ASSOCIATION FOR MATHEMATICS EDUCATION OF SOUTH AFRICA

Developing Deep Mathematical Thinking through Mathematics Teaching

Edgewood Campus, Pinetown
KwaZulu-Natal

25th Annual National Congress
1st – 5th July 2019

FIRST ANNOUNCEMENT AND CALL FOR PAPERS

You are invited to the 25th Annual National Congress of the Association for Mathematics Educators of South Africa (AMESA) and we request that you submit contributions on the theme:

Developing Deep Mathematical Thinking through Mathematics Teaching

CONGRESS THEME

Developing Deep Mathematical Thinking through Mathematics Teaching

The 21st Century has thus far been characterised by various changes and innovations, namely social, economic and technological. The issue of these changes and innovations has been acknowledged and hence, we have a constant, and sometimes radical, adaptation of the school curriculum. In this environment of change and innovation we are all attempting to adjust our teaching, so that we and our learners will not be left behind. Mathematics education is ideally positioned to engage with these changes and innovations. It is in this spirit that we host a conference that will expose our mathematics teachers, in a practical way, to some of these changes and innovations.

The AMESA KZN invites you to the annual National Congress. In an attempt to make a useful contribution towards the teaching and learning processes, the conference will address issues that are pertinent to all teachers in mathematics classrooms. The theme of the conference is "Developing Deep Mathematical Thinking through Mathematics Teaching". Stacey (2007: 39) listed three important issues that one needs to consider when engaging with mathematical thinking. First, mathematical thinking is an important goal of schooling. Second, mathematical thinking is important as a way of learning mathematics and finally mathematical thinking is important for teaching mathematics. The 2019 congress submissions and contributions aims to enhance the argument that deep mathematical thinking can contribute to effective classroom teaching.

SUB-THEMES FOR THE CONFERENCE

1. Developing deep mathematical thinking through mathematics teaching using technology based pedagogies.
2. Developing deep mathematical thinking through mathematics teaching using indigenous knowledge and decolonisation.
3. Developing deep mathematical thinking through mathematics teaching using games, problem solving and investigations.
4. Developing deep mathematical thinking through mathematics teaching within Higher Education.
5. Developing deep mathematical thinking through research in mathematics education.

PROGRAMME PARTICPANTS

The congress participants include an exciting array of mathematics teachers and lecturers, materials and technology developers, national and international researchers and government advisers, presenting on policy directions and research findings, and sharing teaching ideas and materials.

PROGRAMM

The programme will include:

1. **Pre-congress workshops** (Sunday 30th June, 14:00 –17:00)
2. **Plenary addresses** by invited speakers, including international speakers.
3. **Panel discussions** on various issues in Mathematics Education.
4. **Parallel sessions** presented by participants, in the following areas:
   Foundation Phase, Intermediate Phase, Senior Phase, FET Phase, and Teacher education.
   The following formats of presentation will be used:
   - **Long papers** (40 minute presentation plus 20 minute discussion)
   - **Short papers** (20 minute presentation plus 10 minute discussion)
   - **"How I teach"** papers (20 minute presentation plus 10 minute discussion)
   - **Posters** (Exhibited on a 1.2 m x 1.8 m board, for the duration of the conference. Authors should be available at allocated hours for discussion)
   - **Workshops** (1 or 2 hours)
5. **Activity Centre:** Hands-on practical mathematics activities for participants.
6. **Maths Market:** Promotion of their products by commercial vendors.
7. AMESA Curriculum Phase Committees discussions
8. AMESA Special Interest Group meetings
9. AMESA Annual General Meeting

OTHER FEATURES OF CONGRESS

- Social events
- Excursions
- Daily congress competitions
- Transport
- Internet facilities

Note: *The Final Announcement and Registration Form will be distributed in March/April 2019 and will contain full details about the programme, costs, transport, and so on.*

CONTACT DETAILS

Please send all communication about administrative matters to:

The AMESA Congress Secretary
Nombulelo Mandindi
PO Box 54
2050 WITS
Tel: 011 484 8917
Cell: 082 390 7088
Fax: 086 406 3591
Email: congress2019@amesa.org.za

Please send all communication about the academic programme to:

The Academic Coordinator
Jayaluxmi Naidoo
Cell: 0744752938
Email: jaya@amesa.org.za

Congress Director
Vimolan Mudaly
Durban
Tel: 0312603682
Cell: 0829770577
Fax :
Email: vimolan@amesa.org.za

Congress Deputy Director
Sithembiso Khanyile
Tel: 039 6823577
Cell: 083 3299318
Email: kzn@amesa.org.za

Congress website
See the congress website for updated relevant information:
http://www.amesa.org.za/AMESA2019/

THE LOCAL ORGANISING COMMITTEE (LOC)

The LOC is made up of members who have been actively involved in mathematics education in the branches and provincial structures of AMESA. They come from a variety of backgrounds and include teachers, subject advisors, administrators and mathematics teacher educators. They have been allocated various portfolios and duties for Congress 2019. These details will be included in the final announcement.

MEMBERS OF THE LOC

Vimolan Mudaly, Sithembiso Khanyile, Jayaluxmi Naidoo, Thembelihle Madondo, Niven Ramdhani, Busisiwe Goba, Sbu Khanyile, Siya Nathi, Thokozani Mkhwanazi, Vukile Buthelezi, Thamsanqa Nyathi

THE NATIONAL ORGANISATION COMMITTEE (NOC)

The NOC is an AMESA sub-committee involved in national congress tasks and supports the LOC. Its members are appointed on the basis of their proven knowledge, functionality, commitment and delivery on national congresses. A representative for the following year's national congress will also serve on the NOC.

MEMBERS OF THE NOC

Busisiwe Goba (Chairperson); Rajendran Govender (vice Chairperson); Manare Setati (Financial officer); Kgomotso Pilane (Secretariat) and Nombulelo Mandindi (Congress secretariat)

Durban the conference city

Spreading along the east coast of South Africa, Durban is noted for its lush greenery (especially the sugar cane plantations) and beautiful beaches. Durban's numerous parks include the Botanic Gardens with its orchid house, Jameson Park and its rose gardens, and various nature reserves and places of interest. The city is home to the University of KwaZulu-Natal, formed in 2004.

Durban is a diverse African city that is focused on citywide investment, growing our economy and creating a better quality of life. In Durban we play hard and we work hard. It's not a coincidence that we attract so many local and international tourists on a daily basis. We are a growing urban setting, rich in diversity, cultural amenities and outdoor recreational opportunities. The threads that are woven into this City are integral to the rich history of South Africa, and contribute to the cultural diversity and harmony that defines life in eThekwini.

The University of KwaZulu-Natal was formed on 1 January 2004 as a result of the merger between the University of Durban-Westville and the University of Natal. The new university brings together the rich histories of both the former Universities.

From the mountain vistas of the Drakensberg to the wild reaches of Maputaland, KwaZulu-Natal is a province of contrasts. The University of KwaZulu-Natal offers prospective students the choice of five campuses, each with its own distinctive character. The conference will be hosted at the Edgewood Campus.

Formerly the Edgewood College of Education before its incorporation in 2001, the Edgewood campus in Pinetown is the University's primary site for teacher education and the home of the University's School of Education. Situated in Pinetown with easy access to the N3 highway and approximately 20 minutes' drive from Durban, the campus offers sophisticated and attractive facilities to a growing number of Education students and is close to all major amenities. The School provides initial and in-service teacher education and offers university higher degrees in a wide range of specialisations in education as well as carrying out research and consultancy. The School is actively engaged with policy-making in education in South Africa and contributes to the international profile of the university through participation in international conferences, teaching international students, hosting international visitors and publishing in international books and journals.

CALL FOR PAPERS

You are invited to submit contributions to the academic programme. Please note, that in order to ensure a high standard of presentations and broad based participation:

- we will accept no more than two inputs per presenter,
- we will not accept any presentation for the programme unless a full transcript or workshop outline has been submitted for reviewing,
- we will adhere to the due dates for submission as this ensures time for useful and relevant reviews of submissions,
- we will only include names on the programme of those who have paid their registration fees.

To help you in planning and writing your proposal, we include technical guidelines for preparing a paper. An electronic styles template is available on the congress website. ***The Presentation Proposal Form*** (page 12) must be submitted with your proposal to the Academic Coordinator by **22 February 2019.**

CALL FOR REVIEWERS

In order to have a sufficient number of reviewers for submitted papers, we invite AMESA members to volunteer to help with reviewing papers. This review process should take place during March and April 2019. You can serve as reviewer if you are a current AMESA member and have presented a reviewed paper (a long or short paper) at previous AMESA congresses, or have published in *Pythagoras*. If you qualify and are willing, please fill in the ***Reviewer Form*** (page 14) and send it to the Academic Coordinator by **15 February 2019**.

MATHS MARKET

Publishers, entrepreneurs and NGOs are invited to present and promote their commercial products in a special session in the programme called a *Maths Market* presentation. Research about such products may be presented as an academic paper which will be reviewed, but commercial products would not be directly promoted in academic sessions. *Maths Market* presentations are not reviewed and not published in the Congress Proceedings. Please contact the Secretariat for more details.

IMPORTANT DATES

Reviewer Information	15 February 2019
Submission of full presentation proposal manuscripts	22 February 2019
Notification of proposal review results	20 April 2019
Application for financial support	31 March 2019
Early registration *at a* ***reduced*** *fee*	24 April 2019
Normal registration *at* ***normal*** *fee*	25 April to 26 May 2019
Late registration *at an* ***increased*** *fee*	after 26 May 2019
Cancellation of any costs	31 May 2019
Equipment requests for presenters	1 June 2019
Registration opens	30 June 2019 at 12:00
Residences open	30 June at 14:00
Opening ceremony	1 July 2019 at 10:00
Closing ceremony	5 July 2019, 12:00

Guidelines for submission of Long Papers

Length: 8–12 pages: Each Long Paper will be scheduled for a total time of 60 minutes: 40 minutes for oral presentation and 20 minutes for discussion. The following types of papers are suitable for presentation as a long paper:

1. Research report

This should include the following:

- A statement about the focus of the paper or the research questions, and a motivation for the significance of the research;
- An indication of the theoretical framework of the study reported;
- A discussion of the related literature;
- An indication of and justification for the methodology used;
- Some sample data and findings and a statement of how these help to answer the research questions;
- What your findings mean for mathematics teaching and learning or further research;
- List of references.

2. The presentation of Mathematics/Mathematical Literacy content

These could include content in Mathematics/Mathematical Literacy, relevant to the school curriculum, such as:

- An innovative way of dealing with a section of Mathematics/Mathematical literacy;
- Alternative proofs for theorems;
- Interesting mathematics that teachers are conversant with; Mathematics/Mathematical
- Literacy that is new in the proposed curriculum;
- List of references.

3. Theoretical, methodological or philosophical essays

These should include the following:

- A statement about the focus of the paper and a motivation for its significance;
- An indication of the theoretical, methodological or philosophical framework within which the focus or theme of the paper is developed;
- Reference to related literature;
- A clearly articulated statement of the author's position on the focus or theme;
- What your results mean for mathematics teaching, learning or research;
- List of references.

Reviewing: Two reviewers, with experience in the area, will review your paper. Specifically, reviewers will be asked to comment on the following: mathematical content, theoretical framework and related literature, methodology (if appropriate), statement and discussion of results (if appropriate), clarity and relevance to the AMESA audience. *A developmental approach to reviewing will be applied to your paper. In other words you will be given feedback by the reviewers, which you could use to improve your paper and then (if necessary) re-submit for further review and feedback*. If your paper is not accepted in this category it will be reconsidered for submission as a short paper presentation.

Publication of Long Papers: Authors may choose not to have their accepted long papers published in the AMESA 2019 Congress Proceedings, to keep open the possibility to submit it to a journal. Note that authors must still submit the full manuscript for review, but if they choose to exclude their long paper from the Proceedings, they must then submit an extended abstract of 2-4 pages of the paper and this extended abstract will then be published in the Proceedings.

Guidelines for submission of Short Papers

Length: 5–8 pages: Each Short Paper presentation will be given a total time of 30 minutes: 20 minutes for oral presentation and 10 minutes for discussion. This kind of presentation is most suitable for work in progress and may include the following:

1. Reflection on teaching or practice: This is mainly for mathematics educators who would like to share their reflections on their teaching or on their participation in a developmental project or research project. For reflection on teaching you need to specify the following:

- The grade and class size;
- The mathematics topic taught;
- The mathematical goals and purposes;
- A description of the lesson;
- What factors contributed to the success of the lesson;
- What factors tended to hamper success and how you dealt with them.

2. For reflection on participation in a mathematics development project you should specify the following:

- The duration of the project;
- Mathematical aspects covered by the project;
- Practical examples of how participation in the project impacted on your teaching.

3. The presentation of Mathematics/Mathematical literacy content: For details on this type of presentation, refer to number 2 under the long papers.

4. Proposals: Research or development: This can be a presentation of a proposal for a research or mathematics education developmental project and should include the following:

- A description of the focus of the research project or developmental project;
- Motivation for the study or project;
- Some indication of the theoretical framework of the study or project;
- Some discussion of the related literature;
- How the study or project will be undertaken, including some justification of methodology;
- Participants and time lines;
- List of references.

5. Initial sharing of data: This is mainly for people who have done research and are still working on their analyses. The paper should include the following:

- A statement about the focus of the paper or the research questions, and a motivation for the significance of the research;
- Some aspects of the theoretical framework of the study reported;
- Some discussion of the related literature;
- An indication of and justification for the methodology used;
- Some sample data and initial analysis or description of data;
- List of references.

Reviewing: Two reviewers, with experience in the area, will review your paper. Specifically, reviewers will be asked to comment on the following: mathematical content, conceptual coherence, clarity and relevance to the AMESA audience. *A developmental approach to reviewing will be applied to your paper. In other words you will be given feedback by the reviewers, which you could use to improve your paper and then (if necessary) re-submit for further review and feedback.*

Guidelines for "How I teach" Papers

Length: Minimum 1 page and a maximum of 4 pages.

Critical information to be included:

- **Title**: A heading for your paper e.g. How to use paper folding in geometry.
- **Name**: Your Name and Surname
- **Organisation**: Where you are from e.g. the name of your school.
- **Phase:** The phase your talk is aimed at i.e. foundation, intermediate, senior, FET or tertiary.
- **Introduction:** Include here a paragraph on what your talk is about. Why you chose to talk about it. What you are going to do in the talk.
- **Content:** You might want to write one or two sentences on your experiences of using such activities in your class and some of the advantages or disadvantages of using the activities.
- Also provide here a brief conclusion on the talk.
- **References:** Add here any references that you might have used. In other words, if you took the activities from a textbook or from the internet, please acknowledge these sources.
- There may be other headings you want to include (e.g. "teacher tips") – please feel free to do so.

Reviewing

Your paper will be reviewed. *A developmental approach to reviewing will be applied to your paper. In other words you will be given feedback by the reviewers, which you could use to improve your paper and then (if necessary) re-submit for further review and feedback*. The Academic Committee of Congress 2019 reserves the right to make minor editing changes.

Guidelines for Posters

Poster presentations are available for those whose work is more suitably communicated in a pictorial or graphical format, rather than through an oral presentation. There is no formal oral presentation associated with posters, but a time will be allotted, after sufficient display time, during which presenters will be available at their posters for informal discussion with participants. A poster (1,2 m x 1,8 m board), can present research projects, software developments, curricula innovations, educational programmes, etc., related to Mathematics Education.

Note the following as you prepare your proposal for a poster:

- Your proposal should describe both the contents of the poster and its particular visual (pictorial or graphical) characteristics.
- Your proposal should be restricted to one page, including references and figures. If accepted, this text will be included in the Congress Proceedings.
- Type and centre the title (in capitals), author(s) names, and affiliation(s) of the author(s) in this order.

Reviewing

The Academic Committee will review the proposals for Poster Presentations. If your proposal is accepted, the Academic Committee will provide further guidance on the preparation of the actual poster itself.

Guidelines for Workshop Presentations

Note that workshop write-ups and the worksheets will *not* be published in the Congress Proceedings. It will be included in the CD-ROM Proceedings, and copies of the activities will only be duplicated for the workshop participants. Your proposal should include:

1. **Motivation for running workshop.** This is for reviewing and should include:
   - **Title of the workshop**
   - **Name of presenter(s)**
   - **Institution where you are employed**
   - **Target audience:** The phase your workshop is aimed at e.g. intermediate.
   - **Duration:** There will be 1-hour or 2-hour workshop slots. Please ensure that you choose an appropriate length slot.
   - **Maximum number of participants:** You may limit the number of participants in your workshop. Workshop presenters should attempt to cater for at least 30 participants.
   - **Motivation for the workshop:** Why is the workshop important? How will it help participants?
   - **Description of content of workshop**
   - **What will be done in the workshop**? How will the time slot be broken up?
   - **The activities and worksheets to be used in the workshop** (maximum 8 pages)

2. **An abstract describing the level, nature and content of the workshop** (200 words)
   Note: Only this abstract will be published in the Congress Proceedings.

   - Workshops need to be **hands-on sessions** where participants are **actively involved** in doing the activities that you provide. Usually these activities will be done in groups, consisting of 3–5 participants. There should also be ample time for discussions (approximately 25% of your time is suggested).
   - If you have used ideas from other sources, it is essential that you acknowledge these sources.
   - We will *not* accept any submissions where more than two pages have been copied directly from another source.

Reviewing: The Academic Committee will review the proposals for Workshop Presentations.

Technical guidelines for preparing manuscripts

We are endeavouring to work towards a uniform appearance for all papers in the Congress Proceedings. An electronic template and guidelines will be available from the congress website.

Please use the template as the basis for your paper and adhere to these guidelines:

- Restrict your paper to the maximum number of pages as specified for the type of presentation, including references, figures, and appendices.
- Write the paper in English.
- Type and centre the title (in capitals), author(s) name(s), and affiliation(s) of the author(s), in this order.
- Underline the name of the presenting author(s).
- Begin the paper with an abstract of up to ten lines, single-spaced, preferably in italics.
- Use a 14-point type (Times New Roman), a 16-point line space, and 6 points between paragraphs, occupying a frame of 170 mm by 247 mm. Please use exact dimensions, and fill the entire frame. Remember that the original text will be reduced in the Proceedings.
- Give references in the APA style.
- **Do not number the pages.**

E-mail the paper as an attachment (word document) to the Academic Coordinator by 22 February 2019, together with your completed Presentation Proposal Form. **Fax copies will <u>not</u> be accepted.**

TABLE OF PRESENTATION CATEGORIES

This page is for your reference when completing the Reviewer Form or the Presentation Proposal Form. Reviewers will receive proposals for review according to their preferred categories that they mark in their Reviewer Form.

The proposals will be sent to reviewers according to the presentation categories that authors have marked in their Presentation Proposal Form.

Educational level	
1. Foundation Phase (Gr R–3)	4. Further Education & Training (Gr 10-12)
2. Intermediate Phase (Gr 4–6)	5. Teacher Education (pre- & in-service training)
3. Senior Phase (Gr 7–9)	

In the case of research, please state the type of research:	
1. Empirical/ Experimental	4. Ethnographic/Interpretative
2. Statistical	5. Theoretical/Philosophical
3. Case study	6. Action research

Focus themes for presentation:	
1. Indigenous Knowledge Systems	**15.** Reasoning, proof and proving in mathematics education
2. Financial Mathematics	**16.** Problem solving and modelling in mathematics education
3. Mathematical Literacy	**17.** Functions and graphs
4. Teaching and learning of geometry	**18.** Numeracy
5. Teaching and learning of probability	**19.** Classroom practice
6. Teaching and learning of algebra	**20.** Geometric and spatial reasoning
7. Teaching and learning of calculus	**21.** Measurement: Focusing on primary education
8. Teaching and learning of patterns and sequences	**22.** Mathematics Education in a multilingual and multicultural context
9. Teaching and learning of fractions	**23.** Mathematics curriculum development
10. Motivation, beliefs and attitudes towards mathematics and its teaching	**24.** Assessment in Mathematics Education
11. Mathematical knowledge for teaching	**25.** Mathematics Education at secondary level and access to tertiary education
12. Mathematics in context	**26.** In-service education; professional development of teachers
13. Enhancing learner understanding of mathematical concepts	**27.** Other suitable focus themes not covered here (please state in your presentation proposal form)
14. The use of technology in the teaching and learning of mathematics	

Jayaluxmi Naidoo
Email: jaya@amesa.org.za

PRESENTATION PROPOSAL FORM

This form must be completed for every presentation proposal and submitted to the Academic Coordinator.
Note: You may prefer to complete the electronic form on the Congress website.

DEADLINE: 22 February 2019

PLEASE TYPE OR HAND - WRITE BY USING ONLY CAPITAL LETTERS

Type of Presentation (mark one) Long paper ☐ Short paper ☐ How I teach ☐ Poster ☐ Workshop (1 h) ☐
Title of presentation:
Author(s):
Presenting Author(s):
Contact Details: *The following information should be completed only for the Presenting Authors:* Postal address: City:……..Postal Code: …… Tel No: ……Cell No:…….. Fax No: ……...Email:…….
Complete to assist the Programme Committee in finding you an appropriate reviewer Presentation categories (choose relevant numbers from the Table on page 13): Focus Themes (mark at most three numbers from 1 – 28): ____ Educational level (1 – 5): ____ Type of Research if applicable (from 1 – 6): _____
Only for Long PAPERS: Publish my Long Paper in AMESA 2019 Proceedings **YES** ☐ **NO** ☐

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Jaya Naidoo
Email: jaya@amesa.org.za

REVIEWER FORM

Please complete the form if you are prepared to help review submitted papers for the Congress.

To qualify as a reviewer, you must be a current AMESA member and have presented a reviewed paper (a long or short paper) at previous AMESA congresses, or have published in Pythagoras or another reviewed journal.

DEADLINE: 175 February 2019

Note: you may prefer to complete the electronic form on the congress website.

PLEASE TYPE OR HAND – WRITE BY USING CAPITAL LETTERS

Contact Details
Name:
Institution:
Postal address:
City: Code:
Tel No:
Cell No:
Fax No:
Email:

Complete to assist the Programme Committee to match you to appropriate submissions

Presentation categories (choose relevant numbers from the Table on page 12

Please choose at most 4 Focus Themes (1 – 24):

☐ ☐ ☐ ☐

Please choose your preferred Educational Levels (numbers 1 – 5)

☐ ☐ ☐ ☐

Please choose your preferred Type of Research (1 – 6)

☐ ☐ ☐ ☐

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Niven Ramdahni
Email: nivenramdhani@gmail.com
nivenramdhani@yahoo.com

Application for financial support: AMESA 2019 CONGRESS

DEADLINE: 31 March 2019

I, …… , would like to apply for financial support to attend AMESA 2019 national Congress..

Surname: ……
First Names: ……..
Postal Address: ……
……..
Postal Code: …….
Institution: …….....
Area of interest: (primary/secondary/Tertiary): …….
Tel: (Home): …….. (Work) …… Fax: …….....
Email: ……

Complete 1 and 2 below and take note of 3:

1. I am an AMESA member: YES/NO ……. Membership no: ……..
2. I am able to contribute R ……. of the projected R…….. costs for my attendance
3. I undertake to write an article/report on AMESA Congress 2019 which may be published in AMESA News.

Signature: ……. Date: …….

Note:

- *A typed ½ to 1 page motivation as well as a detailed budget must accompany this application. The application will not be considered without a detailed budget.*
- *Preference for funding will be given to paid-up AMESA members who will be participating in the Congress programme.*

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