnkern. Use the guidance in this section to begin a conversation with your students about how this type of learning might be different from what they are accustomed to doing.

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Teaching Students to Learn Conceptually

Once we've built the foundation of a thinking classroom, we can begin to build a conceptual classroom. Conceptual learning is not always easy or natural for students. Sadly, the longer they've been in school the less they are used to (and, therefore, the less they are good at) abstracting big ideas from concrete examples and transferring them to completely new situations. Even though their brains are wired for this type of thinking, it is rarely the intentional focus of their schoolwork. We need to be explicit about how this type of learning might be different from what they are accustomed to doing, especially for older students who are used to a more topic-based, coverage-centered classroom.

Students also need time to think about the definition of a concept and how concepts are different from facts. They need time to practice evaluating and writing their own statements of conceptual relationship. After a few attempts, though, we've seen students shift not only their approach to learning but their drive. When learning isn't just about retelling what they heard from someone else but using their personal intellect to create their own understandings and unravel complex situations, it brings the joy back to learning for students. It is an investment of a few class periods, but it will pay off!

Consider the following classroom exercises as a way of helping students transition to conceptual learning.

Strategy #5: Contrasting Traditional Learning With Conceptual Learning

Ask students to consider the two panels of images in Figure 2.3. Both panels present metaphors for learning. In the first panel, traditional learning is likened to collecting

pebbles on the beach, while in the second, conceptual learning is likened to chisel-ing a sculpture from a rough piece of marble.

FIGURE 2.3 TRADITIONAL LEARNING VERSUS CONCEPT-BASED LEARNING

Panel 1: Traditional Learning

Panel 2: Concept-Based Learning
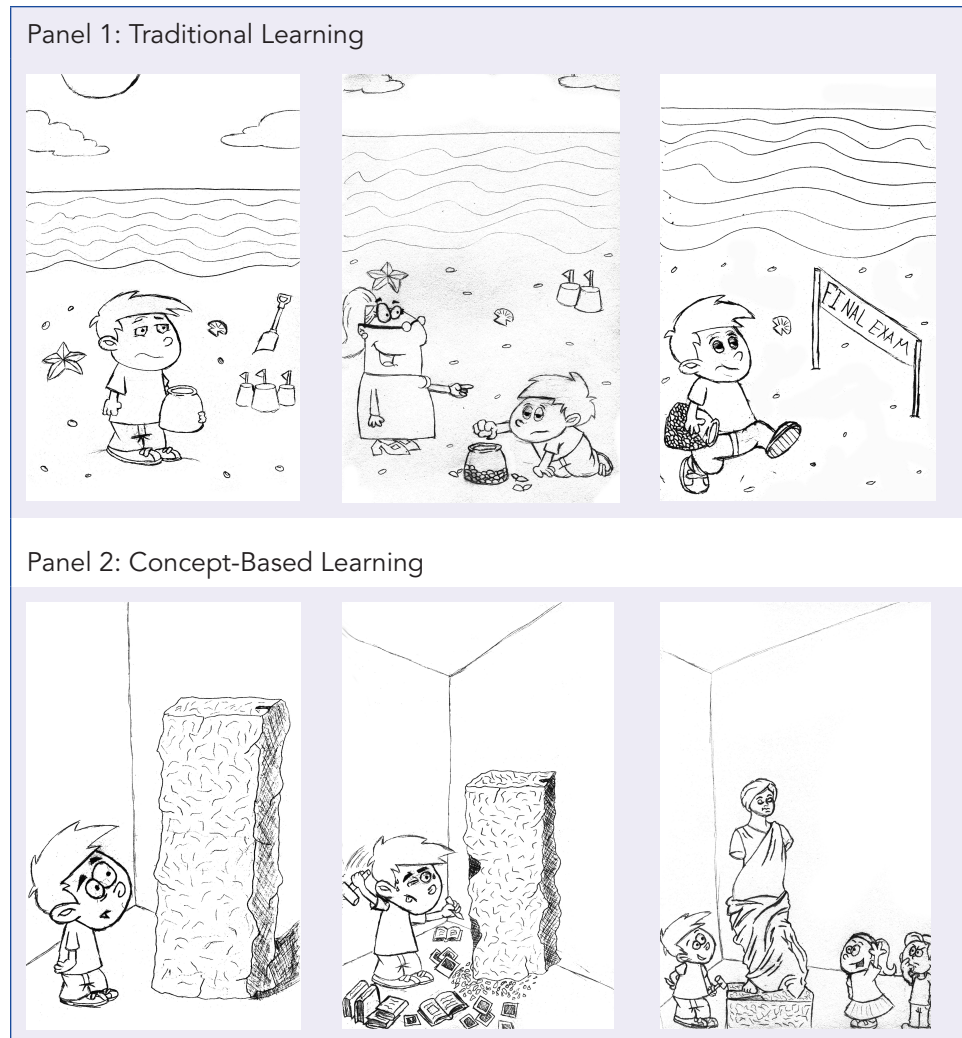
SOURCE: Jimmy Conde, graphic artist.

In the traditional model of learning, students play a rather passive role, waiting for the teacher to point out the facts and ideas they should "collect" in their jars. The goal of this type of learning is for students to hold all the facts in their heads until the end of the year (or until the day of the test), at which point they dump out the ideas they have learned to prove they have retained them. This type of learning does not invite students to shape the ideas or construct their own meaning; rather, students' minds are seen as empty jars waiting to be filled with the ideas of others.

Contrast this with the Concept–Based learning process, where students begin not with empty vessels but rather with their own preexisting ideas symbolized by the

mound of rough stone waiting to be sculpted. In conceptual learning, we begin with what we already know and work to refine our ideas through disciplined study. As we learn, our ideas become more sophisticated, clear, precise, complex, and accurate, just as the sculpture takes on more nuanced form with each chisel mark. In the end, the product of our learning is a profound, well thought out idea of our own construction (not a jar full of details the teacher has asked us to memorize).

We like this exercise because it strengthens students' ability to think symbolically and metaphorically and provides an easy touchstone for later reference: "*Remember we're sculpting masterpieces, not collecting pebbles.*" Here are the basic steps:

1. Assign students to work with a partner. One student should be "Partner A" and one should be "Partner B."

2. Ask student pairs to first describe each panel and then discuss the ways in which each panel might serve as a metaphor for learning. You might say something like this:

   Today we are going to think about the difference between traditional learning and conceptual learning. To begin with, let's consider these two panels of images. Each one offers a metaphor for what it is like to learn at school. Let's see if you can figure out how these panels relate to learning. If you are Partner A, raise your hand. Partner A: You are going to focus on the top panel. I would like you to study your panel silently for one minute. Notice as many details as you can; after one minute you will explain the top panel to your partner. Partner B, raise your hand. Partner B: While your partner studies the top panel, you will focus on the bottom panel. Notice as many details as you can; after one minute you will explain the bottom panel to your partner.

   This is essentially a think–pair–share strategy, which we like because it ensures that every student has a specific role in the discussion (as either Partner A or Partner B) and, therefore, must take responsibility for the thinking in the lesson. As students discuss, circulate to monitor their discussions and offer quick prompts to groups that finish prematurely, signaling to them that the goal is not to "finish" the conversation but rather to **sustain their thinking in order to deepen it.**

3. Call on students to describe each panel in detail. After students share their initial thoughts, probe for deeper thinking:
   - The first panel compares the learning process to collecting pebbles in a jar, while the second compares the learning process to sculpting a masterpiece from a mound of rock. Have you ever experienced learning that relates to either of these metaphors? Let's share some examples.
   - What role does the student play in the learning process in each panel? What role does the teacher play? What are the pros and cons to each model?
   - In the first panel, the student begins with an empty jar. In the second panel, the student begins with a rough mound of rock. Why is this an important difference?

- What product does the student end up with in the first panel? In the second? Which type of learning seems more valuable?

4. Ask students to compare traditional learning with conceptual learning in writing. Have them open to a new page in their notebooks and divide it in half. On the top half, they should write a paragraph that describes traditional learning. On the bottom half, they should write a paragraph that shows how conceptual learning is different. We like to use the model from the Foundation for Critical Thinking (2008) for writing explanatory paragraphs: State, Elaborate, Exemplify, Illustrate (SEEI for short). The sentence stems in Figure 2.4 offer a strong model for students to use as they think through a concept or idea.

FIGURE 2.4   SEEI TEMPLATE

> (State the idea clearly) *Traditional learning is all about . . .*
>
> (Elaborate on the idea) *In other words, the goal of traditional learning is . . . During the learning process, students mainly . . . while teachers mainly . . . In the end, the product of student learning is . . .*
>
> (Exemplify) *For example . . .*
>
> (Illustrate with a metaphor or image) *It's like . . .*
>
> (State the difference clearly) *On the other hand, conceptual learning is all about . . .*
>
> (Elaborate on the idea) *In other words, the goal of conceptual learning is not ____ but rather . . . During the conceptual learning process, students . . . while teachers . . . In the end, the product of student learning is . . .*
>
> (Exemplify) *For example . . .*
>
> (Illustrate with a metaphor or image) *It's like . . .*

SOURCE: Adapted from Paul & Elder (2013).