



Today's research... tomorrow's innovation

Discussion forums on Language and STEM Education

3-4 October 2017

Emperor's Palace – Convension Centre

Background

Currently South Africa is experiencing ongoing student protests at universities, and in particular about the medium of education at tertiary institutions. This follows protests and campaigns about tuition fees, and before that, symbols of colonialism.

Language issues in South Africa are always thorny issues and have not been adequately addressed since the advent of Democracy in 1994. Currently these issues are burning issues, and contain strong echoes of the current passionate debates in our society about racism.

In the STEM subjects (science, technology, engineering and mathematics) particularly, it is worrying that medium of instruction issues may be part of the reason why South Africa's school learners are not making sufficient progress in these subjects, despite the biggest portion of the annual national budget being allocated to school education!

Professional members of the NSTF (National Science and Technology Forum) have requested a thorough discussion among various role players, of these issues.

In addition, the participation of girls and women in STEM subjects remains an issue of ongoing concern. There is evidence of some progress in this regard in South Africa, but as elsewhere in the world, it remains more challenging for girls and women to fulfil their potential in these subjects.

Issues to address:

- What does research say about the medium of instruction at Primary, Secondary and Tertiary level?
- How can we fast-track our people's education whilst preserving and growing the rich cultural heritage of a variety of language groups?
- What does research say about the medium of instruction for mastering the STEM subjects?
- What is best practice in other countries?
- What does government policy say (both nationally and provincially) about medium of instruction as well as the learning of languages?
- Why are these issues still so unresolved? What does research say about language and identity? What does it say about multi-cultural societies and the challenges to peace?

- What does research say about the ways in which the genders learn, and whether girls are accommodated as much as boys? – particularly in the STEM subjects.
- What should be done about gender bias in the use of language for teaching and learning?

Purpose of the discussion forums:

- Share research findings that can shed light on the issues listed above
- Share Government policy that is relevant to the issues
- Bring stakeholders together from various backgrounds, sectors and disciplines
- Discuss the key issues with a view to describing valid opposing viewpoints, or reaching consensus
- Draft recommendations and discuss possible further actions

Proposal:

1. Capture the discussions, and share them on the website and social media
2. Distribute a Media Release on the main issues and recommendations
3. Write a report on the presentations, proceedings, survey and recommendations
4. Submit the report to the 4 national Government Departments, the 4 Parliamentary Portfolio Committees, and some of the Provincial Departments, as well as PanSALB (see here below).
5. Meet to evaluate what has been done, and discuss possible further actions.

Proposed programme:

Speakers:

1. Government

National Department of Basic Education

National Department of Higher Education and Training

National Department of Science and Technology

National Department of Arts and Culture

Provincial departments – of Education and Arts and Culture

Parliament – portfolio committees on Basic Education, Higher Education and Training, Science and Technology, and Arts and Culture.

2. PanSALB

HISTORICAL BACKGROUND

The Pan South African Language Board is established in terms of the Pan South African Language Board Act 59 of 1995 amended as PANSALB Amendment Act of 1999. The Board was established according to the Constitution of the Republic of South Africa (Act 106 of 1996) in order to:

- (a) promote, and create conditions for the development and use of official languages v the khoe and San languages v sign language
- (b) promote and ensure respect for all languages commonly used by communities in South Africa, including German, Greek, Gujarati, Hindi, Portuguese, Tamil, Telegu, and Urdu and; Arabic, Hebrew, Sanskrit, and other languages used for religious purposes in South Africa

3. **Researchers and experts–**

- second language education,
- the effect of medium of instruction in forming basic concepts in mathematics and science,
- the ways in which language used during teaching influence the participation of girls in STEM subjects
- educational advantages of multilingualism,
- linguistics (with a focus on the language groups used in Southern Africa)
- pedagogy in multi-lingual classrooms
- Indigenous knowledge and language
- etc.

4. **Teachers** – early childhood, primary, and secondary – who teach in multi-lingual classrooms.

5. **Scientists and engineers** – who learnt in a variety of languages and were successful in building their careers. (Award-winning professionals in particular, could shed light on these issues) Here it is important to include women scientists and engineers to hear their experiences and opinions of the challenges for girls and women in these fields.

Sessions:

Day 1:

Plenary session – Speaker from PanSALB and 2 Government speakers

Breakaway sessions:

Primary education – forming basic concepts in STEM subjects – and medium of instruction

Secondary and tertiary education – developing technical terminology within specific subject areas – studying languages and linguistics

Teachers’ contributions

Pedagogy and resources in multilingual classrooms (researchers)

Day 2:

Plenary session – 2 Scientist/Engineers, and 2 Government speakers

Issues of cultural heritage

Report back from breakaway sessions

The way forward – recommendations to the authorities