

## Editorial of the Fall Issue TR 61, Vol 17 No 5

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The current issue includes articles employing various study methods: six qualitative, three quantitative, and four mixed-method studies from Australia, Bangladesh, Indonesia, Kazakhstan, the Philippines, the Slovak Republic, and the USA. The articles in this issue explore mathematics education across a range of educational levels, including primary, middle, high school, and university. In detail, four articles concentrate on primary school mathematics, three investigate middle school mathematics, five address key topics in high school mathematics, and one focuses on university-level mathematics education. This distribution demonstrates a broad and balanced coverage of the educational continuum, offering valuable research contributions that are relevant to both educators and researchers working within these critical stages of

mathematical development.

The article by **Viona Adelia, Ratu Ilma Indra Putri, and Zulkardi** examines grade 4 students' conceptual understanding of fractions through the use of appropriate learning materials. It emphasizes that (1) mastering the part-whole subconstruct requires progressively building on students' existing fraction knowledge across its essential elements, and (2) engaging with incomplete fraction scenarios enables students to deepen their grasp of valid fractional representations. These findings provide important guidance for enhancing teaching strategies related to the part-whole concept and overcoming related learning difficulties.

*Exploring the Part-Whole Subconstruct in Fractions Learning: Insights from A Design Research Study* by **Viona Adelia, Ratu Ilma Indra Putri, and Zulkardi**, (Indonesia) .....Page 5

The teaching approach presented in the article by **I Putu Ade Andre Payadnya, Kadek Rahayu Puspadewi, and Gde Iwan Setiawan** led to significant improvements in primary students'

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problem-solving abilities, critical thinking, and creative reasoning within geometry concepts. Additionally, another study by **Wahyu Purwaningsih, Sugiman Sugiman, and Haryanto Haryanto** explores the cognitive processes involved in problem-solving at the primary education level.

*Transforming Geometry Learning with An Interactive E-Module Integrating Ethno-Realistic Mathematics Education: A Design-Based Approach to Enhancing Numeracy Skills* by **I Putu Ade Andre Payadnya, Kadek Rahayu Puspadewi, and Gde Iwan Setiawan**, (Indonesia).....Page 24

*Exploration of Primary School Students' Metacognitive Thinking Processes in Solving Problems* by **Wahyu Purwaningsih, Sugiman Sugiman, and Haryanto Haryanto**, (Indonesia) ...  
.....Page 52

Enhancing both content knowledge (CK) and pedagogical content knowledge (PCK) among teachers is essential for effective teaching. An article by **Murni Sianturi and Dessy Rizki Suryani**, involving a large participant group, focuses on improving primary teachers' mathematical content knowledge through in-service training programs. Similarly, a study by **Yeni Rakhmawati, Heri Retnawati, Yoppy Wahyu Purnomo, Uzak K. Zhapbasbayev, and Gulzhaina K. Kassymova** addresses the improvement of teaching quality among primary educators by developing their pedagogical content knowledge in mathematics.

*The Knowledge of Indigenous West Papuan Pre-service Teachers about Primary School Mathematical Contents: Strengths and Weaknesses* by **Murni Sianturi, and Dessy Rizki Suryani**, (Australia, Indonesia) ..... Page 85

*Mathematics Teaching Strategies: A Reflection on Pedagogical Content Knowledge (PCK) for Improving Teaching Quality* by **Yeni Rakhmawati, Heri Retnawati, Yoppy Wahyu Purnomo, Uzak K. Zhapbasbayev, and Gulzhaina K. Kassymova**, (Indonesia, Kazakhstan) .....Page 104

Among the three articles on middle school mathematics education, one study by **Laela Sagita, Ratu Ilma Indra Putri, Zulkardi, and Rully Charitas Indra Prahmana** highlights a financial literacy learning environment model as a professional development program. This study emphasizes enhancing teachers' abilities to design math lessons that integrate financial literacy tailored to students' needs. Another article by **Valeria Suryani Kurnila, Dwi Juniati, and Agung Lukito** explores enhancing communication and connection skills through differentiated instruction and Writing to Learn strategies in a bilingual context, presenting innovative approaches to math teaching. The third article, by **Amihan M. Ulpindo and Rommel S. De Gracia**, is a comparative study on Process-Oriented Guided Inquiry Learning (POGIL) aimed at improving students' problem-solving abilities and higher-order thinking skills.

*Bridging mathematics and financial literacy through flipped classroom* by **Laela Sagita, Ratu Ilma Indra Putri, Zulkardi, and Rully Charitas Indra Prahmana**, (Indonesia) .....Page 128

*Enhancing Communication and Connection Abilities through Differentiated Instruction and Writing to Learn in a Bilingual Context* by **Valeria Suryani Kurnila, Dwi Juniati, Agung Lukito**, (Indonesia) .....Page 156

*Proficiency Level of Grade 9 Students on Quadratic Functions Through Process-Oriented Guided Inquiry Learning (POGIL)* by **Amihan M. Ulpindo, and Rommel S. De Gracia**, (Philippines).....Page 197

Among the four featured articles on high school mathematics education, four emphasize teaching mathematics by connecting concepts to real-world contexts. These studies highlight how this approach not only helps students appreciate the value of mathematics but also equips them with practical skills to apply mathematical reasoning in solving real-life problems. One notable article by **Wulan Resti Oktaviani, Darhim, Nurjanah, Kusnandi, and Suparman** focuses specifically on teaching geometry using GeoGebra software. This technology-based method facilitates students' understanding of three-dimensional mathematical problems more effectively than traditional teaching approaches, enhancing their spatial visualization and engagement.

*Cultural Relevance in Mathematics Education Using Indigenous Patterns for Teaching Algebra* by **Joseph B. Tandas, and Ryan L. Cerveza**, (Philippines) .....Page 237

*A Realistic Approach to Solving Math Problems: A Case from "Stand and Deliver"* by **Jakub Lipták**, (Slovak Republic) .....Page 262

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*Information and Communication Technology to Enhance Students' Conceptual Understanding and Reasoning Skills in Mathematics: A Case from Bangladesh* by **Tamanna Sultana, (Bangladesh)** .....Page 282

*The Effect of GeoGebra-Assisted Discovery Learning Considering Emotional Stability on the Achievement of Mathematical Reasoning* by **Wulan Resti Oktaviani, Darhim, Nurjanah, Kusnandi, Suparman, (Indonesia)** .....Page 307

The notable study conducted by **Abraham Ayebo** thoroughly examines the attitudes of undergraduate health science students toward statistics, both prior to and following the completion of an introductory statistics course. This research provides valuable insights into how students initially perceive statistics and how their perspectives evolve as a result of formal instruction in the subject. The findings hold significant relevance for educators, highlighting the critical need to design statistics courses that not only enhance students' technical competence and understanding but also actively foster more positive attitudes and greater confidence toward learning statistics.

*Examining the Attitudes of Students Before and After a Course in Introductory Statistics* by **Abraham Ayebo, (USA)** .....Page 334

*No edition would feel whole without the ever-engaging Problem Corner; thoughtfully curated by our dedicated Problem Corner editor, Dr. Ivan Retamoso, (USA)* ..... Page 355