SAARMSTE

Southern African Association for Research in Mathematics, Science and Technology Education

SUPPORTING STEM EDUCATION/STEM EDUCATION RESEARCH: SAARMSTE RESEARCH SCHOOL

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Chair: SAARMSTE RCBC Committee

RATIONALE FOR SAARMSTE RESEARCH SCHOOL

- In South Africa limited course work attached to doctoral studies
- Specific focus on science, mathematics and technology education
- Limited supervision capacity in several SA HEIs, but notable exceptions too in a diverse HEI terrain
- Many students part time and struggling to find dedicated time for their studies
- Increasing numbers of early career post-doctoral scholars in a difficult HEI/ research funding space

SAARMSTE RESEARCH SCHOOL GOALS

- Build capacity for STEM education, teacher education and research
  - Develop quality for STEM teaching at school and tertiary level
  - Develop capacity for STEM teacher education
  - Increase capacity for STEM research
- Cultivate networks of STEM researchers and build regional research culture
  - Locally, regionally and internationally, equitably
  - Topics of mutual interest, local challenges

RESEARCH SCHOOL MODEL

- Residential, off-campus venue, 4 days, regional and national rotation
- 40 – 50 STEM education doctoral students & early career scholars from SA and regional universities
- National/ regional expert facilitators
- 2 international facilitators
- Supplement for university-specific STEM education
- Collaboration between facilitators, all sessions run by teams

RESEARCH SCHOOL ACTIVITIES

- Themes running through the week: theoretical frameworks in STEM education, data analysis, academic writing & publishing
- In 2018, a separate ECS strand with 11 participants
- Multi-format: plenary, workshops for interaction, engagement involving small group & one-on-one feedback sessions

RESEARCH SCHOOL: HISTORY OF SUPPORT

- NSF, NRF funding in the early years
- 2011-date, some co-funding from local and international STEM education researchers for international facilitator costs
- 2 x ProSET funding, most recently in 2018 for ECS strand
- Increasingly, full costs borne by students/supervisors – leading to creeping inequity
- Dangers of system not being able to capitalize on increasing doctoral throughput in STEM Education

CURRENT POSITION

Successes

- Institutional 'home'
  - SAARMSTE: Research Capacity Building Committee
- Funding
- Over 500 students supported, highly positive feedback, increasing HEI teaching, supervision and research capacity in STEM education/teacher education
- Ongoing support for a transformed academy in STEM Education via ECS strand

Challenges

- Sustainability – a challenge for the future
- Dangers of entrenching, rather than addressing inequities

FEEDBACK

- ‘What a fantastic school, I have learnt so much. You have all made me a better PhD student by far.’
- ‘Through the sessions, I learnt how to visualize myself in next years, what I want to become and how I am going to contribute to my field. So I learnt that it is not yet over, PhD is just the start.’