PSYCHOLOGICAL ASPECTS OF MATHEMATICS EDUCATION

Mathematical education is one of the most important and at the same time the most difficult areas of education. Most of the contemporary sciences use mathematics to a greater or lesser extent. On the other hand, mathematics is perceived by pupils, parents and society as difficult. Therefore, there is a challenge that goes far beyond the traditional framework of didactics or educational sciences regarding finding effective methods for teaching mathematics. The EWCOME conference is an attempt to create a platform within which representatives of various fields of knowledge try to answer the question: How we can improve mathematics education? This edition includes a collection of review articles and empirical reports, were created as a result of the International East West Conference on Mathematics Education (EWCOME 2017), which took place in August 2017 at the University of Social Sciences and Humanities in Warsaw. The aim of the conference was to overcome disciplinary barriers in science, interdisciplinary obstacles in education and establish international contacts through the development of innovative methods of teaching mathematics. This was to be achieved using achievements from different fields of expertise, different fields of science and different scientific disciplines, using best practices developed in various parts of the world: in the East and in the West. We hope that the articles presented in this issue will, to some extent, portray the central idea of the conference, as well as encourage further exploration of innovative teaching methods that break down barriers in education.

Anna Rybak and István Lénárt presented ideas for overcoming barriers between mathematics and mathematical phobia. The authors believe that in addition to teaching useful and necessary formulas and algorithms, the main task of school mathematics is to overcome indifference or even hostility between the general public and the field of mathematics; building a picture of mathematics as a warm, friendly, joyful activity, full of artistic and poetic beauty to which the human mind is capable. According to Anna Rybak and István a Lénárt and the teachers’ primary challenge is to interest students in the subject, to give them confidence in themselves and to teach independent thinking.

Agnieszka Bojarska - Sokolowska presented the concept of boredom in mathematics classes from a psychological and pedagogical perspective. The author notes that boredom is one of the keywords that define the current school climate and one of the intangible issues that causes misunderstanding between students and teachers. Her text draws attention to the following factors: the need for external stimulation, emotional reactions on boredom, internal perception of time and perception of coercion. The author has found the it is the lack of sufficient simulation of students during lessons, which causes a block of cognitive activity and creativity. The article contrasts school boredom.
with curiosity and cognitive fascination during formal and out-of-school education of today’s “digital natives”.

Jolanta Korba showed how important is the school climate in the perception of students with different levels of mathematical aptitude. The article introduces a concept of creative-generic climate as it is perceived by gymnasium students with various levels of mathematical aptitude. Research conducted by the author proves that the effects of working with students of various levels of mathematical abilities are determined by systems of psychosocial variables that make up the atmosphere for creativity.

Sylwia Kania presented an outline of a concept for the study of understanding of the logical structure of mathematical expression and the way it is taken into account in the process of correcting false mathematical statements. The author notes that the process of teaching mathematics brings a lot of difficulties in understanding certain concepts, facts and statements, which are written down using specific symbols. Failure to understand the information and structure of a mathematical sentence may be the reason for failures in the course of learning mathematics and may lead to a misperception of the issues discussed. The tests constructed by the author allows one to isolate the preferences of students and divides those preferences into a substantive or logical approach to the problem.

We hope that the topic of the articles collected in this issue will be of interest not only to theoreticians but also to practitioners – especially teachers and will inspire you to search for the best teaching methods. We would like to thank all authors for submitting their articles. Special gratitude goes to all the reviewers, who had a contribution in increasing the quality of the articles published in this special issue.

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