

An impression of the MeerKAT radio telescope which comes online this year. It will be the world's most powerful and a boon for UWC astronomers.



South Africa, Madjoe says. “We are shaking off the shackles of history,” he says. “This is a place for everybody, a place for quality, a place to grow.”

Maarten believes this is just the beginning for UWC and its astronomy group. When a precursor of the SKA, MeerKAT, comes online this year it will be the world's most powerful radio telescope until the SKA is built, says Maartens.

UWC researchers will use MeerKAT to study how galaxies evolve. “It presents a fantastic opportunity,” he says.

Both Maarten and Madjoe acknowledge the university may face tough times. Violent protests suspended classes at campuses all over the country in 2015 and 2016, with protestors demanding an end to tuition fees, which universities have been increasing to offset increasing costs.

There are widespread concerns that extended unrest will threaten research at the country's universities. Projects such as the SKA, which are high national priority, are giving UWC astronomy a buffer for now, says Maartens. “But there's a concern about the future.” ■

COMMENT

RESEARCH NEEDS MORE COMPETENCE, LESS ‘EXCELLENCE’

There is much talk about the need for excellence, but is it really what science needs, asks Adrian Barnett

It is almost impossible to work in research without hearing the word excellence. Universities use it in their mission statements and funding agencies name programmes after it. The word has of course made its way into a numbing array of institution titles, such as Germany's Clusters of Excellence and the Australian Research Council (ARC) Centres of Excellence.

A recent paper by a group of open access researchers and advocates has taken a sharp look at the science world's pervasive use of the word. They go so far as to call it a fetish and conclude that it's having negative consequences for research. “Excellence is not excellent, it is a pernicious and dangerous rhetoric that undermines the very foundations of good research and scholarship,” write Samuel Moore, Cameron Neylon, Martin Paul Eve, Daniel O'Donnell and Damian Pattinson.

How can a positive term be considered so damaging? For one thing, the term is not well-defined. Excellence could mean working with great teams, achieving the highest standards or producing research that has an immediate real-world impact, such as saving lives.

Even national agencies struggle to define the word. The ARC runs the Excellence in Research Australia (ERA) exercise to benchmark the country's universities. Research quality is rated on a 1-to-5 scale from “well below world standard” to “well above world standard”. Excellence is thus defined in terms of what others are doing.

If excellence in research exists, it should be possible to see it in data. For example, the highest ranked grant applications in either the US National Institutes of Health (NIH) or ARC should yield the most productive projects. But, when researchers examined grants funded by the NIH they found only a weak association between how expert reviewers

ranked the grant and the eventual outcome of the research. The imprecise definition of excellence has diminished its utility. For instance, although negative and positive trials are equally valuable to science, a positive trial is more valuable to a researcher's career as it will be easier to publish in a top journal — a frequently used metric of excellence. When we reward excellence based on journal impact, we are somewhat rewarding luck.

The authors of the excellence paper suggest it would be better to focus on good research practice. For instance, a project would be judged by whether the researchers sought

to answer a worthwhile question, planned and executed the study by defined standards and wrote up the results clearly and honestly. In this kind of system, excellence would be defined chiefly by how results were obtained, rather than by what actually was found.

As more researchers compete for limited

funding some scientists are driven to spin their results to appear more positive. Rewarding research based on competence would take the heat out of a system that is hyper-competitive.

But, celebrating competence over excellence is a hard political sell. Funding agencies and universities want to celebrate ‘excellent’ research that changes lives, and this is welcome. These examples spark the public imagination and provide political capital for science.

Inside the research world, instead of just focusing on positive, if somewhat fortunate, discoveries, we must also recognize that science is a methodical process that sometimes discovers an important failure. ■

‘SCIENCE IS A METHODOLOGICAL PROCESS THAT SOMETIMES DISCOVERS AN IMPORTANT FAILURE.’

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