2014 AMESA
Demystifying Mathematics

Proceedings of the 20th Annual National Congress of the Association for Mathematics of South Africa

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Demystifying Mathematics

07 - 11 July 2014

Diamantveld High School
Kimberley

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Association for Mathematics Education of South Africa (AMESA)

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FOREWORD

The theme of the 2014 AMESA Congress is: "Demystifying mathematics'.

Why the need to demystify mathematics?

When was the last time you got up from your sofa to change the channel on your TV set or made a call from a public pay-phone or posted a letter to a friend? The world is changing at a rate as never before.

In the 21st century, scientific and technological innovations have become increasingly important as we face the benefits and challenges of both globalization and a knowledge-based economy. To succeed in this new information-based and highly technological society, students need to develop their capabilities in STEM to levels much beyond what was considered acceptable in the past.

Added to this, is the growing global recognition of the urgency of tackling a range of difficult and complex issues that impact on our human well-being. The world's population is estimated to rise from 7 billion to 8 billion by 2030 and this, against the backdrop of declining resources and changing climate conditions, means re-shaping where we live and how we live. Finding a way to adapt, to be efficient and sustainable, will require knowledge from many different sources.

In the South African context, where the number of learners taking mathematics and physical sciences at school level is declining, and the quality of matric results in these two gateway subjects is catastrophic, the pool from which the country is to grow its knowledge-based economy is less than sufficient.

South Africa has the third highest unemployment rate in the world for people between the ages of 15 to 24, according to the World Economic Forum (WEF) Global Risk 2014 report. The report estimates that more than 50% of young South Africans between 15 and 24 are unemployed. The quality of schooling, in particular, numeracy and mathematics competency, is closely linked to unemployment.

If we are to ensure a healthier economy for South Africa, better living conditions for all South Africans and a greener and more prosperous world for future generations, then the solutions have to be found in how we respond to 'demystifying' mathematics.

We hope that the presentations and deliberations at the 2014 congress, as well as the papers in the Proceedings, will go a long way towards addressing these pressing issues.

Mandisa Lebitso and Anne Maclean

July 2014

REVIEW PROCESS

The papers accepted for publication in this volume of the Proceedings (*Long Papers and short papers*) were subjected to triple-blind peer review by three experienced mathematics educators. The academic committee considered the reviews and made a final decision on the acceptance or rejection of each submission, as well as changing the status of submission. Authors of accepted submission were given the option of submitting an extended abstract rather than their full submission for publication in the publication elsewhere..

Number of submissions:	116
Number of plenary paper submissions:	5
Number of long paper submissions:	30
Number of short paper submissions:	11
Number of workshop submissions:	43
Number of 'How I teach' paper submissions:	14
Number of poster submissions:	0
Number of submissions accepted:	103
Number of submissions rejected:	4
Number of submissions withdrawn by authors:	9

We thank the reviewers for giving their time and expertise to reviewing the submissions.

Reviewers:

Jogy Alex
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Avhasei Tsanwani
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Lyn Webb

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