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Editorial

The Journal of the International GeoGebra Institute of São Paulo (IGISP), ISSN 2237-9657, published biannually, is an electronic publication of the GeoGebra Institute of São Paulo, based at the Faculty of Exact Sciences and Technology and the Graduate Program in Mathematics Education at the Pontifical Catholic University of São Paulo (PUC-SP), Brazil, with CAPES Qualis rating A2.

Open access, it aims at providing a space for the dissemination and circulation of research and works developed with the use of GeoGebra software, mainly in Latin America.

This second issue of volume 14 of the 2025 journal presents eight articles and three action proposals that seek to encompass the different possibilities and paths through which GeoGebra can be investigated.

In the first article, “*Interactive Simulation with GeoGebra for Damped Systems with Base Excitation*” author Eliane Pereira addresses the modeling, analysis, and simulation of a damped system with base excitation, using the Lagrangian formalism to derive the equations of motion.

The second article, “*GeoGebra as a semiotic resource in the parametrization of solids and volume calculation with double integrals*” by authors Marco Antonio Ayala Chauvin, Richard Leonardo Luna Romero, Felix Gabriel Ordoñez Sanchez and Jennifer Valeria Quezada Guajala investigate the use of GeoGebra as a semiotic resource to improve the understanding of complex mathematical concepts, specifically the parameterization of solids and the calculation of volumes by means of double integrals.

“*The geometric interpretation of the derivative with the use of GeoGebra applied to a problem in the Star Wars universe*” is the third article by authors Alex Sandro Gomes Leão, Alisson Darós, Patricia Yukari Sato Rampazo and Ronaldo Silva De Oliveira presents a proposal for a problem situation focusing on teaching Derivatives from the perspective of Differential and Integral Calculus, using

concepts of natural logarithm, equation of a straight line and limits, with the support of software GeoGebra

Andrey Nario de Souza Oliveira e Francisco de Paula Santos de Araujo Junior authors of the fourth article *“The Use of GeoGebra Software from the Perspective of Initial Teacher Education: A Systematic Review on the Teaching of Spatial Geometry”* aim to present one study, part of a broader undergraduate research project investigating the use of GeoGebra software in pre-service mathematics teacher education to the preparation with a focus on teaching spatial geometry.

In the fifth article, *“Inventive appropriation of GeoGebra: mathematical activity in the interaction between teachers and a dynamic environment”* authors Tiago Vencato Martins, Bruno Tumelero Fetter, Robson Da Silva Hessler, Márcia Rodrigues Notare and Marcus Vinicius De Azevedo Basso investigate how the inventive use of GeoGebra can alter mathematical activity, based on the analysis of the resolution of a geometric problem from the 19th Brazilian Public School Mathematics Olympiad (OBMEP) by mathematics teachers

In the sixth article, *“Combinatorial Analysis Exercises using GeoGebra: contributions to learning”* authors Enaldo Vieira de Melo, Diogo Meurer de Souza Castro and Luis Paulo Leopoldo Mercado analyze the contributions of activities developed with the GeoGebra software to the learning of Combinatorial Analysis, through a qualitative study involving 10 2nd year high school students from the public school system in Maceió, Alagoas.

“GeoGebra Classroom: Contributions to Collaborative Learning of Dynamic Geometry” by authors Márcia Rodrigues Notare and Renata Cezar Pinto, is the seventh article. They present excerpts from broader research carried out as part of a doctoral thesis and explore the use of GeoGebra Classroom as a powerful tool for collaborative learning of dynamic geometry.

In the eighth article, *“Pursuit Curve: Presenting the Classical Problem Using GeoGebra”* authors Victor Coelho, José Antônio Pires Ferreira Marão and Raibel de Jesus Arias Cantillot aim to present the problem of the pursuit curve, commonly presented, modeled, and solved in Differential and Integral Calculus classroom, will be illustrated throughout this paper with the assistance of GeoGebra software.

In the first work of the "Action Proposals" section, "*Derivatives and Approximations: the case of the function $f(x) = e^x$ and the affine approximation $\ell(x) = x + 1$* " authors Humberto José Bortolossi e Luciana Prado Mouta Pena explore, from a numerical/graphical perspective in GeoGebra, the use of the affine function $\ell(x) = x + 1$ to approximate the function $f(x) = e^x$ including values of x that are not so close to $p=0$.

Luccas Vinicius da Silva Araujo, Osmar do Nascimento Souza e Wellington Piveta de Oliveira are the authors of the second work "*A proposal involving the area calculation of under curves using GeoGebra for High School*" and propose an approach to teaching the calculation of areas under curves in high school, without directly resorting to Riemann integration theory.

The third proposal, "*Construction of the Concept of Double Integral Using GeoGebra Software*" the author Gustavo Pereira Gomes presents two constructions in GeoGebra aimed at supporting the understanding of the concept of the double integral over rectangular regions. The constructions graphically illustrate the formal definition of the integral through the double Riemann sum, providing a visual and exploratory experience of the volume of solids bounded by surfaces in three dimensions.

The works presented here highlight the possibility of interdisciplinarity and transdisciplinarity in the context of Mathematics Education.

We express our thanks to all who contributed to the realization of this volume of the journal and to the academic production of Mathematics Education.

Celina A. A. P. Abar – Editor

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