FROM **HOPE** TO **ACTION** THROUGH **KNOWLEDGE**

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Editors

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Reshaping UWC's Research and Innovation Agenda

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Introduction

Preliminary studies of the state of Research and Innovation (R & I) at UWC on my joining the institution revealed that for UWC to advance to a research-led university during Prof O'Connell's term of office, the interventions had to be immediate. One of the concerns was a significant lack of quality assurance, especially when submitting research-related proposals to external funding agencies. As an example, it is customary in January of every year for university research offices to process applications by staff for an NRF rating (www.nrf.ac.za/rating). At UWC the proposals were simply signed off on the NRF system, without any internal assessment. Our challenge was to quality assure our submissions, especially since my prior detailed study of UWC's performance in the range of programmes offered by the NRF, undertaken in preparation for my interview, indicated the institution's success rate in the NRF's rating process was poor.

The immediate response in January 2008 was to set up an internal closing date for rating submissions, four weeks prior to the NRF closing date. An internal review panel consisting of staff members from across disciplines who already had a positive NRF rating and had or were serving on NRF panels and committees was established with the DVC Academic as chairperson. This was found to be a highly successful process at UKZN when I served as its Director of Research. The mandate of the UWC NRF

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rating review panel was to assess each submission by a staff member and provide constructive feedback on how the application could be strengthened. A panel member was then delegated to provide feedback to and work with the applicant in strengthening the application. The panel also considered and provided feedback on premature submissions, which was communicated in a one-on-one meeting between the particular staff member concerned and the DVC Academic. Moreover, the panel also discussed how the assessed premature application could be strengthened for submission in the following year and the kind of support to be provided to the staff member. The principle of internal assessment for quality assurance and enhancement of all institutional applications and submissions to the DST/NRF and other statutory agencies such as the ARC and the MRC, as well as to external funding agencies such as the USA-based National Institute of Health, a major funder of health-related research, was unequivocally adopted.

The status quo analysis also showed that UWC was not exploiting all potential external funding opportunities to support institutional research and innovation. In my presentation when being considered for the post of DVC Academic in August 2007, I pointed out, using information provided by the NRF, that it was a huge mistake for UWC not to participate in the NRF's Thuthuka Programme (NRF, 2020), which was designed to develop the next generation of scholars. My familiarity with the initiative stems from having previously championed the University of KwaZulu-Natal as the leading participant in the Programme. In a brief discussion with Prof O'Connell before my interview, I indicated that if UWC could advance between R200 000 to R300 000, then I could try and convince the leadership of the NRF to allow UWC to submit applications despite the closing date having passed. The next morning in my meeting with him prior to my departure for Johannesburg, Prof O'Connell informed me that UWC would make R300 000 available for the Thuthuka Programme. This information I immediately communicated to Dr Godfrey Netswara, the Thuthuka Programme Manager at the NRF. A positive response was received and the ball was soon set rolling for UWC to submit late applications. Having been instrumental in facilitating UWC's late participation in the NRF's Thuthuka Programme, it was gratifying to receive the news in early 2008 that 17 of UWC's emerging scholars were awarded NRF Thuthuka research grants. We had taken the first few steps towards realising the O'Connell Vision for UWC.

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As part of the analysis of the state of the University's research performance, in the second semester of 2008 a study was undertaken of the correlation between the annual research outputs produced by individual UWC staff members as measured by the Department of Higher Education and Training (DHET), and internal UWC-funded research and conference attendance grants received by the staff members over the previous 5-year period. The findings were disturbing. A significant number of staff members had produced zero DHET-accredited research output units over the 5-year period, despite having received more than one grant. This information was shared with Prof O'Connell and Institutional Strategic Planner, Mr Larry Pokpas. Our response was immediate – the University's research funding criteria needed to change. Accountability had to be placed alongside excellence as criteria for grant allocation. Shortly after presenting the findings to the Senate, the funding policy was changed, grants for conference attendance and research projects were to be based on outputs generated over the previous three years and applied with a degree of sensitivity to cater for recent doctoral graduates who were just starting to establish their research profiles.

A sequence of interventions and initiatives followed. For example, to bolster the complement of academic staff members having a doctoral qualification, with UWC sitting at 52% in 2008 and the national average for all higher education institutions, including the Universities of Technology, at 33%, a Staff PhD Upgrade project was introduced in 2009. We commenced with a spectrum profiling of academic staff members without doctoral degrees, from those without a topic and/or supervisor to those within one to two years of completion. The survey informed a series of needs-determined parallel interventions. For instance, for those near completion funding was made available for lecturer replacement over a term or so to enable focused attention on finishing the thesis and submitting for examination; for those at the starting blocks, potential topics and supervisors were identified, even at institutions outside UWC. Given the importance of postgraduate students at the master's and doctorate level as the baseline for the next generation of researchers, a decision was made to establish a dedicated Division of Postgraduate Studies, which was effected and a full-time Director of Postgraduate Studies appointed in 2009. The Intellectual Property Rights from Publicly Funded Research and Development Act (IPR Act, 2008) made it compulsory for universities to establish technology transfer offices (TTOs). In anticipation of the implementation of the Act in 2010, discussions were immediately initiated with the DST for support to establish UWC's TTO.

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The above measures, which included the introduction of an annual Vice-Chancellor's distinguished researcher award and a Vice-Chancellor's emerging researcher award, together with the upgrading of conjugate support divisions, constituted the first steps towards developing the necessary enabling environment for high-level research, postgraduate education and innovation at UWC. They also highlighted the need for an underlying strategic research policy which, upon implementation, would provide direction to the essential set of parallel initiatives for advancing UWC towards becoming a research-led university.

Development of the new Research Policy

In conceptualising the new research policy, which started towards the end of 2008, several factors needed to be considered. Universities are by definition centres for knowledge production and scholarship. The inherent academic freedom associated with universities allows the generation of new knowledge through curiosity-driven (or pure) research, applied research or strategic research. However, a university does not function in a way that is independent of the society within which it is located. As an obligation to society, a university is expected to transfer knowledge for the betterment of the society through the promotion of research for socio-economic development, including research towards policy development and implementation, wherever possible in partnership with society, together classified as 'engaged' research.

Therefore, a university not only produces new knowledge, but also engages with existing knowledge in applying it towards addressing societal challenges.

UWC's mission statement emphasizes this: "The University of the Western Cape is a national university, alert to its African and international context as it strives to be a place of quality, a place to grow. It is committed to excellence in teaching, learning and research, to nurturing the cultural diversity of South Africa, and to responding in critical and creative ways to the needs of a society in transition". The mission statement therefore underpins what is expected of UWC in producing and disseminating knowledge, namely to strive for excellence. It also frames the specific societal context of which the institution is a part and thereby shapes the overall knowledge environment, in particular the need to respond to regional and national imperatives. Therefore, the new research policy had to respond to UWC's wider purpose. However, it also had to articulate a realistic approach, to take cognizance of the shortcomings of the status quo and design

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appropriate strategies to achieve the ultimate objectives of the research and innovation agenda of the University. In such a context a research policy is always a dynamic document with shifting goals as time passes, justifying the need for regular review. The approach to the new research policy was further informed by the IOP: 2004-2009, which reasserted UWC's aims to be a significant research and innovation university; it makes a strong case for the importance of research in building new knowledge and its role in the enrichment of the curriculum and therefore in the quality of the teaching and learning the University has to offer. In addition, it locates the University's research function within the context of UWC's commitment to being an engaged university. To this end, UWC's research programmes should strive to embrace and deepen our understanding of the complexities of contemporary South Africa in a globalised world, where the "congruencies and contradictions between transformation and global competitiveness" are central to our societal challenges (IOP, 2004-2009: p. 22).

In shaping the new Research Policy it was therefore important, firstly, to flag upfront what UWC wished to achieve and, secondly, what would be expected of its scholars. The process of developing the research policy had to unfold through wide consultation, especially with the academic staff of the University, as eventual success in moving towards becoming a research-led institution was critically dependent on their embracing and taking ownership of the strategic direction articulated in the new research policy. To ensure this, it was decided to develop a defining framework for advancing R & I at UWC as a forerunner to the actual research policy. This framework was constructed in consultation with leading South African scholars outside of UWC, who were well aware of UWC's presence on the national and international landscape. Having served on national committees, they also had a sense of national research and innovation imperatives, as well as strategies and initiatives implemented towards South Africa moving to a knowledge-based economy. The defining framework was presented initially to the University's Research Committee and then to the University Senate for deliberation and endorsement. This approach guaranteed the participation of the academic staff in the development of UWC's new research policy.

The defining framework pointed towards a research policy with sub-strategic plans in the following areas:

- o Excellence in Research: Identification of research niche areas; Definition and establishment of research units, centres and institutes;

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- o Research Capacity Development: Attainment of doctoral qualification; Black male and female academics (the latter irrespective of race) in research leadership; harnessing the expertise of retired research scholars; honorary research appointments;
- o Strategic Research Partnerships: Internationalisation; collaboration with science councils, commerce and industry; partnerships for an engaged university.
- o Staff Research Incentive Scheme: Research publications, graduating doctoral students; NRF rating, postdoctoral fellowships;
- o Internal Research Funding Scheme: Criteria and support for conference attendance; research projects, research assistants, seed funding, leverage funding, research equipment;
- o Research Ethics Policy: Animal research, biomedical research, humanities and social science research; research ethics education;
- o Innovation, Protection of Intellectual Property and Commercialisation; and
- o Marketing of Research: Publications; websites, media.

In developing the sub-policies, eight teams were established and each mandated to draft the first version of a particular sub-policy. Each team was comprised of 4-5 of the University's senior research scholars and emerging scholars who were already participating in the international R & I space. The suite of eight draft sub-policies then served before an independent reference group consisting of 8-10 of UWC's senior scholars and the DVC Academic as chairperson. A workshop was then held at which the feedback from the reference group was presented to the eight teams which drafted the sub-policies. This was followed by an open discussion on the suite of drafted sub-policies during which modifications to the sub-policies were approved. The reference group was mandated to merge the eight sub-policies, with an appropriate introduction, into an overarching new research policy and then to present the document via the Faculties to Senate for endorsement and the University Council for approval.

The strength of the above approach in developing a comprehensive new research policy for UWC was the level of inclusivity. A 96-page research policy made up of 8 sub-policies was discussed and endorsed by Senate in a relatively short time after an outline of the process and an overview was presented by the DVC Academic, followed by each of the eight team leaders who summarised the essentials of his/her respective sub-policy within the overarching defining framework. Once approved by Council in November 2009, the new Research Policy served as the foundation for the research advancement of UWC in congruence with Brian O'Connell's Vision.

The underlying message communicated through this process was that it is the responsibility of the University to provide an enabling environment and seed funding for its academics to do research, thereby creating a platform for them to go out and compete for external grants from national and international funding agencies. It was also recognised that it was important to acknowledge our scholars for their achievements and to celebrate UWC's successes.

Implementation of the Research Policy

The implementation of the new Research Policy required a complete re-examination of UWC's research budget, which was subsequently redistributed to support the eight sub-strategies. Moreover, each faculty was required to develop its own strategic research plan in response to the institution's Research Policy as part of a comprehensive Faculty Operating Plan, which had to be developed in response to the overarching UWC IOP: 2010-2014. This approach created synergy between the IOP driven by the University's executive management team and the faculty initiatives driven by each dean and his/her executive team. It enabled the determination of a set of initiatives guided by the Research Policy that were specific to each faculty and the resources required. As part of the process, the roles of the Senate Research and Higher Degrees committees were elevated as they took responsibility for delivery on the various initiatives.

In the rollout it was important for the University to first undertake a survey of national and international research and innovation priorities to inform strategic decision making. For example, the establishment of research niche areas had to be informed by the DST's 10-year Innovation Plan: 2008-2018, which was developed to drive South Africa towards a knowledge-based economy. Cognizance had to be taken of the Plan's five grand challenges – From Farmer to Pharma: Biosciences and Health; Expanding the Limits of Space and Technology; In Search of Energy Security; Responding Adequately to Global Climate Change; and Human and Social Dynamics – in identifying research niche areas at UWC. It was also necessary in advancing UWC's research agenda to be informed by research areas and programmes considered to be of strategic national importance by our science councils, especially the Agricultural Research Council, the Council for Scientific and Industrial Research and the Medical Research Council, other government departments and national funding agencies, such as the NRF's South African Research Chairs Initiative (SARChI). To strengthen its global presence, the University had to give due consideration to the strategic priorities of international research funding

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agencies such as the UK's Department for International Development (DFID), the USA's National Institutes of Health, the Ford Foundation, the Andrew W Mellon Foundation and other such organisations.

As regards the challenge of research capacity development, it is not unique to UWC. It was and remains a national challenge. A major national concern for R&D has been the aging profile of the productive South African researchers. In 1990, 20% of the research output in the form of journal articles was produced by persons under the age of 50 years. Although rising to 50% in 2000, the problem remains. A major impediment has been the proportion of academic staff in the South African higher education system with doctoral qualifications, for which the national average rose from 33% in 2008 to 41% in 2017. In addition, despite national interventions since 1994, South Africa has not adequately addressed the disadvantages encountered by Black (African, Coloured and Indian) male and female (the latter irrespective of race) academics in higher education. The challenge of elevating academics from the designated groups into research leadership positions is, indeed, a real one. Therefore, the need for accelerating the development of talented young researchers cannot be over-emphasised. In response, the NRF has introduced over the past two decades a series of capacity development initiatives, including the 'SA PhD Project' and the Thuthuka Programme. Later the DHET introduced the Next Generation of Academics Programme (nGAP). Similarly, the MRC introduced the Self-Initiated Research (SIR) grant for early career researchers. It was of strategic importance for UWC to take advantage of these initiatives in building internal research capacity.

Of significance is the National Development Plan Vision 2030 (NDP, 2012), produced after the UWC Research Policy had been developed, which evolved through a national attempt to fast-track South Africa's socioeconomic development, in particular to eliminate poverty and reduce inequality. In its assessment, the NDP recognises higher education as the major driver for information and knowledge systems that contribute to economic development. At the same time, it describes South African universities as "mid-level performers in terms of knowledge production" (NDP, 2012: p. 317). Consequently, the NDP sets ambitious targets for the sector. This includes universities providing quality undergraduate teaching, developing capacity for cutting-edge research training and defining their niches so that they can contribute to national objectives. With regard to the national research and innovation system, the NDP concludes that "in comparison to its population, South Africa's science and innovation

system is small by international standards" (NDP, 2012: p. 325). To address the country's global competitiveness, the NDP highlights the importance of strengthening the national system of innovation. In recognizing the centrality of the role of suitably qualified university academics in transforming the landscape towards meaningful socioeconomic development, the NDP stipulates the percentage of PhD qualified staff in the higher education sector should be in excess of 75% by 2030 (NDP, 2012: p. 319). It was pleasing to find that several of the NDP's strategic interventions resonated with Brian O'Connell's Vision, and aspects of the NDP were captured in UWC's Research Policy not only to enhance the institution's standing but also UWC's relevance and impact.

Strategic approach to internationalisation

The Executive Management Team recognised in 2008, when reflecting on the development of the next 5-year IOP, that for UWC to have a global presence we needed a strategic approach to the establishment of partnerships with international universities. We had to move away from the common practice of simply hosting delegations from universities abroad. These visits resulted in the signing of Memoranda of Agreements (MOAs) or Memoranda of Understandings (MOUs), which would invariably just sit in files on computers or on shelves. Consequently, it was decided that the strengthening of our identified established and emerging niche areas, the development of our emerging scholars, as well as the strategic development of our academic programmes should serve as the basis for seeking new international university partnerships and for realigning existing partnerships. As a first step, an analysis was done of our existing international partnerships. The longest standing was that with the University of Missouri (UM), USA, which had been established in 1986. The generous funding provided by UM since then continues to play a significant role in the scholarly development of UWC staff members and academic programmes through exchange visits. Already by 2008 more than 400 academics from UWC and UM had been supported through such exchange visits. Given that UM has four campuses (in Columbia, Kansas City, Rolla and St Louis), each of which could function as an independent university, we were presented with a range of opportunities for enhancing our partnerships with UM.

A similar approach was adopted for our other longstanding partnerships, such as with the University of Ghent (UG) in Belgium. UG played a leading role in the 10-year Dynamics of Building a Better Society project (DBBS, 2014), funded by VLIR-UOS of Flanders, Belgium. The DBSS

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project had a major positive impact on our staff capacity development and niche area programmes. Likewise, the University of Minnesota was seen as an important partner in strengthening UWC's postgraduate education and research in the humanities. Consequently, the management of such partnerships of strategic importance was escalated to the Executive Management team by Prof O'Connell.

In the revised approach to internationalisation, we explored strategic partnerships which involved a critical mass of UWC scholars to ensure long-term sustainability of the partnership, with a focus on our established and emerging niche areas, as well as promoting one-on-one collaboration for our emerging scholars. In addition, the core elements for consideration in establishing international academic partnerships were determined to be the offering of joint degrees, joint curriculum development, co-teaching and co-supervision, joint winter and summer schools, joint project proposals to national/international funding agencies, student and staff exchanges, joint community engagement programmes, and the use of technological advancements and digital connectedness to promote internationalisation at home.

Conclusion

The new Research Policy gave new direction and momentum to UWC's research and innovation programmes. The improved enabling and supportive environment was well received by staff and research students. The revitalised internal finding scheme together with strategic participation in external funding programmes began to bear fruit. The institution's research outputs showed significant growth, as did the number of graduating master's and doctoral students. UWC was able to substantially increase external funding for niche area research projects and major pieces of research equipment from the DST and the range of NRF programmes including the Thuthuka, SARChI, National Equipment and National Nanotechnology Equipment Programmes, as well as from other national and international funding agencies. Moreover, UWC established stronger partnerships with the ARC, CSIR and the MRC. The details of these achievements are discussed by Prof Tyrone Pretorius in Chapter 26 as he reflects on the University he left and the one to which he returned.

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