ISSN: 1306-3030

# INTERNATIONAL ELECTRONIC JOURNAL OF MATHEMATICS EDUCATION



Published by: Modestum

 $Publication\ Office:\ Modestum\ LTD,\ 29\ Gildredge\ Road,\ Eastbourne,\ East\ Sussex,\ BN21\ 4RU,$ 

United Kingdom

Serbia Office: Modestum DOO, Bulevar Zorana Đinđića 125D, sprat 1, stan 12C, 11070

Belgrade, SERBIA

Phone: +381 61 6600107

Email: publications@modestum.co.uk

Publisher: https://modestum.co.uk

Journal Web: https://www.iejme.com

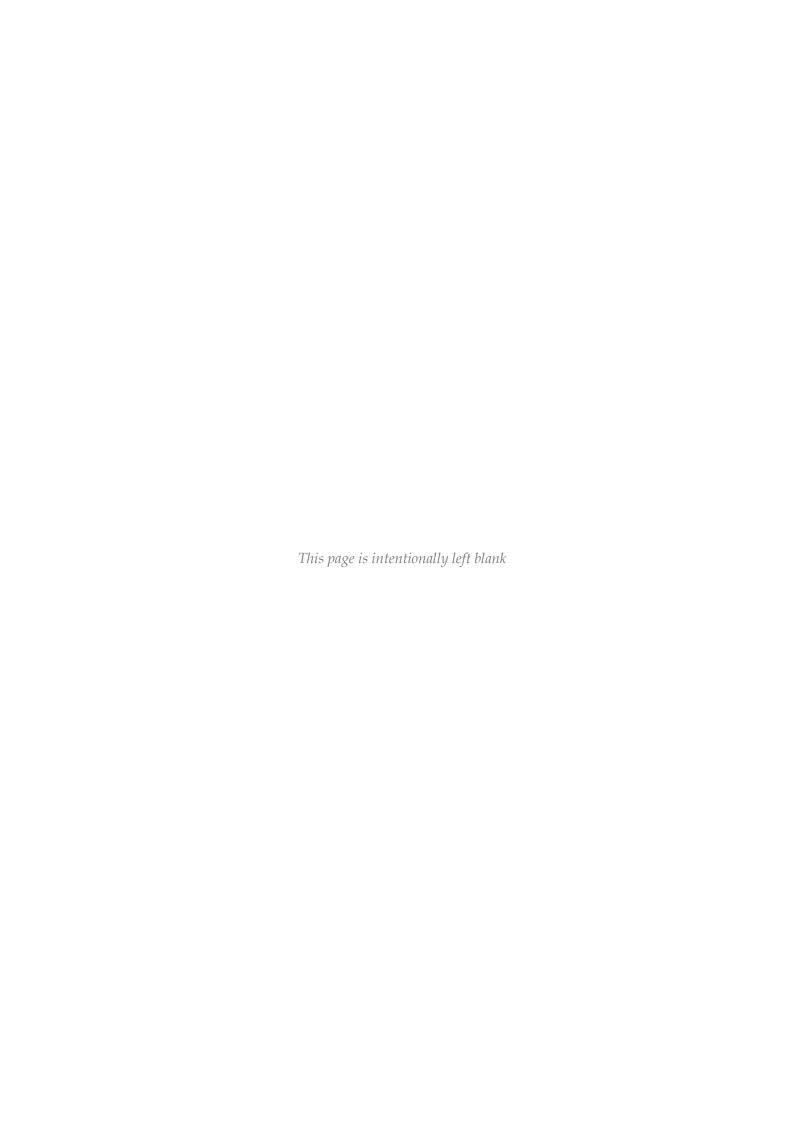
© 2006-2025. All rights reserved by Modestum. Copyright for Open Access Content is Retained by Authors. Also, authors continue to hold the copyrights of their own papers by acknowledging that their papers are originally published in the International Electronic Journal of Mathematics Education. Hence, articles published are licensed under a "Creative Commons Attribution 4.0 International License."

ISSN: 1306-3030 (Online)

## INTERNATIONAL ELECTRONIC JOURNAL OF MATHEMATICS EDUCATION

May 2025 Volume 20 Issue 2





### INTERNATIONAL ELECTRONIC JOURNAL OF MATHEMATICS EDUCATION

**International Electronic Journal of Mathematics Education** (IEJME) is a peer-reviewed, online, open access, academic journal devoted to disseminate new research and theory in the field of mathematics education.

IEJME is published four times a year, in February, May, August and November.

IEJME aims to stimulate discussions at all levels of mathematics education through disseminating significant and innovative scholarly studies that are of value to the international research communities. The journal welcomes articles focusing on all aspects of mathematics education including empirical, theoretical, methodological, and philosophical works that have a perspective wider than local or national interest.

IEJME publishes only original scholarly works. Manuscripts that are indeed a derivative or replication /duplication (if there is not clear reason, justification) of previous work are not accepted and will not be published in IEJME. Please do not submit the same manuscript simultaneously or separately to IEJME with another journal. In such cases the responsibility solely rests with the author(s).

#### **Peer Review Policy**

#### **Procedure**

The journal operates a double-blind peer-review procedure. To ensure this, authors should anonymize elements within the manuscripts that can reveal their identities, such as authors' names, institutional affiliations, contact information, and references to authors' own works.

Peer review is a critical assessment procedure for maintaining a high standard of intellectual work. The process is designed to provide constructive critical evaluation to submissions to ensure that work achieves high academic standards. Review reports assist editors in determining the eligibility of a manuscript for publication. Manuscripts that pass the initial screening of the editors are sent out for external expert evaluation by two or more reviewers. Editors may decide to seek assistance from additional editors or reviewers before reaching a final decision.

Peer-review reports should provide valuable information and suggestions to authors on how to improve article quality so that readers can benefit more from the article. Review reports should be presented in a professional manner and constructive manner. Not only criticism of the content, but also positive aspects of the work should be included. To this end, we advise the reviewers to include answers to the following items in their evaluation reports: a) summary of the contributions of the work to the literature, its potential impact and intended audience; b) strengths and weaknesses of the work, assessment of whether objectives of the study were achieved and whether the evidence presented supports the conclusions; c) recommendations to authors regarding methodology, findings and discussions, references, language and presentation, etc., along with suggested corrections; d) recommendations to editors on whether to request additional minor/major revisions or whether to reject the article or whether to accept the article as is, and the basis for these recommendations.

Review process is expected to be completed within 6-9 months after submission. In some cases, longer times may be unavoidable depending on feedback from reviewers, author response times to revisions, and the number of revisions.

#### **Competing interests**

If reviewers realize a competing interest that might influence the review report, they should immediately alert the editors and refrain from continuing the review. Competing interests occur when a professional decision might be affected by another interest, such as a monetary connection, an intellectual trust, or an individual relationship or competition. To maintain high levels of objectivity and credibility, we ask the reviewers to disclose any possible competing interests.

#### Confidentiality

Submission content, including its abstract, ideas, and research data, should be treated as privileged information by reviewers and editors, and should not be shared with any third parties or used personally. As part of the double-blind peer-review process, authors and reviewers should be cautious not to reveal their identities.

#### **Timeliness**

We request that reviewers deliver review reports on time to ensure a good publication experience for everyone. If reviewers fail to meet the review deadline, they should notify the editorial office and request an extension as soon as possible.

#### **Editorial Policy**

Authors must ensure that the submission is free of linguistic errors and conforms to the journal's requirements for manuscript preparation. Manuscripts that are not written in compliance with author guidelines or do not demonstrate a proficient use of the English language will not be eligible for full external peer-review process and for publication.

Non-native speakers of English are advised to employ language editing services to have their manuscripts examined and edited by native language professionals for grammar, content clarity, formatting, punctuation, and spelling before submission.

The authors confirm that the submission is appropriate for the journal's scope, has not been published before, even partially, and is not being considered for publication elsewhere, is prepared in conformity with the journal's publishing ethics, is approved by all co-authors, corresponding author is authorized to handle any communication regarding the manuscript on other co-authors' behalf, complies with the journal's author guidelines regarding stylistic, bibliographic, and linguistic standards.

Incoming submissions undergo an **initial screening** by the editors before they are sent out for peer review. At this point, editors can send the article back to the authors for adjustments or reject it without further evaluation. Editors may appoint additional reviewers, request minor or major revisions from authors, or commit a final decision about manuscript at any point during peer review. The submission portal assigns each manuscript a unique manuscript ID,

and this identification number should be provided in any communication with the editorial or support personnel.

The journal accepts the submission of research articles, review articles, book reviews, and interviews.

#### **Indexing and Abstracting**

IEJME is indexed and abstracted by:

- Emerging Source Citation Index (Web of Science)
- SCOPUS
- EBSCO Education Source Complete
- ERIC
- ERIH PLUS
- Cabell's Directory Index
- Genamics JournalSeek
- Index Copernicus
- ProQuest
- Mathematics Education/Didactics Database
- The Mathematics Information Service (fidmath)
- Mathedjournals
- Mathguide
- NCM
- OCLC WorldCat
- EdNA Online Database
- ResearchGate
- ROAD
- Journal Citation Reports (JCR)
- SCImago Journal & Country Rank
- Crossref
- Google Scholar

All articles are archived by:

- The British Library
- Portico

Authors should submit their manuscripts online via <a href="https://www.editorialpark.com/iejme">https://www.editorialpark.com/iejme</a>. Manuscripts are accepted only in Word format.

#### EDITORIAL BOARD

#### **Editors**

#### Prof. Dr. Melanie Platz

Chair of Didactics of Primary Education – Mathematics Faculty of Mathematics and Computer Science, Saarland University, Saarbrücken, GERMANY

E: platz@math.uni-sb.de

W: https://www.melanie-platz.com/

#### **Associate Editors**

#### Dr. Scott A. Courtney

Associate Professor, Mathematics Education College of Education, Health, and Human Services, Kent State University, USA E: scourtn5@kent.edu

#### Dr. Zara Ersozlu

School of Education, College of Human and Social Futures, The University of Newcastle, AUSTRALIA

T: +61 02 4055 0753

E: zara.ersozlu@newcastle.edu.au

#### **Book Review Editor**

#### Yujin Lee

Indiana University-Purdue University Indianapolis, USA E: yl146@iu.edu

#### **Editorial Board Members**

#### Abdul Halim Abdullah, Universiti Teknologi Malaysia, Malaysia

Research Areas/Interest: Technology in mathematics education, Problem solving in mathematics education, Mathematical/ geometrical thinking skills, Current issues in mathematics education

W: http://people.utm.my/halim/ R: http://www.researcherid.com/rid/I-2326-2017 ORCID: http://orcid.org/0000-0002-7966-9334

#### Ali Bicer, University of Wyoming, USA

Research Areas/Interest: STEM education, STEM schools, Informal STEM learning W: http://www.uwyo.edu/ste/faculty-staff/ali-bicer.html

Arturo García-Santillán, Universidad Cristóbal Colón, Mexico

E: agarcias@ucc.mx

Bárbara Palharini, Northern Paraná State University, Brazil

Belén Giacomone, Granada University, Spain

Carmen Batanero, Universidad de Granada, Spain

Francisco Regis Vieira Alves, Federal Institute of Science and Technology of Ceara, Brazil

E: fregis@ifce.edu.br & fregis@gmx.fr

Hamide Dogan-Dunlap, The University of Texas at El Paso, USA

Iran Abreu Mendes, Universidade Federal do Pará, Brazil

Ivanildo Carvalho, Universidade Federal de Pernambuco, Brazil

Jogymol K. Alex, Walter Sisulu University, South Africa

Karen Junqueira, University of the Free State, South Africa

Leong Kwan Eu, University of Malaya, Malaysia

T: +603-79675196 F: +603-79675010 E: rkleong@um.edu.my

Lyn English, Queensland University of Technology, Australia

Man-Fung Lo, The University of Hong Kong, Hong Kong

Marcos Formigosa, Universidade Federal do Pará, Brazil

Mashau Nkhangweni Lawrence, Tshwane University of Technology, South Africa

Merlin John, Walter Sisulu University, South Africa

Miftachul Huda, Universiti Teknologi Malaysia (UTM), Malaysia

Mildred A. Sebastian, Cavite State University, Philippines

Mourat A. Tchoshanov, The University of Texas at El Paso, USA

ORCID: http://orcid.org/0000-0002-2852-4311 Scopus ID: 6507539390 E: mouratt@utep.edu

Patricia Patrick, Texas Tech University, USA

Peter Van Petegem, University of Antwerp, Belgium

Rachel A. Ayieko, Duquesne University, USA

Raiva Vladimir, Universidade Federal do Pará, Brazil

Roldan C. Bangalan, St. Paul University Philippines, Philippines

Souza Leandro, Universidade Federal de Uberlândia, Brazil

Thomas E Ricks, Lousiana State University, USA

Victor Oxman, Western Galilee College, Israel

Zarith Sofiah Binti Othman, Universiti Teknologi MARA (UiTM), Malaysia

#### **Editorial Assistant**

Aleksandra Piljak, MSc, Modestum DOO, Serbia

E: aleksandra.piljak@modestum.org

#### **CONTENTS**

Exploring demographic influences on digital technology integration in Chinese primary mathematics education	em0810
Mao Li, Colleen Vale, Hazel Tan, Jo Blannin	
https://doi.org/10.29333/iejme/15814	
Difficulties in instructing mathematical modeling: Case study in Malaysia	em0811
Riyan Hidayat, Ahmad Fauzi Mohd Ayub, Harris Shah Abd Hamid, Nurihan Nasir	
https://doi.org/10.29333/iejme/15815	
Development and validation of learning objects aimed at mathematical instructions based on computational thinking	em0812
Jeanne Dobgenski, Maria Elisabette Brisola Brito Prado, Angélica da Fontoura Garcia Silva	
https://doi.org/10.29333/iejme/15816	
Self-regulation of primary school teachers in initial training when solving mathematical problems in cooperative learning contexts	em0813
Josune Landa, Ainhoa Berciano, José M. Marbán	
https://doi.org/10.29333/iejme/15817	
A praxeological analysis of functions in lower secondary school: Comparing the textbooks in Japan and Indonesia	em0814
Nadya Syifa Utami, Tatsuya Mizoguchi, Sufyani Prabawanto, Didi Suryadi	
https://doi.org/10.29333/iejme/15818	
Decimal multiplication and division in mathematics textbooks for prospective elementary teachers	em0815
Jia He https://doi.org/10.29333/iejme/15898	
How to enable teachers to enhance all students' understanding of	em0816
percentages? A quasi-experimental field trial Susanne Prediger, Jan Kuhl, Sarah Schulze, Claudia Wittich, Imke Pulz, Claudia Ademmer, Christian Büscher	
https://doi.org/10.29333/iejme/15899	
Unlocking mathematics success: Global lessons on student achievement, teacher satisfaction, and school environments $Yi Wu$	em0817
https://doi.org/10.29333/iejme/15900	
Challenges to learning mathematical concepts among sixth-grade students in	em0818
primary education: A teachers' perspective	£1110010
Youssef Abuhasanein, Abdessatar Rejeb, Khaled Jemai	
https://doi.org/10.29333/iejme/15918	

Validating a context-specific TPACK scale for primary mathematics education in China	em0819
Mao Li, Muhamad Gina Nugraha	
https://doi.org/10.29333/iejme/15934	
Scoping the landscape: Comparative review of collaborative learning methods in mathematical problem-solving pedagogy	em0820
Nurfirzanah Muhamad Fadzil, Sharifah Osman	
https://doi.org/10.29333/iejme/15935	
A matrix-based analysis of pedagogical efficacy compared to traditional instructional approaches integrating GeoGebra in mathematics education	em0821
Vesa Mollakuqe, Elissa Mollakuqe	
https://doi.org/10.29333/iejme/15936	
Use of parameters in equations and systems of linear equations: A proposal to boost variational thinking	em0822
Luis E. Hernández-Zavala, Claudia Acuña-Soto, Vicente Liern	
https://doi.org/10.29333/iejme/16005	
Current practices and future direction of artificial intelligence in mathematics education: A systematic review	em0823
Liz A. Awang, Farrah D. Yusop, Mahmoud Danaee	
https://doi.org/10.29333/iejme/16006	
The advantage of using GeoGebra in the understanding of vectors and comparison with the classical method	em0824
Erëmirë R. Aliu, Teuta Jusufi Zenku, Egzona Iseni, Shpetim Rexhepi	
https://doi.org/10.29333/iejme/16007	
The use of ChatGPT in addressing Algebra anxiety and promoting confidence	em0825
Jonathan Olores Etcuban	
https://doi.org/10.29333/iejme/16008	