

CALL FOR PAPERS for the CEPS Journal*

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Exploring processes in constructing mathematical concepts and reasoning through linking representations

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The idea of representation is continuous with mathematics itself. Any mathematical concept must be represented in some way if it is to be present in the learner's mind. We distinguish between external representation (environment) and internal representation (mind). External representation refers to all external media that have as their objective the representation of a certain mathematical idea. We mainly use the term external representation for tangible material, graphical representation and mathematical symbols. External representation always needs an interpreter, a learner who gives it meaning.

The fact is that teaching and learning mathematics is more effective in terms of understanding mathematical ideas if it focuses on investigating different representations of a particular mathematical concept and encourages pupils to find links between these representations. Representations are neither predicated in terms of an adequacy between ideas and their representations, nor as heuristic devices in meaning making processes; representations are rather an integral part of the activity of knowledge presentation. Representing mathematical ideas has the following main roles in the process of teaching and learning: interpretation of what is represented (internal presentations), recording, representing ideas (ways of thinking, knowledge presentation externally), and communicating (e.g., discussion about representations). The last two roles are the focus of this special issue of CEPS Journal: we aim to bring together different issues on representing learners' ways of thinking, knowledge presentation, and the role of external representations in the process of teaching and learning mathematics. On the one hand, we are interested in how students explain and share their ways of thinking in order to better understand their progress in learning; on the other, we would like to rethink the role of external representations. Nowadays, we are more focused on the learner's thinking in relation to a particular external representation than on ways of representing mathematical ideas. We invite you to investigate how external representations relate to or support students' thinking. We are interested in redefining the value of external representation in mathematics. How, for example, can RME ideas or other alternatives in relation to external representation provide support for learning mathematics? Or, more generally, how can knowledge presentations help the learner to develop competences, not only mathematical ones, but also those that empower her/him to make well-grounded decisions and use mathematics in ways that fulfil her/his needs as a constructive and thoughtful person?

* The CEPS journal is indexed and abstracted by Scopus, EBSCO – Education Source Publications, ProQuest, Directory for Open Access Journals, Academic Journals Database, The Directory of Research Journal Indexing, Open Access Journals Search Engine, Scirus.

Article submission timeline

15 June 2017: submission of paper title and abstract [300 words max.]

30 December 2017: paper submission [6500 words max.]

June 2018: publication of papers in the CEPS journal