Minister Pandor's speech to the USAF-Association of Commonwealth Universities early-career researcher symposium

University of Johannesburg, Auckland Park Kingsway Campus
Library, China Achebe Auditorium
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9.30

The South African University system has a rich research tradition, producing significant research in comparison to its size. “We punch above our weight”. We say that a lot. We have seen a steady growth in the research output of our universities. However, we must pay closer attention to building on the foundation of the existing research capacity in our universities.

There are a number of issues that we are have to attend to.

I want to talk about postgraduate supervisors, professors and contingent staff.

The modernisation of South Africa’s economy will be driven by universities, which train professionals (engineers, doctors, lawyers) and who support research scientists (rocket, astronomy, nano, IT, robotics).

Increasing the number of PhD graduates is crucial not only for future development but also for equity and diversity.

On the part of government, the DHET and the DST are responsible for a range of interventions to increase the number of postgraduates.

For instance, the DHET links university funding subsidies to the number of MA and PhD graduates at a university.

In another example, the DST funds the South African Research Chairs Initiative that supports over 200 research professors and 1,600 postgraduate students.

But there are still gaps. It’s difficult for graduates from a low-income home to pursue a postgraduate qualification, and so begin a research or scientific career.

In 2015 the DST commissioned Professor Mouton to undertake a postgraduate-pipeline study.

The DST’s Dr Bheki Hadebe will tell you later about a later report, the emerging researcher or missing middle researcher report that Professor Mouton conducted last year.

The pipeline study terms of reference were simple: why do so few doctoral students enrol and complete? The answer he gave is that most doctoral students work while they study. They have to earn an income to support families. And bursaries are inadequate to allow full-time study. That was the double bind.

Interestingly more natural science than social science students study full-time and more natural scientists than social scientists graduate. The study drew the conclusion from this double bind - part time study and half cost bursaries - that a 'radical rethink' was required to

enable potential doctoral students to be nurtured from honours level to appointments in university departments.

Our approach may not be radical enough, but it is as follows.

First, we support South African PhD students to study abroad. With the support of programmes like the UK's Newton Fund, we are increasing the numbers of PhDs trained abroad.

Second, we are attracting to South Africa a large number of young international researchers, who have recently completed their PhDs and who are looking for a post-doctoral project, so as to expand our PhD supervisory capacity.

And, third, we promote split-time PhD programmes, where the student will spend a third of his or her doctoral programme outside the country.

We aim to fund the people who supervise good-quality PhDs to a considerably higher level, and dispense considerably larger PhD and postdoctoral bursaries for longer. This approach would be good for senior scientists, good for their junior colleagues, good for students, good for science – and good for South Africa.

A major task is to address gender and racial imbalances in the make-up of our university workforce. We not only want to encourage more students to embark on science and engineering degrees, but we are also making plans to sustain their ability to pursue research careers. Too often our research talent is lost because of the attraction of other lucrative careers.

We are paying particular attention to the historically disadvantaged universities. Through earmarked grant funding, the plan is that each university will identify at least one multidisciplinary research focus area. They will be incentivised to become a centre of excellence in this area through the offering of postgraduate programmes and through the conceptualisation and execution of high-value, high-impact research projects.

Another challenge is the limited capacity of the current system to supervise a large increase in the number of postgraduates. Their output suggests that research-active South African academics are highly productive, and further increases are not feasible in the short term without an expansion in their number.

In part, the research chairs programme addresses this challenge. Other state initiatives that aim to address the constrained postgraduate training capacity of the system include the DHET's Research Development Grant, which focuses on enhancing the supervisory and research capacity of academic staff, and the DHET's New Generation of Academics programme, through which it plans to establish more than 2,000 new academic posts within the next five years.

Providing postgraduates with an opportunity to work on high-profile, world-class research projects and infrastructure is another important intervention in attracting undergraduates into PhD programmes.

Already the Square Kilometre Array project is very effective and efficient in attracting students into physics, astronomy and engineering, and retaining them through to their doctoral degrees.

South Africa's HIV and Aids research programme has attained global recognition and provides innumerable sought-after postgraduate training opportunities.

As a result of these and other concerted efforts, the number of PhDs more than doubled to 2,700 graduates a year in less than a decade. Although this falls short of the 5,000 doctoral graduates required annually, it nonetheless constitutes a steep increase.

So what did we we learn from Professor Mouton's pipeline study.

First, we learned that we need full-time PHDs and comprehensive funding packages.

Second, we need to look at the quality of PhD supervision.

Most South African universities have PhD supervision guidelines, but they vary widely in the number of contact hours a student can expect of a supervisor. Many years ago when ASSAf conducted a study of PhD training, under the leadership of Professor Jansen before he became VC of the University of the Free State, the average number of contact hours between supervisor and student was two. Yes two. Phd students are left to their own devices. I wonder if universities tell their academic staff that there is a substantial subsidy for each postgraduate student who graduates. Or do researchers focus on

publishing articles and papers that pump up their foreign-travel research budgets?

We need a new generation of academics.

Some years ago there was a fierce debate about the whiteness of our professoriate. There were three positions and I'm sure you know who the champions of each were and are. The first was that it takes twenty years of research and teaching after earning a PhD to be promoted to a professorship. The second was that far too much money was spent on students and not enough on staff. And third was that universities were using the ideology of merit to prevent the promotion of blacks to the rank of Professor.

Professor Jansen writes:

"There is nothing more important that determines the future of the South African university than how we resolve the question of the black professor. How we settle this debate will decide whether middle-class South Africans, black and white, send their children overseas for their degrees in coming years. It will also determine whether the quest for justice in the character and complexion of the professoriate will ever be met inside institutions of higher learning."

The problem was, according to him, "the lack of an effective strategy for identifying, funding and nurturing young black scholars from the first degree onwards". Now that he has retired as a VC, he is putting his mind to this problem.

Finally, what are we to do about the prevalence of contingent or hourly paid staff? I know this is a global development, but our universities don't have to follow the global trend. They insource support staff at universities and outsource academic staff. This cannot be the right path for emerging researchers or a new generation of professors.

The CHE twenty-year review of a few years ago highlighted the fact that there has been little if no increase in permanent staff in the face of a doubling of student numbers over the last decade. The workload has been taken up by temporary staff.

Permanent white staff are declining and permanent African staff are increasing. But few permanent posts are being released.

The CHE concludes:

"Given the trend towards increasing casualisation, and the much slower growth in permanent positions, the negative implications for the rapid transformation of the academic workforce in terms of demography and the achievement of greater equity are obvious."

There is a solution to this and it lies in the DHET's university capacity development grant and in government's commitment to boost university finances to 1% of GDP over the coming five years. It's up to universities to decide what to do with this funding. But it would make sense to spend it on academic staff.

In closing, we are on the way to fulfilling the targets of the National Development Plan that proposed by 2030:

- The percentage of academics with PhDs should be increased from 34% to over 75%.
- Over 25% of total higher education enrolments must be at postgraduate level.
- Universities must produce more than 5,000 PhDs per year – against 1,420 in 2010.
- The number of graduate, postgraduate and first-rate scientists must be doubled.
- The number of African and women postgraduates, especially PhDs, must be increased.
- All forms of discrimination must be eliminated and a welcoming learning and research environment created