BASIC IDEAS AND THE ROLE OF COHERENCE AND DIFFERENCE FOR SECONDARY MATH CURRICULA

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This presentation will advocate a more balanced perspective on the global role of difference and coherence for secondary mathematics curricula from a philosophy of education point of view.

When discussing (students pre-)conceptions and local ideas, elaborating on differences, discontinuities and ‘conceptual change’ has become common sense in research on science and mathematics education. On a global perspective – when talking ‘basic’, ‘overarching’ or ‘fundamental’ ideas – most research in mathematics education still emphasizes the coherence of mathematical knowledge and stresses the continuity between mathematical thinking and thinking in everyday life. This presentation will address four hypotheses, based on a thorough analysis of the history of “basic ideas” as a research category (Vohns 2007):

- Usual definitions of a ‘basic idea’ have driven quite far away from everyday use of the term ‘idea’ and sometimes seem hardly understandable outside the community which uses this concept as a research category.
- Furthermore, mistaking basic ideas behind structures, mathematical concepts and techniques for structures, concepts or techniques themselves is a common issue in research on basic ideas.
- The role of coherence and continuity on a global perspective has been stressed a lot since Bruner (1960). Since then “coherence” and “continuity” have undergone quite some change interpretation wise, but not much has been done to overcome the hypothetical nature of Bruner's claims on the importance of coherence and continuity as an educational goal in itself.
- Therefore, a switch from elaborating on coherence and continuity to reflecting on coherence and differences is suggested and corroborated by taking into account recent works on philosophy of mathematics education from Germany and Austria.

The presentation will conclude presenting “quantity” and “form” as starting points for reflecting on basic ideas for the last four years of secondary education.

References

