

# Mathematics Education Chairs Initiative

## Public Communication Learning Brief



*casme*

CENTRE FOR THE ADVANCEMENT OF SCIENCE AND MATHEMATICS EDUCATION

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# Commissioned by FirstRand Foundation and developed by



- an easily comprehensible, practical and accessible booklet
- a bridge between the work of researchers, practitioners and policy makers
- targeting decision support for teachers, teacher educators, subject advisers and relevant government bodies
- for public interest more generally

# Process followed by



- Desktop Review of Reports
- Interviews with Chairs
- Draft Brief Developed and Presented to Reference Group
- Revised Draft Presented to Chairs
- Final Revision Presented to Chairs
- Layout and Production
- Dissemination

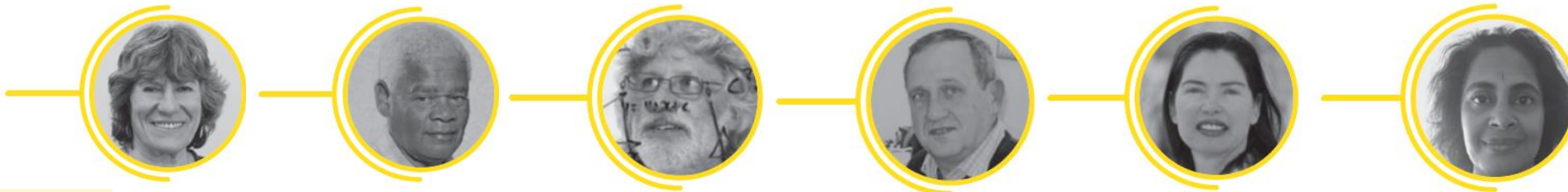
# MECI Public Communication Learning Brief reports on research and development work of six Chairs

## Mathematics Education Chairs (Secondary)

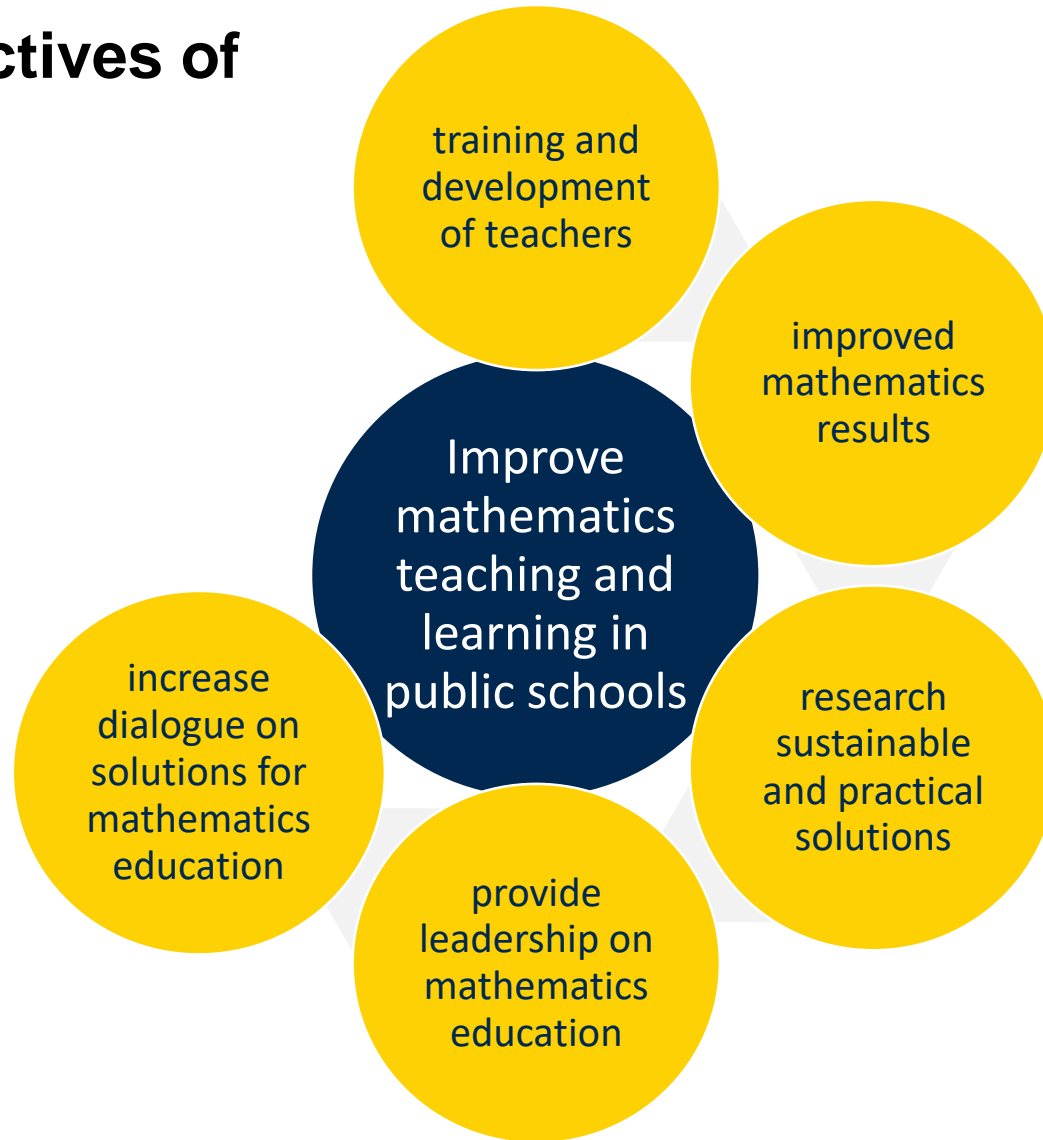
- Prof Jill Adler (Wits)
- Prof Cyril Julie (UWC)
- Prof Werner Olivier (NMU)
- Prof Marc Schäfer (RU)

## Numeracy Chairs (Primary)

- Prof Mellony Graven (RU)
- Prof Hamsa Venkat (Wits)



# Specific Objectives of MECI



## In this Public Communication Learning Brief

- MECI Research findings and related lessons
- Programmes, courses, materials and resources
- For primary and secondary mathematics education

*Based on over 380 publications and research of 140 PG students*



111

Journal Articles



51

Chapters in Books



18

Post-Doctoral



30

Doctoral



4

Complete Books



214

Conference Proceedings



54

Masters



38

Honours



National  
Research  
Foundation



science  
& technology

Department:  
Science and Technology  
REPUBLIC OF SOUTH AFRICA



AngloAmerican



FIRSTRAND  
FOUNDATION

# 9 Findings + Lessons

with qualifying features and conditions

1

**Teachers' knowledge  
of **maths** and **maths for teaching**  
enhanced through participation in Chairs'  
programmes  
in primary and secondary mathematics**



# Features and conditions for achieving gains in teacher knowledge enhancement

**strong mathematical task demands on teachers**

**modelling the mathematical practices expected**

**assessment necessary for optimal teacher development**

**after school sessions less well attended and less effective**

**intensive block intervention but over extended periods**

**in-class/in-school support is crucial**

# 2

**Chairs' programmes, findings, resources and outputs  
incorporated into teacher education programmes for  
new teachers**

# 3

**Learners taught by participating teachers showed mathematics learning gains in primary and secondary schools**

**the extent of these gains varied and  
are subject to several conditions**

**learner gains in mathematics  
take time to show**

**the whole grade chain needs  
attention**

**majority teacher participation  
needed**

**reasonable levels of  
functionality and resourcing of  
schools necessary**

4

**Increasing Mathematics enrolments in grades 10 to 12 phase remain a challenge**

**This issue warrants further focused and deeper investigation**

# 5

## Professional Learning Communities for sustainable mathematics and professional teacher development

### Requirements for their effective and enduring functioning

- Creating a professional culture and professional identity
- Involving experts/specialists to innovate and challenge teachers
- Commitment and active support of teachers, schools, districts & Depts

# 6

**Scaling up and extending teacher development reach through programmes and courses for Mathematics Subject Advisors / Leader Teachers in primary and secondary mathematics**

**teaching frameworks, models and tools researched and developed by Chairs implemented in programmes and courses**

7

**Programmes for learners in- and after-school improved mathematics performance in primary and secondary mathematics**

**Teacher development programmes that dovetail with support for the same learners taught by those teachers were effective in achieving learning gains**



# 8

## Technology used in programmes to improve both teaching and learning in secondary mathematics showed learning gains

- Using Laptops, tablets, cell phone technology
- Using available and specially designed maths programmes
- Offline ICT and quality digital materials important lever for maths learning gains

# 9

## Programmes for parents and families to enhance early primary mathematics learning

(Reception and Foundation Grades)

- **Growing interest in Maths programmes for parents/care givers**
  - **Family-oriented maths activities**

# MECI

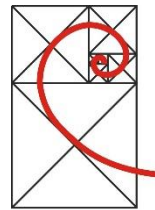
## Public Communication Learning Brief

electronically available

information and access to the resources and materials of the different Chairs available through links to their respective websites

[www.casme.org.za](http://www.casme.org.za)

# Thank you



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