How children learn: New perspectives in conceptual change research

Stella Vosniadou
National and Kapodistrian University of Athens

Following on the footsteps of Professor Hatano we will try to present an approach to learning and conceptual change that bridges constructivist with socio-cultural perspectives. According to this approach, learning starts early in infancy and results in the accumulation of rich, everyday knowledge about the physical and social world in natural settings. We will argue that while knowledge acquisition processes are constructive attempts on the basis of individuals to make sense of the world around them, they are also deeply influenced by the social and cultural settings in which they participate. Examples from children's knowledge acquisition processes in observational astronomy in different cultures will be presented to illustrate these arguments.

It will be further argued that the development of scientific knowledge requires more than the simple enrichment of everyday knowledge. Scientific knowledge is the outgrowth of a long historical development that required significant scientific revolutions to take place. As a result, the body of knowledge that constitutes current science contradicts basic presuppositions of our everyday knowledge about the physical world and requires radical conceptual change in order to be understood. A re-framed approach to conceptual change that attempts to address not only cognitive but also social, cultural, and motivational factors will be outlined. Special attention will be given to certain mediating mechanisms, such as analogical reasoning and collaborative learning for the development in students of metaconceptual awareness and the ability for intentional goal-directed learning necessary for conceptual change in science.

1979 : Ph.D., Clark University, USA
1992 - present : Professor of Cognitive Psychology, Dept of History and Philosophy of Science/ Dept of Elementary Education, University of Athens, Greece
1990 – 1992 : Professor of Psychology, Dept of Pre-school Education, Aristotelian University of Thessaloniki, Greece

Selected publications

Vosniadou, S., & Skopeliti, I. (2005). Developmental Shifts in Children's Categorizations of the Earth. *Proceedings of XXVII CogSci* pp. 2325-2330.

Vosniadou, S., Skopeliti, I., & Ikospentaki, K. (2005). Reconsidering the Role of Artifacts in Reasoning: Children's Understanding of the Globe as a Model of the Earth. *Learning and Instruction*, **15**, pp. 333-351.

Vosniadou, S. (2001). *How Children Learn*, The International Academy of Education (IAE) and the International Bureau of Education (UNESCO).

Kayser, D., & Vosniadou, S. (Eds.), (2000). *Modeling Changes in Understanding: Case Studies in Physical Reasoning*, Elsevier.