

THE CONVERSATION

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People, funding and constant learning are key to creating research excellence

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There's no blueprint for excellence, but some building blocks are crucial. Shutterstock

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It's been 20 years since I took up a position as a professor in the Department of Genetics at the University of Pretoria in South Africa. My job, along with a team of academics and post graduate students, was to set up an entirely new research institute.

Two decades on, the Forestry and Agricultural Biotechnology Institute enjoys a substantial international reputation for high quality research and post graduate education. This is across a broad range of disciplines related to the health of plants that intersect in many ways. Research done by the institute has established the university second on the world rankings in the field of mycology – the study of fungi. The university is also home to the world's largest single programme studying the health of plantation-grown trees.

So how did we reach this point? Research institutes and “centres of excellence” exist around the world to draw talent and to share resources - all with the aim of solving important problems. In Africa, the main impetus is to increase the number of postgraduate students on the continent.

After two decades of hard work, success and, of course, challenges and failures, I think there are a few things other institutes and centres could learn from the centre in Pretoria's journey. The main themes

are: learning from what works (and what doesn't); growing your own (diverse) timber, hiring the right people, and not getting hung up on hierarchy; and, crucially, working hard not to run out of money.

Here's how we've learned and applied these lessons.

Our approaches

1. Learn from what works (and doesn't)

There is no blueprint or model that we rigidly adhere to. We are able to experiment with new and often untested operating procedures. We also keep constantly up to date with new research ideas, techniques and technologies

Then, whenever our research teams hold their quarterly strategy reviews, we consider the operational "experiments" that worked and those that were less successful. This allows us to build on what worked and discard what didn't.

Many of these experiments have been very successful. Some have been absorbed by the higher structures of our "home" university, Pretoria. Some have been used in developing leadership plans for various international research programmes and projects.

2. People are key

FABI has a formal leadership structure but we've retained a "flat" management style. Visitors often remark that the office doors bear names without titles. This is a decision made with very clear intent: to avoid a hierarchy that can so often stifle easy engagement at all levels.

As a leadership team, we have strongly promoted the understanding that an individual's success should be celebrated by the collective. So we work actively not to compete amongst ourselves for resources, students and space. Most of the institute's laboratories do not "belong" to any particular researcher, which creates a substantial diversity of post-docs, PhD and Masters students in individual laboratories.

Diversity here relates to cultures, languages, genders and personalities. For example, every other year we conduct a language census. For the last decade there has been an average of just more than 30 mother tongue languages among the institute's staff. This is a result of the many foreign students – from elsewhere in Africa, Asia, China and South America, among others – who work alongside South Africans.

Most of these South African researchers have been with FABI throughout their postgraduate careers. We've consciously tried to "grow our own timber", because time and time again we have found that attracting young researchers to our programme, mentoring them and eventually employing them as academics produces the best results.

This might sound like academic inbreeding and maybe, in a way, it is. But the reality is that – unlike in so-called developed country environments – the pool of potential young academics is not

particularly large.

We work hard, though, to prevent stagnation. Our students and leadership team engage very strongly with the world's best research laboratories. And we bring back to Africa the latest in terms of ideas, technologies and longstanding, powerful collaborations.

3. Money matters

The first law of business is “never run out of money”. Running a research institute is no different. FABI was given salaries for its key academics and excellent laboratories. But the University of Pretoria has never given us core funding.

It is an academic's responsibility to raise research funding. As a team, we continuously apply for research grants to fund our research and bursaries for post graduate students. This takes a lot of time and effort and there is never a guarantee that a proposal will be successful. My own “thumb suck” guideline when it comes to applying for research funding is to never assume that I will be successful more than 20% of the time: for every success one should write five applications.

An important element relating to funding is that we work across a substantial diversity of disciplines, an approach we refer to as capturing the power of the **Medici Effect**. This enables us to tackle research problems of a complex nature and that rely strongly on a multidisciplinary approach.

Diversity in funding is also important. Academics particularly in the developing world should be looking to both governments and industry for support in producing research that has real-world applications.

Excellence

These are just some of the elements of what I believe have contributed to driving the road to research excellence in the institute.

Clearly, there are other examples that can also offer lessons and guidance. Sharing this sort of information is an important way to replicate excellence.



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