

source: South African Airline
magazine
"S'kydaxr"
April 2012

For the love of science

Three young South Africans get a boost to their research and careers

So after 20 years or so, MacGyver has returned to our screens, bringing with it memories of a more innocent television era – and a time when thousands of children were inspired by the character to get into science.

MacGyver studied science and worked as a bomb technician before the series began, and it was this handy background which enabled him to do nifty tricks, like repairing a blown fuse using the aluminium wrapper from his chewing gum or stopping the holes in a radiator by throwing raw eggs in it (they tested that on *Mythbusters*, and it worked).

Science was the hero as much as MacGyver. We need more shows like that, to thrill children with the excitement of understanding and manipulating the laws of nature. Because we need more scientists. Scientific research is so important to us – it's the foundation of every kind of economic activity after all, as well as health, agriculture and much more. Government recently announced a project to build South Africa's own drug manufacturing plant – with adequate scientific knowledge and research, we could parlay that into something of huge benefit for the country.

So it's heartening to discover a generation of young scientists whose excitement about and enthusiasm for their research is contagious.

Boosting health research

In November last year, a function at the University of the Western Cape showcased the work of a group of young scientists who have benefited from a collaboration between pharmaceutical company Novartis and several universities. "There is a need for more post-graduate students and more skills in clinical research and the basic drug discovery sciences in Africa," explains Novartis Clinical Pharmacologist and head of Scientific Capability Development, Colin Pillai. Among African countries, South Africa has the most publications in scientific journals, but the output is still low, and this

initiative sought to combine academic and corporate resources to kick-start the careers of young scientists in developing countries. A group of 15 students from Ethiopia, Kenya, Russia, South Africa, Tanzania, Ukraine and Zimbabwe went to the Novartis Campus in Basel, Switzerland for three months last year, where they were able to work with state-of-the-art equipment, under the mentorship of the top scientists in their fields.

When you talk to three of the South Africans who were part of this group, the impact and excitement is tangible. Khulekani Mncube, a Masters student at the University of Pretoria, says she wasn't actually that interested in research before these three watershed months, but in Basel, "I found the researcher in me – in fact, I fell in love with the researcher in me."

Ntokozo Dambuzza, who is a PhD candidate at the University of Cape Town, says the experience of working in a huge lab with equipment at the cutting edge was mind-blowing. "There's so much you can do! It helps you to dream..." And the University of the Witwatersrand PhD student, Justin Hean says, "There were some really nifty techniques learnt that side which benefit myself and some of the students here." He adds that the internship was "empowering; it gets you realising that a lot is possible with the right motivation and drive."

All of them enthuse about the helpful nature of the contacts they made while there – Khulekani, for example, points out that she was working under Dr Marcus Stoeckli, one of the top three experts in her field. All of them now have the option of simply sending a quick email or picking up the phone when they need advice or help with a technical problem.

Science is the foundation of every kind of economic activity



Khulekani Mncube with her famous mentor, Dr Markus Stoeckli



Khulekani Mncube in the lab



Ntokozo Dambuzza in the lab at UCT

for delivery of the drug right where it's wanted. This is a very advanced technology, but, says Justin, "Ideally, the work done here [in Basel and at Wits] will advance the field of vectorology, making gene therapy an affordable goal for developing countries."

Each of these young scientists knows that they have returned as both tutors and ambassadors, bringing back training, skills and experience which they will share with others locally.

There's a sense that the Basel experience has opened doorways for these three young scientists, not just in terms of the research they've done and the contacts they've made, but also in their own minds, showing them a bigger picture of science and its possibilities. And that's something South Africa could use a lot more of.

What science needs

All of them have pronounced views on what science and scientists need in South Africa:

- Recognition of their role. "What makes a country powerful?" asks Khulekani. "Behind a healthy economy is healthy science." Science needs to be communicated better, too, she says – people will only support what they understand, and they will only support science if they really 'get' its vital role in driving our society.
- Better teaching at schools. "High school science and maths education needs special attention. With shaky foundations, weak scientists will be made," says Justin.
- Funding for research is essential. "Basic research projects like mine are important and need funding," says Khulekani. But most funders only look at how close the project is to commercialisation. Government does support research, of course: "Our country is improving, it is releasing more funds for research," says Ntokozo, "But more is needed. And we need to be more careful about ensuring the funds are appropriately distributed."
- Collaboration. "You can't do advanced research without collaborating with the right people in advanced areas such as the USA and Europe," says Ntokozo. And "Scientists need to make the effort to collaborate locally," says Justin, pointing out that this is not unique to South Africa, but is a global problem among scientists. "We have a lot of expertise and resources not being capitalised on."

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This is Jason Gunn's We Try Harder moment. As his flight was called, Jason reached for his phone to make a final call. Then, sick to his stomach, he realised he had left it in the Avis rental car. Panicked, he begged a fellow passenger to use his phone to call the Avis Cape Town Airport office, thinking it was a long shot. Three rings later, Seraj Moody answered Jason's call, listened to his predicament and knowing that there were seven minutes until boarding, leapt into action. He dashed over to the Avis vehicle returns area, found Jason's phone and with five minutes to go, Seraj bolted like Usain, across the airport, heart pumping at max as he reached the departures security gate. Jason was reunited with his precious phone. At Avis, we make sure that extraordinary service is just a phone call away.

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