

THE DYNAMICS OF ARGUMENTATION IN MATHEMATICS CLASSROOM: A COLLABORATIVE RESEARCH PROJECT

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In many countries, mathematics curricula underscore that mathematics must be, to students, a sense-making activity and that reasoning is a central aspect of mathematics teaching. In classes where reasoning is valued, both explanation and justification are key aspects of students' mathematical experience and, thus, an emphasis on reasoning brings to the forefront the need for their involvement in mathematical argumentation activities (Yackel & Hanna, 2003).

Learning to argue mathematically is deeply connected with a habit of mind related to the "why of things". To promote this habit, the teachers are asked to encourage and support a mathematical discourse that has certain properties; to orchestrate whole-class discussions that use students' contributions in ways that advance the mathematical learning of the whole class; to establish a *culture of argumentation*; and to pay attention both to cognition and emotions (Boavida, 2005; Lampert, 2001). This is a very complex process in which they face several dilemmas and challenges. It is important to understand this process, because teaching shapes students' conceptual understanding, their capacity of reasoning and their disposition towards mathematics.

The purpose of this presentation is to provide an overview of selected results from a two-year collaborative research project, developed by two middle-school teachers and a researcher, focused on the dynamics of argumentation in mathematics classroom (Boavida, 2005). This project is rooted in the importance of collaboration between teachers and researchers to improve teachers' practices and the knowledge about teaching (Christiansen et al., 1997). Particularly, it is intended to reveal the potentialities of the project for teachers' professional development as well as its relations with aspects that are relevant to foster mathematical argumentation.

References

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