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Robert Nola and Gürol Irzik



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SIGNS OF LOGIC

*Peircean Themes on the Philosophy of Language,
Games, and Communication*

 Springer

PHILOSOPHY, SCIENCE, EDUCATION AND CULTURE

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VOLUME 28

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by

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Dedication

To Jan and Sibel

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INTRODUCTON

1 THE THEMES OF THIS BOOK

In the last two decades various forms of constructivism, multiculturalism and postmodernism, have dominated the literature of both education in general and science education in particular. As a result of this influence, a number of theoreticians of education and science educators gave up the ideals of universalism, transcultural rationality, scientific method, objective truth and knowledge; instead they adopted localist, relativist, and anti-realist perspectives in science as well as in philosophy. Above all, in doing so, they abandoned the ideal of critical inquiry, despite the intentions of many to the contrary.

In this book we argue that the influence of these fashionable currents of thought were largely negative in many respects. First, they portrayed a wrong image of science by conflating the internal content of science (laws, theories, data and the like) with external factors impinging upon science such as its institutional arrangements, its funding, its technological applications, etc. Science is then easily depicted as an activity not guided by well-established, transculturally applicable norms of rationality and method, but by subjective constructions, local concerns, social factors, and power relations. The role of reality as a check over beliefs is constantly downplayed; that science can give us objective truth about a mind-independent world is often denied in favour of either an idealist or a phenomenalist or a sceptical position.

Second, and following from the above, local belief systems and cultural practices are celebrated uncritically as “knowledge” to be respected. It is claimed that there are as many sciences as there are cultures, that science is just a narrative, a language game that is on a par with other language games such as fables and gossip. Difference, incommensurability, dissensus, and paralogy are all embraced and encouraged without giving much thought to their implications.

Third, the three fashions of thought – constructivism, postmodernism, and epistemic multiculturalism – adopt very poor and discredited epistemologies, often under the guise of a revolutionary or novel approach. We are thus told that not only the claims we make about what we know but also the very definition of knowledge itself, are either social constructions or individual constructions out of experiences. It is denied that there is something in the real world in virtue of which our beliefs are made true. It is boldly argued that we cannot compare reality with our beliefs about it because we have no independent access to any such reality. Hence, it is claimed, we cannot know reality as it is, but only know our experiences or what we construct out of our

experiences. That this traps us in a “world of experiences” cut off from the real world does not seem to bother their advocates.

Finally, after all these views are adopted in various combinations and forms, they are applied to teaching and learning of science. Educators with radical constructivist leanings, for example, invite pupils to construct their own concepts and theories about nature, and then to “negotiate” them with other pupils and teachers. Radical constructivists do not attempt to make their students see that they are wrong when they go astray, since, after all, there is no objective knowledge and truth to be acquired, but only “viable constructs”. Of course, in this way, the difference between a right answer and a wrong one disappears – but what reason is there to bother about truth and falsity?

Epistemic multiculturalist teachers encourage their pupils to regard their cultural or indigenous belief systems as being on a par with science, without worrying at all about the discrepancies between them and scientific theories. On the contrary, this is celebrated as “border crossing” rather than seen as a source of anxiety that can cause confusion in students. To alleviate the anxiety, some epistemic multiculturalists resort to an effective strategy: tell students, or if that is too didacticist give them the impression, that all belief systems are equally valid. After all, what matters is not truth, but whether belief systems serve the social purposes of cultures embodying them!

As for postmodernist teachers, they preach that students and non-students alike ought to follow Lyotard and advocate incredulity towards all meta-narratives, including those that attempt to justify scientific beliefs and methods. Furthermore, established canons – in science as well as in literature and philosophy – should be given no privileged place in education because they often disguise hegemonic and Eurocentric ideas and ideals as universal, and serve nothing but the *status quo*. On the contrary, it is said that since the ultimate aim of education is empowerment, all claims to universality and all searches for a rational consensus should be undermined by paralogical activity and criticized in the name of an allegedly emancipatory and more democratic politics.

The main purpose of this book is to show that none of these views stand critical scrutiny and they are not to be taken seriously. This is not, however, a merely critical book. We have also taken pains to construct a positive account of education and draw its implications for teaching science. This begins in the next section by arguing that critical inquiry is the core aim of education. Parts I and II spell out the philosophical underpinnings of this view. Part I sets out our philosophical position about the nature of knowledge (that is, epistemology) and its relation to education. Although radical constructivism is presented as a novel epistemology, we place it in the context of a number of rival theories of knowledge and critically evaluate it.