

Why Beliefs Matter: Reflections On The Nature Of Science

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Belief, Knowledge, and Science Education

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Epistemological questions about the nature of knowledge and belief underlie many of the controversial issues fundamental to research and practice in science teaching and learning. In an effort to bring some clarity to questions of knowledge and belief embedded within science education research and teaching, we first describe the distinctions drawn between knowledge and belief in both philosophy and educational psychology, each of which have shaped the various definitions employed within science education. This discussion is followed by an examination of the distinctions drawn between knowledge and belief employed by three groups of science educators: the traditional distinctions of the foundationalists that are co-opted by researchers focusing on teacher thinking/cognition, the nonfoundational epistemology of the fallibilists and the evolution educators working from this framework, and the radical constructivists who react to and attempt to move past the limitations of these other positions. In this analysis, we explicate the different ways in which knowledge and belief are understood and operationalized in a broad spectrum of research, we describe the theoretical and philosophical assumptions underlying these approaches, and we explore the important areas of contention (both theoretical and empirical) surrounding each of these distinctions.

KEY WORDS: belief; knowledge; epistemology.

What does it mean to know? To believe? Where does knowledge end and belief begin? Can one legitimately distinguish between these two constructs? What are the implications of such distinctions? Questions such as these are at

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