

Reflection in Action on ‘Second Order Science’

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The paper intends to put forward my perspective on Second Order science not in the mode of ‘tell it like it is’¹ (no one wholly and unequivocally knows what it is. However, there are praiseworthy, pioneering efforts and research in this regard (see Umpleby, 2014; Riegler and Mueller, 2014; Mueller, 2014; Lissack, 2014). Rather, I attempt to observe it as I see it. Second Order Science, in a sense, is seeding and sprouting, even if the idea of Second Order Cybernetics has been around for about five decades. Why this sudden interest in Second Order Science? Why is Second Order Science being discussed only in the cybernetics fraternity? What are the relations between the Second Order Science and the Second Order Cybernetics? For me, Second Order Science starts not with first Order Science but with Science per se. I do not see Second Order Science as some extension of first Order Science, rather it is Science; that is to be seen, that is being seen from the ‘second order’ from the start.

Hayek (1979) points out that all science starts with the classification. In the physical sciences, objects are classified by unchanging characteristics that are both measurable and distinguishable by controlled and objective tests. But not in the social sciences. The social sciences, including economics are the study of ‘human action’, and humans are not programmed robots or automatons. In fact, economics ought to be more about the *Homo sapiens* and not *Homo economicus*. The standard Arrow-Debreu world of perfect information, perfect knowledge is a chimera, in many real cases and circumstances.

The essential point of science or scientific theories is its explanatory power; its power to enhance understanding. Also, the power of prediction is one of the virtues of science though it has its peculiarities and problems. And there is difficulty in forecasting too far into the future that leaves having ‘pattern predictions’ as a good enough second best solution in many situations. Hayek observed that ‘during the first half of the nineteenth century the term science came more and more to be confined to the physical and biological disciplines which at the same time began to claim for themselves a special rigorousness and certainty which distinguished them from all others. Their success was such that they soon came to exercise an extraordinary fascination on those working in other fields’. However, there has been a mechanical and uncritical application of physical sciences to social sciences (Hayek, 1942). Even now there is rampant belief and practice that the methods of the physical sciences—observation, experimentation and measurement- are applicable also to the study of society.

¹ This expression is beautifully elucidated in von Foerster, H. (2013, p.2) “The Beginning of Heaven and Earth Has No Name: Seven Days with Second-Order Cybernetics”. Edited by Albert Müller and Karl H. Müller, Fordham University Press.

In the twentieth century, many modern disciplines, notably economics, and management science, triumphed to earn physics-like scientific status. But still, there is much to be achieved socially with respect to the understanding of many 'social phenomena', including the origin or unfolding of crises, be they financial, social, economic or socio-economic, cultural and political. Currently, we explain or see the patterns in these, mostly in hindsight.

Stuart Umpleby explains the 'philosophical principles underlying Second Order Science' as follows: 'Cybernetics has added two dimensions, not to a single scientific field, but rather to the philosophy of science, thereby expanding science for all fields. The two dimensions are: 1) the amount of attention paid to the observer and 2) the effect of a theory on the system of interest. Adding these two dimensions to the contemporary philosophy of science would constitute a scientific revolution in the philosophy of science. The new philosophy of science becomes a more adequate guide to the development of scientific knowledge, particularly in the social sciences'. While taking the 'the radical constructivist view of science' Glasersfeld (2001) observes that 'to most traditional philosophers, true knowledge, is a commodity supposed to exist as such, independent of experience, waiting to be discovered by a human knower. It is timeless and requires no development, except that the human share of it increases as exploration goes on'. But, all science intends "to co-ordinate our experiences and to bring them into a logical order" (Einstein, 1955, as quoted in von Glasersfeld, 2001).

Without an observer being part of the system, and without having ability and willingness to be in and out of the system; during observation and ruminations; in the multi-observer experiential world; it's difficult to co-ordinate our experiences. Through the present paper, I am trying to reflect on Second Order Science, reflecting in action; with my curiosities, questions and confusion that might meaningfully expand the realm of the discussions. Specifically, I shall argue that Second Order Science is the body of knowledge that is emerging to study complex socio-economic phenomena with its own building blocks, methods, models and management frameworks. I can see that the Second Order Science has the potential to take the 'understanding of understanding' of the social or socio-economic phenomena; particularly all complex phenomena to an elevated level. The present paper is an explorative initiative in this regard.

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