Editorial by Hannes Stoppel

We are glad to present this issue of the MTRJ. With this MTRJ we are pleased to be able to look at the didactics of mathematics in relation to various areas of Asia. Starting with the eastern part of Turkey, then move through Myanmar and Iran to South Korea and Indonesia, one takes a tour across Asia, what we do with the reports in this issue. Math education of Indonesia is particularly well represented with seven articles. The broad internationality of mathematics education is evident in the participation of Norway and the USA in a study.

MTRJ presents analyses of various types. Quantitative data collections are involved; mixed methods have been used several times to take a look at both a qualitative and a quantitative study. These different types of data collection and data analysis provide a broad view of mathematics education across Asia.

Since Corona, the demand for the use of digital media has been increasing. Several articles report on experiences with the use of digital media and provide impulses for their use.

The technical content of the studies is also evident. It ranges from elementary school over middle school to high school. In addition to examining subject didactics, metacognitive considerations are also considered. One study also looks at connections between cultural and skilled components of education. The studies presented in this issue are very close to practice up to the presentation of finished teaching contents.

Mathematics not only determines our profession lives but is also one of our hobbies. In order to give our readers the opportunity to practice this hobby, tinkering tasks can be found in “The Problem Corner”. We look forward to receiving your solutions of the exercises. To encourage participation, some elegant solutions of readers will be presented in the next issue.
As became visible above, this issue contains teaching-research articles from the perspective of many countries and fulfils MTRJ’s desired requirements to publish creative research in mathematics education. We hope we have aroused your curiosity about the articles and hope you enjoy reading them and gain new insights.

List of Content

A Study of Number Sense and Metacognitive Awareness of Primary School Fourth Grade Students
Alper Yorulmaz, Emel Çilingir Altıner and Sıtkı Çekirdekci (Turkey) p. 5
This article describes a study and shows results of a study to determine the number sense performances and metacognitive awareness of primary school fourth grade students and the status of metacognitive awareness in predicting number sense. The study leads to interesting insights about these factors and relationships between them.

Ethnomathematics Learning Model Based on Motivs of Dayak Ngaju Central Kalimantans
Jackson Pasini Mairing, Nimi (Indonesia) p. 30
The aim of this study is to describe the influence of implementing an ethnomathematics learning model combined with batik/carving/painting motives on students’ learning outcomes and responses. It contributes to research on the connection between culture and mathematics, which will be interesting to a wide audience ranging from educators to curriculum developers.

Cognitive Map: Diagnosing and Exploring Students’ Misconceptions in Algebra
Analisa Fitria, Subanji, Susiswo and Hery Susanto (Indonesia) p. 49
The article describes results of a study diagnosing and exploring grade eight students’ misconceptions and mistakes when following the rules of algebra. The study results can help instructors teaching algebra.

Stimulation of Cognitive and Psychomotor Capability by Game-Based Learning with Computational Thinking Core
Andriyani (Indonesia) p. 76
The author develops a game for understanding connections between multiplication and addition for game-based learning. This is a practical assignment for students of grade three. Educators who wish to develop similar games may be interested in and inspired by the article, learning how to validate such a game.
Comparative Analysis of Students’ Argumentation Patterns in the Context of Algebraic Problems
Hendra Kartika, Mega Teguh Budiarto, Yusuf Fuad, Lauren Jeneva Clark and Kim Jeonghyeon (Indonesia, USA and South Korea) p. 105

The objective of the study is evaluation and characterization of argumentation patterns used by seventh-grade students in the context of problems with algebraic addition and subtraction. The findings have implications for teachers in monitoring the advancement of their students and preventing or alleviating diverse difficulties or inaccuracies.

Development of RME Learning Media Based on Virtual Exhibition to Improve Students’ High Order Thinking Skills (HOTS)
I Putu Ade Andre Payadnya, I Made Wena1, Putu Suarniti Noviantari, I Made Putra Kurniawan Palgunadi and Ayu Dewi Chandra Pradnyanita (Indonesia) p. 129

To enhance realistic learning and students’ thinking abilities, the authors developed virtual exhibition-based realistic learning media for mathematics education and evaluated its quality in improving students’ high-level thinking abilities. The study includes detailed mathematical analysis of the data.

Characteristics of Differentiated Mathematical Creative Models in Problem-Solving Activities: Case of Middle School Student
Heri Purnomo, Cholis Sa’dijah, Erry Hidayanto, Sisworo, Anita Adinda, Abdul Halim Abdullah (Indonesia and Malaysia) p. 157

The authors assume that creativity is not a gift for all students. The research reveals differences in middle school students’ mathematical creativity models of imitation, modification, combination, and creation.

Effects of a Working Memory Training Program of Secondary School Students’ Mathematics Achievement
Wit Yee Ei and Cherry Zin Oo (Myanmar) p. 177

The goal of the study described in this article is showing that memory training strategies improve mathematics achievement of secondary school students. The article presents a new approach and contributes to the field.
Introducing a Teaching Technique for Reducing Students’ Mistakes in Simplifying Algebraic Expressions
Abolfazl Rafiepour, Nooshin Faramarzpour and Mohammad Reza Fadaee (Norway & Iran) p. 193

This study investigates the effect of the separator lines on the learning of grade 6 students in simplifying algebraic expressions. The study proposes new ideas in connection with teaching technology.

The Effect of Attitude Towards School on the Students’ Happiness: The Moderating Role of Math Anxiety
Ahmet Kesici (Turkey) p. 209

The aim of this study is to examine the moderating effect of mathematics anxiety on the effect of attitude toward school on student happiness among 8th grade students.

Content Analysis of Students’ Argumentation Based on Mathematical Literacy and Creation Ability
Usman Mulbar, Nasrullah Nasrullah and Bustang Bustang (Indonesia) p. 226

This study investigates the argumentation of junior high school students in building their creative reasoning and the relationship between students’ argumentation and their mathematical literacy skills. Students’ reasoning is analysed in depth through their statements and conclusions during visual problems-solving activity.

The Problem Corner
Ivan Retamoso (USA) p. 239

Here you will find sample solutions to recent problems and new problems to tinker with.