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Editorial of Issue 1, Volume 12, Year 2025 of the Journal Teaching Mathematics in Debate

With Issue 1 of Volume 12, another year of EMD begins, a journal that contributes to the dissemination of current research in Mathematics Education. This encourages us to continue publishing it, despite the efforts required to do so. For us, exchanges between researchers are one of the ways to contribute to the evolution of the field.

We begin this Editorial with sad news: another one of our own has left us. Ole Skovsmose passed away on February 27, 2025. We would like to express our respects and gratitude for his invaluable contributions to our field. His work on Critical Mathematics Education, based on the Critical Theory of the Frankfurt School, was mainly motivated by Theodor W. Adorno, Max Horkheimer, and Herbert Marcuse. It is this work that introduces democracy into our framework, which should be considered of great importance for research in countries like Brazil. In the preface to the book written by Skovsmose, *Critical Mathematics Education: the question of Democracy,* Borba highlights one of the late researcher's qualities. He says that Skovsmose was aware of his European roots and the danger of being influenced by them in his research. Hence his concern with establishing exchanges with researchers from South Africa, Greece, Colombia, and Brazil. Brazilian researcher Iranete Lima, one of the privileged ones to have been part of these researchers, testified to the quality of the Norwegian researcher, always very friendly and collaborative. We miss him.

This volume contains nine articles by Brazilian authors on different themes and, therefore, of different interests. The first article is entitled “The Pedagogical Workshop as a Methodology for Teaching and Learning Elementary Functions in the Undergraduate Degree in Mathematics”, by Couy, Silva de Souza, Virgínia Pinheiro and Dalmaso Sellin. This workshop consists of a teaching methodology that can favor the construction of knowledge based on the integration of theory and practice, and the tripod of feeling, thinking and acting, privileging both the cognitive aspect and the movement of action-reflection-action over practice. The challenges highlighted include the lack of consistent

and updated theoretical-methodological foundations and the limited experience of teacher trainers with the use of this methodology. As for the potential, the following stands out: visualization of the content in a practical, contextualized and interdisciplinary way; the interaction between students in the search for solutions to problem situations and the exploration of different graphic representations and numerical patterns, helping in the understanding of concepts and in the identification of patterns and relationships in elementary functions.

Santos Araújo and Lopes da Silva published the article *Calculation of Areas of Irregular Flat Regions: curriculum, numerical solutions and educational product for High School.* In this article, the calculation of areas of flat regions is shown to be a topic of great importance for the education of students at the basic level, due to the interdisciplinarity of its applications in several areas of knowledge. This work proposed exploratory bibliographical research with the objectives of knowing the current curriculum and numerical methods related to the calculation of areas of irregular regions. The proposal is to present teaching material to assist Mathematics teachers who wish to expand the concept of the area for the solution of practical problems.

With the title *Conceptions of undergraduate students in Mathematics about the LEM and LEMAT of UFT – Arraias Campus* , Costa Okumura, Ferreira de Moraes, Evangelista Costa and Beirigo Lopes bring us the third article, which presents the report of a research whose objective is to understand the conceptions of undergraduate students in Mathematics about the Mathematics Teaching Laboratory (LEM) and Mathematics Education Laboratory (LEMAT) of the Mathematics Degree course offered by UFT – Arraias Campus. The research indicated diverse views of the students, and that it contributed to a better understanding of the role of LEM and LEMAT in Mathematics Education and teacher training.

Mathematical tasks from the perspective of exploratory teaching in a teaching internship experience, written by Raatz Hartwig, Cezar Pozzobon and Philipsen Grützmann, is the fourth article in this issue. It analyzes some mathematical tasks from the perspective of exploratory teaching. Data for the analysis were collected from tasks planned for discipline, field notes, students' writings and photographs. The authors conclude that the diversification of tasks contributes to different learning, such as in relation to mathematical knowledge, the exploration of manipulable materials, the

resumption of previous knowledge, among others. In addition, they also identified that the development of tasks, from the perspective of the exploratory approach, differs from other traditional approaches, mainly due to the ways in which the class is conducted, the selection of tasks and the involvement of the subjects (students and teachers).

Morito Neves and da Silva Tinti are the authors of the fifth article, which, according to them, is the result of research carried out in a training context with Mathematics teachers, which focused on the study and development of a proposal involving the perspective of Rotation by Seasons (RE). The article was entitled *Rotation by Seasons to address the concept of Compound Interest: a study based on proposals developed by Mathematics teachers.* The data were produced through a field diary, participant records and a questionnaire. Through the analyses, the authors highlighted the importance of teachers having knowledge that goes beyond the mathematical domain for the implementation of a class that uses Active Methodologies.

The sixth article is by Rodrigues da Silva, Cicero dos Santos and Rosa dos Santos. Its title is *Teaching and learning of area as a geometric quantity: a study using Apprenti Géomètre 2 in an area measurement situation.* The authors aimed to investigate the treatment given by 6th grade elementary school students to an area measurement situation using the geometry software Apprenti Géomètre 2 (AG2). With the research, they identified protocols of the six participating pairs, the predominance of the numerical aspect of the area, prevailing regardless of the use of the software.

Campos Fagundo is the author of the seventh article, entitled *Application of initial concepts of Trigonometry, in an interdisciplinary way, through topographic examples.* It deals with proposals for interdisciplinary activities combining the application of initial concepts of Trigonometry with Topography. The research aimed to assist teachers and students in the construction of new knowledge. The teaching methodology was Problem Solving applied through a didactic sequence. According to this author, the application of the sequence had a satisfactory response from the students, however she believes that the potential would be greater if the sequence were carried out over a longer period, with more than one teacher, with external activities and with professionals from other areas.

The eighth article is entitled *The affective relationship with Mathematics: the case of high school graduates from a quilombola community in the interior of Ceará*. Its authors are: Cordeiro do Nascimento, Jeovane do Nascimento, Rodrigues Leite and

Nascimento da Silva. The objective of the article was to investigate how the teaching of Mathematics affected students from a quilombola community in Ceará, who completed High School between 2019 and 2021. To this end, a qualitative research was carried out, whose data were produced using the focus group technique. The students' opinions show that at different times during Mathematics classes, whether in explanations, in team dynamics, in teacher-student interactions and/or just between colleagues, feelings such as confidence and nervousness impact the way knowledge is learned. The factors present in affective relationships are linked to the subject, making everyone develop their knowledge and their way of seeing Mathematics in a unique way. This research indicates that the affective relationships that appear in the learning process contribute to the learning of Mathematics and, in a complementary way, can influence the behavior of students in the classroom.

The ninth and final article dealt with *Perceptions about the Teaching of Fractions from a Literature Review Focused on Teaching Practices and Use of Teaching Materials and* was written by Maria Alves da Costa and Souza Pereira. This was a literature review focused on teaching practices and use of teaching materials. This literature review is part of an ongoing Professional Master's research. The methodology adopted is bibliographic research, which collects information on the topic addressed in dissertations and theses, available on the journal portal of the Coordination for the Improvement of Higher Education Personnel (CAPES). As a result, the authors indicate that a change in teaching practices, supported by continuous teacher training and the appropriate use of teaching materials, can transform the way fractions are currently taught and understood in the initial years of Elementary Education.

We conclude this issue by expressing our gratitude for Vanderson's support over the years leading up to this publication. He is finishing his doctorate and is therefore leaving his role as editor of the journal. His work has been impeccable. Thank you very much, Vanderson. He should return soon as an *ad hoc reviewer.*

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Editors of the Journal Teaching Mathematics in Debate