

Editorial in English

Another issue of Revista Educação Matemática Pesquisa is being published! This year, we are editing the issues of volume 23, sharing with our readers the results of scientific research in mathematics education. The articles published in this second issue disseminate results from scientific investigations by researchers from different regions of Brazil and other countries, revealing a plurality of national and international research groups and institutions.

We believe that the scientific debate fostered by sharing these articles will contribute to constructing new knowledge for the mathematics education field. Moreover, these articles bring a plurality of theoretical and methodological references that strengthen scientific research in our field.

Volume 23.2 presents 13 articles that deal with problem solving, ethnomathematics, mathematical modelling, financial education, proportionality, linear algebra, spatial geometry, teacher education, teachers of the early years, supervised teaching practice, assessment, use of videos and software, and indigenous schools, considering different levels of education.

Below, we present briefly the texts that are part of this issue of our journal.

The first article, entitled *An investigation on the concepts of financial literacy of mathematics teachers in three cities with the support of CHIC*, is authored by Tiago Vanini Vieira, Fabiano dos Santos Souza, and Marco Aurélio Kistemann Junior. The article investigates the initial education and performance of mathematics teachers who work with financial education in basic education. The researchers collected the data by applying a questionnaire, examining them through the analysis of similarity with the support of the CHIC software (hierarchical, implicative and cohesive classification). The data analysis revealed financial education is still confused with financial mathematics. Besides, its approach in class is very superficial, not promoting students' literacy and financial awareness.

Selma Felisbino Hillesheim and Méricles Thadeu Moretti author the article *Educators' specialised knowledge for geometry teaching: a proposal considering the semiocognitive approach*. They propose a model of specialised knowledge for the pedagogue to teach geometry in the initial years of elementary school through qualitative research of the documentary analysis type. The analyses point out the importance of and need for knowledge of the semiocognitive processes present in geometry learning.

The third article, by José António Fernandes, is entitled *Application of direct proportionality to the resolution of an everyday situation by prospective primary school teachers*. The author investigates how primary school prospective teachers understand the

application of the concept of direct proportionality to the resolution of a daily situation when the use of one or two expressions of direct proportionality is required simultaneously. As a contribution, the study highlights that the students surveyed performed better when the resolution requires using only one expression of direct proportionality, showing reduced performance in the other situations.

Esteban Mendoza-Sandoval, Flor Monserrat Rodríguez-Vásquez, and Jesús Romero-Valencia are the authors of the article *Construction of the diagonalisable linear operators based on the APOE theory*. They proposed a genetic decomposition based on the APOE theory to describe a construction of diagonalisable linear operators as a cognitive object. They point out that students prefer to determine whether the matrix representation of the linear operator is similar to a diagonal matrix than to coordinate the ordered base and eigenvector processes in the base process itself.

The fifth article, *Mathematics undergraduate students' perceptions about the assessment practices*, is authored by Niusarte Virginia Pinheiro and Samira Zaidan. The objective of the study is to analyse how the undergraduates perceive the assessment practices in a mathematics teaching degree course and discuss implications for the learning of specific mathematical content. The results indicate a strong concern with obtaining grades for approval and indicate students' belief on the traditional test as the appropriate and reliable instrument to measure learning.

The article *Figural treatments linked to concepts of position spatial geometry mobilised by prospective mathematics teachers* is authored by Dienifer Ferner Fernandes, Maria Arlita da Silveira Soares, and Rita de Cássia Pistóia Mariani. The authors found that visualisation in geometry is important, suggesting the need to harmonise the figural and discursive registers proposed by the theory of registers of semiotic representation.

The seventh article, by Denise Cristina Ribeiro da Silva and Ieda Maria Giongo, is called *Teachers working in indigenous schools, pedagogical practices, and the ethnomathematics field: some possible reflections*. The authors study the mathematics teaching of a group of elementary school teachers who taught classes in indigenous villages in the municipality of Ourilândia do Norte – PA, Brazil. The research pointed out that the teachers surveyed sought to implement pedagogical practices based on their students' cultures.

Emilly Gonzales Jolandek and Lilian Akemi Kato are the authors of the article entitled *Approaches to mathematical modelling and mathematical literacy based on a bibliographic review*. The research seeks to identify, from a systematic literature review done in national and international search databases, possible strands on mathematical modelling and mathematical

literacy. As a contribution, it is noteworthy that the development of modelling activities promotes mathematical literacy competencies.

The ninth article, *Reviewing research on the use of videos in mathematics teaching*, is authored by Marília Franceschinelli de Souza and Samuel Rocha de Oliveira. The study aims to present an overview of research that deals with the use of videos in mathematics teaching between 2015 and 2020, and discuss the role of teacher education in making this use feasible. The authors highlight the potential of videos for the mathematics teaching and learning processes, especially when the practice with those media is done intentionally and reflexively.

The article *Written records as production and constituent experience in the initial education of the mathematics teacher*, authored by Meirilania Primo Costa and Francisco José de Lima, presents a reflection on the contributions of the supervised teaching practice from the analysis of the undergraduates' written registers in a mathematics initial teacher education course. As a result, the authors point out the practicum as an opportunity to teach and learn, considering the considerable knowledge and reflections that can be developed from the school routine and the teaching practice.

The eleventh article, by Cícero Nachtigall and Rozane da Silveira Alves, is called *The use of the flipped classroom in university education: filling gaps in elementary mathematics content*. The authors investigated how the main characteristics attributed to the flipped classroom methodology were identified by the short-course participants through pedagogical videos. The outcomes revealed greater customisation of teaching, increased autonomy and quality in learning, qualification of the interaction between teacher and student and interaction between peers in the classes in which the flipped classroom methodology was adopted, if compared to traditional lectures.

Marcília Elane do Nascimento Pontes and Gilda Lisbôa Guimarães are the authors of the article *The use of Excel software as a pedagogical resource in the teaching and learning process of bar graphs in the early years*. The study analyses learning of graph construction from tables through Excel software with students of the 5th grade of elementary school. As a contribution, the authors point out that, besides being motivating, using Excel allowed a rich discussion among students about different units of the scales and emphasised the need to explain all the elements that make up the information in a table or graph.

And the last article, *Dialogue in the mathematics classes: a study from the look of teachers who teach in the early years of elementary school*, by Thayline Soares Ferreira Rocha and Iranete Maria da Silva Lima, presents a reflection on the place of dialogue in mathematics classes, taking the concept of dialogue from Freire's theory and critical mathematics education. The elements most used in the dialogues were the interactions between teacher and students and between students and community, and the establishment of relationships between teaching and students' realities.