

DG2 FACILITATING THE CONCEPTUAL CHANGE IN MATHEMATICS

Erkki Pehkonen

University of Turku, Finland

Kaarina Merenluoto

University of Turku, Finland

Marianna Tzekaki

University of Thessaloniki, Greece

The main idea pursued in all theories of “conceptual change” is the reconsideration of prior knowledge either in terms of enrichment and reorganization or as radical reconstruction of an existing knowledge that is incompatible to new situations encountered.

Last year’s Discussion Group attempted to explore the specificity of the nature of conceptual change in the formation of mathematical concepts and arrived at the point of arising questions in three directions:

- Theoretical questions about how this cognitive approach can be utilized in mathematics education compared to other approaches or teaching practices (specificity of mathematical concepts, approaches to mathematics education etc.);
- Questions about teaching related to the formation of particular mathematical concepts, where conceptual change is in need, or the ways in which teachers can promote and support these changes (number concepts, introduction to algebra, misconceptions in geometry, etc.);
- Research questions about how the formation of concepts and the conceptual change can be studied, with special reference to methods, research tools and schemes of data analysis.

The purpose of this year’s Discussion Group will be to deepen in and explore further the aforementioned questions by providing ideas and teaching examples. Furthermore, an attempt will be made to formulate teaching proposals, which take into account or prepare the future changes a concept will be subjected to in the course of its development.