Children's books and the nature of science: A multisite naturalistic case study of three elementary teachers in the rural southeast

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Abstract
This naturalistic case study describes the efforts of three elementary teachers in a rural southeastern school to use children's books in support of inquiry-based science and specifically addresses issues related to the nature of science. Data were collected through 26 classroom and meeting observations, 16 semi-structured and informal interviews, 35 documents and 76 children's books used by the teachers. Three themes were identified related to the nature of science and the selection and use of children's books in the teachers' second, fourth, and fifth grade classrooms.

1. Science was portrayed as a human endeavor that connects to the lives of people and that involves fascination, passion, and interest; imagination and creativity; values; and diverse views. The collection of books was analyzed to look specifically at race, culture, and gender issues. While women, people of color, and different cultures were represented in the book collection, they were not represented well when considering the collection as a whole.

2. Books and the teachers' use of them supported firsthand investigation of the natural world and the idea that empirical evidence underlies scientific understanding. This theme involved observation and journaling, identification of questions to investigate and procedures to use, reasonable interpretations of results, and inferential thinking.

3. Books helped teach about the durable body of scientific knowledge we have discovered over time. They were used to broaden background knowledge and as references after firsthand investigations.

The complexity of science education is revealed in these cases. The teachers were able to artfully balance multiple aspects of the nature of science in their book selection and presentation. Particularly promising aspects include their work to use fiction and poetry to promote connections between imagination, creativity and science and their innovative use of books to help students interpret data and infer. Important aspects of the nature of science were not addressed in these themes—including the tentative nature of knowledge, the unknowns we have about the natural world, and an understanding of...
scientific theories and laws. Issues of race, culture, and gender in the books revealed the crucial need to help teachers embrace critical ways of thinking.

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All those involved with science teaching and learning should have a common, accurate view of the nature of science. Science is characterized by the systematic gathering of information through various forms of direct and indirect observations and the testing of this information by methods including, but not limited to, experimentation. The principal product of science is knowledge in the form of naturalistic concepts and the laws and theories related to those concepts. Declaration. National Science Teachers Association (1997). The Teaching of Evolution—A Position Statement of NSTA. Washington, DC. National Academy of Sciences (1998). Teaching About Evolution and the Nature of Science. Washington, DC: National Academy Press. Exploring the Evolving Nature of Three Elementary Preservice Teachers' Beliefs and Practices: Three Parallel Case Studies. By Harrington, Timothy E.; Pourdavood, Roland G. Read preview. Article excerpt. This paper focuses on teacher preparation for mathematics teaching and follows three preservice elementary teachers as they move through their university methods course and then into their practicum/student-teaching at another elementary school. Not all of Tsuruda's students passed his class, but he believed that more did so than students of other teachers in his building, thanks to his gregarious nature. Tsuruda was concerned, however, because even the students who were earning passing grades in his classes were not mathematically powerful.