

Transitioning to Concept-Based Curriculum and Instruction

*How to Bring Content
and Process Together*

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Foreword by Malcolm Nicolson



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- raise the bar for instruction by shifting the focus from *covering* facts and skills—to *using* facts and skills to understand concepts and conceptual understandings.
- create alignment between a concept-based pedagogy and the curriculum design that drives that pedagogy. If we want to teach for conceptual understanding then we need to see those understandings articulated to guide our instructional planning.

Students

When teachers design learning experiences that employ KUDs and concept-based pedagogy students will benefit because . . .

- factual knowledge and skills will be processed interactively and iteratively with a related concept or concepts in each student's mind as he or she constructs personal meaning and understanding. This synergistic thinking process develops the intellect and motivates the student for learning. The thinking of each child is valued. For example, inviting students to consider the issue of "Climate Change" through the conceptual lens of "Evidence/Perspectives" puts them in the driver's seat for the inquiry and tells them that the teacher is interested in how they interpret the topic of Climate Change when played against the lenses of Evidence and Perspectives. The students are intellectually and emotionally engaged in the study because they are invited to think for themselves as they consider the factual knowledge in relationship to the conceptual lens.
- collaborative work groups will engage children in the social construction of meaning as they question, discuss, explore, and create products and solutions to interesting problems and issues.
- learning to think beyond the facts and transfer concepts and understandings through time, across cultures, and across situations expands the worldview of students, helps them see patterns and connections between new knowledge and prior knowledge, and provides the brain schemata to support lifelong learning.

Administrators

KUDs provide clear indicators for principals and instructional coaches on what students need to be learning. These indicators, along with the administrator's understanding of concept-based pedagogical requirements, provide the foundation to support each teacher in developing into a master concept-based instructor.

SUMMARY

The long road to a concept-based curriculum and instruction model has been filled with switchbacks over the years. But the journey has moved progressively forward because of the many minds and efforts of teachers and educators worldwide who struggle with questions of what works and what does not work in schooling. Even during times when the field of curriculum design took wild swings this way or that, there were educators in classrooms and leadership positions who held to the notion that quality curriculum design must be more than covering lower level objectives in check-off fashion—that learning must be about applying, and transferring concepts and conceptual understandings, supported by facts and skills, across time, cultures, and situations. Conceptual transfer helps students see patterns and connections between similar situations; and provides a springboard for complex thinking and understanding—two critical areas of focus for workplace readiness as well as for lifelong learning. In Chapter 2 we will contrast the traditional two-dimensional curriculum design with the concept-based, three-dimensional designs for curriculum and instruction and will introduce the Structures of Content and Process.

The Structure of Knowledge, then, shows the relationship between Topics and Facts, the Concepts that are drawn from those topics and facts, and the Generalizations and Principles that are the sentences of conceptual relationship that transcend time, place, and situation. When students can use the facts to support the conceptual understandings, we can say they have a deeper understanding of the content of disciplines. The importance of deeper conceptual understanding is well documented in cognitive and educational research (Bransford, Brown, & Cocking, 2000). We should no longer assume that students are developing conceptual understanding—we must teach for, and draw out the conceptual understanding from our students. This can only be achieved with concept-based curriculum and instruction design models.

We should no longer *assume* that students are developing conceptual understanding—we must teach for, and draw out the conceptual understandings.

HOW THE STRUCTURE OF KNOWLEDGE GUIDES CURRICULUM DESIGN

The Structure of Knowledge demonstrates how curriculum design flows from the Topics and Facts, considered together, to the identification of important related concepts that are combined to craft conceptual understandings (generalizations/principles) that can be transferred through time and across similar situations. Educators sometimes question this bottom-up approach and state that they instead start with a “big idea” and then identify their supporting content. They may not realize it, but they are actually considering the critical content in an iterative thinking process as they work on their big idea. For example, if I am teaching about the American Revolution, the concepts of “independence, freedom, and revolution” come to mind. I cannot craft my generalization without thinking about these concepts in relation to the topic and facts. My generalization may end up stating that “People who develop perceptions of governmental oppression may eventually revolt to gain greater freedoms.” This idea can be applied throughout history. One cannot craft a strong conceptual understanding without linking it to supporting content. Once a conceptual understanding has been formed, many different factual examples can be identified; but we have found over the years that the bottom-up strategy produces greater clarity and power in the conceptual statements. Teachers are required to teach defined content so it just makes sense to start with the required topics and skills and then draw out the concepts. One might wonder why the

One cannot craft a strong conceptual understanding without linking it to supporting content.

Figure 5.7 Excerpt from *Domain 3: Instruction*

Component 3b: Using Questions and Discussion Techniques				
<i>Levels of Performances</i>				
Element	Unsatisfactory	Basic	Proficient	Distinguished
Quality of questions	Teacher's questions are virtually all of poor quality	Teacher's questions are a combination of low and high quality. Only some invite a response.	Most of the teacher's questions are of high quality. Adequate time is available for students to respond.	Teacher's questions are of uniformly high quality, with adequate time for students to respond. Students formulate many questions.

Source: Danielson (1996).

For educational systems committed to concept-based curriculum and instruction, clarifying the expectations for professional practice and aligning these expectations with the teacher evaluation plan is important work. This may involve adapting some categories of Danielson's framework, adding a companion piece to it, or designing an organic teacher evaluation document. A recent article titled "Evaluating Teacher Evaluation," by Linda Darling-Hammond, Audrey Amrein-Beardsley, Edward Haertel, and Jesse Rothstein (2012) opens with the statement: "Practitioners, researchers, and policy makers agree that most current teacher evaluation systems do little to help teachers improve or to support decision making" (p. 1). Making the descriptions of quality pedagogy consistent with the expectations of the district curriculum is one aspect of an evaluation system that will go a long way in helping teachers better understand how to design and deliver instruction of the curriculum they are expected to teach, and help administrators and colleagues provide corresponding, relevant, and specific feedback.

DISCUSSION QUESTIONS

1. How can the rubrics included in this chapter be used to help teachers develop their understanding and practice of concept-based curriculum and instruction?

What advantages did the North have at the start of the Civil War?

What advantages did the South have at the start of the Civil War?

How did the South try to overcome its disadvantages in human and material resources?

Factual questions are locked in time, place, or situation—just as facts are locked in time, place, or situation.

Since science is structured more by the concepts of the discipline, it naturally leads to more conceptual questions such as these questions for a unit on *Survival in Ecosystems*:

How are populations and communities related?

How are the populations of a community determined?

What impact do the abiotic and biotic factors have on an environment?

How might a natural event, such as flooding, tornado, fire, or volcanic eruption, impact an ecosystem?

How does ecological succession support an ecosystem?

How does an ecosystem reach equilibrium after a catastrophic event?

Conceptual questions transfer through time and across situations, just as generalizations transfer.

Conceptual questions transfer through time, across cultures, and across situations, just as concepts transfer through time, across cultures, and across situations.

But history needs both factual *and* conceptual questions if students are to reach the deeper lessons of history that transfer through time, across cultures, and across situations. The lessons of history are not the facts—they are the transferable understandings that arise from the facts. For our Civil War unit we might see conceptual questions like the following, which, along with the factual questions, help guide inquiry to the conceptual understandings:

Generalization (Conceptual Understanding): *Strongly held beliefs and values can lead to prolonged social and political conflict.*

Conceptual Questions:

Why are “values” conflicts the most difficult to resolve?

How are values related to ideology?

How do nations attempt to resolve conflicts based on deeply held beliefs and values?