Realism versus Constructivism: Which is a More Appropriate Theory for Addressing the Nature of Science in Science Education?

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Abstract

There are many versions of constructivism. While the various guises of constructivism have much in common, they also have many differences. During the last thirty plus years, certain aspects of constructivism have been adopted in the teaching of science. While generally this has been hailed as an improvement over a didactic teaching style and a positive change for science education, there have been voices of dissent. One common argument against a constructivist approach is that it contains elements of instrumentalist, operationalist, and idealist epistemologies that distort the true nature of science including the goals of science and how scientists actually operate. It has been argued that, while some constructivist components are useful in science education, a pedagogy based more on a realist epistemology would better serve the nature of science element of a science curriculum.

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In a research titled “A study on the system of values and beliefs in The Islamic Republic of Iran, formulating a relevant philosophical foundation for curriculum” (Bagheri et al., 2008), constructivistic realism is suggested as the relevant basis for curriculum in the country. These two aspects of science are regarded in suggesting the view of “constructivistic realism”. In this term, “realism” refers to exploratory dimension of science, that is to say, science deals with the reality of “something”. Constructivistic realism opens a space for more consistency between science and cultural values in society because constructs are held to be built by means of our imaginations as well as our values to capture the reality.