

## A Reply to Miles' Commentary on Constructivism

George E. Hein  
Lesley College

### Introduction

I'm grateful for the opportunity to answer Roger Miles' criticism of constructivism because it permits me to address some common personal constructions of my meanings that differ from my intentions. I hope the following statements will help to clarify my own position.

Miles presents three main arguments to identify himself as "a metaphysical realist, an opponent of cognitive relativism, and warm to the old-fashioned virtues of argument, evidence, hypothesis and test." (Note 1). I will respond to each of these three arguments briefly. There are many uses of the currently popular term "constructivism," which represents, as Miles points out, an educational theory "as old as the relationship between teacher and pupil, or master and apprentice, or both." Equally venerable are arguments about educational theory and its relationship to practice; a tradition to which Miles and I each hope to make a modest contribution in this exchange.

### The Success of Science

Miles argues that the success of science is based on a realist view of the world. He also agrees with me (and many others) that "we cannot step out of our world and demonstrate that either realism or anti-realism is correct." So the issue cannot be whether or not science allows us to "gain insight into the real world" or that "[theories] progress closer to the truth." If we cannot prove that a real world exists, how can we know whether science leads us closer and closer to it? As many philosophers (including Karl Popper) and historians of science (such as Thomas Kuhn) have pointed out, it is possible to recognize "better" or "poorer" theories on grounds other than whether they are a closer match to some metaphysical "real" world. Popper, for example, points out that no theory can be confirmed, and good theories are those that can be refuted.

Miles states that science is the "great intellectual adventure and our major cultural [emphasis added] achievement of the 20th century." It is precisely because science is a cultural activity — explanations created by humans — that I argue that these are constructions, not mirrors of reality. Scientific theories have power and allow us to use electricity, build dams and bridges, etc., but that can also have disastrous consequences. More important, these cultural artifacts, these theories, can be overturned. In the 20th century alone, "truths" of science, have included, to select only a few among many, belief in the rigidity of the earth's crust, the inferiority and superiority of different "races," (Note 2) and the psycho-

logical cause of ulcers. If even recent "truths" of science can be wrong, what reason have we to believe that current "truths" do, in fact, reflect some external reality?

I am particularly concerned that Miles equates realist epistemology with "standards of scholarship and intellectual responsibility that accept notions of good and bad, right and wrong, and so on." Realism is very shaky ground on which to base ethics — especially when "we cannot . . . demonstrate that either realism or anti-realism is correct." I need not enumerate further the horrors that have been perpetrated in the name of science and its "truths."

Like Miles, I am an opponent of "cognitive relativism," if by that he means views that all arguments are equally acceptable, and that there can be no grounds except personal preference to choose one argument over another. Where we differ is in his insistence that only realism provides a basis for distinguishing between the quality of arguments. There are many other grounds for such distinctions although all (including realism) present difficulties, as countless generations of philosophers have pointed out. But I also believe, as I emphasized in my address at the Visitor Studies Conference and elsewhere, that there are fundamentally different world views, and arguments between proponents of these different world views are impossible to resolve through recourse to any broader principle.

Constructivism refers to a theory both about how the mind works (a learning theory) and what stance we take about the nature of the world (epistemology and ontology). Constructivism has little to do with arguments about the relative validity of science and non-science (where the latter is defined as belief systems that are not subject to empirical falsification). We do not control the plethora of sensations that surround us, but we do construct theories to explain them. Some theories are richer and more useful than others and criteria for "usefulness" vary. Scientists have one set of criteria; other human communities (religious groups, adherents of astrology, or "Eastern" thought, for example) have others. For many circumstances, including all those cited by Miles, I prefer the explanations of science and reject those offered by other systems of thought. However, I don't claim that these scientific explanations lead us closer to a real (and knowable) world.

### Does Epistemology Determine Pedagogy?

I agree completely with Miles' second argument, that epistemology does not determine pedagogy. In my writings I have stressed that epistemology alone does not determine pedagogy. It is educational theory that determines pedagogy and educational theory consists not only of an epistemology but also of a theory of learning. The combination produces a set of four educational positions, one of which I label constructivism and all of which have implications for pedagogy. Miles' Table 2 parallels the figures in my papers dating back to 1994 (Hein, 1996).

The quadrants in my diagrams (see previous articles) represent extreme positions for illustrative purposes to stimulate museum practitioners to examine their beliefs and practice. Actual practice is sometimes contradictory and often involves combinations of positions. Exhibitions and programs do have observable characteristics that betray their theoretical bases. I firmly believe that it is worthwhile examining our practice so we can learn from it and have a rational basis for modifying it.

### Right and Wrong Answers in National Curricula

I find Miles' third argument puzzling. I certainly concur that school curricula, whether local or national, usually insist on correct answers to examiners' questions, although in both Britain and the United States there have been suggestions that examinations include a larger percentage of questions which judge students by the quality of their arguments rather than only by whether they give "right" or "wrong" answers.

But the orthodoxy of national curricula hardly argues for a realist position; national curricula differ between countries, change with time, and are subject to fierce debates about what they should contain. When I was about eight, my father (knowing that I was a fan of Napoleon) explained to me how the battle of Waterloo was treated in different national curricula. English children learned that Wellington's strategy and British redcoats defeated Napoleon, French children learned that Marshal Ney's poor decisions were the cause of the defeat, and German children learned that General Blücher's bold action and timely use of Prussian cavalry turned the tide. Which of these explanations reflects reality?

I agree with Miles that "the future of nations is at stake," in government decisions about curricula. All of us at this conference also believe that museums should play a significant role in educating and enculturating a nation's population. But governments, as well as private institutions supported by government funds, interpret reality — including the "truths" of natural science — to support national policies. I would rather that all educational institutions stress the tentative, human-made nature of our theoretical knowledge, that we emphasize the need for any theory to be challenged and for citizens to learn skills to enable them to draw their own conclusions.

Miles is concerned that learners will end up living "in worlds of their own construction." Schools (and museums) are social institutions whose goal is to educate and socialize their clients. It is precisely because John Dewey emphasized the social nature of education in a democracy that he has made such powerful contributions to our understanding. He recognized that education should "repudiate the principle of external authority" and substitute for it a "voluntary disposition and interest . . . that can be created only by education." (Dewey, 1916, p. 87). That is the challenge for schools as

well as museums: How to teach the socially accepted ideas we value, while still appreciating that visitors construct knowledge and that, especially in a democracy, our conclusions and beliefs require constant critical attention.

### Conclusions

Visitor research informs us repeatedly that visitors make their own meanings at exhibitions. For example, in the most recent issue of *Curator*, Beverly Serrell (1997, p. 121) informs us that "The visitor experience is not made up of what the exhibition offers, but rather it consists of what he or she chooses to attend to." While Doering, Pekarik, & Kindlon (1997: 137) conclude that ". . . exhibitions may be more powerful as a way of validating an individual's view of the world than as a way of introducing new perspectives or effecting transformation." Constructivism must be acknowledged as an important force in any discussion of learning in museums. I believe recognizing that education is a human activity and that explanations we provide are fallible human constructions is the most useful approach for museums as well as schools.

Miles concludes by arguing that we should not "over-emphasize the role of the learner at the expense of the contributions made by the designer of educational exhibits and the museum educator or at the expense of the subject-matter to be communicated." I could not agree more. In my writing, I have tried to correct what I see as an under-emphasis of the role of the learner. We need to strike a balance among all factors that influence learning in museums.

### References

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### Notes

1. Unless noted otherwise, all quotations from Miles' manuscript.
2. I don't intend to raise the issue of pseudo-scientific Nazi claims to super-race status here. There is considerable other Western scientific literature on this subject from liberal democracies (see Gould, 1981; Haydon, 1997).