

## What's so bad about sound opinions?

The release of the World Economic Forum's (WEF) *Global Information Technology Report 2014: Rewards and Risks of Big Data* in June has received varied responses in South Africa. The Report's central focus is, as it states, global information technology – and the readiness of countries to avoid the risks, and benefit from the very considerable rewards, associated with 'big data'. As part of the analysis presented in the Report, the general quality of education systems, and of maths and science education in particular, are scored – a small part of the overall assessment, but (of course) telling in themselves. The Report placed the general status of South Africa's education system at 146 out of 148 countries, and the maths and science education at 148 out of 148. By comparison, Swaziland was placed at 81 and 91, respectively, and Zambia at 38 and 76.

The Minister of Science and Technology, Naledi Pandor, is quoted as saying that the Report's findings were 'based mainly on perceptions, rather than testing of the learners'<sup>1</sup>, while the Department of Basic Education (DBE) issued a media release stating<sup>2</sup>:

*The Report is not a credible or accurate reflection of the state of education in South Africa. This Report falsely insinuates [sic] that South Africa's maths and science education is ranked as the worst in the world. The DBE rejects this finding as it is based purely on the opinions or perceptions of selected executives.*

Adrian Schofield, a Fellow and Professional Member of the Institute of Information and Technology Professionals of South Africa, has offered a more nuanced view<sup>3</sup>:

*The DBE is right about the Report being based on the opinions of selected executives, and only a handful of them. Without some rigorous investigation of how they are selected and what sort of sample cross-section they represent, it is impossible to gauge how much reliance to place on their responses. Even if we are satisfied with the sample, they still only represent business interests, and it would be better to include other stakeholders in the sample, together with a data-based analysis of pass marks and pass rates.*

Schofield does not argue, however, that the findings are 'grossly inaccurate'. He suggests that many people agree that the average quality of education in South Africa is abysmal. 'If we can achieve the halfway point in the Network Readiness Index, we should be able to achieve at least that in education.'<sup>3</sup>

The original source of the education data used in the Report – the WEF's *Global Competitiveness Report 2013–2014* (October 2013) – shows, however, that the methods used by the Executive Opinion Survey (which provides the information to the WEF) are spelled out with care, as are the techniques (such as Mahalanobis distance and univariate outlier tests) used to determine data outliers. Of course, it remains true that the survey reflects the views of just one sector of society – that of business leaders – but, as Schofield points out, this does not necessarily mean that the results of the survey are entirely ('grossly' in his words) incorrect.

To be fair, however, it makes sense that we should consider the 'testing of learners' mentioned by Minister Pandor. Unfortunately, South Africa is not one of the adjunct countries covered by the Organisation for Economic Cooperation and Development's wide-ranging Programme for International Student Appraisal, but has been included in the Trends in International Maths and Science Study (TIMSS). The test, based on each country's own curriculum, was conducted for Grade 8 learners in 42 countries, and for Grade 9 learners in 3 countries – including South Africa. South Africa would have ranked 41 out of the 42 countries for both maths and science, despite having the advantage of being one grade up. The next TIMSS

assessment will take place next year and it will be instructive to revisit the South African results when they become available.

Nor is this the entire story: there are other indicative measures of the state of maths and science education in South Africa. Between 2009 and 2013, the number of students writing the maths and science exams dropped by 17% for both subjects, and of the 43% who wrote the maths exams in 2013, only 26% scored results over 50%. In addition, the 2013 Annual National Assessment results revealed that only 39% of Grade 6 learners and 2% of Grade 9 learners in South African schools were able to score more than 50% in maths tests. So while the overall National Senior Certificate results are 'improving' each year, the critical disciplines, when it comes to tertiary education and employment, are actually growing worse each year – for although the percentage pass rates in maths and science are creeping up, the number of students writing the exams is declining.

There can be little doubt that this situation is a major contributing factor to youth unemployment. There are, of course, demand-side challenges to be taken into account – but low levels of skills, numeracy and literacy have a critical role to play. In 2007, 2.7 million young people between the ages of 18 and 24 were 'not in employment, education or training' – the NEETs. By 2010, the number had grown to 3.2 million; both figures include young people who did not even make it as far as Grade 12. This year, STATS SA reported that close to two-thirds of young people were unemployed for a year or longer, while young people account for 90% of those who are unemployed and have never worked before. In his address on Youth Day this year, Deputy President Cyril Ramaphosa informed his audience that

*the youth are particularly vulnerable to unemployment, poverty, inequality and low skills levels. More than a third of young South Africans in the labour force are unemployed. Youth unemployment is probably the single most critical challenge facing South Africa today.*<sup>4</sup>

As far as higher education goes, the implications are equally dire. The pool of Grade 12 graduates who qualify for major disciplines in the natural, applied natural, and social sciences is diminishing at the very time that the country needs more and more graduates from these areas.

Why, then, the fuss about the data published in the *Global Information Technology Report 2014*? There are measures, indicators, and social and economic circumstances that bear out the 'mere opinions' and their implications. Surely the appropriate responses, especially from government, would have been – we are probably not that bad, but bad enough, and we need to address the problem seriously. Perhaps the opinions of a limited number of well-informed people are not that far off the mark after all, and we need to act rather than rail against bad news.

## References

1. Ngubeni T. Pandor outlines key DST plans. c2014 [cited 2014 Jun 20]. Available from: [http://www.itweb.co.za/index.php?option=com\\_content&view=article&id=135099:Pandor-outlines-key-DST-plans&catid=86](http://www.itweb.co.za/index.php?option=com_content&view=article&id=135099:Pandor-outlines-key-DST-plans&catid=86)
2. Department of Basic Education. Education department rejects WEF global report on Information Technology, 02 June 2014. c2014 [cited 2014 Jun 20]. Available from: <http://www.education.gov.za/Newsroom/MediaReleases/tabid/347/ct/Details/mid/2929/ItemID/3948/Default.aspx>
3. Institute of Information Technology Professionals South Africa. The Global Information Technology Report 2014: Should South Africans be worried? c2014 [cited 2014 Jun 20]. Available from: <http://www.iitpsa.org.za/index.php/global-information-technology-report-2014-south-africans-worried/>
4. Keynote address by Deputy President Cyril Ramaphosa. c2014 [cited 2014 Jun 20]. Available from: <http://www.sabc.co.za/news/a/e8cd78004463b6a290dff4744a7933f3/Keynote-Address-by-Deputy-President-Cyril-Ramaphosa-20141606>

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