A HANDBOOK FOR PERSONALIZED COMPETENCY-BASED EDUCATION

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Chapter 1

What Content Will We Address?

One of the first questions a school or district seeking to create a PCBE system should consider is, What content will we address? Three general categories are commonly part of the answer to this question: (1) traditional academic content, (2) cognitive skills, and (3) metacognitive skills. The content should also be accompanied by tools that allow for easy and appropriate assessment of learning in PCBE classrooms. Hence, we will also discuss the creation of learning targets and proficiency scales, and the translation of existing progressions or rubrics into proficiency scales. While identifying content for a PCBE system, it is important to remember that all subject areas are applicable. Even though the examples in this book generally deal with mathematics, science, social studies, and English language arts, a PCBE approach can also apply to physical education, foreign languages, the arts, and high school electives. We address some of these issues in subsequent sections of this chapter.

Traditional Academic Content

Traditional academic content is knowledge historically taught in K–12 schools and includes content areas such as English language arts, world history, geography, economics, biology, chemistry, algebra, geometry, foreign languages, computer science, and so on. Identifying what students should know and be able to do regarding traditional academic content would appear to be a fairly straightforward process since the United States has had common standards since the early 1990s.

The history of the standards movement is an interesting one. The movement began in 1989 when President George H. W. Bush and the state governors held a summit on education, which resulted in a number of goals for the educational future of the United States (Kendall & Marzano, 2000). These goals focused on increasing student achievement and academic rigor and proposed assessing all students' knowledge of core subjects at the end of fourth, eighth, and twelfth grades (Kendall & Marzano, 2000). In response to these goals and with funding from the federal government, many content-area organizations developed academic standards for their subjects. By the mid-1990s, all states were required to adopt or create academic standards and assessments for English language arts and mathematics. The passage of the No Child Left Behind Act in 2002 continued to propel the standards movement and the creation of benchmarks and standardized assessments (Shepard, 2008).

While these developments were based on well-intentioned goals, problems with the standards movement soon became apparent—one was that each state developed its own benchmarks and assessments, creating a great deal of variability in the standards students had to meet. In 2009, the National Governors Association Center for Best Practices and the Council of Chief State School Officers attempted to solve this problem by leading the effort to create the Common Core State Standards (CCSS; NGA & CCSSO, 2010a, 2010d). The CCSS were intended to define a set of standards for mathematics and English language arts that all states could adopt, creating a level of national consistency that had been absent. While the CCSS initiative began with great acceptance and popularity—a group of governors, chief state school officers, and education experts from forty-eight states, two territories, and the District of Columbia developed the standards—it quickly met strong resistance. Initially, forty-five states, the Department of Defense Education Activity, Washington, D.C., Guam, the Northern Mariana Islands, and the U.S. Virgin Islands adopted the CCSS for English language arts and mathematics. Minnesota adopted English language arts standards only. Alaska, Nebraska, Texas, and Virginia never adopted the CCSS (Kane, Owens, Marinell, Thal, & Staiger, 2016).

The CCSS initiative website describes how the standards were envisioned as a way to provide clear and consistent expectations to "ensure that all students graduate from high school with the skills and knowledge necessary to succeed in college, career, and life, regardless of where they live" (CCSS Initiative, n.d.). The best existing state standards; the experience of numerous teachers, content experts, and state leaders; the expectations of higher education, workforce training programs, and businesses; and feedback from the public informed development of the CCSS. Despite being based on an extensive body of evidence, the CCSS have stirred controversy among educators and the public stemming from concerns regarding the federal role in education, poor rollout and implementation, and issues associated with testing. Indiana, Michigan, Missouri, New Jersey, Oklahoma, and South Carolina reversed their adoption of the CCSS (*Education Week*, 2016), and many states have backed out of their initial CCSS assessments (Gewertz, 2015).

In addition to the CCSS, a similar initiative in science and engineering led to the Next Generation Science Standards (NGSS), published for state adoption in 2013 (NGSS Lead States, 2013). Twenty-six lead state partners and several national groups developed the NGSS, including the National Research Council, the National Science Teachers Association, and the American Association for the Advancement of Science. The NGSS sought to provide updated content, link content and practices, emphasize depth over breadth, and focus on the application of science knowledge through inquiry and engineering design processes.

Given the level of attention that has been paid to identifying standards in various subject areas for American students, it might seem to be an easy task to articulate the traditional academic content that teachers should address when designing a PCBE system—simply use the newest versions of the standards in a given subject area. While straightforward, this process does still require special attention to three areas, including (1) choosing from traditional content, (2) prioritizing and unpacking standards, and (3) using the Critical Concepts.

Choosing From Traditional Content

When districts and schools examine how to articulate standards, it is easy to recognize the problems of using current versions of standards. To illustrate, consider this Common Core standard for eighth-grade reading: "Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the impact of specific word choices on meaning and tone, including analogies or allusions to other texts" (RI.8.4; NGA & CCSSO, 2010a, p. 36). While this standard provides some direction, it contains a great deal of content. Specifically, this standard includes the following information and skills.

- Students will understand what figurative, connotative, and technical meanings are.
- Students will be able to identify specific word choices made by an author.
- Students will be able to analyze the impact of specific word choices.
- Students will understand what tone is.
- Students will understand what an analogy is.
- Students will understand what an allusion is.
- Students will be able to analyze analogies and allusions.

Clearly, this single standard contains a good many discrete pieces of content. If one extends this concept across the standards for a specific grade level, the problem of too much content becomes obvious. To illustrate, in their analysis of the CCSS, Robert J. Marzano, David C. Yanoski, Jan K. Hoegh, and Julia A. Simms (2013) identified seventy-three standard statements like this one for eighth-grade English language arts. If one makes a conservative assumption that each of those statements contains about five component skills like those listed previously, this estimate would mean that for eighth grade, there are 365 specific pieces of content students are expected to master—an impossibility in a 180-day school year. This situation is even more extreme when one considers that the seventy-three standards statements do not include the college and career readiness anchor standards for English language arts.

The situation is a little better for mathematics. To illustrate, consider the following seventh-grade mathematics standard, "Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations" (7.SP.B.4; NGA & CCSSO, 2010d, p. 50). This standard includes the following elements.

- Students will understand what different measures of center and measures of variability are.
- Students will be able to calculate different measures of center and measures of variability.

- Students will understand what populations are.
- Students will understand what a random sample is.
- Students will understand what comparative inferences are and will be able to draw comparative inferences from data.
- Students will be able to make inferences based on measures of center and variability.

In their review of the CCSS for mathematics at the seventh-grade level, Marzano and his colleagues (2013) found twenty-nine such statements. Again, assuming about five component elements per standard statement, seventh-grade mathematics would involve 145 component elements—much more realistic given a 180-day school year. But again, the 145 component elements estimated for seventh-grade mathematics do not include the mathematical practice standards.

One can observe the same pattern in many state standards documents. Consider the Texas Essential Knowledge and Skills at the fifth-grade level in English language arts: there are approximately thirty standards statements, and many include subcomponents. If we again use the conservative estimate of five elements per standard, we arrive at about 150 elements of knowledge and skill that fifth graders are expected to learn in English class. To illustrate, consider the following standard:

> Students understand, make inferences and draw conclusions about the structure and elements of poetry and provide evidence from text to support their understanding. Students are expected to analyze how poets use sound effects (e.g., alliteration, internal rhyme, onomatopoeia, rhyme scheme) to reinforce meaning in poems. (Tex. Educ. Code §110.16[b][4], 2008)

This standard contains the following elements.

- Students will understand the structure and elements of poetry.
- Students will be able to make inferences and draw conclusions about the structure and elements of poetry.
- Students will be able to find and present textual evidence to support their conclusions.
- Students will understand alliteration.
- Students will understand internal rhyme and rhyme scheme.
- Students will understand onomatopoeia.
- Students will understand the relationship between sound and meaning in poetry.
- Students will be able to analyze poems for sound and meaning and explain how sound supports meaning.