THE PROCESS OF DESIGNING A CONCEPT-BASED CURRICULUM PLAN: A BRIEF DESCRIPTION

This paper briefly describes the process a school or district might follow for designing, articulating, and aligning course curricula with standards using a concept-based model of classroom practice. Many issues (e.g. financing, professional development, community involvement) that form the context for the process and that would affect it in many ways are not addressed. For example, it is assumed that some kind of curriculum leadership team for the school or district has been formed and is managing the process. Curriculum reform necessarily affects instructional practices as well as the assessment of student learning, yet this paper only briefly touches on how the curriculum design process might link to assessment design. This said, an important point is that concept-based curriculum reform does meld the excellent innovations of the past decades in instructional practice (e.g. cooperative learning, student-centered inquiry, differentiated instruction) with current developments in assessment design.

Concept-based curriculum reform focuses on knowledge transfer. In the process of knowledge transfer, what transfers, and what stays behind? During any deep learning experience, there are generic, coherent, transferable concepts which can be separated from the specifics of the context. These concepts (e.g. property, form-and-function, acceleration) can be intellectually transferred to a seemingly unrelated topic, there to be applied in creative problem solving, critical thinking or reasoned decision making. Such transferable, coherent, and unitary ideas are, within the concept-based model, called transferable concepts. They are a sub-set of the many types of ideas referred to generically as concepts. These transferable concepts can be carefully arranged into a structure wherein the inter-relationships are as important as the concepts themselves. These relationships can be organized to reflect three patterns of cognitive development: pervasive to subtle (i.e. general to specific), simple to complex, and concrete to abstract.

Referring to such a conceptual structure, a curriculum leadership team can quickly analyze any set of standards or desired learning outcomes for their underlying requirements in terms of transferable concepts and essential skills and facts. Seemingly voluminous standards are inevitably distilled to a few concepts and a list of required topic information and skills. The implied teaching strategy is to have students deeply learn the concepts through the practice of applying them to a wide variety of different specific situations and contexts. Some applications will be required of all students; Many will be chosen by teachers and students to accommodate the many different backgrounds, interests, skill levels, and resources that characterize classrooms today.

The curriculum leadership team can then distribute the required concepts, contexts, and skills among the various grade levels and courses that were within the grade span covered by the original standards documents. The distribution depends primarily upon considerations of cognitive development and prior learning, since the concepts are organized accordingly. The leadership team can reasonably articulate grade-to-grade curricula since the conceptual structure maps the relationships that would exist among the curricula of even widely separated grade levels.

The leadership team also distributes and coordinates mandated contexts and topics among the grade levels. A multitude of concept-context combinations is possible, giving the leadership team the opportunity to create a plan that reflects their own history and priorities. In most states, mandated topics prescribe at most half of classroom time, leaving ample time for teachers and students to use the concepts to explore and investigate their own interests. With only about three to five concepts assigned to each course of study, time is available for developing deep understanding

of each concept. Teachers and students have a clear, explicit curriculum model within which to practice transferring knowledge. The resulting long-term understandings form a robust, dynamic basis for their next year's learning.

Transferability is the first major attribute of the concepts used within concept-based curriculum planning. The second attribute is definability. Concepts must be defined for two reasons: so that teachers clearly understand what they are teaching towards, and so that student understanding can be assessed. Every concept can be defined with a small set of generalizations or propositional statements. These generalizations describe the essential understandings that together form the coherent, transferable concept. They describe the desired learning outcomes beyond mere vocabulary, and are the basis for constructing rubrics and assessments. Conventional and standardized testing are adequate for assessing a student's comprehension of facts, information and even skills. The generalizations provide the keys to developing valid and reliable assessments of a student's ability to transfer knowledge.

A curriculum leadership team can develop assessment items that ask students to combine the concepts and contexts assigned to a course of study in a particular manner and the generalizations provide the basis for a scaled evaluation of students' responses. Such an end-of-course assessment can greatly affect classroom practice because it focuses clearly on students' ability to transfer knowledge using the assigned concepts. Furthermore, the most practical and efficient method of teaching this high-level ability is to organize intended learning according to the duality of concept and context/topic, as would be delineated in the curriculum documents.

From the perspective of instructional materials, teachers' favorite or existing units, topics, lessons, and materials can almost always be accommodated by the choice of context/topic in the curriculum plan. When teachers begin a reform effort using familiar materials, the transition to instructional materials that are more conducive to teaching deep conceptual understanding can be taken at a feasible pace, often driven by the teacher's own needs for more amenable materials.

Students' flexible, self-directed, inquiry processes become a dominant feature of the classroom since they are the most effective means of connecting the concept and topic dimensions during any meaningful transfer of knowledge. Many secondary teachers' desire for content rigor is often reflected in the precision and problem solving power of the curriculum's conceptual dimension.