

# Editorial

«If you have an apple and I have an apple and we exchange these apples then you and I will still each have one apple. But if you have an idea and I have an idea and we exchange these ideas, then each of us will have two ideas».

(George Bernard Shaw)

To introduce this editorial we borrow a quote from George Bernard Shaw (1856-1950), an Irish writer, playwright, linguist and music critic, who was awarded in 1925 of the Nobel Prize in Literature. In this simple and effective sentence Shaw manages to highlight the importance of *sharing*, a characteristic that distinguishes the philosophy of this journal.

In these three years the *Didattica della matematica. Dalla ricerca alle pratiche d'aula* journal, now in its sixth issue, has encouraged the sharing of ideas, analyses, and experiences between the world of research and the world of classroom practices, creating significant and enriching relationships, contacts and exchanges between each person involved.

In particular, this issue focuses on the experimentation of significant didactic experiences, analysed from the perspective of Mathematics Education researchers or described by the teachers who designed and implemented these experiences in their classes.

The three articles in the section *Riflessione e ricerca* cover different themes. The first article discusses the introduction of nonstandard analysis methods in secondary schools and universities. In particular, the article reports the preliminary results of a pilot study about students' *concept images* of some key elements in this reformulation of the classic analysis. The second article is about a study on primary school teachers' beliefs about math problems; the study was developed through interviews with some teachers regarding different examples of problems, which are particularly interesting from a didactical perspective. The last article in this section describes an inquiring-game activity, tested in a scientific high school with students of grade 10. This activity was designed using GeoGebra following the "logic of inquiry" approach in order to investigate the contribution of this approach to the students' learning of mathematics.

The second part of the journal, *Esperienze didattiche*, has four interesting contributions: two of them describing activities for primary school and the other two describing experiences in lower secondary school. The first article describes a project, carried out with grade 5 students, for the development of argumentative skills using INVALSI questions in a formative approach. The methodology used in this project mainly focuses on teaching practices based on feedback, peer evaluation and self-assessment. The second article addresses in a significant way the context *Magnitudes and measures* in a third grade class. The planning and organization of a sports day, called *Giochi Senza Frontiere delle Misure*, is an opportunity to work on conventional units of measurement, to investigate the functioning and the use of measuring instruments and to experience an interdisciplinary activity between mathematics and physical education. In the third article there is an intersection between mathematics and its history: the activities proposed aim at studying the possibility of squaring some plane figures, discussing this topic with an historical perspective, from the ancient Greeks to the end of the 19<sup>th</sup> century. Students had to work in groups on this topic to create a small dossier to be shared with their schoolmates. The last contri-

bution describes an experimental activity, realized with a cooperative and differentiated approach, to project, build and launch a rocket-model. This is a remarkable example of a significant realistic situation in which students deal with mathematics problems in a meaningful and motivating context.

We are very proud that our journal is gathering increasing interest and collaboration proposals. This is a sign of the importance of having a place where people, working in the field of Mathematics Education – an area that is becoming more and more complex and connected with other disciplines –, can share ideas to improve the quality of the research and of the teaching inside and outside the classroom.

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