Chapter 10

The Seeing of Self and Society in Science: Literacy Integration Through Biographical and Historical Narratives

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ABSTRACT

This chapter presents strategies for integrating selected practices from the English Language Arts Common Core Standards and the scientific and engineering practices from the Next Generation Science Standards through the use of historical narratives and biographies. The use of trade books as information sources provides avenues which allow students to make connections to the people and places of science. Through selected texts such as Chasing Space, Hidden Figures, and topics such as Typhoid Mary, students engage in examining science content, the lives of scientists, and the history and nature of science. Reading purposes, learning vocabulary in context, viewing narratives from different perspectives, and making personal connections are strategies discussed and modeled through current books. Teachers are provided with strategies to engage the reader, suggested activities for each area, and recommendations on how to utilize trade books within the classroom.

INTRODUCTION

Setting the Stage for Integration

Within the Common Core for State Standards for English Language Arts, the introduction states that students should “seek the wide, deep, and thoughtful engagement with high-quality literary and informational texts that builds knowledge, enlarges experience, and broadens worldviews” (NGAC, 2010, p. 3). By doing so, the expectation is that “they (students) come to understand other perspectives and cultures” through the appreciation that “the twenty-first century classroom and workplace are settings in which people from often widely divergent cultures and who represent diverse experiences and perspectives must learn and work together” (2010, p. 7).

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To accomplish these goals, the expectation and recommendation of the Common Core State Standards is that the student spend a significant amount of time reading informational texts both within the context and externally to the language arts classroom (NGAC & CCSSO, 2010; Werderich, Farris, & McGinty, 2014).

In today’s ever-changing classroom, providing opportunities for students to connect to the field of science, scientific endeavors, and those men and women who contributed to furthering our knowledge in science, technology, engineering, and mathematics is essential. The strategies used to accomplish this should be explicit if educators are to connect students to both the people and products of science. These connections help to accomplish what the Common Core for State Standards for English Language Arts has as one of its guiding goals—that students “come to understand other perspectives and cultures” (2010, p. 7).

**Utilizing Trade Books as Information Sources**

The CCSSO goals can be accomplished through the integration of children’s trade books to include chapter books within the science classroom. Trade books for the purpose of this approach are defined as any commercially produced publication and “illustrated books that incorporate a story line, are on the interest level of the readers, and contain or allude to specific science concepts” (Anderson, 1993, p. 8). Trade books written in a narrative format and that utilize structures are more appropriately organized for the type of reading to which students are accustomed, thus making them more user-friendly for children (Royce, 2002). Trade books come in many different types of formats and genres ranging from fiction to non-fiction and from expository text to narrative text. Narrative structure refers to the story-like selections found in text and includes books, which have more of a traditional storyline format. “Narrative selections generally consist of a series of narrative paragraphs that present the unfolding of a plot” (Burns, Roe, & Smith, 2002, p. 174). The type of trade book that will be discussed for these strategies are focused on intermediate, middle, or secondary school chapter books that are narrative in their structure. They would fall within the division of biographies or historical narratives.

The review of literature associated with the use of trade books, which incorporates and includes biographies and historical narratives, to engage students in not only scientific concepts, but also history and reading for pleasure, is substantiated over several decades (Royce & Wiley, 1996). Two key aspects of this research are that students have a more positive attitude towards learning and their achievement is higher when subjects are interrelated or connected (Main, 1981) and that attitudes towards topics are more positive when trade books are utilized either in place of, or in conjunction with, textbooks (Royce, 2002).

While Werderich (2014) discusses the use of picture book biographies in the elementary classroom, her point is extremely relevant to intermediate and middle-grade students when she states that books “keep students curious and motivated during science and literacy instruction” (p. 13) while aiding the teacher in meeting the “need to incorporate high-quality reading materials and effective writing instructional methods into the learning environment to support the goal of leading students toward scientific literacy” (p. 13). Furthermore, well-written narratives not only provide an engaging introduction to scientists, they also provide information related to scientific concepts and information (Werderich, 2014).