



RHODES EXCHANGE

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*ISSUE 017 / MAY/JUNE 2015



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MAKING A MEANINGFUL CONTRIBUTION

In this issue we explore community engagement as one of Rhodes University's key endeavours in making a significant and impactful contribution to the development of our immediate community and South Africa. In May, Rhodes hosted the inaugural Community Engaged Learning Symposium. Read on to learn how Rhodes is taking the lead in sharing best practice and contributing to the building of knowledge around community engagement nationally.

Five years on we also celebrate the work of the South African Numeracy Chair and look at how the work of Professor Mellony Graven and Dr Debbie Stott is changing children's perceptions about their ability to do maths. One mathematics club at a time they are encouraging a 'maths is fun' ethos.

Finally, we follow Professor Nigel Barker into the river catchment areas of the Angolan Highlands as he joins a National Geographic Expedition that aims to explore the feeder systems of the Okavango Delta and to raise awareness about the importance of the conservation of these currently unprotected ecosystems.

TOWARDS A MORE RESPONSIVE AND SOCIALLY ENGAGED UNIVERSITY

By Diana Hornby, Community Engagement Director

Rhodes University positions itself as an African university, not simply a university in Africa. To that end it is imperative that we engage with the key socio-economic and developmental issues we face as part and parcel of a community. The university's key areas of research, teaching and learning and community engagement, allow for institutions of higher learning to make significant, meaningful and impactful contributions to the development of society.

Recognising the historical and urgent contemporary inequalities within the communities we are part of, Rhodes University's Community Engagement programmes follow an asset based approach to development: which recognises that diverse assets and knowledge are vital in allowing us to collaborate effectively to tackle issues of social injustice.

In May, during the University's Community Engagement Week, we hosted the first annual Community Engaged Learning Symposium.

Hosting students and staff from 10 universities from across the country, the symposium helped to build relationships across universities and most importantly allowed for the sharing of best practice, stimulating debate and contributing to a body of knowledge nationally.

Although South African Universities have in the past participated in forms of community outreach, community engagement presents a new field of practice, which remains under theorised and supported. The Symposium thus offered a unique opportunity for sharing innovative strategies, participatory research methodologies, and allowed





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for participants to critically engage with pressing social issues of the day.

The symposium brought together key state (municipalities, local government and traditional authorities) and non-state actors (non-governmental organisations, community based organisations and activist groups) to share their work. This was in turn complemented by academic rigour and critical student engagement, allowing for exchange of crucial insights between practitioners working to reshape and remake our society. The potential of universities contributing to solving intractable problems is realised when we open ourselves up to unlearning paternalistic practice and learning how to work collaboratively with non-academic institutions.

The 21st Century, requires a new kind of graduate who can at once think globally, whilst acting locally. Contemporary South Africa is a complex space, with diverse skills and assets still locked in a myriad of class, gender, cultural and economic limitations. There are no quick fixes to social transformation; however, community engagement within universities, enhanced by research and teaching, is one way in which we move beyond the ivory tower and participate in unlocking this potential. Universities need to rise to the challenge of transformation by opening up their doors to collaboration: embracing the complexities in the processes of reimagining a new society. This Symposium was a first step in working towards this vision of a more responsive and socially engaged modern university.

Take a look at this video clip to learn more about the community engagement initiative at Rhodes University; <https://goo.gl/0qnK6E>



GROWING NEW SYNAPSES WITH AFTER SCHOOL MATHS CLUBS

According to author and professor of Psychology Carol Dweck, the only way to physically grow new synapses is your brain is to make mistakes. Professor Mellony Graven, the South African Numeracy Chair (SANC), and Dr Debbie Stott, the Maths Club Coordinator and Senior Researcher on the project, have found this to be a good philosophy underpinning the teaching of mathematics. Describing their project as “a hub of mathematical activity, passion & innovation that blends teacher & learner numeracy development with research in mathematics education” it is clear that hearts and minds work as one on this project.

Dr Stott has worked with Prof Graven in the numeracy chair since its inception in 2011, simultaneously working towards her PhD and piloting, establishing and running after school maths clubs at local schools. In the after school maths clubs the kids are told that they can be messy, make mistakes, work on scrap, and think, talk about and solve mathematical problems with their friends as well as being encouraged to have fun with mathematics.

The maths clubs operate in a very different context to that of a school where there are many constraints that oblige teachers to work in a particular way. These can include large class sizes of 40 or more learners, the need to teach to the curriculum and to manage the annual national assessments.

“In the club we only have 10 or 12 kids and we are doing it out of school time. We have a lot more flexibility in terms of the curriculum we work with, the ethos and the way the kids work,” said Dr Stott.

After running her first two maths clubs in 2012, and taking one of these to a second year in 2013, Dr Stott soon realised a model that offered the best way to engage with the learners around mathematics: “I had the same group of kids for two years which was fabulous because I found that it takes them six months to understand the ethos of the club and then there are only five or six months to start working with them before school ends. In the second year the benefit is that they really start to understand and to engage with the mathematics.”

Her research, done directly within the maths





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clubs, earned her the Rhodes University Community Engaged Scholar award in 2014. She was also invited to give a plenary session at the recent inaugural Community Engaged Learning Symposium. There she presented on the interrelationship of research and development in a community context and how they inform each other, and how a reciprocal relationship can be developed in which everyone grows. "That is one of the wonderful things that the clubs give us in our Chair is that opportunity for a research field where we can directly engage and give something back," said Dr Stott. "We try and encourage all our Masters and PhD students to do some kind of intervention in a maths club type environment so that they too are giving something back in addition to undertaking their research in a community."

With her PhD behind her, as the Maths Club coordinator she is training other people as a way to broaden the sphere of influence of the maths clubs. This year a group of Grahamstown NGOs has grouped together and secured funding to work with teachers through GADRA and including Lebone, Child Welfare, Sun City, the Assumption Development Centre and SMDCC among others. The SANC project is involved with training aftercare centre club leaders to run maths clubs. "They have employed club leaders with their funding and are doing maths clubs at least once a week," she said.

Over the past two years the SANC project has also run family maths events with good success. "We piloted them at the development centre [SMDCC] and the first three drew at least 100 people every time," explained Dr Stott. "All the aftercare centres have done them this year and I will be doing more later this year with the schools and the clubs I work with."

The SANC project works with 45 teachers in 12 schools and tests a lot of their activities in the clubs before taking them to the teachers. They have also encouraged schools to run family maths events. This is a way of helping parents who want to learn how to help their children even if they are not mathematicians themselves Dr Stott elaborated: "We have had really successful events and different combinations of people getting involved. We encourage the children to use the support systems that they can find in their immediate families and communities." Another pilot programme at these maths events is to encourage Presidents' Award students from private schools and Rhodes to volunteer at the events and clubs in fulfillment of the community part of their award.

Invitations to schools to do parent talks are also frequently taken up and an interactive website and Facebook page publish all new resources, games, articles and events to some 1400 followers.





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The maths clubs aim not just to consolidate skills but to change children's perspectives on maths to the point where they are willing to make mistakes and keep trying until they are able to solve a problem. "You witness children having aha moments and making progress and it is rewarding," said Dr Stott. "According to her mother, a girl in one of my clubs has changed her attitude to maths completely and has won the maths prize every year at school."

This is one of the broad aims of the SANC project, to change perceptions by increasing mathematical proficiency, encouraging a 'maths is fun' ethos, and developing a productive disposition. It is okay to make mistakes, we can learn from each other and it is constructive to self improvement to take criticism.

Ultimately what these young mathematicians discover is that persistent effort pays off and this changes the perception of themselves as being good at mathematics.

VISIT THESE SANC LINKS

- Facebook page: <https://goo.gl/n3ga26>
- website: <https://www.ru.ac.za/sanc/>
- To read Dr Stott's presentation and abstract from her plenary session, visit: <http://goo.gl/qvjUyT>

INTO WILD ANGOLA

Appropriately launched on 22 May, which is recognised by the United Nations as International Biodiversity Day, a group of scientists, including ornithologists, botanists and ichthyologists, set out to gather data on the diversity of flora and fauna occurring in the river catchment areas of the Angolan highlands, the feeder system essential to the continued survival of the Okavango Delta.

The 10-week long expedition is led by Dr Steven Boyes, an ornithologist, whose main research interest is in the conservation of the Okavango Delta. The Delta depends on water that falls as summer rainfall in the Angolan Highlands. By mid winter the rivers are in flood the water that fell as summer rainfall has filtered down to the swamps, bringing renewed life to the ecosystem and peak tourism season to the Okavango.

A fellow of the Percy Fitzpatrick institute at the University of Cape Town and one of National Geographic's Young Explorers, Dr Boyes has assembled specialists in the fields of botany, ichthyology, entomology, herpetology and ornithology to accompany the National Geographic documentary expedition team and film crew on a transect of one of the Delta's feeder rivers, the Cuito, to collect data on insects, fish, birds, reptiles and mammals, as well as conduct water quality assessments and landscape surveys.

Professor Nigel Barker, who has done work in the Lubango region of the Angolan highlands with his Great Escarpment Biodiversity Research Programme, joins the expedition at the town of Cuito Cuanavale. The expedition began right at the source of the Cuito and Prof Barker followed their progress on Twitter with anticipation as he prepared to join Dr David Goyder, a tropical African botanical expert from Kew Gardens. Other members of the research team who have been on the journey since the source include former MSc student Gotz





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Neef, an entomologist and botanist who is doing a study of dragonflies, Rhodes ichthyologist Professor Paul Skelton, and Prof Bill Branch, a well known herpetologist from Bayworld in Port Elizabeth.

Dr Barker will travel with another of his students, Matt Jaks, who is specialising in wetland areas, Pieter Bester, a botanist from SANBI, and Werner Conradie, a herpetologist from Bayworld.

Cuito Cuanavale is situated halfway down the river where the Cuito becomes the Cuanavale and is best known as the site of the (infamous?) land battle between the SANDF and the Cuban and Angolan armies in 1988.

Not only is much of the area to be travelled largely unexplored, it was also extensively land mined during the civil war and you can only gain access on the few roads that have already been demined. Accompanied by the Halo Trust demining agency, the logistics team includes 6-wheel drive de-mining vehicles which will be essential for getting through minefields and over access bridges.

This history has meant that since the war the ecosystem has had minimal input from humans and there are elephant, lion, hippos and many of the other big mammals roaming the region without any kind of human interference. However, with the de-mining of certain access roads there are signs of agriculture coming back into the area. "The fear is that the that Okavango catchments are going to become polluted, degraded, and alien species are

going to be introduced and this is why we want to start increasing awareness," said Prof Barker. Dr Boyes' plan is to present a strong scientific case to the governors of the region to set up some sort of conservation initiative such as a transfrontier park, thereby also bringing in opportunities for ecotourism. Along the banks of the Cuanavale, at least on paper, there is a national park, but there are currently no fences or conservation initiatives.

This will be the first time Dr Barker has collected data in this wilderness area and he has high hopes of collecting ample new data if not new species. New species of fish have already been recorded on the expedition according to their Twitter feed. "Normally botanists don't go and collect data in winter, but because of the flooding, the vegetation that lines the river banks is nice and green and who knows what we are going to pull out," said Prof Barker, anticipating the journey ahead. "Tracing its route on Google Earth you can see the morphological history of the river as it travels through a very wide, flat and sandy channel in a very sinuous fashion. There are many cut off oxbow lakes rich in fish and all sorts of plant, bird and animal life.

"This expedition is high technology and interactive, and revolutionises biodiversity survey work in that the researchers are able to document and share all their new records as they go along," said Prof Barker. This provides important instant





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feedback, immediacy, accountability and a firsthand view of the work of scientists in the field for the funders, the public and schools.

The team's six Mekoros are kitted out with solar panels, computers, go pro cameras and satellite communications allowing them to tweet and map their journey on the move. In addition, a technologist travels along in the canoes keep them connected. An App has also been developed for reporting species found according to type, species name, location, photographs and other data variables to allow for notation work to be done immediately and then uploaded automatically to the website when there are satellite communications.

The plant specimens collected will go to Kew to be identified by David Goyder and his colleagues, after they will know what is new or special. Long term aims will be to provide an update on the flora of Angola. In addition, a portable device that records the ultrasonic calls of bats is also being used, which will hopefully contribute to a publication on the bats of Southern Angola.

"The trip involves baseline data gathering, it's no rocket science," said Prof Barker. "The long-term implications are, however, that our conservation aims will be met. Presented to authorities, our scientific data gathered should amount to a strong case for a conservation area that will protect the area from undesirable land practices."

In the shorter term, and using the technology at hand, this project also allows the public to become voyeurs on this expedition and to see what the scientists really do out in the field. The publication of a feature in National Geographic and the documentary produced will also serve to further educate the public about what is at stake if we don't conserve these ecosystems.

Follow the expedition

- Twitter: <https://twitter.com/intotheokavango>
- Learn more about the documentary: <http://www.okavangofilm.com/#explorers>
- To learn more about the Halo Trust visit: <http://www.halotrust.org>
- National Geographic: <http://goo.gl/ydDtYI>

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At Design Ardour and Kerry Peter Word Weaver we are both independent professionals who believe in the power of creative collaboration. Uniting our skills and experience we add value to the products we offer our clients.

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ABOUT THE EXPEDITION

Although the Okavango itself is protected as a UNESCO World Heritage Site, its catchment and water supply in Angola and Namibia remain vulnerable to human interference. To effectively protect the Okavango and its catchments it is essential to gain knowledge and insight into the functioning of the system as a whole. Starting in 2011 the Okavango Wilderness Project has conducted yearly transects of the Delta, gathering unique data and immersing the expedition members in the ebb and flow of this pristine wilderness. In 2015 the expedition will be extended to include a transect of one of the Delta's feeder rivers, the Cuito. With its source deep in the remote highlands of Angola, this is one of the least known places on Earth. Travelling down the river, the team will collect data on

insects, fish, birds, reptiles and mammals, as well as conduct water quality assessments and landscape surveys.

By gathering and freely sharing information about the functioning and health of the entire system the 2015 expedition aims to raise the levels of both understanding and awareness of this unique and fragile system.

Data is uploaded daily, via satellite, by the expedition team. Data is also available through a public API, allowing anyone to remix, analyse or visualise the collected information.

Once base-line data on the system becomes freely available effective measures can then be implemented to insure the continued health and survival of this great African wilderness.

From <http://intotheokavango.org>

