FLEXIBLE CALCULATION: KEY IDEAS FROM STUDENTS' SOLUTIONS

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To promote adaptive thinking and flexible computation is a strong curricular goal for compulsory education all over the world. Recent studies document the difficulty to achieve it, highlighting the tensions that occur during the process of learning of numbers and operations (Thompson & Saldanha, 2003; Threlfall, 2009). In fact, students show difficulties in using adequate and flexible ways of thinking, revealing a lack of conceptual understanding to make decisions on which computation process is more appropriate to solve a particular situation.

This paper is a report from one pilot study of a project aiming to analyze the critical issues related with the development of adaptive thinking and flexible computation. The project plan is based on design research and assumes a three-tiered teaching experiment design (Lesh, Kelly & Yoon, 2008).

The sample comprises the analysis of 50 clinic interviews with students from 6 to 15 years old focused on the resolution of 5 different numerical tasks.

Findings indicate that there is no relation between the use of flexible approaches, reflecting the use of a method that is efficient for calculating in each particular problem and students' age. They also indicate that students that use flexible approaches have a good knowledge of number facts, confidence in the methods they use and well developed numerical skills. The solutions of the students enable us to conjecture on a network of numerical facts, numerical relations and arithmetic properties that will support the development of several teaching experiences, to be developed in the context of the project.

References

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