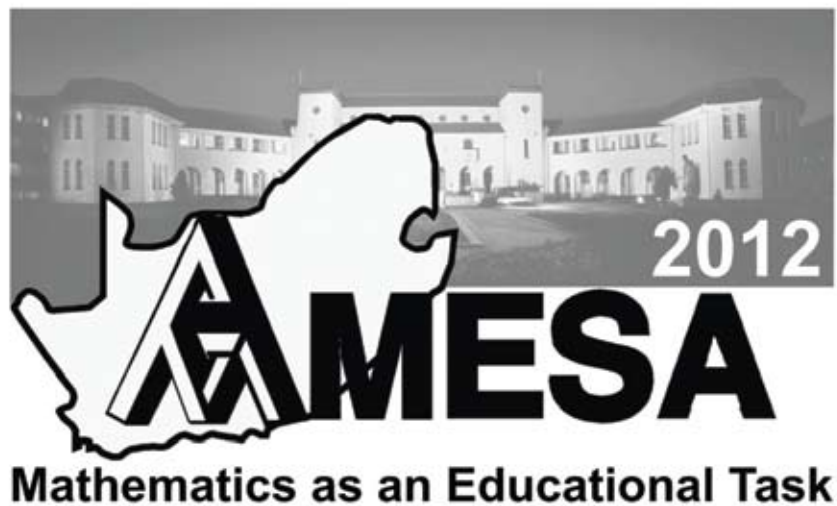


# The Association for Mathematics Education of South Africa



**18<sup>th</sup> Annual National Congress**

**25 June to 28 June 2012**

North-West University  
Potchefstroom

**FIRST ANNOUNCEMENT AND CALL FOR PAPERS**

Design, printing and postage made possible by:



**OLD MUTUAL**

You are invited to the Eighteenth Annual National Congress of the Association for Mathematics Education of South Africa (AMESA) and to submit contributions around the theme:

## ***Mathematics as an educational task***

**VENUE:** North-West University  
President street  
Potchefstroom

**DATE:** 25 – 28 June 2012

### **PROGRAMME:**

Participants include an exciting combination of leading mathematics teachers, materials and technology developers, national and international researchers, and government advisers – presenting on policy directions and research findings, and sharing teaching ideas and materials.

**The programme will include:**

1. **Plenary addresses** by invited speakers, including overseas speakers
2. **Panel discussions** on various issues in Mathematics Education
3. **Parallel sessions** presented by participants, in the following areas: Foundation Phase, Intermediate Phase, Senior Phase, FET Phase, and Teacher Education.

The following formats will be used:

- **Long papers** (40 minutes plus 20 minutes discussion)
  - **Short papers** (20 minutes plus 10 minutes discussion)
  - **“How I Teach” papers** (20 minutes plus 10 minutes discussion)
  - **Posters** (Exhibited on a 1, 2 m x 1, 8 m board, for the duration of the conference. Authors should be available at certain hours, for discussion.)
  - **Workshops** (1 or 2 hours)
4. **Activity centre:** Hands-on practical mathematics activities for participants
  5. **Maths market:** Promotion of their products by commercial vendors
  6. **AMESA Annual General Meeting**

### **OTHER FEATURES OF CONGRESS 2012:**

Photocopying facilities at cost  
Daily Social Events  
Daily Congress Competitions

Excursions  
Congress Bags  
Memorabilia

Accommodation: The university will due to contractual obligations not be able to supply hostel accommodation to any congress participants.

Details of available accommodation:  
[www.potchefstroom.co.za](http://www.potchefstroom.co.za)

*Note: The Final Announcement and Registration Form will be distributed in February 2012 and will contain full details about the programme, costs, transport, etc.*

## CONTACT DETAILS

Please send all communication about *administrative matters* to:

### **The Congress Secretariat**

E-mail: [congress2012@amesa.org.za](mailto:congress2012@amesa.org.za)

Other contact details will be announced soon.

Please send all communication about the *academic programme* to:

### **The Academic Coordinator**

Susan Nieuwoudt  
School for curriculum-based studies  
Faculty of Education Sciences  
North-West University  
2531 Potchefstroom

E-mail: [susan@amesa.org.za](mailto:susan@amesa.org.za)

### **Congress Director**

Hercules Nieuwoudt  
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Faculty of Education Sciences  
North-West University  
2531 Potchefstroom

Email: [hercules@amesa.org.za](mailto:hercules@amesa.org.za)

### **Congress website**

Please see the congress website for updated relevant information:

<http://www.amesa.org.za/AMESA2012>

## **The North West Province, The North-West University and Potchefstroom**

The North West Province is known as the Platinum Province and boasts some of the world's highest concentration of platinum mines. Mining generates most of the province's income and provides jobs for a large workforce. The chief minerals are gold, uranium, platinum and diamonds. The province also boasts a rich farming heritage, including sheep, cattle and game farms, maize, sunflowers, tobacco, cotton, and citrus fruit.

Conference 2012 will be held in Potchefstroom, just an hour south west of Johannesburg. The city which was founded in 1838 by South African pioneers, is situated on the banks of the Mooi River. Potchefstroom was the first town built north of the Vaal River and served as the first capital of the South African Republic. The Vredefort Dome, the largest known impact structure on Earth and a UNESCO World Heritage Site, is a mere 25 km from Potchefstroom and well worth a visit.

Potchefstroom is aptly called "The City of Expertise". It is home to four tertiary institutions. The Potchefstroom Campus of the North-West University is a leading university in South Africa with more than 17 000 students on campus (there are 32 000 off-campus students). The university and city further boasts with numerous research bureaus and training facilities, as well as a complete medical infrastructure.

The North-West University (NWU) officially came into being on 1 January 2004. It was part of the national government's broader plan to transform higher education, with the aim of using resources more effectively and addressing past imbalances. The NWU is a unitary multi-campus institution with campuses spread across two provinces. These are the Potchefstroom and Mafikeng Campuses in North West and the Vaal Triangle Campus in Gauteng. The Institutional Office (head office) is situated in Potchefstroom in close proximity to the Potchefstroom Campus. Each campus has its unique characteristics.

The NWU is a leading university in South Africa with respect to corporate governance (PWC Excellence Awards in 2007, 2008, 2009, 2010 and 2011), excellence in innovation (most innovative university (Innovation Fund, Department of Science and Technology, 2008) and excellence in multilingualism (PanSALB, 2008, 2010).

## Local Organising Committee (LOC)

Members of the AMESA 2012 LOC come from a variety of backgrounds and include teachers, subject advisors and university lecturers:

Hercules Nieuwoudt, Siphon Vilakazi, Susan Nieuwoudt, Annalie Roux, Gilbert Groenewald, Heleen Coetzee, Rudi van de Venter, Joy Molefe, Joany Fransman, Hermien Dreyer, Ismael Seobi, Dikeledi Mamiala, Trudie Benade, Dorothy Laubscher, Paul Mabusela, Paul Ncwang.

## Maths Market

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

## Call for papers

You are invited to propose one or more contributions to the academic programme. Please note that 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.

To help you in planning and writing your proposal, we include overleaf-technical guidelines for preparing a paper. An electronic styles template is available on the congress website.

The Presentation Proposal Form (page 9) must be submitted with your proposal by **16 March 2012**.

## 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 2012.

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 11) and send it to the Academic Coordinator by **24 February 2012**.

## Deadlines

Offer to review papers:	24 February 2012
Submission of papers for reviewing:	16 March 2012
Receive reviewed papers back:	27 April 2012
Application for financial support?	27 April 2011
Early registration:	By 30 April 2012
Normal registration:	1 May to 31 May 2012
Late registration:	After 31 May 2012

***Start planning for Congress 2012***  
***We look forward to seeing you in Potchefstroom, North-west!***

## Guidelines for submission of long papers

**Length:** 8 – 12 pages

Each long paper will be scheduled 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** These could include 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 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 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 findings 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, clarity and relevance to the AMESA audience. If your paper is not accepted for this category it will automatically be considered as a short paper presentation.

## 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.

- 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** These could include mathematics/mathematical literacy relevant to the school curriculum. For details on this type of presentation, [see \(2\) of 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 analysis. 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.

## 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 that.

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. Congress 2012 reserves the right to make minor editing changes. If substantial changes to your work are necessary the paper will be returned to you in order to make the 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 conference proceedings.
- Type and centre the title (in capitals), author(s) names, and affiliation(s) of the author(s) in this order.

### Reviewing

The programme Committee will review the proposals for Poster Presentations. If your proposal is accepted, the Programme 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 be not be published in the paper Congress Proceedings. It will be included in the CD\_ROM Proceedings, and copies of the activities will be duplicated only 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 no. 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 this workshop important and 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 or Programme.*

### **Note:**

- 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 2 pages have been copied directly from another source.

### **Reviewing**

The Programme 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.

Please 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 recommended), a 16-point line space, and 6 points between paragraphs, occupying a frame of 170 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 to the Academic Coordinator by 16 March 2012.  
**Fax copies will not 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.

## FOCUS THEMES FOR PRESENTATION

1. Teaching and learning of patterns, sequences and series	11. Classroom practice
2. Measurement – focusing on primary education	12. Motivation, beliefs and attitudes towards mathematics and its teaching
3. Teaching and learning of algebra	13. Mathematics education in a multilingual and multicultural environment
4. Teaching and learning of geometry	14. Mathematics curriculum development
5. Teaching and learning of probability	15. Mathematical knowledge for teaching
6. Teaching and learning of statistics	16. Assessment in mathematics education
7. Teaching and learning of calculus	17. Mathematical literacy
8. Reasoning, proof and proving in mathematics education	18. Mathematics education at secondary level and access to tertiary level
9. Problem solving and modelling in mathematics education	19. Mathematics in context
10. The use of technology in the teaching and learning of mathematics	20. In-service education, professional development of mathematics teachers

## EDUCATIONAL LEVEL:

21. Foundation Phase	24. Further Education and Training (FET)
22. Intermediate Phase	25. Teacher Education (pre- & in-service training)
23. Senior Phase	



Mathematics as an Educational Task

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 2531 Potchefstroom

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## PRESENTATION PROPOSAL FORM – AMESA 2012

This form must be completed and submitted with every presentation proposal.

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

**DEADLINE: 16 March 2012**

**PLEASE TYPE OR HAND-WRITE BY USING ONLY CAPITAL LETTERS**

<p><b>Type of Presentation</b> (mark one):</p> <p>Long paper <input type="checkbox"/>    Short paper <input type="checkbox"/>    How I teach <input type="checkbox"/>    Poster <input type="checkbox"/>    Workshop <input type="checkbox"/></p>
<p><b>Title of Presentation:</b></p>
<p><b>Author(s):</b></p>
<p><b>Presenting Author(s):</b></p>
<p><b>Contact Details:</b>          The following information should be completed only for a Presenting Author:</p> <p>Postal Address:</p> <p>City: _____ Postal Code: _____</p> <p>Telephone no: _____</p> <p>Cell no: _____</p> <p>Fax no: _____</p> <p>E-mail: _____</p>
<p><i>Complete to assist the Programme Committee in finding you an appropriate reviewer</i></p> <p>Presentation categories (choose relevant numbers from the Table on page 9):</p> <p>Focus Themes (mark at most three numbers from 1 - 20 ):    ____    ____    ____</p> <p>Educational Level (from 21 - 25 ):    ____</p>



Mathematics as an Educational Task

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## REVIEWER FORM

Please complete this 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: 24 February 2012**

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

**PLEASE TYPE OR HAND-WRITE BY USING ONLY CAPITAL LETTERS**

**Contact Details:**

Name:

Institution:

Postal Address:

City:

Postal Code:

Telephone no:

Cell no:

Fax no:

E-mail

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

Presentation categories (choose relevant numbers from the Table on page 9):

Please choose at most 4 **Focus Themes** (numbers 1 - 20 ):

<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
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Please choose your preferred **Educational Levels** (numbers 21 - 25):

<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
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Mathematics as an Educational Task

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## Application for financial support: AMESA Congress 2012

**Note: Closing date is 27 April 2012**

I, ....., would like to apply for financial support to attend AMESA Congress 2012.

**Surname:** .....

**First names:** .....

**Postal address:** .....

.....

**Postal code:** .....

**Institution:** .....

**Area of interest:** (Primary / Secondary / Tertiary) .....

**Tel:** (Home) ..... (Work) ..... Fax: .....

**E-mail:** .....

### Complete 1 and 2 below and take note of 3:

1. I am an AMESA member: YES / NO ..... Membership number: .....
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 2012 which may be published in *AMESA News*.

**Signature:** ..... **Date:** .....

### Note:

- A typed  $\frac{1}{2}$  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.



## Call for papers

### Special Issue of *Pythagoras* on Mathematics Education, Democracy and Development

Guest Editors: Renuka Vithal and Ole Skovsmose

Whilst the last century has seen a growing concern and literature about links between education and democracy, especially in ‘developed’ countries, and between education and development in ‘developing’ contexts, the last few decades have brought a sharper focus on the role and function of mathematics and mathematics education within those relations. Major advances in science and technology, and the foundational role of mathematical knowledge and skills have raised questions about the kinds of mathematics and mathematics education needed, for whom, for what purposes, and how best to deliver it in different but rapidly changing societies to sustain and deepen democratic life and also to improve life for the majority.

This special issue calls for papers to engage these issues through four broad questions that explore connections between mathematics education, democracy and development:

- How can mathematics education provide an introduction to and preparation for democratic life, and teach about democracy in ways that contribute to a society’s development agenda?
- How can a focus on mathematics education and democracy increase concern for the inequities in the distribution of mathematical knowledge, skills and education possibilities in society, and for addressing its pressing development needs and goals?
- How can a concern with development and democracy in mathematics education impact the very life of a school or classroom, and learning of democratic values, democratic competence and democratic attitude by participating in democratic living in a context that recognises and takes account of its developmental nature and challenges?
- How can democracy, mathematics education and development have something to do with mathematics content matter questions?

These questions, first proposed in terms of the connection between general education and democracy, are reformulated to sharpen the focus on mathematics education and democracy, and are expanded here to locate the discussion in the context of societies variously described as ‘developing’, the ‘South’ or ‘Third World’.

It is important to deepen and extend deliberations about links but also about tensions between democracy, development and mathematics education. Democracy and development are highly contested concepts. In this framing, mathematics education itself also needs interrogation, although maybe in a different way. In all circumstances mathematics education refers to different visions and practices.

This special issue invites papers across a broad spectrum of perspectives and contexts to engage both the connections and ruptures between mathematics education, democracy and development, and to go beyond rhetoric and advocacy. Arguably, within mathematics education the literature related to democracy is much more well established than that related to development. Moreover, the notion of democracy and mathematics education has extended into issues of social justice, access, equity, quality, class and gender, amongst others.

Taking a broad and critical view on *development*, this special issue calls for explorations in theory, policy, practice and research in mathematics education that will especially privilege a focus on poverty and rurality, which are significantly under-represented in the mathematics education literature. It invites authors to engage the complexity of the triad of mathematics education, democracy and development with more theoretically and empirically informed papers; and it seeks innovations in research, theory, practice and particularly mathematics teaching and learning in ‘developing’ contexts to move the debates beyond the current and the status quo and to strengthen this literature base.

#### Important dates:

Submission of full papers: 15 March 2012

Notification of paper acceptance: 15 June 2012

Publication target: October 2012

Prospective authors are welcome to contact the guest editors with any questions and about the appropriateness of possible submissions. (Renuka Vithal: [renuka@ukzn.ac.za](mailto:renuka@ukzn.ac.za); Ole Skovsmose: [osk@learning.aau.dk](mailto:osk@learning.aau.dk))

All manuscripts (in the range 3000–7500 words) must be submitted online on the *Pythagoras* manuscript management system at <http://www.pythagoras.org.za>. Authors should indicate that the manuscript, or similar work, was not simultaneously submitted for review to any other journal, or previously accepted for publication or published elsewhere (including congress proceedings).

#### About *Pythagoras*:

*Pythagoras* is the official research journal of the Association for Mathematics Education of South Africa (AMESA). It is an Open Access, peer-reviewed, fully accredited academic journal, publishing only *original* research and scholarly work of a high quality that significantly contributes to our understanding of mathematics teaching, learning and curriculum.

For more information about *Pythagoras*, its policies and procedures and manuscript preparation and submission guidelines, visit <http://www.pythagoras.org.za>.