Introducing a new journal: Asian Journal for Mathematics Education

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It gives me great pleasure to write this introductory editorial firstly to introduce readers to the Asian Journal for Mathematics Education (AJME), a new journal that is dedicated to the advancement of mathematics education research, theory, and practice in Asia and more generally the world, secondly to present the inaugural issue of AJME, and finally to express my gratitude to all who have helped for the establishment of the journal and the publication of the inaugural issue.

1. Features of the Asian Journal for Mathematics Education

The last three decades or so have witnessed a slow but steady growth in the number of research journals entirely or partly in the field of mathematics education, which I think is a highly positive indicator for the development of mathematics education as a research discipline. The publication of this new journal, AJME, brings a new momentum to this growth. Some unique features of AJME are that it, as indicated by its title, is based in Asia and has a particular focus on publishing research articles in mathematics education that have specific relevance for Asia or general significance for the world; besides, thanks to a joint effort by East China Normal University (ECNU) and Sage, AJME is published as an open-access journal with no article processing charge for authors. It is hoped this policy will benefit and encourage more researchers internationally to share their valuable work in mathematics education research through AJME with readers in different parts of the world.

From its very beginning, AJME is positioned as an international peer-reviewed journal in English. The journal is open to research work addressing all related issues of significance in a comprehensive range of areas in mathematics education including, but not limited to, the following:

- mathematics teaching and learning,
- mathematics curriculum and textbook research,
- mathematics teacher education and professional development,
- international and comparative studies related to mathematics education,
- use of modern communication and information technology (including artificial intelligence, or AI) in mathematics education, and
- cross-disciplinary research involving mathematics education (e.g., STEM education with mathematics as one of the subjects).

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AJME strives to provide an open, free and efficient platform for all authors to publish methodologically sound empirical studies in the form of original research papers, as well as high-quality scholarly articles including research commentaries and literature review papers that are of significant value to the development of mathematics education in Asia and generally the world. In this connection, the journal particularly encourages submissions from authors in Asia, but equally welcomes submissions from authors in other regions of the world.

AJME is committed to serving a wide range of readership, including researchers, instructors, teachers, school leaders, policy-makers, and graduate students in the field of mathematics education around the world. Furthermore, we hope that other readers (e.g., parents and the general public) who are interested in Asian mathematics education and more generally international mathematics education will also benefit from reading relevant articles published in the journal.

2. The inaugural issue of AJME

The inaugural issue of AJME contains eight articles, excluding this editorial. They are contributed by 18 authors from 10 countries: Australia, Canada, China, Finland, Germany, Israel, Norway, Sweden, the United Kingdom, and the United States of America. Those articles address various specific issues in different areas of mathematics education including, broadly speaking, Information and Communication Technology (ICT) and school mathematics, pre-university mathematics education, mathematics curriculum policy and textbook research, students’ perceptions of school mathematics, gender issues in mathematics, mathematics error analysis, students’ learning and cognition in mathematics, and value and valuing in mathematics education.

The only research commentary in this issue, entitled “Ergonomic, epistemological and existential challenges of integrating digital tools into school mathematics” (https://doi.org/10.1177/27527263221077314), is authored by Kenneth Ruthven of Cambridge, the UK. In the article, Ruthven analyzes the issues concerning the integration of modern technologies into mathematics teaching and learning using the conceptual framework he proposes, which comprises three dimensions, that is, the ergonomic dimension, the epistemological dimension, and the existential dimension. Using this framework, he further examines the impact of the recent COVID-19 shock on the use of digital tools in mathematics teaching.

Establishing solid philosophical foundations and having sound theoretical frameworks for disciplined inquiry are fundamentally important for the advancement of research in mathematics education and its various areas. AJME will always welcome researchers to publish their own philosophical thinking and theories about mathematics education in the form of research commentary, literature review, and, in exceptional cases, pure philosophical and discussion papers.

Using data from the Kentucky Center for Statistics in the US, Karen S. Heavin and Xin Ma* (https://doi.org/10.1177/27527263221087750) investigate the impact of a large number (more than 14,000) of high school seniors’ participation in dual credit college algebra on postsecondary education outcomes, compared with those who did not participate in any dual credit college algebra course. The study reveals that there are overall positive impacts; in particular, high school seniors of the former group spend statistically significantly less time to earn a postsecondary degree than those of the latter. Noticing that preparing high school graduates for postsecondary education is a worldwide endeavor in education, Heavin and Ma argue that dual credit college algebra can have great potential as an effective strategy for preparing high school students, especially those on the lower end of the academic spectrum, for success in postsecondary education.

The article (https://doi.org/10.1177/27527263221093427) by Adi Eraky, Roza Leikin*, and Bat-Sheva Hadad reports a study conducted in Israel on the relationships between general giftedness, expertise in mathematics, and mathematical creativity associated with pattern generalization multiple solution tasks in different representations. Using data collected from 298 students from two different
higher education academic institutions, the researchers find that giftedness (G) and excellence in mathematics (EM) are different yet related characteristics in terms of their effects on mathematical creativity. While EM appears to be important for students’ solving tasks based on school mathematical knowledge, G appears to be crucial for solving unfamiliar problems that require insight. The article argues that teachers should integrate pattern generalization multiple solution tasks to enhance students’ mathematical expertise and creativity.

The study (https://doi.org/10.1177/27527263221089357) by Lei Rong and Riikka Mononen* examines the types and frequency of errors made in mathematics tasks by seventh-grade students with mathematics learning difficulties (MLD) in Tibet, China. Based on data collected from a sample of 30 students through a specially designed test, the study reveals that the most frequent types of errors made by those students are fact and comprehension errors. In addition, girls appear to be more vulnerable to fact and relevance errors, and those in rural schools make more comprehension errors than those in urban schools. The researchers call for further research on examining errors that students with MLD make in mathematical tasks.

Alexandre Cavalcante* and Huiyu Huang’s article (https://doi.org/10.1177/27527263221091304) presents a study aiming to investigate how mathematics curriculum policies and textbook tasks in China help explain the results obtained by Chinese students in the financial literacy exams in the Program for International Student Assessment (PISA) in 2012 and 2015. By examining Chinese national mathematics curriculum standards and analyzing a total of 25 financial numeracy tasks collected from the six 7th- to 9th-grade mathematics textbooks published by People’s Education Press, they find that despite the lack of attention to mathematics in the Chinese curriculum policies for financial literacy, the textbooks seem to support the performance of students in the PISA by (a) incorporating more mathematically complex content, (b) tackling equivalent financial concepts, (c) providing students enough time to consolidate their understanding, and (d) designing pedagogy that revisits these concepts over the years. They argue that if financial literacy is to be incorporated into mathematics curricula, it should be done with intentionality and in connection to multiple mathematical concepts and processes.

Mona Nosrati and Paul Andrews* report a study (https://doi.org/10.1177/27527263221089044) on Swedish and Norwegian upper secondary school students’ perspectives on the purpose of school mathematics. Drawing on data from 35 group interviews involving 92 students of ages 16 or 17 years, they identify six purposes of school mathematics that support everyday shopping, future employment, the learning of other subjects, logical thinking and problem-solving, appreciation of mathematics, and the management of personal finances, but no students discuss societal goal such as creating just and equitable societies. The authors argue that many of the collectively focused intangible goals of both countries seem not to have permeated the mathematics-related consciousness of those upper secondary students, which clearly indicates a gap between the intended curriculum and the attained curriculum.

The research (https://doi.org/10.1177/27527263221091373) by Gabriele Kaiser* and Yan Zhu takes a more in-depth look at the issues concerning gender differences in Shanghai students’ mathematics achievement through secondary data analysis. Using the PISA 2012 Shanghai-China mathematics data, the study reveals that although there exists no statistically significant difference between the female and male students in the overall scores in the PISA 2012 mathematics test, the two groups of students perform significantly different on some mathematics subscales, that is, two content-related and two process-related subscales, but not in spatial skills that people may expect. The study further analyzes the gender differences from a perspective of three societal factors, that is, one-child status at home, socioeconomic status, and school types via two-level hierarchical linear models. Overall, the results of the study call for further research efforts to differentiate the different socioeconomic and culturally diverse groups within one country/region under a gender perspective.
The final article (https://doi.org/10.1177/27527263221087739) by Wee Tiong Seah*, Yichen Pan, and Juan Zhong, contributes to the understanding of the relationship between two non-cognitive variables, that is, values and beliefs. It investigates the categories of mathematics beliefs that Chinese elementary students in Chengdu possess, and how these beliefs are related to the students’ valuing of engagement and perseverance. Collecting data from 258 third-grade students in a suburban primary school using an open-ended questionnaire survey, the study reveals that the traditional beliefs attract the largest number of students, followed by integral, feeling good, and constructivist beliefs. Moreover, students who value engagement highly are more likely to hold constructivist beliefs, and less likely to hold traditional beliefs, and students who value perseverance highly are also more likely to hold integral beliefs.

It should be said that the purpose of the brief introduction above for each article is for readers to have a glimpse of what is published in this first issue of AJME. Obviously, it is by no means complete, but hopefully, it will inspire readers to read the article itself. I also hope that the readers will find all the articles on this issue not only interesting but also enlightening and thought-provoking.

3. Concluding remarks

There is no doubt that establishing a new journal at any time is not an easy task, and establishing AJME is no exception, and it has been particularly challenging, given the worldwide influence of the COVID-19 pandemic over the last two years. It would not have been possible without many people’s help and support. For this, I would like to take this opportunity to express my sincere gratitude to all the people, including my current and previous university colleagues, distinguished fellow members of the editorial board, all the authors and reviewers, editorial and production team members, and many others at ECNU and Sage, who have helped in different roles and ways for the establishment of AJME and for the publication of the inaugural issue.

Last but not least, while it is not possible for me to list all the names for acknowledgement in this editorial, I hope to particularly place on record my appreciation to Geoffrey Howson, AJME’s honorary editor, for all the valuable advice and support that he has kindly and generously offered for the establishment of AJME.

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Asian Journal for Mathematics Education
Shanghai, China, March 2022

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