Marco Julio Cañas Campillo

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Objective:

To leverage my expertise in mathematics and physics education, along with my research experience in mathematics didactics and data science education, to foster scientific communication, computational thinking, and open science policies among students and the wider academic community.

Education:

- Master of Science in Mathematical Sciences, Universidad Nacional de Colombia, 2014

- Bachelor of Science in Mathematics and Physics, Universidad de Antioquia, 2010.

Experience:

- 2024 - Present: Full-time Occasinonal professor, Universidad de Antioquia, Caucasia - Colombia

- Conduct lectures and seminars in mathematics and physics courses for undergraduate students.

- Lead research projects on mathematics didactics and data science education with Python.

Experience as Researcher:

Title: Conjugating Algebraic, Geometric, and Tabular Perspectives for Proportionality Learning: A Multi-Disciplinary Approach

Good morning esteemed colleagues,

I am honored to present my research findings at this esteemed international conference. Today, I will delve into the necessity and efficacy of conjugating algebraic, geometric, and tabular perspectives for the comprehension and mastery of the mathematical concept of proportionality, particularly at the university level.

Proportionality stands as a foundational concept across various disciplines, serving as a fundamental pillar in mathematical, scientific, and even socio-economic analyses. However, the diverse ways in which proportionality manifests itself often pose significant challenges to students' understanding, necessitating a multi-faceted approach to instruction.

Through extensive research and pedagogical experimentation, our team has identified the potency of integrating algebraic, geometric, and tabular representations in proportionality education. By synthesizing these perspectives, we aim to provide students with a comprehensive framework that caters to diverse learning styles and fosters a deeper conceptual understanding.

Our approach capitalizes on the synergistic relationship between these perspectives, leveraging their unique strengths to elucidate the intricacies of proportionality. Algebraic representations offer precision and abstraction, allowing students to manipulate equations and symbols to discern patterns and relationships. Geometric representations, on the other hand, provide intuitive visualizations that facilitate geometric reasoning and spatial understanding. Finally, tabular representations offer a structured format for organizing data, enabling students to discern trends and make connections between variables.

To demonstrate the efficacy of our approach, we conducted extensive classroom interventions and assessments across various university-level courses. Our findings indicate significant improvements in students' comprehension and retention of proportionality concepts following exposure to our integrated instructional framework. Moreover, qualitative feedback from both students and instructors attests to the enhanced clarity and coherence afforded by our multi-disciplinary approach.

In conclusion, our research underscores the importance of adopting a holistic and multi-dimensional approach to proportionality education. By conjugating algebraic, geometric, and tabular perspectives, we empower students to navigate the complexities of proportionality with confidence and fluency, thereby laying a solid foundation for their continued academic and professional endeavors.

Thank you for your attention, and I look forward to any questions or discussions regarding our research findings.

- 2008 - 2024: Lecturer, Universidad de Antioquia, Caucasia, Colombia

- Taught various courses in mathematics and physics to undergraduate students.

- Developed course materials and assessments to enhance student learning.

- Conducted research on effective teaching strategies and pedagogical innovations in STEM education.

Skills:

- Proficient in Python programming for data analysis and scientific computing.

- Experienced in curriculum development and instructional design.

- Strong research background in mathematics education and data science.

- Excellent communication and interpersonal skills.

- Familiarity with UNESCO guidelines for promoting open science and scientific communication.

Publications:

- <https://scienti.minciencias.gov.co/cvlac/visualizador/generarCurriculoCv.do?cod_rh=0001500487>

References:

Available upon request.

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