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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 first issue of volume 14 of the 2025 journal presents ten articles and five action proposals that seek to encompass the different possibilities and paths through which GeoGebra can be investigated.

In the first article, *"Investigating perimeters and areas of rectangles constructed from the kite in GeoGebra"*, author José António Fernandes studies the definition and construction of the kite quadrilateral, investigating the relationships between its perimeter and area with rectangles constructed from points resulting from the division of the kite's sides into equal parts.

The second article, "*Didactic Engineering for the development of a didactic situation in teaching the Frenet Trihedron using GeoGebra software*" by authors Ana Carla Pimentel Paiva, Francisco Régis Vieira Alves and Helena Maria De Barros Campos, aims to integrate new technologies into higher education mathematics teaching, using the dynamic software GeoGebra to study the Frenet Trihedron and facilitate the understanding of the abstract mathematical concepts present in this topic.

"An evaluation of the limits and possibilities of the licentiate students of the Mathematics course at FECLESC, in the use of the GeoGebra tool" is the third article by authors Filipe Buriti Inácio, Mariana Sousa Sabino, and João Luzeilton de Oliveira, who assess the limits and possibilities of students in a Mathematics Teaching degree program at a public university in the interior of Ceará, Brazil, scholarship holders of PIBID/Mathematics, regarding the use of GeoGebra.

Daniel Cordeiro de Morais Filho, Idalice Maria Santiago Oliveira, and Carmen Vieira Mathias, authors of the fourth article *"Geometrization of the Pythagorean Theorem and its generalization as Polya's Theorem"*, aim to present a demonstration of the Pythagorean Theorem using areas of similar figures and present an interactive demonstration and constructions of Polya's Theorem, one of the generalizations of the Pythagorean Theorem, using GeoGebra software.

In the fifth article, *"Unveiling the Fibonacci, Lucas, and Gibonacci sequences in GeoGebra"*, authors Patrícia Massae Kitani, Adriano Verdério, Luciana da Fonseca Cruz, and Mari Sano explore the Fibonacci, Lucas, and Gibonacci sequences with geometric representations of some identities related to the sequences through GeoGebra software and analyze Cassini's paradox, highlighting the geometric approach for a broad and dynamic exploration, facilitating the identification of patterns and generalizations.

In the sixth article, *"Potentials, realities and perspectives of using the GeoGebra in*

Degree and Bachelor's Degree courses in Mathematics: the case of UFOP" authors Cyndi Menezes Pimentel, Frederico da Silva Reis, and Eder Marinho Martins present a research investigating the potentialities, realities, and perspectives of using GeoGebra software in the initial training of teachers and bachelors in Mathematics, mapping related research, analyzing the Pedagogical Course Project (PPC), and conducting interviews with coordinators and professors from the Teaching and Bachelor of Mathematics courses at the Federal University of Ouro Preto (UFOP).

"A proposal to explore geometry with GeoGebra: graphical exploration and formal demonstration of the collinearity of barycenters of a polygon" by authors Saulo Mosquera López, Marlio Paredes, and Walter Castro is the seventh article. They present an example of a mathematical activity that teachers and students can replicate to generate an experience similar to professional mathematical activity, with corresponding results for an n-sided polygon generalized and demonstrated.

In the eighth article, *"Analysis and evaluation of an educational product for teaching linear correlation and simple linear regression with GeoGebra through mediational suitability"*, authors José Ronaldo Alves Araújo and Douglas da Silva Tinti, focusing on the training of teachers who teach Probability and Statistics, develop the research aiming to analyze and evaluate the mediational suitability of an educational product proposed for teaching linear correlation and simple linear regression using GeoGebra.

Iasmim Henrique Dias and Liamara Scortegagna are the authors of the ninth article *"GeoGebrando in the world of Quadratic Functions: Gamified Digital Educational Resource in GeoGebra"* and present the development and application of a gamified Digital Educational Resource (DER) in GeoGebra for teaching quadratic functions. The qualitative research followed three phases: development based on the Methodology for Learning Objects (MOA), testing with Design Experiment, and analysis with the Semantic Fields Model (SFM).

The tenth article, *"Analysis of productions on real functions in an online GeoGebra course: articulations with the BNCC using MaxQda"* by authors Joilson Ferreira de Carvalho, William Vieira Gonçalves, and Diego Piasson aims to identify and analyze, based on the modules on functions in editions 14, 15, and 16 of an online GeoGebra course, the productions of participants about functions with one real variable that can be articulated with the related skills of the Brazilian National Common Curricular Base (BNCC) for High School.

In the first work of the "Action Proposals" section, *"Duplicating the cube with GeoGebra"*, authors Olga Harumi Saito, Katiane Souza de Oliveira, and Rudimar Luiz Nós present dynamic experiences addressing the two strategies proposed by the Greek mathematician Menaechmus to duplicate the cube through conic sections, establishing a relationship between Analytical Geometry and the History of Mathematics.

Josenildo Ferreira Galdino, Elivanio Carneiro do Nascimento Junior, and Otavio Floriano Paulino are the authors of the second work *"Pythagorean Theorem: President Garfield's Proof with GeoGebra"* and address the Pythagorean Theorem, focusing on the demonstration made by President Garfield, presenting this proof using Information and Communication Technologies, specifically GeoGebra.

The third proposal, *"The Sierpinski Triangle fractal in GeoGebra and the iteration command"* by author Ion Moutinho, aims to obtain, through exploratory research, a construction that represents the Sierpinski Triangle fractal without repeating commands using the Iteration() command in GeoGebra.

Humberto José Bortolossi and Luciana Prado Mouta Pena are the authors of the fourth proposal *"A Simple Morphing Animation Technique in GeoGebra using Convex Linear Combinations"*, in which they present, through some examples, how the concept of convex linear combination constitutes a simple and powerful technique for generating morphing-type animations, where objects gradually transform from one configuration to another.

In the fifth proposal, "*Exploring the use of GeoGebra's CAS view to determine repeating decimal periods in mathematics education*", author Marcio Vieira de Almeida explores the use of the GeoGebra CAS Window to determine the period length of a repeating decimal, presenting the mathematical concepts involved in determining the period of infinite and periodic rational numbers and highlighting commands from the GeoGebra CAS Window.

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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