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Remarks on the Sixteenth Slovak-Polish-Czech Mathematical School, IMEM Congress and the Seventh Nitrianska Mathematical Conference

The article summarises *the Sixteenth Polish-Czech-Slovak Mathematical School*, *IMEM 2009* International Congress (Interdisciplinary Relationships in the Theory and Practice of Informatics, Management, Economics and Mathematics) and the *Seventh Nitrianska Mathematical Conference* (*Nitrianska matematická konferencia*) – the meetings of Polish, Czech and Slovak mathematicians and mathematics teachers that took place this year in Slovakia.

The Sixteenth Polish-Czech-Slovak Mathematical School was organised by the Slovak Faculty of Education at the University of Ružomberok (Pedagogická Fakulta Katolíckej Univerzity) and was held from 17th till 20th June in Ružomberok. Congress IMEM was under the auspices of the Chancellor of Catholic University in Ružomberok and Dean of Pedagogical Faculty being organized by Department of Mathematics, Physics and Informatics in collaboration with the Department of Management and Marketing and the Department of Economics and Tourism as the Department of Andrej Radlinský in Dolný Kubín. It was held from 9th till 11th September 2009 in Spišská Kapitula. The *Seventh Nitrianska Mathematical Conference* was organised by the Department of Mathematics at the Constantine the Philosopher University in Nitra (Univerzita Konštantína Filozofa v Nitre) and took place on 24th till 25th September 2009.

The organisers will publish complete texts of conference presentations, therefore this paper focuses only on several points chosen.

The Sixteenth Polish-Czech-Slovak Mathematical School and the *Seventh Nitrianska Mathematical Conference* were divided into two sections:

- Theory of Mathematics Teachers Training – devoted to the presentation of research results on the teaching of mathematics at different levels of education;
- Mathematics and its Applications – devoted to the presentation of the results of works from various fields of mathematics.

The IMEM Congress was divided into three sections:

- Informatics,
- Management,
- Mathematics.

It served as a forum for exchange of experience in the field of informatics and mathematical methods in economics and management, in theory and practice of economic development in Slovakia and abroad. The programme of this Congress was to allow an exchange of results of scientific work and opinions between education practice and research.

Apart from the seminars in the sections mentioned above, the conference participants could attend nine lectures given in Spišská Kapitula where the IMEM Congress took place:

1. Kelemen Jozef: Computers, Knowledge and Knowledge Managing Systems;
2. Czarnocha Bronislaw: Ethics of Teacher-researchers;
3. Janovjak Štefan: Management by Fuzzy Logic;
4. Turnau Stefan: Who is a teacher-researcher;
5. Kovács András: Informatics in the Mathematics Coursebooks Published in Hungary;
6. Fidrmuc Jarko, Fidrmuc Jan: What are you thinking about?;
7. Droppa Milan, Kamod'a Ján: The impact of global crisis in personal management establishment;
8. Černák Igor: Innovative View on Realization and Roles of Virtual Universities;
9. Mityushev Vladimir: Application of First Digit Methods to Economic Processes.

The following are lectures given in Nitra:

1. Ewa Swoboda, Motivation via natural differentiation in mathematical education;
2. Jozef Doboš, Vyučovanie matematiky ako intelektuálna výzva;
3. Jaroslav Perný, Hraní si s kostkami jako propedeutika matematiky;
4. Hary Frank, Clar numbers: an application of graph theory in chemistry.

The problems in focus during conferences were parallel. In our article we are sketching only a few contributions.

J. Perný showed the possible use of simple operations and playing with cubes in propedeutic of higher mathematics. Specifically, children's „walks on the cube” can lead to illustration of less common algebraic structures and their properties, or „rolling the cube” to illustration of permutations and other properties of algebraic structures.

J. Doboš talked about mathematical examples that are used during entrance examinations to Japanese universities.

D. Vallo presented some properties of the Gergone and Nagel point. These points are well known in the classical Euclidean geometry and their constructions are familiar, too. The result which was derived in this presentation allows a new construction of the Nagel point.

E. Knejpová and M. Vrábellová reported a research on the teaching of probability at primary and secondary schools. The research was focused on the state of the teaching of probability, teacher's fondness for probability, use of ICT in teaching probability and the teacher's interest in creating of a web portal on teaching probability.

J. Drábeková highlighted the use of logarithms in natural science, and thus emphasized the importance of teaching the properties of logarithms and logarithmic functions in science or agricultural education.

L. Czanner and J. Čižmár talked about an effectivity comparison of relevant subjects' education in three countries (England, Germany and Slovakia) via realisation and evaluation of didactical tests with standard and advanced statistical methods. This study concludes with an interpretation of the statistical findings and discussion of possible recommendations for education of mathematics in Slovak primary school system.

L. Rybanský described the game “Migratory coin”, which can be modeled by random walk.

S. Turnau presented the international Krygowska Project “Professional Development of Teachers-Researchers” (2005-2008) with an example of Teaching-Research conducted within its frames.

B. Czarnocha talked about the integration of the researcher's ethics with the teachers' ethics in the context of classroom Teaching-Research methodology. It was shown that the integration of the two principles treated as ethical imperatives of equal strength leads to a series of constraints upon the classroom teaching experiments as well as upon the acceptable research questions. Two Teaching-Research questions were defined as better corresponding to the nature of Teaching Research, and were offered as a path of reconciliation between two separate kinds of knowledge: theoretical knowledge of researchers, and practical knowledge of practitioners.

M. Czajkowska presented some problems connected with student's ability to cope with difficult situations while solving a problem.

E. Hotová and J. Bártek presented an analysis of the textbooks used in mathematical education of pupils with special needs. I. Krech, A. Pocki and P. Tlustý presented stochastic tools for calculating sums of certain series.

References

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