Chapter 1
Foundations for Curriculum Integration

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ABSTRACT
An integrated approach to curriculum planning, instruction, and assessment in K-12 classrooms has long been discussed in educational theory and curriculum studies scholarship. Although it has taken on various terminologies and distinctions over the past century, the foundations of integrated teaching and learning fundamentally seek to organize curriculum and instructional experiences in meaningfully connected and holistic ways, so that students will experience interdisciplinary content knowledge and problem-solving skills that lead them towards real-world understandings. This chapter will explore the curriculum foundations for integration, define various ways in which integration has been discussed in the literature, and provide a brief overview of the rationale and research supporting the distinct integration of science and literacy practices.

CURRICULUM FOUNDATIONS FOR INTEGRATED TEACHING AND LEARNING
At the center of any curriculum or pedagogical dialogue, fundamental, historical, and seminal curriculum questions lie: What knowledge is of most worth? Whose knowledge is it? How is it created? How is it experienced? Why is it worthwhile? (Foshay, 2000; Pinar, 2012; Schubert, 1986). Curriculum can thus be viewed through various and divergent lenses: Perhaps as subject matter areas, a planned program of activities, intended learning outcomes, an opportunity for cultural reproduction, a collection of learning experiences, and a vehicle for democratic social reconstruction, or reflective personal lived experience (Schubert, 1986). Apple (2008) notes that the curriculum is always being defined (and redefined) by tensions, struggle, and compromise by various stakeholders and social movements. The struggle for the curriculum, broadly defined, remains ongoing, as teachers, districts, policy makers, government agencies, parents, and educational scholars debate the various purposes, goals, ends, and instructional practices in schools and educational environments.

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Likewise, practical decision-making about curriculum can be viewed through what Joseph Schwab (1973) outlines as the commonplaces of curriculum (Null, 2017). Schwab identifies this process as the practical and continuous interaction between four (later five) commonplaces: Teachers, learners, subject matter, and milieu (or context), all leading towards the fifth commonplace, that is curriculum-making (Null, 2017; Schubert, 1986). Noting that balance must be maintained amongst the commonplaces for any innovation or change to be successful, Schubert (1986) suggests that “the practical definition admits as curriculum the entire culture of the classroom. Everything that happens there, everything that could influence a student, is assumed to fall within the four commonplaces” (p.301). Null (2017) elaborates: “Rather than seeking to discover one best method that would produce uniform curricula, Schwab presented curriculum makers with five commonplaces that are found in any attempt to make curriculum” (p.28). In other words, deliberate curriculum-making incorporates the distinct perspectives each commonplace brings and contributes towards implementing curriculum change. Attention for curriculum change is given to the teacher, the learners, the subject matter, the context, and the act of curriculum-making itself.

It is within this frame that the author of this chapter situates the exploration of the topic of integrated curriculum as a deliberate curriculum decision, since it powerfully encompasses each commonplace. In an integrated teaching setting, attending to each commonplace (i.e., teacher, learner, subject matter, and context) is essential. How will teachers be able to incorporate various interdisciplinary perspectives into problem-posing scenarios, while concurrently feeling the pressure to use prescribed curriculum and perform on high-stakes tests? How do learners begin to see knowledge as an interconnected and nonlinear array of information that contributes to their own sense of agency, when faced with societal problems? How do schools and classrooms remove artificial walls of time and subject area encampments to allow educators space, time, and resources to collaborate and teach in this integrated manner?

MOMENTS IN INTEGRATED TEACHING AND LEARNING HISTORY

Although one might assume that integrated or interdisciplinary teaching is a new concept, the literature base and curriculum history for these related concepts is robust. Despite various terminologies, definitions, titles, differences, and philosophical origins, this approach can be consistently found over the last 100 years of educational scholarship and pedagogical efforts (Beane, 1997; Vars, 2001). In one of his first educational lectures, The School and Society, noted educational thinker John Dewey (1900) wrote:

*We live in a world where all sides are bound together. All studies grow out of relations in the one great common world. When the child lives in varied but concrete and active relationship to this common world, his studies are naturally unified. It will no longer be a problem to correlate studies. The teacher will not have to resort to all sorts of devices to weave a little arithmetic into the history lesson, and the like. Relate the school to life, and all studies are of necessity correlated.* (p.107)

With philosophical roots extending back to 1895, curriculum integration can be connected to similar concepts: Core curriculum, project method, project-based learning, interdisciplinary curriculum, thematic teaching, and problem-based learning (Beane, 1997; Kilpatrick, 1918; Ravitch, 2000; Vars, 2001).

In the following, the examination of curriculum integration begins at the cusp of early policy formation in American public education. The growth and mission of secondary high schools were perhaps most impacted by dynamic change in the United States in the late 1800s, having emerged slowly from