



Sustaining excellent science

On 13 July 2023, the National Science and Technology Forum (NSTF) announced the winners in various categories for scientists in South Africa. On show, amongst both the winners and the finalists, was an impressive array of South African scholarship and innovation, with work focussed on solving pressing problems in our country, our continent, and, indeed, our planet. This event is just one opportunity for science in South Africa to be recognised and celebrated. We at the *South African Journal of Science* congratulate all the nominees and winners, and we look forward to receiving submissions from them all for consideration for publication in our journal.

Less than two months before this date, on 16 May 2023, the Progress in International Reading Literacy Study (PIRLS) Report of 2021 data was published.¹ As the South African Preliminary Highlights Report² demonstrates, the results for South African children are cause for very serious concern. The economist Nic Spaull³ refers to the findings for South Africa as a 'generational catastrophe', and amongst the key summary points made by Spaull on the findings are the following (quoted directly from Spaull³):

- In 2021 81% of Grade 4 learners cannot read for meaning in any language, up from 78% in 2016.
- SA came last of all 57 countries [studied], with the largest decline between 2016 & 2021.
- The average Gr4 child in SA in 2021 was 80% of a year behind their counterpart in 2016.
- Northern rural provinces experienced the largest declines in reading.
- English and Afrikaans schools did not experience a decline between 2016 and 2021.
- Brazilian Grade 4s are 3 years ahead of South African Grade 4s.
- SA does not currently have a credible or budgeted plan to catch up learning losses, despite experiencing the largest decline between 2016 and 2021.

The story these data, and others in the report, tell, is alarming. South African Grade 4 learners perform appallingly in reading for meaning when compared with children in 56 other countries, and lag three years behind those in a comparable BRICS country (Brazil). Things are getting worse, if one compares with data from previous waves. And within the pattern of general poor performance, existing inequalities, including those of language and place, are reproduced in the reading comprehension skills of Grade 4 learners in South Africa.

There are many excellent researchers working very hard to improve a serious and deteriorating situation, but these data have implications, not just for those working in fields related directly to literacy and school education, but also for all scientists. If skills deficits are so serious and getting worse, it may well have implications for the future of science in our country – the pipeline, as others have said, is broken.

The contrast between the great achievements showcased by the NSTF and the PIRLS data may lead many South African scientists to feel as though we are living simultaneously in two very different worlds – on the one hand, South Africa is a world leader in a number of scientific fields, and on the other, ours is a country of vast, and probably growing, functional illiteracy (including scientific illiteracy). The PIRLS study confirms the latter. At the same time, many South African academics face the everyday stress of doing their best to educate on a mass scale, and with few resources, poorly prepared students without the skills in basic literacy and numeracy one would expect university students to have. The

effort this involves impacts on academic and research productivity from these academics, and also creates a situation in which many academics, and others, question the value of some university qualifications. Through all of this runs the river of historical and ongoing inequality: we have excellent, well-trained and equipped scientists, but we also have those excluded from having a fair chance at developing their talents so that they can aspire to the privilege of a productive and meaningful scientific career. As a scientific community, across all disciplines, we have a collective responsibility to be mindful of and to contribute to working towards the eradication of dysfunction and inequality in our educational systems, and in our society as a whole. This is an issue not just of social justice but also of sustainability of the good quality of science in our country.

In this regard, it is especially pleasing and encouraging for us that this year's winner of the Lifetime Award at the NSTF ceremony was Professor Jonathan Jansen. The commendation given for this award by the NSTF reads as follows:

For a distinguished contribution to the advancement of education scholarship through advanced research and publication, scholarly teaching, innovative university management especially in times of racial disharmony, science leadership, school improvement, educational innovation, capacity development, public engagement, and science advocacy.

At the *South African Journal of Science*, we experience Jansen's support and help regularly, way beyond what could reasonably be expected from his role as President of the Academy of Science of South Africa (ASSAf), our publisher. More importantly for this discussion, though, is Jansen's ongoing work to improve the quality and sustainability of scholarship and research in South Africa. And it is no coincidence that one of Jansen's most recent publications, *Corrupted: A Study of Chronic Dysfunction in South African Universities*⁴, reviewed in this issue, deals with the question of corruption in higher education in South Africa. Though it is a daunting, and probably impossible, task fully to understand the depth of dysfunction in some of our higher education institutions, a contributing or exacerbating factor must be the lack of equal access to the tools of rigorous scientific enquiry. Science is not about the production of what in today's knowledge economy are termed 'outputs', but about the use of skills to articulate and solve problems. And currently, as in the past, these skills are bound up with historical and current privilege.

To bridge the gap between the two worlds – science excellence on the one side and lack of access to functional literacy on the other – is no easy task. But we need more concerted work across disciplines to stop the gap from widening, and ultimately towards bridging it.

References

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