

Editorial

«The theory of argumentation rejects overly clear antitheses: it shows that between absolute truth and non-truth there is room for truths to be subjected to continuous revision thanks to the technique of adducing reasons for and against. It knows that when men stop believing in good reasons, violence begins».

(Bobbio, 2013, foreword to Perelman & Olbrecht-Tyteca, 1958/2013, XIX, translated by the author)

As Norberto Bobbio states in the proposed quotation, «when men stop believing in good reasons, violence [unfortunately] begins».

This sentence, in the complex and difficult current world context, reminds us of the importance of those transversal competences which are nowadays covered in all school curricula: learning to communicate and argue, understanding and accepting the point of view of others, being able to listen and collaborate, being able to include diversity etc. There are many values, principles, knowledge and skills that we would like to transform into real competences through our daily work, with the aim of achieving a better society.

It may seem out of place to touch on the concepts proposed by Bobbio in a journal that deals “only” with the didactics of mathematics. We hope that this journal represents a very small piece towards the comparison, exchange and sharing of points of view as well as educational paths which can form generations that are increasingly aware and ready to dialogue and listen. It should be remembered that those who have chosen, like the authors of this issue, to spend some of their time searching, trying, reflecting, experimenting and writing, know well that these activities always require the courage to question themselves from a point of view of argumentative confrontation, first of all with oneself, but above all with others. Moreover, they require also the willingness to share research and experience considered effective in terms of skills to be developed in the younger generation.

As usual, there are three articles in the *Riflessione e ricerca* section. The first one deals with the notion of negative numbers, contextualizing them within the landscape that led to their acceptance in the form they have today. Starting from an analysis of the difficulties and misconceptions of the students, the article discusses some of the epistemological obstacles commonly observed in understanding negative numbers, and then discusses and compares two different models used to introduce the four basic operations. The second article proposes a reflection on the importance of constructing educational paths aimed at promoting a connection between graphical representations and algebraic language for solving equations. Thanks to some theoretical tools from the field of research of *early algebra*, the authors present and analyze some mathematical situations through which the reader-teacher will be able to design inclusive and effective didactic paths, in which the algebraic register and the visual-geometric register will be increasingly in communication with each other. The third article proposes two case studies of two children in the third grade of Italian primary school,¹ which reflect on their individual mathematical activity at home and how their interaction with their parents influenced this activity. After presenting a brief review of the literature on the subject of “home schooling” and the relationship of parents with their children’s math tasks, the article proposes a qualitative analysis of the data collected during the Covid-19 lockdown.

1. The primary school in Italy lasts five years and corresponds to the grades from 1 to 5.

In the *Esperienze didattiche* section, there are four articles. The first contribution presents some didactic paths focused on discovery activities, of playful and laboratorial nature, aimed at numerical learning in first grade of primary school, starting from research and knowledge of the numbers with which children are confronted in their daily lives. For each path are also presented some possible links with the materials created within the project *MaMa – Matematica per la scuola elementare*. The second article illustrates an experiment conducted in Italy with students in the second grade of primary school, whose didactic node concerns the possibility of developing an approach to pre-algebraic thinking. After describing the didactic transposition of some problems of the Chinese school (problems with variation and figural equations), it can be noticed how, starting from the text of a problem and the graphical representation of its data, children can understand and, in turn, construct variations of the starting problem, exploring the potentialities linked to the structure of the variation itself. The third article describes an activity that aims to stimulate, through the practice of folding origami, a metacognitive reflection on the topic of learning. The experiment, to be carried out during the first weeks of an academic course, highlights the importance of developing a conscious attitude towards study activities and addresses two issues related to the effectiveness of learning: the role of curiosity as a motivational stimulus and the importance of trust in the teacher and his/her teaching proposals. Finally, the last contribution presents an educational pathway proposed in Italy to fourth grade students of a primary school focused on the use of money. Using a concrete and experiential approach, on the background of a meaningful learning context for pupils, the inclusive potential of the pathway is shown, especially for students with disabilities.

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Bibliography

Perelman, C., & Olbrechts-Tyteca, L. (2013). *Trattato dell'argomentazione. La nuova retorica*. Giulio Einaudi editore (Original work: *La nouvelle rhétorique. Traité de l'Argumentation* published 1958).