Teaching
Mathematics and
Computer Science

Report of the conference "Connecting Tamás Varga's Legacy and Current Research in Mathematics Education" November 6-8, 2019, Budapest, Hungary

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On the occasion of the 100th anniversary of the birth of the Hungarian mathematics educator, didactician and reform leader Tamás Varga, a conference on mathematics education has been organized in November 2019 and held at the Hungarian Academy of Science.

As explained in its announcement, the main aims of the conference were to:

- *Celebrate the 100th anniversary of Varga situating his work in an international context and discussing its relevance for mathematics education today;*
- *Offer a forum to current international research on mathematics education in different domains;*
- *Foster the connections between Hungarian research on mathematics education and international research in the field.*

To achieve these aims, the conference combined different forms of activity: 4 plenary lectures, a plenary panel, 60 oral communications in 4 parallel sessions, 7

workshops and 11 posters. These were complemented by an exhibition presenting Tamás Varga's oeuvre and a video prepared from interviews with people having known Varga and having worked with him. The conference especially addressed mathematical themes in the focus of Varga's interest, namely logic and algorithmic thinking, discrete mathematics, probability and statistics; cross-cutting themes in line with his educational vision such as inquiry based mathematics education and the development of learning trajectories, the use of manipulatives and semiotic tools in the development of mathematical concepts, mathematics as playful and creative activity; as well as issues related to the history of mathematics education as could be anticipated for such a celebration.

The organization was greatly supported by the work of the International Program Committee, composed by Michèle Artigue (France) and Ödön Vancsó (Hungary) as co-chairs, Werner Blum (Germany), Katalin Gosztonyi (Hungary, IPC-LOC liaison member), Jeremy Kilpatrick (USA), Miklós Laczkovich (Hungary), Marta Menghini (Italy) and Ewa Swoboda (Poland); and the Local Organization Committee, chaired by Csaba Csapodi.

Gathering 131 participants from 18 countries, completed by members of Tamás Varga's family, the conference started in the magnificent conference room of the Hungarian Academy of Sciences with, after opening addresses, the first plenary lecture by Katalin Gosztonyi on *Tamás Varga's reform movement and the Hungarian "Guided Discovery" approach*, and the emotional projection of the above mentioned video. For the rest of the conference, participants then moved to the "House of Human Sciences" building of the Hungarian Academy of Sciences, offering an excellent environment for conference activities, for presentation of didactic material, and for informal and friendly discussions at lunch time and coffee breaks. This was not a huge conference as some conferences in mathematics education are today, but it had the right size to favour the full participation of everyone. The structure of the conference fostered the coherent development and progression of insightful discussions and knowledge along plenary and parallel sessions. Moreover, the workshops organized allowed foreign participants who, most often, had only some superficial knowledge of Tamás Varga's work and more globally of the Hungarian tradition of mathematics education, to make sense of these by doing, not just by listening.

The selection of contributions presented in this special issue will give the reader a very good idea of the content of this conference with papers associated with the four plenary lectures: the lectures by Katalin Gosztonyi already mentioned; by Mariolina

Bartolini Bussi on semiotic mediation and cultural artefacts in the mathematics classroom; by Viviane Durand-Guerrier on logical issues in algorithmic thinking and discrete mathematics; by Manfred Borovcnik on the many paths leading to statistical inference; and finally the panel on Inquiry Based Mathematics Education and the development of learning trajectories coordinated by Michèle Artigue with the conribution of Marianna Bosch, Michiel Doorman, Péter Juhász, Ladislav Kvasz and Katja Maass. 21 further papers included in this selection are associated with oral communications. These articles make clear that Tamás Varga's vision of mathematics education has not at all lost its relevance and can be source of inspiration for the international community of mathematics education still today. They establish insightful connections with constructs and perspectives that have emerged and developed in other educational contexts, and with current research on a diversity of mathematical and transversal themes. The Hungarian contributions also show the efforts developed to maintain this vision and its values alive, adapting it to the evolution of the educational context and technological resources, extending it to other levels of education, and demonstrate the very positive outcomes of the support offered by the Hungarian Academy of Sciences to the development of such research.

We hope that this collection of papers will establish a vivid and exploitable memory of the richness of ideas, realizations and reflections that we have experienced with so much pleasure during the conference days.

The proceedings is published in two parts, both of them peer-reviewed. The articles are organized in thematic chapters, following the different themes of the conference.

Chapters of the first part:

− Issues at the crossroad of didactics and history of mathematics education (4 papers)

− Inquiry Based Mathematics Education (6 papers)

− Teachers' creativity and design capacity (3 papers)

Chapters of the second part:

− Manipulatives and semiotic tools in the development of mathematical concepts (5 papers)

− Teaching and learning of specific mathematical themes (logic, discrete mathematics, statistic, geometry and algebra) (8 papers)

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