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# The role of an ICT research professor in South Africa

Jan H. Kroeze

*North West University*, [jan.kroeze@gmail.com](mailto:jan.kroeze@gmail.com)

P.D. Pretorius

*North-West University*, [philip.pretorius@nwu.ac.za](mailto:philip.pretorius@nwu.ac.za)

J.D. Roode

*University of Cape Town*

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## The role of an ICT research professor in South Africa

J.H. Kroeze

North-West University (VTC), South Africa

P.D. Pretorius

North-West University (VTC), South Africa

J.D. Roode

University of Cape Town, South Africa

### Abstract

Until recently it has been assumed that all lecturers at tertiary institutions should teach, conduct research and do community service. Due to heavy teaching loads, this assumption has become evident as a very idealistic goal, especially in smaller universities where few academic staff members have to cope with various programmes and a high student to teacher ratio. Some universities seem to have realised this predicament and have started to advertise positions for research professors. According to authors' knowledge, NWU (VTC) was the first institution in South Africa to create a full-time research professorship in a School of Information Technology. This short paper is an attempt to clarify the expectations, roles and duties of such a position.

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# The role of an ICT research professor in South Africa<sup>1</sup>

## INTRODUCTION

In academia the future is research, both for academic staff and students. Connecting students to the future, therefore, does not end with teaching courses. Academics should also teach research and research teaching, and, of course, conduct research as a way of teaching by example. Indeed, until recently it has been assumed that all lecturers at tertiary institutions should teach, conduct research and do community service. There are indications that this goal may be very idealistic, especially in smaller universities where few academic staff members have to cope with various taught programmes and high student to teacher ratios. In the recent past, some universities seem to have realised this predicament and have started to advertise positions for research professors. According to the authors' knowledge, North-West University (Vaal Triangle Campus) (NWU (VTC)) was the first institution in South Africa to create a full-time research professorship in a school of IT. This article is an attempt to clarify the expectations, roles and duties of such a position. The paper is mainly an attempt to make explicit the tacit knowledge, experience and understanding of Prof JD (Dewald) Roode, who, for the past seven years, has been a visiting professor in Information Systems (IS) at UCT and CPUT and has had the task to promote a research culture. His responsibility was to get these departments on a research track. His experiences are complemented by insights gained at NWU (VTC) in the first few months after the appointment of their first research professors both in Humanities and Information and Communication Technology (ICT). The paper explores the various aspects of an ICT research professorship in terms of conducting, leading and managing research. It is suggested that the main task should be to undertake research, including cooperation and co-authoring with colleagues and postgraduate students.

## THE COMBINATION OF TEACHING AND RESEARCH IS WHAT MAKE UNIVERSITIES UNIQUE

One has to be realistic regarding university lecturers' job description and load. Teaching and research will not be separated in universities since the combination is what makes them unique. If one only wants to teach, one could do that in a college; if one wants to flee away from teaching and only carry out research, one could do that at a research institute like Meraka or the CSIR. Therefore, lecturers should not aspire to all become research professors. However, the teaching load and student to lecturer ratio, which are often very heavy in South Africa, could be addressed in order to free more time for research. One or two research professors could be appointed to stimulate and lead research activities. Those who are fortunate enough to be appointed in such dream positions should not think about themselves as the chosen, special ones, but they should serve their institutions in a responsible and unselfish way. It is, however, important that they retain contact with the world of teaching by means of supervision of dissertations and theses.

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<sup>1</sup> Revised version of a paper (unpublished) read at SACLA 2009, Mpekeni Beach, South Africa, June 2009 ("The role of an IT research professor: an essay-in-progress"). The authors would like to thank many colleagues (*i.a.* Proff. Carina de Villiers, Theo Bothma and Derek Smith, and Dr. Machdel Matthee) for their constructive criticism on the paper, which we used to enrich the article.

## DOING PRIMARY RESEARCH WORK

The full-time research professor should set an example, first of all, by working on her/his own research (“practice what you preach”). (S)he must set an example and should not be tied up by administrative matters. Therefore, proper research support should be in place to handle issues of registration, payments, marks, etc. Besides her/his individual projects (s)he should also use co-authoring to contribute to the development of colleagues and should not primarily see this as a profit for her/his own research track record. Therefore, (s)he should carefully consider whether the contribution was substantial enough to add her/his name as co-author. Unfortunately, the process of NRF ratings and publication subsidies often pushes researchers in an opposite direction. Whether the professor’s name is added or not, the goal should be to establish an independency within the other authors. (S)he should not make her/his colleagues dependent on her. After a while they should be able to write and supervise independently, therefore not needing her/him anymore. (S)he should not make herself/himself indispensable, on the contrary, (s)he should actually make herself/himself dispensable. After a while the professor must be able to stand back.

## SUPERVISION

Supervision and co-supervision of dissertations and theses is another primary task. Publishing at least one or two research outputs from doctoral and master’s students’ dissertations should be high on the agenda. Using and promoting the article model for theses could enhance the number of outputs dramatically. To enhance the throughput of dissertations and theses, an annual retreat, funded by the professor’s university, could be organised. During this extended workshop supervisors and students work together to finish off those projects that are 90% complete.

The professor should also facilitate regular meetings with PhD students to create a friendly and informal environment where lecturers and students can exchange their ideas, discuss problems, thus forming a small community of practice (CoP). The meeting could take the form of a discussion on a specific topic. Other members of the faculty could also be invited, which could create a new challenge, i.e. to make the discussions general enough to be relevant to guests out of the IS/IT field.

For master’s students a course may be presented on critical reading. The professor could have master’s students read a paper or article before a monthly meeting and answer questions which are meant to stimulate a critical discussion. Students should be shown what it means to be critical and how to read a research publication in such a way. The articles should be selected to cover all essential research and theory aspects, for example, case studies, action research, grounded theory research, structuration theory, actor network theory, etc. When a reading covers one of these aspects the professor uses the opportunity to talk about the specific theory in more detail. In order to make the master’s programme successful and efficient, bootstrapping should take place already on honours level, with reference to integration of knowledge and the development of research skills.

Related to supervision is, of course, the preparatory phase, where the student has to write a research proposal under the guidance of a provisional supervisor, and eventually present it in a colloquium of staff and students. The research professor should ensure that such a procedure is in place and should be involved actively in the review process. The students should also be prepared for their projects by the professor offering introductory courses on research. Depending on the numbers of the students enrolled, this could either be on an individual basis with an oral exam, or formalised as an official research course, or presented as a series of seminars.

To summarise, the professor should establish a solid foundation for supervision, and after some time, could focus more on mentoring supervisors instead of supervising herself/himself.

## **CREATING AND ENHANCING A RESEARCH CULTURE**

The fundamental goal of a research professor's duties is to create a research-friendly environment. Creating and enhancing a research culture in the department or school poses a challenge, especially where members of the academic personnel have huge teaching loads. A monthly research seminar could be used to stimulate ideas by giving feedback on progress with research activities such as postgraduate studies, the writing of papers and articles, and discussion of new research projects. These seminars, which could be introduced either by one of the lecturers, or local and overseas visiting professors, could help a lot to get research on staff members' agendas. Presenting these seminars should be sustainable and should, therefore, not be held too often. This forum may also be used to network, schedule guest lectures, cooperate and give each other advice.

One way to build research foundations, in addition to seminars, is to start a series of working papers, either formally or informally. Staff members or students who want to submit a paper to a conference or journal should first submit through this internal process. Free and open-source software (FOSS) is available to facilitate an electronic submission and review process. Articles are then published on the internet, preferably on the institution's web page, which has the added benefit of raising the department's and university's profiles. However, one must carefully consider copyright issues, especially if the article later has to be submitted to a journal that does not accept material that has already been published elsewhere. Such an internal publication process also paves the way to create high quality outputs facilitating the selection of good conferences and good academic journals for the eventual, final submission and publication.

Where a research culture has not been established, (s)he has to create enthusiasm without using external pressure. This takes place by talking and doing research, like a dripping tap, slowly but surely filling a bucket. The professor is more of a catalyst than a manager whose success can be measured, for example, by the number of doctoral students enrolled and PhDs delivered, and the fact that seminars become more and more specialised. One has to be realistic and admit that this process takes time because, very often, the foundations must be laid first. The aim is to create a shared conception of "we are doing research and we are publishing".

Encouraging lecturers to research topics that they feel passionate about could go a long way to incite and maintain new research endeavours. In order to maximise the benefits of academic

duties, research and community service should be centred around a topic on which the lecturer has expertise. Only then can the researcher plough back results flowing from her/his knowledge. At a university, especially on postgraduate level, the motto should be: “teach what you research and research what you teach”. The research professor should, therefore, join teatime conversations and listen attentively in order to hear what makes her/his colleagues tick!

### **THE RED TAPE WILL ALWAYS BE WITH US ... BECAUSE IT ACTUALLY IS IMPORTANT**

A research professor will typically also be involved in research-related administrative matters such as serving on the university’s research ethics committee. Students are usually required to submit their plans for empirical research very early on in their studies. However, ideas and plans change as research progresses, and, therefore, the research professor should strive also to build a culture of trust in which supervisors take responsibility, and are trusted to do that, to ensure compliance with required ethical research practices. An ethics committee should ensure that the necessary policies are in place. If the ethics committee delegates the pursuance and enforcement of their policies to supervisors, they (the supervisors) could also not excuse themselves later, would things go wrong, with a shrug of shoulders blaming the committee who approved the empirical research plan.

A research committee, in which the professor should be involved, has to do the strategic planning for research-related activities in the department, for example the invitation of overseas visitors, handling postgraduate matters, screening and selection of applicants, and allocation of master’s and doctoral students to supervisors. These meetings should be open and transparent, and all staff members should, therefore, be invited to attend. The committee should also discuss the progress of doctoral students and the development of supervisors.

Getting access to research funding is one of the most general stumbling blocks, especially for young researchers. A research professor should be aware of opportunities for subsidy and other financial support, apply himself/herself for grants and help colleagues to write proposals for funding. Therefore, (s)he should actively engage with public and private institutions and form strategic partnerships with them.

### **CAPACITY BUILDING: RESEARCH THRIVES THROUGH INTERACTION**

A research professor may also be expected to do capacity building and may use, inter alia, the following ways to achieve this:

- Teaching research by presenting workshops that address various aspects of research in ICT, including different research philosophies, approaches and methodologies
- Building lecturers’ research profiles by means of conference papers and publications
- Encouraging staff and students to join SACLA, SAICSIT, AIS, ACM, IFIP or other relevant academic ICT societies
- Disseminating information on conferences and calls for papers

- Teaching colleagues the tricks of the trade, for example, how to get maximum exposure and outputs from a research project (for example, by presenting a summarised version of a thesis chapter as a conference paper, and submitting a more detailed version as a journal article)

Playing an active role in the above-mentioned academic societies, nationally and internationally, is a natural way of networking. Making use of special offers, taking up invitations, communicating via the website, etc. makes one part of the worldwide society of information system researchers. Although the research professor could and should be involved actively in the management of these societies, (s)he should also have the freedom to reach a point where (s)he could still put in some energy without burying herself/himself in administration. More junior people should be drawn in so that they too can reap the networking benefits of struggling with day-to-day society issues. Even in a simple meeting on membership, a new member will meet existing members and learn a lot about new applicants. In this way junior staff gets to know other junior and senior colleagues. A mixture of senior and junior members is also essential to facilitate the transfer of tacit knowledge.

The professor also has a responsibility towards her/his colleagues when attending national and international conferences with them. Lecturers attending conferences and submitting papers to be read are very important to gain research momentum, since conferences drive research, probably because it invites research and gives deadlines, which forces one to break episodes of writers' block. At the conference, the professor should act as a filter to evaluate ideas and perceptions by introducing critical discussions, and guarding against influences that may derail the school's unique vision and mission. These discussions may be followed up in a seminar following the conference. Since academic staff should see themselves as part of a local community they should be encouraged to attend national conferences like SACLA and SAICSIT, and not only focus on international opportunities like those offered by ACM, AIS and IFIP. These societies are important communities of practice providing a way to avoid academic isolation. Their discussion forums and conferences are places where academics can soundboard their ideas. Although a researcher sometimes has to sit in her/his corner to get her/his work done, (s)he has to realise that her/his activities are per definition part of a research group's endeavours. Avoiding contact will impoverish one's research. Indeed, taking part in a relevant community of practice is vital because research thrives through interaction.

## CONCLUSION

Research endeavours at South African universities has come a long way during the past thirty years, especially in the humanities and social sciences, including Information and Communication Technology. Now that all universities have bought into the principle that research is as important as teaching, even at some private institutions that do not have access to government funds and incentives, the time may be ripe for moving up the qualitative and quantitative level of research endeavours. Research professors may make a significant contribution in this process, not only by focusing on research themselves, but also by creating research-friendly environments in which colleagues' and students' research will prosper and thrive. An environment where lecturers may do and supervise research, where teaching and



research enforce each other, where postgraduate students' work are valued highly, and where a proper research support framework is in place, is the ideal haven where research can flourish.

### ADDENDUM: TRIBUTE TO PROF DEWALD ROODE

**Dewald Roode** retired at the end of 2001 from the University of Pretoria, South Africa, where he was Director of the School of Information Technology and professor extraordinary in the Department of Informatics. Since 2003 he was a visiting professor in the Department of Information Systems at the University of Cape Town, and as from 2004, also at the Cape Peninsula University of Technology. At these institutions he continued to work with and supervise PhD students, and did research in co-operation with his students. During his career he successfully supervised more than thirty PhD students. He presented many papers at international conferences and at ECIS in 2004 received a best paper award. His research interests included the socio-techno divide in society; ICT and socio-economic development; strategic planning for information systems and the impact of ICT on organisations. His work has been published in *Information Technology and People*; *Studies in Communications Sciences*; *Journal of Education for MIS*; *IEEE Transactions on Software Engineering*; *SA Computer Journal*; and *SA Journal for Economic and Management Sciences*. He served in editorial roles with the SA Computer Journal, The Journal of Systems and Information Technology, The Journal for Information Technology and Development, Enterprise Information Systems, and the African Journal of Information Systems. He was a member of AIS, ACM, the SA Institute of Computer Scientists and Information Technologists, and a Fellow of the SA Computer Society.

He completed a six year term in 2007 as chair of IFIP's Technical Committee 8 on Information Systems, and was a member of the Steering Committee of IFIP's World Information Technology Forum in Lithuania in 2003, and in Botswana in 2005. He developed and presented in 2008 and 2009 a series of fourteen seminars on Research and Innovation Core Skills for the South African Council for Scientific and Industrial Research (CSIR) – a program for all new and upcoming researchers at the CSIR.

Prof Roode, an alumnus of the North-West University (PUK), is regarded as the father of IS theory and research in SA. He was also honoured with the International Silver Core Award by the Federation for Information Processing (IFIP) (see [http://web.up.ac.za/UserFiles/Newsletter\\_Vol2\\_No2.pdf](http://web.up.ac.za/UserFiles/Newsletter_Vol2_No2.pdf)). He received a LEO award from AIS in 2008 for a lifetime of distinguished contributions to the IS discipline (see [http://www.puk.ac.za/nuus/nuus508\\_e.htmln/](http://www.puk.ac.za/nuus/nuus508_e.htmln/))

Prof Dewald Roode passed away on 27 September 2009 after a long illness.



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