

# INVESTIGATING ARGUMENTATIVE PROCESS IN SOLVING PROBABILITY PROBLEMS

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The teaching and learning of argumentation play a crucial role among the learning objectives about mathematics defined by the Italian National Guidelines for primary and secondary school. We are hence interested in investigating the possibility of assessing the argumentation in math classrooms. Our explorative study focuses on argumentative processes developed during problem solving in probability context, which, in the experience of the research group, has been a rich context for developing argumentative activities. We follow the perspective of formative assessment (Black & Williams, 2007). This choice is led by the double aim of assessing and promoting the development of argumentative process and by the intention of taking into consideration the essential role of teacher, students, and peers. As pointed out by Stylianides (2007), the statements used in a mathematical argument should be accepted by, known to, or within the conceptual reach of the classroom community as well as recognized in today's standard mathematical culture. We consider argumentation from a social and interactionist perspective (Mercier & Sperber, 2017), according to which a good argumentation should display coherence relationships between the claim of the speaker and the beliefs held by the addressees.

Our study is in progress. The teaching experiment will involve a 11-grade class of 19 students, and it will take place during regular math class activities. The core of the activities will be group resolutions of some selected problems and the following whole-class discussion. The lessons will be video recorded, and the students' written productions will be collected. Written argumentations and interactive argumentation processes will be the focus of our qualitative analysis. In line with the formative assessment strategies, particular attention will be paid on feedback and students' reactions to them. We expect to find some evidence about argumentative processes aspects that can be emphasized and fostered during formative assessment activities. We will present the first results of our analysis by means of some examples.

## References

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