Scientific worldviews: A case study of four high school science teachers

William W. Cobern, Ph.D.
Cathleen C. Loving, Ph.D.

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Abstract
In this research the ideas about Nature held by four high school science teachers are used to illuminate how any abstract notion of a scientific worldview does not adequately describe the perspectives of scientifically knowledgeable individuals, such as competent secondary school science teachers. The abstract notion of a scientific worldview is a distortion of the cognitive frameworks held by scientifically knowledgeable people in that the abstraction ignores the broader milieu of a person's ideas, beliefs, and commitments. To the extent that the inculcation of a scientific worldview is a proper goal of science education, therefore, our argument is that effective science education will help students develop an understanding of science within broader cultural contexts that include both those who do science and the students themselves. Moreover, science teachers must recognize the cultural embeddedness of their own scientific perspectives.

Author Biographies
William W. Cobern, Ph.D.
Western Michigan University

Cathleen C. Loving, Ph.D.
Texas A M University, College Station

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In this study, worldviews of four science teachers were investigated within the framework of Beck and Cowan's model. Two of these teachers were high school science teachers, while the other two were middle school science teachers. One of the teachers held National Board of Professional Teaching Certification and she had 18 years of teaching experience. Another teacher was a relatively new teacher with three years of teaching experience. The third teacher had nine years of teaching experience, but when this study was conducted, it was her first year of teaching science. The other teacher h