

SYMPAB - (16748) - MODELLING DYNAMIC, NON-LINEAR, AND SEMINAL CONTRIBUTIONS TO AUTHENTIC SCIENCE EDUCATION

Rosária Justi (Brazil)¹

1 - Universidade Federal de Minas Gerais

Short Abstract

From the recognition of possible roles of learning science to the education of critical thoughtful people, around four decades ago, John's views on students' ideas have turned to the models they may create when trying to understand the world and to the ways such representations could be expressed. Later, from studies on history and philosophy of science, the focus of his interest has turned to modelling. Such a change started to take place whilst we analysed data from a project we conducted together after I completed my PhD under his supervision. It was then that we developed our initial ideas on both modelling and how such a complex process might base science education. Then, several modelling-based teaching sequences were proposed and conducted in regular chemistry classes.

The analyses of empirical data from each of the many following studies, as well as an immersion in more recent publications, mainly from the philosophy of science, have supported another turning-point in our views on models and modelling, resulting in the ideas we discussed and expressed in the book *Modelling-based Teaching in Science Education* (Gilbert & Justi, 2016). That intense work, that lasted for almost four years, meant the great opportunity I had to learn with such a sensible person and from his large experience as a researcher, a mentor, a citizen – someone who always faced challenges trying to think creatively and to support others.

In this presentation, the dynamicity of our ideas on models and modelling – that also contributed to John's intense contributions about visualization in science education – will be outlined in an attempt to show how stages and cognitive processes involving epistemic artifacts can shed light on a brilliant and inspirational academic career.