

Editorial from Mónica Arnal Palacián, Didactics Editor of MTRJ



The expansion of the Mathematics Teaching Research Journal in recent months is reflected not only in the origin of the authors of the manuscripts in this issue, but also in the different themes and methodologies presented and closely connected to mathematics education today. The reader will be able to find research on geometric and calculus notions, studies emphasizing the concerns of the mathematics teacher in the classroom, analysis of textbooks and mathematical challenges, among others. It is also important to note that the studies presented present both quantitative and qualitative methodologies.

The difficulties faced by education in different parts of the world as a result of covid-19 and, consequently, the different face-to-face and virtual situations in the teaching-learning processes, have not prevented research in mathematics education from continuing to develop with great quality. Proof of this is the research developed in the ten manuscripts that make up this issue, which are described below.

The first manuscript in this issue “Exploring the Relationship among Mathematics Attitude, Gender, and Achievement of Undergraduate Health Science Students” is presented by Ayebo and Dingel from the University of Minnesota Rochester, USA. They bring together two current issues in mathematics education: attitudes and gender. In their article, the possible gender differences in students' attitudes towards mathematics and how these attitudes influence their performance can be found.

Secondly, Aliu, Rexhepi and Iseni, from the University "Mother Tereza"- Skopje, Macedonia, present the research entitled “Analysis and comparison of commitment, homework, extra hours, preliminary grades and testing of students in Mathematics using linear regression model”. This is a quantitative study in which they analyze how homework, commitment in the classroom, extra hours, and preliminary grades influence the student's final grade.

Next, and also carrying out a quantitative study, is the article “Mathematical competence in preschool students and its relationship with intelligence, age and cognitive functions of attention, information processing speed and reaction inhibition” by Manginas, Papageorgiou, Theodorou and Iakovaki, teachers from the University of Western Macedonia. These authors analyze the relationship between flow intelligence, age, cognitive abilities and reaction inhibition with the level of mathematical competence with pre-school pupils.

Textbooks show the progress of an education system, its relation to current scientific knowledge and in particular to mathematics. Despite the current context where digitalization is increasingly present, textbooks still occupy a central place for mathematics teachers. As a result of this interest, we find in the fourth article “Analysis of the Mathematics Function Chapter in a Malaysian Foundation Level Textbook Adopted by a Public University”, presented by Gholami, Mohd Ayub and Md Yunus, from University Putra Malaysia. They present the analysis of a function chapter to subsequently prepare teachers to identify the elements of a textbook to enhance the quality of learning.

The fifth article is entitled “Understanding Proof Practices of pre-Service Mathematics Teachers in Geometry”, presented by Manero and Arnal-Bailera from the University of Zaragoza, Spain. Taking Van Hiele's levels as a fundamental pillar of their study, they consider that proof is a concern in secondary teacher education, especially in its relation to pedagogical knowledge. In the manuscript, the authors observe three different teacher profiles whose characteristics they describe

This issue offers the first solutions to the problem posed in the previous issue, in the recently inaugurated section “The Problem Corner” directed by Iván Retamoso, editor of MTRJ. The solutions presented follow different approaches, which may enrich and improve the mathematical knowledge of the MTRJ community. Also, a new problem is posed, aiming to be a new challenge for researchers, teachers and students.

The following article, “Teaching and Learning Processes for Prospective Mathematics Teachers: The Case of Absolute Value Equations” by Jupri and Gozali from Universitas Pendidikan Indonesia. Through a qualitative study, the authors investigate the implementation of teaching-learning processes to strengthen conceptual and procedural understanding in the use of absolute value equations, mainly with the use of GeoGebra software.

Also involving absolute value is the research of Kumari, a teacher at CUNY, USA. Entitled “Students' Difficulty with Problems Involving Absolute Value, How to Tackle this Using Number line and Box Method”, the author focuses her analysis on the number line and how the visual technique called the box method helps students connect the concept and the procedure.

The article “Learning trajectory based on fractional sub-constructs: Using fractions as quotients to introduce fractions”, written by Purnomo, Arlini, Nuriadin and Aziz, from Universitas Negeri Yogyakarta, Universitas Muhammadiyah and Universitas Negeri Jakarta, Indonesia, presents the limitations of using the fraction as a part-whole. A learning path involving the concept of fraction,

its elementary operations and the development of proportional reasoning can be found in this paper.

In the tenth manuscript, Pepkolaj and Duraj from Albanian University and the University of Shkodra "Luigj Gurakuqi", Albania, present a study entitled "How substantial and efficacious is the learning of linear algebra at undergraduate level?" The authors measured the state of learning of linear algebra with engineering students after one academic year and found that the learning of linear algebra was not effective. They also found that test scores are a determinant of temporal learning.

Finally, this issue closes with "The Calculus Concept Inventory Applied to the Case of Large Groups of Differential Calculus in the Context of the Program 'Ser Pilo Paga' in Colombia" by Villalobos-Camargo from the University of Bogotá Jorge Tadeo Lozano, Colombia, contrasts the understanding of calculus ideas and the ability to perform calculations. He also indicates that the application of the Calculus Concept Inventory (CCI) improves understanding of basic concepts after taking the class.

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Didactics Editor of MTRJ

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