

A Study on Building a Cadre of Emerging Scholars for Higher Education in South Africa



science
& technology

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REPUBLIC OF SOUTH AFRICA



**A STUDY ON BUILDING A
CADRE OF EMERGING
SCHOLARS FOR HIGHER
EDUCATION IN SOUTH
AFRICA**

A study commissioned by

THE DEPARTMENT OF SCIENCE AND TECHNOLOGY

FINAL REPORT

March 2018

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Building a cadre of emerging scholars for HE
in South Africa

2018

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Final report

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Our report is presented at three TIERS, from the most brief and aggregate, to increasing detailed levels of reporting.

- The highest tier (**Headline finding and recommendations**) is the 10-minute summary version.
- The second tier (**Executive summary**) is an extended summary (a 30-minute read) of the main finding of the study
- The third tier (**Main report**) consists of 10 chapters that present the results of the different project components in detail.

Johann Mouton

Director of CREST

20 March 2018

Headline findings and recommendations

The silent majority question

Finding 1: Is there a ‘silent majority’?

A central assumption that gave rise to this study was that there is an unexploited pool of academics in the ranks of lecturers and senior lecturers in South Africa (the so-called ‘silent majority’) that can act as the feeder for (i.e. growing the number of) emerging researchers. Our study found that this assumption was not sufficiently specified. We found that this assumption was based on an incorrect equivocation of the numbers of senior lecturers and lecturers at South African (SA) universities (13 000 in 2013) with the number of annual applicants to the NRF for funding (between 600 and 700). The study has found that this assumption required further explication before we could claim that there is indeed such an unexploited pool of thousands of potential emerging researchers at SA universities.

Finding 2: The PhD gap: An alternative measure of the ‘silent majority’

According to the 2015 HEMIS statistics, SA universities employed 4 747 senior lecturers and 7 942 lecturers in 2015. A breakdown by highest qualification of these two cohorts revealed that 56% of all senior lecturers have a PhD whereas only 18% of all lecturers are in possession of a PhD. These are national averages and mask large institutional differences with the top research universities generally having higher proportions of senior lecturers and lecturers with doctoral degrees. One would be tempted to assume, on the basis of these statistics, that there are 8 588 academics (those without PhDs in these two ranks) in the system who could be regarded as a ‘silent majority’ and hence as a feeder to the group of emerging scholars. However, there is one major factor that mitigates against this: large proportions of both cohorts do not qualify as being young (40 years and younger) and also do not have a PhD. The disaggregation of rank, by age interval and having a PhD below, shows that it would be most feasible that those in the youngest age category (40 years and younger) are the most likely candidates as a feeder group to emerging scholars of the future. These two categories add up to a potential pool of 3 975 academics (3 232 lecturers and 725 senior lecturers).

Rank (no PhD)	40 years and younger	41 to 50 years old	51 – 60 years old	61+ years old
Lecturers (n = 6633)	48,7%	29,6%	18,3%	3,4%
Senior lecturers (n= 2146)	33,8%	29,1%	26,7%	8,%

Using these calculations produce a different and more conservative estimate (around 4 000 academics) of a (potentially unexploited) pool of academics that are most likely to feed the emerging scholars cohort.

Finding 3: Research inactive scholars

However, the estimates given under the previous heading may even be too high. Not all academics are necessarily active in knowledge production. Hence, in this study we focused closely on two operational measures of 'research active': whether an academic publishes (at least occasionally), and whether academics apply to the NRF for funding. The results of our analyses led to two main results. First, we found that less than half (42%) of senior lecturers and only a quarter (25%) of lecturers at SA universities can realistically be deemed as 'active publishing authors' (by using an extremely weak threshold: authoring at least two articles over the past 10 years). Secondly, we found that only about one third of this cohort of academics (slightly more than 1 100 individuals) had applied to the NRF for funding in recent years. We should also add that these 'research active' academics are not evenly distributed across all universities.

There is, of course, a very obvious reason why large proportions of lecturers are neither actively publishing nor applying for research funding to the NRF. Those who are still intent on succeeding academically are most likely currently enrolled to study towards a PhD. In fact our web-survey confirms this, as 64% of the emerging young scholars indicated that they were pursuing doctoral studies.

Factors affecting the advancement of the careers of emerging scholars

Finding 4: Internalisation of standard research performance measures

Most SA academics have bought into/accepted a set of fairly standard research performance metrics that are employed by their universities as criteria of academic promotion. Large majorities of academics accept that their academic promotion depends on a rather narrow set of measures related to the production of graduates, publication output (number of papers in the Web of Science (WoS)), impact (number of publications in high-impact journals) and scientific recognition (NRF-rating). However, we also found that the adoption of these metrics were more prevalent amongst younger and emerging scholars. Established senior scholars were less likely to agree that measures such as these are important for their academic promotion.

In addition, the current mono-criterion approach to research performance measurement needs to be addressed. There is a clear sense amongst interviewees that publication output is unfortunately elevated beyond other criteria. The fact that teaching is not weighted equally in terms of performance appraisal is a bone of contention amongst many interviewees.

...think that the idea of, like, publish or perish, it's false and yes, maybe there needs to be a more differentiated thing for some people who are very good at writing articles. Let them write

the articles, but the trouble is that we don't get promotions. We are seen as lesser academics if you haven't got a good publication record. Never mind that you graduated 20 post-graduate students. Then they say oh, you must write the articles out of your students' work. You don't have time, you know, when you have 20 post-graduate students.

Finding 5: Resistance to homogenizing effects of research performance appraisal

There is evidence (mostly from the qualitative interviews) that some academics are increasingly sceptical, and even cynical, about the value of many aspects of research performance appraisal. Various examples of such cynicism and critique were listed by interviewees.

- Research metrics are not sufficiently sensitive to the career age of academics: emerging scholars should not be measured with the same metrics as established scholars and scientists.
- Research metrics are not sufficiently sensitive to the epistemological and sociological differences between different scientific disciplines.
- The implementation of research performance measures is not always transparent and not obviously equitable.

[My university] has particularly bad cases of, of kind of managerialism that feels very out of touch and it's completely obsessed with rankings, climbing university rankings all the time, and often out of touch with, yes, the realities of, first of all, the quality of the undergraduate students, the actual quality of them, and the kinds of strains that staff take and are taking in the, ... Management really are kind of out of touch and they drive a lot of initiatives from above that often feel kind of, you know, pie in the sky and, and not even that often really seriously academically motivated, really.

Finding 6: Motivations to do research

In response to questions aimed at establishing what motivates SA academics to undertake research, we found that the five most frequently reported motivations (>95%) concern two main dimensions: making a contribution to the 'greater good' (a field or society), and (re)generating one's own expertise, research skills and field-specific knowledge. Creating opportunities for, and collaborating with, others was also a strong impetus, as was the more inward-directed sense of achievement from publication, and the time-honoured motivation for science, i.e. satisfying one's curiosity. With the exception of promotion as a motivation (in 81% of the cases), relatively low percentages of academics (71-79%) were motivated by extrinsic, institutionally defined incentives, especially if they were of a monetary nature, such as a DHET subsidy for publication and increases in income. The two motivations least likely to

stimulate research activity were those that may be strategically employed by researchers to change an unsatisfactory employment situation, i.e. finding a better job elsewhere (55%) and reducing one's teaching load (42%).

At the same time, our analyses also revealed some sub-group differences. One of the most notable patterns was that much larger percentages of emerging young scholars, compared to the 'active established senior scholars', were motivated to conduct research by needs associated with early-career researchers: increasing their income, finding a better job elsewhere, satisfying performance appraisal requirements, and building an impressive CV. On the other hand, established researchers were slightly more driven by the need to satisfy their curiosity, as well as by a desire to create opportunities for others (e.g. students and colleagues) and to collaborate with them.

Finding 7: Main barriers to the advancement of research: The big picture

There were a number of (expected) common barriers to advancement of research that were shared by all academic ranks: insufficient time for research, heavy administrative loads, heavy involvement in university administration and the lack of money. But there were also a (smaller) number of barriers that are peculiar to emerging and young active scholars. Three stood out: the lack of mentors, the lack of research networks and a lack of self-confidence.

Finding 8: Main barriers to the advancement of research: Heavy teaching and administrative loads

Interviewees listed a number of barriers related to their teaching (both undergraduate and postgraduate) and how these impact negatively on their research aspirations.

... I've told myself I just want to finish my PhD and look for a job somewhere else. Where I'll teach what I teach and with dignity. And in a very human way. Because I think what I've been going through is too ... dehumanising.

- Teaching 'impossibly large' numbers of undergraduate students leaves no time for research.
- The range of teaching, supervisory, administrative and other professional service-rendering tasks were perceived as an increasing burden on the individual academic and led to a palpable sense of frustration.

- The huge burden of administrative tasks and the accompanying bureaucratic red tape led to academics questioning the meaning of what they were to do (compliance culture rather than an academic culture).
 - Performance demands set by management (the demands to meet certain pass rates and throughput rates) further reinforced a culture of compliance rather than a culture of excellence.
 - The implications of working with academically underprepared students for the range of skills required from the academic were clearly expressed many interviews.
-

Finding 9: Division of labour according to rank

*I was told that if I thought the job was teaching
... that I was in the wrong job environment
because it's not about teaching*

One of the factors that were cited by emerging or early-career academics as a constraining factor in the advancement of their careers, was their academic workload. More precisely, they claimed that they were usually assigned disproportionately high teaching loads (especially at the undergraduate levels), as well as often inordinate administrative duties. There seems to be a practice at some universities that junior staff should bear the brunt of undergraduate teaching to allow senior staff to focus on research and produce as many publications as possible to earn subsidy income for the university.

Finding 10: Not enough time for research

*But the reality is that there isn't space for the
vast majority of us to actually pursue research
opportunities.*

Emerging scholars need space to develop a research career. A recurring comment from many young scholars was that this space does not exist. In fact, the experience of many young academics was that university management only pays lip service to creating research opportunities for emerging scholars. There seemed to be two worlds: the world of university managers and the world of the young academic.

Finding 11: Main barriers to the advancement of research: Publication hurdles

A number of difficulties related to publishing were highlighted in the interviews. Interviewees noted that they required assistance in identifying appropriate publication avenues (journal impact factor, rating, etc.), a lack of methodological preparedness to publish in internationally accredited journals, as well as trouble obtaining journal fees. It is worth noting that these concerns were expressed by interviewees from academics at the top research universities in the country, as well as historically disadvantaged institutions.

Finding 12: Main barriers to the advancement of research: Funding for research

The following were typical sentiments expressed about the problems in accessing research funds.

- I cannot access, because I am on a temporary contract appointment.
 - I am not a South African citizen so do not qualify for many funding categories.
 - I am over 45 so I get the sense that I am too old to succeed in getting funding.
 - I do not know how to access funding.
 - It takes a long time to apply (to the NRF) for funding.
-

Finding 13: Main barriers to the advancement of research: Lack of mentors

According to respondents, a mentor should fulfil a wide variety of roles, ranging from career coaches, advising new appointees and guiding them in undertaking specific academic tasks (teaching, research, publishing, supervision). Why we need mentors – according to interviewees:

- We need to know how do they teach, what are the best strategies?
- We have to also see them publishing with us so that we can see, okay, the whole process of how you do everything.
- So, there is so many procedures that you need to follow in an academic career, and nobody actually tells you.

More than two thirds (68%) of the emerging, young scholars, compared to 29% of the active, established, senior scholars, listed the 'lack of mentors' as a barrier. Similarly, 65% of the emerging, young group compared to 37% of the established, active, senior group listed the lack of research networks as a barrier to their career advancement.

- Tacit knowledge that they have about clicking and connecting with students, and the delivering of content in certain ways, it has to be evident.
 - Nobody tells you, you know, this is how you find a journal, or this is how you go for a conference or for me ...
 - ... introducing you to other senior researchers to extend your network and develop contacts.
-

Recommendations

Recommendation 1: Clarify the meaning of ‘emerging researcher’

The study has found that there is no consensus in the South African higher education and science system when using terms such as ‘emerging researchers’, ‘new generation scientists’ or ‘early career academics’. The definitions currently being used employ a variety of criteria (age, rank, qualification, degree of research activity, research funding category) to operationalize this concept. Our first recommendation is that the DST, NRF and DHET meet to discuss and arrive at a commonly acceptable definition for the system.

Recommendation 2: Intensify efforts to achieve higher proportions of senior lecturers and lecturers to obtain doctoral degrees

The biggest structural barrier to increasing the number of active, emerging scholars in the SA Higher Education system is the fact that very low percentages of senior lecturers and lecturers are in possession of a doctorate degree. The average percentage of SA academics with a doctorate remains low (less than 50%) and has not increased significantly over the past five years. The NDP has set a target of 75% of SA academics being in possession of a doctorate by 2030. Given recent trends, it is clear that this target will not be achieved. It is imperative that the universities intensify their efforts to support larger numbers of their lecturers and senior lecturers to obtain doctoral degrees and they design and implement innovative intervention to achieve this.

Recommendation 3: Universities should be aware of the increasing disillusionment of young scholars with the current research performance culture and implement appropriate counter measures including implementing differentiated research performance appraisal criteria for emerging scholars

Our study has found evidence of a growing sense of disillusionment and even cynicism amongst younger scholars about the pervasive research performance management culture at SA universities. Although the majority of emerging scholars accept that they have to comply with performance criteria that measure every aspect of their academic work, there is a growing sense of unhappiness about the all-pervasive and undifferentiated nature of this system amongst some academics. Performance appraisal systems should create allowances for different foci and incentivise these foci, e.g. academics who wish to focus on teaching, or supervision or on community engagement. The current near-exclusive emphasis on research and graduate outputs should be reconsidered and universities and other relevant stakeholders (such as DHET and NRF) should be encouraged to adopt more differentiated academic and research performance criteria. The uncritical acceptance of

measures such as the NRF-ratings or h-index scores for academic promotion across all disciplines, also needs to be revisited. A number of young scholars suggested that formal appraisal systems should take into account the stages of an academic's career development and differentiate between different stages and 'types' of academics e.g. academics busy with PhDs, emerging scholars, post-docs, lecturers and senior lecturers. The heavy and disproportionate teaching and administrative loads for lecturers need to be taken into consideration when assessing academic performance. We, therefore, also recommend that universities consider developing a different set of performance measures for academics that are commensurate with the stage in their academic careers.

Recommendation 4: Universities should ensure that the performance appraisal system and promotion criteria should be clearly understood and implemented in a consistent and transparent manner.

Some scholars bemoaned the fact that the performance appraisal process and criteria at their universities are neither clear nor transparent. The recommendation is that criteria for promotion should be clearly communicated – especially to young academics – in order to ensure that such criteria are implemented in a consistent and transparent manner.

Recommendation 5: Changing nature of knowledge production requires new forms of capacity-building for emerging scholars.

The nature of knowledge production has changed dramatically over the past two decades. The effects of globalisation and internationalisation of academia, the increased mobility of scientists, the advent of digital and open access publishing, the global spread of a pervasive performance assessment culture and other trends imply that young and emerging scholars need to be better prepared. Many emerging scholars indicated that they require assistance that is specifically related to publishing which includes: help identifying avenues of publication, methodological and technical assistance, and financial assistance to cover journal fees. Others have indicated that they are not sufficiently knowledgeable about such matters as the h-index, journal impact factors, predatory publishing and other more recent trends in scientific communication. We strongly recommend that all universities put in place dedicated training courses and workshops in these areas and that the DHET and DST support such initiatives through requisite funding. Individual academics should also be encouraged to cultivate a culture of self-inquiry to stay abreast of new developments.

Recommendation 6: *Inculcate and facilitate a culture of mentorship through formal recognition and reward systems'*

One of the biggest barriers to a successful research career listed by our respondents was the lack of sufficient mentors. Mentors are universally seen as a means to improve a researcher's career. However, the respondents commented on the fact that mentors perform many different roles and

functions. There is often not sufficient clarity of the role of a mentor. They suggested that formal programmes that encourage mentoring need to be strengthened. Although there is already a significant interest and investment in establishing appropriate, effective and viable mentorship programmes at many SA universities, it is recommended that more attention is given to this issue and that a forum is established to share lessons learnt from these programmes.

Recommendation 7: Ensure that good practice about effective interventions are shared

There are currently a large number of programmes at SA universities that are aimed at addressing the needs of emerging scholars or early career academics. The current round of UCDG's has a specific focus on this matter. We would strongly recommend that the DHET (in consultation with USAf, NRF and DST) convene a regular conference or seminar to discuss what has been learnt from the implementation and evaluation of these programmes.

Executive summary

Background to the study

In the terms of reference (ToR) for this study, the authors wrote as follows:

With flagship programmes such as the SARChI, CoEs and the bursary and scholarship programmes, significant strides have been made in supporting established researchers and the next generation of researchers (SARChI and CoEs include support for next generation researchers). Except for the Thuthuka programme, support for emerging researchers has not been at a significant scale despite the Department's recent efforts to recapitalise the Thuthuka programme. Owing to limited resources, *inter alia*, the footprint of emerging researchers' programmes has been limited. Working with the DVCs of Research at HEIs, the DST has unearthed the 'silent majority' in the higher education sector. This 'silent majority' belongs to the emerging researchers' pipeline and appears largely to comprise lecturers and senior lecturers in our universities. (p. 2)

The authors continued to argue that the 'silent majority' were in fact mostly lecturers and senior lecturers at SA universities. The breakdown by age and highest qualification led them to conclude as per below (see bold text):

The national data below has been sourced from the Higher Education Management Information System (HEMIS) and all graphs (except for Figure 9) have been produced using the RIMS Business Intelligence (BI) Warehouse. **Figure 1 below shows the total number of instruction staff with masters/doctorate qualifications at lecturer or senior lecturer levels in HEIs. These academics have been targeted since they are considered to be the feeder for the emerging researchers. As indicated above, emerging researchers are constituted primarily of persons younger than 40 years who, although employed as academics or researchers in knowledge-based institutions, have not yet obtained their doctoral degrees and/or established themselves as active researchers (pp. 2–3).**

Against this background two main research objectives were formulated to be addressed by this study. We discuss our main findings with regard to each below.

FIRST MAIN STUDY OBJECTIVE

To establish the proportion and demographics of academics at lecturer and senior lecturer levels/all levels of the permanent instruction staff at Higher Education Institutions (HEIs) who are active researchers, as well as those who are not active researchers.

In order to address this objective, we disaggregated it into four subsidiary objectives.

1. To establish what the sector (HE) profile of lecturers and senior lecturers are in the system.
2. To establish what proportion of lecturers and senior lecturers are actively publishing (one meaning of 'research active').
3. To establish what proportion of lecturers and senior lecturers are actively applying for funding (another meaning of 'research active').
4. To establish what proportion of lecturers and senior lecturers are actively publishing AND applying for funding.

We present the results of our analyses for each of these four objectives separately before returning to the main question.

WHAT IS THE PROFILE OF LECTURERS AND SENIOR LECTURERS IN THE HE SECTOR?

An analysis of the 2015 HEMIS statistics shows that lecturers constitute the largest single proportion (45%) of all ranks of academic staff at SA universities. Senior lecturers constitute slightly more than a quarter (27%) of all permanent, full-time academic staff at SA universities. Male staff dominate the senior lecturer rank (56%). The converse is true of lecturers, where female staff are in the majority (53%). As far as 'racial decomposition' is concerned, 'white' staff are the single largest group in the senior lecturer category (57%), followed by African staff members in the second place (30%). The 'racial breakdown' of lecturer staff shows that African staff were the single largest group in 2015 (45%), followed by white lecturers (37%).

When we looked at the 'interaction' between gender, race and highest qualification by rank we found some interesting patterns. At the rank of lecturer, white female staff constituted the highest proportion of those having a PhD, followed by African males, white males and

African females (together they constitute nearly 70% of all staff). At the senior lecturer rank, white females again constituted the highest proportion (30%), but were followed by white males (27%), African males (21%) and African females (9%).

There were large differences between senior lecturers and lecturers as far as having a PhD is concerned. The majority (56%) of senior lecturers in 2015 had a PhD. The vast majority of lecturers (82%) did *not* have a PhD in 2015. One obvious explanation for this became clear when we disaggregated the data by university. These breakdowns revealed huge differences between the universities. The established (research universities) had much higher proportions of staff with doctoral qualifications than, for example, the universities of technology. This was to be expected given (a) their history as former ‘technikons’ and ‘technical institutes’, and (b) their exclusive focus in the past on vocational training in subjects where a doctorate was not required.

In conclusion: the cohort of senior lecturers and lecturers in our academic system is a crucial group of people as they constitute more than 70% of all academics at SA universities. Perhaps the most noteworthy feature of this cohort was the proportions of each rank that have doctorates. In 2015, 56% of senior lecturers, but only 18% of lecturers were in possession of a PhD.

What is the proportion of lecturers and senior lecturers that are actively publishing?

CREST searched university websites for the rank of academic staff and subsequently linked this information to our database of SA publications (*SA Knowledgebase, or SAK*).

On the basis of an analysis of the database we were able to estimate that approximately 2 000 senior lecturers can currently be classified as actively publishing (using a relatively weak measure of publication activity, i.e. at least one article unit in two years). In 2015, there were 4 746 senior lecturers at SA universities. This means that approximately 42% of senior lecturers could be categorised as actively publishing.

Applying the same logic, we estimated that about 2 050 lecturers were actively publishing (again, using the same criterion). In 2015 there were 7 940 **lecturers** at SA universities. This meant that approximately a quarter (25%) could be categorised as actively publishing.

Perhaps the most surprising aspect of these results was the low percentage of senior lecturers who we categorised as ‘actively publishing’: only 40–45% of senior lecturers were actively publishing when 56% of them had a PhD. There seemed to be a strong correlation between having a PhD and publication activity. The bulk of academic publication were in fact produced by professors at SA universities. This was not surprising, as the vast majority of these authors would already have been in possession of a PhD. At the other extreme, it is perhaps not surprising that only about 25% of lecturers were actively publishing, as only 18% of all SA lecturers had a PhD.

What proportion of lecturers and senior lecturers are actively applying for funding to the NRF, AND what proportion of lecturers and senior lecturers are actively publishing AND applying for funding.

In order to address these two questions, CREST generated a file on publication data which was subsequently matched with funding data from the NRF. This enabled us to link information about publishing academics (in our database) to applicants for different funding calls at the NRF.

The results showed that slightly less than a third (31%) of the lecturers and senior lecturers in *SAK* have applied for and received funding from the NRF over the past ten years. This means that there is a sizeable group of academics (nearly 70%) in these ranks who did not apply for funding from the NRF. A further breakdown of this cohort, however, showed that it would be incorrect to label these as predominantly being emerging scholars (as is the case in the ToR for this study). In fact the biggest proportion of this cohort (41%) was classified as established scholars by the NRF.

So: Is there a ‘silent majority’ of SA academics that can act as a feeder system for emerging scholars?

Our analysis of the NRF funding data revealed that the way in which the term ‘emerging scholars’ was used in the ToR document was incorrect. Our review of national policy

documents (Part Two) also showed clearly that there is no consistent and clear definition of what an ‘emerging scholar’ means in the SA science and higher education system.

What was clear from the NRF analysis was that the label ‘silent majority’ had been incorrectly linked to the **rank** of academic staff (senior lecturers and lecturers) in the ToR document. In communications with the NRF, Mr Moolman indicated that they did not define an ‘emerging scholar’ in terms of any demographic category (rank or age), but in terms of the call category of the application. When academics applied for funding, for example, to the Thutuka programme or the post-doctoral fellowship programme, they were defined as ‘emerging researchers’. If the applicant applied to other categories, they were categorised as being emerging (applying for master’s or doctoral scholarships) or established scholars (for example, incentive funding for rated scientists). In fact, the results of the matching of the CREST data with the NRF data showed that more lecturers and senior lecturers applied for and received funding in the ‘established researcher’ category than in the ‘emerging researcher’ category.

The matching of the two datasets allowed us to draw some more fine-grained conclusions. We could, for example, establish that only about one third of those senior lecturers and lecturers who we have classified as ‘actively publishing’ have in fact applied to the NRF for funding over the past 10 years. This means that about 70% of all senior lecturers and lecturers at SA universities have **not** applied to the NRF in recent years.

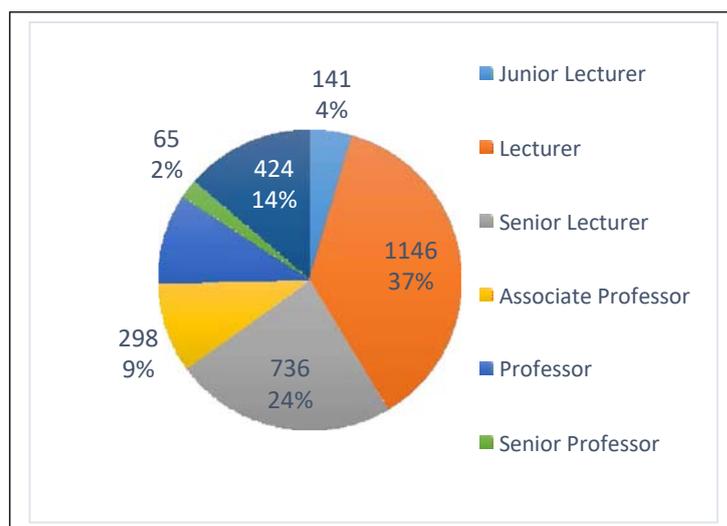
So there is indeed a ‘silent majority’ of academics who do not access NRF funding. However, this group cannot be categorised as ‘emerging scholars’. In the ToR document ‘emerging scholars’ were ALSO defined as typically being under the age of 40 and not having a PhD. It is quite clear that the interaction between rank, age and qualification was much more complex, and a simple equivocation with a label such as ‘emerging scholar’ (a term which is itself not unambiguously defined) is not warranted. In the second main section of our study we utilised our survey results to address some of these terminological confusions.

SECOND MAIN STUDY OBJECTIVE

To investigate the environmental context, enablers and impediments to increasing the number of emerging researchers at systemic, institutional and individual levels, and to make recommendations at the systemic, institutional, and individual levels to increase the number, diversity and representivity of emerging researchers in the higher education system.

The second main objective of the study was addressed first through a web-based survey of SA academics, and subsequently with qualitative interviews with a select group who had completed the survey. The web-based survey was conducted between May and September 2017 and produced 3 210 complete and usable questionnaires. The qualitative interviews were conducted between September and November and resulted in 124 completed interviews.

Some universities restricted the survey to lecturers and senior lecturers, others sent it out to all academic staff. The result is that we received completed questionnaires from significant numbers of academics in the professorial ranks (see the figure on the right). The majority of respondents (61%) were still from the two targeted ranks.



One of our first tasks in the analysis of the survey data was to attempt to generate an operational measure of 'emerging scholar' based on the survey results. Taking the DST/USAf ToR as reference, an operational definition of 'emerging scholar' would include those who are:

- *mostly* 40 years and younger (AGE),
- would typically not have their PhDs yet (QUALIFICATION),
- would typically not be 'research active' (MEASURE OF RESEARCH ACTIVITY), and
- would *most likely* belong to the RANKS of lecturer or senior lecturer.

Based on the results of our desktop analysis, *and* taking into account these ‘criteria’, we adopted the following approach in the analysis of our survey data.

1. We decided to adopt the RANK criterion to all non-professorial ranks as a defining criterion for an emerging scholar.
2. In order to give some meaning to ‘emerging’ as an AGE criterion, we selected 40 as the cut-off age.

Two other issues of contestation remained: whether having a PhD or not is distinctive in defining an ‘emerging scholar’. One could certainly argue that anyone who is called a ‘scholar’ should have a PhD. However, the USAf ToR defines an ‘emerging scholar’ as someone without a PhD. We decided to conform to this definition and rather divided the cohort of lecturers and senior lecturers into two groups: those with a PHD and those without.

The second area of contestation concerns the notion of being ‘research active or not’. How one defines ‘research active’ is clearly not a straightforward matter. In order to address this question, we decided to ask survey participants to indicate whether they had, in the previous five years, engaged in any of a number of research related activities. Their responses were used to construct an index of research activity. In the table below the researchers present a list of the statements that were used in constructing this index.

In the past five years I have ...
Participated in one (or more) research project(s)
Been the principal investigator of a research project
Published one (or more) journal article(s) in DHET approved journals
Published one (or more) peer-reviewed book chapter(s)
Presented research at one (or more) conference(s)
Supervised the research of one (or more) honours students
Supervised the research of one (or more) master’s students
Supervised the research of one (or more) doctoral students
Successfully applied for NRF funding
Unsuccessfully applied for NRF funding

Successfully applied for other research funding (other agencies besides the NRF, own university, international donor)

Unsuccessfully applied for other research funding

We decided to give each positive response to a statement the same weight (1) and simply added up all the positive responses of a respondent to get a figure out of maximum of 12. We subsequently undertook a wide range of analyses to test the validity of the index of research activity (**IRA**). The results of these tests showed a strong correlation between the score on the index and the rank of the respondent, as well as having a PhD or not (but no correlation with age). These results enabled us to create five subgroups from our survey sample.

Group A: The 'emerging young scholars' (Inactive, young lecturers/senior lecturers without a PhD)

Group B: 'The active young scholars'(Active lecturers and senior lecturers)

Group C: 'The active older scholars' (Lecturers and senior lecturers only)

Group D: 'The under-qualified older scholars' (Lecturers and senior lecturers only)

Group E: 'Established, active scholars' (Professoriate)

Five sub-groups for analysis



An analytical framework for the survey and interview data

Taking our lead from the key terms in the second main objective of the study, our focus in the empirical components of the study was on those factors that act as enablers or barriers

to the research careers of young, emerging scholars. We theorised that the perceived barriers to research would correlate with other contextual variables, such as academic workload and the institutional culture. In addition one would expect a strong correlation between barriers to research experienced and the degree of research activity. More specifically, we argued that the degree of research activity and perceived barriers to research would typically be affected/influenced by three sets of (independent) variables.

- Variables related to the personal biography of the individual (i.e. the personal identity of the individual).
- Variables related to the professional (academic) biography of the individual (i.e. the academic identity of the individual).
- Variables related to the environment or ecology of the individual (i.e. the institutional and disciplinary environments).

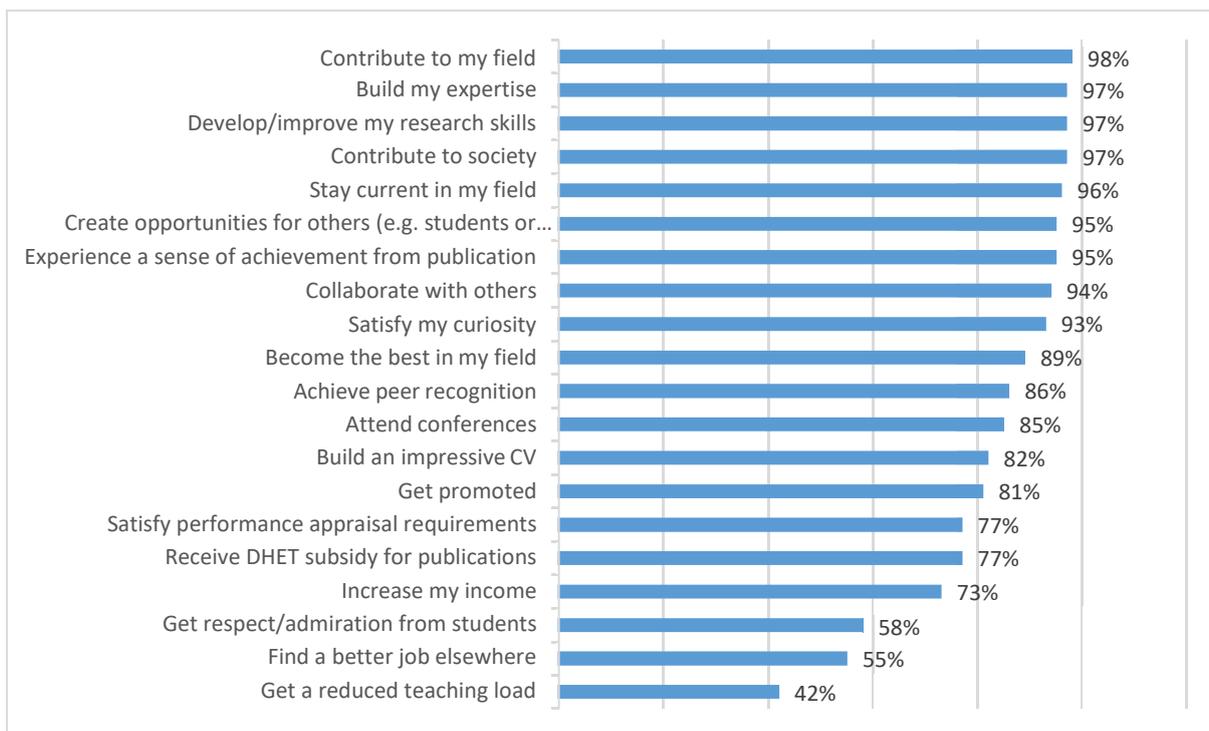
We subsequently organised the main findings of our study under three headings.

- Motivations for research
- Criteria for academic promotion
- Barriers to research.

In all our discussions under these three headings we also compared the results of the emerging scholars group (Sub-group A, above) with the other four sub-groups.

Motivations for research

In response to a set of questions aimed at establishing what motivates SA academics to undertake research, we found that the five most frequently reported motivations (>95%) concerned two main dimensions: making a contribution to the 'greater good' (a field or society), and (re)generating one's own expertise, research skills and field-specific knowledge. Creating opportunities for, and collaborating with, others was also a strong impetus, as was the more inward-directed sense of achievement from publication, and the time-honoured motivation for science, i.e. satisfying one's curiosity.



Indicated as a motivation by less than 90%, but still in the relatively high range of 80-89%, were outwardly oriented, aspirational motivations (becoming the best in one's field and achieving peer recognition) and activities related to these, i.e. attending conferences (to showcase one's work) and building an impressive CV. Obtaining respect/admiration from students, as opposed to from peers, does not, however, play a motivational role to the same extent (indicated by only 58% of respondents).

With the exception of promotion as a motivation (in 81% of the cases), relatively few academics (71-79%) were motivated by extrinsic, institutionally defined incentives, especially if these incentives were of a monetary nature, such as a DHET subsidy for publication and increases in income. The two motivations least likely to stimulate research activity were those that may be strategically employed by researchers to change an unsatisfactory employment situation, i.e. finding a better job elsewhere (55%) and reducing one's teaching load (42%).

At the same time, our analyses also revealed some sub-group differences. One of the most notable patterns was that much larger percentages of the emerging young scholars than the 'active established senior scholars' were motivated to conduct research by needs associated with early-career researchers: increasing their income, finding a better job elsewhere,

satisfying performance appraisal requirements, and building an impressive CV. However, established researchers were slightly more driven by the need to satisfy their curiosity, as well as by a desire to create opportunities for others (e.g. students and colleagues) and to collaborate with them.

Two other large differences between the sub-groups may also be explained with reference to the various career stages at which the sub-groups find themselves: the active established senior scholars were much less likely than the other groups to be motivated by the prospects of promotion and a reduction in their teaching load, but this is especially the case when they were compared to active, young researchers.

So, I'm currently at a lecturer level and if I wanted to move to senior lecturer position I would have to provide proof, which I can't do now because I don't have extensive research experience. So, I'm not even bothering. So, therefore it feels like I'm stuck here but I'll be stuck in this position until I do something about it which is research related. [F,B,34,L,CPUT]

Is there an emerging cynicism amongst young scholars about the value of getting a PhD and advancing as an academic? Although this issue was not a major focus of our qualitative interviews, it is interesting that two of our respondents (see text boxes) expounded decidedly cynical views about what motivates them to do (or not do) research.

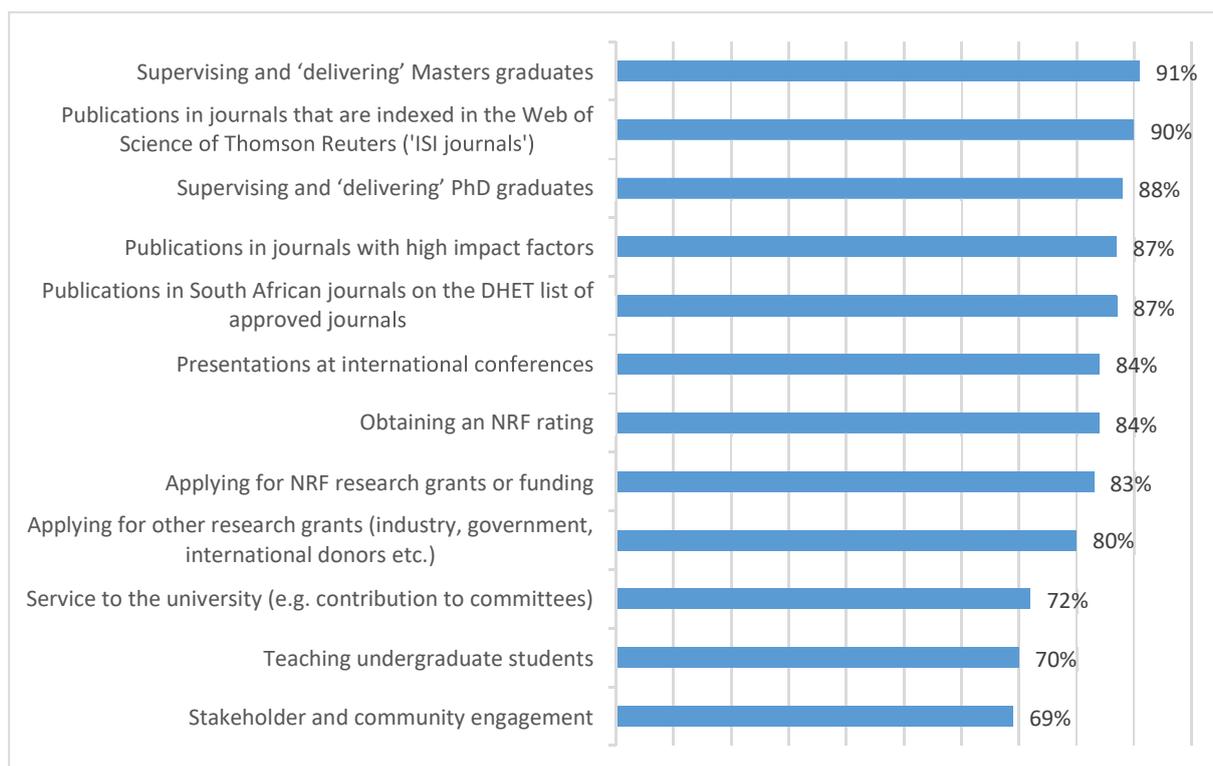
I don't want to be the best in my field. I don't want to be excellent. I just want to do my job and earn my salary so that I can have a life. I'm not aspiring to be a professor in five years. That's not part of how I see myself going. [F,C,38,L,SU]

advancing as an academic? Although this issue was not a major focus of our qualitative interviews, it is interesting that two of our respondents (see text boxes) expounded decidedly cynical views about

Criteria for academic promotion

It was generally assumed that academic promotions at most universities were increasingly informed by research performance (increasingly at the expense of performance in teaching and other areas such as university administration and service rendering). Our documentary analyses also showed that university incentive and reward systems remain increasingly biased in favour of research (and publication) performance and less so for rewarding other academic activities. We therefore included a set of questions aimed at establishing whether this was also the case for our sample (what were the perceptions and experiences in this regard) and specifically whether they would rate the research-related criteria for promotion of being more important than the other criteria. Twelve aspects, or what we refer to as research-related 'criteria for promotion', were identified and put to the respondents.

The majority of academics (two-thirds or more) perceived all of the aspects of research as important criteria for promotion at their university. Supervision of postgraduate (particularly master’s students) and publishing in WoS-indexed journals (especially those with high impact factors) emerged as the most important, by approximately 9 in 10 respondents identifying these aspects as such. Slightly lower percentages of respondents (80–87%) considered it important to publish in SA journals (on the DHET list of approved journals), to deliver presentations at international conferences, to engage in NRF-related activities (i.e. obtaining a rating and applying for funding from the foundation), and to apply for other (non-NRF) grants. Ranked relatively (and similarly) low within the context of promotion were service to the university and stakeholder and community engagement, as well as (unsurprisingly) the teaching of undergraduate students.



An interesting pattern was observed with regard to half of the criteria, in the form of a similarity between the emerging young scholars and under-qualified, older academics, while the other three groups were similar in holding the opposite view. More specifically, consistently higher percentages of the three PhD-qualified and research-active groups than of their lesser qualified, less active counterparts perceive six of the twelve criteria (highlighted in blue) as important in the context of promotion. This applied most noticeably

with regard to the importance of supervising and 'delivering' PhD graduates, but was also observed, albeit to a lesser extent, for supervising and 'delivering' master's graduates. Further, the difference was quite significant with regard to the importance accorded to applying for non-NRF research grants (e.g. from industry, government, international donors, etc.), service to the university, and obtaining an NRF rating. The pattern also pertained, albeit not as distinctly, to applying for NRF research grants or funding.

These two clusters were distinguished by the highest qualification (holding a PhD) and the extent to which they are research active, but not by age or rank. It makes sense that those who were not eligible to supervise PhD students would be less likely to perceive this activity as important for their own promotion, but it was less clear why (and contrary to expectations that) this perception also extended to the supervision of master's students. However, consistent with our expectations, the 'research active' groupings rate applying for research grants from either the NRF or elsewhere, and obtaining an NRF rating, higher than their less research active counterparts.

The subgroups were therefore not quite as similar in terms of the importance they attach to most of the criteria as one would expect (based on the argument that they apply to all staff surveyed). The exceptions include presentations at international conferences and publications in journals with high impact factors, which were clearly perceived by all academic staff. irrespective of rank and age and qualification, as important for promotion.

We need a differentiated approach to performance appraisal: differentiate according to stage of academic career

A number of interviewees made a plea that universities should have more differentiated approaches to performance appraisal as the illustrative quotes below show.

Even for example our KPAs and our whole performance management system, it is completely skewed for sort of young lecturers. The goals are completely ridiculous, meaningless, and no one even, no one reaches it. So, we honestly ignore them now. So, you would need to have, I don't know, a separate metrics for emerging scholars compared to the profs and maybe a little more transparency on how all the funds are distributed. That would also probably help. So that we could see you know how much funds are going to emerging scholars compared to senior profs, and sort of have some sort of rationale as to where it's going. [M,W,31,L,UP]

... it would also be important to look at where is the staff member at, in terms of their academic development. And allow for that to speak to performance contracting. If I am busy with my PhD, my contracts would focus on my development and progress on that PhD. Once I am done with the PhD, then my contract should look at my publishing, what am I doing after that. Rather than to have a combination of both whilst I am working on my PhD. That creates a conflict. When it suits my line, they want me to publish. When it suits them, they want the PhD progress. And that is creating a lot of havoc within the system. [M,B,45,L,UJ]

An uncritical, mono-criterion approach to research performance measurement needs to be addressed. There is a clear sense amongst interviewees that publication output is unfortunately elevated beyond other criteria. Another problem is the fact that teaching is not weighted equally with publication in terms of performance appraisals.

So, even in terms of, so when we get appointed as lecturers or associate lecturers or senior lecturers, part of your probation is that you published in a DHAT accredited journal, and in our school ... we have had instances where really good lecturers who are excellent teachers, had fantastic lecturer evaluations, but they never made that publication in that three years' time, actually got let go by the university. So I mean, it's quite scary how serious they make the research output, even in terms of, I am lecturer, I want to now jump to senior lecturer, I need to finish my PhD, which I am registered for, and I have got to get 1.5 research units. So the units are affected by if I am a co-author, if I am one of three authors, is the journal registered, is it accredited, is it ISI, is it ISPN, so there is a lot of pressure to actually stay in your position and to move forward in your position, to actually get that research output done basically. [F,A,30,L,Wits]

... and not only in South Africa, but internationally as well. For example, with gaining tenure in other countries or getting promotion, it's all dependent on how much you've published irrespective of how much effort and time lecturers have put into their students and I speak specifically from a person who was my lecturer and who is now a colleague and she's an awesome, amazing lecturer who puts in time and effort into students and that didn't allow her to publish as much as she is expected to and so she's been penalised. And I don't think, from speaking to other colleagues at other institutions locally, I don't think that's an uncommon reality. [F,A,48,L,UJ]

... think that the idea of, like, publish or perish, it's false and yes, maybe there needs to be a more differentiated thing for some people who are very good at writing articles. Let them write the articles, but the trouble is that we don't get promotions. We are seen as lesser academics if you haven't got a good publication record. Never mind that you graduated 20 post-graduate students. Then they say oh, you must write the articles out of your students' work. You don't have time, you know, when you have 20 post-graduate students. [F,W,59,SL,DUT]

A senior lecturer felt this current approach could not distinguish the quality of publication and penalised collaboration.

... the PU system, where you have to ... a single author paper gets 60 PUs as a senior lecturer you would need 90 PUs in a year. In my field, it's very seldom that you get a single author paper. So, the minimum ... we're ... four authors, so you divide 60 by four and that's your PU points for the year. You could publish that paper in an international journal like *Nature* with

100 other authors, publishing a paper in *Nature* is like reaching the pinnacle of your career, so it means nothing to the university. [F,W,41,SL,UKZN]

Respondents emphasised that teaching is under-valued in the current performance appraisal system, despite its importance with regard to academic day-to-day activities.

... your teaching comes first, you are first and foremost here to teach, that is the most important thing you do. But then when you come to the actual point where these things are quantified and measured and you are scrutinised, there's ... what is measured is your research progress, what is ... teaching is something that is very hard to quantify in this ridiculous quantified system that we work in. [M,W,30,L,Unisa]

... I don't know if I'll ever be promoted on my teaching portfolio. That uncertainty, but it's deeply problematic. And then knowing the financial situation of my faculty, I know I won't get promoted, even if I'm a fantastic teacher. [F,C,38,L,SU]

... teachers aren't valued as much as researchers and that's the sense that I get. But I mean I do find a lot of satisfaction in doing what I'm doing as it is. But I'm not specifically looking at being promoted, I'm hoping that happens over time for ... that my actions and feedback from students and the quality of what we do, that speaks for itself. That can be used, as you know, as reasons for considering promotions to the next level, etcetera. I mean, I'm certainly not an administrator and I'll be very weary of being promoted to levels where that becomes my job. I'm talking about managing departments, etcetera, because that is certainly not one of my strengths. [M,C,44,SL,UCT]

In some instances this has reportedly resulted in the underutilisation of academic potential with limited opportunities for promotion.

For my performance management on my teaching and administration and whatever, supervision, I score way above. You know, above the average, and almost in excellent. Why can I not apply for a promotion ... if I don't have any papers? So, my teaching is underappreciated. But I am expected to do it. And I am expected to do a lot of it, without thinking that, you know, well, here is a person who actually has ... been doing research since 1996. I have accumulated masses of knowledge. ... We could actually use this person to encourage, and build research capacity. No, you just dumped the teaching, and that is it. You know, so they don't even look at those kinds of things [F,A,45,L,UKZN]

... the strong emphasis on publication at all costs is ... means that I can afford to spend very little time on improving my pedagogy. I am instructed by my department – now we come back to my department – that, you know, time that I spend over and above the time that is allocated to me for teaching these courses is a waste of time. [F,W,44,SL,UP]

A lecturer believed that the community engagement component of the KPAs has little to no bearing on promotion.

They have now included it [community engagement] in the promotion criteria at [my university], you cannot be promoted unless you can show that you're involved in some kind of community engagement. But you know, if you are hardly do community engagement or no

community engagement, but you've got a publication log of ten pages they're not going to hold you back from promotion. [F,C,36,L,UWC]

Some respondents noted that certain activities and outputs are not included in the performance appraisal system.

But I am influencing how government is going to spend its budget in the next financial year, around child malnutrition. I'm influencing how employers are going to implement the code of good practice for breastfeeding mothers in their employment, which may change child mortality, going forward. But that does not have an accolade to it. It does not have a publication rating. It's not going to give me NRF star. [F,C,45,SL,NWU]

So, for example, I was featured on national TV. Now, one minute on national TV or radio in fact is equivalent to R12 500 worth of free advertising for the university. You know and I don't get any benefit for doing that, so you know I do it because I want to spread the message of my work out there but not ...I'm actually getting penalised for it if I carry on doing it. [F,W,41,SL,UKZN]

Other respondents bemoaned the idea that the promotion criteria are unrealistic.

... they're moving the goal posts so far in terms of promotion that I'll just stay a senior lecturer the rest of my life. You know it's really, the moment you've got some sort of research output, it's like, sorry now you need more. So, I just ignore that, it's not relevant for me anymore. I just want to do research that's relevant in the market place and they must just leave me and give me time to do that and I'll be happy. [F,W,45,SL,Unisa]

Well, I think the same thing at our university, I mean I've got other colleagues who are not going to apply for promotion because the requirements for the next level are just unrealistic. So, they are happy to remain at the level that they are at, because they meet the requirements at that level and they don't want to go to the next level because it's just completely unrealistic. And having taught at two, three other universities or tertiary education institutions, they are pretty ridiculous requirements. [F,W,41,SL,UKZN]

... there is no room for promotion in our current promotion criteria. Even though I have a PhD, I'm still stuck at lecturer level because now the criteria are quite stringent, it requires six journal publications and six PhD or master student graduations, which will probably take me another ten years. [F,A,41,L,UKZN]

One respondent claimed he was hired under a teaching-contract, and therefore feels that the performance appraisal system should take that into account.

... when I started at the university my understanding was I was being hired to teach and so I would be rewarded and promoted based on, primarily, teaching criteria. And that is ... that is just so far from the case. In my last, I've been here six years, the case is actually that you are held to the same criteria as other departments. ... I'm not on a teaching contract. I'm on a normal contract, and a normal contract requires teaching and research, so the problem I've got is that I spend, as you say, 85% of my time teaching. But in the performance criteria for promotion ... is weighted ... heavily ... towards research ... [.] I think it's mostly the fault of senior academics within my department who already understand the status quo. They already understand the ... the performance criteria for promotion. Although they need teachers, they

understand, they already understand that we cannot be promoted without performing in research ... [.] [M,W,34,L,UCT]

A respondent noted that he could not secure a promotion without post-graduate students and at his current institution there are currently no post-graduate students.

... you also need postgraduate students in order for a promotion, yet you don't get postgraduate students. At my previous institution actually, we were not allowed to have postgraduate students. Yes, so it was an interesting set-up there, it consisted of three different campuses and with three different departments, and only two of them offered postgraduate courses. So, because of that fact that you were at the third one, you weren't allowed to have postgraduate students at all. [M,W,32,SL,UFS]

It seems that the promotion criteria are not always obvious as one respondent felt that a colleague had been promoted unfairly.

There is a recent thing that happened in the department, whereby there were two candidates who applied for promotion to a senior lecturer, from a lecturer to a senior lecturer. And the one of those candidates had a doctorate. And then the other one is still doing the doctorate. Surprisingly, the one without a doctorate got promoted. The one with a doctorate didn't get a promotion. And the one with a doctorate has got some publications, has got supervision of students. The one without a doctorate doesn't have all those, which are part of the process when they are doing the judgement. [M,B,35,L,CPUT]

Respondents also indicated the need to set forth the required steps to achieve the outputs that lead to promotion.

... when a new academic gets appointed, then, well, in my experience, they get told, well, you must publish in these journals and not in those journals, and you must recruit postgraduates and you must do all these things, and by the way, you must teach this class on Communication, which is purely your interest. But there isn't a kind of sense of a roadmap of how, if you recruit a postgraduate student this year, then... develop them in the right way, then there will be a trade-off. So you get measured in Year One on things which you can't possibly have achieved. And I think that's a barrier, because there isn't a sense of how you should grow your research. [F,W,44,SL,UP]

So, the specifications appear to focus overly much on the desired exit states and not enough on the trajectory, in other words what do you need to be able to do or how do you get there. So, for instance I think for many researchers on the one page would be that if you want to get an NRF rating you need to propose referees. Those referees typically or ideally should be known to you, but to have a list of people in your field that are known to you need to make an effort at conferences to meet those people, which means five years before you do your NRF rating you need to go to conferences and introduce yourself to those people, if you understand that. [M,W,39,SL,UP]

Some respondents claimed that their institutions do not have any formal performance appraisal systems in place.

We don't have a formal appraisal system currently in place, which ... they're still working on it. They've apparently been working on it for quite some time! [F,W,42,L,UNIVEN]

At our university at the moment, they don't have performance appraisals for the academics, in the sense that I understand performance appraisal would keep performance indicators and whatever, there isn't a formal system. Where I could contradict that is in terms of our

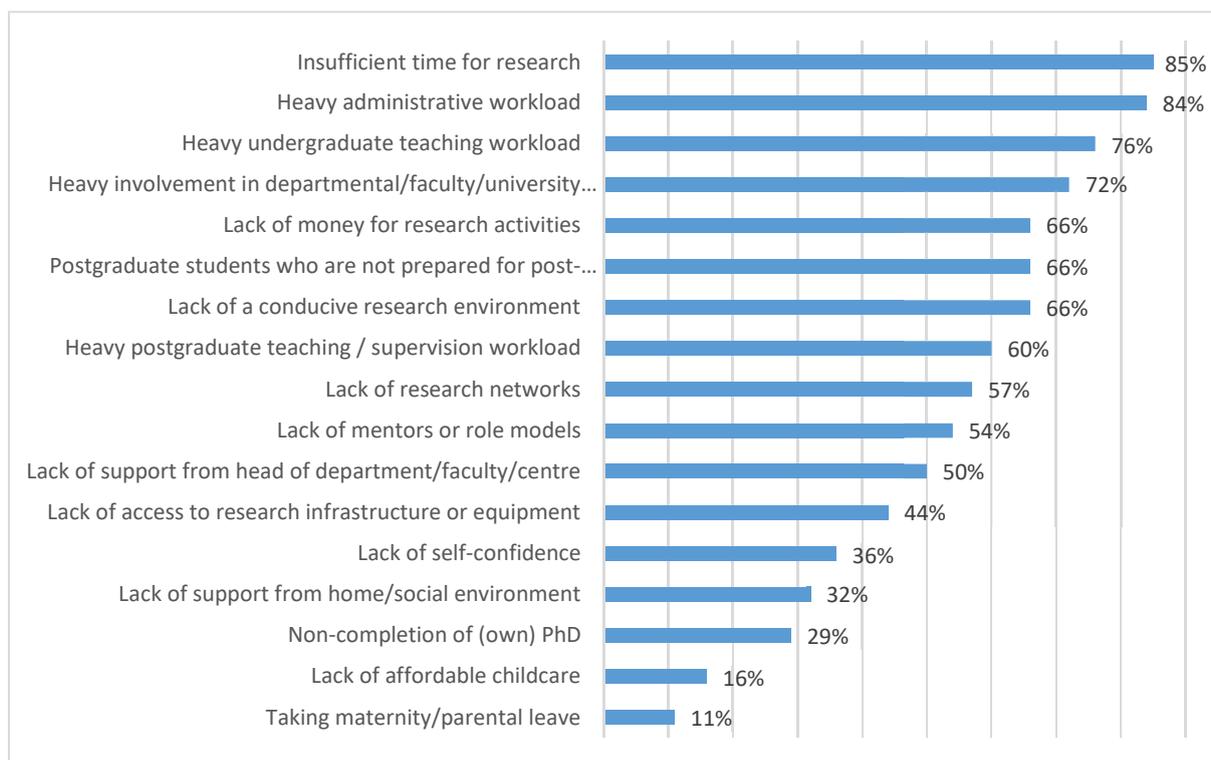
promotion policy where you have to have, you know, publications. Research forms part of [inaudible]. [F,W,59,SL,DUT]

Recommendation: Criteria for promotion

- The criteria for promotion should be formalised and the promotion mechanism should be transparent. The reasons for promotion should be clearly articulated where possible and appropriate.
- Formal appraisal systems should take into account the stages of an academic's career development and differentiate between different stages and 'types' of academics e.g. academics busy with PhDs, emerging scholars, post-docs, lecturers and senior lecturers.
- Performance appraisal systems should create allowances for different foci and incentivise these foci, e.g. academics who wish to focus on teaching/supervision.
- The current emphasis on research outputs focusing primarily on publication units, should be reconsidered. Additional criteria can include policy documents, media coverage, advisory roles, interventions, etc.
- The importance of community engagement as a criterium for promotion should be considered and given adequate weight.
- Ensure that all universities have formal appraisal systems in place.
- Communicate steps that can help achieve promotion, e.g. how to get an NRF rating.
- Do not employ universal performance appraisal systems.

Barriers to a research career

One of the main aims of the study was to ascertain what the main barriers are that emerging scholars experience as far as their careers are concerned. It is remarkable that large proportions of all subgroups of our study identified many and similar barriers to their careers. Large proportions of all subgroups indicated that the lack of sufficient time for research, heavy administrative loads, heavy involvement in university administration and lack of money for research are barriers to their research. It is clear that these barriers or challenges affect all academic staff equally seriously, irrespective of rank and age and qualification..



At the same time, the results also show that there are some difference in ranking these barriers on some items, especially between the emerging, young scholars and the active, established, senior scholars. There are significant differences as far as ‘undergraduate teaching load’ is concerned between these two sub-groups. One of the most telling differences (not surprisingly) is the fact that 68% of the emerging, young scholars compared to 29% of the active, established, senior scholars listed the ‘lack of mentors’ as a barrier. Similarly, 65% of the emerging, young group compared to 37% of the established, active, senior group listed the lack of research networks as a barrier.

It is also important to emphasise that some of these barriers are more applicable to groups other than the emerging, young sub-group. Two barriers that pertain specifically to post-graduate teaching and supervision and the level of preparedness of PG students were identified by most of the other groups as significant barriers. But only 52% and 50% of the emerging, young group indicated that these barriers affect them to some extent, presumably because they themselves are still engaged in post-graduate studies. It is therefore not unexpected that 63% of the emerging, young group listed the non-completion of their own PhD as a major barrier. The only other subgroup that responded in a similar manner to the barrier was the “under-qualified older academics” (66% of them selecting this option).

The last four items in the question pertain to more personal barriers (lack of self-confidence, lack of home support, lack of affordable child care and taking maternity leave). As the graph below shows, there are not many large differences between our five subgroups on these items. An exception is the responses on the item regarding “self-confidence” where the active, established, senior scholars are less likely to have selected this as a barrier. It is obvious that some of these responses are a function of the gender and age of the respondent.

In the remainder of this section, we summarise the main findings from our qualitative interviews as they pertain to specific barriers listed above.

Teaching – undergraduate and postgraduate

... I've told myself I just want to finish my PhD and look for a job somewhere else. Where I'll teach what I teach and with dignity. And in a very human way. Because I think what I've been going through is too ... dehumanising.

Interviewees typically focus on very similar barriers related to their teaching (both undergraduate and postgraduate) and how these impact negatively on their research aspirations.

- Teaching ‘impossibly large’ numbers of undergraduate students leaves no time for research.
- The range of teaching, supervisory, administrative and other professional service-rendering tasks are perceived as an increasing burden to the individual academic and leads to palpable sense of frustration as expressed in the quote on the right.
- The huge burden of administrative tasks and the accompanying bureaucratic red tape leads to academics questioning the meaning of what they are to do (compliance culture rather than an academic culture).

... I work 12, 14, sometimes 18 hours a day, seven days a week. I work Saturdays, I work Sundays, I never leave the office before seven o'clock at night. I go home, you have some supper, you sit down, you work some more, because you've got big post-graduate teaching loads, big post-graduate supervision loads ... I have mature adult learners in my under-graduate program ... they need a lot of support. Then you're asked to evaluate other research proposals at the university, from both, you know, my local research and higher degrees committee for faculty of Health Science as well as the institutional research ethics committee, so you're doing those reviews. You're doing reviews for the NRF. You're doing reviews for the MRC. You're reviewing for journals that ask you to review. You know, and then you spend hours and hours and hours putting together a flipping article, you take leave ... so that you can write this article unhindered[.][F,W,59,SL,DUT]

- Performance demands set by management (the demands to meet certain pass rates and through-put rates) further reinforce a culture of compliance rather than of excellence.
- The burden of huge teaching loads and administrative duties, together with a performance culture that is seen as relentless and the special needs of underprepared students is expressed in various negative ways:

- A sense of frustration
- Making my literally sick
- As being dehumanising.

... I've told myself I just want to finish my PhD and look for a job somewhere else. Where I'll teach what I teach and with dignity. And in a very human way. Because I think what I've been going through is too ... dehumanising.
[F,B,51,L,SU]

- The implications of working with academically underprepared students for the range of skills required from the academic are well expressed in the interview with a young black lecturer at WSU:

... given our current education system, we get students who are raw. I get students from the poorest of the poor, they are not fortunate enough ... Very few kids from a model C school come to us. So, that means we get those kids from rural areas who are cognitive and make things and everything else in their mother tongue. Then they come to me and then there's no knowledge of academic writing, there's no knowledge of assignment writing ... anything. Like you want to talk to them about referencing, plagiarism issues, you are speaking Greek to them. Now, I have to put, not only am I now a lecturer, now we have stopped being a lecturer, especially to first year students. We now have become grade one teachers because we have to start them from the very bottom and all of that takes time and not mention the benchmark just to please our management. You say, no, we need to have an 82% pass rate, anything under that is unacceptable. That means now it's a lot more effort on me in ensuring that particular ... those particular benchmarks are met. Then it's chaos now, the load goes up ... [M,B,36,L,WSU]

- It is not only the poor quality of university entrants that interviewees lament, but also the poor quality of their prospective and current post-graduate students. Reasons given included low entrance requirements, artificially imposed pass rates, undergraduate syllabus and pedagogy. As is evidenced from the quote below, some academics, unsurprisingly, blame university management for prioritising concerns about performance targets and transformation over quality.

The government is funding people who have no business being at university. We have professional students at universities and some of them doing a three, four-year degree or diploma, you find this person being in the system for about seven or eight years ... And if I say that, it will be anti-revolutionary. So, like you said it transcends across cultures and class and race. We don't have a right to say, no that is not going to happen, they'll say that we're anti-revolutionary. If you say it was a white person, then you are racist, you say it as a black person, you are anti-revolutionary. [M,B,36,L,WSU]

Senate made the decision to lower the entrance levels at honours, masters and PhD. Because they assumed that would ... it created an illusion that they were doing this wider participation and transformation. But they didn't think through the impact of that. So, recently, you need to have 50% as an average, entering an honours program that requires them to do high-level thinking. So, they are clueless when they come in. And then they feel frustrated now. And they think that we're being racist, or we're being difficult with them. We don't want to support them as young people. But that's not the issue. But it has also brought in those that came with deficits [?] from honours that weren't addressed. Then went into master's, it wasn't addressed. And then now, I want you to do a full PhD, and publish. It puts a lot of pressure on those of us supervising some of those types of students. [F,A,45,L,UKZN]

Division of labour according to rank

I was told that if I thought the job was teaching ... that I was in the wrong job environment, because it's not about teaching.

One of the factors that are cited by emerging or early-career academics as a constraining factor in the advancement of their careers is their academic workload. More precisely, they claim that they are usually assigned disproportionately high teaching loads (especially at the undergraduate levels) as well as often inordinate administrative duties.

There seems to be a practice at some universities that junior staff should bear the brunt of undergraduate teaching to allow senior staff to focus on research and produce as many publications as possible to earn subsidy income.

I love teaching that's why I started with the university in the first place, because I wanted to teach and ... I was told that if I thought the job was teaching ... that I was in the wrong job environment because it's not about teaching, it's about research, which I fundamentally disagree with. And if universities are not about teaching and education, then what's the point of sending my child there ... my own child is not attending university next year and I'm a university lecturer ...[.] [F,W,41,SL,UKZN]

... I know for other junior colleagues such as myself, we were just there being a little bit confused because the senior guys that would be able to do the research and reduce their teaching workload, which meant us junior people would take over the teaching workload. Without realising that we need time to do the research but we don't have any kind of research credits to fall back on like the senior colleagues. So, we would kind of be stuck and then there was the stress of ... you know ... students are the priority and you have to do very good teaching and all of that stuff. [F,A,29,L,UJ]

... the argument, at least in my department, is that because the senior profs contribute so much more to the research at the department and thus inherently carry more of the research load, the junior lecturers thus need to carry more of the lecturing load. That's sort of the rationale. ... Nobody wants the big courses. So to some extent you sort of have to work your way up to the smaller courses, the more technical courses, the less administratively heavy courses. ... The most difficult courses to teach, are the first and second year courses because they're big and the students know the least amount, they're the least professional. And you would, there's an argument that the most experienced lecturers and most experienced teachers should take those courses. So, then instead we as young lecturers get those courses.

You sort of very much get thrown into the deep end, you know. So, now you have the biggest courses with the most admin workload, that you have to now very quickly learn about everything. [M,W,31,L,UP]

Not enough time for research

But the reality is that there isn't space for the vast majority of us to actually pursue research opportunities.

Emerging scholars need space to develop a research career. A recurring comment from many young scholars was that this space does not exist. In fact, the experience of many young academics was that university management only pays lip service to creating research opportunities for emerging scholars. There seems to be two worlds: the world of university managers and the world of the young academic.

But the reality is that there isn't space for the vast majority of us to actually pursue research opportunities. So, we've got all these lovely policies, all these nice things that senior management will talk about. But the reality is something completely different. And it's not just me that experiences this. This is across all colleges, across all schools. When you look at who is publishing regularly, and who is [Unclear]. It is the same people every year. Across colleges, across schools. There are no younger or emerging people breaking into that. Because that environment doesn't exist for us. It exists in paper form, and in policy. But in reality, those spaces are not created. Any attempt to engage with people around the high teaching load, the high supervision load, is just kind of, you know? You're then just seen as being a noisemaker. But you are just trying to express that, wait a minute. I am supposed to fulfil A, B and C. I'm only doing A, and not being allowed to do the rest of it. And yet, at the same time, I am being told, well, you are not performing. But the reality of my situation is not being engaged with. [F,A,45,L,UKZN]

Lack of efficient administrative support

But there is just no urgency from the actual support staff. So, you have got to like constantly sit on their case, constantly phone them, constantly beg them, to the point where, I mean sometimes, you are almost booking the flight and the stuff yourself because you are so panicked that they are just not going to do it in time. [F,A,30,L,WITS]

... frankly speaking, I feel like our administrator is like a princess who doesn't do anything. If we have to find venues off campus, because of the impasse and the shut-down, we do it ourselves as lecturers. I honestly think that the venue issue should be sorted by administrators. If there's an exam and I have to go for exams; I'll get to the exam venue, other invigilators and other course convenors will be having a whole package with them. And then when I ask them they will be saying, I got this from our, our administrators gave them this. ... [b]Because I've got colleagues in other departments all over; they have more support from their administrators. I honestly feel that I'm doing a lot of administrative work that I shouldn't be doing ... I was at University of Pretoria before I came to UCT. I'm comparing the admin work that I'm doing here compared to the admin work that I used to do at UP. And certainly these are two institutions that are doing well in the same country, the admin work is totally different and there's something amiss here. [F,B,48,SL,UCT]

Publication hurdles

A number of difficulties related to publishing were highlighted in the interviews. Interviewees noted that they require assistance in identifying appropriate publication avenues (journal impact factor, rating, etc.), a lack of methodological preparedness to publish in internationally accredited journals, as well as trouble obtaining journal fees. It is worth noting that these concerns were expressed by interviewees from two of the top research universities (see below) in the country.

I definitely think emerging research need help. For example when I started, I had no clue as to which journals to publish in and the ranking of the journals and I had no idea. I didn't know how to write a paper, nothing. So, I definitely think ... maybe that's where the NRF can come in to help as well, with small mini-workshops. It doesn't have to be a week long, just really a day or two days and you know journal writing and where do you find journals. How do you publish in these journals and what to look for, etcetera, I think that would really help.
[F,A,38,SL,UKZN]

Where can we go to find out the journals rankings? What is a citation? How do we go and find papers on the various tools that are available to us on our computer? For example, Google Scholar or the other facilities that are available to us? We're not trained to do that. We're kind of left on our own. And then we wonder why we don't perform in the research area.
[M,W,34,L,UCT]

At the same time, it was clear from the quote from an interviewee from a recently established university, that the necessary supportive infrastructure for assisting young scholars to publish is not in place.

... for something as simple as there are some journals that require page fee for you to publish. That structure, that fund of where to apply for to get our papers published that, those page fees is ... As early as yesterday I paid my own page fees to a journal in South Africa because I knew my institution, they will ask you yes, we understand that you publish but we don't have a fund or a structure that we can use to pay your page fees. Yes, we understand that you have written a paper, we don't have, we can't help you with the editing. You know, the simple things like that. Yes, we understand that you need to analyse your data and you need maybe an online program but those structures are not there. There's an understanding that those things need to be in place but at the moment there's no research policy to help emerging scholars be able to access funds from the university to be able to publish... [.] [F,B,36,SL,SPU]

Another salient issue highlighted by researchers relates to the DHET journal accreditation list.

... it [journal] was accredited for 2016 and I paid the page fees and all that. And in 2017 I found that no, the journal is now no longer accredited. Then I now have to withdraw the paper and now I'm still busy fighting with them because they want the rights and since I paid some fees now I'm saying I want to withdraw and start something with another journal. [F,A,48,L,UJ]

Lack of research networks

Problems of identifying and accessing research networks were mentioned by various respondents.

There are networks out there but it's very hard to access. One of the things we've found with academia when we've first entered was that people are really closed and they don't really share their networks. They don't share, you know, like journal publishers, and they don't share means of accessing these things. So it's only once you get into academia and once you're allocated to a good supervisor, and now with this mentor, that they are able to share these things and you find their insights out. So those networks ... I think one has to show a lot of initiative but one can only do that, especially when you've just come in from the outside, you have to be mentored on it because it's something totally new to you. [F,A,52,L,UJ]

And you find it very difficult to penetrate those well-established research groups, it's almost like it's invite-only. [F,B,33,SL,UNISA]

I think there needs to be more collegiality in the department in order to shape, and we need to know what each other... what they're researching in other groups ... research groups, share with each other in terms of all of these areas, that would also help. I just... it's really having to look for collaboration outside your institution. Within your own discipline, I'm sure there are a lot of commonalities, but everybody seems to just work on their own. [F,A,41,L,UKZN]

Mentors and role models

According to respondents, a mentor should fulfil a wide variety of roles, ranging from career coaches, advising new appointees and guiding them in undertaking specific academic tasks (teaching, research, publishing, supervision).

... what I would expect from a mentor is, they must ... basically be able to capitalise on all the things that they know that you can't access online or in a textbook or in a note, all the experience that they have.

Why we need mentors, according to interviewees.

- *We need to know how do they teach, what are the best strategies?*
- *We have to also see them publishing with us so that we can see, okay, the whole process of how you do everything.*
- *So, there is so many procedures that you need to follow in an academic career, and nobody actually tells you.*
- *Tacit knowledge that they have about clicking and connecting with students, and the delivering of content in certain ways, it has to be evident.*
- *Nobody tells you, you know, this is how you find a journal, or this is how you go for a conference or for me*
- *...introducing you to other senior researchers to extend your network and develop contacts*

Two contrasting views: should your supervisor be your mentor or not?

I was in a privileged position to have a supervisor who was a good mentor and even at the beginning of my PhD studies published with me and she assisted me to learn how to write articles. If I look back at what she did, and I always tell her that, she was marvellous, because she asked me to just write a relatively small portion of an article which I could handle, and I was knowledgeable about, and that boosted me.

I wouldn't say my supervisor is my mentor because he is so negative. I don't know, like I've submitted three or four times and there is no hope in his reports. There's no hope, you don't have that space of voicing and telling yourself that at least he liked something about my stuff. Every time you submit, it's just wait, wait, wait and no [unclear]. I understand if you are a student, you have to get feedback, of course, but if you always get the negative feedback, what do you think? Are you going to be motivated? You would be demotivated, yes.

Lack of research funding

What are the big barriers to getting research funds?

- I cannot access because I am on a temporary contract appointment.
- I am not a South African citizen, so do not qualify for many funding categories.
- I am over 45 so I get the sense that I am too old to succeed in getting funding.
- I do not know how to access funding.
- It takes a long time to apply (to the NRF) for funding.

But there are also some misconceptions that need to be addressed.

Also, the unequal funding formula in Higher Ed where the Humanities and Education and Law are getting fewer subsidies than the others. [F,W,55,SL,UFS]

Research infrastructure and equipment

Problems associated with infrastructure and equipment include very basic communication infrastructure (working phone lines and internet connections), access to equipment, ill-equipped laboratories, under-resourced libraries and software and data-access licences.

It is perhaps not surprising that complaints about the lack of appropriate infrastructure were more prevalent amongst interviewees from historically disadvantaged universities and universities of technology (see four quotes below).

Now, my landline is not working. Even to this morning I was there telling them. But they just said to me, no just wait, it will come eventually on its own. So it's true. Now I'm waiting. Imagine now how many things I have to do, like calling. And I have to get out of my office now just to go to another building to tell my colleagues what maybe I want from them. Which is something I could have done in two minutes, in the comfort of my office.
[M,B,42,L,UFH]

... we need the resources because in our institution, if I can make an inventory, days will go by without internet access. [F,B,41,L,WSU]

Yes, there are a whole lot of equipment that we don't have and then you have to run around to other universities trying to get the equipment. [F,B,45,L,TUT]

... our campus is based in a rural area and number one, library resources, very poor. I think a library should be a friend of a researcher, but then our library, you will go there looking for a book, they will tell you that they're not subscribed to any journals. They appointed someone now who's working on that, but in past years now, we didn't have a proper support ... the second thing is the Internet connection. We have a very big problem on our campus with Internet connection and you end up using your dongle and your router and it gets depleted, sometimes you get stuck when you're about to download articles or big online books and so forth. [M,B,27,L,UMP]

Other problems pertain to the proper management (allocation of time on equipment) of the available equipment.

... it is very difficult to build a research group, especially in my field, where you need some equipment ... some of the established researchers, the equipment which should actually be available to all the young academicians and all, it is not. Sometimes, people behave as if the instrument belongs to them and not to anyone else and you cannot use the instruments. And the university does not allow the duplication of the instruments. ... Some investigative instruments, which have become very common and essential for the researchers, like your mass spectrometry ... LC-MS, Flash Chromatography and other small equipment. So, they are not available. You become handicapped. And then, you have to solely rely on the MRI Spectra, which are basically an MRI, is ... We have one here in our campus, but then, the number of people using them is the entire university, even the outside university people, as well. So, it becomes difficult. It leads to delay in the project and delay in getting results and so on. [M,A,42,SL,UKZN]

... we have one Bloomberg terminal, for the entire school, so for every single Honours, master's, PhD student in Economics, Finance, Marketing, HR Management, Insurance, there

is one, one Bloomberg licence. So even if you go and someone is sitting there and there's a queue, you can't access your data. [F,A,30,L,WITS]

And they said, but we can't access *Nature*. We don't have access to it. The platform won't allow us to because we're not ... we haven't paid the fees for us to access *Nature*. And *Nature* is the most important journal for us in this faculty. So, they are saying, ah, but I have a friend that's at Pretoria or at UJ and they've got access to *Nature*. So, I email that person and I say, listen, I'm looking for this. Can you please pdf it to me? [F,W,35,L,UFS]

Main report

Part One: Introduction

1. Background: Terms of reference

In the USAF Terms of Reference (ToR) document, the rationale for the proposed study is embedded in the priorities for education, training and innovation as key pillars of the long-term development of South Africa as outlined in the National Development Plan (NDP). The NDP states that "inadequate capacity will constrain knowledge production and innovation unless effectively addressed".

Furthermore, it states that by 2030, South Africa should produce more than 100 doctoral graduates per million of population per year (in 2013 South Africa produced only 34 such graduates), produce double the number of postgraduate and first-rate scientists than current, increase the number of African and women postgraduates (especially PhDs), and improve qualifications of academic staff by increasing the percentage of PhD-qualified staff in the higher education sector from the current 34 per cent to 75 per cent. In 2013, about 2 051 doctoral students graduated¹.

The ToR also makes reference to various national frameworks and incentive plans that are currently implemented in attempts to achieve the NDP targets. These include interventions in the Department of Higher Education and Training (DHET) (institutional enrolment plans and the new funding framework of 2013), investments by the Department of Science and Technology (DST) in postgraduate and research activities through the NRF-managed instruments such as the South African Research Chairs Initiative, Centres of Excellence and international collaborative research and training, as well as other targeted human capital development initiatives. Reference is also made to other parts of government which have dedicated programmes for high-level human capital development in the sphere of SET, e.g., the Department of Health PhD scholarships, DEA and DAFF.

In order to bring more clarity to discussions about the expansion of the human resource base in South Africa, the DST proposed a conceptual framework that distinguishes between three categories of human capital in the field of research, scholarship and innovation, each of which is aligned with a different stage in the development of a research career.

- Next-generation researchers: This group represents students who have not yet completed their studies and are not yet employed as academics or researchers in knowledge-based institutions, but who are being trained to acquire the necessary skills to become active in the field of research, scholarship and innovation.
- Emerging researchers: This group is constituted primarily of persons younger than 40 years who, although employed as academics or researchers in knowledge-based institutions, have not yet obtained their doctoral degrees and/or established themselves

¹The most recent available statistics are for 2015. In 2015 the share of academic staff with doctorates was 43% (average across all universities) and the number of doctoral graduates reached 2575.

as active researchers.

- Established researchers: This group includes persons who have established themselves as independent researchers and have an active research track record. They are instrumental in producing the bulk of the research output in the country, and in training younger potential researchers.

The main aim of this study was formulated as focusing on the so-called silent majority in the higher education sector. This 'silent majority' belongs to the emerging researchers' pipeline and appears largely to comprise lecturers and senior lecturers in our universities. The key assumption of the ToR is that this is an unexploited reservoir of human resources in our system that has not crossed the threshold to becoming active and productive researchers. We will return to this 'hypothesis' later in the report.

2. Study purpose and scope

The overall purpose of the study is defined in the ToR as follows:

- *To establish the proportion and demographics of academics at lecturer and senior lecturer levels/all levels of the permanent instruction staff at Higher Education Institutions (HEIs) who are active researchers as well as those who are not active researchers,*
- *To investigate the environmental context, enablers and impediments to increasing the number of emerging researchers at systemic, institutional and individual levels, and*
- *To make recommendations at the systemic, institutional, and individual levels to increase the number, diversity and representivity of emerging researchers in the higher education system.*

The ToR also indicated that the study should cover the following aspects:

1. *Determining a reliable measure for "active researchers";*
2. *Research productivity of active emerging researchers/active researchers over a five-year period;*
3. *Research funding support (internal and external opportunities);*
4. *Enabling and impeding policies and practices; and*
5. *Make recommendations to increase the number, diversity and representivity of emerging researchers in the higher education system.*

3. Study design and methodology

After negotiation with the USAF Project Steering Committee, CREST agreed to a study design that would consist of the following four components:

1. A desktop review of current national and institutional policies and frameworks
2. Secondary analysis of HEMIS, NRF and bibliometric data at CREST
3. A web-based survey of South African academics
4. In-depth qualitative interviews with selected respondents.

The first component (**Desktop review**) in turn would comprise a review of three kinds of documents:

1. A review of the scholarship on incentives for increased research productivity
2. National policy documents and other strategies and plans that contain information that might be relevant to the study
3. Institutional policies and strategies to incentivise research productivity.

The second component (**Secondary analysis**) would aim to address the following key questions of the study: *To establish the proportion and demographics of academics at lecturer and senior lecturer levels/all levels of the permanent instruction staff at Higher Education Institutions (HEIs) who are active researchers as well as those who are not active researchers, and map this historically.*

Further explication of what this means in practice is provided in the ToR:

The key question is which of these academics are not research active and why? This analysis will include geographic location, age, race and gender demographics. The data collected should also be disaggregated in terms of the biographies of the individual academics by type of university, scientific field and/or discipline. The following variables should be included:

- *Year of highest qualification obtained;*
- *Nationality of academic;*
- *Year of first appointment at an SA university;*
- *The individual staff member's history of funding (funding applications and funding grants, including scholarships) by the NRF;*
- *The NRF-rating status of the staff member; and*
- *The bibliometric information about the research publications of the respective academics.*

The second component (Secondary analysis) is concerned with establishing what proportions of the 'silent majority' are research active (by means of a new composite measure of 'researchactive') and how these proportions are correlated with a range of variables. The third component (**Survey**) aimed

at establishing what the most likely factors are that may enable or impede emerging researchers in becoming active and productive researchers. We agreed to include the following broad thematic questions in the survey:

- *Questions related to the personal (academic) career of the individual: These would include questions to establish entry into academia, possible interruptions of the academic career (especially relevant to female academics), questions related to personal motivation and rationale for pursuing an academic career and specifically the balance between teaching and research goals.*
- *Questions related to the institutional environment in which the academic is situated: These would include questions related to institutional support for pursuing research, current teaching loads and other non-academic commitments, incentives and rewards for publishing, support to submit requests for funding to the NRF or other sources, perceptions about impediments and barriers to pursue a research career, etc.*
- *Questions related to the research performance and publications of the academic: These would include questions related to the importance of research publishing, the kind of support required to excel as a researcher and scholar, views about publication opportunities and guidance in this regard, basic information about research publications over the past five years, etc.*

The fourth component (Qualitative interview) of the study aimed to achieve a deeper understanding of the individual and institutional structures and factors that impact on the careers of 'emerging scholars' and whether they are, or are likely to become, active researchers.

4. Outline of report

The report is structured according to the main components of the study. The next section of the report (Part Two: Documentary Analysis) presents the results of the review of the national and institutional documents pertaining to this study. This section sets the background against which the secondary analysis and empirical components of the study were undertaken. Part Three (Secondary Data Analysis) presents the results of the first main research question of the study (*To establish the proportion and demographics of academics at lecturer and senior lecturer levels/all levels of the permanent instruction staff at Higher Education Institutions (HEIs) who are active researchers as well as those who are not active researchers*). Part Four (Results of Web-survey and Qualitative interviews) presents the results of the empirical studies (survey and interviews) to address the second main research question of the study (*To investigate the environmental context, enablers and impediments to increasing the number of emerging researchers at systemic, institutional and individual levels*).

Part Two: Review of current national and institutional policies and frameworks

Introduction

In its project proposal CREST indicated that it will undertake a review of three types of documents: the scholarship on incentives for increased research productivity (Review 1), national policy documents and other strategies and plans that contain information that might be relevant for the study (Review 2), and institutional policies and strategies to incentivise research productivity (Review 3). This is a report on Review 2 and Review 3.

This section is structured according to three chapters:

Chapter 1 presents the results of our review of four foundational national policy documents. These documents have a broad focus. In this review, only the salient points relevant for knowledge production in higher education, and therefore, the development of research capacity, are pointed out.

Chapter 2 summarises our review of four national and regional policy documents which have a more direct bearing on the identification and support of emerging researchers. The policies reviewed in the chapter build on the policy environment provided by the broad foundational policies discussion in Chapter 1.

Chapter 3 presents an overview and analysis of the institutional policies and programmes to incentivise and support emerging researchers at the 26 public universities in South Africa are reviewed.

There are summary comments at the end of this section.

Chapter 1: Review of national foundational documents

This need for capacity development and support of emerging researchers follows from the need to develop and sustain a vibrant knowledge production culture in higher education institutions. Policy statements on knowledge production in higher education are wide-ranging and overlap with science and technology policies. A comprehensive and systematic overview of all these policies is beyond the scope of this overview. Only those policy statements in the broader policy documents that have a direct bearing on the capacity development and support of emerging researchers employed by higher education institutions are highlighted.

1.1 Education White Paper 3 (1997)

Four high-level purposes for higher education are listed in the White Paper (Chapter 1, par 1.3), including “[T]o contribute to the creation, sharing and evaluation of knowledge. Higher education engages in the pursuit of academic scholarship and intellectual inquiry in all fields of human understanding, through research, learning and teaching”.

The twelve over-arching goals of the higher education system in South Africa stipulated in the White Paper (Chapter 1, par 1.27) include: “[T]o secure and advance high-level research capacity which can ensure both the continuation of self-initiated, open-ended intellectual inquiry, and the sustained application of research activities to technological improvement and social development” (Goal 7), and “[T]o develop capacity-building measures to facilitate a more representative staff component which is sensitive to local, national and regional needs, and is committed to standards and ideals of creative and rigorous academic work” (Goal 10).

One of the three economic and technological changes creating an agenda for the role of higher education in reconstruction and development (Chapter 1, par 1.2) include the “[p]roduction, acquisition and application of new knowledge: national growth and competitiveness is dependent on continuous technological improvement and innovation, driven by a well-organised, vibrant research and development system which integrates the research and training capacity of higher education with the needs of industry and of social reconstruction.”

The White Paper emphasises that research is one of the functions of higher education.

“The production, advancement and dissemination of knowledge and the development of high-level human resources are core functions of the higher education system. Research plays a key role in both these functions. It is the principal tool for creating new knowledge. The dissemination of knowledge through teaching and collaboration in research tasks are the principal tools for developing academic and research staff through postgraduate study and training (Chapter 2, par 2,82).”

Therefore, “[S]trengthening the role of higher education in the national research system requires increasing current research capacity, protecting current research resources, finding new sources of research funding, and using all these resources more effectively” (Chapter 2, par 2.90), and “[I]t is critically dependent on building and enhancing capacity in all spheres—academic, management, governance and infrastructural—to give effect to new policies and to ensure the efficient functioning of the expanded and transformed higher education system. In particular, attention will be paid to ... the promotion of research” (Chapter 2, par 2.92).”

Against this background, three statements in the chapter in the White Paper devoted to the funding of higher education are of direct relevance for research capacity development. While emerging researchers are not explicitly mentioned, it is clear that this group of researchers is included in the following policy statements: “[T]he development of research capability in South Africa’s higher education institutions is of fundamental importance to national self-reliance. However, good scholarship (which should characterise all higher education academic staff) is not the same as research competence (which a minority of academic staff in the sector as a whole will either need or possess)” (Chapter 4, par 4.53), and “[I]n view of the national strategic importance of research, and in order to ensure that the relatively scarce funds available for the development of research capability are well targeted, public funds for participation in research, whether basic or applied, should not be spread across all faculties or schools in all institutions but should rather be concentrated in those areas where there is demonstrable research capacity or potential. To give practical effect to this view, the Ministry will provide earmarked funds” (Chapter 4, par 4.54).

On postgraduate training, which has also direct bearing on emerging researchers in higher education who still have to obtain their masters and doctoral qualifications, the White Paper says the following: “The Government recognises the urgent need to increase the supply of postgraduates to the academic and general labour markets. The attrition and ageing of well-qualified academic staff and the emigration of graduate labour compels attention. Current low levels of enrolment in and graduation from doctoral programmes are insufficient to satisfy future requirements. Gross race and gender inequities are obvious at the postgraduate level. Mobility of students nationally and internationally to undertake postgraduate studies is an important means of adding to the skills base. While the new block funding mechanism will support student places at research-based postgraduate levels of study in fields where institutions have demonstrable research training capacity, institutions will be able to apply for earmarked funds to enhance the infrastructure necessary to support expanded postgraduate training” (Chapter 4 par 4.56).

This White Paper can be regarded as the founding document of South African higher education during the democratic period (see Lange & Luescher-Mamashela, 2015). The policy intentions of relevance for the capacity development and support of emerging researchers employed by higher education institutions can be summarised as follows.

- 1 Knowledge production is one of the core functions on higher education in SA.
- 2 HEIs employ individuals who can, amongst their other functions, also give effect to the core function of research and knowledge production.
- 3 Building and enhancing capacity in all spheres (teaching, research, management, governance and infrastructural) is critical.
- 4 There is a distinction between good scholarship (which should characterise all higher education academic staff) and research competence (which is only relevant for those institutions whose mandate include research).
- 5 Funding provided by the Ministry will be concentrated in those areas where there is demonstrable research capacity or potential.
- 6 Enrolment in and graduation from doctoral programmes have to be increased to satisfy future requirements.
- 7 Mobility of students nationally and internationally to undertake postgraduate studies is important.

1.2 National Plan for Higher Education (2001)

The *National Plan for Higher Education* (NPHE) provides “a framework for ensuring the fitness of the higher education system to contribute to the challenges that face South Africa in the 21st century”.

The purposes of the NPHE were to ensure that the higher education system achieves the transformation objectives set out in the White Paper, that there is coherence with regard to the provision of higher education at the national level, that limited resources are used efficiently and effectively and there is accountability for the expenditure of public funds, and the quality of academic programmes (including teaching and research), is improved across the system.

The development of the NPHE was informed by the planning processes during 1998–2000 that culminated in the “size and shape” report of the Council on Higher Education (CHE), *Towards a New Higher Education Landscape: Meeting the Equity, Quality and Social Development Imperatives of South Africa in the 21st Century*. However, the NPHE did not give effect to all the recommendations of the CHE. In particular, the NPHE did not support “the CHE’s proposal that differentiation and diversity should be achieved through the setting up of a rigid structural distinction between different institutional types” because the Ministry maintained that the proposals of the CHE that research

resources should be concentrated in a limited number of institutions, specifically the institutions identified as comprehensive research and post-graduate training institutions by the CHE, “would legitimise and institutionalise the inherited apartheid legacy in which the historically white institutions continue to dominate and monopolise the production and dissemination of knowledge.” Therefore, the Government decided that it will “ensure institutional diversity through mission and programme differentiation based on the type and range of qualifications offered.”

The consequence of this decision was that all three of the types of institutions emanating from the NPHE proposals (universities, comprehensive universities, and universities of technology) retained a research mandate. Capacity development for (emerging) researchers, therefore, remains on the agenda of *all* the HEIs in the country, including all three institutional types, urban as well as rural universities, and formerly advantaged as well as formerly disadvantaged universities. (See also the comment in the NDP, p. 326, that a research mandate has also been included in the institutional missions of universities of technology).

Although the focus of the NPHE was on the restructuring of the system (which led to the institutional mergers during 2003–2005), it also included a number of statements relevant for the capacity building and support of emerging researchers, (in Section 5 “To build high-level research capacity to address the research and knowledge need of South Africa):

- One of the strategic objectives for higher education stipulated in the NPHE is “[T]o sustain current research strengths and to promote the kinds of research and other knowledge outputs required to meet national development needs, which will enable the country to become competitive in a new global context”. The NPHE underscored the importance of research: “The value and importance of research cannot be over-emphasised. Research, in all its forms and functions, is perhaps the most powerful vehicle that we have to deepen our democracy”, However, the NPHE noted that “despite the strong emphasis the White Paper placed on the need to develop research capacity and output, the current capacity, distribution and outcomes of the higher education research system remain a cause for concern” (NPHE, par 5.1). Of particular concern was the “continuing low research capacity in the historically black institutions, despite concerted efforts since 1994 by the Government to develop such capacity” (NPHE, par 5.1).
- Priorities related to the research function of universities (NPHE, Section 5):
 - To increase outputs of postgraduates, particularly masters and doctoral graduates.
 - To increase research outputs.

- To sustain existing research capacity and strengths, and to create new centres of excellence and niche areas in institutions where there is demonstrable research capacity or potential.
- To facilitate collaboration and partnerships, especially at the regional level, in research and postgraduate training.
- To promote articulation between the different elements of the research system with a view to developing a national research strategy.
- A separate research component within the new funding formula, based on research and graduate outputs, with earmarked funding for the building of research capacity and to enhance research collaboration (par 5.4.1).
- HEIs will be expected to redress imbalances in black and female enrolments in postgraduate programmes, in particular, in business and commerce, and science, engineering and technology (par 5.4.3.2).

Although the priorities and plans outlined in the NHPE did not refer specifically to the need to develop and support emerging researchers, it clearly follows from the statements in the NPHE that this was already in 2001 seen as a priority. The allocation of a research mandate to all universities (irrespective of type, location and historical background) implies that all institutions should have capable and active research staff (established, as well as emerging researchers).

1.3 National Development Plan (2012)

The South African NDP, published in 2012, sets the ambitious aim “to eliminate poverty and reduce inequality by 2030”. It is a comprehensive plan, with chapters devoted to economic infrastructure, environmental sustainability, an integrated and inclusive rural economy, the positioning of SA in the world, transforming human settlement, improving education, training and innovation, promoting health, social protection, building safer communities, building a capable and developmental state, fighting corruption, and transforming society and uniting the country.

In the chapter on education (NDP, Chapter 9) there are sub-sections devoted to post-school education and to the national research and innovation system that are of relevance for this review. The responsibility of the post-school system to conduct and disseminate research is reaffirmed: “... universities are the dominant producers of new knowledge, and they critique information and find new local and global applications for existing knowledge. South Africa needs knowledge that equips people for a changing society and economy” (NDP, p.317).

The academic profession requires renewal if South African universities are to expand, compete and drive the knowledge society and economy. There is a shortage of academics, especially in the human, natural, engineering and actuarial sciences (NDP, p.317). The most important factor that determines quality is the qualifications of staff (NDP, p.317).

The proposals of the NDP for universities include the following (only the proposals that have a direct bearing on the development and support of emerging researchers are listed here) (NDP, pp.312–320):

- To improve the qualifications of higher education academic staff. South Africa needs to increase the percentage of PhD-qualified staff in the higher education sector from the current 34 per cent to more than 75 per cent by 2030 (NDP, p.319). In this context, the NDP refers to the *National Programme to develop the Next Generation of Academics for South African Higher Education*, developed by Higher Education South Africa (HESA) and stated that it deserves to be implemented (see par 0 of this overview).
- To increase the number of masters and PhD students, including by supporting partnerships for research. By 2030 more than 25 per cent of university enrolments should be at postgraduate level. International exchange partnerships should be pursued and encouraged.
- To produce more than 100 doctoral graduates per million per year by 2030. South Africa currently (as of 2012) produces 28 doctoral graduates per million per year, which is very low by international standards. To achieve the target of 100 per million per year, South Africa needs more than 5 000 doctoral graduates per year against the figure of 1 420 in 2010. If South Africa is to be a leading innovator, most of these doctorates should be in science, engineering, technology and mathematics.
- To double the number of graduate and postgraduate scientists and increase the number of African and women postgraduates, especially PhDs, to improve research and innovation capacity and make university staff more representative.
- To create a learning and research environment that is welcoming to all.
- To strengthen universities that have an embedded culture of research and development. They should be assisted to access private sector research grants (third stream funding) in addition to state subsidies and student fees, attract researchers, form partnerships with industry and be equipped with the latest technologies. In turn, they should support postgraduate students, not only in their own institutions but also in those institutions which focus on teaching and learning, as well as in other sectors of the post-school system.
- To provide performance-based grants to build capacity and develop centres or networks of excellence within and across institutions. Given that performance-based grants, can entrench

historical privilege and disadvantage, capacity-building grants should be provided with clear targets for improvement at five-year intervals.

The proposals of the NDP for the national research and innovation system include (only the proposals that have a bearing on the development and support of emerging researchers are listed) (NDP, pp.326–327):

- To nurture and coordinate research capacity in higher education and link it to postgraduate studies and to improve coordination and support for partnerships between universities and other research and innovation sites.
- To transform the demographic composition of researchers in higher education, research councils and private research establishments. Put in place funding and research capacity development programmes to support young, female and black researchers.
- To increase support for postgraduate study at universities, for senior researchers, for partnerships between universities and industry. A more stable funding model is needed for all educational institutions that conduct research. Expand research capacity and improve research output.
- To develop a common policy framework on the critical role of science and technology, the role of higher education in shaping society, and the future of the country and its growth path.

1.4 White Paper on Post-School Education and Training (2014)

The PSET White Paper sets out strategies “to improve the capacity of the post-school education and training system to meet South Africa's needs. It outlines policy directions to guide the DHET and the institutions for which it is responsible in order to contribute to building a developmental state with a vibrant democracy and a flourishing economy”.

The PSET White Paper has chapters on the different types of institutions included in the post-school system, namely, the colleges (including the TVET colleges, the community colleges and other colleges, such as agricultural colleges), the universities (public and private universities), and the various institutions and entities involved in the provision of vocational training (the SETAS, the Skills Training Fund).

The PSET White Paper affirms that research and innovation are integral parts of the work of universities (par 4.4) and that all universities must be research-active, although it recognises that “it is unrealistic for all universities to have similar research goals in a differentiated system”. The development of research capacity for the future should take into account current research capacity

and resourcing. Universities with lower levels of research output must be supported through planning and funding to develop their research capacity in particular areas of specialisation, as well as to develop a research culture. Government is therefore committed to “assist universities wherever possible to build their research capacity in various ways, *inter alia*: developing their research infrastructure, including up-to-date equipment and IT infrastructure; facilitating access to local and international journals and research databases, particularly through central procurement of electronic resources; promoting and encouraging participation by South African universities in global research networks; and increasing the numbers of postgraduate students and postdoctoral fellows in key areas” (par 4.4).

The PSET White Paper acknowledges that South Africa faces a significant and complex challenge in terms of staffing its universities. “It has to sustain adequate levels of academic staff, build capacity within the system, develop future generations of academics for the system, and substantially improve equity.” The race and gender profile of the university staff complement is a concern. “... significant numbers are approaching retirement age, and not enough young people are becoming academics after they have received their degrees” (par. 4.5) and 55% of academic staff are from the white population group, which underscored the need for special attention to the recruitment, development and retention of more black academics. Furthermore, the rapid expansion of the university sector in terms of enrolment has not been accompanied by an equivalent expansion in the number of academics (resulting in unfavourable lecturer:student ratios) , and academic careers have changed significantly over the last twenty years, both in relation to global changes in academic work and in response to local pressures.

Against this background the PSET White Paper states the intention of Government to develop a plan to address the challenges of future staffing of South African universities without delay since the “... focused renewal and expansion of the academic profession is vital for the long-term sustainability of high-quality public higher education in South Africa” (par. 4.5). This plan will have a number focus areas, including the following aimed at the development and support of emerging researchers (par. 4.5):

- Improving the pipeline of academic staff, from postgraduate students to attracting young academics to academic careers, while providing them with adequate financial and academic support and mentoring to complete doctoral studies.
- Ensuring that current academic staff qualifications are improved. This will be achieved partly through the provision of financial assistance for academics and potential academics to undertake postgraduate studies, both in South Africa and abroad.

- Developing mechanisms to employ retired academics, both local and international, who can mentor younger academics and provide experience and knowledge to enrich our academic environments.

The overview of these four broad national planning and higher education policies (developed since 1994) illustrates that capacity development and support for emerging researchers at universities has been recognised as a priority since the early days of the democratic dispensation. The policy principles and intentions, as well as the planning documents issued by government, provided the context within which the more focused policies, plans and new funding schemes were developed that are reviewed in the next section.

Summary and conclusions

In the overview of four foundational national policy documents for Higher Education in South Africa, a number of salient points relevant for knowledge production in higher education, (and therefore, for the development of research capacity, more specifically the capacity development and support of emerging researchers employed by higher education institutions), have been distilled from the policies and were summarised here. Policy statements on knowledge production in higher education are wide-ranging and overlap with science and technology policies. The need for the capacity development and support of emerging researchers follows from the need to develop and sustain a vibrant knowledge production culture in higher education institutions.

Education White Paper 3 - A Programme for Higher Education Transformation (1997)

A claim that capacity development and support of emerging researchers can be substantiated with reference to the White Paper, can be underscored with the following list of propositions derived from the White Paper: Knowledge production is one of the core functions of higher education in South Africa; HEIs employ individuals who can, amongst their other functions, also give effect to the core function of research and knowledge production; Building and enhancing capacity in all spheres (teaching, research, management, governance and infrastructural) is critical; There is a distinction between good scholarship (which should characterise all higher education academic staff) and research competence (which is only relevant for those institutions whose mandate include research); Funding provided by the Ministry will be concentrated in those areas where there is demonstrable research capacity or potential; Enrolment in and graduation from doctoral programmes have to be increased to satisfy future requirements; Mobility of students nationally and internationally to undertake postgraduate studies is important.

The National Plan on Higher Education (Ministry of Education, 2001)

Although the priorities and plans outlined in the NHPE did not refer specifically to the need to develop and support emerging researchers, it clearly follows from the statements in the NPHE that it confirmed the following as a priority for HE notwithstanding the changes in the institutional landscape (mergers) and new types of institutions announced in this plan in 2001: the allocation of a research mandate to all universities (irrespective of type, location and historical background) implies that all institutions should have capable and active research staff (established, as well as emerging researchers).

The National Development Plan (National Planning Commission, 2012)

The proposals of the NDP for universities included setting a number of targets for 2013 that have a direct bearing on the development and support of emerging researchers: to increase the percentage of PhD qualified staff in the higher education sector from the current 34 per cent to over 75 per cent; more than 25 per cent of university enrolments should be at postgraduate level; to graduate 5 000 doctorates per annum, to double the number of graduate and postgraduate scientists and increase the number of African and women postgraduates; to strengthen universities that have an embedded culture of research and development; to build capacity and develop centres or networks of excellence; to nurture and coordinate research capacity in higher education and link it to postgraduate studies; and to increase support for postgraduate study at universities.

The White Paper on Post-School Education and Training (2014)

The PSET White Paper affirms that research and innovation are integral parts of the work of universities and that all universities must be research-active, although it recognises that "... it is unrealistic for all universities to have similar research goals in a differentiated system". The development of research capacity for the future should take into account current research capacity. Government is committed to "... assist universities wherever possible to build their research capacity in various ways". Government intends to develop a plan to address the challenges of future staffing of South African universities without delay since the "... focused renewal and expansion of the academic profession, including the improvement of the pipeline of academic staff, from postgraduate students to attracting young academics to academic careers; improving current academic staff qualifications and employing retired academics, both local and international, to mentor younger academics".

Chapter 2 National and regional policy documents relevant for the identification and support of emerging researchers

2.1 Proposal for a National Programme to Develop the Next Generation of Academics for South African Higher Education (HESA)

Background information on the document

In the years preceding 2009 concerns have been raised in various forums – the Council on Higher Education (CHE), the Committee of Heads of Research and Technology (COHORT) and the Department of Science and Technology (DST) – with regard to the challenges faced by the higher education sector in South Africa in developing the next generation of academics. It was noted that about one fifth of academics were due to retire in less than a decade (from 2009), including nearly half of the professoriate. The concern was that there are insufficient numbers in the existing academic and postgraduate pipelines to replace them. Furthermore, despite some changes after 1994, the academic workforce at South African universities remained unrepresentative of the South African population. The academic workforce is still predominantly white and male.

During 2009 Higher Education South Africa (HESA) agreed to develop a proposal for a national programme for building the next generation of academics. A working group was established to lead the development of a proposal. The working group comprised of Prof Thoko Mayekiso (Chair) (NMMU), Mr Tembile Kulati (Wits), Dr Bernadette Johnson (VUT), Ms Jo-Anne Vorster (RU), Prof Gideon De Wet (UFH) and Dr Saleem Badat (HESA/RU). Dr Badat was the convenor of the initiative.

The aims of the working group were to explicate the goals that should be advanced by a national programme, and the values and principles that should underpin such goals and a national programme, to identify strategies and mechanisms for developing a next generation of academics, and especially black and women academics, to identify the conditions that are critical at national and institutional levels for developing a next generation of academics, and to propose a funding model and budget that is cost-effective and sustainable.

The working group examined the current literature and institutional case studies on building the next generation of academics, clarified the goals of building a next generation of academics, and the specific social and educational challenges and imperatives that have to be addressed, considered national conditions and differing institutional conditions, needs and challenges related to building a next generation of academics, and also looked at initiatives, developments and processes in higher education, and science and technology that could facilitate building the next generation of academics. Following a workshop of stakeholders in Port Elizabeth in August 2010, the proposal was

finalised by Dr. Jo-Anne Vorster of the Centre for Higher Education, Research, Teaching and Learning at Rhodes University with the support of Dr. Mignonne Breier of the Research Office at the University of Cape Town.

Analysis of the challenge and the rationale for a national programme to develop a new generation of academics in South Africa

The multi-dimensional crisis facing South African universities in attracting, appointing and retaining academic staff were unpacked by the working group in terms of seven key challenges. Data were provided to substantiate each challenge.

- a) Inequality of representation in terms of race and gender.
- b) The limited output of masters and doctoral graduates constrains the transformation of the social composition of the next generation of academics, exacerbated by constraints in infrastructure, supervisory capacity (lack of expertise and experience), and insufficient funding to support masters and doctoral students.
- c) Academic salaries which are not competitive with public and private sector salaries, and the differentials between public and private sector salaries and those offered by higher education institutions is sizeable and growing.
- d) Alienating institutional cultures are, in part, the reason why historically white institutions struggle to attract and retain black and women academics.
- e) The loss of academic expertise through the 'brain drain', which has its basis in political and social conditions.
- f) The age profile of the academic staff of universities. On the basis of a retirement age of 65, in less than a decade (after 2009) approximately one fifth of permanent instruction staff will retire and need to be replaced. Of these 32% are professors and 17% are associate professors, which means the country is to lose almost half of its most experienced and highly qualified academics.
- g) Apart from retirees needing to be replaced, it is also necessary to take into account the additional academics that will be required if the university system expands, as envisaged by the 2001 National Plan for Higher Education (a growth from a participation rate of 16% in 2008 to 20% by 2016).

A critical task is to ensure that the next generation of academics is intellectually and academically equipped substantively to transform and develop universities in South Africa and significantly enhance their academic capabilities related to teaching and learning, research and community engagement. Four reasons why a national programme is needed are discussed.

- a) The nature of academic work has changed. Academics require pedagogic expertise to develop academic programmes and curricula, facilitate learning and assess students who come from increasingly diverse social, cultural, linguistic and educational backgrounds.
- b) The next generation of academics will also need to be equipped to conduct research and to publish, so that the knowledge needs of South Africa can be met effectively.
- c) A next generation of academics has to contribute to the transformation of institutional cultures, especially at historically white institutions, which in differing ways and to varying degrees compromise equity of opportunity and outcomes.
- d) Funding: A number of institutions have developed strategies to increase the numbers of black and women postgraduates and various historically white institutions have established programmes for the recruitment, development and retention of black and women academics. Initiatives to improve the equity profile of senior academics have also been put in place at some institutions. These programmes, which have been in operation for the better part of a decade in some institutions, have largely been made possible by donor funding. It is not possible, however, to sustain these programmes through such donor funding.

The state and higher education institutions need to acknowledge that the problem of producing a next generation of academics, and through it also addressing social equity imperatives, is both serious and urgent. It takes an extended period of induction, practice, mentoring and support to develop as a researcher and similarly requires an extensive period of induction, practice, mentoring and support to become an effective teacher in higher education.

Key features of a proposed national programme to develop a new generation of academics in South Africa

The programme has to be guided by core principles, including social justice, transformation and development, inclusion, diversity, excellence, collaboration, and sustainability.

The overall purpose of the Next Generation Development Programme is to facilitate the quantitative growth and qualitative development of next generations of academics for the South African/African higher education sector through the establishment of appropriate national and institutional structures, (as well as where relevant, multi-national) processes and activities.

The principal aim of the Next Generation Development Programme is to provide black and women South Africans and Africans the opportunity to acquire the knowledge, expertise, skills and experience necessary to function as outstanding teachers, researchers and higher education professionals. The aim of the programme will be achieved through carefully structured institutional-

level programmes of three-year duration that provide opportunities for the next generation of academics to acquire PhD degrees or undertake post-doctoral work, or in selected fields, acquire masters degrees, enhance their disciplinary and professional knowledge, build their expertise in teaching, research and community engagement, gain teaching expertise and experience, including acquiring some kind of higher education teaching qualification, develop research skills, including scientific publication skills, obtain exposure to service-learning and community engagement, participate in academic departmental activities and administration processes, and participate in a range of other developmental opportunities.

The objectives of the national programme include:

- a) to build understanding regarding of the tripartite purposes of higher education: teaching, research and community engagement;
- b) to build capacity to respond to the unique and inter-connected aspects of teaching, research, and community engagement;
- c) to build critically reflective competencies;
- d) to enhance interpersonal skills, written and oral scholarly and popular communication, cross-cultural sensitivity, conflict resolution, etc.;
- e) to provide opportunities to develop collaborative networks with academics across the universities, locally, nationally and internationally;
- f) to facilitate the development of scholarly and professional identities through, for example, encouraging membership of discipline specific and professional organisations, to facilitate mentoring opportunities by experienced academics, and to facilitate the development by academics of carefully designed and planned career trajectories.

The expected outcomes of the programme are:

- a) An increase in the number of South African black and women academics throughout the higher education system.
- b) Staff development capacity across the system to develop the capacity of next generation academics to enhance their ability to produce research and publish, teach a diverse student body, contribute to the transformation of institutional cultures and participate in community development projects.
- c) A next generation of academics with a clear career path within academia.
- d) Inter-institutional cooperation in relation to the setting up and management of next generation programmes.

Lessons learnt from the experience of existing successful next generation programmes points to a number of conditions that need to be in place for the successful implementation and outcomes of such programmes, including commitment to employment, status as academics, mentors, three-year development plans, development opportunities, and institutional-level programme management.

Core features of the programme include that the programme will provide black and women South Africans with the expertise, skills and experience that are essential to function as outstanding teachers, researchers and higher education professionals. The programme can be extended to include aspirant academics from other African countries. Individuals who wish to be considered for next generation posts must be committed to building an academic career, they will be given three-year contracts and support by institutions, they will be accorded the status of an academic upon completion of the three year contract. They should be contractually bound to undertake employment within their host institution for a three year period. Carefully structured three-year development plans will be developed for each next generation academic, and there will be regular joint reporting to institutional leaders and managers by the next generation academic and her/his mentor on progress. These academics will have a reduced teaching load so that they have the opportunity to develop academic capacities through activities that could include completing masters or (preferably) doctoral studies, post-doctoral activities, undertaking scholarly research and writing, applying for research grants, developing teaching expertise through structured programmes or qualifications; acquiring postgraduate supervision expertise, exposure to service-learning and community engagement, obtaining experience of academic administration, and attending and presenting at conferences to develop disciplinary and professional networks. Each next generation academic will be allocated a mentor whose role will be to work with the future academic to devise a realistic three-year development plan.

At the national level the programme should be viewed as a Department of Higher Education and Training (DHET) national capacity building project. Earmarked funding for next generation posts should be made available by the DHET to institutions. Institutions should be required to apply for posts and funding. An expert reference group should be appointed to support the DHET with the implementation of the programme. There should be annual institutional reporting on the management and implementation of the programme.

At institutional level the programme should have the support of the institutional leadership. Institutional-level programmes will be managed by a designated academic institutional entity. Institutions will be required to submit annual reports. After three years, institutions will undertake a comprehensive evaluation of the programme. Should an institution not have the capacity to manage

and implement the Next Generation Development Programme and host next generation academics, another institution may be contracted to provide support through a partnership agreement.

Funding

Public funding through the DHET, the DST and the Skills Development Fund is required to mount a Next Generation Development Programme and to support higher education institutions to manage and implement such a programme. Funding should be:

- a) of a dedicated earmarked nature that is available on application by higher education institutions;
- b) awarded on the basis of higher education institutions meeting criteria specified by the DHET. Institutions will develop criteria for the selection of candidates;
- c) available for at least three cycles of three years' duration;
- d) able to provide for:
 - next generation academic posts of three years duration that include salaries and benefits;
 - costs associated with infrastructure and equipment for next generation academics;
 - costs associated with development activities for next generation academics (such as attendance of courses, workshops and conferences), their mentors and the emerging community of practice to manage and support these academics;
 - contracting mentors for next generation academics.

To fund 300 posts per annum over a period of three years, the task team calculated that a total investment of R467m (in the 2009 value of the Rand) would be required.

2.2 Support for building the next generation of academics in South Africa

Background information on the document

Nasima Badsha, the CEO of the Cape Higher Education Consortium (CHEC), and Sharman Wickham (a consultant working for CHEC) compiled this document as a policy brief aimed at government departments, research foundations, higher education institutions, and local and international donors. The policy brief is based on two reviews conducted by CHEC: *Review Report of Ford Foundation's Programme – The Next Generation of Academics* (2011), and *Review of Initiatives in Equity and Transformation in Three South African Universities*, commissioned by Carnegie Corporation of New York (2013), as well as engagements with representatives of the Andrew W. Mellon Foundation and Atlantic Philanthropies.

The aim of the policy brief is to assist these key role players to respond to the shared goal of building the next generation of South African scholars and researchers. The policy brief is mostly concerned with postgraduate (master and doctoral) studies, as is clear from the research questions that prompted the policy brief.

- a) What forms of support enhance the quality and levels of success of postgraduate students?
- b) How can the use of available funding be optimised so as to enhance opportunities for these students?
- c) How best can student support programmes be conceptualised, lead and managed?
- d) How can greater numbers of black students be attracted into postgraduate studies?
- e) How can graduate retention within the academic world be enhanced?
- f) What makes for a supportive institutional culture?
- g) What should be distinctive about building a sustainable research culture in a South African university?

The policy brief includes brief descriptions of the approaches of four foundations based in the USA (Carnegie Corporation of New York (CCNY), Ford, Andrew W. Mellon and Atlantic Philanthropies), the approaches used by UKZN, Wits and UCT, and information on the NDP goals for HE.

Five policy propositions

Two questions emanating from the reviews prompted a number of specific policy propositions. The questions are: (a) what would enhance student success at masters and doctoral levels and encourage successful graduates to consider careers in academia, and (b) how can the diversity and representativity of SA universities be increased in order to transform institutional and research cultures?

To address these questions, the following policy propositions are made in the document.

- a) Comprehensive funding packages should be provided supporting the full costs of study (including the necessary time off for data collection for, analysis of and writing up of theses) to optimise training and development opportunities for emerging scholars. Since many project leaders use funds from different sources (including the NRF and international donors), clearer alignment between the NRF and the DST is required, as well as a shared conceptualisation of equity and transformation between universities, the NRF and US foundations.
- b) Supervision (both the traditional one-to-one mode of supervision as the use of joint supervision, and cohort models) is a critical feature of the postgraduate student experience

during all stages of the postgraduate project. Quality supervision goes hand in hand with the retention of senior staff.

- c) The benefits of supervision are enhanced by the use of mentors who usually deal with non-academic issues that impact on academic progress. It enhances the quality of the student experience, social and academic integration, and ultimately, contributes to academic success.
- d) In addition to the work of supervisors and mentors, the offering of internal learning communities (comprised of peers and other staff in the institution) enhance the quality of the student experience and contributes to academic success. These learning communities may be formal (e.g. retreats and workshops offered institutionally, seminar programmes within a department) or informal (e.g. interaction with peers in dedicated postgraduate spaces such as computer rooms).
- e) The exposure of students and young academics to broader, external networks, including funding for travel to national and international conferences, is important to provide opportunities to young researchers to speak about their research, to develop their understanding of their field of studies and of higher education in general, and creates a better understanding of career options upon graduation.
- f) Focused funding of a smaller number of projects or initiatives, especially if some of these are new, is likely to yield greater success than those cases where funding is spread over a range of initiatives.
- g) Management, coordination and communication: There is a need to centralise some functions and decentralise others, and to find an appropriate balance. While it is necessary that there be a central coordinating office (typically the Research Office) with a stable, dedicated staff team to assist in both shaping the projects/initiatives and monitoring their progress, so too, is it necessary to have individual champions (both academics and administrators) to work within the projects/initiatives themselves.
- h) Building the institutional and research cultures: While individual research development opportunities are located within the broader institutional culture, it is also useful to target different levels within the institution. Some strategies may focus on the ways in which the broader institutional culture may be shaped and experienced (e.g. issues of class, race and gender). Others may choose to focus on different approaches that might be taken in knowledge generation (e.g. interdisciplinary approaches, research for Africa, etc.). These strategies should not be conceived of as mutually exclusive.

Summary of the investment approaches of four foundations based in the USA

The CCNY plans to continue its focus on nurturing the next generation of academics and university leadership. Support will be directed to four universities (Makerere, University of Ghana, Wits and UCT). The CCNY continues its support for postgraduate training and research networks in the sciences along with fellowship programs in the humanities and social sciences across five anglophone African countries.

Between 2005-2010 the Ford Foundation supported about 17 projects under the umbrella of its Next Generation Academics (NGA) Programme. The Ford Foundation will continue to support higher education in the future. The strategy is to advance a social justice agenda through innovative policy and system changes, focusing primarily on improving disadvantaged people's access to and success in high-quality higher education. The Ford Foundation identified critical elements of an 'ideal model' for the development of the next generation of academics. This model includes the following.

- a) A well-respected intellectual leader who is also a good and empathetic supervisor.
- b) A small group of masters and PhD students to work with the leader. Each student has his/her specific research topic which falls within a well-defined thematic area.
- c) The funds provide students with fees, comprehensive support and some research monies.
- d) The students are provided with space in which to work in the department/unit and they are encouraged to work there so as to be included as part of a broad intellectual and social community, in casual conversations, informal seminars, etc.
- e) Professional training includes hard and soft elements. The hard skills include research methods, writing for publication, presenting papers, etc. The soft skills include working with fellow academics, teaching, supervision, etc.

The Mellon Foundation's long involvement in supporting equity and transformation initiatives has focused on grants to nurture the next generation of scholars and to advance research and teaching in the humanities. The Foundation has provided grants to the University of Cape Town, Stellenbosch University, University of Pretoria, the University of the Witwatersrand, the University of the Free State, Rhodes University, the University of Fort Hare and the University of the Western Cape. It intends to continue its work in SA. Achievements listed by the Foundation include:

- a) Facilitating the more rapid career progress of faculty members;
- b) Development of models for the mentoring of postgraduate students and academic staff;
- c) Establishment of research units in the humanities;
- d) Making 'writer-in-residence' programmes possible; and
- e) Enabling the visits to South Africa by distinguished fellows.

Summary of approaches to equity and transformation in UKZN, Wits and UCT

At the University of Kwazulu-Natal (UKZN), the CCNY funded the Leadership and Equity Advancement Programme (LEAP). By 2012 more than half of the 19 Carnegie-funded LEAP lecturers have been mainstreamed. While one of the key benefits of the programme reported by many interviewees was 'getting a salary while studying', the support provided by the College Coordinators, research supervisors and mentors was extremely important.

At the University of Cape Town (UCT), the first cycle of funding focused on the appointment of black and women staff, as well as workshops on institutional culture. The second cycle focused on research development and transformation of the broader institutional culture, including the research culture. The more traditional equity appointee approach taken in the first cycle was described as 'a slow process' because posts for academics were not always available and it required 'sensitive handling' so that appointees are not 'showcased', 'exceptionalised' or 'stigmatised'. In the second cycle, funds continued to be channelled to women and black researchers in the Emerging Researchers' Programme (ERP), but the establishment of the Programme for the Enhancement of Research Capacity (PERC) in 2009 provided greater impetus for changing approaches to research.

At the University of the Witwatersrand, the CCNY funding was used for a diverse set of projects, including projects to address the issue of equity, projects with a broad focus on knowledge generation in and for Africa, and projects aimed to expand the role of universities in the broad society (in the world of work and the economy, as well as in the development of engaged citizens in a developing context). For existing staff, funding was provided for large research grants offered to promising black and/or women academics, 'sandwich programmes' to provide staff pursuing doctoral studies with the opportunity to spend up to a full year out of the country, hosted by another institution with guaranteed employment upon their return, and sabbaticals of three to six months for black and women staff, in order to complete a specific research project, including PhD studies. The approach at Wits also drew on the view that the establishment of a research culture needs a multi-dimensional strategy aimed at all the 'stages' of the life of a researcher: from a postgraduate student to an established senior researcher.

Summary of the views of CHEC on the constraints to the achievement of the NDP targets

The NDP has proposed that by 2030 the percentage of academic staff in HEIs with PhD degrees be increased from 34% to 75%, that more than 25% of total enrolments in HE be at postgraduate level, that 5 000 doctoral degrees be awarded annually (compared to the 1 420 in 2010), that the number of scientists doubled, and that a learning and research environment be established that is welcoming to all.

CHEC has identified the following constraints to achieving these targets.

Infrastructure: The availability and quality of the research infrastructure, facilities and equipment.

Limited supervision expertise: Only about a third of all permanent academic staff at South African universities currently hold PhDs and are therefore eligible to supervise at the doctoral level.

Funding: In addition to limitations on the availability of direct funding for PhD students (both the numbers of doctoral scholarships available, and the quantum of individual grants), universities continue to be underfunded, especially in the light of growing student enrolments without concomitant increases in academic staff. There is also limited funding available for research programmes and the target of 1% of GDP spending on research and development has not been met.

Academic salaries: These are not competitive with public and private sector salaries.

Institutional culture: Historically white institutions are challenged to attract and retain black and women academics in part due to alienating institutional cultures. Women also express concern about institutional cultures where sexism is pervasive and where there are insufficient women role models.

Academic mobility: Academic expertise is lost through the 'brain drain'.

Age: According to the HESA report, in less than a decade more than 3 000, or approximately one fifth of permanent instruction staff, will retire. Of these 32% and 17% are professors and associate professors, respectively, "which means the country is soon to lose almost half of its most experienced and highly qualified academics". This loss threatens the research output of the country as the most active researchers are ageing and are not being replaced by adequate numbers of young researchers.

2.3 Staffing South Africa's Universities Framework (DHET)

Background information on the document

The Staffing South Africa's Universities Framework (SSAUF) builds on and takes forward work that was carried out by a Higher Education South Africa (HESA) task team. Many of the report proposals are taken up in the policy document released by the DHET in 2015, *Staffing South Africa's Universities Framework (SSAUF) – a Transformative, Comprehensive Approach to Building Capacity and Developing Future Generations of Academics* (SSAUF).

In the foreword of the document the Minister of Higher Education and Training writes (27 February 2015): “The emphasis on quality in all the roles of a university (teaching, research and social engagement) is a high priority for the sector. Achieving this depends to a large extent on the availability of adequate numbers of capable staff at our universities, who are fully representative of a democratic South Africa.”

The challenges facing the HE sector in South Africa are multi-faceted:

- the slow pace of transformation, regeneration and change;
- the ageing workforce;
- developments in higher education worldwide demanding ever greater levels of expertise from staff;
- the relatively under-qualified academic staff workforce;
- low numbers of postgraduate students representing an inadequate pipeline for the recruitment of future academics;
- the need to scale up the recruitment of academic staff rapidly due to the expected expansion of the system and increasing student numbers. The sector will need to recruit at least 1 200 new academics per annum to respond to historical backlogs, cater for staff attrition and to accommodate planned growth. Recruitment efforts will need to prioritise the recruitment of black and women academics in order to change the demographic profile of the sector and increase the pace of transformation in the sector.

The SSAUF is multi-pronged, nationally coordinated, premised from the outset on new permanent posts, and aims to provide effective induction into and development of all aspects of the academic job: teaching, research, social engagement, and academic leadership and management.

The starting point of the SSAUF is the urgent imperative to recruit, support and retain black academic staff to address their very serious under-representation at all levels in the sector. It also recognises the need for explicit attention to be paid to creating wide awareness of academic work as a career that is both attractive and attainable for those with ability, and it sets out ways through which staff can be effectively recruited, developed and inducted into an academic career. This should lead to greater retention of academics in the system than is currently the case, and to promotion opportunities for well developed, capable staff.

The specific aims of the SAAUF are:

- a) to identify and nurture academic talent early in the academic development trajectory, at senior undergraduate level or early post-graduate level;

- b) to support newly recruited academics to acquire doctoral degrees (or master's degrees in selected fields);
- c) to develop teaching expertise; develop research skills, including scientific publication skills;
- d) to provide development opportunities for academic staff at all levels;
- e) to enable the recruitment of supplementary staff to enhance and strengthen teaching and research at universities;
- f) to make possible a rapid increase in the number of people likely to enter the academic profession, and is designed also to have a significant systemic effect through its emphasis on multi-faceted, phased development.

The policy document lists five characteristics of the situation with staffing in South African Higher Education as justification for the SAAUF, and provides substantiating data.

- a) Inequality of representation amongst existing staff
- b) Unequal and/or unfavourable staff:student ratios
- c) Low throughput rates
- d) Qualifications and expertise of existing staff
- e) A growing, but still inadequate, postgraduate pipeline.

The policy document includes detailed projections of the number of academics to be recruited during the five year period 2014–2019, building on the targets set in the NPHE and the data provided by HEMIS to the DHET during the 2013 planning process. The sector will need to recruit at least 1 200 new academics per annum to respond to historical backlogs, cater for staff attrition and to accommodate planned growth. Recruitment efforts will need to prioritise the recruitment of black and women academics in order to change the demographic profile of the sector and increase the pace of transformation in the sector

The Framework

The SSAUF consists of three core programmes linked to the academic development pathway.

- a) The Nurturing Emerging Scholars Programme (NESP) will identify students who are beginning to demonstrate academic ability at relatively junior levels (senior undergraduate or Honours), and who might be lost to the system unless structured, attractive prospects and opportunities are available and active recruitment efforts undertaken.
- b) The New Generation of Academics Programme (nGAP) will recruit new academics against carefully designed and balanced equity considerations, and in light of the disciplinary areas of greatest need, drawing from promising current senior postgraduate students, or past students who hold appropriate post-graduate degrees, and who have ambitions/can be

attracted to become academics. This group of current students/past graduates will form the major cohort of what the SSAUF calls nGAP Scholars.

- c) The Existing Academics Capacity Enhancement Programme (EACEP) will support the development of existing academics, for example through support to complete their doctoral studies or through addressing specific gaps with respect to teaching development, research development, social engagement and academic leadership.

In addition to the three programmes linked to the academic development pathway, the SSAUF also includes two cross-cutting support programmes.

- a) The Supplementary Staff Employment Programme (SSEP) will enable universities to recruit specific skills on a needs basis, in a temporary capacity, to address specific gaps as the overall staffing challenge is being addressed. SSEP is a cross-cutting programme that will also support the implementation of other core SSAUF programmes under way at the university.
- b) the Staffing South Africa's Universities Development Programme (SSAU-DP) cuts across the core programmes and supports teaching and research development needs in each programme. This component of the Framework is designed so that the different categories of academics/scholars are supported sufficiently to enable a better chance of success in their development and to ensure greater retention and throughput than is currently the case.

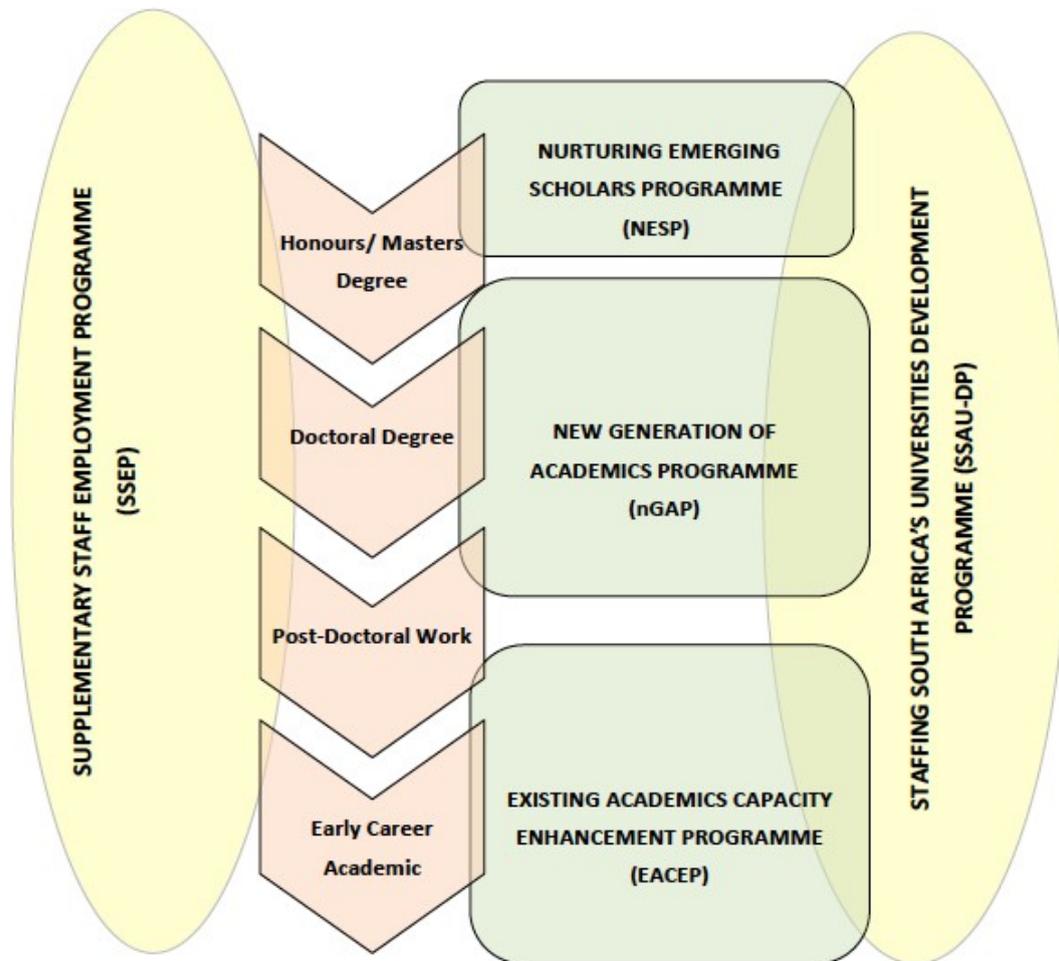


Figure 1: The framework of programmes

The Nurturing Emerging Scholars Programme (NESP)

The definition of SSAUF of emerging scholars is "... students in their final year of undergraduate study, or are honours or master's students or graduates, whose academic performance is strong. The NESP recognizes the potential of this group of students or graduates and seeks to actively direct some of that potential towards a career in academia, through making structured, attractive prospects and opportunities visible and available to them".

These are the elements of the programme.

- a) Identify high achievers early in their study programmes and targeted them actively to continue with their studies.
- b) Provide scholarships (as far as possible) to these students, with contractual obligations.
- c) Draw these students into university tutorship and mentorship programmes.
- d) Involve them as mentees in the SSAU-DP.
- e) Create a pool from which future academics can be recruited.

- f) The main cost drivers of the NESP are development and distribution of advocacy material, funding tutorships and mentorships, as well as scholarships for honours and masters students.

The New Generation of Academics Programme (nGAP)

These are the elements of the programme.

- a) The recruitment of highly capable scholars as new academics against balanced equity considerations and in the light of the disciplinary areas of greatest need.
- b) The scheme will be recurrent, and successive cohorts of nGAP scholars will be taken on at intervals that are determined by fund availability. The nGAP aspires to allocate 400 posts across the sector, per annum (approximately 25% of the number of new academics needed per year). Therefore, if 400 scholars are taken in for 6 consecutive years, after 6 years the scheme will have reached its intended scale with a maximum of 2 400 scholars spread across the 6 years of the nGAP.
- c) Each university could be nominally allocated 15 nGAP posts per year.
- d) The number of posts that will be made available, and the intervals between successive cohorts, will be determined by the ability of the DHET to source funding for successive cohorts. One hundred (100) posts are deemed to be the minimum to initiate a cohort in the programme.
- e) nGAP covers a six year period for each cohort taken onto the programme, covering a three-year development programme, plus three years induction thereafter.
- f) Government will carry the full cost of the post for the first three years, with cost-sharing mechanisms between government and the appointing university from the fourth year of the programme
- g) Government funding will cover 100% of the cost for the first three years, and thereafter seventy-five per cent of the costs of the first induction year, 50% of the costs of the second, and 25% of the costs of the third year after the development programme.
- h) After six years institutions will bear the full employment costs.
- i) nGap posts will be based on long-term staffing plans drawn up by institutions.
- j) Criteria for nGap posts will include equity goals, academic merit, and institutional and national priorities.
- k) Performance contracts for nGap scholars.
- l) Reduced teaching loads.
- m) Transitional arrangements when nGap scholars move between institutions.
- n) Main cost drivers of the NGap programme: salary costs for nGAP posts, development and distribution of advocacy material, advocacy visits to institutions, registration fees, costs

associated with nGap scholar participation in SSAU-DP activities, costs associated with assigning a mentor for each nGAP scholar, costs of infrastructure and equipment needed to support the work of nGAP scholars, and conference/international mobility participation costs.

The Existing Academics Capacity Enhancement Programme (EACEP)

The target group is the existing permanent and contract academic staff.

These are the elements of the programme.

- a) Development of existing contract and permanent staff can take place through supporting them to complete a formal qualification, for example a master's or doctorate in their discipline, if this is not yet in place, or the completion of formal courses linked to a qualification such as a Postgraduate Diploma in Higher Education, or through participation in a range of non-formal development activities offered at the institutional level.
- b) Formal, contract-bound participation on the SSAU-DP.
- c) The main cost drivers are: registration costs for formal courses or programmes, participation costs in non-formal development activities, costs associated with assigning a mentor, teaching replacement costs to enable the staff member to participate in development opportunities or be afforded time to focus on doctoral work, and conference participation costs.

Staffing South Africa's Universities Development Programme (SSAU-DP)

This is the target of the SSAU-DP: The SSAU-Development Programme is designed as a support programme that will assist in meeting the development needs of emerging scholars, nGAP scholars and existing or supplementary staff who might participate in certain elements of the programme.

The SSAU-DP is at the heart of the SSAUF and supports the implementation of the three core programmes.

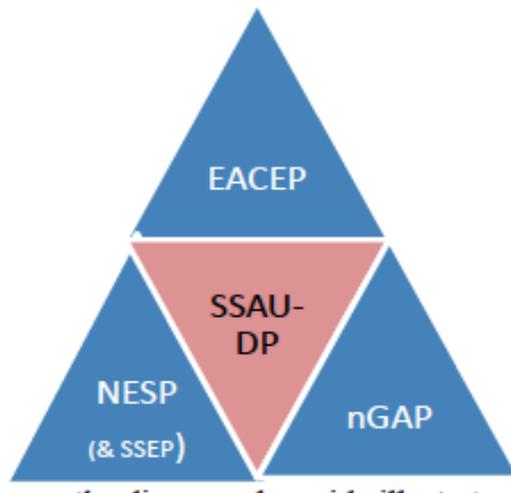


Figure 2: SSAU-DP

Participants in the SSAU-DP will include:

- nGAP participants who are undertaking studies for a doctoral degree (it is envisaged that this will be the largest group);
- nGAP participants who have completed their doctorates, but are new to academic work (for example, postdoctoral students);
- existing staff who are undertaking doctoral studies and will have a range of experiences;
- emerging scholars who are appointed as tutors and mentors and who will benefit from carefully selected teaching development activities; and
- additional staff from business or the private sector employed for replacement teaching purposes.

These are the elements of the SSAU-DP.

- a) Academics will be supported through the SSAU-DP for a maximum of three years. This could take the form of support while completing early post-graduate studies (emerging scholars), while completing a PhD or while involved in postdoctoral work (nGAP scholars and other existing academics), or as part of the support provided to early career academics (existing academics).
- b) Detailed and individualised contracts, containing information on activities and timelines.
- c) A range of accredited short courses or modules. In combination they could contribute to the attainment of a qualification.
- d) SSAU-DP formal courses will focus on the development of the full range of competencies needed by an academic in his/her work, including teaching expertise, research expertise and social engagement expertise.

- e) The non-formal component of the SSAU-DP will include teaching and research development activities.
- Teaching development activities will include workshops and seminars on topics such as curriculum design, teaching in diverse classrooms, managing large classes, understanding and developing assessment tasks, technology and education, blended learning approaches and possibilities, developing and running tutorials, and promoting interactive engagement.
 - Research development opportunities will include activities such as workshops and seminars on research planning, writing for publication, preparing a research proposal, writing grant proposals, undertaking a doctorate, project management; discipline-specific interventions in co-operation with departments/faculties (for example, peer-review publication workshops), supervision training opportunities including workshops and seminars on topics such as attracting and taking on students, the supervisory relationship, roles and responsibilities of supervisor and student, including the securing of funding, models of supervision, ethical issues, choosing a topic, framing a research question, support to attend and present at conferences, including at least one international conference.
- f) All SSAU-DP participants will be assigned a mentor for the duration of their participation in the programme.
- g) Participants in the SSAU-DP will also be participants of one of the other programmes in the SSAUF, and the cost of their participation will be carried as part of those programmes.

The Supplementary Staff Employment Programme (SSEP)

The target of the SSEP is to address university staff development needs in the long-term. Several factors combine to make the ongoing appointment of additional staff both attractive and necessary. These factors include the general enrichment value contributed by staff from different walks of life and global contexts, the flexibility given by short-term, part-time employment, the planned expansion of the system, and the general value-add through mentoring and other forms of support that retired or other part-time staff members are ideally placed to give.

These are the elements of the programme.

- a) Government makes a feasible number of SSEP 'post equivalents' per annum available across the system.
- b) SSEP posts will be temporary.
- c) Categories of supplementary staff that could be employed through SSEP include:

- retirees who could be appointed as mentors, co-supervisors, or replacement or additional teachers;
 - people whose expertise in industry and the professions could be harnessed to increase the pool of supervisors;
 - academic staff from other countries, including developing countries.
- d) The main cost drivers of the SSEP are funds needed for salaries of supplementary staff, costs associated with infrastructure and equipment needs, and costs for enabling participation in the SSAU-DP where this is needed.

The management of the implementation of the SSAUF

The implementation of the SSAUF as a national capacity building project involves a partnership between the DHET and South African universities, and strong management capacity to support the implementation of the framework must be in place at the DHET and at universities. Management and coordination at the institutional level will be undertaken by a designated academic institutional entity such as a 'Teaching and Learning Centre'. A directorate/sub-directorate will be established and adequately staffed and resourced at the DHET to oversee the implementation of the SSAUF.

Funding the SSAUF

The full implementation of the SSAUF will need substantial investment from the state and its partners, and funds will need to be drawn from a range of sources, including new funds and funds that are already in the system. The frequency with which cohorts are taken up in SSAUF programmes each year, and the number of programme beneficiaries will be determined by the extent to which the DHET is able to harness resources to implement SSAUF programmes for each cohort.

The bulk of the new appointments at universities must continue to be funded through the annual block grant allocation to universities. The sources for the funding of the SSAUF are:

- a) Research and Teaching Development Grants;
- b) Local and international donor partners;
- c) DST, the NRF and national government departments;
- d) SETA, particularly the ETDP SETA;
- e) The National Skills Fund will be requested to make a substantial contribution to the implementation of this programme, which will be directly managed by the DHET;
- f) Medium Term Expenditure Framework (MTEF) bids will be submitted to secure funds for the implementation of the SSAUF;

The DHET will work with partners to confirm available funds each year, and on the basis of what is available, a project plan will be developed to guide implementation of the SSAUF for a cohort of beneficiaries taken onto the programmes in a specific year, on a scale that matches the funds that are available. The project plan will include a detailed budget that enables beneficiaries to be supported for the duration of their participation in the programme.

2.4 The University Capacity Development Programme and Grant

The Ministerial Statement on the Implementation of the University Capacity Development Programme (UCDG) through Effective Management and Utilisation of the University Capacity Development Grant, 2018–2020: Transforming teaching, learning, researching and lead (Department of Higher Education and Training, 2017a) was published on 31 March 2017 by the Ministry of Higher Education and Training.

The UCDG is a new earmarked grant and it forms part of the funding mechanism that the state uses to allocate funding to public universities (par 1.1). The UCDG is both a consolidation and extension of the functions that were served by the Teaching Development Grant (TDG) and the Research Development Grant (RDG), two previous earmarked grants that have been part of the university funding framework of the state for several years.

The UCDG is used to steer the system in the direction of good practice and ongoing capacity development and towards the achievement of specific objectives in its areas of focus (par 1.2). It is meant to be transformational, it should assist to support initiatives where relatively rapid and large-scale change is needed (par 1.4).

The purpose of the UCDG (par 1.5) is to provide a development resource that contributes to addressing transformation imperatives in the university system to enable:

- high levels of success for undergraduate and postgraduate students;
- the creation of an academic development pipeline that enables the recruitment of adequate numbers of new academics in ways that transform the academic workforce and that provides for quality research development and teaching development opportunities for academic and professional staff along the full career trajectory from recruitment to retirement;
- Development opportunities for other professional staff in universities, including management staff that lead key portfolios and professionals that manage specific programmes (such as the earmarked grants that support delivery of the academic enterprise);

- The development of new academic programmes that are of strategic importance and are national priorities;
- The review and renewal of curricula to enable responsiveness to transformation imperatives in higher education.

The UCDP views research development and teaching development as non-competing imperatives (par. 2.5). Both are vital for the success of the higher education system and the development of both areas must be promoted. The UCDP proposes an integrated approach to capacity development at universities, and is intended to enable universities to work across the boundaries that separate student development, staff development and programme/curriculum development (par. 2.7).

The implementation of the UCDP is bigger than what can be enabled through the UCDG allocation to universities (par. 3.2). Therefore, the implementation of the UCDP will be supported through:

- The UCDG;
- Other DHET earmarked grants that contribute towards addressing the development imperatives outlined for the UCDP, for example the Foundation Provisioning Grant, or the Historically-Disadvantaged Institutions Grant;
- The funds and resources that universities can contribute to addressing these imperatives, e.g. from DHET block grant allocations and other funding sources;
- Collaborations and partnerships that the DHET and universities will establish with local and international partners, for example philanthropies, foundations, partner countries, other government departments, the National Skills Fund, SETAs, business and other organisations who are interested in supporting the development of university education in South Africa;
- Strategically using the international postgraduate scholarship programme partnerships of the DHET to provide international development opportunities for potential and early career academics.

The ministerial statement provides a number of examples of research development activities that can be funded through the EASCEP (par 5.8), but emphasises that it is not an exhaustive list. Here are some of the examples which are listed.

- Support for staff members to complete master's, doctoral and postdoctoral studies in their disciplines.
- Development of research capacity through enrolment in formal courses and programmes (qualification programmes, credit bearing short courses etc.) and through participation in non-formal courses and programmes (workshops, seminars etc.).
- Recognising excellence in research.

- Academic exchange and mobility programmes.
- Seed research grants that are allocated to individuals and are intended to initiate and/or support the further progression of the individual on a research development trajectory.
- Topping up of NRF developmental grants (e.g. Thuthuka and Y-Rated Awards) that are intended to initiate and/or support the further progression of academics on a research development trajectory.
- A contribution to the costs of participation of existing staff in a post-doctoral programme.

From the analysis of the institutional UCDG submissions it transpired that most institutions will use their UCDG funding for the activities listed in these examples.

The DHET makes provision for a collaboration fund to lever partnerships that enable additional resources to be available to support the implementation of the UCDP (par. 7.5). It will provide a facility that enables the DHET to partner with other role-players who are contributing, or who want to contribute, to specific areas of university capacity development targeted by the UCDP, with the view that combining resources can assist to maximize impact. In the area of research development, the Ministerial Statement noted that (a) a partnership with the NRF, whereby the NRF allocates research support grants to every PhD nGAP lecturer to enable them to undertake the initial stages of their research and to position themselves for application for research support grants through the regular NRF channels, (b) a partnership with the National Skills Fund (NSF) and the NRF to establish six research chairs focused on areas of post-school education and training, (c) a partnership with the Newton Fund to provide mobility opportunities for nGAP lecturers in the United Kingdom, and (d) structured international scholarship programme partnerships managed by the DHET with several countries including China, Russia, Chile, Hungary.

Of the total UCDG 70% will be allocated to the universities and managed by the universities. Universities are required to use the following allocation model to distribute the UCDG funds that they receive (par. 8.2).

Table 1: UCDG allocations to universities

Activity focus	% Allocation
Student development	20%–50%
Staff development	20%–70%
Nurturing Emerging Scholars Programme (NESP)	≤ 5%
Existing Staff Capacity Enhancement Programme (ESCEP)	
Teaching development	20%–50%
Research development	20%–50%
Supplementary Staff Employment Programme (SSEP)	≤ 5%
Curriculum Transformation	≤ 5%
Management of the UCDP	≤ 5%

The DHET will manage 30% of the total UCDG for the following programmes. This amount will be used in the following manner.

Table 2: UCDG allocations to national initiatives

New Generation of Academics Programme (nGAP)	83%
Higher Education Leadership and Management Programme (HELMP)	3%
Collaborative development activities	14%

Universities were requested by the DHET to develop a three-year (2018–2020) University Capacity Development Plan (UCD Plan) and to submit their plans to the department by 31 August 2017, and the amount that each university will receive as a UCDG for 2018 will be confirmed in the Ministerial Statement on University Funding: 2018/19 and 2019/20 (and thereafter annually for the final two years of the first terms of the UCDP).

The UCDG cannot be used to fund (par 13.1) the following costs.

- Normal costs of programme and course design and delivery.
- General infrastructure and equipment.
- Appointment of regular teaching, administration and technical staff, except in the case of contract staff to support teaching, learning and research development activities, and in the case of appointment of tutors and mentors. Plans should be put in place to employ people contracted in this way permanently on the university establishment, using university funds as these become available.
- General research projects.
- Payment for researchers employed/paid to do research to boost the research profile of the university.
- Any activities that should be funded as part of the core business costs of the university.

UCDG plans and projects must include a monitoring and evaluation component (par 14.6) that is able to track the extent to which the interventions contribute to meeting agreed-upon targets, to enable decisions to be made about the efficacy of interventions and their continued implementation.

The DHET will organise a national student and staff success symposium will be held once during every three year UCDG cycle (par. 15.2).

The funding allocated for the UDGC during 2018–2020 will be as follows (Department of Higher Education and Training, 2017b):

Table 3: UDGC allocations 2018–2020

		2018	2019	2010
Nationally-led programmes (30%)	New Generation of Academics Programme (nGAP) (83% of 30%)	R224,100,000	R232,503,750	R239,478,863
	Higher Education Leadership and Management Programme (HELMP) (3% of 30%)	R8,100,000	R8,100,000	R8,655,862
	Collaborative development activities (14% of 30%)	R37,800,000	R39,217,500	R40,394,025
University-led programmes (70%)	University allocations	R630,000,000	R653,625,000	R673,233,750
TOTAL		R900,000,000	R933,750,000	R961,762,500

In the next section, the researchers present a review of the institutional policies, plans and initiatives to develop and support emerging researchers, to give effect to the national policies, plans and funding schemes discussed in this section. However, it is important to note that the institutional policies and initiatives go beyond, and in most cases, precede these national policies, plans and funding schemes.

Summary and conclusions

The HESA document, *Proposal for a National Programme to Develop the Next Generation of Academics for South African Higher Education (2011)*.

This is a report of the working group appointed in 2009 by Higher Education South Africa (HESA) (now Universities South Africa, USAf) to develop a proposal for a national programme for building the next generation of academics. The multi-dimensional crisis facing South African universities in attracting, appointing and retaining academic staff were unpacked by the Working Group in terms of seven key challenges, namely inequality in race and gender representation, limited output of masters and doctoral graduates, non-competitive academic salaries, alienating institutional culture, the loss of academic expertise through the ‘brain drain’, the age profile of the academic staff of universities (data were provided to substantiate each challenge), additional academics that will be required if the university system expands, as envisaged by the 2001 National Plan. HESA proposed the establishment of a new “Next Generation Development Programme” envisioning the following outcomes: an increase in the number of South African black and women academics, staff

development capacity across the system to develop the capacity of next generation academics to enhance their ability to produce research and to publish, teach a diverse student body, contribute to the transformation of institutional cultures and participate in community development projects. A next generation of academics with a clear career path within academia and inter-institutional cooperation should set up and manage NGPs. HESA also made proposals for how this programme could be funded.

The CHEC document, *Support for building the next generation of academics in South Africa (2013)*.

CHEC compiled this document as a policy brief aimed at government departments, research foundations and universities to assist in building the next generation of South African scholars and researchers. The policy brief is mostly concerned with postgraduate (master and doctoral) studies. It includes brief descriptions of the approaches of four foundations based in the USA and the lessons learnt through their involvement in a number of South African universities. CHEC formulated the following propositions: comprehensive funding packages supporting the full cost of postgraduate studies, enhancing supervision, the use of mentors, establishing internal learning communities, opportunities for postgraduates and young academics to participate in networking (local and international), focusing funding on less projects, improvement of the management and communication of postgraduate work, and building institutional research cultures. CHEC also identified a number of constraints towards the achievement of the NDP targets, including insufficient facilities and funding, lack of supervisory capacity, non-competitive academic salaries, the effect of the 'brain drain' and the age profile of the current academic staff complement.

The DHET policy document, *Staffing South Africa's Universities Framework (SSAUF) – a Transformative, Comprehensive Approach to Building Capacity and Developing Future Generations of Academics (2015)*.

This was the response of the government to the initiatives and reports reviewed above. The SSAUF is multi-pronged, nationally coordinated, and premised from the outset on new permanent posts. The SSAUF aims to provide effective induction into, and development of, all aspects of the academic job: teaching, research, social engagement, as well as academic leadership and management. The five aims of the SAAUF are to identify and nurture academic talent early in the academic development trajectory, to support newly recruited academics to acquire doctoral degrees, to develop teaching expertise, to develop research skills, including scientific publication skills, to provide development opportunities for academic staff, to enable the recruitment of supplementary staff to enhance and strengthen teaching and research at universities, and to increase in the number of people likely to enter the academic profession rapidly. The SSAUF consists of three core programmes, the *Nurturing Emerging Scholars Programme (NESP)*, the *New Generation of Academics Programme (nGAP)*, and the *Existing Academics Capacity Enhancement Programme (EACEP)*; and two cross-cutting support programmes, the *Supplementary Staff Employment Programme (SSEP)* and the *Staffing South Africa's Universities Development Programme (SSAU-DP)*.

To illustrate how the five SSAUF programmes can support different categories of researchers, the following mapping of the SAAUF programmes onto the three categories of human capital in the field of research, scholarship and innovation proposed by the DST can be considered.

Table 4: SSAUF programmes

Categories of human capital in the field of research, scholarship and innovation proposed by the DST	SSAUF Programmes
<p><i>Next-generation researchers:</i> This group represents students who have not yet completed their studies and are not yet employed as academics or researchers in knowledge-based institutions, but who are being trained to acquire the necessary skills to become active in the field of research, scholarship and innovation</p>	<p>The <i>Nurturing Emerging Scholars Programme (NESP)</i> – to identify and support students who are beginning to demonstrate academic ability at relatively junior levels (senior undergraduate or Honours)</p> <p>The <i>New Generation of Academics Programme (nGAP)</i> - to recruit new academics, drawing from promising current senior postgraduate students or past students who hold appropriate post-graduate degrees and who have ambitions/can be attracted to become academics</p>
<p><i>Emerging researchers:</i> This group is constituted primarily of persons younger than 40 years who, although employed as academics or researchers in knowledge-based institutions, have not yet obtained their doctoral degrees and/or established themselves as active researchers</p>	<p>The <i>Existing Academics Capacity Enhancement Programme (EACEP)</i> – to support the development of existing academics, for example through support to complete their doctoral studies</p> <p>The <i>Supplementary Staff Employment Programme (SSEP)</i> will enable universities to recruit specific skills on a needs basis, in a temporary capacity, to address specific gaps as the overall staffing challenge is being addressed</p> <p>The <i>Staffing South Africa’s Universities Development Programme (SSAU-DP)</i> cuts across the core programmes and supports teaching and research development needs</p>
<p><i>Established researchers:</i> This group includes persons who have established themselves as independent researchers and have an active research track record. They are instrumental in producing the bulk of the research output and in training of young potential researchers in the country</p>	<p>The <i>Supplementary Staff Employment Programme (SSEP)</i> will enable universities to recruit specific skills on a needs basis in a temporary capacity, to address specific gaps as the overall staffing challenge is being addressed</p> <p>The <i>Staffing South Africa’s Universities Development Programme (SSAU-DP)</i> cuts across the core programmes and supports teaching and research development needs</p>

The *Existing Academics Capacity Enhancement Programme (EACEP)* is directly relevant for the support of emerging researchers. The main characteristic of the EACEP is that it is aimed at the development of existing contract and permanent staff, so that development can take place by means of supporting these staff members, so that they can complete a formal qualification, for example a master’s or doctorate in their disciplinary area, if this is not yet in place. Alternatively, the staff members can complete formal courses linked to a qualification, such as a Postgraduate Diploma in Higher Education, or participate in a range of non-formal development activities offered at institutional level. The EACEP funds can be used to cover the cost of non-formal development activities (e.g. workshops), mentors, replacement costs to enable the staff member to participate in development opportunities or be afforded time to focus on doctoral work, or to cover the costs of conferences.

The Ministerial Statement on the *Implementation of the University Capacity Development Programme through Effective Management and Utilisation of the University Capacity Development Grant 2018 – 2020: Transforming teaching, learning, researching and lead (2017)*

In this statement the government communicated how the SAAUF will be operationalised. The UCDG is a new, ear-marked grant and it forms part of the funding mechanism that the state uses to allocate funding to public universities. The UCDG is both a consolidation and extension of the functions that were served by the TDG and the RDG. The purpose of the UCDG is to provide a development resource to enable success for undergraduate and postgraduate students, towards the creation of an academic development pipeline that enables the recruitment of adequate numbers of new academics, to provide development opportunities for other professional staff in universities, to develop new academic programmes that are of strategic importance and are national priorities and to review and renew university curricula.

The implementation of the *University Capacity Development Programme* is supported from five sources, namely, the UCDG, other DHET earmarked grants, university funds, local and international collaborations and partnerships, and the international postgraduate scholarship programme of the DHET. The total UCDG for the period 2018–2020 is R2,795 billion. The DHET will manage 30% of the total UCDG (to be used for the nGAP, the HELMP collaborative activities) and 70% will be allocated to, and managed by, the universities to be used for student and staff development, curriculum transformation and the management of the UCDP. Universities can use 20% to 50% of their UCDP Grant for research development activities as specified in the ESCEP, for example, to support staff members to complete master's, doctoral or postdoctoral studies, to develop research capacity through enrolment in formal courses and programmes (qualification programmes, credit bearing short courses, etc.) and through participation in non-formal courses and programmes (workshops, seminars, etc.), to recognise and award excellence in research, to cover the cost of academic exchange and mobility programmes, as seed research grants to initiate and/or support the further progression of an individual on a research development trajectory, to top up NRF developmental grants (e.g. Thuthuka and Y-Rated Awards), or as a contribution to cover the costs of staff to participate in a post-doctoral programme.

Chapter 3: Review of institutional policies and initiatives to develop and support emerging researchers

3.1 Introduction

In this section the institutional policies, plans and initiatives to develop and support emerging researchers is reviewed. It is important to note that many of the institutional policies and initiatives precede and/or go beyond the national policies, plans and funding schemes reviewed in Section **Error! Reference source not found.**

There is extensive literature on the nature and impact of incentives on behaviour in general, particularly in an economic context (Gneezy, Meier, & Rey-Biel, 2011, at the Department of Higher Education and Training, 2017a), as well as in academic contexts. In their study of incentives and awards as a means of motivation prevalent in the academic community, Frey and Neckermann (2009) find that, given the high value attached to academic reputation, awards should be taken seriously as a means of motivating research to the extent that it may complement, or even

substitute, monetary incentives. In this review, both non-monetary awards, as well as monetary incentives and rewards, were taken into account.

In order to collect information on “institutional policies and initiatives to incentivize research productivity” it was necessary to distinguish between research funding in general (that is, funding to set up and maintain the institutional research environment, including the salaries of researchers) and research incentives and rewards as a sub-set of research funding. Furthermore, it is also necessary to distinguish between research incentives (to enhance future research performance), rewards (for past performance, usually in the form of monetary rewards) and awards (for past performance, monetary or not). For example, while they note that it is not easy to draw a clear distinction between the different categories of funding aimed at enhancing research performance, Cloete and Bunting (n.d.) deemed it necessary to distinguish between:

- funding for research development, including broad capacity building, ranging from the advanced postgraduate studies to skills enhancement,
- funding for research support, including legal and financial assistance with aspects such as commercialisation, grant applications and funds management, and
- funding for research incentives, including direct incentives (usually output orientated, e.g. rewards for publications) and indirect incentives (usually orientated towards career development opportunities and high status awards).

While these distinctions are helpful to create a better understanding of the scope and variety of institutional initiatives aimed at enhancing research performance (including the development and support of emerging researchers, these categories were not used to guide the selection and analysis of the policies and initiatives presented in the following section.

The process to collect information on policies and initiatives to develop and support emerging researchers consisted of various phases.

(a) A search of institutional web-sites followed by a CREST letter (in June 2016) to the senior research managers at all the universities requesting copies of their “policies and guidelines on research incentives and rewards”.

(b) A follow-up search of institutional web-sites for information specifically related to emerging researchers (in May 2017).

(c) A USAf letter (in August 2017) to the senior research managers at all the universities requesting copies of their “institutional policies and strategies aimed at incentivizing emerging researchers”.

(d) The collection of all the UCDG submissions of the universities (in November 2017) from the DHET.

The detailed results provided by individual universities are presented in Appendix 4 of this report.

Summary and conclusions

Many of the institutional policies and initiatives to develop and support emerging researchers precede and/or go beyond the national policies, plans and funding schemes reviewed above.

However, the national initiatives provide a significant stimulus and expansion of the opportunities of universities to develop and support emerging researchers. Based on an analysis of the information presented above, the policies and initiatives at the 26 public universities in South Africa can be summarised as follows, structured loosely according to the mile-stones in the life-cycle of the career of an emerging researcher.

1. Planning the research career and developing a roadmap of research goals and how to achieve them.
2. Induction programmes and workshops.
3. Research development grants (from institutional and external funds) to finance the many costs associated with building a research profile.
4. Supplementation of development grants (e.g. Thuthuka, Y- and P-rated researchers).
5. Support towards obtaining a master's and doctoral degree (funding for tuition and other costs, time-relief/teaching and administrative relief/time buy-out, research competency development, mentorship).
6. Research competency development through workshops and training courses.
 - a. Proposal development
 - b. Research methodology, including training in specific methods, techniques and the use of specific instruments and software
 - c. Responsible Conduct of Research and Research Ethics
 - d. Information literacy (using library resources)
 - e. Academic writing
 - f. Presentation of research results
 - g. Optimising conference attendance
 - h. Academic writing retreats (writing for publication)
 - i. Academic publishing
 - j. Research project management and research contract management
 - k. Skills development for technology transfer practice and commercialisation
 - l. Measuring research impact
 - m. Managing online presence
 - n. Grant proposal writing
7. Mentorship for emerging researchers (including mentoring for specific target groups such as black and female researchers).
8. Funding mobility (participation at national and international conferences, networking, longer research visits to other institutions, in particular institutions in other countries).
9. Postgraduate supervision training.
10. Support for the preparation of the first NRF-rating application.
11. Research rewards aimed at enhancing research productivity in general, but also benefitting emerging researchers.
 - a. Monetary incentives/rewards for publication outputs (in some institutions a substantial portion of the DHET subsidy for publication outputs is allocated to researchers)
 - b. Awards for excellence in research (e.g. best young scholar, etc.)
 - c. Events such as an "Annual Research Day" or prestigious functions, etc.

In order to plan, implement and monitor these policies and initiatives, institutions establish a variety of institutional structures, such as research and innovation committees (at institutional and faculty levels), a Research Support Office, Postgraduate Schools, Postgraduate Studies Centres, and so forth.

The table below presents a first summary of the various universities interventions and activities organized by a number of key dimensions.

Table 5: Institutional policies and initiatives

	CPUT	CUT	DUT	MUT	NMU	MWU	RU	SMU	SPU	SU	TUT	UCT	UFH	UFS	UJ	UKZN	UL	UMP	UNISA	UniVen	UP	UWC	Unizulu	VUT	Wits	WSU
Research career development		X		X	X		X	X	X	X	X	X	X	X	X	X	X				X		X		X	
Induction	X									X														X		
Research development grants	X							X								X										
Supplementation of funding			X			X				X		X				X					X					X
Support towards obtaining M and PhD	X	X	X	X		X	X	X	X			X	X		X		X		X	X				X	X	X
Research competency & skills training		X	X	X	X			X		X	X	X	X	X		X	X	X		X	X		X	X		X
Mentorship & coaching	X	X	X	X		X	X	X				X			X			X	X	X		X			X	X
Mobility/exchange	X	X	X	X		X			X			X	X		X	X	X	X	X	X	X			X		
Postgraduate supervision	X	X			X		X			X	X	X		X			X	X		X		X		X		
First NRF rating application				X						X				X	X											
Research rewards and awards	X	X	X	X	X	X		X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X
Research funding proposal writing	X	X								X		X		X	X	X	X	X			X	X				X
Research writing skills	X	X		X	X		X		X			X	X	X	X	X	X	X	X		X	X		X	X	X
Training in research integrity & ethics	X									X		X		X				X						X	X	

Part Three: Secondary data analysis

The project design for this study required that three existing datasets/databases be analysed and linked to each other. This was required in order to address the first primary question of the study:

To establish the proportion and demographics of academics at lecturer and senior lecturer levels/all levels of the permanent instruction staff at Higher Education Institutions (HEIs) who are active researchers, as well as those who are not active researchers.

We subsequently disaggregated this objective statement into four subsidiary (and complementary) objectives.

5. To establish what the sector (HE) profile of lecturers and senior lecturers are in the system.
6. To establish what proportion of lecturers and senior lecturers are actively publishing (one meaning of 'research active').
7. To establish what proportion of lecturers and senior lecturers are actively applying for funding (another meaning of 'research active').
8. To establish what proportion of lecturers and senior lecturers are actively publishing AND applying for funding.

In order to address the first question, we analysed the HEMIS staff data by rank and other relevant variables. This is a straightforward analysis and the results are presented in Chapter 4.

However, in order to address Question 2, one needs to be able to connect an individual staff member (through some unique identifier such as an ID number, or Surname/First Name in the HEMIS data) with the names of publishing individuals that are incorporated in the CREST database on scientific publications (SA Knowledgebase). Similarly, in order to address Question 3, the names of lecturers and senior lecturers at SA universities need to be linked to data from the NRF on individual applicants at these ranks. And finally, in order to address Question 4, all three datasets (HEMIS staff data, SA Knowledgebase and NRF funding data) had to be linked at the level of the individual staff member (lecturers and senior lecturers). As it turned out, meeting these conditions were not a straightforward matter.

Access to personalised HEMIS staff data

During the course of a number of conversations with senior staff of the DHET, it became clear that this condition could not be met. CREST already had access to the anonymised individual staff data for the period 2000 to 2015. These datasets do contain a number of biographical fields, including the rank of the staff member. However, we were informed by the DHET that they do not receive any staff data from the universities that have personalised information (surname, first name, etc.). Although CREST would be able to generate some analyses that incorporate the rank of academics from the available HEMIS files in order to address Question 1, it would not be possible to answer Question 2 from the HEMIS data. This necessitated an alternative strategy (See. below).

Access to NRF funding and rating data. CREST has in recent months, as part of another assignment by the NRF, obtained NRF data on funding grants (also scholarship information) and ratings information. Although these two datasets do contain the personal information of awardees (surname, name, gender, race and date of birth), there is no field that indicate the rank/position of the applicant. It is worth pointing out that even if it were the case that the NRF has this data and can generate this for the project, there is a methodological issue that would need to be addressed. The focus of this study is on those academics that are currently either at the rank of lecturer or senior lecturer. Data from the NRF on grants, scholarships and ratings are historical data (we have data for the period 2000 to 2016). In order to have data that is compatible with the requirements of the study, we would need to have the current (or at least very recent) ranks of academics and not necessarily the rank of the individual at the time of an award. Again, it is unlikely that the NRF has this information for all the applicants and awardees over the past 15 years.

Condition 3: Access to publication data

Meeting this condition is straightforward as CREST maintains (and constantly updates) its in-house database (*SA Knowledgebase*) on the scientific publications of all SA academics. This database currently covers the period 2005 to 2016.

Given that Conditions 1 and 2 could not be met, the CREST team had to reconsider its approach to managing the data for this project. In our original proposal to USAf, we indicated that although CREST had not in the past linked data on the academic ranking of an individual to his/her publications in *SA Knowledgebase*, we have received (under various commissions from most SA universities) staff data that contain information on the rank or position of a staff member.

However, two caveats are in order:

(1) CREST did not have this information for all universities; and

(2) this information had never been linked to the other personalised information in our database. In order to address the first caveat and increase the coverage to all SA universities, Ms Janet van Rhyen of USAf sent out a request to ten universities to provide this additional information to CREST. All ten universities eventually responded positively and provided CREST with the information requested.

In order to address these challenges CREST embarked on an alternative data-management strategy. This involved appointing six part-time staff in addition to our two full-time data management staff to address the second objective. This involved the following tasks:

- Updating coverage of *SA Knowledgebase* to cover publications from 2005 to 2016;
- Updating information on the rank of each author by checking all university web sites;
- Disambiguation of author names to avoid duplicate names.

The chapters in the remainder of Part Three are organised according to the four (subsidiary) objectives as outlined above.

Chapter 4: To establish what the sector (HE) profile of lecturers and senior lecturers are in the system

The data presented in this section is based on the HEMIS statistics for 2015 as provided by the DHET. The cases selected are all members of staff who are classified as either instructional or research staff (personnel category) and full-time, permanent members of staff. This translates into a total of 17 751 permanent, full-time academic staff members in 2015. Nearly three quarters (72%) of these staff members are either lecturers (45%) or senior lecturers (27%). The breakdown by rank is presented in Figure 4.1.

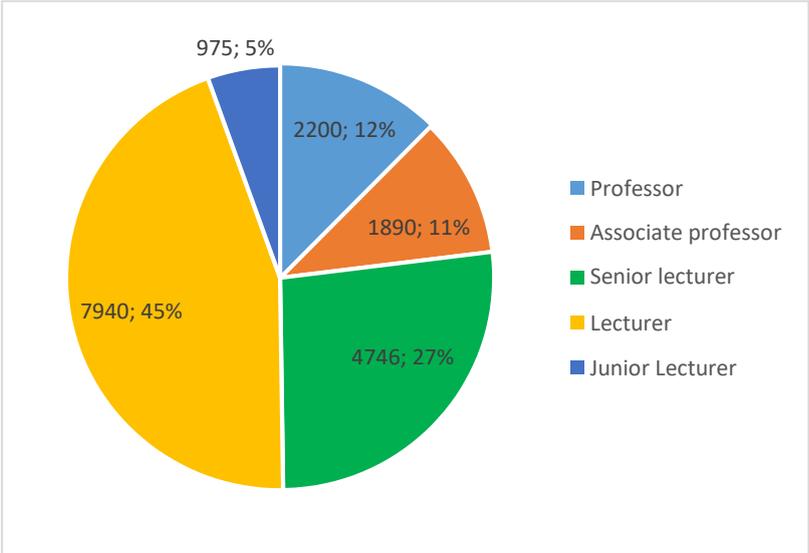


Figure 4.1: Permanent academic staff by rank (2015)

The gender breakdown for the lecturer and senior lecturer ranks in Figure 4.2 shows that men dominate the senior lecturer rank by a small margin (56:44), whilst women are in the majority at the lecturer rank (53:47).

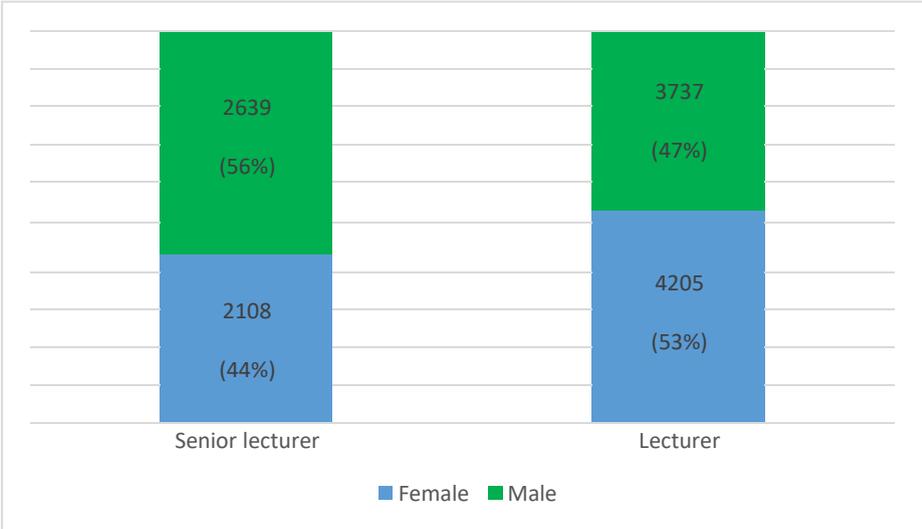


Figure 4.2: Disaggregation of senior lecturer and lecturer by gender (n = 13 014)

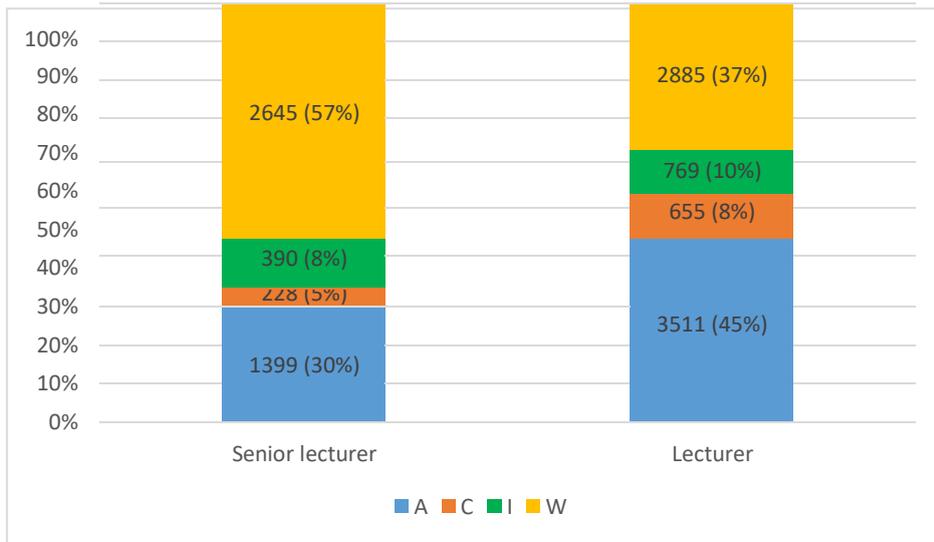


Figure 4.3: Disaggregation of senior lecturer and lecturer by race (n = 13 014)

In Figure 4.3 the researchers present the disaggregation by racial category (StatsSA) for the two ranks. The two bar graphs are nearly mirror images of each other. At the senior lecturer rank white staff are in the majority (57%), followed by African (black) staff (30%). The breakdown at the lecturer rank is nearly the inverse, with African (black) staff constituting the single biggest group (45%), followed by white staff at 37%.

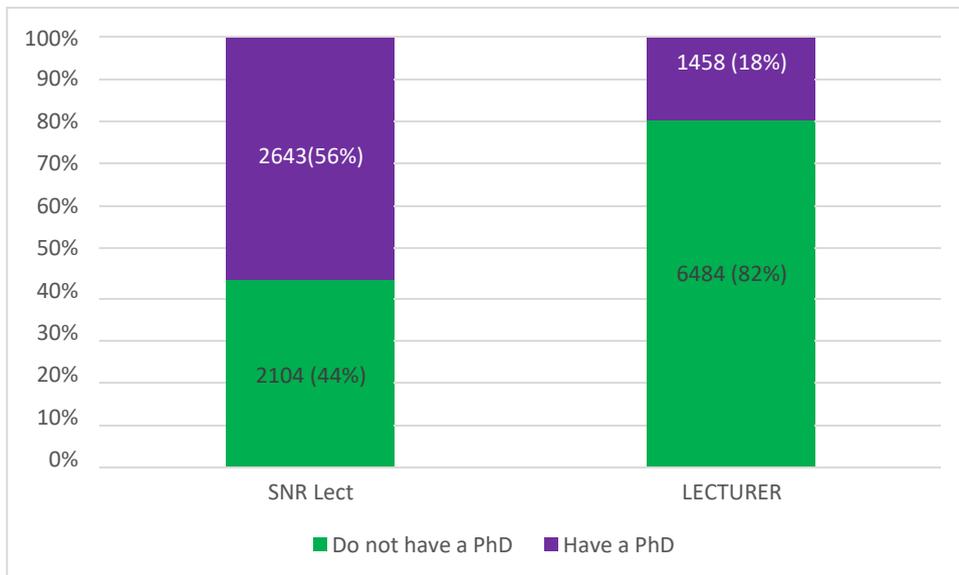


Figure 4.4: Rank and possession of a PhD as highest qualification

The statistics presented above do not capture the large university differences. A first indication of these differences is evident when we look at the distribution of rank by university, by selecting only the professors, senior lecturers and lecturers. The key column in Table 4.1 is the last one. This shows – in descending order from largest to smallest – what proportion the professoriate constitutes of the total academic staff at each university. The next figure (Figure 4.5) shows the inverse picture: what proportion the senior lecturers and lecturers constitute of the total academic staff at each university.

Table 4.1: Distribution of staff by rank and university (2015)

	Professor	Associate professor	Senior Lecturer	Lecturer	Junior lecturer	Total instructional and research staff	% Professoriate
UCT	220	236	359	358	4	1177	39%
Rhodes	46	68	101	97	4	316	36%
SU	210	144	278	356	2	990	36%
Wits	165	212	285	436	36	1134	33%
UNISA	315	253	535	523	83	1709	33%
UP	215	177	408	361	25	1186	33%
UWC	191	0	155	299	0	645	30%
NWU	192	196	432	519	111	1450	27%
NMU	72	89	140	265	47	613	26%
UFH	38	38	78	148	20	322	24%
UJ	129	111	320	486	47	1093	22%
UKZN	110	142	212	751	12	1227	21%
UFS	97	54	187	356	115	809	19%
UV	31	29	105	180	33	378	16%
UL	38	47	163	237	52	537	16%
SMU	42	30	152	244	31	499	14%
UZ	17	23	45	186	20	291	14%
CUT	10	18	42	168	50	288	10%
CPUT	9	38	147	467	97	758	6%
WSU	17	8	96	422	32	575	4%
TUT	40	0	280	515	128	963	4%
DUT	14	0	128	371	13	526	3%
MUT	1	0	59	105	28	193	1%
VUT	0	0	107	231	7	345	0%
SPU	0	0	6	18	6	30	0%
UMP	0	0	17	27	0	44	0%

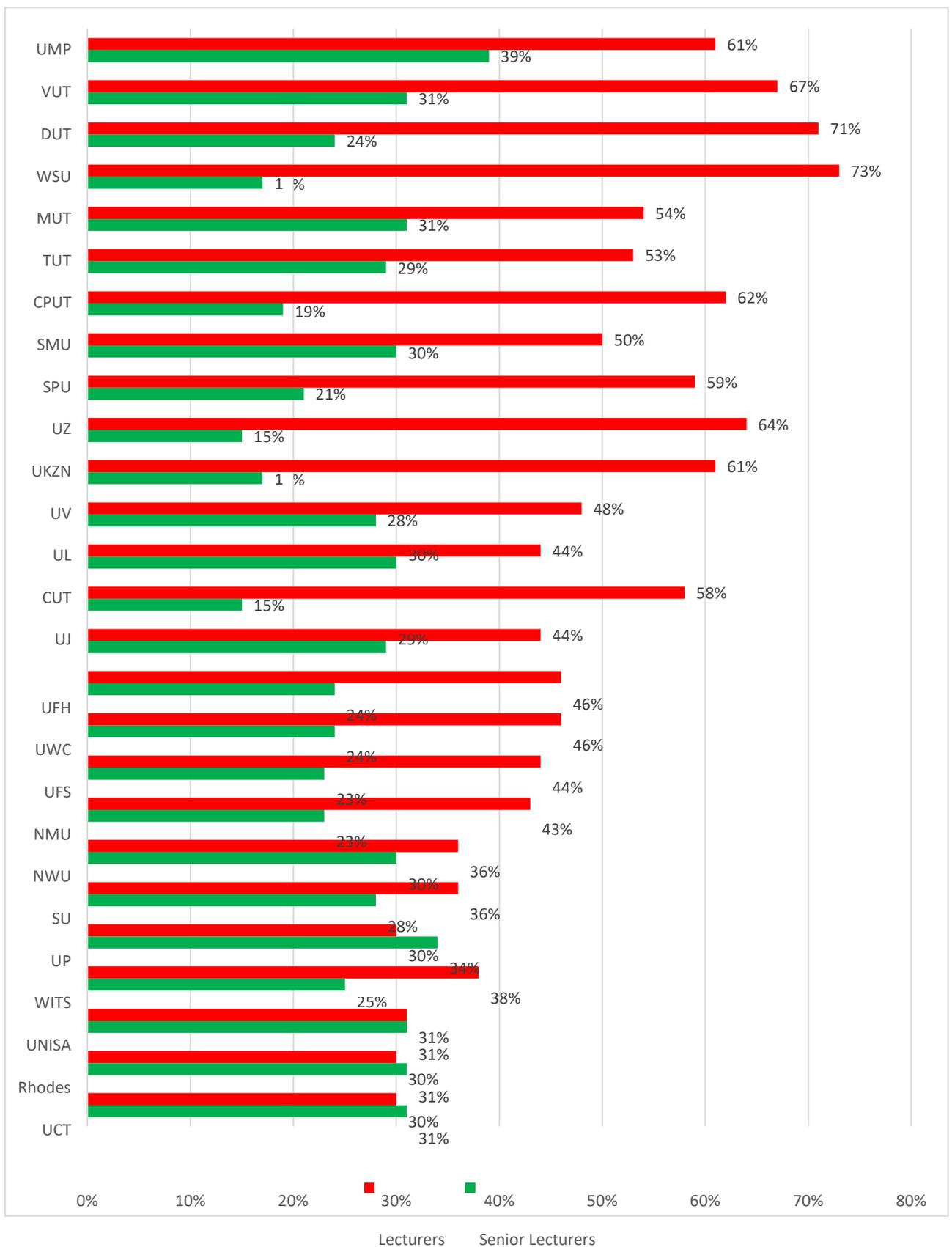


Figure 4.5: Senior lecturers and lecturers as proportion of total academic staff

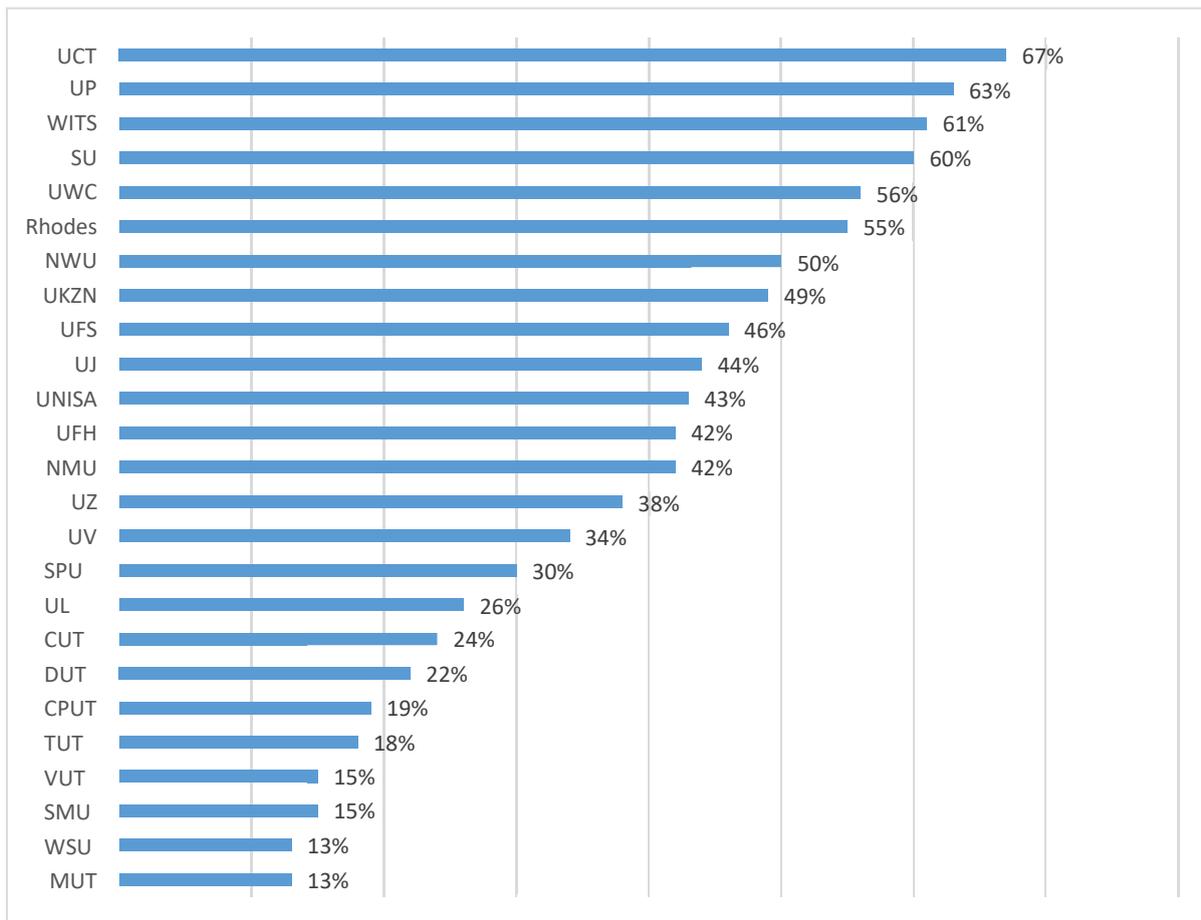


Figure 4.6: Proportion of academic staff with PhDs (2015)

In Figure 4.4 the researchers presented a breakdown for the two ranks according to whether the staff member has a PhD as highest qualification or not. Not surprisingly there are large differences: only 18% of lecturers are in possession of a PhD, compared to 56% of senior lecturers. A breakdown by university in Figures 4.7 and 4.8 below shed more light on why this is the case.

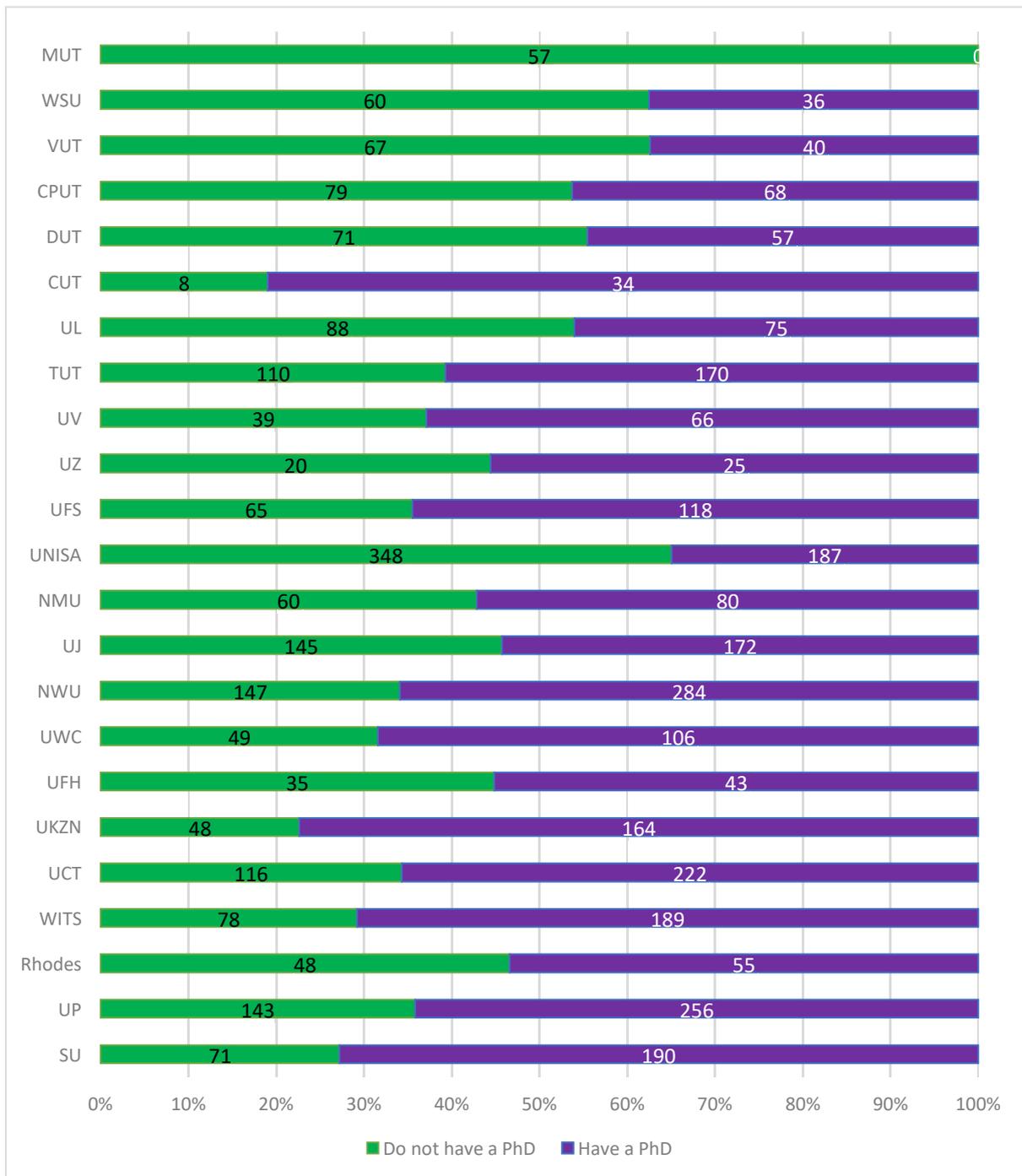


Figure 4.7: Qualification profiles of senior lecturers by university

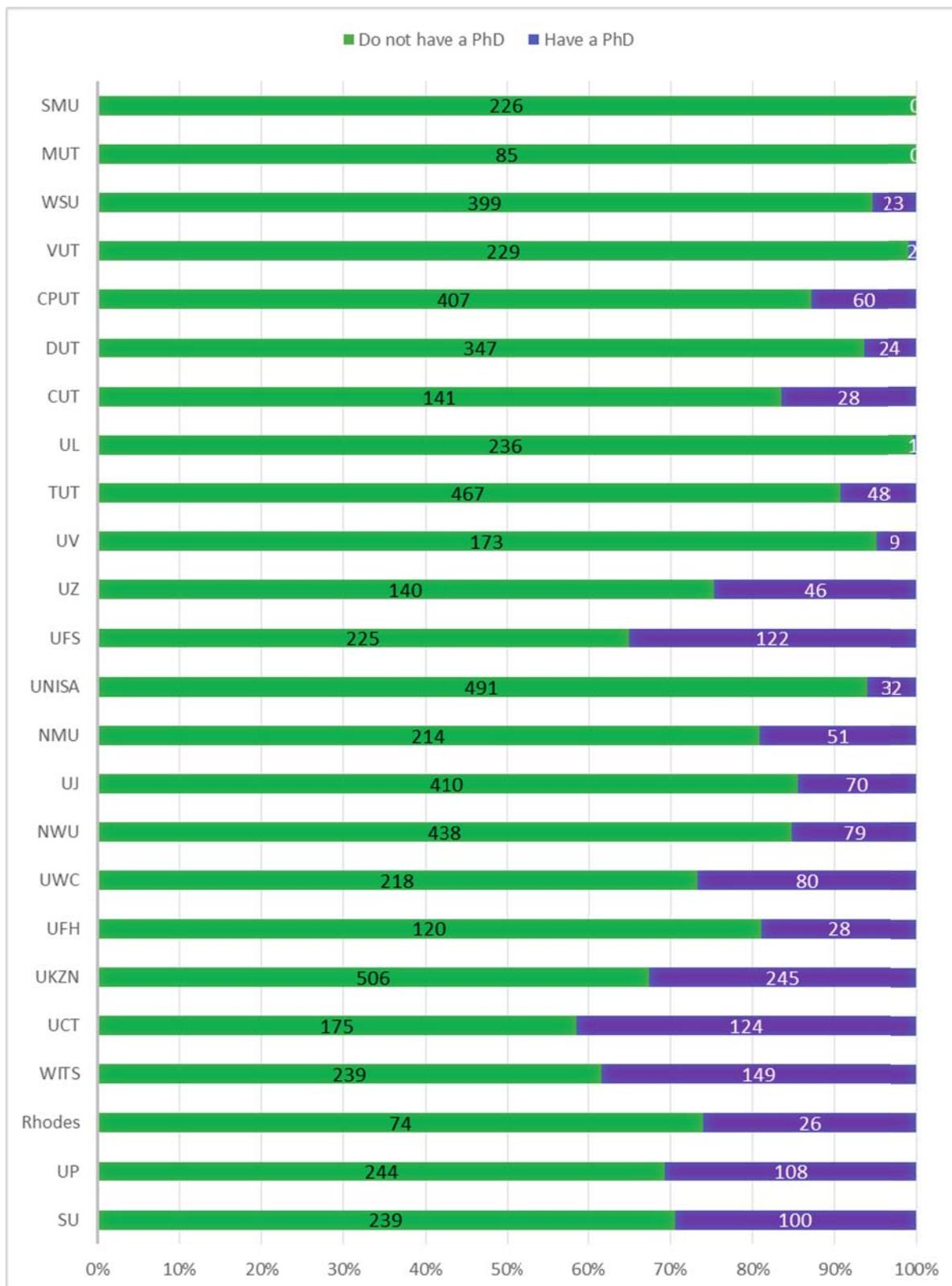


Figure 4.8: Qualification profiles of lecturers by university

In the next two tables the researchers present the disaggregation of these five groups by the rank of the respondent.

The first table (with the row percentages), tells us what proportions of lecturers and senior lecturers are categorized into each of the five groups we created. This shows that the single largest proportion of lecturers fall into Group B (those lecturers over the age of 40 without a PhD and low average score on the research activity index). When comparing this with the senior lecturers, we find that 28% of this rank are assigned to Group D.

Table 4.2: Distribution of each sub group by rank

	A – Emerging young scholars	B – Active young scholars	C – Active older scholars	D – Under-qualified, older academics	E – Active established senior scholars	TOTAL
Lecturer	16%	23%	9%	52%	0%	925
Senior lecturer	4%	36%	32%	28%	0%	600
Associate professor	0%	0%	0%	0%	100%	157
Professor	0%	0%	0%	0%	100%	214

However, we can also look at the distribution by rank within each group as seen in the percentages in each column. We selected only lecturers and senior lecturers in the first four groups (A to D). The distributions by rank are quite interesting. Nearly three quarters (74%) of those without a PhD over the age of 40 and below average scores on the Index of Research Activity (IRA), are lecturers. A quarter of this group are senior lecturers.

Table 4.3: Proportions of lecturers and senior lecturers in each sub-group

	A – Emerging young scholars	B – Active young scholars	C – Active older scholars	D – Under-qualified, older academics	E – Active established senior scholars
Lecturer	86%	50%	31%	74%	0%
Senior Lecturer	14%	50%	69%	26%	0%
Associate Professor	0%	0%	0%	0%	42%
Professor	0%	0%	0%	0%	58%
TOTAL	170	429	281	645	371

Table 4.4: Disaggregation of rank by age and qualification

Rank with no PhD	40 years and younger	41 to 50 years old	51 to 60 years old	61+ years old
Lecturers (n = 6633)	48,7%	29,6%	18,3%	3,4%
Senior lecturers (n= 2146)	33,8%	29,1%	26,7%	8,%

Conclusion and summary

Rank: Lecturers constitute the largest single proportion (45%) of all ranks of academic staff at South African universities. Senior lecturers constitute slightly more than a quarter (27%) of all permanent, full-time academic staff at SA universities.

Gender: Male staff dominate the senior lecturer rank (56%). The converse is true of lecturers where female staff are in the majority (53%).

Race: As far as ‘racial decomposition’ is concerned, ‘white’ staff are the single biggest group in the senior lecturer category (57%), followed by African staff members in the second place (30%). The ‘racial breakdown’ of lecturer staff shows that African staff were the single biggest group in 2015 (45%), followed by white lecturers (37%).

Interaction between gender, race and having a PhD: When we look at the ‘interaction’ between gender, race and highest qualification and by rank we find some interesting patterns. At the rank of lecturer, white female staff constitute the highest proportion of those that have a PhD, followed by African males, white males and African females (together they constitute nearly 70% of all staff). At the senior lecturer rank, white females again constitute the highest proportion (30%), but followed by white males (27%), African males (21%) and African females (9%).

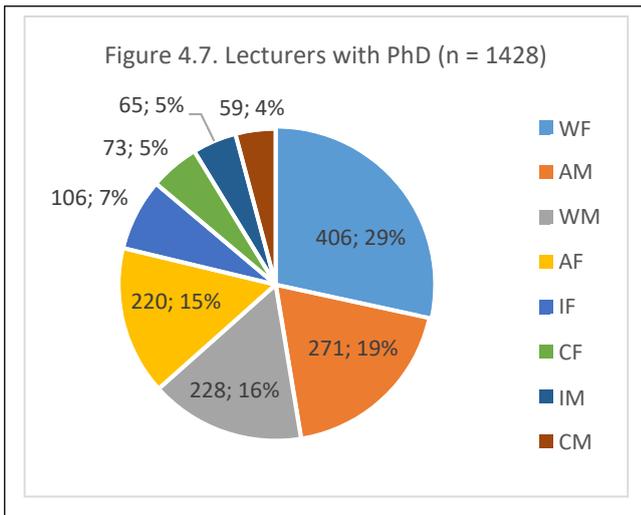


Figure 4.9: Lecturers with PhDs and by race and gender

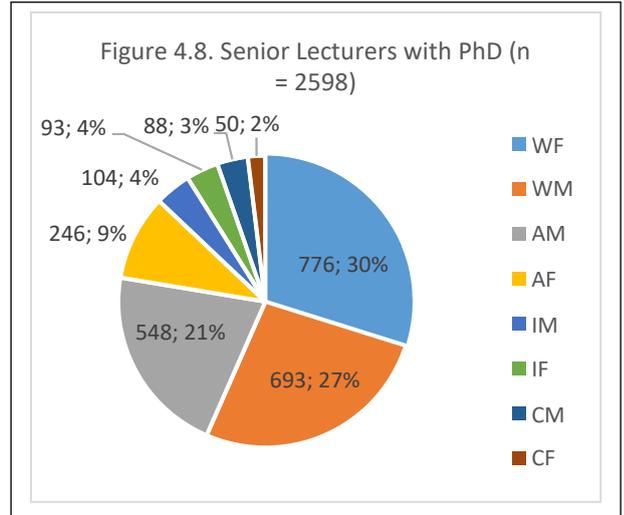


Figure 4.10: Senior lecturers with PhDs and by race and gender and gender

(White Male), AF (African Female), IF (Indian Female), CF (Coloured Female), IM (Indian Male) and CM (Coloured Male).

Highest qualification a PhD: There are large differences between senior lecturers and lecturers as far as having a PhD is concerned. The majority (56%) of senior lecturers in 2015 had a PhD. The vast majority of lecturers (82%) did not have a PhD in 2015. One obvious explanation for this becomes clear when we disaggregate these proportions by university. These breakdowns reveal huge differences between the universities.

The established research universities have much higher proportions of staff with doctoral qualifications, than for example the universities of technology. This is to be expected given (a) their history as former ‘technikons’ and ‘technical institutes’, and (b) their past exclusive focus on vocational training in subjects where a doctorate was not required.

The university-specific profiles for these same variables (universities listed in alphabetical order) are presented in Appendix 3.

Chapter 5 The proportion of lecturers and senior lecturers that are publishing actively

In order to address the question of what proportion of lecturers and senior lecturers are publishing actively, we need to be able to link the publications in *SA Knowledgebase* (SAK) to the 'rank' of the author. This is not a straightforward process for a number of reasons.

1. 'Rank' is a variable property. Any individual's rank changes over his or her academic career.
2. Although 'rank' is captured in the HEMIS data, the data is anonymised and it is not possible to link the 'rank' of any academic to his or her name (this is required if we want to link 'rank' to the person's publications).

The only way that CREST could to answer this question was to search for the ranks of publishing authors on the websites of universities². These tasks were completed by the middle of December 2017 and allowed us to undertake the necessary bibliometric analyses of publications by lecturers and senior lecturers in SAK.

A note on methodology and limitations

It is not surprising that we could not get information about the rank of every publishing author in our database. This is due to two main reasons: (1) not all university websites (including departmental websites) provide this information, and (2) our database (SAK) contains information about publications between 2005 and 2016. Not all of the authors of these publications are necessarily still in the university system. The fact that we captured the rank of a person as of 2017 introduces a further potential 'mismatch' between the demographic and publication data in *SA Knowledgebase*. In order to minimise the potential biasing effect of this, we only analysed the publications of all authors in SAK since 2010. Keeping these caveats in mind, we generated two sets of results for each university.

1. The proportion of lecturers and senior lecturers of all publishing authors per university
2. The relative contribution (number of papers) of lecturers and senior lecturers to then total publication output of each university.

What proportion does lecturers and senior lecturers constitute of all publishing authors per university? In order to answer this question, we first had to capture the rank of each author in our

² We could, arguably, have approached each individual university for this information, but sensitivities around the disclosure of personal information suggested that this would not be a uniformly, successful approach.

database. Given that we could only capture the rank of authors as of 2017, we report on the publication figures for 2015 and 2016 as the years closest to 2017 in our database.

Authors with at least one paper in 2016.

Of the 16 656 authors who published at least one paper we have the rank of 7 233. These 7 233 authors produced a combined total of 22 838 article units in 2016. We subsequently disaggregated these papers into four categories as shown below.

Table 5.1: Authors who published at least one paper in 2016

RANK	Nr of authors	Nr of article units	Per capita	Proportional share
Professor	3470	13365	3.85	59%
Senior lecturers	1113	2747	2.47	12%
Lecturers	1008	2308	2.29	10%
Other ranks	1645	4424	2.69	19%

Authors with at least one paper in 2015 or 2016.

Of the 29 798 authors in the database who published at least one paper in either 2015 or 2016 we have information on the rank for 13 136 (44% coverage). These 13 136 authors produced a combined total of 20 246 article units over the two years. We subsequently disaggregated these papers into four categories as shown below.

Table 5.2: Authors who published at least one paper in 2015 or 2016

RANK	Nr of authors	Nr of article units	Per capita	Relative %
Professor	5788	9626	1.66	48%
Senior lecturers	2025	3075	1.52	15%
Lecturers	2065	2860	1.38	14%
Other ranks	3261	4691	1.44	23%

The results from these queries allow us to draw some reasonable estimates about the proportions of lecturers and senior lecturers who are publishing actively.

Summary

Given that it is reasonable to assume that not every academic publishes a paper every year, we decided to use the results from our analysis of the 2015/2016 combined cohort. On this basis we estimated that approximately 2 000 senior lecturers can be classified as publishing actively. This is a weak measure of publication activity to say that the person published at least one article unit in two

years. In 2015 there were 4 746 senior lecturers at South African universities. This means that approximately 42% of senior lecturers can be categorised as publishing actively.

Applying the same logic, we estimated that about 2 050 lecturers are publishing actively, again using the same weak criterion. In 2015 there were 7 940 lecturers at South African universities. This means that approximately a quarter (25%) can be categorised as publishing actively.

Perhaps the most surprising aspect of these results is the low percentage of senior lecturers who we categorise as 'actively publishing'. There is a strong correlation between having a PhD and publication activity. The fact that professors account for the bulk of our publication output is not surprising as the vast majority of these authors would already be in possession of a PhD. At the other extreme, it is perhaps not surprising that only about 25% of lecturers are actively publishing, as only 18% of all SA lecturers have a PhD. But it is surprising that only 40 to 45% of senior lecturers are actively publishing when 56% of them have a PhD. Further analyses by age of authors, scientific field and university should be conducted to get a more precise understanding of this state of affairs. For the purposes of this study, these results are sufficient.

Chapter 6: The proportion of lecturers and senior lecturers that are actively applying for funding

In the ToR for this study, the authors wrote as follows:

With flagship programmes such as the SARChI, CoEs and the bursary and scholarship programmes, significant strides have been made in supporting established researchers and the next generation of researchers (SARChI and CoEs include support for next generation researchers). Except for the Thuthuka programme, support for emerging researchers has not been at a significant scale despite the Department's recent efforts to recapitalize the Thuthuka programme. Owing to limited resources, *inter alia*, the footprint of emerging researchers' programmes has been limited. Working with the DVCs of Research at HEIs, the DST has unearthed the 'silent majority' in the higher education sector. This 'silent majority' belongs to the emerging researchers' pipeline and appears to largely comprise lecturers and senior lecturers in our universities. (p. 2)

The authors continue to argue that the 'silent majority' are in fact mostly lecturers and senior lecturers at SA universities. The breakdown by age and highest qualification leads them to conclude as shown below (see underlined text):

The national data below has been sourced from the Higher Education Management Information System (HEMIS) and all graphs (except for Figure 9) have been produced using the RIMS Business Intelligence (BI) Warehouse. Figure 1 below shows the total number of instruction staff with masters/doctorate qualifications at lecturer or senior lecturer levels in HEIs. These academics have been targeted since they are considered to be the feeder for the emerging researchers. As indicated above, emerging researchers are constituted primarily of persons younger than 40 years who, although employed as academics or researchers in knowledge-based institutions, have not yet obtained their doctoral degrees and/or established themselves as active researchers (pp. 2–3).

In the subsequent pages the authors present “comparative data for the period 2008–2013 (that show that only a small proportion of academics at the lecturer and senior lecturer level (emerging researchers), were supported through the NRF (see figure below), which is cause for concern. It would appear that only a small number of academics at these two levels are active researchers” (pp. 3–4).

Table 6.1: The total number of emerging researchers supported through the NRF.

Funding year	Number of grants	Average grant value excluding bursaries (Rand)
2008	682	55 100
2009	615	66 607
2010	748	131 125
2011	646	93 141
2012	667	104 557
2013	622	142 407
2014	733	162 386

Thus far the argument presented in the TOR.

We have subsequently been in communication with Mr Gerhard Moolman of the NRF about these figures in an attempt to get more up-to-date data. He has updated the table above (See Table 6.2 below).

Table 6.2: Updated NRF data on applications of 'emerging scholars'

Funding year	Number of grants	Average grant value excluding grant holder-linked bursaries (Rand)
2008	682	55 100
2009	615	66 607
2010	748	131 125
2011	646	93 141
2012	667	104 557
2013	622	142 407
2014	907	169 410
2015	1032	176 644
2016	1179	173 297

However, in his communication to us, he also wrote:

... that he could not validate the 2014 funding year data indicated in the terms of reference and restated the numbers as per the latest available data. He further qualified the numbers to include "Freestanding post-doctoral fellowships", but exclude "grant holder linked post-doctoral bursaries". Mr Moolman also indicated that one cannot assume that the "NRF

emerging researchers” are predominantly lecturers or senior lecturers and that he believe that the opposite is true – a significant number of “established researchers” are lecturers and senior lecturers.

What transpires from this is the following.

- It is not at all clear how the 2014 year funding data in Figure 2 in the ToR had originally been generated (these data could not be reproduced accurately in the latest iteration).
- It now seems as if the term “emerging scholar” (as used in the title of Table 6.2) was incorrectly assumed to refer to (or include) the rank of the applicant³.

In an attempt to get a more precise indication of this state of affairs, CREST subsequently provided the NRF with a list of publishing authors (at least two papers over the past 10 years) with either the rank of lecturer or senior lecturer. The request to the NRF was to link these names to their different grant categories. This meant that we would get a more precise estimate of what proportions of applicants from these ranks are represented in the different grant categories (and of course specifically how many one could ‘classify’ as ‘emerging scholars’.

The results of these analyses are summarised in Table 6.3

³In one email Mr Moolman in fact confirmed that the Rank of the applicant is not indicated or captured as a separate field in applications to the NRF and can only be extracted where the rank is indicated in the applicant’s position description.

Table 6.3: Analysis of lecturers and senior lecturers with two or more publications, matched to NRF-funded researchers

		No of lecturers	%	2009	2010	2011	2012	2013	2014	2015	2016	2017
Lecturers/Senior lecturers in CREST database with a valid year of birth		3673										
Applied for or received funding		1133	31%									
No interaction with NRF		2540	69%									
No funding		2686	73%									
Received funding		987	27%	251	278	325	354	439	533	568	585	582
Percentage receiving funding per year				7%	8%	9%	10%	12%	15%	15%	16%	16%
Lecturers/Senior lecturers receiving funding per research funding instrument	Next generation			97	102	95	90	105	115	107	83	58
	Emerging			76	95	98	118	124	174	199	208	206
	Established			52	65	76	110	134	164	217	270	319
	Strategic			8	11	20	23	26	31	35	51	58
	Cross cutting instruments			44	49	87	67	119	149	153	127	122
	Infrastructure			2	4	5	7	7	8	15	20	12

Note: NRF Call/funding categories with illustrative current and historic examples:

Next generation: Scholarships & Fellowships Programme - up to Doctoral and Thuthuka Phd
Emerging: Black African Academic Programme FRF; Competitive Support for Unrated Researchers; Institutional Research Development Programme; Mentorship programme; Rediba; Research Development Grants for Y-Rated Researchers and Women in Research
Established: Blue Skies Research Programme; Competitive Programme for Rated Researchers; Distinct South African Research Opportunities; Incentive Funding for Rated Researchers; Unlocking the Future
Strategic: African Origins Platform; Centres of Excellence; Education Research in South Africa; Indigenous Knowledge Systems; SA RESEARCH CHAIRS
Cross cutting instruments: International Science and Technology Agreements; Technology and Human Resources for Industry Programme (THRIP)
Infrastructure: National Equipment; Research Infrastructure Support Programme

Of the 3673 names that CREST submitted to the NRF approximately one third (1 133 or 31%) applied for or received funding. The NRF could not link the names of the remaining 69% to any applications to the NRF. These names are classified in the table above as “having no interaction with the NRF”. Of the 1 133 who applied for funding, 987 received funding. The breakdown of this group per year is summarised in the Table 6.4 below. Those who received funding from the NRF are subsequently classified into six funding categories: next generation, emerging, established, etc. It is important to take note that some researchers can be accounted for more than one category

Table 6.4: Proportions of publishing authors receiving funding from the NRF (2009–2017)

	2009	2010	2011	2012	2013	2014	2015	2016	2017	Total
Next generation	97	102	95	90	105	115	107	83	58	852
Emerging	76	95	98	118	124	174	199	208	206	1298
Established	52	65	76	110	134	164	217	270	319	1407
Strategic	8	11	20	23	26	31	35	51	58	263
Cross-cutting instruments	44	49	87	67	119	149	153	127	122	917
Infrastructure	2	4	5	7	7	8	15	20	12	80
TOTAL	279	326	381	415	515	641	726	759	775	4817
Next generation as % of total	35%	31%	25%	22%	20%	18%	15%	11%	7%	18%
Emerging as % of total	27%	29%	26%	28%	24%	27%	27%	27%	27%	27%
Established as % of total	19%	20%	20%	27%	26%	26%	30%	36%	41%	29%

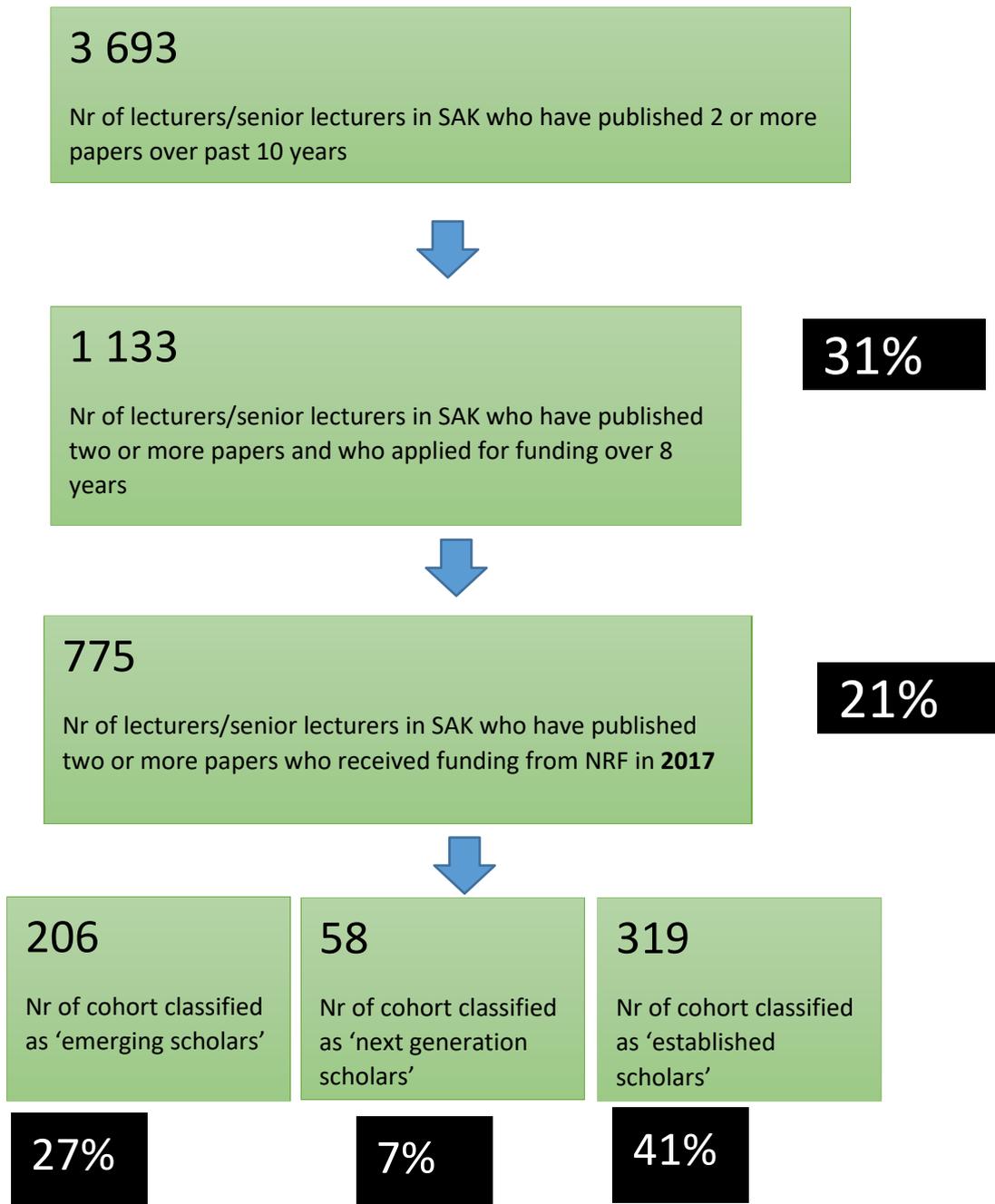
Those grantholders who were classified as “emerging” constitute just more than a quarter (27%) of all grantholders. However, perhaps more interestingly, on average 29% of all lecturers and senior lecturers received funding earmarked for “established” researchers. These breakdowns support the comments by Mr Moolman, quoted earlier, that there is no necessary relationship between the rank of applicant and the call category.

Having established that we cannot draw any firm conclusions about the size of the ‘silent majority’ from these analyses, we return to our initial question: What proportion of actively publishing lecturers and senior lecturers has received funding from the NRF?

In the flow diagram below the researchers present a breakdown of the disaggregation of the original list of names sent to the NRF at each step.

- (1) The first list of 3 693 contains all the names of lecturers/senior lecturers who we could identify from SAK as actively publishing (with a weak threshold of at least two article units in 20 years).
- (2) Of these 1 133 could be linked to NRF funding data.
- (3) Of the original 3 673, the NRF identified that 987 received funding at some point over the past eight years. However, we decided to focus on the most recent year (2017). In this year, 775 people of our original list were identified as receiving funding.
- (4) In the final step, we show how the NRF classified these 775 people in terms of call category.

Summary



Discussion

Slightly less than a third (31%) of the lecturers and senior lecturers in SAK have applied and received funding from the NRF in recent years. This shows that there is a sizeable group of academics (nearly 70%) in these ranks who do not apply to the NRF for funding. Further breakdown of the cohort of 775 (31%), shows that it would be incorrect to label these as predominantly being emerging scholars. In fact the biggest proportion of this cohort (41%) is classified as established scholars by the NRF.

Summary

Our analysis of applications by senior lecturers and lecturers to the NRF has unfortunately not produced much clarity on the 'phenomenon' of the silent majority. It seems as if the label 'silent majority' has been incorrectly linked to rank of academic staff (senior lecturers and lecturers) in the ToR document. The response of the NRF clearly shows that the notion of an 'emerging scholar' is not linked to the rank of the applicant, but to the call category of the application.

On the positive side we could establish that only about one third of those senior lecturers and lecturers who we have classified as "actively publishing" have in fact applied to the NRF for funding over the past 10 years.

There is indeed a 'silent majority' of academics who do not access NRF funding. However, this group should not be equated with specific ranks (and hence certain age cohorts either).

Part Four: Survey and interview results

In this part of the report we present and discuss the integrated results of the quantitative (survey) and qualitative (interviews) components of the study that were undertaken to address the second main aim of the study.

To investigate the environmental context, enablers and impediments to increasing the number of emerging researchers at systemic, institutional and individual level

The following analytical framework informed our analyses and discussion of the results in this section.

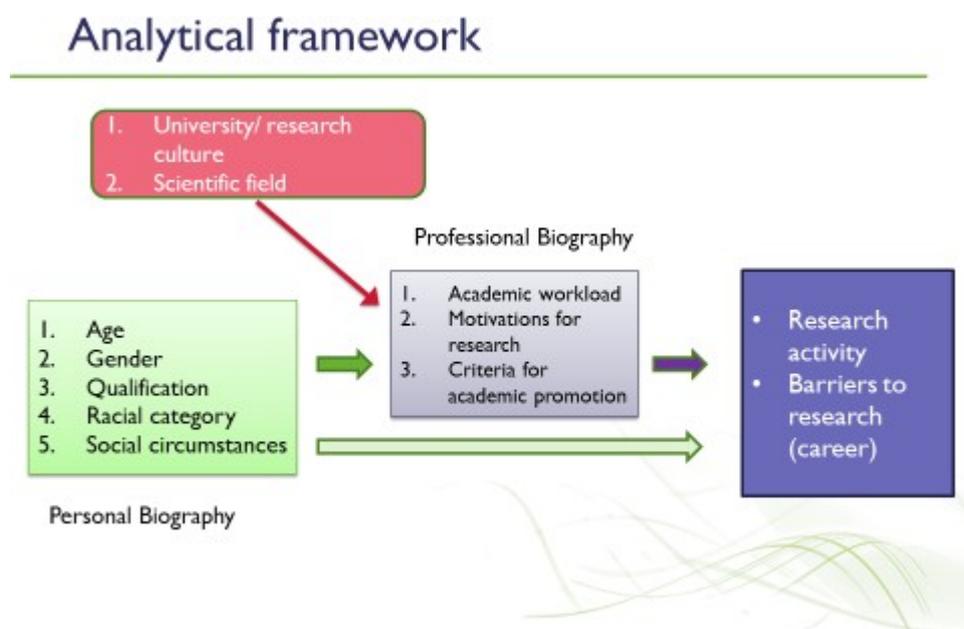


Figure 1: Analytical framework for analysis of survey data

There are two main 'dependent' variables in the framework:

- Research activity (How active the individual is in conducting research?)
- Perceived (experienced) barriers to a research career (Which barriers to their research careers are the most salient?)

We theorised that the degree of research activity and perceived barriers to research would typically be affected/influenced by three sets of (independent) variables.

- Variables related to the personal biography of the individual: the personal identity of the individual.

- Variables related to the professional (academic) biography of the individual: the academic identity of the individual.
- Variables related to the environment or ecology of the individual: the institutional and disciplinary environments.

In the remainder of this section of the report, we first present the survey and interview methodologies (Chapter 7), followed by four chapters to presenting and discuss the results from the survey and interviews thematically.

Chapter 7: Survey and interview methodology

Chapter 8: Motivations for research

Chapter 9: Criteria for academic promotion

Chapter 10: Barriers to a research career



Chapter 7: Survey and interview methodology

The second main aim of the study was “to investigate the environmental context, enablers and impediments to increasing the number of emerging researchers at systemic, institutional and individual levels”.

As agreed with USAf this question would be addressed through the distribution of a web-based survey to SA academic staff. The negotiations between USAf and the respective universities resulted in the decision that CREST would provide each university with a dedicated link to the online questionnaire (housed on a server at SU), but that each individual university would distribute the request to participate in the survey by themselves. All but one university (i.e. SFU) agreed to participate in the survey.

7.1 The survey design and methodology

The requests to the universities to launch the survey were sent out during the week of the 15th of May 2017. The responses to this request were variable. Some universities responded quite quickly, others took a long time to launch. The respective launch times per university were captured in Table 7.1 below.

Table 7.1: Survey launch dates per university

Name of institution	Commencement date
Cape Peninsula University of Technology	26-Jun-17
Central University of Technology	23-May-17
Durban University of Technology	14-Jun-17
Mangosuthu University of Technology	19-May-17
Nelson Mandela University	22-May-17
North West University	1-Jul-2017
Rhodes University	6-Jun-17
Sol Plaatje University	22-Jun-17
Stellenbosch University	19-May-17
Tshwane University of Technology	1-Jun-17
University of Cape Town	13-Jun-17
University of Fort Hare	6-Jun-17
University of Johannesburg	14-Jun-17
University of Kwazulu-Natal	26-Jun-17
University of Limpopo	14-Jun-17

University of Mpumalanga	3-Jun-17
University of Pretoria	23-May-17
University of South Africa	14-Jun-17
University of the Free State	13-Jun-17
University of the Western Cape	1-Jun-17
University of the Witwatersrand	23-May-17
University of Venda	31-May-17
University of Zululand	23-May-17
Vaal University of Technology	1-Jun-17
Walter Sisulu University	22-Jun-17

As is evident from the table, universities launched between the 19th of May and as late as the 1st of July. A few technical problems were encountered, but their impact was negligible. However, it is clear that some universities chose a dissemination strategy that was not optimal to produce acceptable response rates. It is also worth pointing out that some universities disseminated the email request only to the lecturer and senior lecturer ranks of staff (as in original request), whilst other universities chose to distribute the request to all academic staff (and in a few cases even to all staff, including research support staff).

CREST monitored the response rate of each university to the survey on a daily basis. An update of the institutional response rates was sent again to all university contact persons during the first week of June. This had a positive effect as many universities then sent out a first set of reminders to staff to complete the survey. CREST throughout remained in contact with some universities as queries were received and calls for support were recorded. The individual university response rates were summarised in Table 7.2 below (we present responses per week to indicate progress over time).

Table 7.2: Response rates by university

Name of institution	E-mails distributed	Responses: by 29 May	Responses: by 6 June	Responses: by 31 July	Responses: 25 Aug	Responses: by 1 Sept	Responses: by 15 Sept	Response rate
CPUT				114	115	115	115	
CUT	229		1	41	41	41	41	17,9%
DUT				91	91	91	92	
MUT	100	4	5	5	5	5	5	5,0%
NMU	1000	23	25	135	136	136	136	13,6%
NWU	1450			28	46	46	46	3,2%
Rhodes	400		31	83	83	83	83	20,8%
SPU				32	33	33	33	

SU	2091	174	350	436	437	437	437	20,9%
TUT	738		53	65	65	65	66	8,9%
UCT	1880			352	360	362	362	19,3%
UFH			19	31	31	31	31	
UJ	900			107	297	297	297	33,0%
UKZN	1200			184	188	188	188	15,7%
UL				43	43	43	43	
UMP	103		18	61	63	63	63	61,2%
UP	1563	182	305	323	323	323	323	20,7%
Unisa	1781		1	83	83	107	108	6,1%
UFS	960			148	148	148	148	15,4%
UWC	873		72	148	183	184	185	21,2%
Wits	734	90	170	281	283	283	283	38,6%
UNIVEN			23	25	25	25	25	
UZULU	290	24	38	50	50	50	50	17,2%
VUT	100		8	8	26	26	27	27,0%
WSU				73	73	73	73	
TOTAL	16392	497	1119	2947	3228	3255	3260	

After further cleaning of the survey responses the 3 260 questionnaires were reduced (because of some incomplete questionnaires) to 3 210 usable questionnaires. The statistical analyses were conducted on this dataset.

Some universities restricted the survey to lecturers and senior lecturers, others sent it out to all academic staff. The result is that we received completed questionnaires from significant numbers of academics in the professorial ranks (Figure 7.1 below). The majority of respondents (61%) were still from the two targeted ranks.

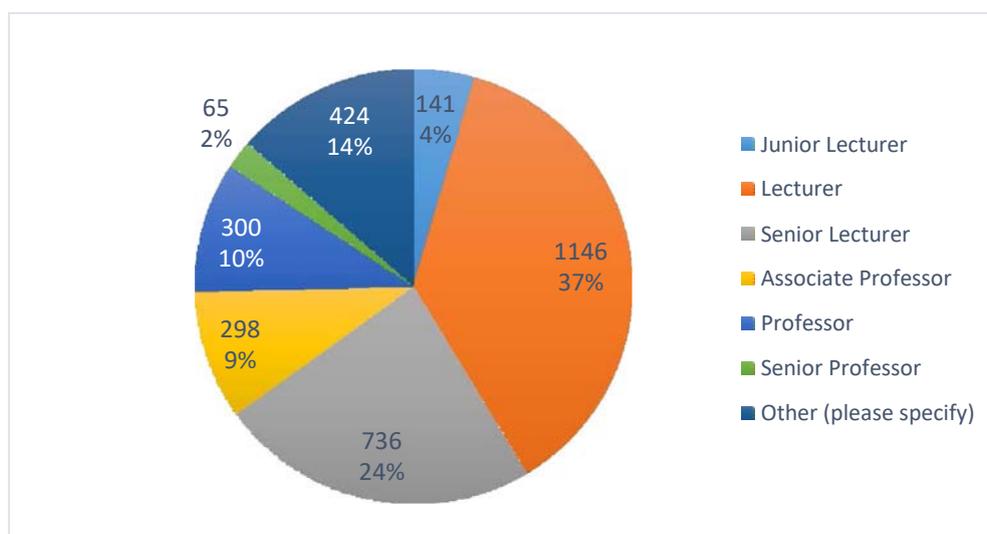


Figure 7.1: Sample distribution by rank

A comparison between the national academic population (according to the HEMIS data) and our realised sample revealed the following:

- The sample was representative of the population in terms of average age of lecturer/senior lecturer
- Women lecturers (8%) and senior lecturers (14%) were slightly better represented in our sample
- Lecturers and senior lecturers with doctorates were much better represented in our sample at 16% and 18% more respectively
- As far as race is concerned, white lecturers and senior lecturers are slightly better represented in the sample at 11% and 8% respectively. Conversely, African lecturers (12%) and senior lecturers (8%) were under-represented in the sample.

As a result of these comparisons, we decided to weigh the data in our sample dataset to ensure that we could generalise our findings to the total population of all academics. We used four weighting variables: gender, race, age and rank of respondent.

7.2 Getting terminological clarity

In our review of the different national and institutional policy and strategy documents in Part One we showed that there is widespread disagreement (even confusion) about key terms. Different words are used (Emerging scholars/Early career academics/New generation scholars) with very different meanings.

Emerging scholars are students in their final year of undergraduate study, or are Honours or Master's students or graduates, whose academic performance is strong. The NESP recognises the potential of this group of students or graduates and seeks to actively direct some of that potential towards a career in academia, through making structured, attractive prospects and opportunities visible and available to them. (DHET: Staffing South Africa's Universities Framework, 2015)

Emerging researchers: This group is constituted primarily of persons younger than 40 years who, although employed as academics or researchers in knowledge-based institutions, have not yet obtained their doctoral degrees and/or established themselves as active researchers. (DST-USAF Terms of Reference, 2016)

Working with the DVCs of Research at HEIs, the DST has unearthed the ‘silent majority’ in the higher education sector. This ‘silent majority’ belongs to the emerging researchers’ pipeline and appears to largely comprise lecturers and senior lecturers in our universities. (DST-USAF Terms of Reference, 2016)

An operational measure of an ‘emerging scholar’

Based on the DST/USAF text, an operational definition of ‘emerging scholar’ would include those who are:

- Mostly 40 years and younger (AGE),
- would typically not have their PhDs yet (QUALIFICATION),
- would typically not be “research active” (MEASURE OF RESEARCH ACTIVITY), and
- would most likely belong to the rank of lecturer or senior lecturer.

Based on the results of our desktop analysis, and taking into account the specific ToR for this study, we decided to adopt the following approach in the analysis of our survey data:

3. We would agree that confining the rank criterion to all non-professorial ranks should be a defining criterion
4. In order to give some meaning to “emerging” an age criterion is equally essential. Whether it should be 40 or 45 may need to be further investigated (there is probably a field-dependency here that needs to be looked at, as well as labour market dynamics). We selected 40 as the cut-off criterion.

We selected all respondents in our sample that met these two criteria, and we ended up with 1174 individuals.

Two other issues of contestation remained: whether having a PhD or not is distinctive in defining an ‘emerging scholar’. One could certainly argue that anyone who is called a ‘scholar’ should have a PhD. However, the USAF ToR defines an ‘emerging scholar’ as one without a PhD. We decided to conform to this definition and rather divide the cohort of lecturers and senior lecturers into two groups: those with a PHD and those without.

The second area of contestation concerns the notion of being ‘research active or not’. Again, in the ToR it was suggested that one should at least make a distinction along these lines. How one defines ‘research active’ was evidently not straightforward. We elaborate on our approach in this regard.

An operational measure of “research activity”

Survey participants were asked to indicate whether they had, in the previous five years, engaged in any of a number of research related activities. Table 7.3 presents a list of the statements.

Table 7.3: List of items in the index of research activity

In the past five years I have ...	Yes	No	N/A
Participated in one (or more) research project(s)	1	0	0
Been the principal investigator of a research project	1	0	0
Completed a research-based qualification	1	0	0
Published one (or more) journal article(s) in DHET approved journals	1	0	0
Published one (or more) peer-reviewed book(s)	1	0	0
Published one (or more) peer-reviewed book chapter(s)	1	0	0
Presented research at one (or more) conference(s)	1	0	0
Supervised the research of one (or more) honours students	1	0	0
Supervised the research of one (or more) master’s students	1	0	0
Supervised the research of one (or more) doctoral students	1	0	0
Successfully applied for NRF funding	1	0	0
Unsuccessfully applied for NRF funding	1	0	0
Successfully applied for other research funding (other agencies besides the NRF, own university, international donor)	1	0	0
Unsuccessfully applied for other research funding	1	0	0
Completed performances, productions or exhibitions arising from creative work in my field	1	0	0
Completed plans, designs, patents or software arising from my research or professional activity in my field	1	0	0
Advised on the research projects of colleagues	1	0	0
Peer-reviewed one (or more) journal or book contribution(s)	1	0	0

Based on this table, we subsequently decided to construct a simple Research Activity Index (RAI) using the most appropriate statements that would likely apply to all respondents (highlighted in blue). We decided to give each positive response to a statement the same weight (1) and simply added all the positive responses of a respondent to a figure out of maximum of 12.

We subsequently undertook a wide range of analyses to test the validity of the RAI.

Table 7.4: Scores on the RAI correlate with rank of the respondent

Current Rank	RAI score	No of cases	Std. Deviation
Junior Lecturer	3.80	117	2.130
Lecturer	5.54	1022	2.336
Senior Lecturer	7.01	678	2.433
Associate Professor	8.57	289	1.813
Professor	8.98	293	1.895
Senior Professor	9.11	61	1.572

Table 7.5: Scores on the RAI correlate with having a PhD or not

Whether highest qualification is a PhD	Mean	N	Std. Deviation
PhD	7.89	1685	2.208
Not PhD	4.50	1121	2.158

Table 7.6: Scores on the RAI do not correlate with age of respondent

Age cohort with 40 cut-off point	Mean score on RAI	N	Std. Deviation
40 years and younger	6.11	1058	2.652
41 years and older	6.91	1568	2.724
Total	6.59	2626	2.724

In a sense these correlations confirm the DST/USAF point of departure when defining the silent majority, viz. they are typically a lecturer or senior lecturer, do not yet have a PhD, and is research inactive. Applying the age criterion (40 years and younger) then becomes a further limiting criterion.

Bivariate relationships (between RAI and rank, or between RAI and age, or between RAI and qualification) may mask interaction effects. CHAID is a tool to highlight such possible interaction effects when your dependent variable (in this using the mid-point of 6 on the RAI to create two subgroups) is a categorical variable. The CHAID analyses included the three variables above + Gender + Race of respondents as independent variables. The results showed that “having a PhD” is the most important predictor variable of being research active or not.

Table 7.7: Best predictors of scores on RAI

	7 and higher on Activity Index	6 and lower on Activity Index	N
PhD Prof	90.3	9.7	621
PhD and 40 years and younger, <missing>	80.1	19.9	206
PhD	74.9	25.1	1685
PhD Snr Lecturer	72.9	27.1	513
PhD and 41 years and older	68.1	31.9	307
PhD Lecturer/Jnr Lecturer	59.3	40.7	551
no PhD and 41 years and older, <missing>	50.5	49.5	277
no PhD and 40 years and younger, <missing>	31.8	68.2	274
no PhD (Prof/Snr Lecturer/Lecturer)	21.8	78.2	839
no PhD	18.7	81.3	1121
no PhD (Jnr Lecturer)	9.6	90.4	282

Research activity and scientific field

Table 7.8.1: Averages on index (Population)

	N	Minimum	Maximum	Mean	Std. Deviation	Median
Natural & agricultural sciences	637	1	18	9.45	3.247	10.00
Engineering & applied technologies	250	1	15	9.21	3.519	10.00
Health sciences	506	1	16	9.13	3.173	9.64
Humanities	407	1	16	8.10	3.448	9.00
Social sciences	1311	1	17	7.80	3.327	8.00
Total	3111	1	18	8.51	3.393	9.00

Table 7.8.2: Averages on index (Emerging young scholars)

	N	Minimum	Maximum	Mean	Std. Deviation	Median
Natural & agricultural sciences	24	1	9	6.01	1.872	6
Engineering & applied technologies	17	1	10	5.53	2.223	6
Health sciences	22	2	10	6.84	1.952	7
Humanities	23	1	9	5.54	2.101	6
Social sciences	82	1	10	5.93	2.113	6
Total	167	1	10	5.97	2.080	6

Table 7.9.1: Individual items (Population)

ITEM	Natural and agricultural sciences	Engineering & applied technologies	Health sciences	Humanities	Social sciences	Total
Participated in one (or more) research project(s)	90%	91%	95%	79%	84%	87%
Presented research at one (or more) conference(s)	89%	80%	87%	88%	82%	85%
Advised on the research projects of colleagues	76%	72%	83%	64%	66%	71%
Published one (or more) journal article(s) in DHET approved journals	79%	68%	81%	68%	63%	70%
Supervised the research of one (or more) masters students	72%	79%	78%	64%	65%	70%
Peer-reviewed one (or more) journal or book contribution(s)	72%	67%	71%	67%	60%	66%
Been the principal investigator of a research project	72%	73%	72%	56%	57%	63%
Supervised the research of one (or more) honours students	69%	65%	58%	60%	59%	61%
Completed a research-based qualification	43%	49%	45%	39%	46%	45%
Successfully applied for other research funding (other agencies besides the NRF, own university, international donor)	48%	55%	51%	44%	35%	43%
Supervised the research of one (or more) doctoral students	47%	40%	43%	38%	30%	37%
Published one (or more) peer-reviewed book chapter(s)	29%	30%	31%	47%	37%	35%
Successfully applied for NRF funding	53%	32%	35%	26%	23%	32%
Unsuccessfully applied for other research funding	25%	29%	35%	19%	19%	24%
Unsuccessfully applied for NRF funding	31%	29%	21%	15%	17%	21%
Completed performances, productions or exhibitions arising from creative work in my field	17%	16%	12%	23%	14%	16%
Published one (or more) peer-reviewed book(s)	10%	10%	10%	24%	12%	13%
Completed plans, designs, patents or software arising from my research or professional activity in my field	17%	26%	11%	4%	7%	11%

Table 7.9.2: Individual items (Emerging young scholars)

ITEM	Natural and agricultural sciences	Engineering & applied technologies	Health sciences	Humanities	Social sciences	Total
Participated in one (or more) research project(s)	96%	82%	100%	86%	89%	90%
Presented research at one (or more) conference(s)	79%	69%	68%	82%	73%	74%
Advised on the research projects of colleagues	71%	53%	81%	59%	60%	63%
Completed plans, designs, patents or software arising from my research or professional activity in my field	8%	7%	9%	9%	4%	6%
Completed a research-based qualification	57%	53%	44%	39%	60%	54%
Been the principal investigator of a research project	63%	35%	55%	35%	52%	50%
Published one (or more) journal article(s) in DHET approved journals	38%	44%	50%	44%	55%	49%
Supervised the research of one (or more) honours students	44%	81%	50%	48%	45%	49%
Supervised the research of one (or more) masters students	29%	53%	68%	26%	43%	43%
Peer-reviewed one (or more) journal or book contribution(s)	42%	40%	48%	30%	35%	37%
Published one (or more) peer-reviewed book(s)	8%	6%	5%		3%	4%
Successfully applied for other research funding (other agencies besides the NRF, own university, international donor)	28%	13%	23%	22%	18%	20%
Successfully applied for NRF funding	21%	13%	13%	9%	14%	14%
Unsuccessfully applied for NRF funding	4%	25%	9%	9%	14%	12%
Unsuccessfully applied for other research funding	13%		27%	13%	7%	11%
Completed performances, productions or exhibitions arising from creative work in my field	13%		27%	13%	7%	11%
Published one (or more) peer-reviewed book chapter(s)	4%	13%	9%	22%	10%	11%
Supervised the research of one (or more) doctoral students			5%			1%

Based on these results, we finally decided to create five subgroups from our survey responses.

- Group A: The “emerging young scholars” (Inactive, younger lecturers/snr lecturers without PhD)
- Group B: “The active young scholars”
- Group C: “The active older scholars” (lecturers and senior lecturers only)
- Group D: “The under-qualified older scholars”

In addition, and for comparative purposes, we decided to include a fifth group: all the professors (associate professors, professors and senior professors) who also completed the survey. As shown in the table below, more than 90% of this group are older than 40 and are in possession of PhD. As we saw above, 90% of these also scored 7 or higher on the RAI. One could therefore argue that this group are the established, research active subgroup in our survey and hence could use them as the ‘benchmarking’ group in further analyses.

Group E: “Established, active scholars” (professorate)

We therefore worked with five groups

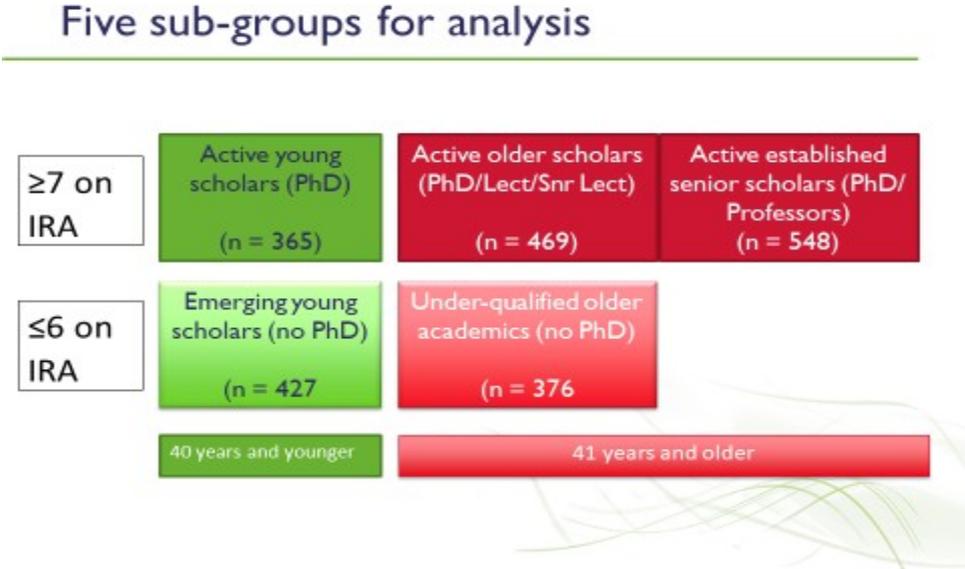


Figure 7: Five sub-groups for analysis

Hypotheses

By using this five-fold grouping of our sample, one would predict the following:

1. There would be differential assessments of the barriers to research by the five groups.
2. The 'research active' groups (B, C and E) would have different ratings on the "motivation for or reasons" for research.
3. There would be interesting correlations between these five groupings and the breakdown of their workload.
4. It is not clear what to expect regarding the criteria for promotion. In theory there should not be any differences between these groupings as these are general criteria that apply to all staff. However, it would not be a surprise if the "research active" groupings systematically rate some of the items in Q11 higher (such as publications) than other items (such as supervision/ teaching). It is important that the items around "applying for grants from the NRF" and "applying for other grants" are particularly relevant in this context.

A further consideration is how other variables such as 'gender', 'field', 'university cluster' and 'race' would enter into these equations?

7.3 The profile of emerging young scholars

In the remainder of the chapters in this report we discuss the responses of the emerging young scholars (Group A), often in comparison with the other four groups. However, it is important to get a sense whether and to what extent this group differs from the total sample (all categories, including emerging scholars). We compare this group with the sample regarding the following variables below:

1. Scientific field
2. Highest qualification by field
3. Average number of years after obtaining highest qualification
4. Proportion of respondents working in field of highest qualification
5. Rank and scientific field cross-tabulated
6. Average years in current rank
7. Percentage enrolled for further studies
8. Chronological age
9. Proportion SA nationals
10. University affiliation.

Table 7.10: Comparison by field

	Population		Emerging young scholars	
	N	%	N	%
Social sciences	1347	42	82	49
Natural and agricultural sciences	654	21	24	14
Health sciences	511	16	22	13
Humanities	415	13	23	14
Engineering & applied technologies	260	8	82	10
Total	3187	100	167	100

Table 7.11.1: Highest qualification by field (Population)

	Natural & agricultural sciences	Engineering & applied technologies	Health sciences	Humanities	Social sciences	Total
N	649	248	508	410	1344	3159
PhD	77%	57%	56%	58%	48%	57%
Masters	19%	38%	40%	38%	46%	38%
Hons / 4-year Bachelor	4%	5%	4%	3%	6%	5%

Table 7.11.2: Highest qualification by field (Emerging young scholars)

	Natural & agricultural sciences	Engineering & applied technologies	Health sciences	Humanities	Social sciences	Total
N	23	17	22	21	82	165
Masters	87%	100%	91%	91%	85%	88.5%
Hons / 4-year Bachelor	13%	0%	9%	9.5%	14%	11.5%

Table 7.12.1: Average years since highest qualification (Population)

	N	Minimum	Maximum	Mean	Std. Deviation	Median
Natural & agricultural sciences	654	0	51	9.64	8.876	7.00
Engineering & applied technologies	260	0	49	9.31	9.061	6.00
Health sciences	511	0	44	9.44	8.897	6.82
Humanities	415	0	46	9.51	7.992	7.00
Social sciences	1347	0	45	9.11	8.456	6.00
Total	3187	0	51	9.34	8.605	7.00

Table 7.12.2: Average years since highest qualification (Emerging young scholars)

	N	Minimum	Maximum	Mean	Std. Deviation	Median
Natural & agricultural sciences	24	0	21	4.86	4.589	4.00
Engineering & applied technologies	17	0	12	4.70	2.658	5.00
Health sciences	22	0	16	6.63	4.495	4.92
Humanities	23	0	16	5.57	3.407	6.00
Social sciences	82	0	23	4.69	3.701	4.00
Total	167	0	23	5.09	3.839	4.00

Table 7.13: Percentage working in field in which highest qualification was received

	Natural & agricultural sciences	Engineering & applied technologies	Health sciences	Humanities	Social sciences	Total
Population	89%	95%	92%	87%	87%	89%
Emerging young scholars	88%	88%	82%	87%	89%	87%

Table 7.14.1: Rank by field (Population)

	Natural & agricultural sciences	Engineering & applied technologies	Health sciences	Humanities	Social sciences	Total
N	575	239	444	393	1174	2825
Junior Lecturer	3%	5%	4%	4%	3%	5%
Lecturer	47%	36%	46%	47%	49%	47%
Senior Lecturer	29%	38%	24%	30%	34%	31%
Professor	21%	21%	26%	19%	14%	19%

Table 7.14.2: Rank by field (Emerging young scholars)

	Natural & agricultural sciences	Engineering & applied technologies	Health sciences	Humanities	Social sciences	Total
N	24	17	22	23	83	169
Lecturer	92%	100%	91%	96%	77%	86%
Senior Lecturer	8%	0%	9%	4%	23%	14%

Table 7.15.1: Average years in current rank (Population)

	N	Minimum	Maximum	Mean	Std. Deviation	Median
Natural & agricultural sciences	646	0	45	5.17	5.858	3
Engineering & applied technologies	260	0	30	5.00	5.230	3
Health sciences	510	0	36	5.30	5.823	3
Humanities	414	0	30	6.04	6.433	3
Social sciences	1345	0	35	6.26	6.578	4
Total	3174	0	45	5.75	6.215	4

Table 7.15.2: Average years in current rank (Emerging young scholars)

	N	Minimum	Maximum	Mean	Std. Deviation	Median
Natural & agricultural sciences	24	0	16	3.24	3.482	2.00
Engineering & applied technologies	17	0	12	2.65	2.891	2.00
Health sciences	22	0	11	4.13	3.355	3.27
Humanities	23	0	16	3.25	3.374	2.00
Social sciences	82	0	16	3.02	3.257	2.00
Total	167	0	16	3.19	3.270	2.00

Table 7.16: Percentage enrolled for a post-graduate degree

	Natural & agricultural sciences	Engineering & applied technologies	Health sciences	Humanities	Social sciences	Total
Population	18%	32%	27%	30%	39%	31%
Emerging young scholars	63%	94%	68%	70%	57%	65%

Table 7.17.1: Average chronological age (Population)

	N	Minimum	Maximum	Mean	Std. Deviation	Median
Natural & agricultural sciences	633	24	80	43.34	10.286	41
Engineering & applied technologies	253	23	69	44.60	10.868	43
Health sciences	504	25	76	44.89	10.025	43
Humanities	401	22	72	46.08	10.621	45
Social sciences	1324	23	77	46.55	9.890	46
Total	3115	22	80	45.41	10.241	44

Table 7.17.2: Average chronological age (Emerging young scholars)

	N	Minimum	Maximum	Mean	Std. Deviation	Median
Natural & agricultural sciences	24	25	40	33.47	4.416	33.03
Engineering & applied technologies	17	25	40	32.90	4.349	32.00
Health sciences	22	26	40	35.40	3.324	36.00
Humanities	23	22	40	32.69	4.909	32.52
Social sciences	82	25	40	32.88	3.612	33.00
Total	167	22	40	33.27	4.014	33.00

Table 7.18: Percentage South African nationals

	Natural & agricultural sciences	Engineering & applied technologies	Health sciences	Humanities	Social sciences	Total
Population	73%	74%	91%	85%	81%	81%
Emerging young scholars	78%	81%	95%	100%	90%	90%

Table 7.19.1: University affiliation - DHET classification (Population)

	Natural & agricultural sciences	Engineering & applied technologies	Health sciences	Humanities	Social sciences	Total
N	654	260	511	415	1341	3181
Research universities	68%	51%	82%	75%	61%	67%
Universities of Technology	10%	19%	9%	11%	15%	13%
Comprehensive universities	22%	30%	9%	14%	25%	21%

Table 7.19.2: University affiliation - DHET classification (Emerging young scholars)

	Natural & agricultural sciences	Engineering & applied technologies	Health sciences	Humanities	Social sciences	Total
N	24	16	22	23	82	167
Research universities	50%	81%	68%	52%	56%	59%
Universities of Technology	21%	6%	14%	22%	15%	16%
Comprehensive universities	29%	13%	18%	26%	29%	26%

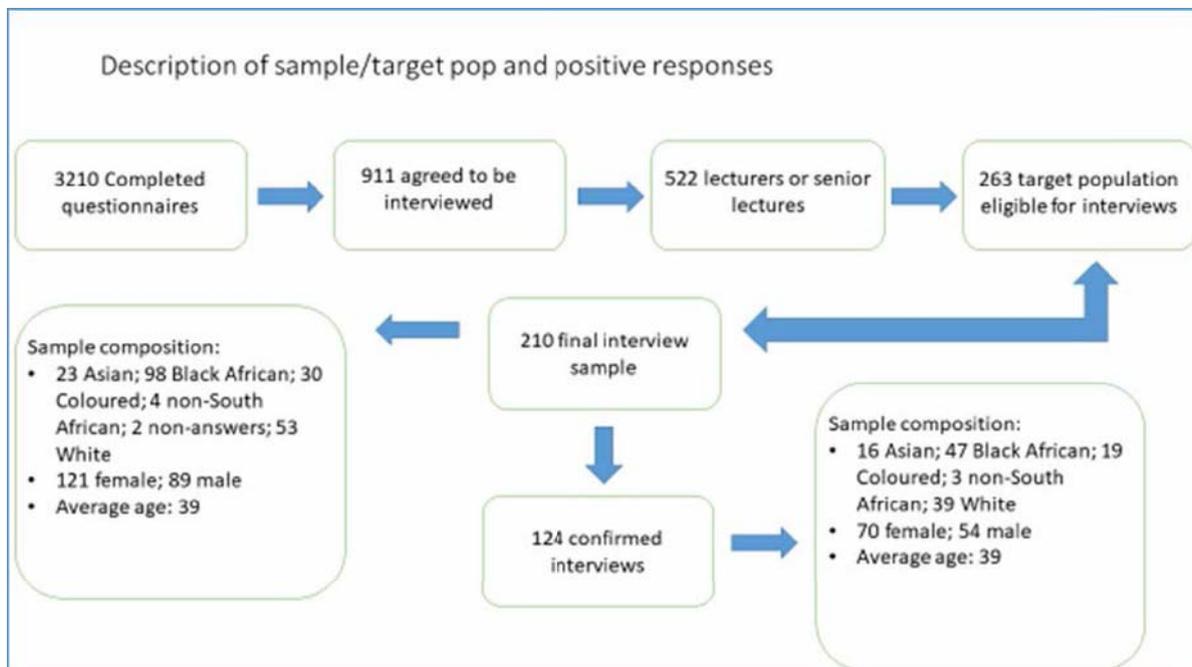
7.4 The methodology of the qualitative interviews

Although not included in the original proposal that was submitted by CREST to USAF, we were requested at the March 2017 steering committee meeting to include, as the final stage of the study, a set of individual in-depth interviews. CREST agreed to this request and indicated that it would aim for a number of approximately 150 interviews.

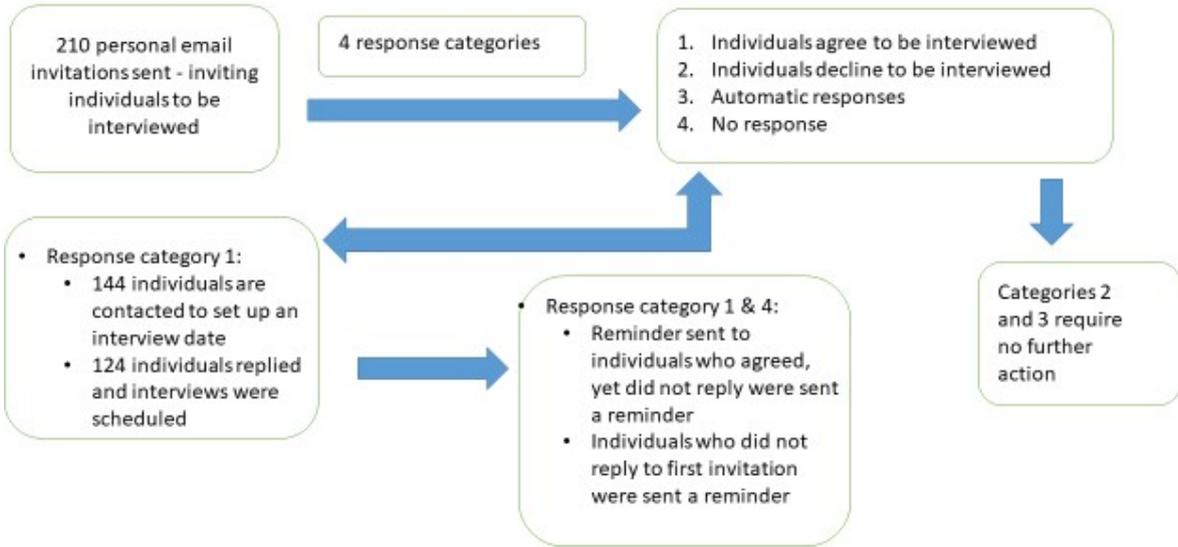
It is important to emphasise that these interviews were not stand-alone interviews which would be based on a standard interview schedule template. Our methodology for this component involved the following decision steps:

1. Based on the final number of completed questionnaires by the close of the survey date (15 September), we identified those individuals that were eligible to be included in the sample of possible interviewees. This selection involved the following steps: (a) we first selected those lecturers and senior lecturers that had indicated that they were willing to be interviewed (Note: they have in fact thereby given their informed consent to be part of the interview phase), (b) we then selected two subsamples of “Lecturers to be interviewed” and “Senior lecturers to be interviewed” proportionate to size in the HE sector, (c) we finally purposefully selected potential interviewees on the basis of institutional affiliation, race, gender, age and field.
2. Based on this process we then generated individual profiles derived from their responses to the survey questions. The end result was that each interview schedule would be unique.
3. The focus in these interviews was threefold: (a) interviewees were asked to elaborate on their specific responses to the survey as well as any qualitative comments they had made, (b) interviewees were asked to explain and indicate the reasons for their responses, and (c) interviews closed by asking interviewees to suggest/propose specific courses of actions that may be to the advantage of emerging scholars.

4. A team of five CREST researchers conducted the interviews during October and November under the supervision of Prof Mouton. Standard good practice in interviewing was followed. All interviews were audiotaped and transcribed by an outsourced organisation in Cape Town.
5. Here is a summary of decisions/milestones at each stage of the process:
 1. 3210 completed questionnaires
 2. 911 respondents indicated their availability to be interviewed
 3. 522 lectures and senior lecturers (selected from group 2)
 4. 263 target population/eligible for interviews (selected from group 3) (criteria related to qualitative comments made, over-selection of younger and black and female respondents and taking into consideration scientific field)
 5. 210 on the final list of interviewees were invited to participated in interviews
 - i. 23 Asians; 98 black Africans; 30 coloureds; 4 non-south Africans; 53 white; 2 non-answers
 - ii. 121 female; 89 male
 - iii. Average age: 39
 6. 124 confirmed interview appointments
 - i. 16 Asians; 47 black Africans; 19 coloured; 3 non-South Africans; 39 whites
 - ii. 70 females; 54 males
 - iii. Average age 39



Interview invitation process - visualization



Chapter 8: Motivations for research

One of the objectives of the survey was to ascertain what motivates emerging scholars to conduct research. We therefore posed the following question to all respondents: To what extent are you motivated by the following to do research? Respondents could select between the same four response options used to measure barriers to research (i.e. To a large extent, To some extent, Not at all, and Not applicable), and again these were collapsed in the same manner to create a binary variable with the categories “At least to some extent” and “Not at all”.

Twenty ‘motivations’ were identified and put to the respondents.

1. Achieve peer recognition
2. Attend conferences
3. Become the best in my field
4. Build an impressive CV
5. Build my expertise
6. Collaborate with others
7. Contribute to my field
8. Contribute to society
9. Create opportunities for others (e.g. students or colleagues)
10. Develop/improve my research skills
11. Experience a sense of achievement from publication
12. Find a better job elsewhere
13. Get a reduced teaching load
14. Get promoted
15. Get respect/admiration from students
16. Increase my income
17. Receive DHET subsidy for publications
18. Satisfy my curiosity
19. Satisfy performance appraisal requirements
20. Stay current in my field.

8.1 High-level results

Very high percentages of academics are at least to some extent motivated by most of the factors with which we presented them. The five most frequently reported motivations (>95%) concern two main dimensions: making a contribution to the ‘greater good’ (a field or society), and (re)generating

one's own expertise, research skills and field-specific knowledge. Creating opportunities for, and collaborating with, others is also a very strong impetus, as is the more inward-directed sense of achievement from publication, and the time-honoured motivation for science, i.e. satisfying one's curiosity.

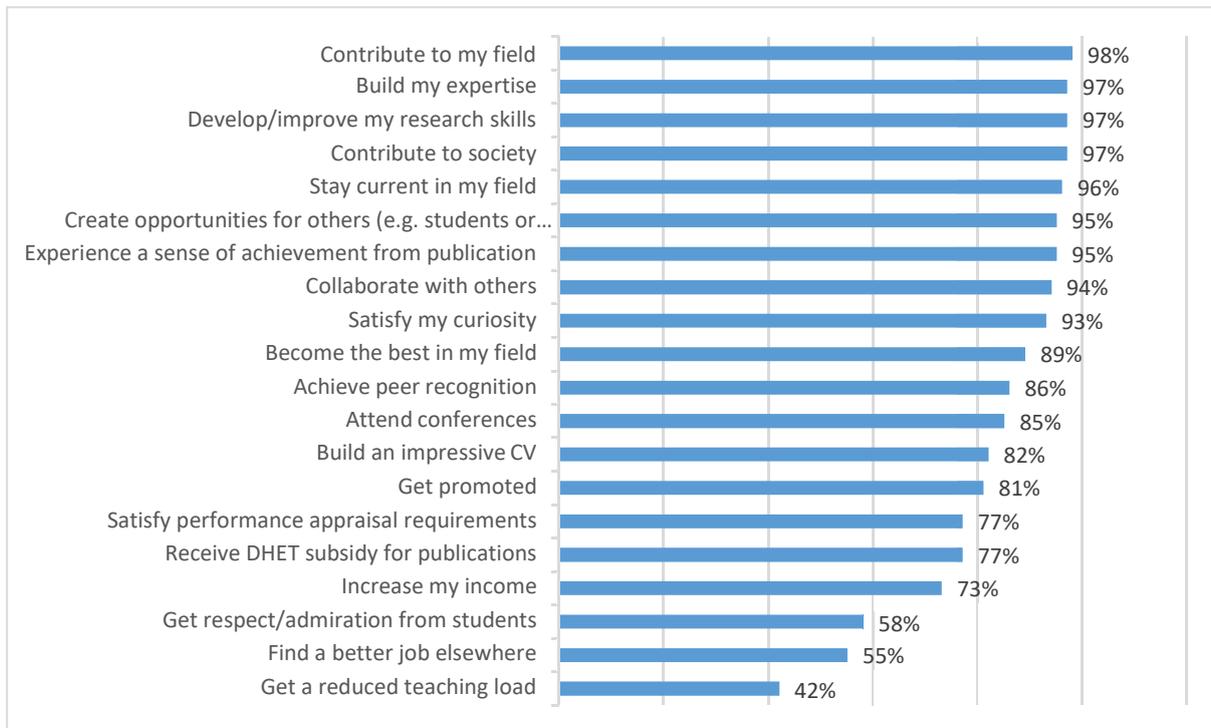


Figure 8.1: Motivations for research: Responses by total sample (in descending order of the motivation rated)

Indicated as a motivation by less than 90%, but still in the relatively high range of 80-89%, are outward-oriented, aspirational motivations (becoming the best in one's field and achieving peer recognition) and activities related to these, i.e. attending conferences (to showcase one's work) and building an impressive CV. Obtaining respect/admiration from students, as opposed to from peers, does not, however, play a motivational role to the same extent (indicated by only 58% of respondents).

With the exception of promotion as a motivation (in 81% of the cases), relatively low percentages of academics (71-79%) are motivated by extrinsic, institutionally defined incentives, especially if they are of a monetary nature, such as DHET subsidy for publication and increases in income. The two motivations least likely to stimulate research activity are those that may be strategically employed by researchers to change an unsatisfactory employment situation, i.e. finding a better job elsewhere (55%) and reducing one's teaching load (42%).

8.2 Sub-group comparisons

Table 8.1: Proportions of groups that indicated that the specific motivation is at least to some extent an incentive to conduct research

ITEM	A – Emerging young scholars	B – Active young scholars	C – Active older scholars	D – Under-qualified older academics	E – Active established senior scholars
Develop/improve my research skills	99%	99%	99%	95%	99%
Build my expertise	99%	98%	99%	95%	99%
Contribute to my field	98%	99%	100%	98%	100%
Contribute to society	97%	96%	98%	96%	98%
Experience a sense of achievement from publication	95%	98%	99%	90%	97%
Stay current in my field	94%	96%	98%	95%	98%
Collaborate with others	92%	95%	99%	88%	97%
Create opportunities for others (e.g. students or colleagues)	91%	98%	98%	91%	99%
Build an impressive CV	91%	91%	91%	71%	81%
Become the best in my field	90%	94%	94%	83%	92%
Satisfy my curiosity	89%	96%	94%	93%	94%
Get promoted	88%	95%	87%	78%	60%
Attend conferences	88%	89%	88%	81%	85%
Achieve peer recognition	88%	91%	91%	79%	92%
Satisfy performance appraisal requirements	85%	86%	82%	74%	65%
Increase my income	83%	86%	71%	70%	53%
Receive DHET subsidy for publications	79%	83%	81%	78%	70%
Find a better job elsewhere	63%	62%	58%	51%	37%
Get respect/admiration from students	57%	67%	64%	52%	61%
Get a reduced teaching load	49%	55%	48%	37%	30%

Salient findings

Finding 1: The results show a large degree of uniformity amongst our respondents regarding a large number of items (highlighted in light blue). In these cases large proportions of all subgroups (>80%) of our study identified many and similar motivations for research. In the graph below the researchers show that equally large percentages of ALL subgroups indicated motivations that constitute the two main dimensions identified above, i.e. making a contribution to the ‘greater good’ (a field or society), and (re)generating their own expertise, research skills and field-specific knowledge. It is clear that these motivations incentivise all academic staff to an equal extent, irrespective of rank and age and qualification.

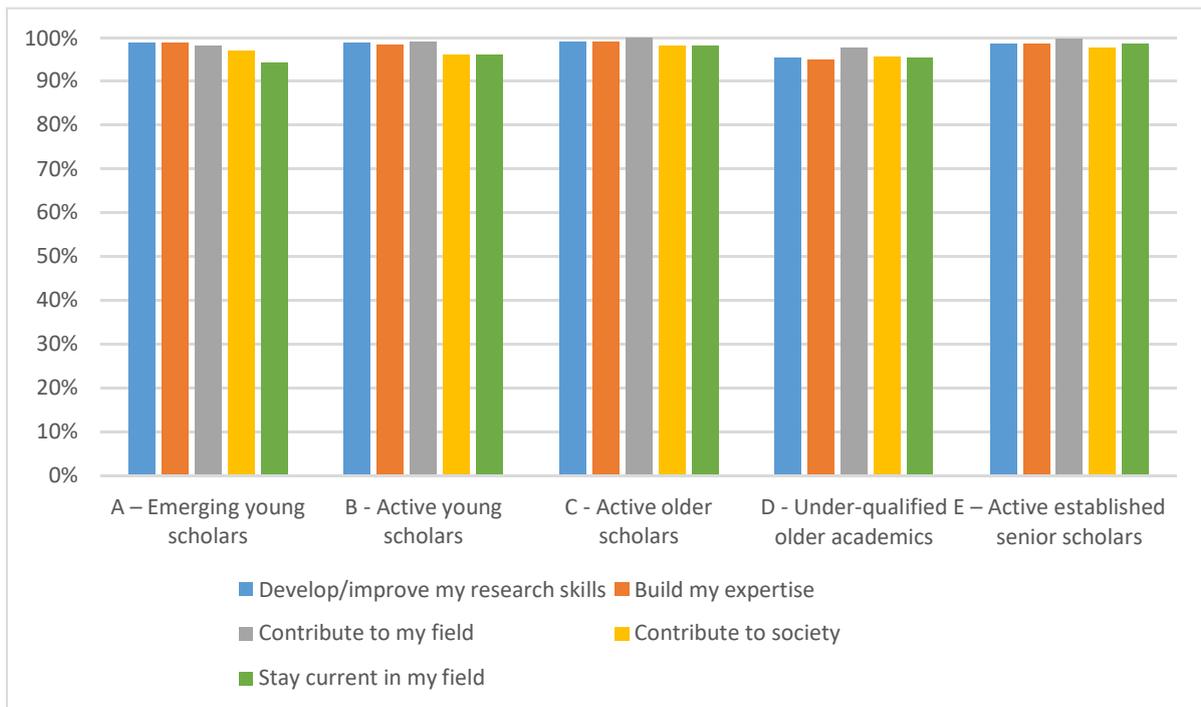


Figure 8.2: The motivations most highly rated by the majority of respondents

Finding 2: At the same time, the graphs also show that there are some difference in the rankings these motivations on some items (highlighted in light green). One of the most notable patterns is that the much larger percentages of the emerging young scholars than the ‘active established senior scholars’ are motivated to conduct research by needs associated with early-career researchers: increasing their income, finding a better job elsewhere, satisfying performance appraisal requirements, and building an impressive CV. On the other hand, established researchers are slightly more driven by the need to satisfy their curiosity, as well as by a desire to create opportunities for others (e.g. students and colleagues) and to collaborate with them.

Finding 3: Two other large differences between the subgroups may also be explained with reference to the various career stages in which the subgroups find themselves. The active established senior scholars are much less likely than the other groups to be motivated by the prospects of promotion and a reduction in their teaching load, but this is especially the case when they are compared to active, young researchers.

Table 8.2.1: Motivations for research disaggregated by scientific field (Population)

ITEM	Natural and agricultural sciences	Engineering & applied technologies	Health sciences	Humanities	Social sciences	Total
Contribute to my field	99%	100%	98%	99%	98%	98%
Build my expertise	98%	98%	97%	97%	98%	98%
Develop/improve my research skills	99%	96%	98%	97%	97%	97%
Contribute to society	97%	98%	97%	95%	97%	97%
Stay current in my field	97%	93%	96%	95%	96%	96%
Create opportunities for others (e.g. students or colleagues)	96%	96%	95%	95%	95%	95%
Experience a sense of achievement from publication	97%	91%	95%	95%	95%	95%
Collaborate with others	95%	98%	96%	88%	95%	95%
Satisfy my curiosity	96%	92%	92%	91%	93%	93%
Become the best in my field	92%	91%	90%	89%	88%	89%
Achieve peer recognition	91%	82%	88%	89%	84%	86%
Attend conferences	87%	82%	83%	85%	85%	85%
Build an impressive CV	87%	78%	79%	83%	83%	83%
Get promoted	85%	77%	80%	78%	81%	81%
Receive DHET subsidy for publications	75%	73%	70%	81%	80%	77%
Satisfy performance appraisal requirements	78%	78%	76%	75%	78%	77%
Increase my income	75%	68%	71%	77%	73%	73%
Get respect/admiration from students	65%	49%	53%	55%	58%	58%
Find a better job elsewhere	55%	37%	54%	60%	58%	55%
Get a reduced teaching load	45%	41%	35%	48%	42%	42%

Table 8.2.2: Motivations for research disaggregated by scientific field (Emerging young scholars)

ITEM	Natural and agricultural sciences	Engineering & applied technologies	Health sciences	Humanities	Social sciences	Total
Develop/improve my research skills	100%	100%	100%	100%	99%	99%
Build my expertise	100%	100%	100%	100%	98%	99%
Contribute to my field	100%	100%	100%	100%	98%	99%
Contribute to society	96%	100%	100%	100%	95%	97%
Experience a sense of achievement from publication	96%	100%	91%	100%	94%	95%
Stay current in my field	92%	93%	95%	100%	94%	95%
Create opportunities for others (e.g. students or colleagues)	96%	75%	95%	96%	92%	92%
Collaborate with others	79%	100%	96%	87%	93%	91%
Build an impressive CV	88%	94%	86%	96%	90%	90%
Become the best in my field	100%	93%	91%	96%	85%	90%
Get promoted	75%	93%	91%	91%	90%	89%
Satisfy my curiosity	88%	93%	86%	91%	88%	89%
Achieve peer recognition	91%	93%	91%	83%	86%	88%
Attend conferences	88%	93%	86%	96%	84%	87%
Satisfy performance appraisal requirements	91%	87%	86%	78%	87%	86%
Increase my income	74%	93%	82%	91%	82%	83%
Receive DHET subsidy for publications	70%	67%	81%	87%	82%	79%
Find a better job elsewhere	61%	56%	68%	74%	60%	63%
Get respect/admiration from students	57%	69%	55%	46%	59%	57%
Get a reduced teaching load	38%	60%	46%	46%	49%	47%

Motivations for research – qualitative responses

Although ‘motivations for research’ was not the primary focus of the interviews, some respondents did elaborate on their motivations to conduct research, both in the form of peer-reviewed articles and PhDs.

A lecturer emphasised his desire to go beyond merely contributing to the body of knowledge and fostered the hope that the completion of his PhD would have a positive impact on national development, whilst a senior lecturer sought to contribute to the body of knowledge.

This goes far beyond me, me getting my PhD, yes, it will look nice when everyone calls me Dr. But the future about this is ... my attempt to contribute into the body of knowledge, into the scientific community ... it’s also about the development of the South African community, the South African economy and everything that comes with it. [M,B,36,L,WSU]

The motivation [to do a PhD] is basically from a gap that I identified ... [M,B,46,SL,UCT]

Others respondents viewed research as essential in order to attend conferences and gain promotion.

So that is why it's become important for me to start doing my research, so that by the time there are conferences, I have a paper to present. [M,B,58,SL,WSU]

So I’m currently at a lecturer level and if I wanted to move to senior lecturer position I would have to provide proof, which I can’t do now because I don’t have extensive research experience. So I’m not even bothering. So therefore it feels like I’m stuck here, but I’ll be stuck in this position until I do something about it which is research related. [F,B,34,L,CPUT]

Some respondents were clearly disappointed by the lack of impact that their research generates and are not motivated to do excellent research.

I was looking at it [obtaining a PhD] as something that I could do to empower my people, my linguistic group ...[.] And then after you finish and then you take your findings to people, the very same people who are supposed to be implementing them, then it was like, oh no, but we cannot do anything. ... I felt like a failure, I would say, at some point. I mean, you graduate. You do everything great, but it's like now your findings are just ... gathering dust. So why do I even publish at some point? You understand. So that's what I felt at the end of the day. [M,B,34,L,CUT]

I don’t want to be the best in my field. I don’t want to be excellent. I just want to do my job and earn my salary so that I can have a life. I’m not aspiring to be a professor in five years. That’s not part of how I see myself going. [F,C,38,L,SU]

Chapter 9: Criteria for promotion

It is generally assumed that academic promotions at most universities are increasingly informed by research performance (increasingly at the expense of performance in teaching and other areas such as university administration and service rendering). As our review in WP1 shows, university incentive and reward systems remain increasingly biased in favour of research (and publication) performance and less so in rewarding other academic activities. We thus included a set of questions aimed at establishing whether this is also the case for our sample (what are the perceptions and experiences in this regard) and specifically whether they would rate the research-related criteria for promotion of being more importantly than the other criteria. In presenting the results below we then also, through the subgroup comparisons, aim to show whether there are significant differences between these ratings amongst the sub groups.

Respondents could select between five response options: Very important; Important; Not really important; Not at all important; and Don't know. Small percentages of respondents (2–5%) indicated that they did not know whether an aspect of research was important. Therefore, for ease of description of the respondents and comparison of the subgroups, response categories were collapsed to create a binary variable consisting of two categories: (1) “Important” (which includes “very important”); and (2) Not important (a combination of “Not really important”, “Not at all important”, and “Don’t know”). Twelve aspects, or what we refer to as research-related “criteria for promotion”, were identified and put to the respondents:

1. Obtaining an NRF rating
2. Applying for NRF research grants or funding
3. Applying for other research grants (industry, government, international donors, etc.)
4. Publications in journals that are indexed in the Web of Science (WoS) of Thomson Reuters ('ISI journals')
5. Publications in South African journals on the DHET list of approved journals
6. Publications in journals with high impact factors
7. Presentations at international conferences
8. Supervising and ‘delivering’ PhD graduates
9. Supervising and ‘delivering’ master’s graduates
10. Teaching undergraduate students
11. Service to the university (e.g. contribution to committees)
12. Stakeholder and community engagement

9.1 High-level results

The majority of academics (two-thirds or more) perceive all of the aspects of research as important criteria for promotion at their university. As the researchers showed in the graph below, supervision of postgraduate (particularly master's students) and publishing in WoS-indexed journals (especially those with high impact factors) emerged as most important, with approximately 9 in 10 respondents identifying these aspects as such. Slightly lower percentages of respondents (80–87%) consider it important to publish in South African journals (on the DHET list of approved journals), to deliver presentations at international conferences, to engage in NRF-related activities (i.e. obtaining a rating and applying for funding from the foundation), and to apply for other (non-NRF) grants. Ranked relatively (and similarly) low within the context of promotion are services to the university, and stakeholder and community engagement, as well as (unsurprisingly) teaching of undergraduate students.

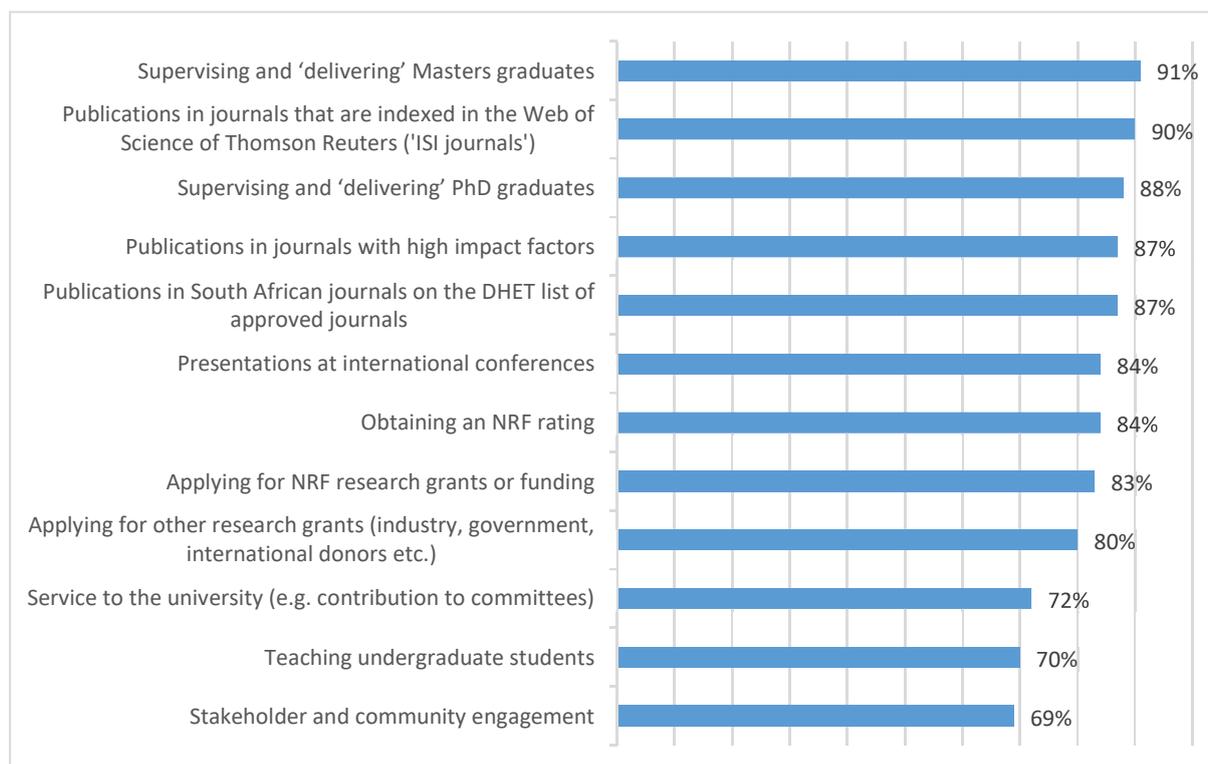


Figure 9.1: Criteria for academic promotion: ratings of importance (total sample)

9.2 Sub-group comparisons

Table 9.1: Proportions of groups that indicated that the specific criterion is (very) important in the context of promotion at their university.

ITEM	A – Emerging young scholars	B - Active young scholars	C - Active older scholars	D - Under-qualified older academics	E – Active established senior scholars
Publications in South African journals on the DHET list of approved journals	91%	83%	91%	93%	77%
Publications in journals with high impact factors	88%	90%	89%	84%	88%
Supervising and 'delivering' master's graduates	87%	95%	95%	88%	96%
Publications in journals that are indexed in the WoS of Thomson Reuters ('ISI journals')	88%	90%	89%	84%	88%
Presentations at international conferences	80%	82%	85%	81%	86%
Obtaining an NRF rating	80%	90%	87%	76%	87%
Applying for NRF research grants or funding	80%	92%	88%	72%	85%
Supervising and 'delivering' PhD graduates	78%	95%	96%	77%	98%
Applying for other research grants (industry, government, international donors etc.)	73%	85%	87%	70%	83%
Teaching undergraduate students	71%	73%	71%	66%	67%
Service to the university (e.g. contribution to committees)	64%	75%	79%	67%	75%
Stakeholder and community engagement	62%	65%	72%	66%	68%
Supervising and 'delivering' PhD graduates	78%	95%	96%	80%	98%
Applying for other research grants (industry, government, international donors etc.)	74%	84%	87%	71%	82%
Publications in journals that are indexed in the WoS of Thomson Reuters ('ISI journals')	85%	96%	94%	80%	96%
Applying for NRF research grants or funding	79%	90%	88%	75%	83%
Obtaining an NRF rating	78%	89%	87%	78%	87%
Supervising and 'delivering' master's graduates	86%	94%	95%	89%	95%
Service to the university (e.g. contribution to committees)	67%	71%	75%	68%	71%
Publications in South African journals on the DHET list of approved journals	90%	78%	88%	93%	74%
Stakeholder and community engagement	67%	59%	64%	68%	63%
Teaching undergraduate students	74%	69%	66%	68%	65%
Presentations at international conferences	81%	80%	82%	83%	83%
Publications in journals with high impact factors	88%	90%	89%	87%	87%

Salient findings

Finding 1: An interesting pattern was observed with regard to half of the criteria, in the form of a similarity between the emerging young scholars and under-qualified, older academics, while the other three groups were similar in holding the opposite view. More specifically, consistently higher percentages of the three PhD-qualified and research-active groups than of their less qualified, less active counterparts perceive six of the twelve criteria as important in the context of promotion. This applies most noticeably with regard to the importance of supervising and 'delivering' PhD graduates, but is also observed, albeit to a lesser extent, for supervising and 'delivering' master's graduates. Further, the difference is quite significant with regard to the importance accorded to applying for non-NRF research grants (e.g. from industry, government, international donors, etc.), service to the university, and obtaining an NRF rating. The pattern also pertains, albeit not as distinctly, to applying for NRF research grants or funding.

These two clusters are distinguished by the highest qualification (holding a PhD) and the extent to which they are research active, but not by age or rank. It makes sense that those who are not eligible to supervise PhD students are less likely to perceive this activity important for their own promotion, but it is less clear why (and contrary to expectations that) this perception also extends to the supervision of master's students. However, consistent with our expectations, the 'research active' groupings rate applying for research grants from either the NRF or elsewhere, and obtaining an NRF rating, higher than their less research active counterparts.

Finding 2: The subgroups are therefore not quite as similar in terms of the importance that they attach to most of the criteria as one would expect (based on the argument that they apply to all staff surveyed). The exceptions include presentations at international conferences and publications in journals with high impact factors, which are clearly perceived by all academic staff, irrespective of rank, age and qualification, as important for promotion.

Table 9.2.1: Criteria for promotion and scientific field (Population)

ITEM	Natural and agricultural sciences	Engineering & applied technologies	Health sciences	Humanities	Social sciences	Total
Supervising and 'delivering' master's graduates	97%	88%	96%	92%	88%	91%
Publications in journals that are indexed in the WoS of Thomson Reuters ('ISI journals')	96%	85%	93%	86%	88%	90%
Supervising and 'delivering' PhD graduates	92%	84%	90%	90%	86%	88%
Publications in journals with high impact factors	90%	84%	91%	80%	88%	87%
Publications in South African journals on the DHET list of approved journals	81%	84%	83%	91%	91%	87%
Obtaining an NRF rating	89%	79%	84%	84%	81%	84%
Presentations at international conferences	87%	79%	90%	83%	82%	84%
Applying for NRF research grants or funding	88%	82%	88%	82%	80%	83%
Applying for other research grants (industry, government, international donors, etc.)	83%	84%	90%	72%	78%	80%
Service to the university (e.g. contribution to committees)	76%	67%	76%	67%	72%	72%
Teaching undergraduate students	77%	70%	74%	68%	66%	70%
Stakeholder and community engagement	71%	62%	74%	64%	69%	69%

Table 9.2.2: Criteria for promotion and scientific field (Emerging young scholars)

ITEM	Natural and agricultural sciences	Engineering & applied technologies	Health sciences	Humanities	Social sciences	Total
Publications in South African journals on the DHET list of approved journals	92%	94%	86%	96%	90%	91%
Publications in journals with high impact factors	88%	80%	100%	87%	87%	88%
Supervising and 'delivering' master's graduates	96%	87%	96%	86%	83%	87%
Publications in journals that are indexed in the WoS of Thomson Reuters ('ISI journals')	91%	100%	96%	82%	82%	87%
Presentations at international conferences	75%	87%	82%	87%	78%	80%
Obtaining an NRF rating	87%	100%	86%	78%	73%	80%

Applying for NRF research grants or funding	79%	100%	86%	87%	72%	80%
Supervising and 'delivering' PhD graduates	83%	86%	82%	83%	73%	78%
Applying for other research grants (industry, government, international donors, etc.)	70%	88%	86%	77%	66%	73%
Teaching undergraduate students	67%	69%	73%	78%	68%	70%
Service to the university (e.g. contribution to committees)	58%	63%	77%	70%	61%	64%
Stakeholder and community engagement	50%	63%	77%	68%	60%	62%

Criteria for promotion

A number of respondents took issue with the unnuanced approach to performance appraisal.

One thing that I think should also be imposed is that the one size fits all model does not work in academia or it's certainly not the most efficient or productive way of managing an institution, so giving everyone the same KPAs, the same targets for everything and it just simply doesn't work. [M,W,29,L,UNISA]

Even for example our KPAs and our whole performance management system, it is completely skewed for sort of young lecturers. The goals are completely ridiculous, meaningless, and no one even, no one reaches it. So we honestly ignore them now. So you would need to have, I don't know, a separate metrics for emerging scholars compared to the profs and maybe a little more transparency on how all the funds are distributed. That would also probably help. So that we could see you know how much funds are going to emerging scholars compared to senior profs, and sort of have some sort of rationale as to where it's going. [M,W,31,L,UP]

... it would also be important to look at where is the staff member at, in terms of their academic development. And allow for that to speak to performance contracting. If I am busy with my PhD, my contracts would focus on my development and progress on that PhD. Once I am done with the PhD, then my contract should look at my publishing, what am I doing after that. Rather than to have a combination of both whilst I am working on my PhD. That creates a conflict. When it suits my line, they want me to publish. When it suits them, they want the PhD progress. And that is creating a lot of havoc within the system. [M,B,45,L,UJ]

And when us, as post-doctorate fellows, I mean, when we had to do our performance review there would be a report from, or some feedback from our mentor so that, you know, maybe if I was finding it difficult to chase my research project or something and it was something, a very specific personal problem or an issue that I was having that I was discussing with my mentor, at least then, when I did my performance review it would appear there so that people would be, like, okay, you know what, we see that you've had issues here, we're going to try to put together an intervention for you to be able to publish properly. [M,A,35,L,UCT]

The rigid focus on research in terms of publication output, was cited as leading to the loss of skilled and passionate educators. Respondents also feel that the performance assessment criteria do not give enough recognition to those lecturers and senior lectures who are passionate about teaching.

So even in terms of, so when we get appointed as lecturers or associate lecturers or senior lecturers, part of your probation is that you published in a DHAT accredited journal, and in our school ... we have had instances where really good lecturers who are excellent teachers, had fantastic lecturer evaluations, but they never made that publication in that three years' time, actually got let go by the university. So I mean, it's quite scary how serious they make the research output, even in terms of, I am lecturer, I want to now jump to senior lecturer, I need to finish my PhD, which I am registered for, and I have got to get 1.5 research units. So the units are affected by if I am a co-author, if I am one of three authors, is the journal registered, is it accredited, is it ISI, is it ISPN, so there is a lot of pressure to actually stay in your position and to move forward in your position, to actually get that research output done basically. [F,A,30,L,WITS]

And not only in South Africa, but internationally as well. For example, with gaining tenure in other countries or getting promotion, it's all dependent on how much you've published irrespective of how much effort and time lecturers have put into their students and I speak specifically from a person who was my lecturer and who is now a colleague and she's an awesome, amazing lecturer who puts in time and effort into students and that didn't allow her to publish as much as she is expected to and so she's been penalised. And I don't think, from speaking to other colleagues at other institutions locally, I don't think that's an uncommon reality. [F,A,48,L,UJ]

... think that the idea of, like, publish or perish, it's false and yes, maybe there needs to be a more differentiated thing for some people who are very good at writing articles. Let them write the articles, but the trouble is that we don't get promotions. We are seen as lesser academics if you haven't got a good publication record. Never mind that you graduated 20 post-graduate students. Then they say oh, you must write the articles out of your students' work. You don't have time, you know, when you have 20 post-graduate students. [F,W,59,SL,DUT]

A senior lecturer felt this current approach could not distinguish the quality of publication and penalised collaboration.

... the PU system, where you have to ... A single author paper gets 60 PUs as a senior lecturer you would need 90 PUs in a year. In my field, it's very seldom that you get a single author paper. So, the minimum ... we're ... four authors, so you divide 60 by four and that's your PU points for the year. You could publish that paper in an international journal like *Nature* with 100 other authors, publishing a paper in *Nature* is like reaching the pinnacle of your career, so it means nothing to the university. [F,W,41,SL,UKZN]

Respondents emphasised that teaching is under-valued in the current performance appraisal system despite its importance with regard to academic day to day activities.

... your teaching comes first, you are first and foremost here to teach, that is the most important thing you do. But then when you come to the actual point where these things are quantified and measured and you are scrutinised, there's ... What is measured is your research progress, what is ... Teaching is something that is very hard to quantify in this ridiculous quantified system that we work in. [M,W,30,L,Unisa]

But I do understand that a certain weighting is given to research outputs. And I think that's one of the problems in academia because firstly, they are teaching institutions and secondly, they are research institutions, in my view. [M,C,44,SL,UCT]

... I don't know if I'll ever be promoted on my teaching portfolio. That uncertainty, but it's deeply problematic. And then knowing the financial situation of my faculty, I know I won't get promoted even if I'm a fantastic teacher. [F,C,38,L,SU]

... teachers aren't valued as much as researchers and that's the sense that I get. But I mean I do find a lot of satisfaction in doing what I'm doing as it is. But I'm not specifically looking at being promoted, I'm hoping that happens overtime for ... That my actions and feedback from students and the quality of what we do, that speaks for itself. That can be used as you know as reasons for considering promotions to the next level, etcetera. I mean, I'm certainly not an administrator and I'll be very weary of being promoted to levels where that becomes my job. I'm talking about managing departments, etcetera, because that is certainly not one of my strengths. [M,C,44,SL,UCT]

... some of my colleagues are amazing teachers or excellent researchers, but are not strong on the other, and that isn't a personal failure at all ... if anything, a strength ... [.]
[M,W,29,L,Unisa]

In some instances this has reportedly resulted in the underutilisation of academic potential with limited opportunities for promotion.

For my performance management on my teaching and administration and whatever, supervision, I score way above. You know, above the average, and almost in excellent. Why can I not apply for a promotion ... if I don't have any papers? So, my teaching is underappreciated. But I am expected to do it. And I am expected to do a lot of it, without thinking that, you know, well, here is a person who actually has ... been doing research since 1996. I have accumulated masses of knowledge. ... We could actually use this person to encourage, and build research capacity. No, you just dumped the teaching, and that is it. You know, so they don't even look at those kinds of things [F,A,45,L,UKZN]

... the strong emphasis on publication at all costs is, means that I can afford to spend very little time on improving my pedagogy. I am instructed by my department – now we come back to my department – that, you know, time that I spend over and above the time that is allocated to me for teaching these courses is a waste of time. [F,W,44,SL,UP]

A lecturer believed that the community engagement component of the KPAs has little to no bearing on promotion.

They have now included it [community engagement] in the promotion criteria at [my university], you cannot be promoted unless you can show that you're involved in some kind of community engagement. But you know, if you are hardly do community engagement or no community engagement, but you've got a publication log of ten pages, they're not going to hold you back from promotion. [F,C,36,L,UWC]

Some respondents noted that certain activities and outputs are not included in the performance appraisal system.

But I am influencing how government is going to spend its budget in the next financial year, around child malnutrition. I'm influencing how employers are going to implement the code of good practice for breastfeeding mothers in their employment, which may change child

mortality, going forward. But that does not have an accolade to it. It does not have a publication rating. It's not going to give me NRF star. [F,C,45,SL,NWU]

So, for example I was featured on national TV. Now, one minute on national TV or radio in fact is equivalent to R12 500 worth of free advertising for the university, you know. And I don't get any benefit for doing that, so you know I do it because I want to spread the message of my work out there, but not ... I'm actually getting penalised for it if I carry on doing it. [F,W,41,SL,UKZN]

Other respondents bemoaned the 'fact' that the promotion criteria are unrealistic.

... they're moving the goal posts so far in terms of promotion that I'll just stay a senior lecturer the rest of my life. You know, ... it's really ... the moment you've got some sort of research output, it's like, sorry now you need more. So, I just ignore that, it's not relevant for me anymore. I just want to do research that's relevant in the market place and they must just leave me and give me time to do that and I'll be happy. [F,W,45,SL,Unisa]

Well, I think the same thing at our university, I mean I've got other colleagues who are not going to apply for promotion because the requirements for the next level are just unrealistic. So, they are happy to remain at the level that they are at, because they meet the requirements at that level and they don't want to go to the next level because it's just completely unrealistic. And having taught at two, three other universities or tertiary education institutions, they are pretty ridiculous requirements [F,W,41,SL,UKZN]

... there is no room for promotion in our current promotion criteria. Even though I have a PhD, I'm still stuck at lecturer level because now the criteria are quite stringent, it requires six journal publications and six PhD or master student graduations, which will probably take me another ten years [F,A,41,L,UKZN]

One respondent claimed he was hired under a teaching contract, and therefore feels that the performance appraisal system should take that into account.

... when I started at the university my understanding was I was being hired to teach and so I would be rewarded and promoted based on, primarily, teaching criteria. And that is, that is just so far from the case. In my last, I've been here six years, the case is actually that you are held to the same criteria as other departments. ... I'm not on a teaching contract. I'm on a normal contract, and a normal contract requires teaching and research, so the problem I've got is that I spend, as you say, 85% of my time teaching. But in the performance criteria for promotion ... is weighted ... heavily ... towards research ... [.] I think it's mostly the fault of senior academics within my department who already understand the status quo. They already understand the, the performance criteria for promotion. Although they need teachers, they understand, they already understand that we cannot be promoted without performing in research ... [.] [M,W,34,L,UCT]

A respondent noted that he could not secure a promotion without post-graduate students and at his current institution there are currently no post-graduate students.

... you also need postgraduate students in order for a promotion, yet you don't get postgraduate students. At my previous institution, actually, we were not allowed to have postgraduate students. Yes, so it was an interesting set-up there, it consisted of three different campuses and with three different departments, and only two of them offered postgraduate courses. So, because of that fact that you were at the third one, you weren't allowed to have postgraduate students at all. [M,W,32,SL,UFS]

It seems that the promotion criteria are not always obvious as one respondent felt that a colleague had been promoted unfairly.

There is a recent thing that happened in the department, whereby there were two candidates who applied for promotion to a senior lecturer, from a lecturer to a senior lecturer. And the, one of those candidates had a doctorate. And then the other one is still doing the doctorate. Surprisingly, the one without a doctorate got promoted. The one with a doctorate didn't get a promotion. And the one with a doctorate has got some publications, has got supervision of students. The one without a doctorate doesn't have all those, which are part of the process when they are doing the judgement. [M,B,35,L,CPUT]

Respondents also indicated the need to set forth the required steps to achieve the outputs that lead to promotion.

... when a new academic gets appointed, then, well, in my experience, they get told, well, you must publish in these journals and not in those journals, and you must recruit postgraduates and you must do all these things, and by the way, you must teach this class on Communication, which is purely your interest. But there isn't a kind of sense of a roadmap of how, if you recruit a postgraduate student this year, then ... develop them in the right way, then there will be a trade-off. So you get measured in Year One on things which you can't possibly have achieved. And I think that's a barrier, because there isn't a sense of how you should grow your research. [F,W,44,SL,UP]

So, the specifications appear to focus overly much on the desired exit states and not enough on the trajectory, in other words what do you need to be able to do or how do you get there. So, for instance I think for many researchers on the one page would be that if you want to get an NRF rating you need to propose referees. Those referees typically or ideally should be known to you, but to have a list of people in your field that are known to you need to make an effort at conferences to meet those people, which means five years before you do your NRF rating you need to go to conferences and introduce yourself to those people, if you understand that. [M,W,39,SL,UP]

Some respondents claimed that their institutions do not have any formal performance appraisal systems in place.

We don't have a formal appraisal system currently in place, which ... they're still working on it. They've apparently been working on it for quite some time! [F,W,42,L,UNIVEN]

At our university at the moment they don't have performance appraisals for the academics, in the sense that I understand performance appraisal would keep performance indicators and whatever, there isn't a formal system. Where I could contradict that is in terms of our promotion policy where you have to have, you know, publications, research forms part of [inaudible]. [F,W,59,SL,DUT]

Chapter 10: Experience of barriers to research (careers)

One of the main aims of the study was to ascertain what the main barriers are that emerging scholars experience as far as their careers are concerned. We therefore posed the following questions to all respondents: To what extent do *you* experience the following as barriers to your research (career)? Respondents could select between four response options: To a large extent, To some extent, Not at all and Not applicable.

In order to facilitate comparisons between the five groups of respondents, response categories were collapsed to create a binary variable consisting of the two categories (1) "At least to some extent" (a combination of "To a large extent" and "To some extent), and (2) "Not at all"/NA (which is comprised of the remaining two categories, i.e. including "Not applicable").

Seventeen 'barriers' were identified and put to the respondents:

1. Heavy undergraduate teaching workload
2. Heavy postgraduate teaching/supervision workload
3. Heavy involvement in departmental/faculty/university committees, etc.
4. Heavy administrative workload
5. Lack of support from head of department/faculty/centre
6. Lack of support from home/social environment
7. Non-completion of (own) PhD
8. Lack of access to research infrastructure or equipment
9. Lack of money for research activities
10. Postgraduate students who are not prepared for post-graduate studies
11. Lack of research networks
12. Taking maternity/parental leave
13. Lack of affordable childcare
14. Lack of self-confidence
15. Insufficient time for research (perhaps especially for women)
16. Lack of mentors or role models
17. Lack of a conducive research environment.

10.1 High-level results

Before comparing the sub-groups in terms of the barriers experienced, the population as a whole is described in this regard. We find that insufficient time for research is indicated by the largest percentage (85%) as a barrier to their research (careers), followed closely by what the barrier that consumes time, i.e. a heavy administrative workload (84%). Other time-consuming activities that keep relatively large percentages of researchers from conducting research are a heavy undergraduate teaching load (76%), and heavy involvement in departmental/faculty/university committees (72%).

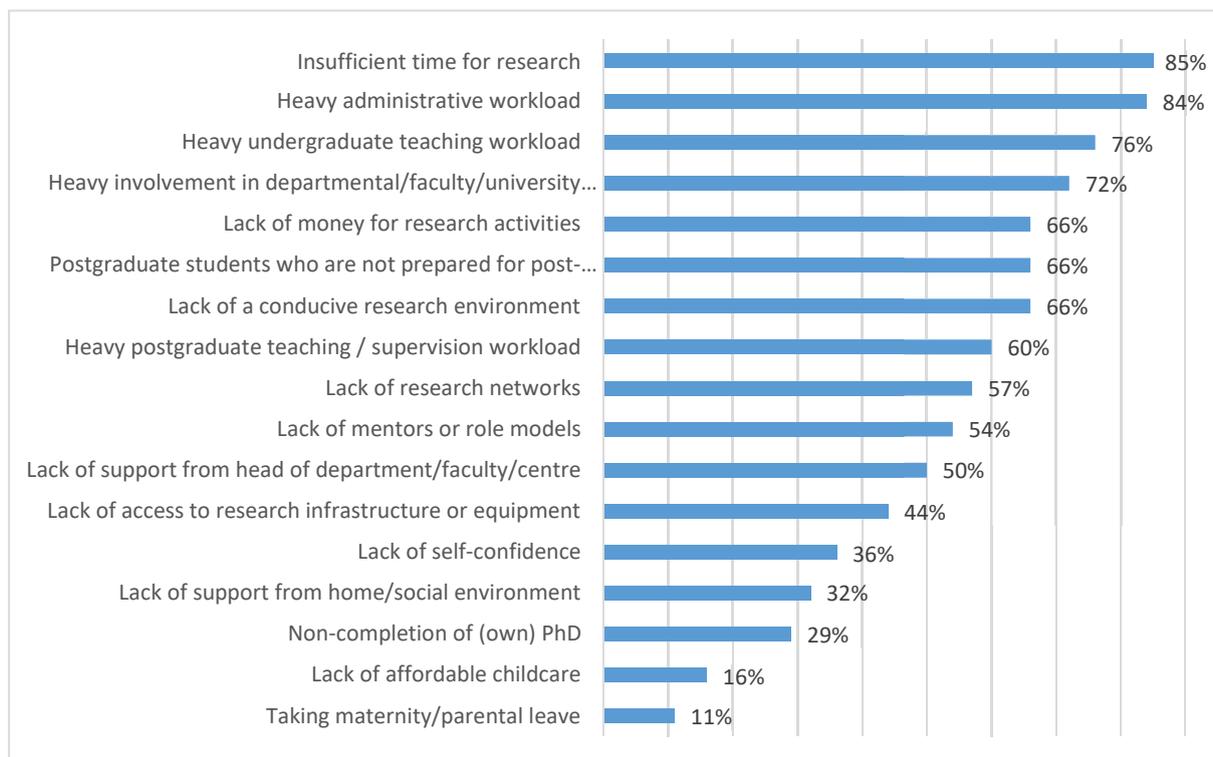


Figure 10.1: Barriers to research (career): Responses by total sample (descending order of barriers experienced)

Two thirds of the respondents cite three deficits as barriers to their research careers, i.e. a lack of money for research activities, postgraduate students who are not prepared for post-graduate studies, and a lack of a conducive research environment. Lower percentages, but still more than 50%, indicate a heavy postgraduate teaching/supervision workload (60%), as well as a lack of research networks (57%) and of mentors or role models (54%). Lack of support from their head of department/faculty/centre is indicated by exactly half of the respondents as, at least to some extent, a barrier to their research (careers).

Six barriers are experienced by few respondents, although two of them – lack of access to research infrastructure or equipment (44%), and lack of self-confidence (36%) – are experienced by what are still quite sizable proportions (more than a third) of respondents. The three issues related to respondents’ private sphere (lack of support from home/social environment, lack of affordable childcare, and taking maternity/parental leave) are experienced by some of the smallest percentages of respondents (32%, 16% and 11%, respectively). This observation is most likely due to these issues, especially the latter two, being primarily applicable to only to a small subset of respondents (i.e. those with children, and women).

Did we find and gender and race differences in the responses to this questions. Table 10.1 presents a summary of the responses to the question on perceived barriers by gender.

Statistical tests for significant differences between male and female responses to these questions revealed some statistically significant differences. These cases are highlighted (light grey) in the table.

Table 10.1: Breakdown of responses to perceived barriers to research by gender.

		Male		Female	
		Count	Column N %	Count	Column N %
Heavy undergraduate teaching workload	To at least some extent	1301	77.9%	1082	73.7%
	Not at all / NA	370	22.1%	386	26.3%
Heavy postgraduate teaching / supervision workload	To at least some extent	963	58.0%	899	61.6%
	Not at all / NA	698	42.0%	561	38.4%
Heavy involvement in departmental/faculty/university committees, etc.	To at least some extent	1164	70.3%	1070	72.8%
	Not at all / NA	491	29.7%	400	27.2%
Heavy administrative workload	To at least some extent	1339	80.5%	1273	86.9%
	Not at all / NA	325	19.5%	192	13.1%
Lack of support from head of department/faculty/ centre	To at least some extent	812	48.7%	750	51.6%
	Not at all / NA	854	51.3%	705	48.4%

		Male		Female	
		Count	Column N %	Count	Column N %
Lack of support from home/social environment	To at least some extent	493	30.0%	490	33.5%
	Not at all / NA	1152	70.0%	975	66.5%
Non-completion of (own) PhD	To at least some extent	537	32.5%	353	24.3%
	Not at all / NA	1116	67.5%	1100	75.7%
Lack of access to research infrastructure or equipment	To at least some extent	769	46.7%	590	40.5%
	Not at all / NA	878	53.3%	868	59.5%
Lack of money for research activities	To at least some extent	1129	68.1%	930	64.1%
	Not at all / NA	529	31.9%	521	35.9%
Postgraduate students who are not prepared for post-graduate studies	To at least some extent	1099	66.1%	954	65.1%
	Not at all / NA	563	33.9%	512	34.9%
Lack of research networks	To at least some extent	915	55.1%	850	58.0%
	Not at all / NA	746	44.9%	615	42.0%
Taking maternity/parental leave	To at least some extent	106	6.4%	232	16.0%
	Not at all / NA	1552	93.6%	1222	84.0%
Lack of affordable childcare	To at least some extent	214	13.1%	272	18.7%
	Not at all / NA	1425	86.9%	1184	81.3%
Lack of self-confidence	To at least some extent	440	26.7%	678	46.8%
	Not at all / NA	1207	73.3%	770	53.2%
Insufficient time for research	To at least some extent	1373	83.5%	1264	87.0%
	Not at all / NA	272	16.5%	189	13.0%
Lack of mentors or role models	To at least some extent	808	48.6%	864	59.6%
	Not at all / NA	854	51.4%	586	40.4%
Lack of a conducive research environment	To at least some extent	1086	65.6%	968	66.5%
	Not at all / NA	570	34.4%	488	33.5%

Salient points:

Statistically significantly more **male** than female respondents listed the following factors as being bigger barriers to their research (careers):

- Heavy undergraduate teaching workload
- Non-completion of (own) PhD
- Lack of access to research infrastructure or equipment

Statistically significantly more **female** than male respondents listed the following factors as being bigger barriers to their research (careers):

- Heavy administrative workload
- Taking maternity/parental leave
- Lack of affordable childcare
- Lack of self-confidence
- Insufficient time for research
- Lack of mentors or role models

Table 10.2 presents a summary of responses by racial category. Statistical tests for significant differences between the race groups to these questions revealed some statistically significant differences. These cases are highlighted (light grey) in the table.

Salient points:

- Asian respondents were more likely to identify Postgraduate students who are not prepared for post-graduate studies and Lack of research networks as significant barriers to their research than other race groups.
- (Black) African respondents were more likely to list Lack of support from home/social environment and Lack of affordable childcare as significant barriers to their research than other race groups.
- Coloured respondents were more likely to list Lack of self-confidence as a significant barrier to their research than other race groups
- White respondents were more likely to list Heavy postgraduate teaching / supervision workload; Heavy administrative workload; Non-completion of (own) PhD and Insufficient time for research as significant barriers to their research than other race groups

It is, however, important to emphasize that although some of the differences between the different race groups are statistically significant, some of the differences remain quite small. We would caution to put too much weight on some of these differences.

Table 10.2: Breakdown of responses to perceived barriers to research by racial category.

		Asian		Black African		Coloured		White	
		Count	Column N %	Count	Column N %	Count	Column N %	Count	Column N %
Heavy undergraduate teaching workload	To at least some extent	126	76.8%	863	77.5%	159	74.8%	1150	74.9%
	Not at all / NA	38	23.2%	250	22.5%	54	25.2%	385	25.1%
Heavy postgraduate teaching / supervision workload	To at least some extent	97	59.5%	551	50.0%	138	65.0%	1018	66.6%
	Not at all / NA	66	40.5%	550	50.0%	74	35.0%	511	33.4%
Heavy involvement in departmental/faculty/university committees, etc.	To at least some extent	122	75.4%	729	65.7%	152	72.0%	1159	75.9%
	Not at all / NA	40	24.6%	380	34.3%	59	28.0%	369	24.1%
Heavy administrative workload	To at least some extent	140	85.8%	846	76.3%	177	83.4%	1359	88.8%
	Not at all / NA	23	14.2%	262	23.7%	35	16.6%	171	11.2%
Lack of support from head of department/faculty/centre	To at least some extent	86	53.1%	535	48.6%	112	53.0%	772	50.4%
	Not at all / NA	76	46.9%	567	51.4%	99	47.0%	759	49.6%
Lack of support from home/social environment	To at least some extent	51	31.2%	410	37.2%	66	31.2%	418	27.6%
	Not at all / NA	112	68.8%	693	62.8%	146	68.8%	1098	72.4%
Non-completion of (own) PhD	To at least some extent	46	28.4%	190	17.3%	47	22.3%	560	36.8%
	Not at all / NA	116	71.6%	908	82.7%	162	77.7%	964	63.2%
Lack of access to research infrastructure or equipment	To at least some extent	79	48.3%	545	49.4%	90	42.7%	590	38.9%
	Not at all / NA	85	51.7%	558	50.6%	120	57.3%	925	61.1%
Lack of money for research activities	To at least some extent	112	68.5%	766	69.7%	146	69.3%	961	63.1%
	Not at all / NA	51	31.5%	332	30.3%	64	30.7%	563	36.9%
Postgraduate students who are not prepared for post-graduate studies	To at least some extent	116	72.3%	683	61.6%	146	69.0%	1046	68.3%
	Not at all / NA	44	27.7%	426	38.4%	66	31.0%	486	31.7%

		Asian		Black African		Coloured		White	
		Count	Column N %	Count	Column N %	Count	Column N %	Count	Column N %
Lack of research networks	To at least some extent	110	67.5%	670	60.5%	112	52.7%	797	52.0%
	Not at all / NA	53	32.5%	437	39.5%	100	47.3%	734	48.0%
Taking maternity/parental leave	To at least some extent	23	14.1%	122	11.1%	27	12.7%	158	10.3%
	Not at all / NA	139	85.9%	976	88.9%	184	87.3%	1371	89.7%
Lack of affordable childcare	To at least some extent	32	19.6%	235	21.5%	28	13.2%	181	12.0%
	Not at all / NA	132	80.4%	859	78.5%	184	86.8%	1335	88.0%
Lack of self-confidence	To at least some extent	63	39.2%	311	28.2%	93	44.7%	609	40.3%
	Not at all / NA	98	60.8%	790	71.8%	116	55.3%	903	59.7%
Insufficient time for research	To at least some extent	139	85.7%	834	76.8%	180	87.0%	1391	91.0%
	Not at all / NA	23	14.3%	252	23.2%	27	13.0%	137	9.0%
Lack of mentors or role models	To at least some extent	98	60.5%	575	52.3%	116	56.0%	825	54.0%
	Not at all / NA	64	39.5%	525	47.7%	91	44.0%	704	46.0%
Lack of a conducive research environment	To at least some extent	116	72.1%	733	66.5%	126	60.0%	1001	65.5%
	Not at all / NA	45	27.9%	368	33.5%	84	40.0%	527	34.5%

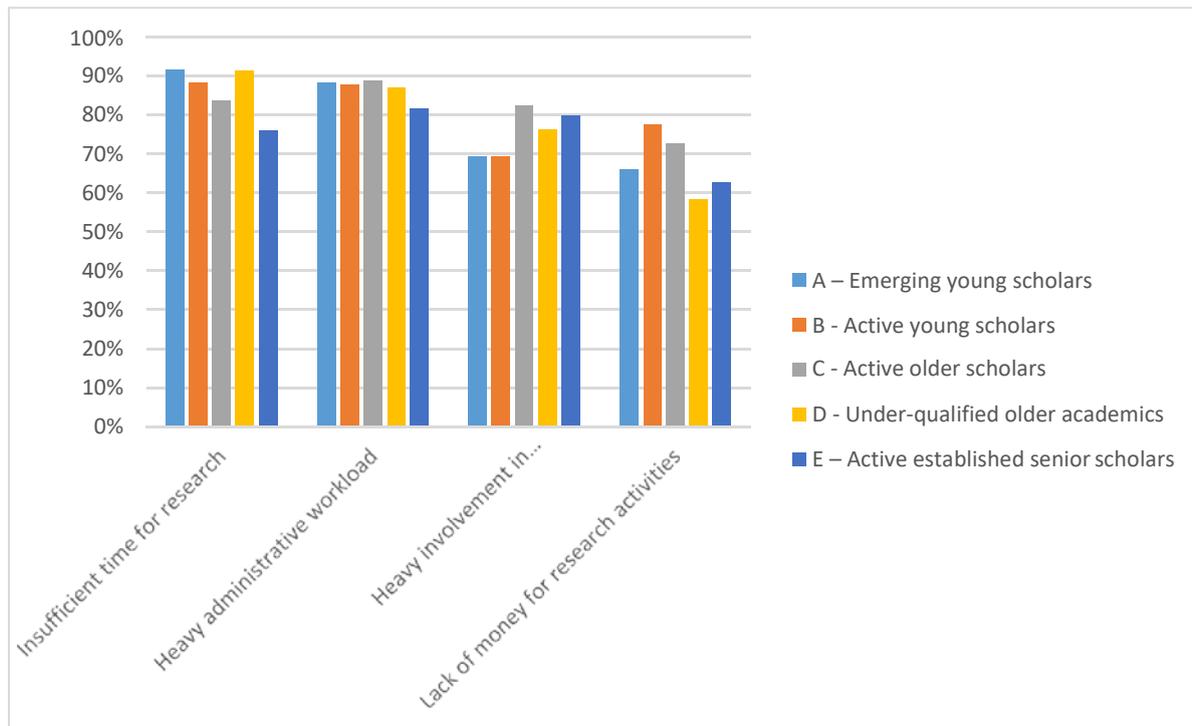
10.2 Sub-group comparisons

Table 10.3: Proportions of groups that indicated that the specific barrier is at least to some extent a barrier to their (research) career

ITEM	A – Emerging young scholars	B – Active young scholars	C – Active older scholars	D – Under-qualified older academics	E – Active established senior scholars
Insufficient time for research	92%	88%	84%	91%	76%
Heavy undergraduate teaching workload	89%	89%	81%	90%	59%
Heavy administrative workload	88%	88%	89%	87%	82%
Lack of a conducive research environment	78%	65%	64%	70%	51%
Heavy involvement in departmental/faculty/university committees, etc.	69%	69%	83%	76%	80%
Lack of mentors or role models	68%	54%	51%	63%	29%
Lack of money for research activities	66%	78%	73%	58%	63%
Lack of research networks	65%	64%	59%	60%	37%
Non-completion of (own) PhD	63%	3%	4%	66%	1%
Lack of support from head of department/faculty/centre	55%	47%	52%	51%	45%
Heavy postgraduate teaching/supervision workload	52%	65%	78%	56%	77%
Postgraduate students who are not prepared for post-graduate studies	50%	82%	83%	50%	88%
Lack of access to research infrastructure or equipment	49%	50%	47%	42%	42%
Lack of self-confidence	44%	34%	32%	42%	19%
Lack of support from home/social environment	40%	28%	32%	39%	21%
Lack of affordable childcare	22%	27%	17%	13%	8%
Taking maternity/parental leave	20%	18%	9%	7%	5%

Salient findings

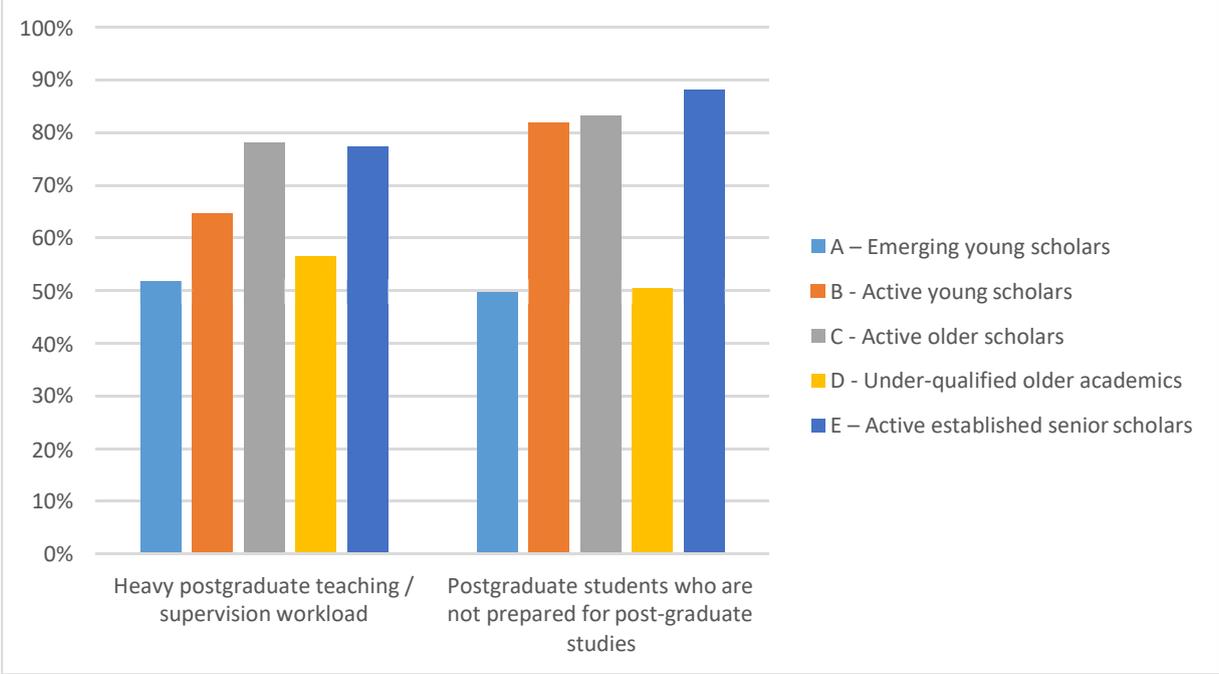
Finding 1: It is remarkable that large proportions of all subgroups of our study identified many and similar barriers to their careers. In the graph below the researchers show that large proportions of ALL subgroups indicated that the lack of sufficient time for research, heavy administrative loads, heavy involvement in university administration and lack of money for research are barriers to their research. It is clear that these barriers or challenges affect all academic staff, irrespective of rank and age and qualification, equally seriously.



Finding 2: At the same time, the graphs also show that there are some difference in ranking these barriers on some items, especially between the emerging, young scholars and the active, established, senior scholars. There are significant differences as far as “undergraduate teaching load” is concerned between these two subgroups. One of the most telling differences (not surprisingly) is the fact that 68% of the emerging, young scholars compared to 29% of the active, established, senior scholars. listed the ‘lack of mentors” as a barrier. Similarly, 65% of the emerging, young group compared to 37% of the established, active, senior group listed the lack of research networks as a barrier.

Finding 3: It is also important to emphasise that some of these barriers are more applicable to groups other than the emerging, young subgroup. Two barriers that pertain specifically to post-graduate (PG) teaching and supervision and the level of preparedness of PG students were identified by most of the other groups as significant barriers. But only 52% and 50% of the emerging, young group

indicated that these barriers affect them to some extent, presumably because they themselves are still engaged in post-graduate studies. It is therefore not unexpected that 63% of the emerging, young group listed the non-completion of their own PhD as a major barrier. The only other subgroup that responded to a similar barrier is the “under-qualified older academics” (66% of them selected this option).



Finding 4: Items pertaining to personal and social barriers. The last four items in the question pertained to personal barriers (lack of self-confidence, lack of home support, lack of affordable child care and taking maternity leave). As the graph below shows, there are not many large differences between our five subgroups on these items. An exception is the responses on the item regarding “self-confidence” where the active, established, senior scholars are less likely to have selected this as a barrier. It is obvious that some of these responses are a function of the gender and age of the respondent. We presented the results of these disaggregations separately below.

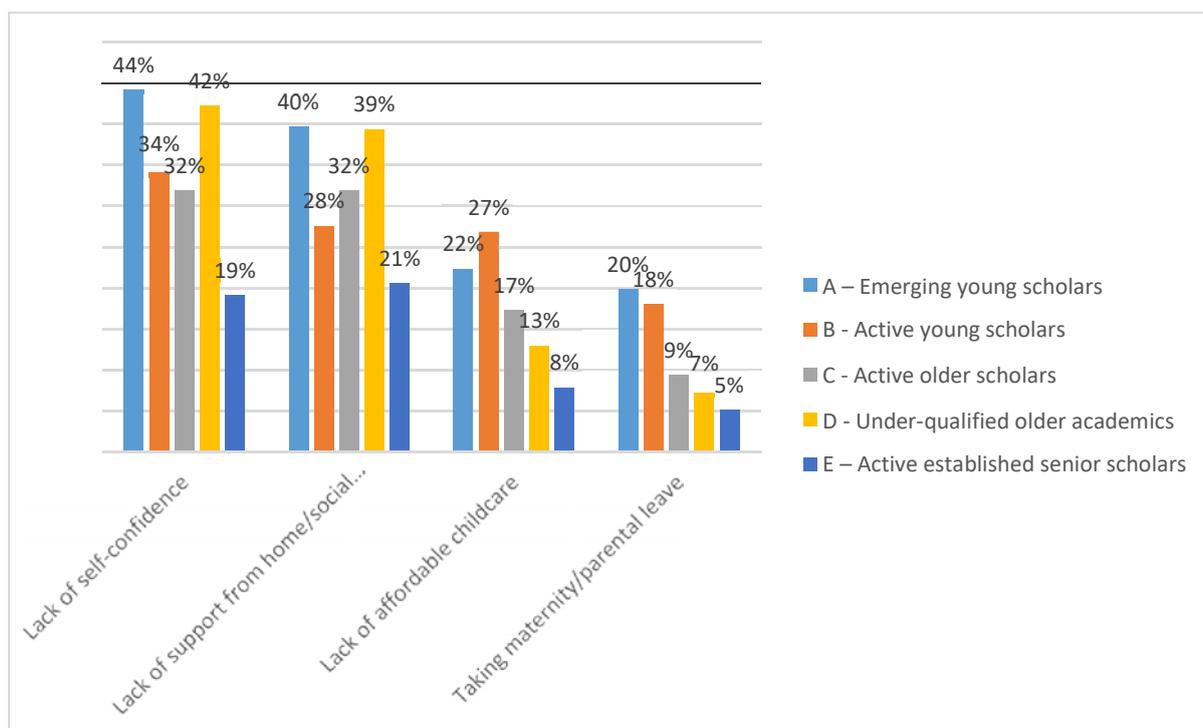


Table 10.3.1: Perceived barriers to research career and scientific field (Population)

ITEM	Natural and agricultural sciences	Engineering & applied technologies	Health sciences	Humanities	Social sciences	Total
Insufficient time for research	80%	85%	87%	87%	87%	85%
Heavy administrative workload	77%	79%	90%	86%	85%	84%
Heavy undergraduate teaching workload	76%	86%	70%	87%	73%	76%
Heavy involvement in departmental/faculty/university committees, etc.	61%	72%	77%	73%	74%	72%
Lack of money for research activities	72%	74%	73%	63%	61%	66%
Lack of a conducive research environment	59%	64%	65%	69%	69%	66%
Postgraduate students who are not prepared for post-graduate studies	70%	66%	72%	65%	62%	66%
Heavy postgraduate teaching/supervision workload	56%	57%	67%	56%	61%	60%
Lack of research networks	54%	54%	59%	57%	57%	57%
Lack of mentors or role models	46%	47%	56%	52%	59%	54%
Lack of support from head of department/faculty/centre	50%	47%	53%	50%	49%	50%
Lack of access to research infrastructure or equipment	51%	53%	53%	36%	38%	44%

Lack of self-confidence	28%	23%	38%	39%	41%	36%
Lack of support from home/social environment	29%	27%	31%	32%	34%	32%
Non-completion of (own) PhD	15%	28%	29%	29%	35%	29%
Lack of affordable childcare	20%	14%	18%	14%	14%	16%
Taking maternity/parental leave	12%	8%	11%	14%	10%	11%

Table 10.3.2: Perceived barriers to research career and scientific field (Emerging young scholars)

ITEM	Natural and agricultural sciences	Engineering & applied technologies	Health sciences	Humanities	Social sciences	Total
Insufficient time for research	92%	80%	96%	87%	94%	92%
Heavy undergraduate teaching workload	92%	94%	91%	83%	90%	90%
Heavy administrative workload	83%	87%	86%	87%	92%	89%
Lack of a conducive research environment	88%	60%	76%	70%	82%	78%
Heavy involvement in departmental/faculty/university committees, etc.	74%	50%	73%	68%	72%	70%
Lack of mentors or role models	71%	47%	68%	65%	72%	68%
Lack of money for research activities	57%	69%	82%	64%	65%	66%
Lack of research networks	73%	67%	68%	48%	67%	65%
Non-completion of (own) PhD	63%	81%	64%	61%	59%	63%
Lack of support from head of department/faculty/centre	54%	38%	55%	44%	62%	55%
Heavy postgraduate teaching/supervision workload	46%	60%	64%	30%	55%	52%
Postgraduate students who are not prepared for post-graduate studies	35%	60%	59%	30%	55%	50%
Lack of access to research infrastructure or equipment	57%	50%	55%	44%	48%	49%
Lack of self-confidence	36%	27%	57%	36%	49%	45%
Lack of support from home/social environment	50%	38%	41%	39%	36%	39%
Lack of affordable childcare	13%	25%	41%	23%	20%	23%

Taking maternity/parental leave	17%	20%	32%	18%	18%	20%
Insufficient time for research	92%	80%	96%	87%	94%	92%
Heavy undergraduate teaching workload	92%	94%	91%	83%	90%	90%
Heavy administrative workload	83%	87%	86%	87%	92%	89%

Teaching undergraduate and postgraduate students

Respondents emphasised the unsustainable number of students in their classes.

I taught the first years and the second years and the numbers were just crazy. So, one lecture hall which could only fit 750 students, managed to squeeze in 1000 students or you know 1000 students just started to come in there. And the numbers were about 2 500 and that was after, you know, students like to choose their first preference and that was after the first preferences were gone. And I mean initially it started with 3 000 ... making sure the venues was there, the lecturers were prepared, the tutors were prepared. So, you just run out of time and being expected to do research, was just ridiculous. [F,A,29,L,UJ]

... I just finished marking the 300 scripts for the second years' exam, and in two weeks' time I will have to mark 200 scripts for the third years' exam. And with the second years, ... I am giving the same lecture twice because the class is so big ... in terms of the lecture preparation times, the actual teaching time, making up assessments, ... you have got to set tests, you have got to set exams, you have got to mark, the admin takes a lot of time as well, you have got to have consults with your students ... the biggest barrier to the research is the teaching load ... it's physical and mentally exhausting. [F,A,30,L,Wits]

... I think when people think about, or sometimes when people think about undergraduate teaching, they don't factor in all the responsibilities ... if 50 students send you an email, at some point you have to reply to those emails ... things need to be done in two languages. All of that takes an enormous amount of time. [F,C,38,L,SU]

Many respondents cited the time spent on teaching and teaching-related administration as a major barrier to research. Activities include: student contact sessions (lectures, appointments and online communications), marking, preparations for assessments and classes, meetings with teaching assistants, committee meetings involving moderation, assessment and marks, course co-ordination, communications with external examiners, and other administrative duties resulting from lecturing and supervision.

... this term I teach two full undergraduate courses and a course convening two undergraduate courses which leaves me zero time to do research ... not even taking into account postgraduate teaching or taking into account supervision ... the undergraduate teaching comes with a lot of administrative functions ... setting tests, setting make-up tests, setting answer guides, setting assignments, having meetings with your tutors, having moderation meetings with marking assignments and marking tests, setting the exam papers, setting the supplementary exam papers, communicating with the external examiner, it's sitting through the exam meetings and it's a whole lot more than just the actual teaching. [F,A,38,SL,UCT]

... but at least at the school level, there is a secretary, there is a messenger, so those are able to assist you there. But at least one needs to appreciate what we call student assistants, but

the problem with those is always the number. You find that we have a department such as mine where we are offering about eight modules per semester, and with one student assistant and one graduate assistant, those are not really able to assist us, mostly because the student assistant only works one hour, the graduate assistant only works two hours per day.

[F,B,44,L,NWU]

... there's a push for online teaching here, which I'm actually quite proactive for, but that always seems to involve, kind of, trouble-shooting. There's always some issue, where the faculty administrators haven't loaded ... one of the course codes, because there's multiple course codes on the online system, which meant that some of the students couldn't see the course code. Then I have to pester the faculty or the IT people and, you know, there's this usual thing where actually they'd be able to do their jobs is often quite tricky. They don't often do their jobs properly and they make mistakes and then we have to pester, pester, pester, pester...[.][M,W,36,SL,UJ]

... we run a master's program, which is part taught and part research-based and I'm involved a lot with the administration of that program, including reviewing our applicants' applications and collating all of that information for us as a panel to look at the applicants and decide who we're going to accept or not as part of that panel as well, and then communicating with the successful and unsuccessful students and also those on the waiting list to let them know the outcome and I take over the communication between students really from that early point, send them information about when the course starts, when registration is, if they've got queries they email me ... I organise their orientation program, all the things that they need to learn before they start their courses. I'm involved a lot with booking of venues, putting material online ... I also manage their academic program, which is in addition to their coursework, so things like journal clubs and academic presentations. I've created something called, or in our context I've created a portfolio of evidence where they can document their professional development over the course of their master's degree. And then things like when we send out calls for their projects to other faculties or departments, divisions, I handle all of that communication. We also have meetings every second week with all the people involved in our master's program and I chair those sessions, often take the minutes ... reporting on marks from students, reporting on all the external examining process for each course that I'm involved in, so not just collating all the marks internally, but communicating with external examiners to review marks. [F,W,28,L,UCT]

Some respondents emphasised that the field, student body, skillset of lectures and institution type (distance learning) add to time spent on teaching.

... I work 12, 14, sometimes 18 hours a day, seven days a week. I work Saturdays, I work Sundays, I never leave the office before seven o'clock at night. I go home, you have some supper, you sit down, you work some more, because you've got big post-graduate teaching loads, big post-graduate supervision loads ... I have mature adult learners in my undergraduate program ... they need a lot of support. Then you're asked to evaluate other research proposals at the university, from both, you know, my local research and higher degrees committee for faculty of Health Science as well as the institutional research ethics committee, so you're doing those reviews. You're doing reviews for the NRF. You're doing reviews for the MRC. You're reviewing for journals that ask you to review. You know, and then you spend hours and hours and hours putting together a flipping article, you take leave ... so that you can write this article unhindered ...[.][F,W,59,SL,DUT]

It's a vocational course, it's very practically based, very hands-on. So when I'm teaching I'm in the classroom for four hours at a time and I don't get a minute to run into my office and go sit and read something. I'm in the classroom actively teaching, talking to students, walking around and helping them. [F,W,28,L,DUT]

... the labour intensity comes in with the clinical teaching. We have to supervise students when they go to clinical placements, especially the 2nd and 3rd year students (up to 6 students per block) ... the hospitals ... are refusing either to take students or to supervise the students, and as a result, the bulk of the clinical teaching then comes back to us ... we have to meet a certain number of hours over the course of our degree in order to enable our students to register with the regulator. And if we don't meet those hours, then of course our students can't register and then by extension we won't have a job. [F,W,43,L,Wits]

I have a sense of the difference between ... teaching at a normal residential university on the one hand and then teaching at a distance education institution. Unisa being as massive as it is, I think it has about 400 000 students, it does take up a lot of your time because it is such a bureaucratic machine. The teaching, you know, they call it teaching, but sometimes a lot of academics will quite openly question whether it's actually teaching or whether we are just compliance officers. You know, there are very detailed, extensive processes that need multiple signatures and multiple things that you yourself need to comply with and due dates and so on, in addition to the things that the students need to be involved in or need to comply with, so. And yes, nothing is straightforward, for everything there is a committee, for everything there is a senate subcommittee or a faculty subcommittee, it's a very complex thing. And to navigate that takes an extraordinary amount of time. In addition we ... our student numbers are huge and the department that I work in, on one of the modules I'm on, our student numbers are, you know, some semesters we have 9 000 students, other semesters we have almost, you know, more than 15 000 students, so it ... And that's on a single module. [M,W,30,L,Unisa]

... I teach maths, basic maths, and no-one else in my department will touch the subject. [F,A,46,L,DUT]

... because the division of the subjects within the department isn't according to the number of lecturers because it's according to skillsets, some lecturers are going to have a much higher lecture load, up to double the lecture load of other lecturers, which of course impacts tremendously on your time. [F,W,49,SL,SU]

Respondents also highlight the additional pressure placed on their time due to the high pass rate (throughput) mandated by their institutions.

You say ... we need to have an 82% pass rate, anything under that is unacceptable. That means now it's a lot more effort on me in ensuring that particular benchmark[s] [are] is met. Then it's chaos ... the load goes up...[.] [M,B,36,L,WSU]

... we need to look at pass rates ... the focus is more on getting a student to pass and getting more students in the class, than looking at the quality of the student ...[.] [M,C,49,SL,DUT]

Supervision is also identified as a barrier to research.

At a minimum, at my level, we're supposed to supervise a total of six. I'm currently supervising 15. I think about six or seven master's, and about six or seven PhDs that I've got.[F,A,45,L,UKZN]

And then, I think, the other barrier would probably be the post-graduate supervision because our students are at different points in their study. It's kind of managing where they are. And their topics are also really diverse ... that ability to have to switch between those content areas as ... does impact and is a barrier to my own research particularly because it's not as clearly aligned to my own study [F,C,43,L,Wits]

It is therefore suggested that the supervision load be capped.

... to have a rule about capping the number of students we can supervise ...[.] [F,W,28,L,UCT]

An effect of the heavy workload reported above is that the level of students delivered by institutions is not up to industry standard.

... I'm concerned about pushing of student numbers into classes where facilities cannot accommodate the students. They have an impact on the quality of the graduate, because we need to teach students skills which is important for the workplace. [M,C,49,SL,DUT]

At the end of the day, the calibre of students that are going out there in the industry are not good enough, because the employers are not happy with the type of students that they are getting. [M,A,55,SL,UNISA]

We're pushing to finish exams and we're letting students into industry where, you know, they're not empowered. They're pushed through the system where, you know, you still have students that cannot function in society. It's becoming one more problem and one needs to talk about it. [M,C,49,SL,DUT]

The adverse effects of the heavy workload are described in the following ways.

Honestly, it's a matter of not resting ... [s]pending sleepless nights ... You find that sometimes you don't sleep at all. Other times I sleep for two hours ... [y]ears differ. There are some years, like this year, I found that my students were very demanding, in terms of the academic support, they needed to be held by hand most of the time. Then you give them more support. And then you find that the teaching methods are such that you are ... guiding them throughout, responding to emails, supporting them, trying this, and then giving them a lot of examples, and a lot of scenarios. So that for them to get and understand a concept or content, they needed a lot of support and nurturing. [F,B,48,SL,UCT]

If I can literally count the number of modules that I'm teaching; it's really abnormal ... it[s] a labour issue, a serious labour issue. Because in 2014 I even got sick. Literally sick. [F,B,51,L,SU]

... I've told myself I just want to finish my PhD and look for a job somewhere else. Where I'll teach what I teach and with dignity. And in a very human way. Because I think what I've been going through is too ... dehumanising. [F,B,51,L,SU]

Some people respond by working late at home and on weekends just so that they can be productive. I cannot do that. I want to have a life outside of my work. My work is not my life. I have other responsibilities. [F,C,38,L,SU]

Student capability: under- and post-graduate

According to some respondents, the South African education system is not producing matriculants who are prepared for tertiary education.

... given our current education system, we get students who are raw. I get students from the poorest of the poor, they are not fortunate enough ... Very few kids from a model C school come to us. So, that means we get those kids from rural areas who are cognitive and make things and everything else in their mother tongue. Then they come to me and then there's no knowledge of academic writing, there's no knowledge of assignment writing ... anything. Like you want to talk to them about referencing, plagiarism issues, you are speaking Greek to them. Now, I have to put, not only am I now a lecturer, now we have stopped being a lecturer, especially to first year students. We now have become grade one teachers because we have to start them from the very bottom and all of that takes time and not mention the benchmark just to please our management. You say, no, we need to have an 82% pass rate, anything under that is unacceptable. That means now it's a lot more effort on me in ensuring that particular ... those particular benchmarks are met. Then it's chaos now, the load goes up ... [M,B,36,L,WSU]

... it's a natural affect that we have education system that allows students to pass with 33%, whatever the new pass mark is. But some of us come from a world where passing was a 40%, was not good enough, 50% minimum. Yes, if you were getting a 40%, yes but now the standards that are set for students ... Pupils, let me not call them students, right. For high school pupils, it's so low that somehow it seems like the government is not concerned teaching numbers in the lectures, no 70% have passed. Half of the 70% that have passed are very low in terms of quality. But you get to that point where now we have our own entry requirements at universities and somewhere somehow the strictness in terms of entry requirements has now changed in terms of education. Because now we say, we want a particular score for our students, right in order to accept them into the program. And then when we don't get those numbers and then somebody comes up and says no, the SRC, the government of the school, we have SRC that are ... some would say internal, we have the right to learn education, everybody has the right to education to high education. Even those that haven't even qualified for higher education and some negotiating settlement comes in and then we have members who are not ready for higher education. And also, South Africa needs to walk away from this thing that says, after completing matric you need a university degree. There should be other things, the university degree cannot be the be all and end all or more. [M,B,36,L,WSU]

The government is funding people who have no business being at university. We have professional students at universities and some of them doing a three, four-year degree or diploma, you find this person being in the system for about seven or eight years ... And if I say that, it will be anti-revolutionary. So, like you said it transcends across cultures and class and race. We don't have a right to say, no that is not going to happen, they'll say that we're anti-revolutionary. If you say it as a white person, then you are racist, you say it as a black person, you are anti-revolutionary. [M,B,36,L,WSU]

These students are not that prepared as I thought they will be ... I'm marking exams now and it's shocking to see the quality of the answers some of the students indicate ... a pure lack of interest in the course they selected to study. To illustrate this more, a prospective student will come into my office with his matric certificate and put it on my desk and ask me what does he qualify to study for. Way back in my days you already knew, almost in Grade 9 when you had to select subjects for Grade 10 what it is you are going to do after school, you knew okay, so this is what I want to become and I'm working towards that and you starting writing letters and google the industry and planned for your next phase after finishing school. [F, w, 39, L, TUT]

... obviously, if you've had a good schooling career, first class schooling career, then English academic progress for writing is not so difficult. But if you come from a disadvantaged schooling system, then obviously you struggle to write articles, to write theses. And obviously if those sort of aspects could have been dealt with already properly in the earlier years, I'm talking about the undergraduate degree and even Honours degree, if that was dealt with more viciously, shall I say, then it makes the master's and PhD programme requirements ... that'll make it easier. [M, C, 49, SL, SU]

The problem of student quality is not confined to under-graduate students, with many respondents lamenting the poor quality of their prospective and current post-graduate students. Reasons given include lower entrance requirements, artificially imposed pass rates, undergraduate syllabus and pedagogy.

Senate made the decision to lower the entrance levels at honours, master's and PhD. Because they assumed that would ... it created an illusion that they were doing this wider participation and transformation. But they didn't think through the impact of that. So, recently, you need to have 50% as an average, entering an honours program that requires them to do high-level thinking. So, they are clueless when they come in. And then they feel frustrated now. And they think that we're being racist, or we're being difficult with them. We don't want to support them as young people. But that's not the issue. But it has also brought in those that came with deficits [?] from honours that weren't addressed. Then went into master's, it wasn't addressed. And then now, I want you to do a full PhD, and publish. It puts a lot of pressure on those of us supervising. Some of those types of students [F,A,45,L,UKZN]

And secondly, they also prescribed or require certain pass rates for our students. So, when they write the professional exams, once they exit with our qualification, if we don't meet that pass rate that they require, they withdraw accreditation for our qualification, which means we will be without a job because students won't enrol because we're not accredited. So, we feel that there's a much higher imperative for us to be working on teaching and getting students to pass and spending time on our study material; versus other departments that don't have such a prescriptive teaching environment. Where they can have the same materials, same class, year after year and just spend time on research. [F,W,52,SL,Unisa]

... if you look at most syllabus [sic] in the universities, they don't really prepare students for postgraduate studies such as master's. You don't really know how to come up with a research proposal, a detailed research proposal. People talk about, you know, concepts of your research and your students don't know what that is, and it also impacts a lot. The other thing would be, I think, for most universities of technology, they might say that after completing your Bachelor of Technology you can go straight to Master of Technology. But if you check on their BTech Technology there is no sort of like research, preparation of research that goes on. You know, when people talk about literature review, students don't know what literature review is, you know, that connection, that kind of research, you know, and all of those things, so ... The preparation is not adequate. [M,B,27,L,TUT]

They write three tests, competency tests and mastery tests, whatever, every week. So that they get a piece of information and they get tested on it and then they get the next piece of information, tested on it, and then there's an exam, and then there's whatever all in between. I mean, yes, the throughput rates are high and the success rates are high in the undergraduate space. [M,NSA,34,SL,UCT]

Division of labour according to rank

One of the factors that are cited by emerging or early-career academics as a constraining factor in the advancement of their careers is their academic workload. More precisely, they claim that they are usually assigned disproportionately high teaching loads (especially at the undergraduate levels) as well as often inordinate administrative duties. In order to test these claims we asked respondents to respond to the following question in the survey.

In a typical year, what percentage of your working time do you spend on each of the following tasks?
 (Note: the percentages should add up to 100%.)

- % Undergraduate and postgraduate teaching
- % Training/supervising postgraduate students
- % Research
- % Administration and management
- % Service (counselling of patients, voluntary services within or outside your organisation, article review, editorial duties)
- % Consultancy
- % Raising funds/grants for research
- % Other

The proportional responses for the total population were presented in Figure 8.1 below. It shows that most respondents indicated that they spent most of their time on teaching (35% of their time) or a combination of teaching and supervision (26%). It is quite telling that respondents indicated that they spend about equal amounts of their time on administrative/management (8%) tasks and research (7%).

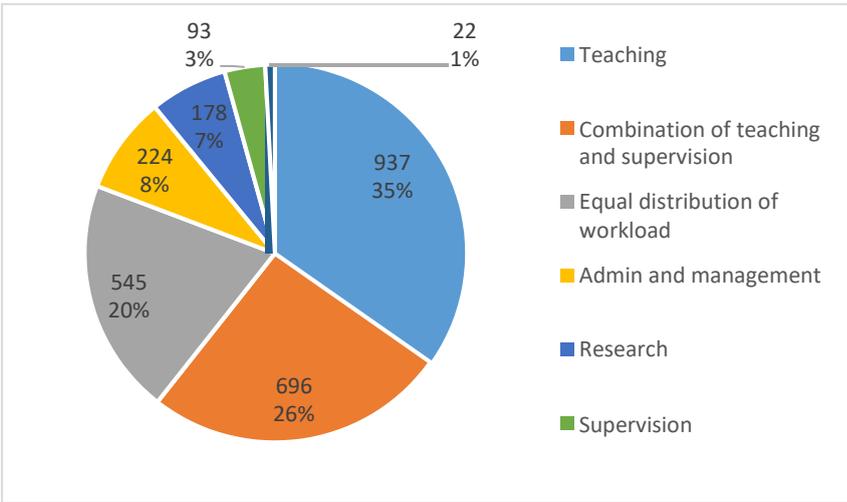


Figure 10.2: Distribution of responses by academic workload

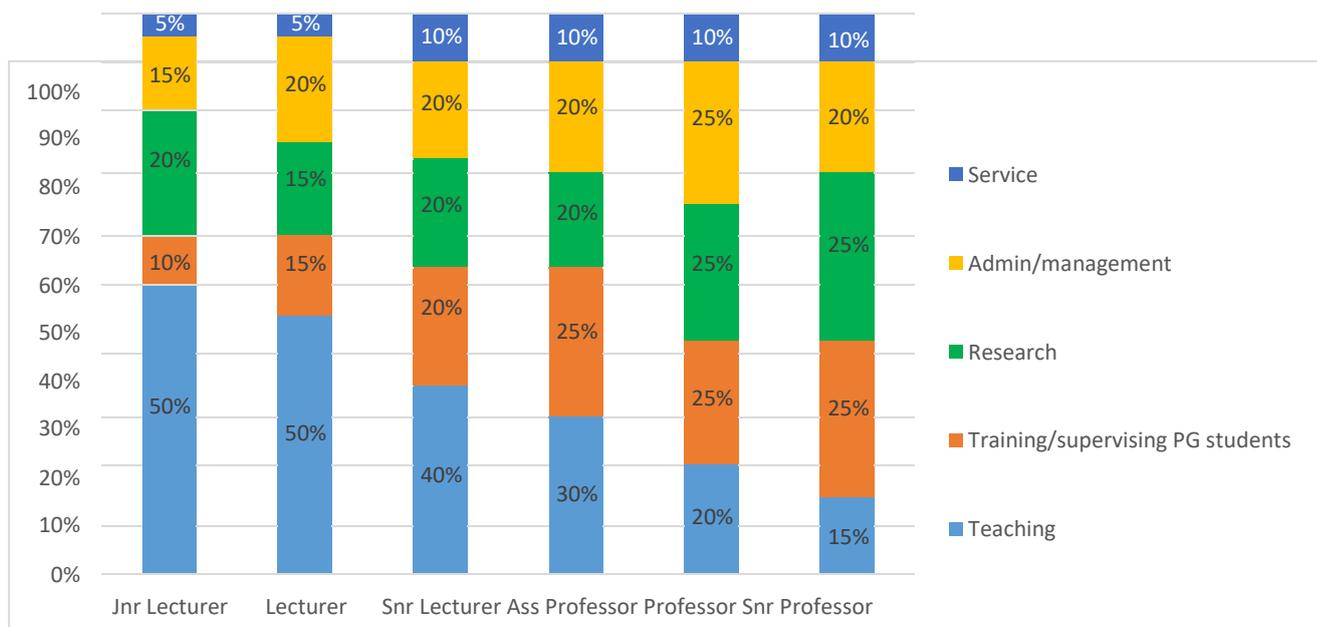


Figure 10.3: Distribution of workload by rank

Although not a specific focus of our interviews, some interviewees did raise the issue of academic workload. The interviews revealed that a number of respondents would prefer to focus more on teaching and less on research. In one instance a senior lecturer reports being explicitly told that she was in the wrong profession if she believed her job was about teaching.

... most of the lecturers that are coming to academia ... we came through university thinking we are going to teach the next generation of professionals. So, we did not come with a mind of being academic scholars and now pursuing a higher degree and now doing research. So, for many, it's now they are doing it because it's written into your performance contract. But by heart, many of them would rather just teach, they love the teaching, they not interested in research. For the newly appointed employees, during the last five years, obviously in the short-listed interviews they are told that nowadays it is expected that you will do research and work towards your next higher degree. [UNISA] [F,W,52,SL,Unisa]

I love teaching. That's why I started with the university in the first place, because I wanted to teach and ... I was told that if I thought the job was teaching ... that I was in the wrong job environment because it's not about teaching, it's about research, which I fundamentally disagree with. And if universities are not about teaching and education, then what's the point of sending my child there ... my own child is not attending university next year and I'm a university lecturer ...[.] [F,W,41,SL,UKZN]

I feel like if some people feel they do not want to do research then give them that opportunity to teach more, to give them more teaching and let us, those that want to do research, give us a little bit more time ... to do research ...[.] [F,A,44,L,VUT]

A recommendation is made that lecturers should be provided with teaching-relief to pursue research.

I think on a larger scope for the government, the government should offer programmes where they give lecturers a relief from their duties to primarily focus on their studies. Why?

Because I think it is a good thing for them to look at developing young scholars like me because that is an investment, you see. If I do more research, I'll be helping the whole nation, you know, and we'll be finding answers, we'll be finding solutions to problems that we are facing in our education system and all that. So, I think if they could develop a programme, maybe the NRF or even the DHET, to say yes, we are going to be having maybe a programme that we give relief to master's students, you know, for a period of maybe four months a year to focus on their study. Provided that they give report, you know, to say yes, in that four months [unclear] if I have to apply, for that total of four months I have to tell them what I am going to be doing that is out of my research, you know. And then obviously they have to find a substitute teacher or a tutor who will be assisting with my daily responsibilities on campus. So, on that larger scope, the government side, that could actually work and [unclear] to the universities as well. [M,B,27,L,UMP]

One interviewee suggested that distinct employment contracts should be created so that staff who prefer to focus on teaching can be appropriately incentivised and rewarded. This may be especially appropriate in departments that are more vocation oriented.

The next would be to, to consider multiple employment contracts and, therefore, employment conditions of service that will reward staff who do more teaching with clear metrics that will allow them to show performance in those priority areas before a selection committee for ad hoc promotion. So, it's both trying to fix the balance of the staffing within the various sections on an equitable basis and also allowing staff to progress, so what we will see is our professional department, like the accounting department, has a very bottom heavy pyramid kind of seniority; many lecturers and senior lecturers, very few professors. [M,W,34,L,UCT]

Interviewee recommendations

- Create separate employment contracts for university staff who prefer to concentrate their efforts on teaching
- Create appropriate incentives to reward quality teaching
- Align performance criteria and evaluations to specified roles (teaching, research, administration, support, etc.)
- Allow for teacher relief to increase research productivity.

Respondents highlighted that there is an unequal distribution of teaching loads between junior and senior members of staff.

... I know for other junior colleagues such as myself, we were just there being a little bit confused because the senior guys that would be able to do the research and reduce their teaching workload, which meant us junior people would take over the teaching workload. Without realising that we need time to do the research, but we don't have any kind of research credits to fall back on like the senior colleagues. So, we would kind of be stuck and then there was the stress of, you know, students are the priority and you have to do very good teaching and all of that stuff. [F,A,29,L,UJ]

... the argument at least in my department, is that because the senior profs contribute so much more to the research at the department and thus inherently carry more of the research load, the junior lecturers thus need to carry more of the lecturing load. That's sort of the rationale.

... nobody wants the big courses. So to some extent you sort of have to work your way up to the smaller courses, the more technical courses, the less administratively heavy courses. ... the most difficult courses to teach, are the first and second year courses because they're big and the students know the least amount, they're the least professional. And you would, there's an argument that the most experienced lecturers and most experienced teachers should take those courses. So then, instead we as young lecturers get those courses. You sort of very much get thrown into the deep end, you know. So now you have the biggest courses with the most admin workload, that you have to now very quickly learn about everything. [M,W,31,L,UP]

... there's still this expectation that the newer staff within a faculty would be responsible for undergrad teaching, even if they have the same qualifications, or even better qualifications than the staff who have been there longer. [...] They would slowly get rid of more and more of their undergrad teaching and give it to the newer staff within the department. [...] having a(n) ... academic workload policy which divides it up into those four areas has helped for equal opportunities. However, there has been a counter to this, with obviously the fees crisis, which has meant that we have lost a lot of part-time staff, we don't have the budget for part-time staff. So, again, the teaching responsibility still falls onto the permanent staff, which again, affects your teaching workload and also the time that you can spend on research opportunities. [F,W,41,L,CPUT]

Lecturers that identify as emerging researchers identify the division of labour and the inordinate demands placed on their time by non-research activities as major barriers to pursuing research.

... the main difficulty for me, as a so-called emerging researcher, is the difficulty in balancing research activities with non-research activities. So, so there's the teaching and student supervision, ... in addition to that comes a lot of administrative duties and one is always required, as an emerging researcher, to start joining committees, faculty committees and, you know, participate in, there are a lot of auxiliary things like organising conferences and workshops and things. A lot of these things are highly counter-productive to the research project ... although my position is supposed to be geared towards producing research, I would spend at least 60% or 70% of my time doing non-research activities ... in a week, five working days, at least three and half of those days, and sometimes ... four of those days would be spent doing administrative duties and I would be left with maybe one day that I could use to actually do some research. [M,A,35,L,UCT]

But the reality is that there isn't space for the vast majority of us to actually pursue research opportunities. So, we've got all these lovely policies. All these nice things that senior management will talk about. But the reality is something completely different. And it's not just me that experiences this. This is across all colleges. Across all schools. When you look at who is publishing regularly, and who is [Unclear]. It is the same people every year. Across colleges. Across schools. There are no younger or emerging people breaking into that. Because that environment doesn't exist for us. It exists in paper form. And in policy. But in reality, those spaces are not created. Any attempt to engage with people around the high teaching load, the high supervision load, is just kind of, you know? You're then just seen as being a noisemaker. But you are just trying to express that, wait a minute. I am supposed to fulfil A, B and C. I'm only doing A, and not being allowed to do the rest of it. And yet, at the same time, I am being told, well, you are not performing. But the reality of my situation is not being engaged with. [F,A,45,L,UKZN]

Unequal distribution of teaching load is reportedly not confined to rank, with one respondent noting that women carry a heavier administrative load within her department.

... the women who have been convening those courses over the years have not been senior, they've been junior. Some of them have moved up and been promoted, but generally that really heavy convening load has fallen to women. [F,W,34,L,UCT]

A clear metric to determine workload is desired by one respondent.

... you see, our great argument towards the faculty is that there is a metric that needs to be developed and we suggest one, but if it's going to be a different one it needs to make sense, and the metric we suggest to make sure that our staff load, workload is comparable to other departments, is a simple number of students to staff ratio. And that can be applied at different levels, so number of students and undergrad staff who teach undergrad or number of student in post-grad to staff who teach in post-grad, and that needs to be an analytic that can be applied broadly across departments and the faculty, just to ensure that, when it comes to appointments, we have sufficient staff. We believe we're understaffed and we believe that that metric shows it clearly. And I agree with you, we're doing far too much teaching and not enough research, and we're being held to ... research criteria in promotion. And we could solve that problem by reducing that 80%, 85% teaching workload by having more staff, freeing us up to do less teaching, obviously, and more research. But without the staff, and with the growing student numbers, we can't do that. [M,W,34,L,UCT]

There are respondents who noted that the distribution of workload amongst staff is carried out in a transparent and fair manner.

... we do this very, very systematically and controlled, so we actually have a robust and consistent and fair, relatively fair, means of quantifying the quantity of one's teaching across the different undergraduate and post-graduate, Honours, etcetera, by using factors. So, you'll teach a certain number of hours. The more junior the course, the smaller the factor is applied to it to get your contact hours and we have a minimum expectation, regardless of level in the department, to reach, for us it's 220 contact hours. But not all hours are treated equal, so an hour face-time before a first year student is, does not, has a factor of one, for example, but an hour before a post-graduate course can have a, a lecture, can have a factor of two and a tutorial can have anywhere between one and two, so we've got that means of quantifying and that way allows us to standardise the teaching load. But that's internal, that's not a university or even a faculty system. And then marking as well, marking is standardised. Yes, so we do reward more senior staff, though, with a lower expectation on the marking side, but it is still very controlled. [M,W,34,L,UCT]

Every year, we do what we call workload. It happens around the month of October, this month, where the workload is equally distributed to all staff members, and study is regarded as personal and therefore does not actually count towards delegation of workload. And as a result, we all receive an equal load in terms of teaching. [M,B,41,L,UJ]

Administration not related to core teaching role

Respondents highlighted the burden of student registration.

So, I'm saying that's why I said to you again, if we are not involved in registration for two weeks in January, we can spend that time attending a workshop instead of spending time at registration.[F,A,44,L,VUT]

... getting the person registered initially. So, that's like a Masters student right. So, the first few months you have to deal with getting the person registered and that requires a lot of documentation and also, you know, just getting the person organised. [M,C,49,SL,SU]

One senior lecturer noted the added burden of counselling students.

The other thing is there's a lot of student counselling that goes on. Whenever the students hit an academic glitch, you're the first port of call for that. [F,W,38,SL,UKZN]

Some of these activities relate to student support and administrative duties that should be carried out by the university administrators.

Yes, a lot of administration and a lot of student support that is properly the job of the university administration, so just one example is being bogged down by student queries relating to things that we can do nothing about because the administration simply doesn't get back to them and if they do, it's a question of, like, six weeks, two months type of timeframe ...[.] So, we ... have to mediate with the administration, which is not really an academic function. [M,W,29,L,UNISA]

... the sad thing is years ago when they did a restructure, they actually restructured things and we were even told that you'll be doing less administration so that you can focus on research. But the reality is then there were budget cuts, higher education started suffering, there were less administrators. So, in the end you have fewer administrators and in a sense then more went towards academics. [F,C,34,L,UWC]

... with regard to the admin in the department, and ... you find that you also have to do some admin work for the school, and also for the faculty. ... I have been appointed as the acting Deputy Director for the School ... I will have to find time to do the admin work for the school. [F,B,44,L,NWU]

But there is just no urgency from the actual support staff. So you have got to like constantly sit on their case, constantly phone them, constantly beg them, to the point where, I mean sometimes, you are almost booking the flight and the stuff yourself because you are so panicked that they are just not going to do it in time. [F,A,30,L,WITS]

... frankly speaking, I feel like our administrator is like a princess who doesn't do anything. If we have to find venues off campus, because of the impasse and the shut-down, we do it ourselves as lecturers. I honestly think that the venue issue should be sorted by administrators. If there's an exam and I have to go for exams; I'll get to the exam venue, other invigilators and other course convenors will be having a whole package with them. And then when I ask them they will be saying, I got this from our, our administrators gave them this. ... [b]Because I've got colleagues in other departments all over; they have more support from their administrators. I honestly feel that I'm doing a lot of administrative work that I shouldn't be doing ... I was at University of Pretoria before I came to UCT. I'm comparing the admin work that I'm doing here compared to the admin work that I used to do at UP. And certainly these are two institutions that are doing well in the same country; the admin work is totally different and there's something amiss here. [F,B,48,SL,UCT]

I have a budget of half a million rand that I can use ... [.] ...[t]The administrative hassle of even these huge amounts of funding ... the university was completely unprepared for that so I kept trying to, you know, they wanted to pay, they wanted to put the first payment in SPU's bank, they want to pay and it's like R200,000 that someone wants to pay in our bank and the finance was like so confused, they've never done this before, they were like is this a gift? I'm like no,

it's research funding, it's not a gift, put it in a research account. You know, there's no support. ... [n]Normally there'd be a research office and people who are wonderful and it's their job to do that but we don't really have those systems in place so they don't even have an ethics committee, we actually had to do my ethics clearance through UCT. [F,W,29,L,SPU]

Publication hurdles

A number of difficulties related to publishing were reported. Respondents noted that they require assistance in identifying appropriate publication avenues (journal impact factor, rating, etc.), a lack of methodological preparedness to publish in internationally accredited journals, as well as trouble obtaining journal fees.

I definitely think emerging research needs help. For example, when I started, I had no clue as to which journals to publish in and the ranking of the journals and I had no idea. I didn't know how to write a paper, nothing. So, I definitely think ... maybe that's where the NRF can come in to help as well, with small mini-workshops. It doesn't have to be a week long, just really a day or two days and you know journal writing and where do you find journals. How do you publish in these journals and what to look for, etcetera, I think that would really help?

[F,A,38,SL,UKZN]

Where can we go to find out the journals' rankings? What is a citation? How do we go and find papers on the various tools that are available to us on our computer? For example, Google Scholar, or the other facilities that are available to us? We're not trained to do that. We're kind of left on our own. And then we wonder why we don't perform in the research area.

[M,W,34,L,UCT]

So, I feel that we are really under-resourced with access to methodological experts ... it's very difficult for me, apart from my, like one or two conferences a year, to keep going overseas to do these courses and I find like we're very limited in high-level method courses, because I find that that's what, to a large extent, often prevents us from getting the research into better journals ... that the methodology's weak, the design of the study is weak. So in terms of trying to improve my own skill in that I don't find it in our department...[.][F,A,38,SL,UCT]

... for something as simple as there are some journals that require ... page fee for you to publish. That structure, that fund of where to apply for to get our papers published that, those page fees is ... as early as yesterday I paid my own page fees to a journal in South Africa because I knew my institution, they will ask you yes, we understand that you publish, but we don't have a fund or a structure that we can use to pay your page fees. Yes, we understand that you have written a paper, we don't have, we can't help you with the editing. You know, the simple things like that. Yes, we understand that you need to analyse your data and you need maybe an online program but those structures are not there. There's an understanding that those things need to be in place, but at the moment there's no research policy to help emerging scholars be able to access funds from the university to be able to publish ... [.]

[F,B,36,SL,SPU]

Another salient issue highlighted by researchers relates to the DHET journal accreditation list.

... it [journal] was accredited for 2016 and I paid the page fees and all that. And in 2017 I found that no, the journal is now no longer accredited. Then I now have to withdraw the paper and now I'm still busy fighting with them because they want the rights and since I paid some fees now I'm saying I want to withdraw and start something with another journal. [F,A,48,L,UJ]

Pretty much. I think it's also particularly because in my field of design specifically, it's interaction design which is fairly new, experience design so very much in South Africa if you want to publish in a local journal you have to go completely out of your natural field. You either have to publish in something like computer science or in very much like graphic design which is, again, quite a side-roads movement. Nothing in that really talks to the field.
[M,W,42,L,UJ]

It was suggested that ring-fencing time may contribute to productivity.

... it was a faculty initiative, they blocked off days, you know where they said okay, all these people are not supposed to go to class, they must come and write. They must have a writing session and what happened was the journal, the editors of the journal came to give us feedback and we were all expected to be there. So, we made the corrections and everything on that day, on those manuscripts, everything and got it published. So, it was very hands-on.
[F,A,44,L,VUT]

I think each and every researcher within the university should have one semester in which they don't lecture at all, in which they can actually focus on their research, do the writing up, and things like that. I also think that researchers, although it is on paper viable, it never really happens, should have a day a week or something like that where they can actively interact with industry ...[.][F,W,49,SL,SU]

Research networks

Several respondents indicated that they have established various networks through formal organisations and associations, collaborations, post-graduate studies and colleagues.

I already have my own research network. First of all, because I'm a member of a couple of organisations, [national associations]. Most of the conferences I attend, I make sure I meet people and also I make sure that I keep in contact with them. So, because I have been on the editorial committee of [accredited local journal] for the past five, six years. [M,B,42,L,UWC]

I also have contact with a few senior established researchers in my field who, obviously, have had more time to build networks and have been working in the field for a long time. And these researchers also help in that regard. The collaborative project specifically came my way because a senior researcher I know and who knows about what I did in my PhD knows the researchers, other researchers in the project, and when they contacted him and asked him if he knew about someone who worked on the topic, he referred them to me.

[F,W,29,SL,NWU]

... have been lucky to know one or two people that I can do that, or my contemporaries within the field who have now gone on to teach at other institutions, where I can, I have got a friend who is the same age as myself, who teaches at University of Pretoria, and I can confer with her about research ideas, or another contemporary who I studied with at UCT, did master's with ... who is in Lithuania, we often share ideas. So it's more about maybe, ... sort of ... peer comradeship [F,A,44,L,VUT]

I ... it's not like I don't have colleagues on our campus with whom I can talk about research. It is just that there is no other colleague on our campus that focus on auditing ... making it less likely to have a conversation on an audit-related researchable topic. [F,W,39,L,TUT]

I've developed a platform within the department where we can share and educate colleagues in terms of everything to do with teaching and learning, curriculum, accessibility and so forth. So, we have developed a platform which it is running at the moment.
[M,A,55,SL,Unisa]

Respondents mentioned the importance of industry networks.

So the teaching has this one beneficial effect that I've become known in the industry because my students are everywhere, and I've had very good success with approaching industry for problems to solve and solving their problems. [M,W,39,SL,UP]

... there tends to be like a lack of correlation between South African industry, you know, and their need to be innovative and the fact that you have South African universities doing a lot of research ... and I know in our field particularly it seems to be like ... industry sees the role of universities as training students for them. They don't really see that kind of role that universities are creators of innovation and can actually lead industries. So, I think maybe that would be one place that I would like to obviously make ... I'd like to connect those dots in summing the value of the universities as, you know, the international leaders in a country.
[F,W,42,L,UJ]

I need industry engagement and the marriage of the two is where I find my research.
[F,A,38,SL,UKZN]

You also need to build relationships with your industry. Because our industries are the ones employing our students. So, I do industry visits. I make sure that students are ready for that placement in industry. [F,C,39,SL,CPUT]

I think the greatest help would be Government linking us with industry, especially as up and coming researchers. From my experience of data collection from my master's, I had to abandon quantitative research, because industry purely just did not have the time to respond to questionnaires. So, I think if Government can establish that link ... in fact, that's what my PhD is all about, into understanding what is the problem in having these university, industry and Government linkages? [...] We publish stuff that just stays in libraries and is not used in industry. [M,B,30,L,UP]

Problems of identifying and accessing research networks were mentioned by various respondents.

There are networks out there but it's very hard to access. One of the things we've found with academia when we've first entered was that people are really closed and they don't really share their networks. They don't share, you know, like journal publishers, and they don't share means of accessing these things. So, it's only once you get into academia and once you're allocated to a good supervisor, and now with this mentor, that they are able to share these things and you find their insights out. So, those networks ... I think one has to show a lot of initiative, but one can only do that, especially when you've just come in from the outside, you have to be mentored on it because it's something totally new to you.
[F,A,52,L,UJ]

And you find it very difficult to penetrate those well-established research groups. It's almost like ... it's invite-only. [F,B,33,SL,Unisa]

I think there needs to be more collegiality in the department in order to shape, and we need to know what each other ... what they're researching in other groups ... research groups, share with each other in terms of all of these areas, that would also help. I just ... it's really

having to look for collaboration outside your institution. Within your own discipline, I'm sure there are a lot of commonalities, but everybody seems to just work on their own. [F,A,41,L,UKZN]

In some cases, this was due to a dearth of local networks in their respective fields.

... there's very little people to network with in my own field, locally, but then that has an impact on the students who I supervise because I have to nominate external examiners for them and that's very tricky because you have to nominate an international and a local examiner and locally, there are just aren't many people in our field. And internationally, I haven't really made the contacts internationally, you know, for people who I know I can approach, you know, can you help examine the work, but that it slowly improving internationally, our relationships internationally. It's difficult and a bit daunting to approach the experts in the field and, you know, but it is something that I'm doing, but locally, there's a very, very small research network. [F,W,28,L,UCT]

Interaction between universities could be encouraged to facilitate the establishment of research networks.

I believe that perhaps maybe as colleagues, in this particular discipline, maybe we also have to make initiatives where maybe we will have ... between two universities, let's say two universities that are offering development studies, maybe North Western University and Wits, then we come together as those two departments, we have seminars where we discuss papers, and perhaps, rather I think that it could serve as a good platform for us to network, because I am also thinking ... if I meet a colleague, maybe from one university at a seminar, and then that particular colleague may know somebody who is interested in that field that I am also interested in ... that colleague should then refer me to that one, in that way, we are then able to build a network, and ultimately, a community of researchers. [F,B,44,L,NWU]

Conference attendance was also mentioned as contributing to a respondent's ability to access research networks.

We are very limited in attending the conferences. Actually, we need to attend one conference per year. So, I don't think, given that opportunity, such a limited opportunity, you can't be able to grow faster. And, you know, if they can probably increase the, or remove the limitation in terms of attending the conferences, and so on, maybe we can be able to grow, maybe a little bit faster. And we can be able to have more network internationally, than the local network. [M,B,35,L,CPUT]

... travel overseas to conferences. Then it's relatively easier to network and get colleagues that are working on similar fields far away, and you will collaborate. So, that's the kind of work I will do personally. I don't know how other guys do, I think it's similarly, they have collaborations with other colleagues, within the university and with other universities, that they have relationships with. [M,B,42,SL,TUT]

Hosting elite national and international scholars may also create networking opportunities.

... bring the best of the national and international scholars and let them come and talk to us you know. You know, how do you publish in those top journals, what is it that is sort of unique research, because you often grapple with that? [F,C,34,SL,UKZN]

It was suggested that there should be a deliberate policy or programme intervention to create a platform that would ensure that emerging scholars can gain access to networks.

... creating a community of young women academics. Like a deliberate ... community, like maybe, what's this, an app or a website or ... and then have seminars where they meet and they present amongst themselves and they push themselves ... and they invent it, so they're up [?] to it, so ... right? So, you create a platform for them to run it and, then, it forces them to even compete amongst themselves without feeling like they are competing. So, if you see that your colleague is going overseas to present [inaudible] and you're doing nothing, you think, what's the problem? So, they also nurture their own community for you.

[F,B,33,SL,UNISA]

... the NRF could do something where they sort of have a database of emerging scholars and you're part of it and, you know, you can sign up for more workshops also, but where they are able to bring down really sort of exceptional, leading people to help you on aspects, but also where it draws a crowd that's not only from your university, so you get to meet people ... then work, for the networking, in other universities in your vicinity and I don't know, maybe that could open up some possibilities for greater collaboration between ... I mean, if I think ... Cape Town's got, you know, three universities sort of in such close proximity of each other, but we all work very much in silos and I know somebody working at Stellenbosch that I went to go and see on the project I'm doing, but it's still very much like ... this is my space, don't come into it. [F,A,38,SL,UCT]

And also ... sort of maybe NRF can start a sort of a research cohort group of emerging researchers. So, that at least we can ... emerging and non-emerging researchers. So, that at least we can help each other. [F,B,45,L,TUT]

Mentors and role models

According to respondents, a mentor should fulfil a wide variety of roles, ranging from being career coaches, advising new appointees and guiding them in undertaking specific academic tasks (teaching, research, publishing, supervision).

We need to know how do they teach, what are the best strategies? Tacit knowledge that they have about clicking and connecting with students, and the delivering of content in certain ways, it has to be evident. We have to also see them publishing with us so that we can see, okay, the whole process of how you do everything. I've been publishing with my supervisor, my PhD supervisor. [F,B,48,SL,UCT]

So, there is so much procedures that you need to follow in an academic career, and nobody actually tells you. So, once you get appointed, nobody tells you, you know, this is how you find a journal, or this is how you go for a conference or for me, like the biggest mind opener was, the thing of [inaudible] journals, I didn't know it was a thing, because you get all these emails and they are like, publish in our journal, submit your paper and you will get published and I think you need mentors to stop you from basically doing something stupid early on that could impact on your career, because they have the experience, they know how long it takes to actually get something published, or they know how to manage your time effectively. Even something as simple as salaries, I didn't know that there were actual scales for salaries and so I actually found out now, that I am getting underpaid, and I think if you have a mentor, the mentor tells you, look at the salary scales for university, if you are appointed on this level, this is what you should be getting. So, for me it's just, what I would expect from a mentor is, they must ... basically you must be able to capitalise on all the things that they know that you can't

access online or in a textbook or in a note, all the experience that they have. If as a young academic, if you could access that, that would be very helpful. [F,A,30,L,Wits]

I mentioned to my head of department and to the Dean as to what should be done for a kind of mentoring system, where there is a new lecturer, there should be a person that is a mentor to the new lecturer just to be able to find their way in the department. There were sometimes where I would get to a lecture hall and I don't even have the password to start the computer in there. It was obviously ... the information was not given to me. What happened, every time information was given to me was only when I was facing the problem. Nothing was given to me in advance towards it. I was facing a problem and I would ask for help and I would be very busy. I should have known about this and I should have known about this. My first semester I can say was quite lonely because of all of these issues. There was not any mentoring system. [M,B,42,L,UWC]

Yes, I think the nice thing of having two mentors looks at different aspects of development, because teaching is one thing, and research is a completely different ball game. [M,C,31,SL,NWU]

Having a mentor that can advise on procedures and on things like where to publish or where to find resources. My supervisor, after I'd finished my PhD, he kind of took on the role of a post-doc mentor who really would sit with me and discuss where a specific topic that I'm working on would, you know, which journal would be appropriate to publish about that topic or things like that, or someone who has experience at this university with how to access funding or who to talk to about procedures, so that has been really a significant help in knowing someone who knows the resources and the system and who are willing to give you advice and guide you. And also, you know, introducing you to other senior researchers to extend your network and develop contacts and things like that, I think that's been one of the most significant advantages that I've had from ... in developing my early research career. [F,W,29,L,SPU]

A mentor for me is somebody who would direct me in my academic career, and research. Somebody would ... you know show me how to improve, somebody would assist me with the publishing, with directing me to good journals, all of those things. And that I think, if I had that earlier in my career I would have probably progressed further. [F,A,38,SL,UKZN]

Perhaps we could even apply for having a coach. You know, a research coach ... or someone to help us with our research. And coaches are ... what about retired academics? Retired academics ... our previous Head of Department. He retired three years ago. He's not doing much at the moment. Actually ... anything. He would love to support and help. Why can't retired researchers be brought in to coach emerging researchers if they can motivate for it? [F,C,39,SL,CPUT]

Some respondents indicated that their supervisors preform the role of mentor.

I was in a privileged position to have a supervisor who was a good mentor and even at the beginning of my PhD studies published with me and she assisted me to learn how to write articles. If I look back at what she did, and I always tell her that ... she was marvellous, because she asked me to just write a relatively small portion of an article which I could handle, and I was knowledgeable about, and that boosted me. Now, that can happen more often with senior faculty members ... really working with scholars ... not another way of putting pressure on them, but really creating opportunities for them. In my experience it helped me a lot and I still publish with her and I still work with her. [F,W,55,SL,UFS]

Also, when it comes to research, most of my research that I'm doing right now, I'm using my former PhD supervisor to mentor me. Currently, I'm also engaging with my current supervisor for my second PhD as part of the mentorship programme, but there is no specific mentor ... [.] [M,B,46,SL,UCT]

Other respondents indicated that they especially wanted a mentor who is not their supervisor or line manager.

You know, I'd really like to have a mentor; someone who is not my boss, someone who is not ... previously been my supervisor or would be my supervisor, that ... can guide a person to, you know, talk to about the plan and what is a good idea and what is not a good idea ... and I don't think there really is that available to me ... I don't really know who to approach, but yes, so I wish there was some sort of mentoring program in place, there for us.[F,W,35,L,UCT]

I wouldn't say my supervisor is my mentor because he is so negative. I don't know, like I've submitted three or four times and there is no hope in his reports. There's no hope, you don't have that space of voicing and telling yourself that at least he liked something about my stuff. Every time you submit, it's just wait, wait, wait and no [unclear]. I understand if you are a student, you have to get feedback, of course, but if you always get the negative feedback, what do you think? Are you going to be motivated? You would be demotivated, yes. [M,B,27,L,UMP]

Respondents emphasised the need to have experienced academics as mentors.

What I find is that when we are still new and coming into academia, these experienced professors and these experienced people ... they have established themselves, they know everything. They need to really mentor. Mentoring in the sense that even in the projects that they have ... but if there's people that are meant to be mentoring, especially the almost retiring, or retirees. Because most of them, they really come from white privilege. They should really be taking somebody with them ... and even extending a little bit of funding. [F,B,48,SL,UCT]

These people who do these kinds of mentoring, they also do it in an informal way just when you're working with them. And they never seem to be the chairs of departments, the heads of schools, the dean or so on. They always seem to be just more colleagues [M,W,30,L,Unisa]

So, the project and my research area is interdisciplinary and so while I have a supervisor in the one field and a supervisor in the other field, there's no one at [my university] and also really in South Africa who I've met who is in my field and could be a mentor to me in my field. So, I mean, I've got mentors who I look up to as, you know, good scientists and things like that, but there's no one directly in my field who knows more about the field than me, really. Because it's interdisciplinary and it's an emerging field ... it's very difficult to, you know, not have someone to learn from in your field, if that makes sense. [F,W,28,L,UCT]

Some respondents indicated that a mentor should share their demographic profile.

... some of us, we were lucky ... to be mentored by some of our ... brothers and sisters from other African countries. ... I'm seeing in our university, in which they advertise now certain posts, actually looking for only local people, meaning that they're South African. The question is: do we have ... actually them, in our database, that have the kind of the quality that we are looking for? [M,B,42,L,UFH]

Because I am black, there aren't a lot of black researchers and you find that you don't have a lot of role models ... there aren't ... to actually encourage us to be focused or even to see the value of research. [F,B,33,SL,Unisa]

There were respondents who noted the efficacy of formal mentorship programmes.

Part of the nGap program that I'm with, is that I'm allocated a mentor and the mentor just happens to be in my school as well you know. And he was formally my boss when he was acting head of the school. So, I view it as quite an advantage for me, because he understands the program ... you know ... and he's ... you know ... also a well-versed academic. And yes, he's very supportive and even with the regards to my studies or with regards to any teaching stuff and he even helps co-teach some of the chapters in this module that I'm teaching and so on. So yes, he's pretty much a run-to guy, you know, whether it's academic-related or work-related or even personal-related, you know. So, it does help to have that mentor and I certainly have that, yes. [F,B,24,L,SPU]

... part of the ... it's called the Early Research Career Mentorship, it's also known as MERC, and you basically get to choose a mentor and you decide how many times a month you need. And you decide what you want to talk about. I talk a lot about the research. It could also be related to teaching. How can I improve my classroom, or my lectures, you know. How do I get students involved? So, all those things I speak about with my mentor. But at the same time, it's not always the professional side. They also are interested in your personal life. Okay, do you have a partner; how's it going; where's your family; how do you deal with stress? And they would give you tips and things like that. [F,B,33,SL,SU]

Reasons why respondents felt that senior academics are not mentoring them included the following:

I think most of the senior academics are focussed on their own careers, and I don't think this is true for everybody, but they are focused on their own careers, and they are close to retirement in some instances, where they are focusing on their swan song or their contribution, that they don't necessarily create time for mentorship. [F,W,41,L,CPUT]

Remember, some of these associate professors, these PhD supervisors, they are still teaching two, three subjects in that particular university, and yet they are expected again to be supervising a postgraduate student. And it was not only me; they had like three, four other students on top of that. So, for me, it was ... I would say, sometimes I would submit something to my supervisor as agreed on that particular date, but it would take some time for him to get back to me. But I wouldn't say it's because maybe he's incompetent or anything, but I think it would be based on the fact that their workload as well, it is ... [M,B,27,L,TUT]

Lack of self-confidence

Not surprisingly, respondents who noted that a lack of self-confidence is a barrier in their research careers, are early-career lecturers.

I do not feel confident at all. I have a lack of confidence when it comes to research and doing research work. I am really, really not confident, even when we are given students to supervise, as a supervisor I feel ill-equipped, I do a lot of reading and a lot of ... on how research works, and supervision works as well. [F,B,34,L,CPUT]

It was like part of the reasons that I haven't sent my stuff out, I think that it's that fear of rejection, somebody saying, oh, but it's not good enough. And I thought to myself, but that's

actually stupid, because it's not good enough, then you are told what you need to fix [M,B,34,L,CUT]

Yes, exactly. It's exactly that. And I think that's where the lack of self-confidence comes in. Because I'm savvy enough to know, people are expecting me to know, certain things on a certain level, but I know that I don't know these things. [F,C,34,L,UWC]

Funding

Many respondents cannot access or apply for funding due to numerous reasons which include appointment type, citizenship, age and field.

... my current contract is a three-year, temporary contract, so that's, I mean, there's pros and cons, right. On the one hand that allows me, that allowed me to get into a so-called tenure track position early on without as much experience as would usually be required, so that's a positive, so yes, I can get into university, I can supervise students, I can run research projects, and groom myself as a researcher. But on the other hand, it also means that there's lots of funding sort of interventions that I may not be eligible for, because I'm a contract employee. [M,A,35,L,UCT]

I'm not a South African citizen. Sometimes that also is a barrier on my behalf, as they may not consider my application as compared to an application by a South African. [F,C,36,L,UWC]

I just thought with funding, that's what I think. Maybe I might be inaccurate in terms of how I interpret things. There is an age bracket. When you are over 45, it's like you're too old. Maybe you're close to pension. But when you are younger, funders are more interested in working with you, or investing in you. [F,B,51,L,SU]

Also, the unequal funding formula in Higher Ed where the Humanities and Education and Law are getting fewer subsidies than the others. [F,W,55,SL,UFS]

Another respondent cited a lack of knowledge of funding opportunities and how to access them as a major barrier.

... going into my PhD, that I don't really know how to access funding. I haven't been that involved, I mean I have received scholarships and bursaries and things like that, but in terms of research funding, I don't really know where to start and I know there are some workshops offered, like on how to write or apply for grants and that kind of thing, but I haven't attended any of them yet. I suppose I would rely on a supervisor to help me with that but, yes, I haven't got experience in applying for funding and I wouldn't, at this stage ... don't feel like I don't really know where to start. [F,W,36,L,UWC]

In order to produce research successfully and competitively, one respondent noted that he required funding for a research team.

Of course one would like that ... you know ... one would like a big team ... you know ... with a Post Doc and with two PhDs, so that one has good graduations also. But of course, you know one is always worried you know for example the Post-Doctoral, maybe the Post-Doctoral fellow has funding for salary. But you need also funding for a good project and that's usually very costly and then you know there's no immediate output in terms of graduation. So, this one has to balance very carefully. So, it's not that one with the Post-Doctoral fellow that you

get an additional R300 000 budget for your research, which is what overseas is the case ... with sort of the understanding that ... I will train these students successfully in the minimal time ... let's say master's two years, PhD three years and you can expect good, competitive publications. So, I would break it down to ... if that is given ... then you don't have to stress as a supervisor ... you know that you can give the students really maximum exposure, maximum exposure to techniques, to technologies. That in turn will foster good data that will make it into the high-impact factor journals. But if your budget is tight then your work ... you know, you will limit what you can actually do and you will say, no we don't have time to spend more on this instrument. So, we're missing those data, so it can only be a mid-impact factor journal, purely based on the finances. [M,W,39,SL,SU]

A reported narrow focus, problems with the application process (time consuming and complicated), and the administration of approved funds were identified as problems associated with NRF funding.

Part of that comes from that motivating where the NRF says, you have got to have a very narrow focus or you have got to have a specific interest and you have got to have x amount of publications. So, if you are going to make a difference in the science of cardiology, and you choose that as the focus area, you are never going to get that NRF rating in the next however many years. But certainly if you say, oh, but I published ten articles in a local journal on health or education of cardiologists, then you say okay, you are an expert in your field. So, I think we need to rethink how it is that we give accreditation to something like NRF, how we reward people in terms of their, you know, like for the publications and stuff that they do. [M,C,42,SL,UFS]

And they [NRF] want you to complete application forms which show your advancement as a researcher or at least progress as a researcher. And then you know the niche areas and so on. I just think the NRF application and granting of funding differs or is not aligned to your performance management systems at an academic level at an institutional level. Nor does it actually align to the institutional performance requirements or indicators. So, the NRF needs to become a lot more aligned to what is it that they're looking for and maybe their grants, even though they target specific areas or ... you know ... science and technology for example. They need to see how that influences job creation ... you know ... on the other hand and whether or not that is being tracked, I have no idea. All I can tell you is that I don't see a direct link between being an NRF weighted researcher and promotional requirements for young academics especially. And then, more specifically, for black female researchers, you know as much as they would, I suppose give perhaps more ... you know ... highlight the plight of researchers when they dish out the funding, but black academics especially. But I'm not so sure whether that is the case from what I'm witnessing, I find that if you are associate Prof or Prof level and because you know the ins and outs of the research application process, you would actually gain funding far quicker than a young academic. [F,A,54,L,UJ]

I take a lot of time to apply to the NRF, because the application process is not simple, most times. It is supported by the institution, but then often it comes back as the review has been rejected. I would like to know why it was rejected and how I can improve so the next time around it can be successful. Or perhaps just guiding us, because I don't think that it can be rejected all the time, maybe once or so ... I don't know what the criteria is when they're reviewing or what the reason is for the rejection. [F,A,41,L,UKZN]

So I, specifically with NRF, I started my application for Tutuka funding this year, and then I didn't finish it, because I got through everything very nicely, and then when I got to the part where you had to specifically say how you were going to use the money, I couldn't elaborate

on it. So, I think NRF maybe should do research and see, for specific science areas, what are the actual costs. So, I couldn't substantiate using 80000 a year or 100000 a year, because my research doesn't cost that much, so I just didn't continue with that Tutuka funding. So, I think making grant specific to specific areas of research, because they're different. So, someone in the Health Sciences Faculty has a very different layout of their research to someone in Commerce. [F,A,30,L,Wits]

I have an NRF scholarship at the moment which I'm really battling to access, because they are very rigid with regards to the deadlines and there are some factors in my institution that do not facilitate meeting those deadlines. I've now missed two deadlines, and as a result, I've lost out on R50,000, which is a lot of money if you think what I could have done with that. And I don't perceive the NRF really to be an academic strength. It's not easy to get funding from them, and being white makes it even more difficult to get funding. [F,W,43,L,Wits]

A respondent in Arts & Humanities reported that the funds made available to her could not be utilised at her discretion.

The thing is, I think it's with the misunderstanding with the fields, our own fields ... like for mine ... I'm in music. Now, if I need to analyse my music, I need to buy those CDs and I need to have an iPod to store that music, I need to have a docking station, I need to have ... Like somebody else who's not familiar with field we say, that's entertainment, then you can't have those you know. And yet it's something that I'm working with, if I'm saying I need a specific type of laptop, I can't work with a normal laptop because I've got lots of music and lots of videos. And then, for analysis also, they don't understand that I need to have this basic laptop that just give very soon you know. So, that's what I meant by that. Yes, they will allocate you that money ... that is your money. But then you are not able to access that money to do your research, because the person just doesn't understand your area of research. So, the things to him or her is entertainment, it's entertainment and yet to you, you are going to do research with them you know? [F,B,41,L,WSU]

It was recommended that funds be made available specifically for emerging scholars.

So, what happened is that the university should provide seed funding to these emerging researchers so that they can be able to do some research and generate research output and that they can now use to do their CV and be able to attract external funding. [M,B,46,SL,UJ]

Research infrastructure and equipment

Problems associated with infrastructure and equipment include very basic communication infrastructure (working phone lines and internet connections), access to equipment, ill-equipped laboratories, under-resourced libraries and software and data-access licences.

Now, my landline is not working. Even to this morning I was there telling them. But they just said to me, no just wait, it will come eventually on its own. So, it's true. Now I'm waiting. Imagine now how many things I have to do, like calling. And I have to get out of my office now just to go to another building to tell my colleagues what maybe I want from them. Which is something I could have done in two minutes, in the comfort of my office. [M,B,42,L,UFH]

... we need the resources because in our institution, if I can make an inventory, days will go by without internet access. [F,B,41,L,WSU]

Yes, there are a whole lot of equipment that we don't have and then you have to run around to other universities trying to get the equipment. [F,B,45,L,TUT]

So, here we've got new labs that we have built, they've been commissioned in 2014. But the way they've equipped those labs for us, like the top-down approach. They bought all expensive equipment. For example, they bought an electron microscope, a confocal microscopy that we can [unclear] and we can do basic research, not [unclear] basic things you need is distilled water, ultra-pure water, basic tools like pipettes and that, and that we didn't have. What we have is multimillion rand instruments collecting dust. [M,A,33,L,Unisa]

... it is very difficult to build a research group, especially in my field, where you need some equipment ... some of the established researchers, the equipment which should actually be available to all the young academicians and all, it is not. Sometimes, people behave as if the instrument belongs to them and not to anyone else and you cannot use the instruments. And the university does not allow the duplication of the instruments. ... Some investigative instruments, which have become very common and essential for the researchers, like your mass spectrometry ... LC-MS, Flash Chromatography and other small equipments. So, they are not available. You become handicapped. And then, you have to solely rely on the MRI Spectra, which are basically an MRI, is ... We have one here in our campus, but then, the number of people using them is the entire university, even the outside university people, as well. So, it becomes difficult. It leads to delay in the project and delay in getting results and so on. [M,A,42,SL,UKZN]

... our campus is based in a rural area and number one, library resources, very poor. I think a library should be a friend of a researcher, but then our library, you will go there looking for a book, they will tell you that they're not subscribed to any journals. They appointed someone now who's working on that, but in past years now, we didn't have a proper support ... the second thing is the Internet connection. We have a very big problem on our campus with Internet connection and you end up using your dongle and your router and it get depleted, sometimes you get stuck when you're about to download articles or big online books and so forth. [M,B,27,L,UMP]

... we have one Bloomberg terminal, for the entire school, so for every single Honours, master's, PhD student in Economics, Finance, Marketing, HR Management, Insurance, there is one, one Bloomberg licence. So, even if you go and someone is sitting there and there's a queue, you can't access your data. [F,A,30,L,WITS]

But if you want to, let's say, SPSS and ATLAS.ti, ... both of those programs are essential for us in terms of analysing data, the question that arises, is why is it that we don't have direct licence for it to download on our computers? Why is it that we've got to fight for the most upgraded versions? [F,A,54,L,UJ]

And they said, but we can't access *Nature*. We don't have access to it. The platform won't allow us to because we're not ... We haven't paid the fees for us to access *Nature*. And *Nature* is the most important journal for us in this faculty. So they are saying, ah, but I have a friend that's at Pretoria or at UJ and they've got access to *Nature*. So I email that person and I say, listen, I'm looking for this. Can you please pdf it to me? [F,W,35,L,UFS]

Maternity leave

It was suggested that institutions should provide crèches or day-care facilities.

I think, you know, like certainly when you are pregnant, it's hard, you get tired. When the child comes, it's another story, you're on maternity leave. You have to catch up and yes, even through the different phases it can be quite demanding and ultimately, you know that is an important aspect of one's life, of course, you don't want to neglect your kids. So, it is demanding, there's a lot of pressure, different spheres of one's life. So, definitely and I think it would have been so nice if the universities would have had crèches or day-cares on campus, it could have really helped a lot. So, really in my opinion that could have helped, there's a lot of companies that are going that route now, where there's sort of a more enabling environment, where they understand it's an important part of your life and they can help you in that respect. Obviously, you'll still pay, but at least the kiddies are on the property, they are close by. [F,C,34,SL,UKZN]

So, things like crèche spots at UCT and these kinds of things. That would be very nice and that would also, I think, enhance productivity of a lot of people, because you don't have to rush somewhere to town or somewhere, wherever, into the southern suburbs, to pick up your kids. So that would help, I think. [M,NSA,34,SL,UCT]

Lack of conducive research environment

University management

Support at the highest level of university management has a major impact on promoting a conducive research environment.

... let me say, in the past five years, there was somebody who was DVC of research who was a little bit more concerned about the research, who really, really wanted to take this university forward when it comes to research. He came and implemented quite a number of things. And then unfortunately, because of issues within the institution, that person left the institution, and then after the person left the institution, that is when ... now this started again, going down, just like I explained previously. [M,B,37,L,UNIZULU]

A respondent identified the need for a high-level/flagship research initiative in order to gain international exposure and stimulate research.

What I also think that, certainly at my university, is that what you need is you need flagship programmes, you need centres who drive certain research, because that then really stimulates the rest of the faculty, the rest of the different departments. If you have a unit that is working on a particular area, whether it be TBHRE etc, the fact that that unit is doing well and that it gets showcased well and that the rest of the faculty knows it, will make such a difference in terms of how it is translated to the rest of the university. I think it will stimulate other departments to want to do research as well. And then there needs to be recognition for it, it's like, there has got to be some way of making people see what other departments are doing, whether it be through faculty research days etc., or through digest newsletters etc. etc., but I think also it's like, any university, any faculties, the backbone of research is around PhDs, and you have got to expand the number of PhDs that come into a, ... into various departments. [M,C,42,SL,UFS]

Similarly, the perceived lack of commitment to support flagship research initiatives from top level university management can also have adverse effects on the research environment.

... another example is Centres of Excellence, the initiative by the DST and the NRF. That has been going for a while and I think we have on campus two or three. And it's coming to a close slowly, but it's a great structure and most of them are extremely productive ... University of Stellenbosch, for example, the Vice Chancellor has said if funding should fall away he will partake to find substitute funding to keep these activities alive. At UCT there's zero commitment. Zero. No no no, you need to find some industry that assists you. The large activities, very productive activities, both in teaching and research, there was even a DST colleague even calculated that if UCT would simply pass on subsidies that certain centres generate, a centre would survive. It would cover the budget of the centre, but even that was not entertained. So, one feels like a little bit of a cash cow, but where it comes to giving back it's very no-no-no-no, we need to spend the money on something else. [M,NSA,34,SL,UCT]

University ranking systems have reportedly led to a change in management culture with a strong emphasis on quantifiable research outputs, which is out of touch with the daily realities with which lecturers and senior lecturers are faced.

[My university] has particularly bad cases of ... of kind of managerialism that feels very out of touch and it's completely obsessed with rankings ... climbing university rankings all the time, and often out of touch with, yes, the realities of, first of all, the quality of the undergraduate students, the actual quality of them, and the kinds of strains that staff take and are taking in the, ...[.] Management really are kind of out of touch and they drive a lot of initiatives from above that often feel kind of, you know, pie in the sky and, and not even that often really seriously academically motivated, really. [M,W,36,SL,UJ]

The lack of continuity amongst management is reported to impact negatively on researchers.

Because every time there's a new HoD or new dean or new head of the research and things change ... There's lots of confusion and ... [i]t's very ambiguous, very unorganised and I think it's because we haven't really found a research head that has been there long enough you know. That position seems to get filled ... people quit there on a very regular basis. So, every time a new person comes in, no this is not really the way we should do it, we should do it this way or we should do it that way. So, it keeps changing and that can drive anybody crazy ... if there could be like a central body that tells each institute, like all the institutions in the country, these are the guidelines you have to follow. [F,A,44,L,VUT]

It was noted by respondents that the HoD can play a pivotal role in research funding and staff motivation.

... one of our previous directors ... his main aim was to get research funding. And that was his main thing to do for the last 20 years. And based on his income that he generated for the department he spread all the researchers whether they obtained their own funding or not. I mean ... so, therefore all the researchers always had access to research funding. This created a good progress situation for all those who were capable of doing research. And I think that support that comes from a division or a department made a big difference and nurtured quite a few people, I mean to reach their ... how do I say, to reach certain levels in their career. [M,C,49,SL,SU]

... my understanding is that I would have autonomy of the funds, that I would use to employ people take over my teaching, right. And I discovered in June of this year that the HoD had

spent the funding without consulting me on ... I was making plans for that money to be spent according to my NRF proposal. Yes, and even up until March 2018 because I had up until that period to spend the money. And then you find out all the money has been spent and then you're in a deficit. [F,C,36,L,UWC]

... when I speak to my HoD, every time he motivates me, he always sees a star in me. So that is why I'm still, you know, pushing. It's actually my HoD who is motivating me ... and he is making sure that he supports me in anything that you can imagine, so that I can grow as a researcher. [M,B,35,L,CPUT]

One respondent noted that the role of the HoD is not one that is keenly undertaken by academics.

HOD's role isn't that powerful, because most people don't want to be an HOD. As a job, it's a much-hated job. Why on earth would you? The expectations that are on the HoD are insane, and they just don't have the power to actually say, you're naughty, you can't do that, that they don't [F,W,34,L,UCT]

Institution type

The nature of conditions at historically disadvantaged institutions plays a major role in researchers' ability to conduct research.

You know, most of the emerging researchers are from your PDI, you know, your historically disadvantaged group. And a lot of them are first generation tertiary people. So they have no background in what this whole thing about academia is or what is research. Really, really, it's historical. And you know they come into tertiary or higher education and they're expected to do research and participate in research and become a researcher and it's not something that people are familiar with. So, I think a lot of mentoring needs to take place. A lot of coaching and there needs to be mindfulness of the fact that we can't take it for granted that it's something that, because you are an academic, that you've done this or you've been exposed to it previously. Because that is an assumption in our environment, you know. You're an academic, so you must know what research is, and it's an erroneous one. It's fallacious, actually. [F,A,46,L,DUT]

I think the reason that I can say is only that the university itself has been a previously disadvantaged university. I did not want to go there that much. I think there was no promotion of research since a long time ago. Changing that particular culture over time is going to take some time. I think that's the main reason why research is not supported. [M,B,37,L,UNIZULU]

The historical focus on universities of technology also plays a major role in researchers' ability to conduct research.

It is expected now [complete PhD], but some people are arguing that when they were employed, because remember some people have been here for over 20 years, ... so they are saying that the conditions of employment don't stipulate such, for example, upgrading qualifications. They say no, they're going to stay with their degree, and they're not going to upgrade qualifications. So, it becomes optional, and the fact that it's optional, yes, it's challenging. Because a few people in the department are doing research, and then the rest are continuing as normal, yes. [F,B,38,L,DUT]

I think there's a lack of appreciation of what research really is. And I think the traditional universities have the edge on us, in that regard, and I think we need to tap into that knowledge and we should get a ... you know, people are so afraid to ask because they have this ego thing. But really, academics shouldn't have egos, because we, I think if anything, the more we learn, the more we learn that we don't know much. ... I even try to push my kids to say, you know, do something at Stell or do something at UCT or, you know, just to get a feel for what it is really, really, really about. [F,A,46,L,DUT]

There's quite a bit of resistance, I think, in some faculties and some departments, mainly because there is a lot of staff who have been here for a very long time and, you know, in the old days they just had to teach. They all had a business outside. They used to disappear, you know, around to go to class and that was their only responsibility. [F,W,59,SL,DUT]

I think the problem here at DUT is that we have a lot of novice researchers. ... We don't even have a professor in our faculty. So, you know, there's a lack of research experience that can nurture younger people, in fact I think that's actually the biggest thing, that you don't have a pool of experienced researchers that can nurture and guide and facilitate a younger people coming into the structure. [F,W,40,SL,DUT]

But of course, major problem we have, we had then, we still have it now, in my department, we do not have a master's and doctoral programmes. [M,B,42,SL,TUT]

So, there's this toss up again between being able to provide a need for industry, and also being able to also build on academic potential or build on young scholarship in academia as well. So, it looks at the moment, the way the re-curriculation have gone, that's been a focus again on vocational. [F,W,41,L,CPUT]

A respondent at a distance learning institute expressed incredulity that they are forced to incorporate research in education into their own research focus.

There's this bizarre thing where you are expected to do research in education, in distance education, despite the fact that you are not trained in that field at all ... we are for instance expected, when we want to apply for promotions ... they also want to know what have I done in terms of ODL research? How have I... You know, have I published articles on open distance learning? And I have said expressly to them I will not. I will not, it is not my field and I'm not going to start now. But that then, that turns you into a persona non grata, not just for when you want to apply for promotion and so on, but they also... You start being seen as not a team player and so on. And I simply can't understand it, how they can think that this is a rational thing. They want every single academic in the university to be somehow involved in what is essentially pedagogy, but not just pedagogy as in teaching, but the actual study of it. And I just can't see what the point would be? Then ... we don't get time to actually be experts in the field we work in. You have no choice, you have to do this, you have to do research in open distance learning, it just boggles the mind. [M,W,30,L,Unisa]

Institutional support

Some respondents bemoaned obstacles within their own universities that hindered research.

Yes, well, I think the ethics approval system has become cumbersome, you know, for every project we need ethics approval. So, that means I have to go through the process every time. I think the ethics system should be more streamlined, I think, to make it easier for researchers

to update their research protocols so that they don't have to go through a new application every time. And it should be more simplified, I think. [M,C,49,SL,SU]

That we have a research office that sometimes takes more than half a year for an industrial contract, to get that signed. I mean if, for me that's totally unacceptable for a university that claims to be research led, that if you manage to convince somebody in industry out there to invest here, that one of the big hurdles is that [my university] puts a signature under it. That's for me shocking. [M,NSA,34,SL,UCT]

Other respondents noted their institution do offer research and career support.

But, besides that, they have a number of programmes running, like programmes on how to publish in good journals, how to review a journal article, publishing workshops on straight, around managing your time so that you can read through more research so that you can write more, stuff on supervision and teaching and, you know, different workshops on ... workshops on how to apply for promotion, because that's another ballgame, it's a whole different ballgame, that. Workshops on how to develop your teaching portfolio, how to put it together, what ... your teaching philosophy. So there's a whole lot of workshops that's running at UJ at this year, over the last ... the last two to three years we've had different workshops. I was part of the AAMP programme, still part of it. So that ... and then ... and you get a lot of support when you, when I applied for promotion. The dean, together with your own line managers, they give you a lot of support on how to, the best way to put together your promotion application, so that by the time it reaches the necessary level you get the go-ahead, and if it's not ... If you don't have to have all the necessary credits, research credits, etc., then they advise you maybe try another year, you know. So that's ... it becomes very disheartening, I think, if you keep trying for promotion and you don't get it. I don't think that's a good thing for anybody. [F,C,41,SL,UJ]

[My university's] got the Emerging Researchers' Program and I think that it's really fantastic. Without that, I'm not sure if I would have felt supported as an emerging researcher so I must say I think that their program is excellent. Yes, I don't know. They constantly run sort of seminars on all sorts of questions that if you don't clearly know you could go to and I think for me that's created an environment where emerging researchers feel like there is a place to go to if they do need something. [F,A,38,SL,UCT]

Institutional capacity

Institutions were reportedly losing senior staff which negatively impacts on the careers of emerging scientists due to the loss of institutional knowledge.

So, if you look at the last 15 years at this university, we've lost 150 senior academic staff, so that's professor to associate professor level. I came in as a brand new person to this university and I came in at the highest point in my department. That should never have happened, there should've been a professor or an associate professor above me. Now, where am I supposed to get academic mentoring from in that context? And it's still happening. You've got newer scientists coming through and they've got no institutional knowledge, they've got no support structures from up above, it's really scary. [F,W,41,SL,UKZN]

There was also an apparent lack of skilled senior and experienced researchers to replace the outgoing cohort of senior scientists.

If you look kind of the lead up to 2012, a lot of senior people left before then. So, it's been pervasive over a period of about ten years when many of the senior people were leaving, and weren't being replaced by more senior people. [F,W,38,SL,UKZN]

We are in a situation in our department, for instance, where we've got junior people who don't perform, who can't perform, who don't have the necessarily skillset, they've been appointed in positions where they might have been appointable, because the advertisement wasn't written correctly. [F,W,49,SL,SU]

I think it would be a human resources problem. I think it would be an HR problem barrier, so to say, in the sense that maybe I might not be given time off to do research, yes. I would have to do the research over the recess period because the institution will definitely tell me that here's no one to hire to actually do my work in my absence. So, I would have to go to the trouble of finding someone to replace me in my absence and I find that that would be a human resources issue, or capacity issue, internally. So, I think that it would be that. When I went on maternity leave last year, that responsibility fell on me to find someone to actually, you know, fill in my shoes. [F,B,34,L,CPUT]

A respondent from a research intensive university noted that the cumulative effects of the increase student numbers negatively impacts on the ability of the institution to perform its functions.

I think that the load within the university is at a level where it's at breaking point, in our faculty and our department at least. And we have increased our numbers. Our undergraduate numbers have increased at fivefold and our postgraduate numbers have increased at least tenfold in the past ten years, and there's nothing else that's been done, there are no resources. [F,W,49,SL,SU]

Recommendations:

- The drive toward the massification of higher education need to be balanced against the research function of a university. Policy makers need to be cognisant of the unrealistic demands this places on researchers.
- The high student volume poses a universal barrier to research and should be addressed.
- The administrative load (both teaching and non-teaching) needs to be alleviated in order for researchers to focus their time on conducting research.
- The support services (administrative, financial, research) offered at universities need to be improved or instituted where they are absent.
- Universities must ensure that departments put measures in place that will enable the fair and equitable distribution of teaching loads.
- Differentiate between different type of lecture demands (technikon, vocation, large numbers, clinical, etc.).
- There is a need to re-evaluate the mandate on high pass rates/throughput.
- Ensure that under-graduate education sufficiently prepares students for post-graduate studies.
- Researchers require assistance that is specifically related to publishing which includes: help identifying avenues of publication, methodological and technical assistance, and financial assistance to cover journal fees.
- An HoD plays a pivotal role in the functioning of an academic department. Many academics who move into this position are not prepared to be managers. Training opportunities need to be made available.

- Mentors are universally seen as a means to improve a researcher's career. However, the respondents ascribe many different roles and functions (including a demographic profile) to a mentor. Therefore the role of a mentor needs to be clearly stipulated and formal programmes that encourage mentoring need to be strengthened.
 - It is necessary to consider that certain types of institutions face unique challenges, specifically historically disadvantaged institutions and universities of technology. These two types of institutions lack certain basic requirements to carry out research. These institutions require additional assistance in order to perform a research function successfully.
 - Investigate innovative methods to establish research networks.
 - The investment in the replenishment of the university workforce with the requisite experience and skills should be a priority.
-

Appendix 1: The process to collect institutional policies and information on programmes to develop and support emerging researchers

The process to collect information on policies and initiatives to develop and support emerging researchers consisted of various phases: (a) a search of institutional web-sites followed by a CREST letter (in June 2016) to the senior research managers at all the universities requesting copies of their “policies and guidelines on research incentives and rewards”, (b) a follow-up search of institutional web-sites for information specifically related to emerging researchers (in May 2017), (c) a USAf letter (in August 2017) to the senior research managers at all the universities requesting copies of their “institutional policies and strategies aimed at incentivizing emerging researchers” and (d) the collection of all the universities’ UCDG submissions (in November 2017) from the DHET.

Most universities have policies and strategies to incentivize and reward research and research output available to all researchers. These policies and strategies include specific incentive and reward schemes (very often linked to the DHET Funding Framework) and training and support programmes to assist emerging scholars to enter into the scientific publishing world. [In a previous study for the CHE, CREST has conducted a fairly comprehensive review of such programmes and strategies. However, that review is now dated and needs to be updated.]

As part of an ongoing study of CREST/SciSTIP on the views and experiences of South African scholars and scientists of academic authorship practices (including issues related to authorship ethics, ghost authorship, honorary authorship) (see Breet et al, 2018), CREST collected and analysed the institutional policies of public universities in South Africa on research incentives and awards. This analysis was part of the study of authorship practices in order to establish whether certain policies (e.g. substantial personal monetary rewards for research outputs) have an impact on responsible research practices. Although the study of authorship experiences had a different focus than the USAf study on the development and support of emerging researchers, there is a shared interest in institutional policies on research incentives and awards.

Institutional policies on research incentives and awards are usually publicly available and universities take great care to ensure that their researchers are aware of such policies. However, in an initial search of institutional web sites (conducted during the first half of 2016) we were not able to find all the information for all institutions. Much of the web-information is outdated and/or not comprehensive. Therefore, in July 2016 we contacted the senior research manager (the DVC

(Research) or the Research Director) at all twenty-six public universities in South Africa and requested the information.

Dear [NAME OF SENIOR RESEARCH MANAGER],

I hereby kindly request your help with a research project on various aspects related to research outputs and academic publishing.

Will you please send me (jb3@sun.ac.za) a copy of your university's **policies and guidelines on research incentives and rewards** (or point me to the person in your institution that I can contact for help, or point me to the relevant URL on your website)?

Our understanding is that such policies are usually publicly available and, in fact, that universities take great care to ensure that their researchers are aware of such policies. We did a web search but we did not find all the information, and therefore we have to ask your help.

We are aware that universities often have research incentive and reward schemes at institutional as well as at faculty (and other) levels. We will highly appreciate it if you could share with us information on these schemes at institutional level as well as at other levels. Below we provide a number of examples and definitions to make clear what we have in mind.

Our study has been approved by the Research Ethics Committee: Humanities at Stellenbosch University and will be conducted according to accepted and applicable national and international ethical guidelines and principles.

Note 1. In general we will distinguish in our analysis between:

- Funding allocated for the establishment and maintenance of the academic organisational units (faculty, college, school, department, centre etc.) covering, for example, staff, facilities, and operational costs;
- Monetary incentives and reward linked specifically to research outputs (accredited research publications as well as completed masters and doctoral theses) paid to academic organisational units;
- Monetary incentives and rewards linked to research outputs (accredited research publications as well as completed masters and doctoral theses) paid to authors / co-authors as personal income.

Note 2. Working definitions:

- Incentives: can be direct monetary compensation (for example benefits, research funding, research infrastructure) or indirect financial incentives (for example promotion opportunities) that are forward looking to prompt and reward research outputs or successful supervision of postgraduate students.
- Rewards: are monetary incentives that serve to reward past research performance.
- Awards: can be monetary or not, and are valued because they convey appreciation or recognition for past performance (for example a prize or the announcement of the names of awardees as University functions, inclusion in a list of top performers, etc).

Jan Botha

(on behalf of the SciSTIP Research Team on Academic Authorship Project: Prof Leslie Swartz, Prof Jan Botha, Dr Lyn Horn, Ms Elsie Breet)

With a few exceptions, universities were willing to make their policy documents available to CREST. In some cases, institutions responded that they are revising their policies. However, not all universities responded.

Table A1.1: Response to CREST Request for information on policies and guidelines on research incentives and rewards

University	Document	Title of document	Pages	Comments
CPUT				
CUT	NO			We are working on a new policy. The old one is outdated, but the intention was that a research incentive in the context of the high teaching load typical of UoTs should encourage research. That has indeed been the case. Although everyone does not yet participate in research, the policy stimulated the research environment. The incentive could be used exclusively for research or it could be taken as a personal incentive. The amount was determined annually.
DUT	NO			We are working on putting a booklet together but our main incentive which was approved again last year (2015) by Executive Management was that "40% of the publication subsidy be awarded to researchers". The rest 50% goes to the institution and 10% goes into supporting research focus area costs. We will share with you once our document of all other incentives has been approved as we will only know what our incentive structures are once the 2016/17 funding proposal on the RDG is approved. We rely heavily on the RDG for incentives as it is our main source of research running costs
NMU	YES	<i>Incentives for NRF rated researchers</i>	4	
NWU	YES	Rules for the Institutional Research Excellence Awards (IREA)		This is a financial incentive linked to research outputs. A similar incentive for creative outputs has been approved recently. Please note that this document is PROVISIONAL. At the annual prestige function the Vice-Chancellor recognises researchers who excel at different levels. There are a range of awards, each with its own rules.
		<i>Awards for the most innovative researcher/s and staff members</i>	5	
		<i>NWU Researcher Awards Scheme</i>	4	
		<i>Recognition for creative output</i>	4	
		<i>Recognition for Leadership in International Research and Advisory Organizations</i>	1	
		<i>Recognition for Research Excellence: Most cited researchers at international level</i>	1	
		<i>Recognition for Community Engagement</i>	3	

		<i>Rules for the awarding of the S2A3 medal the best Master's student at the North-West University</i>	1	
		<i>Rules for the award of the VC's medals for masters students</i>	1	
MUT				
RU	NO			We don't have a research incentives policy or guidelines. Such incentives are built into numerous funding streams that are available. Thus the 'incentive and reward' system is built into our management and disbursement of RU internal funds (we push within the RU budget to increase these year on year)
Sephako Makgato				
SPU				
SU	YES			
TUT	YES	<i>Policy on research grant administration</i>	7	
UCT	No			See information on the ERP (EMERGING RESEARCHER PROGRAMME) http://www.researchsupport.uct.ac.za/overview-29 Emerging Researcher Programme (ERP), which was launched in 2003 to develop young researchers at the start of their career, and the Programme for the Enhancement of Research Capacity (PERC), launched in the latter half of 2008 and designed to provide a career boost to mid-career academics
UFH	NO			UFH uses these incentives for research outputs: \$2000 is paid for each accredited research article. If an article has more than one author, the money is shared between them. \$2000 is paid for each master's graduate and \$6000 for each doctoral graduate. If a graduate had more than one supervisor, then the amounts are shared between them. Winners of the vice-chancellor's senior and emerging researcher medals receive cash awards of \$1500.
UFS	YES	<i>Procedure for the allocation of research awards for NRF rated researchers and for research publications</i>	11	
		<i>Research awards to researchers for publications submitted to DHET</i>	1	
		<i>Research awards to research fellow for publications submitted to DHET</i>	1	
UJ	YES	<i>Incentive scheme for research outputs and NRF-rating</i>	11	
UKZN	YES	<i>Policy on developing, retaining and rewarding researchers</i>	23	

UL	YES	<i>Research development & support, incentives & awards programmes and procedures</i>	116	
UMP	NO			The University of Mpumalanga is in the process of developing such a policy and we have not concluded on it. We will share it with you as soon as we have a Council approved policy on Research incentives
UniVen				
UNISA	YES	<i>Research & Innovation Incentives for 2015</i>	1	At Unisa we have not yet developed such a policy. We are currently working with our HR department is drafting a policy that speaks to incentives and rewards in general that is much broader than just research. This is done as part of the retention strategy of the university
UniZul				
UWC				
UP				
VUT	YES	<i>Research funding policy</i>	11	
		<i>Incentives for supervisors</i>	1	
WSU				
Wits	NO			The policies and research incentives are a matter decided upon by our University Research Committee a sub-committee of Senate and Council. As such no policy document is written but the decisions taken are minuted and communicated via the Faculty Research Committees. As you can imagine there are also other sensitive issues in those minutes and so I will not be able to assist this time. Besides it is currently under review and likely to change soon.

Summary of issues:

- 1 A number of HEIs responded and provided the SciSTIP team with policy documents and/or with explanations of their incentives policies and procedures.
- 2 A wide variety of policy documents were received differing in scope and detail (in one case, for example, an institution submitted a detailed policy document of 80 pages).
- 3 In a number of cases the HEIs indicated that they do not have their incentive policies articulated in specific and generally available policy documents. (For example, one HEI indicated that decisions on research incentives are documented in minutes of research committees).
- 4 A number of HEIs indicated that their policies are under review or that they are engaged in processes to develop research incentive policies.
- 5 Eight of the 26 HEIs did not respond at all, despite numerous follow-up requests and, in some cases, also telephone calls to the relevant research administrators.
- 6 This request to the senior research administrators was developed in the context of the SciSTIP project on authorship practices, and more specifically, against the background of the question to what extent, if any, do monetary research incentives and/or rewards influence authorship

behavior. It may well be the case that research administrators have interpreted a request for information on their institutions' policies and practices aimed at incentivizing and supporting emerging researchers differently from this request and provide different or additional information.

- 7 In many institutions there are faculty-level, and/or school-level, and/or department-level incentive schemes (and even programme- or project-level schemes) aimed at emerging researchers in addition or even different from to the general institutional-level incentive schemes. To capture this full complexity in this desktop review will probably not be achievable.

Given the unsatisfactory results of this first phase of the collection of information on policies and guidelines on research incentives and rewards, CREST drafted a new letter which was sent under the USAF cover, signed by the CEO of USAF, to all the senior research managers at the universities:

XYZ August 2017

*The CONTACT PERSON
University of XYZ*

Dear NAME

Re. Request for institutional policies and strategies aimed at incentivizing emerging researchers

A study "to support the building of a cadre of emerging researchers in the higher education system" was commissioned by the Vice-Chancellors of the public higher education institutions in South Africa. The purpose of the study is to enhance our understanding of a pressing problem in our system and to facilitate the development and implementation of appropriate and effective interventions.

USAf has commissioned the Centre for Research on Evaluation, Science and Technology (CREST) at Stellenbosch University to undertake this study

An important part of this study is a review of institutional policies and strategies to incentivize the research productivity of emerging researchers. As part of its ongoing studies of science and technology and knowledge production in South Africa, CREST has collected the following documents of your university:

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May I kindly request that you confirm by writing to Prof Jan Botha at CREST (jb3@sun.ac.za) whether this is a comprehensive collection of relevant and up-to-date policies, strategies and research development initiatives of your institution aimed at incentivizing your university's emerging researchers, and if not, to be so kind to send any other relevant documents to him before 31 August 2017? If you are willing to also share with us any information regarding your utilization of the University Capacity Development Grant (the DHET's earmarked funding, formerly called the Research Development Grant) in support of your institution's emerging researchers, it will also be highly appreciated.

We thank you for your cooperation and support.

Sincerely

A Bahwa
CEO of USAf

Only eight institutions responded to this request, but these responses filled a number of the gaps that remained in the responses to the earlier CREST request.

Table A1.2: Response to the USAf request for institutional policies and strategies aimed at incentivizing emerging researchers

University	Documents received
Cape Peninsula University of Technology	<p>Policy on Ad Hominem Promotions CPUT Research, Technology and Innovation 10 year blue print CPUT Research, Technology and Innovation 10 year blueprint: Policy summary</p> <p>Conference Attendance Abroad Policy Contract Research Policy Guidelines for Adjunct Professors Policy Intellectual Property Policy on Research Fellows and Teaching Fellows Policy on Sabbatical leave Promote International Collaboration and Networks Research Policy Staff and Student Travel Staff education, training and development University Research Fund (URF) ToR URF guide to submitting</p>
Sefako Makgatho Health Sciences University	A list of policies on human capacity development and support, student researcher support and development, fostering a research culture, Achievement and Research Productivity Incentives, with a brief description of each of these policies
University of Cape Town	<p>An overview of the Researcher Development programmes based in UCT Research Office at the following website at http://www.researchsupport.uct.ac.za/researcher-development-0</p> <p>Information on the The <i>Programme for Emerging Researchers in South Africa (PERSA)</i>, as it is called, is targeted at academic staff who are not yet established researchers and will be based on key lessons learned in the ERP.</p> <p>UCT's proposed expenditure of its UCDG grant</p>
University of Johannesburg	<p>Research policy and strategy (approved 2009) Incentive scheme for research outputs and NRF-rating (approved 2014)</p>
University of Mpumalanga	Institutional Policies and Strategies Aimed at Incentivizing Emerging Researchers (Postgraduate Studies, Capacity Building Programme, Mentorship Programme), Policy on Postdoctoral and Fellowships, Conference Attendance , Publication costs, Excellence Awards in Research Policy and procedures; Policy on the Division of DHET Research Output Subsidy Generated through Research Publications
University of Pretoria	<p>Vice-Chancellor's Academic Development Programme (VCADP) UP Research Development Programme (UPRDP), formally the UP Early Career Academic Programme, Research Development Programme UP's Travel Abroad Programme for Academic Staff. The University is in the process of developing a new policy for the retention of young academics, which would see them benefiting from institutional mentoring and specific development activities</p>
University of the Witwatersrand	<p>Sikhule - Early Career Academic Development Programme Wits Strategic Plan for Research 2018-2022 Wits UCDG grant</p>

Stellenbosch University	Early researcher Career Development Programme (Mentorship Programme)
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Finally, after negotiations with the DHET, CREST was able to collect a full set of the submissions of all 26 universities for the University Capacity Development Grant (UCDG), submitted to the DHET in August and September 2017.



Appendix 2: Institutional policies and programmes to develop and support emerging researchers

2.1 Cape Peninsula University of Technology (CPUT)

CPUT's research policy makes provision for the support of new and emerging researchers in five sub-activities:

- a) Development of research funding proposal writing skills to attract research funds. The vast majority of CPUT academics are in the category of early career researchers and need support in the development of producing research grant proposals.
- b) Development of research writing skills for publication in accredited journals and high impact international journals.
- c) Development of skills for the Technological Transfer practice. This intervention will focus on providing researchers with information and skills with regards to innovation and commercialization of research outcomes.
- d) Training and skills development in the area of research integrity and ethics.
- e) Mentorship and coaching throughout the academic career trajectory. The aim is to pair new academic staff members with experienced academics and encourage a cordial mentor/mentee relationship. The purpose is to offer coaching and mentorship guidance to mainly young and inexperienced academics to develop their research and academic skills and competence. It also aims to create a culture amongst more established researchers, to adopt a lifelong learning approach and built a structured approach to preparing established researchers for the NRF rating application call.

The Accredited Supervisory Capacity Development (ASCD) Programme - to ensure that new academic staff and current supervisors receive appropriate induction and continuous skills enhancement in the area of academic and research supervision. In addition, it seeks to ensure that new academic staff and current supervisors are provided with sufficient mentoring and training, to develop the requisite skills and knowledge to effectively perform a supervisory role. The format for delivering this Programme will be multi-faceted in its approach and include workshops, break-away sessions, the use of technology-driven tools and applications, amongst others.

University research fund - primarily provide emerging/early-career researchers with funding for further qualifications and free-standing research projects not externally funded. (Post-emerging/mid-career researchers as well as established academics may also be supported, particularly those who have not obtained external funds or alternative student support towards research running costs).

R25 000 per masters student, R45 000 per doctoral student, and R65 000 for postdoctoral fellows. URF cannot be used to supplement the researcher's own salary. All CPUT permanent staff and those appointed on full-time contracts of at least two years as well as those who have been with CPUT for two years or longer may apply.

Improvement of qualifications fund - to develop academic's at CPUT through the improvement of their qualifications. The fund provides financial support to compensate towards the services rendered by replacement staff who stand in for academics who have been awarded a DHET grant to have time off (study leave) to progress towards the completion of their postgraduate studies

Research exchange programme - staff and postgraduate students travelling either locally or internationally, for full time permanent staff members and those on full-time contracts for two years or longer. The Conference Committee (ConfCom) manages funding allocations for conference participation

CPUT's proposed utilization of the UCDG

- Nurturing a research and staff cadre that are exposed to local, regional, national and international research undertakings. The focus is to promote local and international collaborations through the support of travel opportunities and participation in scientific events.
- Young and developing researchers, including postdoctoral fellows.
- Support for Masters and doctoral students - (University Research Funding, Conferences: Funding is aimed at enabling our emerging and early researchers to form partnerships that really offer added value to all parties, but also ensure benefits for society. Local, regional and international activities, as well as inter-university and intra-university engagements, are invested in.
- To provide research running costs for furthering qualifications.
- Support conference attendance
- Support for emerging, early, mid-career and established researchers:
 - Proposal writing workshops
 - Writing for publication workshops
 - Technology Transfer Training
 - Ethics workshops
 - Workshops for 1st time rating applicants
 - Mentorship and coaching

- Postdoctoral fellows' programme: to launch their research career and enhance their research skills, with a long-term objective of increasing new generation of researchers/ academics
- Top-up Grants: emerging researchers, whose research skills have to be developed to enable them to be competent producers of knowledge

2.2 Central University of Technology (CUT)

The opportunities for research support explained in detail in the *CUT Manual for Research Development and Postgraduate Studies Support* also apply to staff members who are enrolled for masters and doctoral studies.

The University has an *Institutional Academic Plan* and a supplementary *Research and Development Plan for 2014-2020*. The latter is constantly developed and implemented by the Research Development and Postgraduate Section at CUT. Chapter 4 of this manual is devoted to the development of the research plan and the current strategies that are being implemented to realise the goals of the CUT's Vision 2020

The structural support structures available to postgraduate students include the Graduate School, Faculty Research Managers (FRMs), Faculty Research and Innovation Committees (FRIC), the identification of research profiles and implementation of strategic research programmes, the funding scheme for postdoctoral fellowship and the University Research & Innovation Committee (URIC). Opportunities for the development of intellectual skills include access to books published in support of Research Development and Postgraduate Studies, support to faculties, workshops and research publications at the CUT (such as the Interdisciplinary *Journal for New Generation Sciences* (JNGS)).

The Research Development and Postgraduate Studies Section administers a virtual Graduate School. The purpose of this School is to provide collective support to supervisors and postgraduate students in growing their research capacity, and to provide access to best practice resources in support of research. A programme on research education and a number of books, as well as electronic resources, has been developed to support academic staff, postgraduate students and postdocs in doing their research.

The university has identified a number of research profiles and programmes to grow human skills and potential. These integrated programmes offer opportunities for growth and are directed at final-year undergraduates, postgraduate students and staff, and rated researchers.

The programme includes the **Emerging Researcher's Programme**: Following the completion of a Doctorate and in preparation for a research career, this is for newly appointed staff who obtained a doctorate degree in the two years before joining CUT. The focus is on development of research competencies: supervision basics, publications, presentations and applications for funding. The Emerging Researcher's Programme consists of mentorship programmes and workshops aimed at the development of research competencies.

CUT Research and Development Plan 2014-2020

Focus	Objective	Activity
Scholarly development through research and innovation training	Scholarly engagement with the research process and research cycle	<ul style="list-style-type: none"> • Pre-Doctoral training • Doctoral Training • Post-Doctoral training • Programme on postgraduate supervision • Programme on scientific writing • Programme on technology transfer and innovation • Annual faculty research seminars • Colloquiums and discussion groups
Research partnership development	Capacity growth of research projects	<ul style="list-style-type: none"> • Multi-, inter- and trans-disciplinary research • Joint ventures with national and international universities, research bodies and research councils • Joint ventures with government/business/industry
Development of research clusters and programmes	Strengthening of research capacity	<ul style="list-style-type: none"> • Student retention and throughput • Publications • Conference attendance • Patents • Rated researchers • Research funding
Development of technology transfer and innovation	To develop the institutional level of involvement and expertise in technology transfer and innovation	<ul style="list-style-type: none"> • IP Act of 2008 and Technology Transfer Office training • Training of staff and students in innovation cycle • Identification of research outputs for possible innovation • Studying sustainable technological development • Supporting the community in efforts at innovation and new product development

CUT's proposed utilization of the UCDG

- Mentorship/Supervision Training Programmes for Next Generation Researchers and Post Graduate Studies.

- Staff Development: Post Graduate Study Support Programmes (to obtain M and PhD degrees).
- Research Development Support Ten -Step Programmes (to enhance research outputs; external funding applications' promotion of female researchers; raising number of NRF rated researchers).
- Academic exchange opportunities for emerging researchers.

2.3 Durban University of Technology (DUT)

In terms of the research incentive scheme (approved in 2015) DUT distributes the subsidy income generated by publication outputs as follows: 40% of the publication subsidy is awarded to researchers, 50% goes to the institution and 10% goes into supporting research focus area costs. DUT relies heavily on the DHET earmarked funding for incentives as it is the university's main source of research running costs.

DUT's proposed utilization of the UCDG

- Postgraduate students, Junior lecturers, Postdocs.
- Support staff to obtain Masters and PhD qualifications.
- Mentorship programme for Masters and PhD students.
- Academic exchange and mobility.
- Supplementation of development grants (e.g. Thuthuka).
- Research skills training and support for staff registered for Masters and Doctoral qualifications.

2.4 Mangosuthu University of Technology (MUT)

Three objectives listed in the *Research and Technology Transfer Strategic Plan 2013 – 2017* are relevant for the development of the capacity and support of emerging researchers:

- To include more people in research activities. Increase the proportion of academic staff defined as “research active” (Objective 4). To give effect to this objective, MUT intends to: Encourage specialised research; Encourage and assist people to register for post-graduate degrees; Identify and facilitate staff development needs (workshops and surveys); o Support capacity building projects. Capacity building projects are aimed at promoting the qualifications of staff members; Increase the number of research projects and encourage teamwork; and o Develop and support research leadership in the various Faculties
- To maximise research output (Objective 5). To give effect to this objective, MUT intends, *inter alia*, to facilitate the publication process after completion of post graduate studies. This

can be done in collaboration with Staff Development; to encourage all academic staff members on doctoral level to apply for NRF rating as soon as they qualify; and to formulate mechanisms to prevent postgraduate studies in the final completion stages from spilling over to the following year.

- To create an environment supportive of research Strategies. To give effect to this objective, MUT intends to: Reduce the teaching load of active researchers; Optimise study leave and sabbatical leave for all staff members; Increase awareness of research policies and procedures; Initiate a dialogue on time-tabling; and Develop a mentorship programme.

MUT's proposed utilization of the UCDG

- Staff replacement: Enable staff members to be replaced while finalising their studies.
- Writing Centre for undergraduate and postgraduate students.
- Writing for Publication.
- Support for Academics who don't possess higher degrees.
- Emerging Researcher Programme: preparing for a research career after completing Masters and Doctorate qualifications.
- Development and mentoring of Black Female Researchers.
- Mentorship of researchers to achieve NRF rating so that they can in turn provide capacity development of MUT budding researchers.
- Workshops in research design, methodology, statistics, literature review, scientific writing, innovation and entrepreneurial skills.
- Academic mobility: attending discipline specific local and international conferences.

2.5 Nelson Mandela University (NMU)

One of the Research and Innovation Plan which forms part of Vision 2020 is to create and support an environment that fosters research quality and productivity. The purposes of the *Policy on the division of DHET research output subsidy generated through research publications* includes, inter alia, the objective to increase the number and quality of DHET subsidy generating research publications, to encourage staff members to publish their research in subsidy earning publications, to assist emerging researchers with research related costs and to enable them attend academic conferences, and to provide funding to researchers to sustain their research activities.

The percentage split between individual researchers, Faculty RTI Committees and the Research Office (Department of Research Capacity Development - RCD) will be, based on the Rand value of a DHET

research output unit, as follows: 27% to the researcher, 10% to the Faculty RTI Committee, and 3% to the Professional Support Divisions Research Office.

Funding will be transferred to individual research accounts and may be used for any research related expenditures which may include the purchase of equipment, laptops and audio visual equipment required for research purposes.

NMU's proposed utilization of the UCDG:

- Doctoral Proposal Development Programme (DPDP) Courses in research methodology; enhancing academic writing skills; opportunities to present research results; Writing Retreats.
- Offer a course: Enhancing Postgraduate Supervision (NUFFIC Programme).
- Courses in research methodology; research workshops.
- Funding for individuals who did not get funding from external sources funding for teaching relief: conference attendance.
- "Early academics" as defined by NMU include individuals who are
 - without Masters degrees
 - in the early stages of doctoral proposal writing
 - with accepted doctoral proposal undertaking doctoral studies or writing up their theses
 - during first two years after graduating with PhD
 - new entrants to the university environment.

2.6 North-West University (NWU)

In North-West University's *Targeted Emerging Researcher Development Programme* the focus is to develop core research skills as well as specialised individual personal and professional research skills, especially of young researchers. One of the goals of the targeted "emerging researcher development plan" is to improve academic qualifications of permanently appointed staff members of the university. The grant is available only to permanently appointed full-time staff members registered for a doctoral degree, in their final year of enrollment. It is awarded only once. The grant (R30 000) may be used for lecture replacement support to enable the candidate to write up the thesis; for editing, printing and binding of thesis; for travel to spend time with a supervisor or mentor who is an expert in the field. The funding may not be used for conference expenses or to pay study- or registration fees.

The Institutional Research Excellence Awards (IREA) is available to staff members appointed permanently or for a fixed term or temporarily by the University (and remunerated by the University) and who have, during their term of appointment, contributed (as author/co-author) towards the publication output of the relevant year by way of research articles/books/conference proceedings (or contributions to these) that qualify for research subsidy. The rules for calculating the total IREA incentive per researcher is done on a sliding scale with different weights for first, second and >2 articles

IREA payable from 2014		
Base amount	For this example, the base amount is assumed to be R8000.00.	
Category	Weight	R-value
First Local	1.75	R14,000
Second Local	2	R 16,000
> 2 local	2.5	R20,000
First International	4	R 32,000
Second International	4.25	R34,000
> 2 Intl	4.5	R36,000

A staff member of 35 years of age (or younger) with the highest points will be awarded the Most Productive Junior Researcher of the year Trophy at the annual research function

NWU's proposed utilization of the UCDG:

- Advancing qualifications: top-up funding for NWU staff bursary scheme for postgraduate studies and NWU Emerging Academic Programme.
- Mentoring programme: to improve the promotion rate of young staff and to provide effective monitoring to support the diversification of the staff profile.
- Staff mobility: international collaborative projects and postgraduate programmes.

2.7 Rhodes University (RU)

Research incentives policy or guidelines are built into numerous funding streams that are available. Thus, the 'incentive and reward' system is built into our management and disbursement of RU internal funds (we push within the RU budget to increase these year on year).

Rhodes University's proposed utilization of the UCDG:

Nurturing Emerging Scholars Project (NESP)

- Mentorship Programme, aimed at completion of PhD, academic publications, enhanced supervisory capacity, identification of 3rd year and honours students as future academics
- Postgraduate Studies Centre (PGSC) Workshops: Higher Degrees proposal submissions
- Postgraduate Studies Centre (PGSC) Workshops: Higher Degrees proposal submissions
- Research Capacity Development for 15 Recent PhD Graduates amongst RU staff
- Support for staff to undertake PhDs
- Enhancing Supervision Capacity amongst staff
- Time-Relief/Teaching Buy-out for Research Development
- Writing for Publication Workshops

2.8 Sefako Mokgato Health Sciences University (SMU)

Capacity building and support for emerging researchers who are staff members

- Competitive Grant for Emerging Researchers – for researchers who due to lack of research experience are unable to source external funding targeting.
- Seed funding – for newly recruited emerging researchers who need to immediately start with their research projects whilst pursuing funding from other funding streams.
- Staff qualification improvement Scholarship Programme for Emerging Researchers - to encourage active and emerging researchers (who are permanently appointed) to register for masters and doctoral degrees and provide support for the completion of these degrees.
- Support for Development and Career Advancement of Young Staff Researchers and designated groups – to address the need to diversify the pool of researchers and strengthen the redress and equity programmes of the university
- Post-Doctoral Fellowship Programme - to attract young researcher stars drawn from a diverse research base in particular, researchers from under-represented groups, the purpose of this award is to enable the post-doctoral researcher to engage in a period of uninterrupted research.
- Research Training and Mentorship Programme - to capacitate young researchers in proposal for research funding, writing research publications

- Women researcher support and development - to empowers emergin women researchers at the University by: (i) supporting women academic staff and post-graduate students and (ii) promoting a culture of research among women
- NRF Top-Up Grants - Institutional contribution of NRF grants for emerging researchers (Thuthuka)

Capacity building and support for postgraduate students

- Undergraduate Research Assistance Programme – to support good final year undergraduate students who want to pursue research post-graduate studies
- Masters and Doctoral Prestigious Scholarship (≤ 35 years old) – SMU provides 100% scholarships for Masters and Doctoral students in order to remove the financial burden from a student so that s/he can focus on their studies
- Top-up funding for Masters and Doctoral students (≤ 35 years old) – to support students who already have bursaries or scholarship from other funding agencies but does not cover the full tuition costs. The university top up the shortfall to remove the financial burden form the student.
- Post- graduate support for their research projects - SMU commits to provides for the research projects of post-graduate students
- Research Training Programme - generic, in-house research training program for honours, masters and doctoral students
- Post-graduate External Research Training Programme – SMU provides funds to cover the costs of external research training or to pay for short research visits or for student exchange that are researched related
- Fostering a Research culture and promoting dissemination of research findings
- Annual Research Day - A platform for undergrads and post graduates student and staff to showcase their research work and those with innovative research are presented with awards in the different categories. Significant discoveries are awarded at the prestigious annual Vice-Chancellor’s Award for Excellence in Research
- Postgraduate Student Research Seminars / Symposium /Conference Attendance Grant Programme - providing exposure and interaction of post-graduates students with peers in their discipline and with leading researchers from around the world.

Achievement and Research Productivity Incentives

- Achievement of NRF rating status incentive - monetary incentive for NRF-rated researchers

- Staff incentive for achievement of a master's or doctoral degree - To encourage staff registered for masters or doctoral degree to complete their qualification in the minimum time allowable
- Staff research output that attracts DHET subsidy incentive - To encourage staff registered for masters or doctoral degree to complete their qualification in the minimum time allowable
- Postgraduate tuition waiver incentive - to attract more postgraduate students to the university
- SMU's proposed utilization of the UCDG:
- Improvement of staff qualifications: PhD and Masters enrolment.
- Topping up of development grants provided to emerging researchers to support their research development trajectory.
- Postdoc research support especially for black African female academics who recently acquired PhD.
- Contract mentors/replacement staff (retired staff outside of University with specific skills in identified priority niche areas) to support staff research development/ publications in niche areas.
- Research methodology training.
- Supervisors'/mentor training.
- Academic/Scientific writing workshop/ retreats.

2.9 Sol Plaatje University (SPU)

SPU's proposed utilization of the UCDG:

- Staff support for staff to obtain Master and Doctoral degrees.
- Conference travel and research costs.
- Developing writing culture at SPU using retreats and circles.
- Focus group research development (emerging and women researchers etc.).
- Fostering local and international collaborations.

2.10 Stellenbosch University (SU)

Capacity building and support for emerging researchers who are staff members: Early Research Career (ERC) Development Programme – a mentorship programme to accelerate the development of the next generation of researchers at SU, offered to a group of 80 early career mentees. Mentee must be a permanent (C1) staff member, must have a Masters' degree, must be younger than 44 (preference to candidates younger than 40), must be enrolled for PhD, not yet appointed at senior lecturer (or higher) level. The programme is not available to post-doctoral fellows and postgraduate

students. The mentor is not the line manager or supervisor of the mentee. Honoraria of R500 per hour paid to mentors.

Structured Training for African Researchers (STAR) programme: In cooperation with the Association of Commonwealth Universities (ACU) the programme programme is specifically designed for researchers in Africa. The programme consists of nine modules of about four weeks each, with each module consisting of a webinar, a tutorial and assignments. The module topics are: finding your niche and planning your research plans, grant proposal writing, research project management, time management, collaborations and partnerships, academic writing and publishing, communicating research to non-academic audiences, ethics in academic life, supervision.

Division for Research Development (DRD) Capacity Building Programme: Ongoing workshops covering the research life cycle, e.g. courses in grant writing, Research Contract and Related Policies, research career planning. (Skills Levy Funds are used to cover the cost of these courses).

Division for Research Development (DRD) Fund: To hire replacement lecturers to enable C1 staff members to complete their their PhDs.

Division for Research Development (DRD) Travel Grants: To support and encourage mobility (available to all researchers, including emerging researchers).

Incentive funding to encourage emerging researchers to apply for NRF rating.

NRF Top-Up Grants: Institutional contribution of NRF grants for emerging researchers (Thuthuka, Y and P rated researchers).

Monetary incentives for DHET recognised publication outputs (SOS Fund): 10% of the unit value earned in state subsidy is paid into the departmental research account of the researcher who produced the output (R100 831 in 2017), these funds may only be used for research purposes.

Postdoctoral fellows: Funded through the Senate Research Committees (A, B and C) and external research funds.

Consolidoc Programme: A total salary of R95000 for a period of six months is paid to PhD students on completion of their degree to enable them to prepare publications. Available on a competitive basis.

SU's proposed utilization of the UCDG:

- Research Skills Development Courses offered to 120 PG students per annum, also making use of on-line training courses - Matching up 80 individual mentees (ECAs) with senior and experienced academic mentors. Honoraria will be provided to senior academic mentors in order to buy out their time involved in mentorship (managed on the basis of time sheets submitted). One senior academic will be involved as a "super-mentor" in the programme, providing mentorship guidance and evaluating the individual progress of ECAs.
- Career Acceleration Awards to Early Career Academics (ECAs) - a career development acceleration award to 80 mentees.
- Career Building Blocks for ECAs - Individual skills training opportunities to 80 mentees, based on individual needs as identified in career development plans.
- In-house workshops and online training for academic development - workshops/online courses offered to PG students, postdocs and academic staff members; establish "communities of practice" models at faculty level; training material on "PG Supervision" and "Academics as Mentors."

2.11 Tshwane University of Technology (TUT)

One of the principles listed in the *Policy on Research Grants and Administration* states that TUT is committed "to continue to support young, developing researchers to enable them to realise their full potential. The University therefore seeks to distribute its Research and Innovation resources in a manner that prioritises this development objective, without detracting from merit as an inviolable guiding principle. The University also seeks to support some of the relevant policies governing the appointment and promotion of academic staff members within the University".

Research output subsidy is distributed as follows:

- a) 50% of unit value accrues to the faculties in proportion to their contribution to the ROS.
- b) 50% is retained by the Senate Research and Innovation Committee.
- c) With regards to the portion of the research output subsidy disbursed to the faculties, 50% shall accrue to individual researchers' research accounts in proportion to each researcher's contribution to the total accruing to the faculty

Internal research funds “shall be disbursed in such a manner that an “appropriate balance is struck between support for young developing researchers and established researchers without detracting from the inviolable principle of funding meritorious applications.”

TUT’s proposed utilization of the UCDG:

- Create a pipeline of new researchers by appointing high performing students in order to create a pool of appointable academics.
- Develop staff to acquire the relevant skills and competencies in order to increase research and innovation output, the graduation of postgraduate students, external funding and to excel at research. The Directorate of Research and Innovation had invited faculties to submit suggestions for workshops and seminars that could be considered for implementation.

2.12 University of Cape Town (UCT)

Capacity building and support for emerging researchers who are staff members_

Emerging Researcher Programme (ERP): Supporting early career academics to develop their research capacity since 2003. It includes a wide range of professional development seminars and workshops which are open to all staff, as well as research development grants for eligible early career staff. (The grants are dependent on funding and limited to staff who meet certain criteria, which include being on academic conditions of service, and being an active participant in the researcher development initiatives of the Research Office). In the ERP, early career academics are helped to plan their research careers so that they can achieve the various milestones necessary to advance in a research-intensive university – a doctoral degree, accredited (subsidy-earning) research outputs (such as articles, books, patents, creative productions), successful grant proposals, postgraduate supervision, and NRF rating. Retired or current professors with excellent research and supervision experience are engaged to offer seminars on a wide range of topics such as: research planning, academic publishing, measuring research impact, optimising conference attendance, sabbatical planning, research ethics, effective presentation posters, preparing a CV managing online presence, library resources, plagiarism, reviewing a publication, examining a thesis, ad hominem promotion criteria, grant proposal writing.

The ERP also offers residential workshops on postgraduate supervision, grant proposal writing and conference presentations. Writing retreats are organised at the request of departments or research groups.

Structured Training for African Researchers (STAR) programme: In cooperation with the Association of Commonwealth Universities (ACU) the programme programme is specifically designed for researchers in Africa. The programme consists of nine modules of about four weeks each, with each module consisting of a webinar, a tutorial and assignments. The module topics are: finding your niche and planning your research plans, grant proposal writing , research project management, time management, collaborations and partnerships, academic writing and publishing, communicating research to non-academic audiences, ethics in academic life, supervision.

Programme for Emerging Researchers in South Africa (PERSA): Targeting academic staff who are not yet established researchers and will be based on key lessons learned in the ERP. Typically, the PERSA participants should be starting out their careers in academia. However, the programme is also open to those who have been in the system for a longer time but do not yet have a PhD, a strong publication record or much experience of postgraduate supervision and grant proposal writing. The programme will assist participants (a) to develop a roadmap of research goals and how to achieve them. The goals will relate to both individual projects and to staff members' longer-term career plans, (b) to familiarise themselves with the various processes related to the supervision of postgraduate students – from registration to graduation, (c) to plan publications that will advance their research careers. Identify funding sources and know the principles of a winning grant proposal. Workbooks, written notes and a handbook will be provided. The facilitators are staff and associates of the Emerging Researcher Programme.

Targeted support for academics without doctorates: Providing support for academics without doctorates since the inception of the Emerging Researchers Programme (ERP) in 2003. This support has ranged from seminars on the PhD process, training in postgraduate supervision which prepares staff members for both sides of the supervisory relationship and individual consultations with senior scholars or the Researcher Development Coordinators who all have PhDs and research and publishing experience themselves. Although UCT currently has the highest proportion of permanent academic staff with doctoral degrees in the country, the institution cannot take this statistic for granted. Many of its senior academics are retiring. Many young appointees – in permanent as well as contract positions - still need to obtain a doctorate to develop as researchers and progress in their academic careers. Some of them are located in fields that do not have long traditions of PhD study, including some creative, professional and commercial disciplines. Some are part of the New Generation of Academic Programme (NGAP) of DHET which creates permanent trainee academic positions for black South Africans who may still be working on master's or doctoral degrees. With this changing profile of academic staff in mind, the Research Office is embarking on an initiative to

provide focused support for academic staff without doctoral or master's degrees. This programme will align with UCT's commitment to transform the demographic profile of its academic staff and will include consultations, targeted seminars, workshops and modest research grants.

UCT's proposed utilization of the UCDG:

Seminars and workshops:

- Seminars designed to help academic staff who have newly completed their PhDs or are working towards them to build or enhance their research profiles, to write for publication, complete PhDs, obtain funding, present at conferences, obtain or improve their NRF rating, broker collaboration etc.
- Writers' retreats whereby emerging researchers are given the opportunity to receive feedback on articles or segments of their dissertations and to complete those outputs in a venue off campus.
- Supervision workshops to develop capacity to supervise postgraduate students but also to optimize their own experience of being supervised, for those who have not yet attained their PhDs.
- Grant proposal writing workshops designed to help emerging academics to secure funding from external donors.

Grants:

- Research Development Grants to help emerging researchers (new PhDs and those still working towards a PhD). These costs include conference travel costs, the funding of small research equipment items, research assistance or workshops etc. The grants can also be used to pay for contract staff for teaching buy out. The grant can be used for academic exchange and mobility purposes. The grant award process is conducted in such a way that the grants help build skills in grant proposal writing.
- NRF Top-Up Grants - Institutional contribution of NRF grants for emerging researchers (Thuthuka, Y and P rated)

2.13 University of Fort Hare (UFH)

Research incentives for academic staff members University of Fort Hare

- The equivalent of USD2000 is paid in South African Rand for each accredited research article. If an article has more than one author, the money is shared between the co-authors.

- The equivalent of USD2000 is paid in South African Rand for each master's graduate and the equivalent of \$6000 for each doctoral graduate. If a graduate had more than one supervisor, then the amounts are shared between them.
- Winners of the vice-chancellor's senior and emerging researcher medals receive cash awards of the equivalent of USD1500 paid in South African rand.

UFH's proposed utilization of the UCDG:

- Special support for emerging researchers
- Staff portfolio development
- Statistical support workshops
- Open 3-day event to encourage students to continue with postgraduate studies and to enhance the personal, academic and professional development of postgraduate students
- Excellence awards
- Academic advisors
- Travel and accommodation
- Writing workshops, thesis development workshops, postgraduate writing circles, training and special support for postgraduate students

2.14 University of the Free State (UFS)

Research incentives and awards (available to all researchers, including emerging researchers) – R20 000 for a publication unit earned for an article published in a journal indexed in the Web of Science, R10 000 for an article in a local journal accredited by the DHET, R20 000 for a book, R20 000 for a Conference Proceeding.

UFS's proposed utilization of the UCDG:

- To enable and equip emerging academic scholars, as well as established academic scholars, to increase their research output: In order to capacitate emerging and established researchers, capacity is built in terms of training and workshops on academic writing, grant proposal writing, advanced research methodology, research software programmes, article writing, literature review, referencing, copyright, research proposal writing, theory and theoretical frameworks and ethics.
- Activities that cater for the needs of both emerging researchers who want to increase their research productivity and established researchers who want to submit applications for NRF rating. Research supervision workshops, supervisor-student relationship training,

“doctorateness”, manuscript development workshops for staff, as well as mock NRF rating evaluations form part of this programme. The progress of postgraduate students is tracked.

- Support for academic staff members to improve their national and international standing by enabling them to network and develop collaborative research groups within their immediate community, the broader national community and the international community. The project assists academics to obtain and improve their NRF rating.

2.15 University of Johannesburg (UJ)

The *Research Policy and Strategy* (approved 2009) refers to the following related documents:

Charter for University Research Committee; Higher Degrees and Postgraduate Studies Policy; Policy on the Student- Supervisor Relationship; Policy on Academic Co- Authorship; Policy on the Protection, Management and Commercial Exploitation of Intellectual Property; VC Distinguished Researcher Awards; Policy on Research Ethics; Policy on Third Stream Income; Policy on Human Resource Management of Non-Core Income Generating Activities of Academic Employees; Strategy for Diversifying Income Resources; Financial Policy in Respect of Non- Subsidized Academic Programmes, Solicited Research and Consultation; UJ Vision and Mission; UJ Strategic Plan.

Strategies and intentions related to emerging researcher capacity development and support included in the *UJ Research Policy and Strategy*:

- Financial incentives for researchers to engage in high quality, internationally competitive sustained research activity and, especially, subsidized output (individualised research funds, annual awards for research excellence and talent management)
- Research mentorship structures for emerging and young researchers identify, encourage and provide support to staff to acquire at least a masters degree through specialized support programmes
- Encourage dormant researchers to start publishing
- Provide institutional support to researchers to achieve and improve their NRF ratings
- Prioritize some internal funds for emerging researchers
- Promote research capacity development of historically disadvantaged individuals through adequately-resourced initiatives at both institutional and faculty level
- Promote the international exchange of researchers at all levels

Incentive scheme for research outputs – 50% of the subsidy earned per publication unit is allocated to the faculty of the researcher. Depending on the nature of the publication, those funds are allocated as follows:

- For a nationally accredited publication: 40% to be paid to the author's research account
- For an internationally accredited publication: 70% to the author's research account
- For internationally accredited journal publication with Impact Factor 5 or higher: 70% to the author's research account, and additionally, with the option that a maximum of 30% (about a third) of the 70% portion may be made available to the author as cash, subject to the tax rules
- For internationally accredited journal publication with Impact Factor 5 or higher: for P, C or Y rated researchers: 70% to the author's research account, with the option that a maximum of 40% of the 70% portion may be made available to the author as cash, subject to the tax rules
- For internationally accredited journal publication with Impact Factor 5 or higher: A or B rated: 75% to the author's research account, with the option that a maximum of 50% (half) of the 75% portion may be made available to the author as cash, subject to the tax rules

Incentive scheme for the supervision of masters and doctoral students:

- Course Work Master's with at least 50% research mini dissertation: R5 000 to be paid to the supervisor's research account on graduation of the student
- Research Master's with a full dissertation: R7 500 to be paid to the supervisor's research account on graduation of the student and additionally R7 500 to be paid to supervisor's research account, provided the study was completed within minimum time prescribed by the faculty concerned, and the university fees refunded to the student if there is at least 1 accredited publication unit accruing to UJ from the student author
- Doctoral study: R10 000 to be paid to the supervisor's research account on graduation of the student and additionally R15 000 to be paid to supervisor's research account, provided the study was completed within minimum time prescribed by the faculty concerned, and the university fees refunded to the student if there is at least 2 accredited publication unit accruing to UJ from the student author.

UJ's proposed utilization of the UCDG:

- Research capacity workshops, online courses and resources for postgraduate students, research writing support.
- Improvement of staff qualifications – support for academic staff to complete doctoral degrees.

- Research career development of emerging and mid-career researchers - workshops covering a range of topics, including career pathing, research leadership development, grant writing, networking, improving NRF rating, communicating science to lay audiences, innovation; teaching replacement.
- Improving research staff productivity, innovation and quality - writing for publication retreats; consultations with writing specialists.
- Mobility grants.

2.16 University of Kwazulu-Natal (UKZN)

Research Policy II - Developing, Retaining and Rewarding Researchers (reference no

CO/02/0405/07, approved 2014) includes a number of principles and initiatives specifically aimed at emerging researchers. Only those aspects of the Policy are summarized here:

1. The future of the University depends on the pool of young researchers from whom future research leaders will emerge. The University works hard to attract such young researchers and addresses their needs so that it provides a suitably enabling research environment. Mechanisms have been developed to identify outstanding young researchers within the University and to attract outstanding young researchers from other institutions. Investment of time and money in the development of outstanding young researchers is a significant investment in the future of the University. The University needs to ensure that the new generation of researchers is drawn from a diverse range of the population so as to address the deep racial and gender imbalances that characterise the national research system (par 2.2.6).
2. Policy goals include:
 - Attract outstanding young researchers to the University, develop those at the University, and grow them as the next generation of leaders in research and scholarship in order to broaden the research base of the University (par 4.3.1)
 - Provide suitable research funding possibilities for new staff, for early career staff and for staff who are resuscitating their research activity (par 4.3.1)
3. Policy Principles for Developing Young (“Early career”) Researchers
 - a. **Advising/Mentoring** (5.2.1). An advisor should be appointed for each young, active researcher. An advisor should also be appointed for a newly-appointed established researcher. advisor should have the ability to interact and communicate, and would preferably have the necessary expertise in the advisee’s research field/discipline. An advisor could be a senior staff member, or an active retired staff member. The

advisory role would normally be a voluntary one. However, an incentive may be provided to advisors to encourage more researchers to take on this role.

- Young researchers need a nurturing environment and a system of support in the early stages of their careers. The term “young” is deemed to include “early career” researchers, i.e. older researchers who join academia relatively late
- The implementation of a mentoring (advising) system will provide all new staff with an appropriate induction to University procedures and processes and an ongoing supportive framework
- The advising should cover not only the research process, from conceptualisation to publication, but also provide support in terms of development of research proposals and applications for grants and mobilisation of research funds, mobilisation of funds, exposure to researchers of high standing, opportunities for networking, etc.
- It should be noted that even established researchers, particularly if joining the University from outside South Africa, benefit from some advising, so as to facilitate their entry into the University system and the national research system.

b. Recognition/Appreciation (5.2.2)

- Such recognition is not restricted to, but may include, financial reward expressing the appreciation of the University, awarding time, and generally providing a supportive environment.
- The creation of formal opportunities for recognition by the University is to be encouraged.
- The establishment of a personal link between a young researcher and the Research Office and research management is important. The Supervisor can be extremely helpful and supportive in this.

c. Teaching and/or Administrative Relief (5.2.3). It is recognised that researchers need time to undertake research, particularly in the case of young researchers who are still establishing their careers.

- Teaching loads of young staff members should be carefully managed by Deans and Heads of Schools.
- Career Advancement. The advancement of outstanding young researchers is a priority. Care should be exercised to prevent the notion of “serving time” from acting as an impediment to the career advancement of young research

“stars”. Accelerated promotion should be considered for outstanding young researchers.

- The promotion system within the University should be able to accommodate young research “stars”.

d. Development of Young Researchers in Designated Groups (5.2.4). The need to diversify the pool of young researchers and to strengthen the equity programme of the University is a high priority.

- Special programmes are in place and new ones will be developed to support and encourage young researchers from designated groups.
- The need to be proactive and identify highflying students in designated groups needs to be emphasised.

4. University Research Funding: Rewarding Research Outputs - Differential rewards are provided, for instance, for journal articles, conference presentations, books, patents and successfully graduating research students. For this purpose the university established the Research Productivity Support Grant. The rate for the Research Productivity Support Grant shall be set annually by the University Executive Management Committee (EMC)

**PRODUCTIVITY AWARDS TABLE
(Amended Senate 3 November 2010)**

Category		Current Productivity Units
Whole Book		100
Patent		80
Journal article		60
Graduated doctoral student		60
Staff graduated with doctoral degree		60
Creative contribution (international)		50
Book editorial		30
Chapter in book		15
Creative contribution (local)		15
Graduated full dissertation masters students		16
Refereed conference proceedings (DoHET/ISI listed)		10
Journal editorial		8
Graduated coursework masters students		8
Refereed conference proceedings (non-DoHET/ISI listed)		4
NRF Rating	Researchers who receive an A-rating for the first time	100
	Improvement in rating by moving between major categories.	100
	Researchers who receive a rating for the first time in other categories (i.e. other than A)	60
	Improvement in rating by moving within major categories (A,B,C) e.g. B2 to B1 or C2 to C1	60
	Retention of NRF rating in the case of A-rated scientists	60

5. The Vice-Chancellors Research award is open to all academic staff who are under 40 years of age on 01 September in the year in which they are nominated. Researchers of exceptional quality and proven achievement with sustained records of scholarship or creative endeavour will be considered.

UKZN's proposed utilization of the UCDG:

- Institutional research grants.
- Academic staff credentialing: funding for running research expenses (editing, field work, chemicals, etc), conference attendance; funding aimed at AADP and nGAP lecturers.
- Disciplinary grant writing workshops: focus on grant writing skills, 6 workshops, 30 participants per workshop.
- Writing for publications support - writing retreats: four weekend writing retreats for staff completing PhDs.
- Seed funding for emerging researchers.
- Grant funding for recently graduated PhDs.

- Seed funding to recently completed PhDs.
- Grants to staff recently qualified with PhD: for teaching relief, appointment of student research assistants, covering travel cost for research-related activities.
- Academic exchange programme: for 15 mid-career academics and 14 emerging researchers (recently completed PhD) to travel to other institutions to develop/hone research skills.
- Excellence awards for emerging researchers: 14 awards.
- Funding 100 emerging researchers to attend national conferences (PhD completed in last two years); attendance linked to presenting a publishable paper and engage in networking.
- Funding 40 emerging researchers to attend international conferences (PhD completed in last two years); attendance linked to presenting a publishable paper and engage in networking.
- Academic career planning for early-career academics: 10 one-day workshops, 30 participants per workshop.
- Research skills development for special needs of staff and PG students.
- Postgraduate student support and development: top-up for M and D students, research skills workshops, writing retreat for PhD students, statistical analysis training.
- The Writing Place: Workshops to develop academic skills for English second language speakers.

2.17 University of Limpopo (UL)

The University has comprehensive policies put together in one document, *Research Development & Support, Incentives & Awards and Programmes*.

The following grants listed in this document are aimed at the support of emerging researchers:

1. Research Establishment Competitive Grant for Emerging Researchers
2. Research support for permanent staff studying for full-time or part-time master's or doctoral studies at other institutions
3. Seed funding to kick-start research of Newly Appointed Staff Programme
4. Support for Development and Career Advancement of Young Staff Researchers and Researcher Staff from Designated Groups (including top-up funding for Thuthuka Grants)
5. Research Training and Mentorship Programmes for Research Staff
6. Women researcher support and development programme
7. Post-Doctoral Fellowship Programme

Research Establishment Competitive Grant for Emerging Researchers: This capacity support/development grant's purpose is to provide appropriate internal financial support for active,

emerging researchers, newly appointed, early career staff and staff who are resuscitating their research after prolonged inactivity, so that they can develop themselves and their research up to a point where they can leverage external funding. By utilising this research grant, staff members would be assisted to obtain research experience and research outputs which would increase their chances of obtaining research funds from other national and international funding bodies, thereby contributing to the research outputs and income of the University. While the funding is meant for capacity building, nonetheless, a researcher is still required to produce tangible research outputs (post-graduate students and other DoHET research outputs).

Eligibility

1. New staff members who have a doctoral degree (within two years of appointment)
 - a. New permanent staff members will be eligible to apply only within the first 2 years after having joined the University.
 - b. Newly appointed, 45 or less of age, contract staff members are eligible for funding provided that they are on a continuous two or three year contract cycle with the University.
2. Staff with a recently completed doctoral degree
 - a. Permanent staff members who have recently completed their doctoral degree and are engaged in research but have not as yet established a research profile that would allow them to access external funds.
3. Staff as Doctoral Candidates
 - a. Staff members studying towards a doctoral qualification and who have not received a UL Staff Doctoral Scholarship will also be eligible for support. This support will only be given towards the research project costs for the degree registered
 - b. Staff members studying towards a Master's qualification do not qualify for this grant.

Conditions / Requirements

1. The research grant is for research projects falling within the University's niche research areas.
2. In order to qualify for the research grant, research projects must be approved and registered by Senate via a recommendation for approval by the SRPC.
3. In the case of a staff member registered as a doctoral candidate the registered project must be in the University's niche research area or at the forefront of cutting-edge research and must be submitted to Senate for approval via the SRPC.

4. Apart from the SRPC recommending the approval of the project, it must scrutinise the requested budget.
5. Only after Senate has approved a research project, can financial assistance be obtained from the Division for Research Development and Administration (DRDA).
6. Grant recipients are required to submit annual progress reports, scrutinised and signed by the Head of the Department/Unit/Division, the Director of the School (after the report served at the SRC) and the Executive Dean together with a financial statement indicating the amounts utilised. The signed report and financial statement are then submitted to the SRPC for approval.
7. A grant is not a support for life and is limited to a maximum of one three-year cycle only. Under exceptional cases and at the discretion of the SRPC may a staff member qualify for another one or two years of funding.
8. With the exception of doctoral candidates, the funding is only meant for staff who do not have external funding. Staff members who have external funding are eligible for other types of funding, see the other programmes.
9. Age of 45 years or younger at the closing date for applications.
10. The staff member is required to remain in the employment of UL for the same period as the duration of the grant received.

Period of Funding

Applications only need to be submitted once and grants will be made available for a period of up to three years. However, funding after the first year will be made available subject to the submission of an acceptable progress report together with a financial statement. Continued funding for each successive year will depend on satisfactory progress.

The following items may be budgeted for

Research Consumables, Subsistence, Travel, Research Assistant, Bursaries / Scholarships for students, Research equipment , Conference/ research training workshop attendance, Conference attendance abroad Books

Evaluation

1. Each application has to be submitted for an evaluation of the research proposal in terms of novelty of the research idea, alignment with UL's vision and mission, research niche areas, academic merits, feasibility, and budgetary requests, etc. A Checklist (RES-3) (obtainable from the DRDA must be completed by each evaluation committee / structure).

2. The researcher and Head of Department must essentially ensure the research is within the department's niche areas or in alignment with long term research strategic goals, is discipline specific sound, is feasible and the budget is reasonable.
3. The proposal accompanied by completed and signed documentation should then be submitted for scrutiny to the School's Research Committee.

Seed funding to kick-start research of Newly Appointed Staff Programme: The Seed Funding to Kick-start Research Programme is meant to ensure that newly appointed staff, who do not have the financial means, starts immediately with research while pursuing other funding streams. While the funding is meant for capacity building nonetheless the researcher is still required to produce tangible research outputs (post-graduate students and other DoHET research outputs)

Staff Qualification Improvement (master's and doctoral) Scholarship Programme for Emerging Researchers: A large percentage of the University of Limpopo's academic/research staff do not have a doctoral degree. Researchers without a master's or doctoral degree cannot supervise master's and doctoral students and yet master's and doctoral students attract considerable DoHET subsidy and IHL are expected to increase their production of such postgraduate students. The purpose of this scholarship is to encourage active, emerging, UL permanent researchers to register for a master's or doctoral degree and to provide support for the completion of these degrees.

UL's proposed utilization of the UCDG:

- Staff mobility programme.
- Grant proposal writing workshops.
- Doctoral study project: capacity building in topics such as proposal development; research methodology; scientific writing skills; and data collection. Each participant in this cohort will be enabled to have time to concentrate on their studies. Hence, it is envisaged that through the UCDG, we will make available registration fees for each of the participants in this project. We will also cover travel, accommodation and meal allowances for those participants registered for PhD projects in other institutions. For advanced research methodology training, we will partner with the University Stellenbosch's **African Doctoral Academy** to enlist the cohort of staff members in this programme in various courses offered by the academy. In addition, we will allocate about R30 000 each for data collection, analysis and editing for each of the participants. It is anticipated that the budget allocations to this endeavour will increase by 12% annually to cushion inflationary measures.

- Supervisory Training which will endeavour to improve supervision capacity at UL. In this activity, we will partner with the **Centre for Higher Education Research, Teaching and Learning (CHERTL)** of Rhodes University and enlist a group of 20 early career supervisors
- Publication Capacity Development Project: we shall partner with experienced editors and trainers within this space to develop journal article writing skills amongst Academic Staff.
- Writing Retreats for Publications, Thesis & Dissertations.

2.18 University of Mpumalanga (UMP)

- Capacity building workshops/ training - SATN Programmes on proposal writing, postgraduate supervision, and research ethics; writing retreats (twice a year), workshops in areas such as statistics, the use of modern technology such as software(s) (Turnitin and SPSS)
- Mentorship - Writing retreats that take place twice a year, workshops in areas such as statistics, the use of modern technology such as software(s) (Turnitin and SPSS)
- Partnerships - Emerging researchers from UMP participate in structured developmental activities such as guest and public lectures/seminars by visiting staff from national and international universities. The MoUs between UMP and other national and international universities/research institutions assist emerging researchers to appreciate collaboration and multidisciplinary research
- Policies developed by UMP to develop research and encourage emerging researchers - Research Support Policy; Policy on Research Sabbatical; Policy on Postdoctoral and Fellowships; Conference Attendance; Publication costs; Excellence Awards in Research Policy and procedures; Policy on the Division of DHET Research Output Subsidy Generated through Research Publications; Human Resource Development and advancement Policy.

UMP's proposed utilization of the UCDG:

- Short courses and workshops in the core areas of research including research ethics and research supervision; proposal writing; statistical analyses/support and GIS programmes; writing for scholarly publication; research methodology.
- Staff development for teaching and learning and research through staff exchange.
- Staff development in teaching and learning, and research through staff mentorship.

2.19 University of South Africa (UNISA)

Research and innovation incentives:

1. The research output incentive for DHET journals (list 1 – South African Journals) is R25,000).
2. The research output incentive for ISI (Web of Science) (list 2 – ISI Journals) / IBSS (list 3 – IBSS Journals) journals is R50,000.
3. The research output incentive for a researchers' first accredited journal paper is R25,000. This is in addition to either 1 or 2 above.
4. The incentive for the successful supervision to completion of a Unisa research master's degree is R25,000).
5. The incentive for the successful supervision to completion of a Unisa doctoral degree is R50,000

UNISA's proposed utilization of the UCDG:

- For nGAP candidates registering for Masters and Doctoral degrees: salaries, training and development, mentorship, travelling and subsistence, equipment.
- Support emerging researchers to produce high quality research publications with research mentors in a host institution outside South Africa. This programme also makes provision for the hosting of a renowned international research mentor to assist a young researcher in producing high quality research publications.

2.20 University of Venda (UniVen)

The University of Venda makes internal funding available for research projects, conference attendance and to defray publication costs. Some researchers manage externally funded research projects and others do consultancy work for Local / Provincial government departments and other stakeholders. The university has research collaborations with many research institutions nationally and internationally. The University currently has eight research niche areas. It also provides funding for research projects in non-niche areas and supports its researchers and post graduate students to attend international conferences. In 2008 the university introduced a recognition and award system to incentivize active researchers. Research partnership exists with the Limpopo provincial Government through the Limpopo Research Forum and the Limpopo Integrated Innovation Forum which bring together managers of research and developers of technologies in the Provincial tertiary institutions, Provincial government departments, private sector, NGOs and industry.

UniVen's proposed utilization of the UCDG:

- Short courses aimed at enhancing teaching and research capacity of academics.
- Supervisory training for emerging researchers.
- Mentoring staff in teaching and research.
- Postgraduate study programme for staff.

2.21 University of Pretoria (UP)

The Research Development Programme (RDP), also known as the *UP Early Career Academic Programme*, provides seed funding to new researchers to establish their research career. Financial assistance is granted annually (3 years maximum) on a competitive basis to academic staff members who are at the beginning of their research careers or to newly appointed established academics for a period of one year. The programme aims, in partnership with departments, to stimulate the systematic development of the research careers of members of staff. The allocation of a Research Development Programme grant does not exclude the beneficiaries from access to other departmental and faculty research funds. The Division of Research Support also provides research skills training opportunities for the development of the grant-holders and other new researchers. The aim of the RDP is to encourage new academic researchers to prioritise (purposeful) research, collaborate with established research groups and networks; develop their research skills; improve their research productivity; and successfully source research funds from external funders as early as possible.

Participants must be permanent full-time academic staff members (as well as full-time staff appointed on 3 year contracts), in possession of a doctoral qualification (but exceptions may be made where the research is in a particular broad research field in which there is an exceptional national shortage of doctoral graduates), must have been a member of staff at the University for less than two years and have not yet established academic research career, be associated with an established UP research group or a UP research mentor.

Awards are for three years for emerging researchers, subject to an annual review of progress. A new workplan and budget must be submitted annually together with the annual progress report. Bridging funds for established researchers who have just been employed by the university may be granted for one year.

Our Early Career Academics also benefit from UP's Travel Abroad Programme for Academic Staff.

The Vice-Chancellor's Academic Development Programme: The Vice-Chancellor's Academic Development Programme (VCADP) VCADP grant enables researchers to obtain funding for teaching support (employing someone to lecture in their place), so that they can complete their degrees. The UPRDP is a UP-funded three-year programme, renewed annually on a competitive basis. It is a start-up fund for recently appointed early career academics that already have a PhD, to enable them to establish a research career. It is managed through partnership between Research Support and the academic departments in the Faculties

UP's proposed utilization of the UCDG:

- Academic Development Grant - Funding to relieve the teaching load of academics enrolled for Masters and PhD studies; payment of course fees and costs related to PG studies.
- Researcher Development - Development opportunities for novice researchers; workshops for post docs; writing clinic (grant writing); research training; support the establishment of networks, sabbaticals for mid-career academics; Consultants to assist postgraduate students with the thesis life cycle: proposal writing, data analysis, statistical support, grant writing, writing for publication.

2.22 University of the Western Cape (UWC)

UWC's proposed utilization of the UCDG:

- Mentor fees.
- Writing fellowships.
- Supervision workshops.
- Establishing a public research profile: Creating a research profile for academics (Converis, Orcid, Google Scholar, etc.).
- Writing retreats. Writing for publication: Workshops.
- Writing competitive funding proposals: Workshops.
- Building and expanding their research networks and partnerships: Over the three years 120 emerging researchers will participate in workshops, facilitated by some of the University's current and retired international partners.
- Coordination and facilitation support.
- Teaching relief for doctoral mentorship programme.
- Seed grants for early career researchers.
- Mentoring and capacity development.
- Postgraduate opportunity support for staff.
- Funding proposal writing workshops.

2.23 University of Zululand (UniZul)

Incentives and Rewards Scheme (approved in 2011)

- Supervisor of a Research Master's Degree - R 8000 per student plus R2000 to the department
- Supervisor of a Doctoral Degree – R25 000 to the supervisor plus R6000 to the department (provided that research article prepared for publication with the doctoral student as author (or with the promoter as co-author) must be submitted with the thesis)

UniZul's proposed utilization of the UCDG:

- Compilation of a draft Motivation document for training emerging scholars; create a stipend for emerging scholars and implementation of payments. Sending successful candidates on training programmes; Recruiting emerging scholars in line with policies; Recruitment of suitable emerging scholars, sending them for further training and development workshops at other universities; Payment of a monthly stipend to emerging scholars. (The target group and postgraduate students and early career junior academic staff. In order to be inclusive, students who are pursuing four year degrees, like LLB and Accounting Science, and are in their 4th year of study will also be considered for this programme).
- Academic staff postgraduate study support: We will provide research development assistance to academic staff registered or planning to register for either Masters or Doctoral qualifications. We will organize research related workshops that can be facilitated in-house by our senior academics or externally if the need arises. To aid staff with completion of their qualifications, they will be given time off to focus on their studies and temporary teaching staff will be appointed to substitute them.

2.24 Vaal University of Technology (VUT)

Statements in the *VUT Research Policy* (approved in 2006) relevant for the development of the researchers' capacity and to support emerging researchers include:

Vaal University of Technology wishes to promote Applied and Developmental Research by:

- creating an environment that contributes towards effective research aimed at developing research skills and competence amongst students and staff: these important aspects of personal development should also have a positive effect on the quality of education,
- by promoting research outputs, and
- by increasing funds available for research.

Initiatives aiming at the development of a research culture will include

- Funding to promote this culture.
- Courses in research methodology, information retrieval, lay-out of reports, compilation of articles etc., in order to improve the quality of research outputs.
- Promotion and advocacy related to research e.g. recognition and rewarding of research outputs, encouragement to attend symposia, as well as visits to research institutions.
- Where possible easing of the lecturer's teaching, invigilation and administration obligations for the duration of a research project.
- Ensuring new appointments have a research-orientated approach.
- Involvement of staff within approved research focus areas.
- Staff development by providing them with opportunities for the acquisition of new research skills.
- Expanding the library's literature on research.
- Training of staff, project mentors/promoters/supervisors to ensure quality of student research outputs.
- Sabbatical leave for research purposes.
- Keeping a register of all research undertaken by the University.
- Joint research projects with other institutions and specialists.
- Maintaining research related databases e.g. equipment.
- Infrastructure is available to support post-graduate students e.g. Post-graduate Centre

Research incentives and awards:

For postgraduate supervision: 10% of the research output earned by M and PhD graduates (as determined by the University) is paid to the supervisor

For publication: R30 000 per publication output, and it is distributed as follows:

- 15% allocated to the Senate Research & Innovation Committee
- 15% allocated to the Faculty (to develop research within the faculty)
- 70% allocated to the Individual(s)/author(s). The researcher has the option of receiving this directly into his/her salary, which is taxable. To qualify for these funds the researcher must be an employee at VUT. Should the researcher leave the institution the 70% will be transferred to the relevant faculty.

VUT's proposed utilization of the UCDG:

- Academic staff postgraduate study support: This is a core activity in this project. We will provide research development assistance to academic staff registered or planning to register

for either Masters or Doctoral qualifications. We will organize research related workshops that can be facilitated in-house by our senior academics or externally if the need arises. To aid staff with completion of their qualifications, they will be given time off to focus on their studies and temporary teaching staff will be appointed to substitute them.

- Supervisory Capacity Training: Our postgraduate students take longer to complete their qualifications due to insufficient supervision capacity and limited number of supervisors. We aim to improve the supervisory skills of our current academics' supervisors by providing them with training workshops. This training will also be extended to our Postdoctoral Fellows who will also provide supplementary supervisory capacity. We also wish to appoint retired professors to assist with supervision and mentoring of both emerging researchers and postgraduate students.
- Facilitate presentation of research work conducted @ local + national + international (conference): Facilitate a series of writing retreats with the intention to develop writing skills for publications; Facilitate publication of research conducted in the project in accredited publications.
- Masters and Doctoral Induction Programme.
- Payment of tuition fees of academic staff enrolled at other institutions
- Contract appointment of replacement lecturers.
- Travel and accommodation for supervisor consultation at other institutions.
- In-house workshops on research skills and techniques.
- Writing-for-publication Retreats (2 x 4 day workshops).
- Ethics in research (1-day workshop).
- Workshop on supervisor training (5-day workshop).

2.25 University of the Witwatersrand (Wits)

The Sikhule - Early Career Academic Development Programme: Early Career Academics (ECAs) of today face a number of new career challenges. These range from teaching effectively in large classes (and the associated issues of course design, assessment and integration of technology into the classroom), to completing a PhD, publishing, establishing a research niche, securing postgraduate students and establishing collaborative partnerships across disciplines, national borders and with business. Such issues can quickly become overwhelming and the process of creating an academic identity may consequently be stymied despite the highly developed disciplinary skills and knowledge of the ECAs. The Sikhule Programme (Sikhule is isiZulu for 'grow') therefore, aims to provide institutional support for ECAs to complement their existing skills by developing the teaching, research and interpersonal skills required to effectively transition from PhD students to leading academics, and leading academics to academic leaders. The Sikhule Programme has been designed to include

- a suite of research and teaching workshops and courses selected from the Centre for Learning, Teaching and Development (CLTD) and Research Office programmes,
- participation in communities of practice with other ECAs,
- opportunities for participation in one or more week-long, facilitated writing retreats (off-campus),
- access to mentoring from more senior academics.

Ultimately, the aim of the programme is to establish a caring and sustained relationship between the ECAs, CLTD and the Wits Research Office. In doing so, we hope to support the emergence of a new generation of highly skilled, highly motivated academic staff who are well-equipped to navigate both present and future Higher Education challenges. This approach may also lead to increased staff retention as a result of staff feeling valued by the institution from the inception of their academic careers. In addition, there exists the potential for increased rates of PhD completion as a result of participation in the developmental programmes, and increased publication outputs, both for the participants *and* the programme coordinators (the latter as a consequence of the programme being viewed as a scholarly endeavour, and implemented and evaluated as such).

Workshops administered via the Centre for Learning, Teaching and Development (CLTD)

Name of workshop	Brief description	Frequency per year
Writing for peer-reviewed journals	To contribute to 'research conversations' by writing for publication in both local and international journals.	2
Research Writing	Assists academics to overcome the barriers to writing which many find overwhelming.	2
Publishing for Impact	A tour of publishing mechanisms showing how they can be used to full effect of increasing the author's impact in the research community and in wider stakeholder communities	2
Conflict resolution	How to negotiate your way out of 'sticky' situations or how to secure terms that are favourable for you	1
Research integrity	A founding principle upon which all research is founded and thus vital for all academics to understand the deeper implications	1
Intellectual property and your research	How to protect your ideas as you share them with the world	2
Postgraduate student supervision	How to maximize your supervisory relationship with your PG students so as to maximize their productivity for their benefit as well your own.	12
Entrepreneurial skills	How knowing that being a PI is similar to being a entrepreneur can help your research	

Wits University's proposed utilization of the UCDG:

- Early Career Academic Development (ECAD) - Training workshops for a cohort of 40 people; Community of practice meetings and mentorship; Kick off session and induction programme; Start-up grants.
- Writing fellow tutors and Writing Workshops - Faculty-based thesis writing workshops/ retreats.

2.26 Walter Sisulu University (WSU)

In the WSU's *Research Mentoring Policy* the university the following statements are relevant to the capacity development and support of emerging researchers:

The mentoring activities target and create conducive environments for researchers to grow and develop as productive researchers of internationally acclaimed standing.

Mentoring offers an opportunity for researchers to get guidance and support for research enhancement; assistance in developing research network; psycho-sociological support; constructive

criticism and feedback. Mentoring is a developmental relationship between a mentor and a mentee based on trust, respect, understanding and empathy. Mentoring encourages reciprocity within the mentoring relationship in terms of derived benefits. The mentoring programme gives researchers an opportunity to benefit from a mentoring process through creating a work environment that promotes collegiality, commitment, growth and development of both mentors and mentees. New and established researchers, including postgraduate students, are eligible for mentoring programmes.

WSU's code of conduct for mentors and mentees is based on a number of best practice guides and guidelines including: the CHE's *A Good Practice Guide for Quality Management of Research*; The *Higher Education Qualification Framework (2006)*; the policy documents of various universities elsewhere in the world such as the University of Edinburgh and University of New South Wales as well as universities in South Africa, such as the Universities of Cape Town, Stellenbosch, Pretoria and, University of South Africa (UNISA).

WSU's proposed utilization of the UCDG:

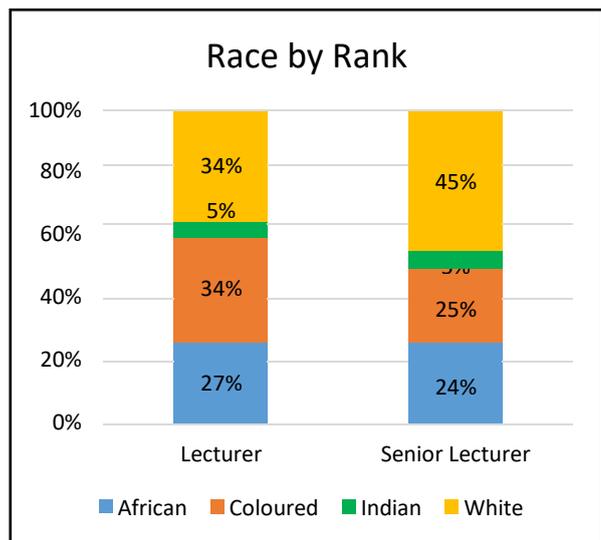
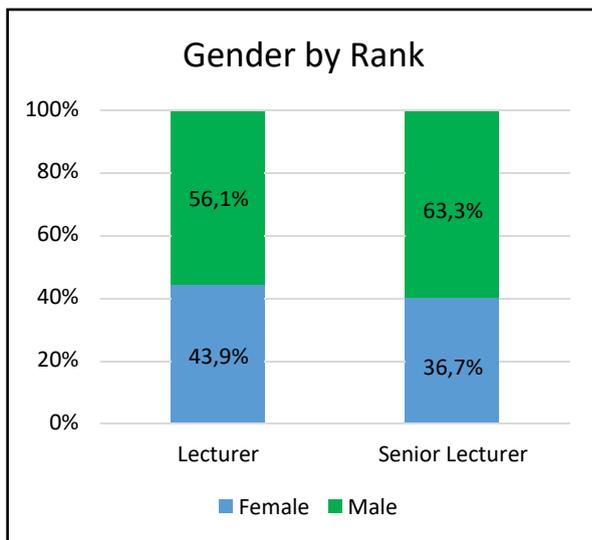
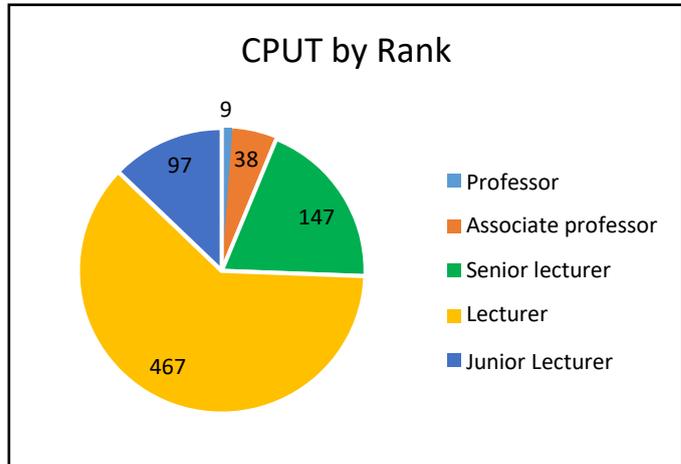
- Improving staff qualifications (Masters and doctoral studies; PG Diploma in Higher Education).
 - Mentoring and supervision training programmes: postgraduate mentoring; supervision workshops; skills development for research administrators).
 - Research capacity development (proposal writing workshops; scientific writing retreats).
 - Academic exchange and mobility.
 - Topping-up NRF and other external grants.
 - Postdoctoral programme for developmental staff.
 - Seed research grants.
-

Appendix 3: University staff profiles

3.1 Cape Peninsula University of Technology (CPUT)

TOTAL PERMANENT INSTRUCTIONAL AND RESEARCH STAFF: 758

LECTURERS (62%) AND SENIOR LECTURERS (19%) OF TOTAL



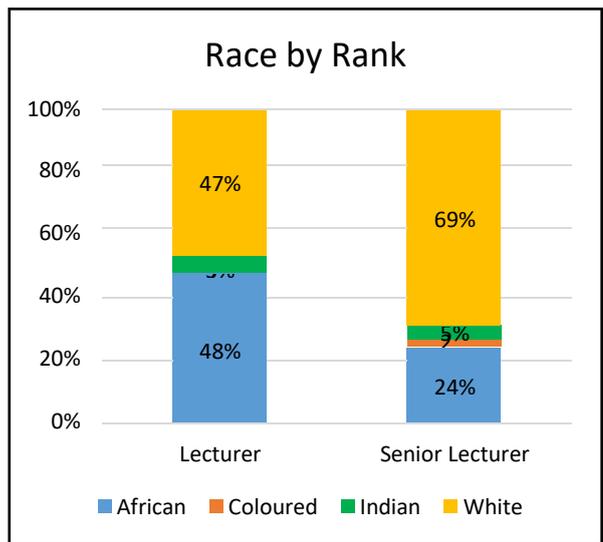
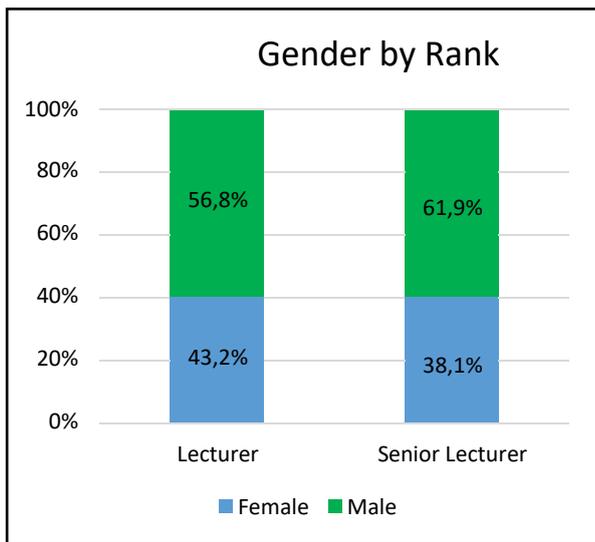
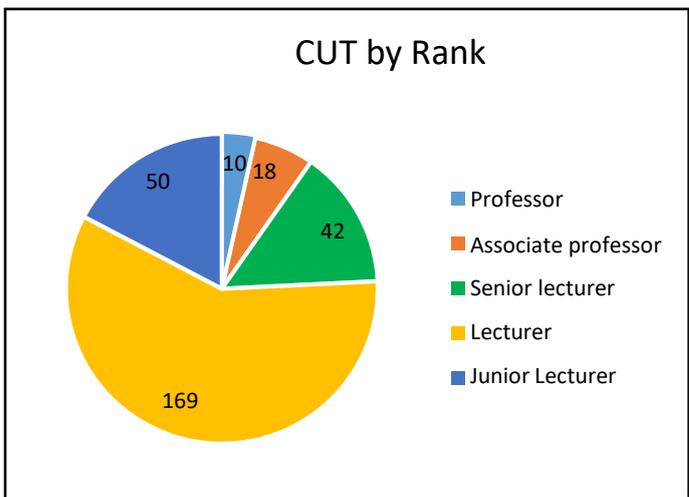
Gender and Race by Rank

	FEMALE				MALE			
	A	C	I	W	A	C	I	W
Senior Lecturer	6	12	3	33	30	25	5	33
Lecturer	39	84	8	74	85	75	15	87

3.2 Central University of Technology (CUT)

TOTAL PERMANENT INSTRUCTIONAL AND RESEARCH STAFF: 289

LECTURERS (58%) AND SENIOR LECTURERS (15%) OF TOTAL



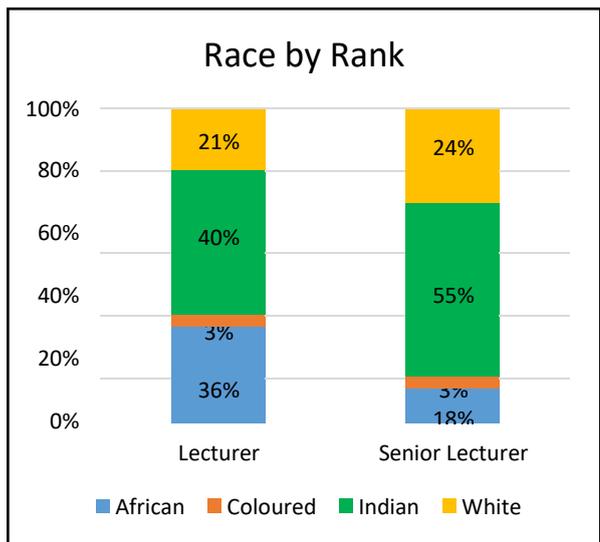
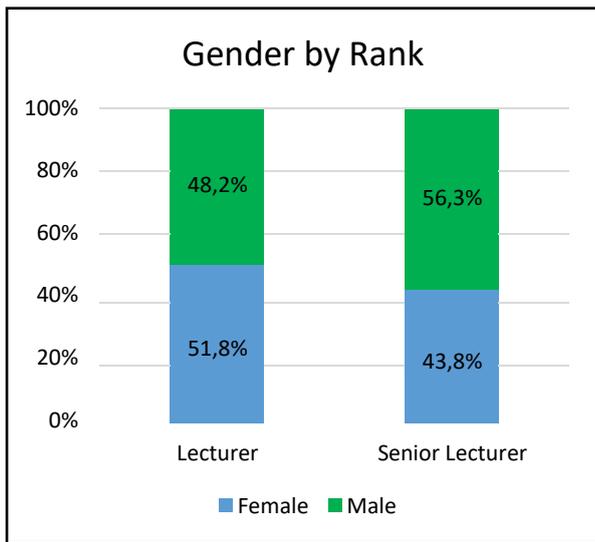
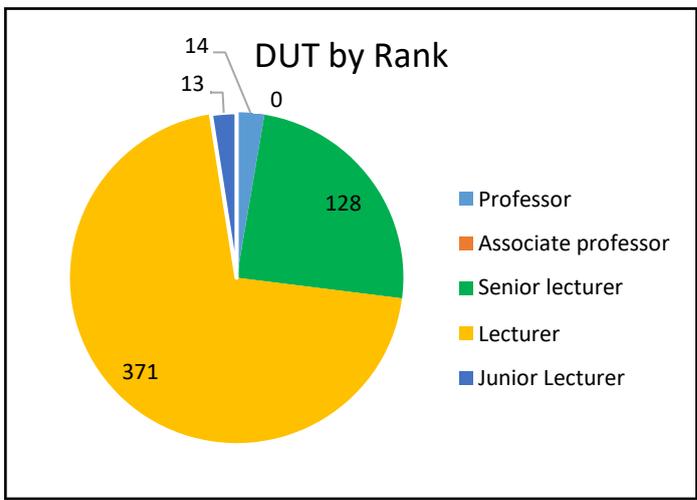
Gender and Race by Rank

	FEMALE				MALE			
	A	C	I	W	A	C	I	W
Senior Lecturer	2	0	0	14	8	1	2	15
Lecturer	26	3	2	42	55	1	3	37

3.3 Durban University of Technology (DUT)

TOTAL PERMANENT INSTRUCTIONAL AND RESEARCH STAFF: 526

LECTURERS (71%) AND SENIOR LECTURERS (24%) OF TOTAL



Gender and Race by Rank

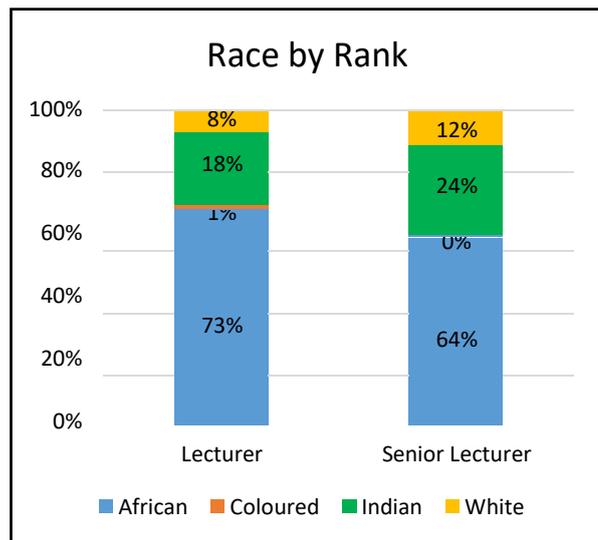
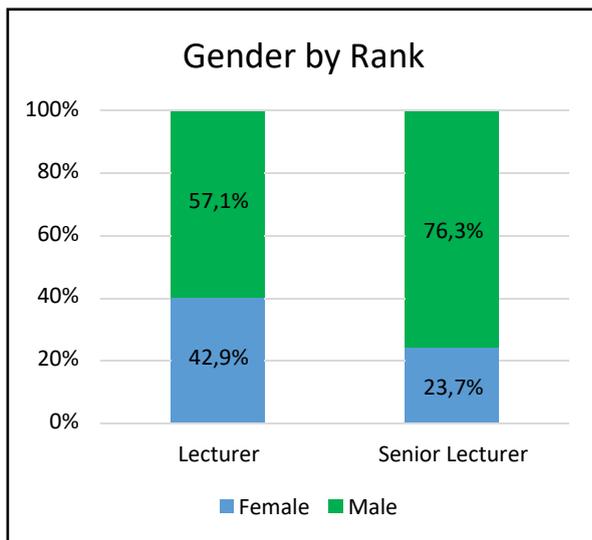
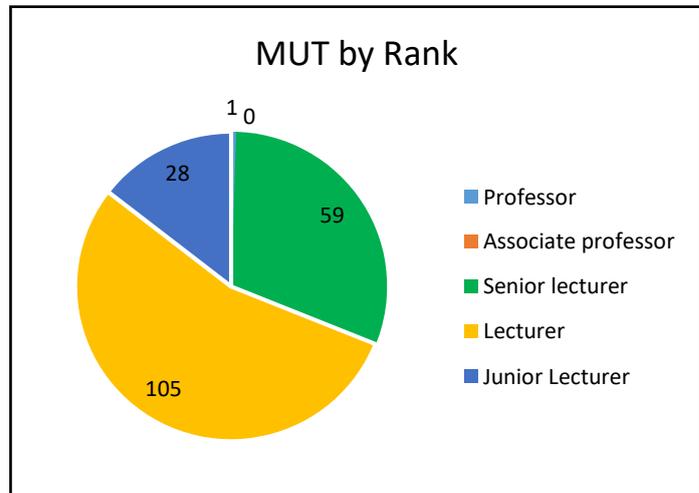
	FEMALE				MALE			
	A	C	I	W	A	C	I	W
Senior Lecturer	11	1	26	16	10	3	39	13
Lecturer	63	6	75	47	67	5	69	28

3.4

Mangosuthu University of Technology (MUT)

TOTAL PERMANENT INSTRUCTIONAL AND RESEARCH STAFF: 193

LECTURERS (54%) AND SENIOR LECTURERS (31%) OF TOTAL



Gender and Race by Rank

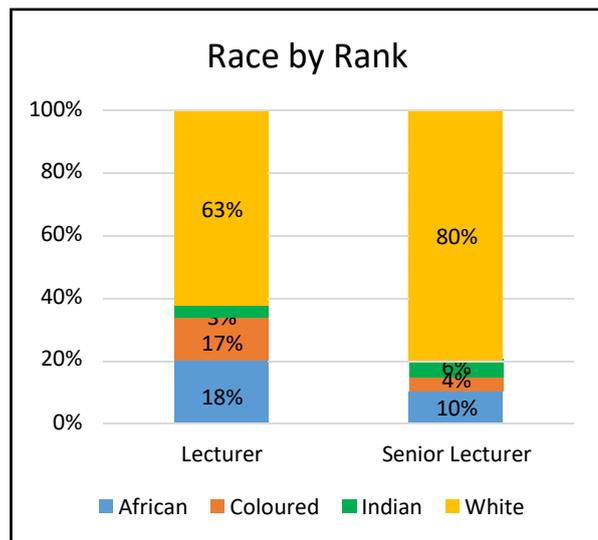
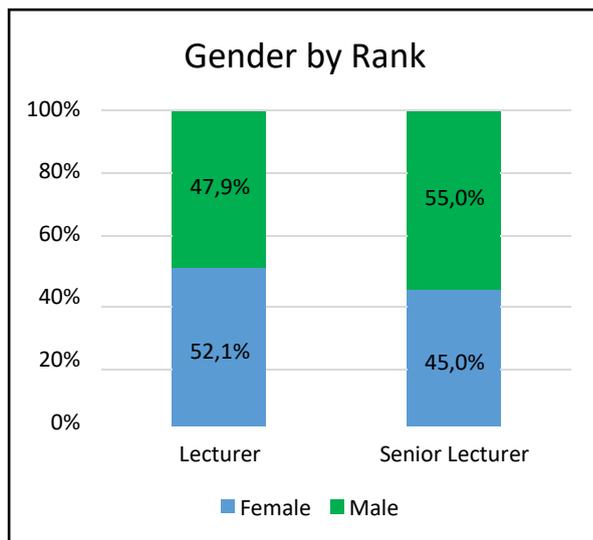
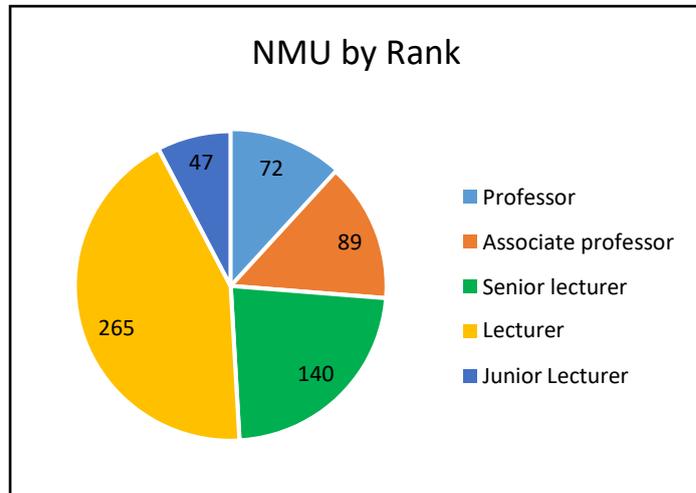
	FEMALE				MALE			
	A	C	I	W	A	C	I	W
Senior Lecturer	8	0	4	2	30	0	10	5
Lecturer	31	1	6	7	46	0	13	1

3.5

Nelson Mandela University (NMU)

**TOTAL PERMANENT
INSTRUCTIONAL AND RESEARCH
STAFF: 613**

**LECTURERS (43%) AND SENIOR
LECTURERS (23%) OF TOTAL**



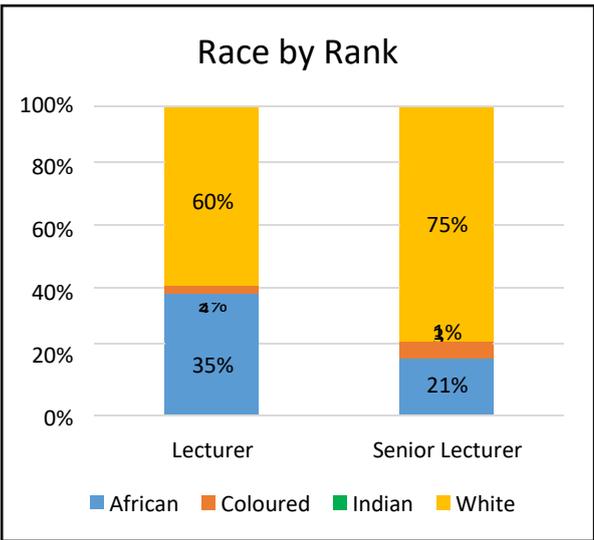
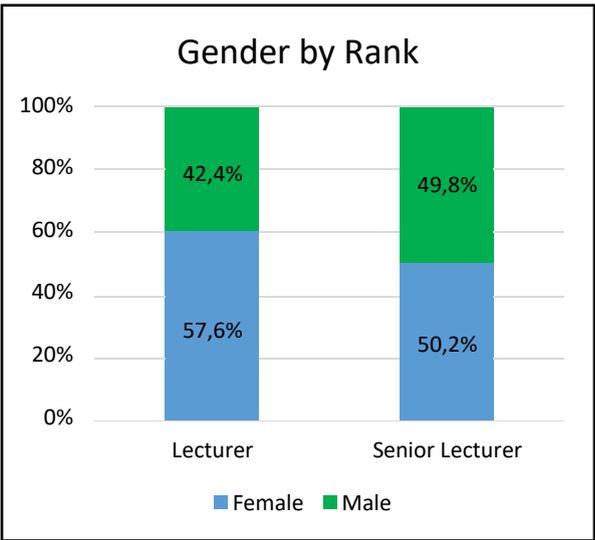
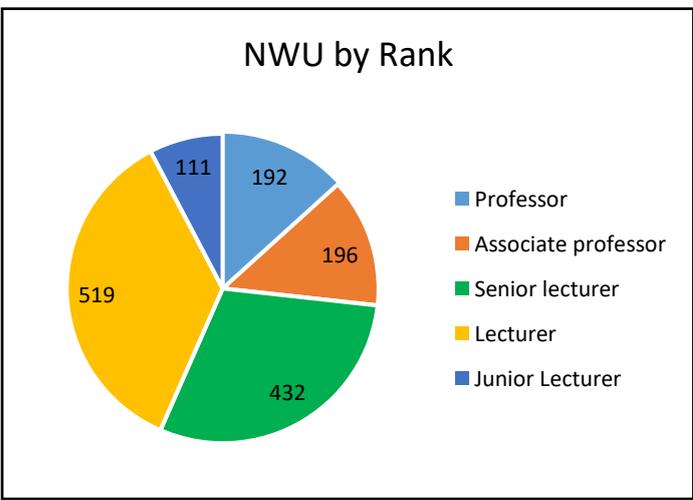
Gender and Race by Rank

	FEMALE				MALE			
	A	C	I	W	A	C	I	W
Senior Lecturer	8	3	4	48	6	3	4	64
Lecturer	20	23	5	90	27	21	3	76

3.6 North-West University (NWU)

TOTAL PERMANENT INSTRUCTIONAL AND RESEARCH STAFF: 1450

LECTURERS (36%) AND SENIOR LECTURERS (30%) OF TOTAL



Gender and Race by Rank

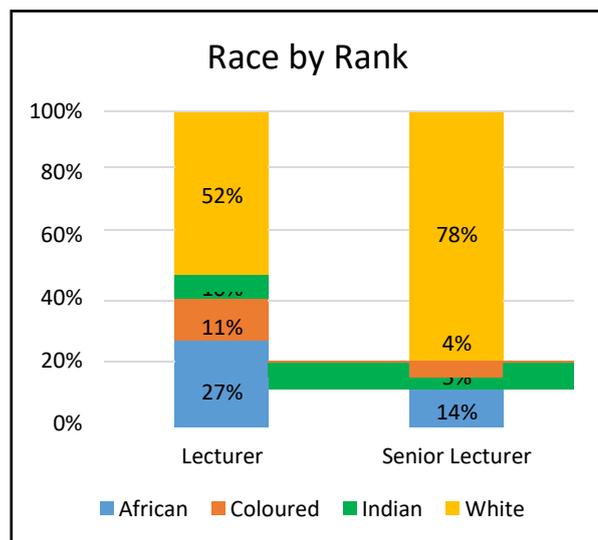
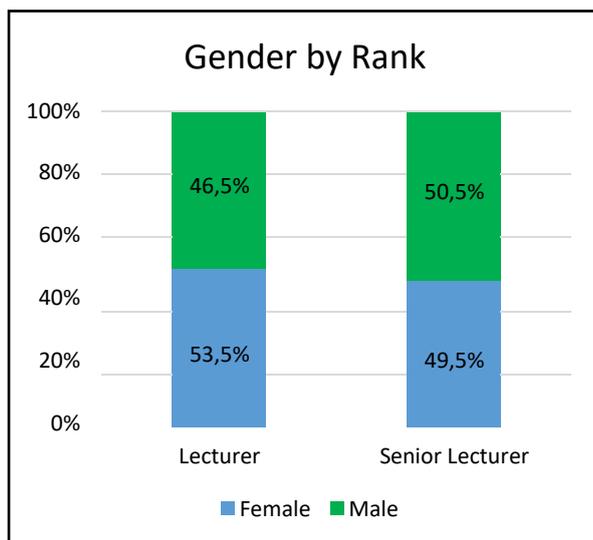
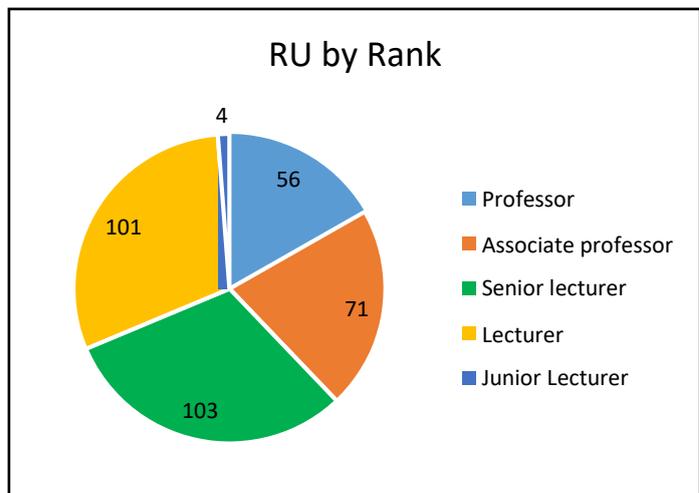
	FEMALE				MALE			
	A	C	I	W	A	C	I	W
Senior Lecturer	32	2	0	183	60	9	5	141
Lecturer	77	9	4	209	105	8	4	103

3.7

Rhodes University (RU)

TOTAL PERMANENT INSTRUCTIONAL AND RESEARCH STAFF: 335

LECTURERS (30%) AND SENIOR LECTURERS (31%) OF TOTAL



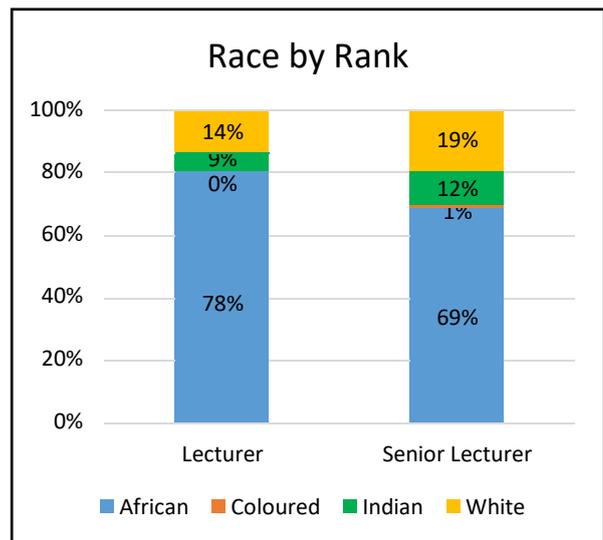
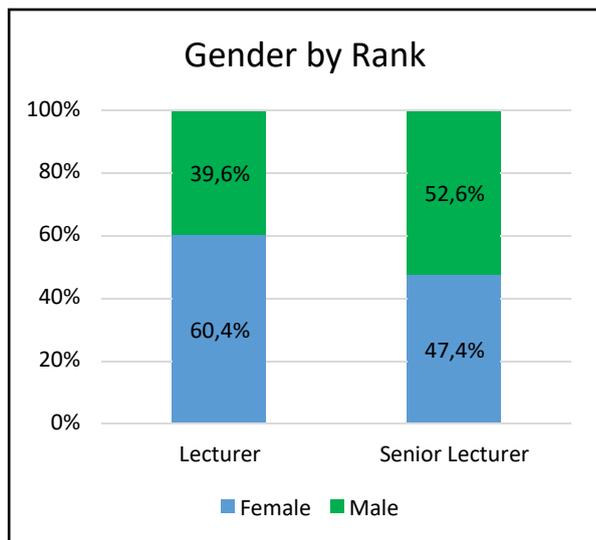
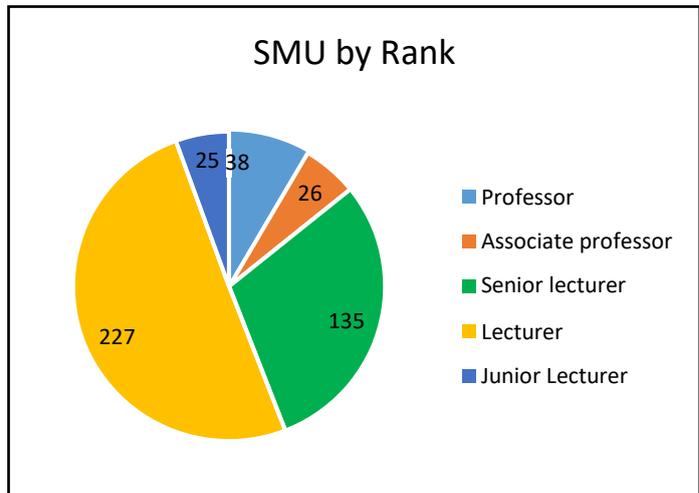
Gender and Race by Rank

	FEMALE				MALE			
	A	C	I	W	A	C	I	W
Senior Lecturer	5	2	2	42	9	3	2	38
Lecturer	13	5	3	33	14	6	7	20

3.8

Sefako Makgatho University (SMU)

TOTAL PERMANENT INSTRUCTIONAL AND RESEARCH STAFF: 451
LECTURERS (50%) AND SENIOR LECTURERS (30%) OF TOTAL



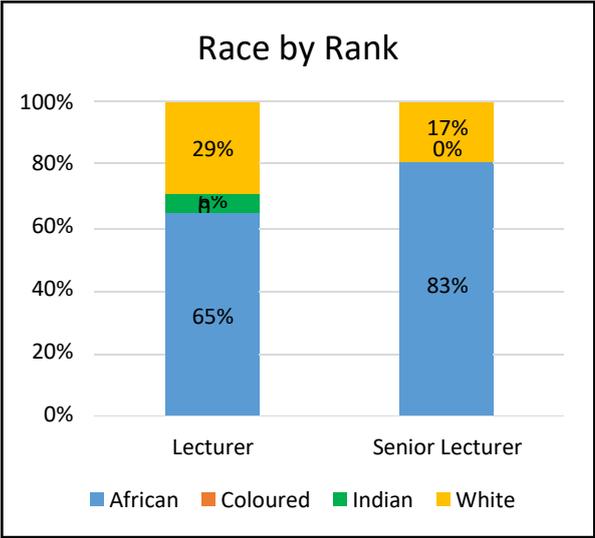
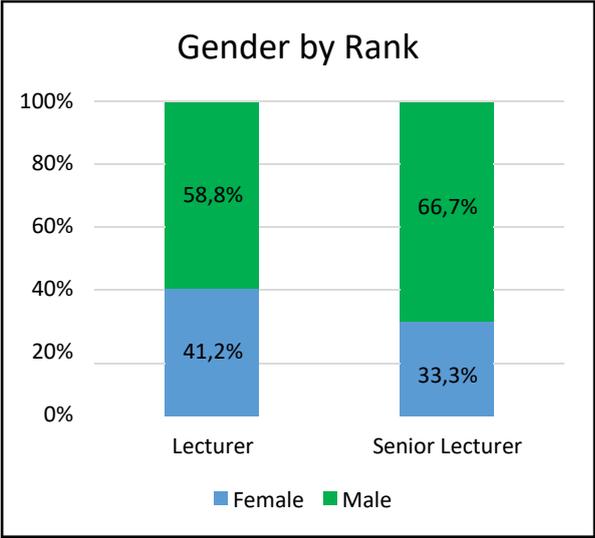
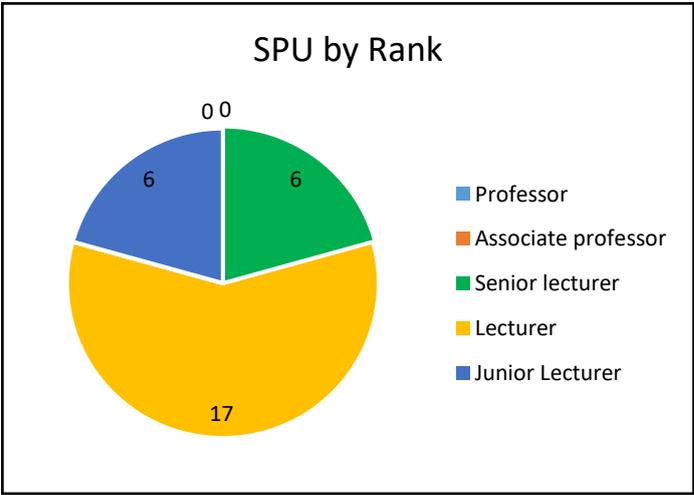
Gender and Race by Rank

	FEMALE				MALE			
	A	C	I	W	A	C	I	W
Senior Lecturer	47	1	4	12	46	0	12	13
Lecturer	100	0	11	26	76	0	9	5

3.9

Sol Plaatje University (SPU)

TOTAL PERMANENT INSTRUCTIONAL AND RESEARCH STAFF: 29
LECTURERS (59%) AND SENIOR LECTURERS (21%) OF TOTAL



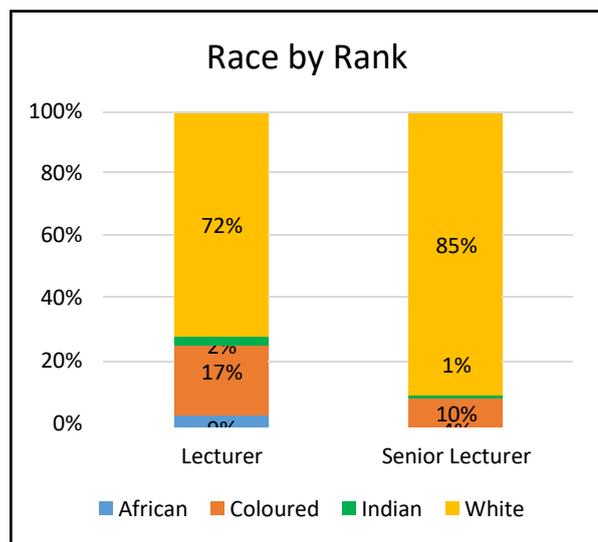
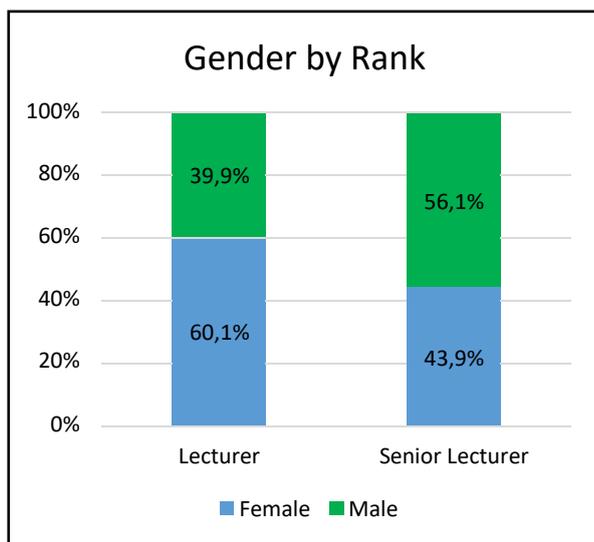
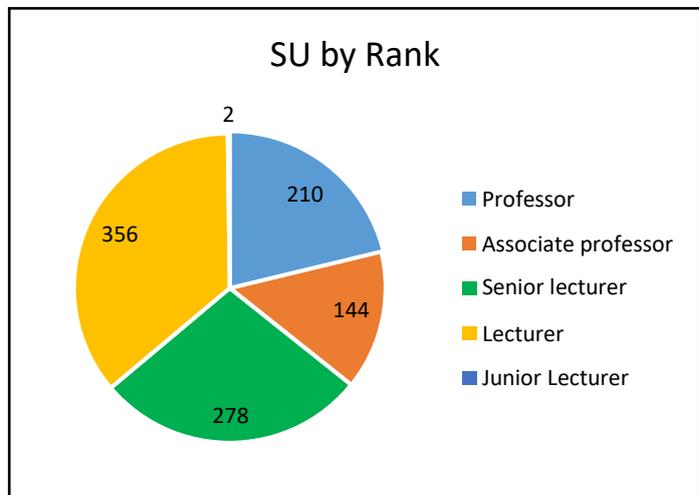
Gender and Race by Rank

	FEMALE				MALE			
	A	C	I	W	A	C	I	W
Senior Lecturer	1	0	0	1	4	0	0	0
Lecturer	4	0	0	3	7	0	1	2

3.10 Stellenbosch University (SU)

TOTAL PERMANENT INSTRUCTIONAL AND RESEARCH STAFF: 990

LECTURERS (36%) AND SENIOR LECTURERS (28%) OF TOTAL



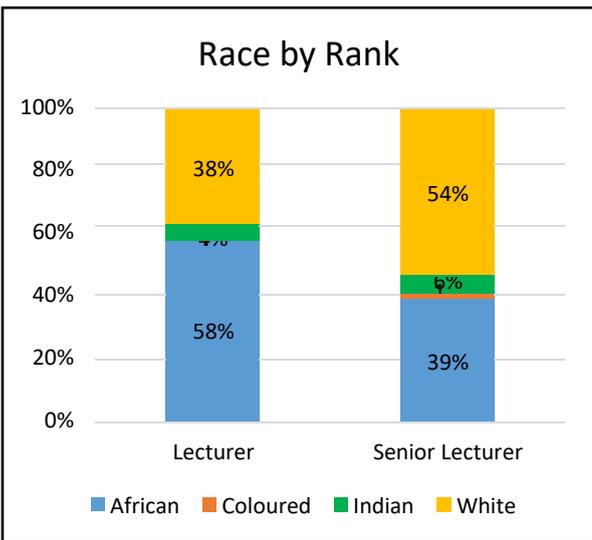
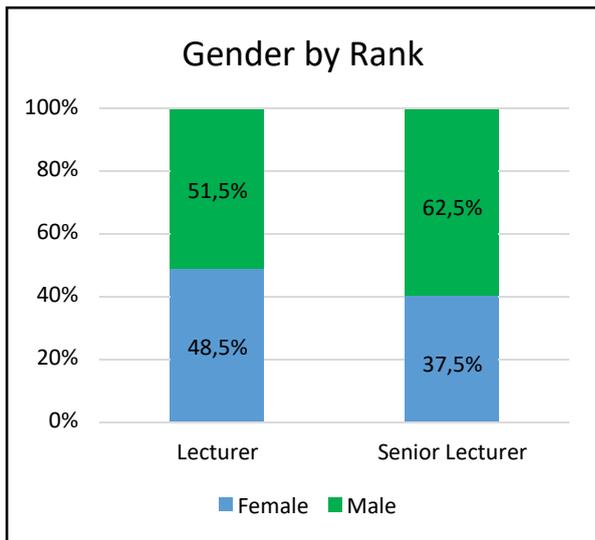
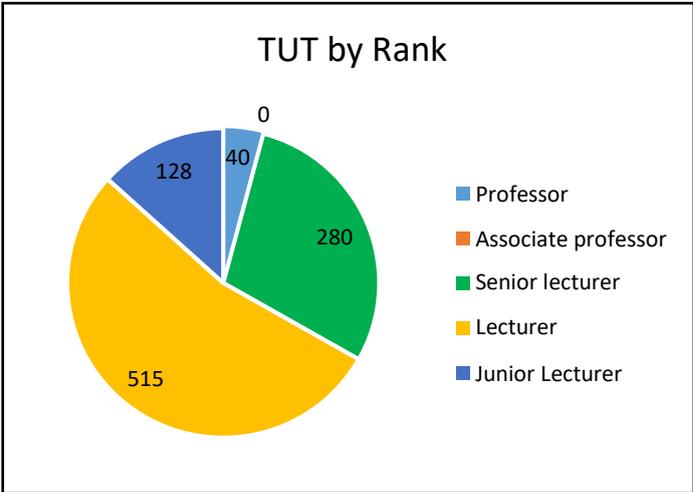
Gender and Race by Rank

	FEMALE				MALE			
	A	C	I	W	A	C	I	W
Senior Lecturer	4	13	1	104	8	15	2	131
Lecturer	13	34	3	164	18	27	5	92

3.11

Tshwane University of Technology (TUT)

TOTAL PERMANENT INSTRUCTIONAL AND RESEARCH STAFF: 963
LECTURERS (53%) AND SENIOR LECTURERS (29%) OF TOTAL



Gender and Race by Rank

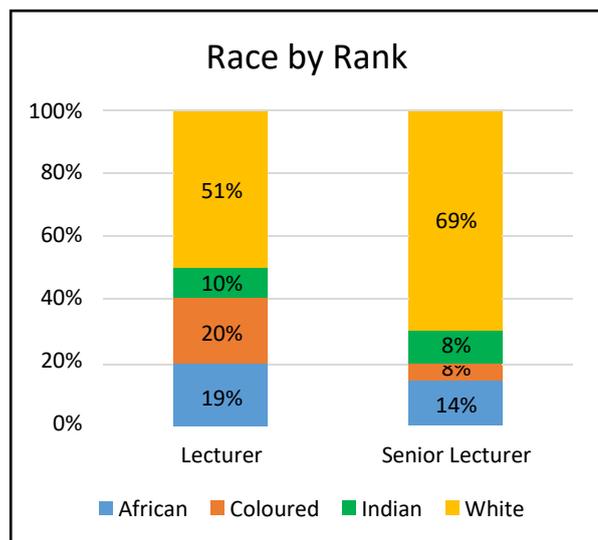
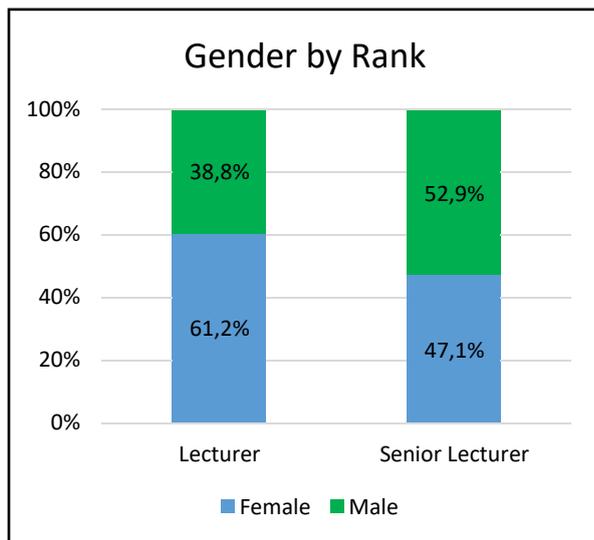
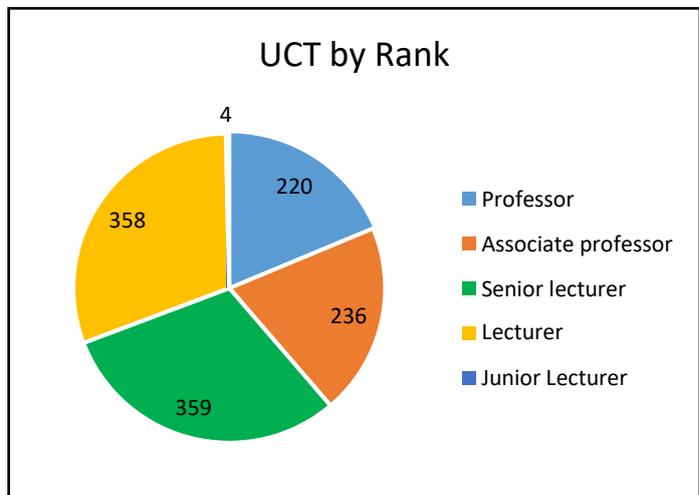
	FEMALE				MALE			
	A	C	I	W	A	C	I	W
Senior Lecturer	27	1	9	68	82	3	8	82
Lecturer	128	3	10	109	170	1	9	85

3.12

University of Cape Town (UCT)

TOTAL PERMANENT INSTRUCTIONAL AND RESEARCH STAFF: 1177

LECTURERS (30%) AND SENIOR LECTURERS (31%) OF TOTAL



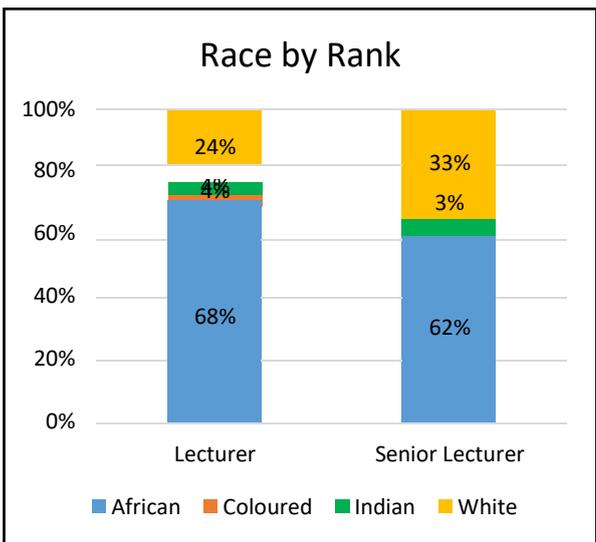
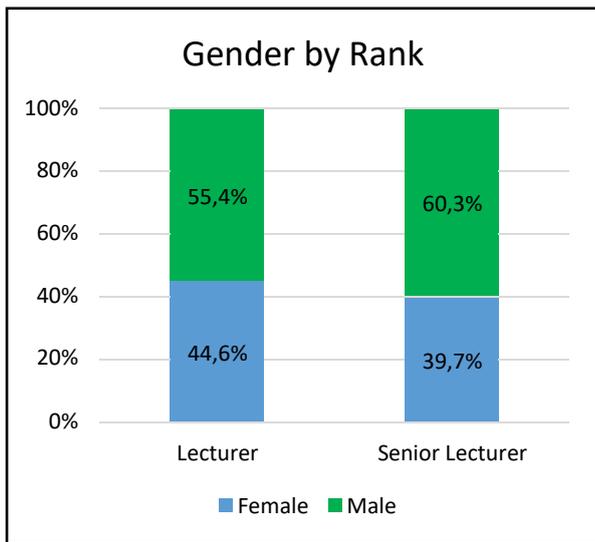
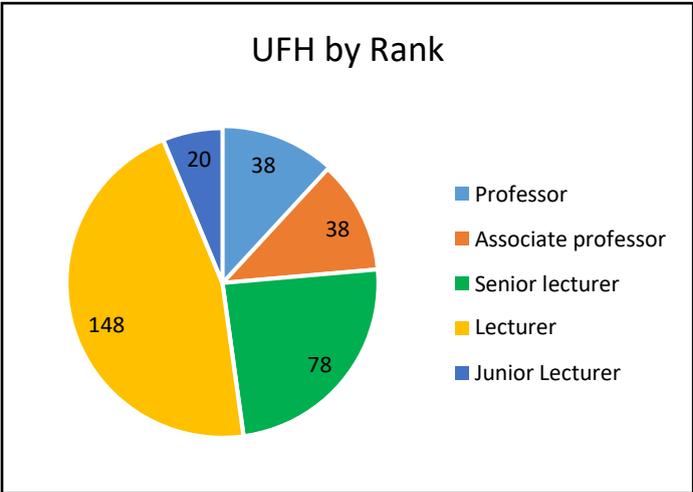
Gender and Race by Rank

	FEMALE				MALE			
	A	C	I	W	A	C	I	W
Senior Lecturer	13	17	9	127	37	12	18	112
Lecturer	33	46	26	111	34	26	9	67

3.13

University of Fort Hare (UFH)

TOTAL PERMANENT INSTRUCTIONAL AND RESEARCH STAFF: 322
LECTURERS (46%) AND SENIOR LECTURERS (24%) OF TOTAL



Gender and Race by Rank

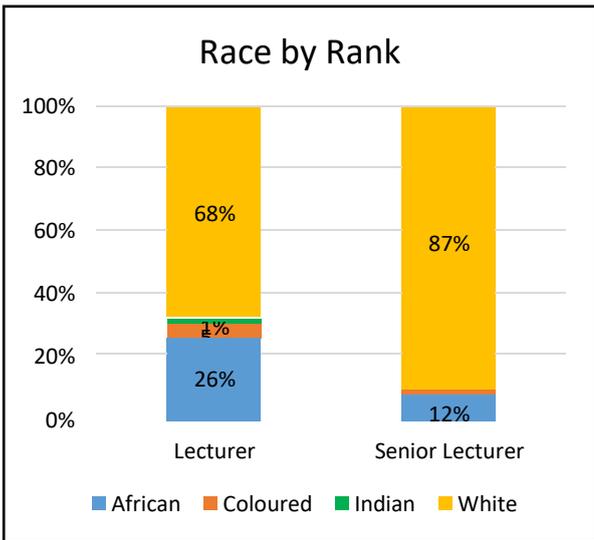
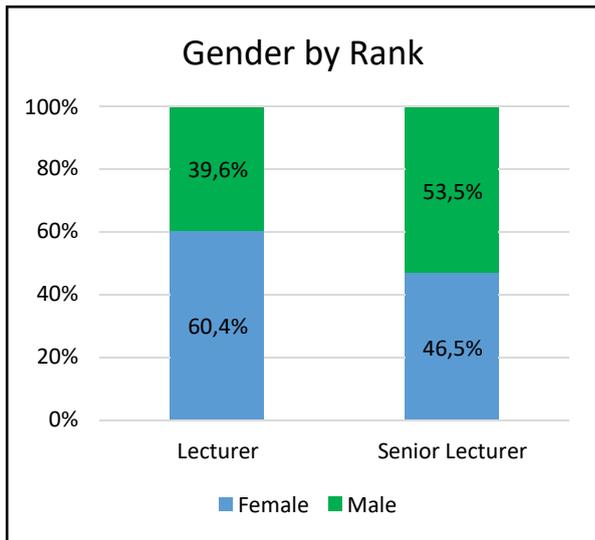
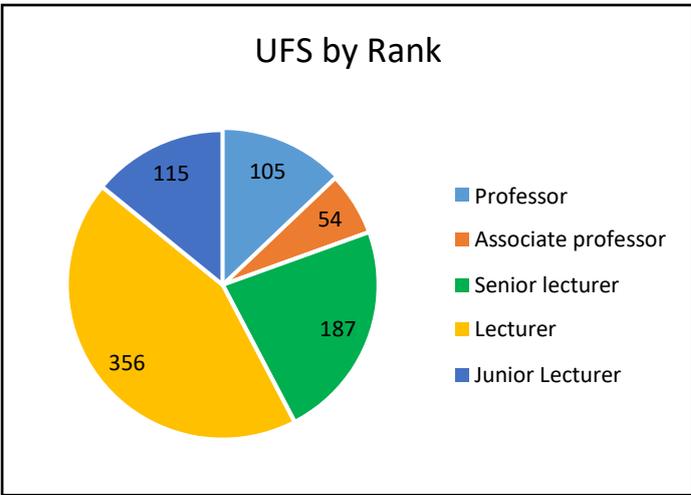
	FEMALE				MALE			
	A	C	I	W	A	C	I	W
Senior Lecturer	19	0	0	12	29	2	2	14
Lecturer	38	2	3	23	63	4	3	12

3.14

University of the Free State (UFS)

TOTAL PERMANENT INSTRUCTIONAL AND RESEARCH STAFF: 817

LECTURERS (44%) AND SENIOR LECTURERS (23%) OF TOTAL



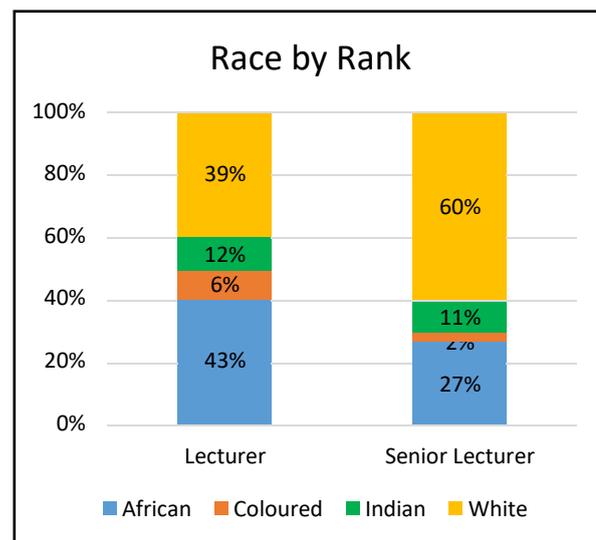
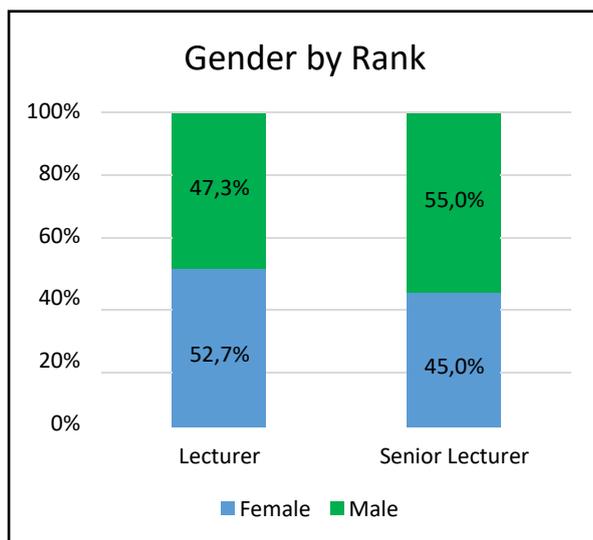
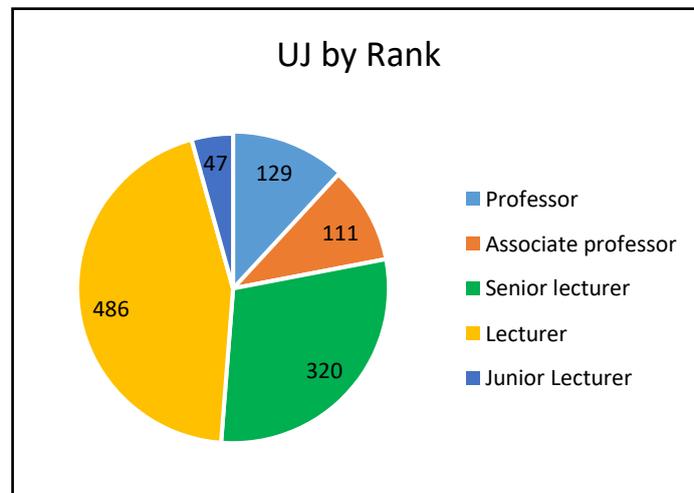
Gender and Race by Rank

	FEMALE				MALE			
	A	C	I	W	A	C	I	W
Senior Lecturer	4	0	1	82	18	2	0	80
Lecturer	37	12	3	163	54	6	2	79

3.15

University of Johannesburg (UJ)

TOTAL PERMANENT INSTRUCTIONAL AND RESEARCH STAFF: 1093
LECTURERS (44%) AND SENIOR LECTURERS (29%) OF TOTAL



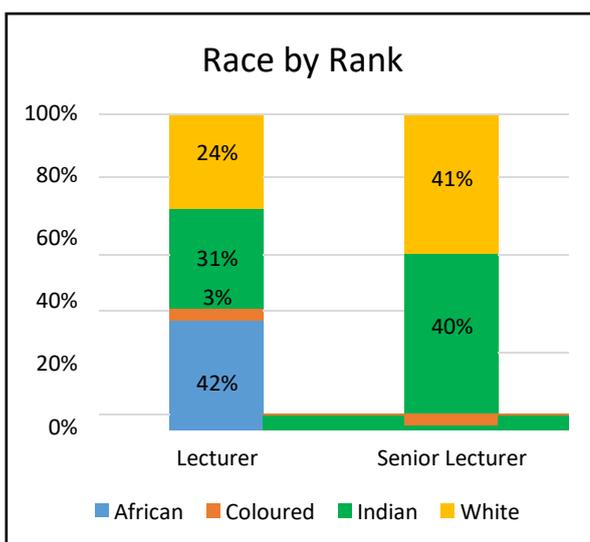
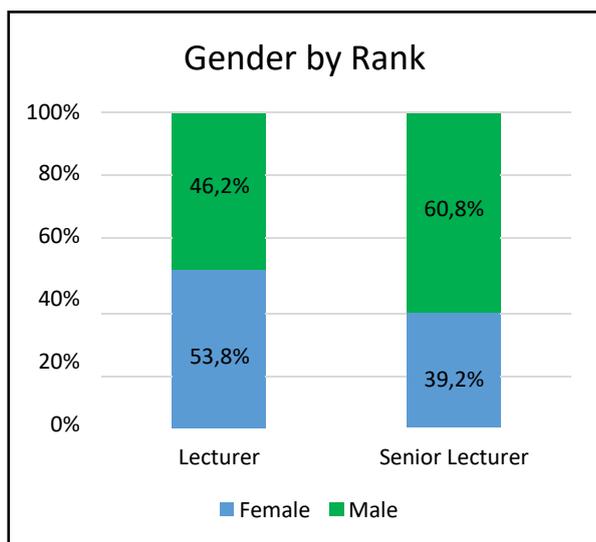
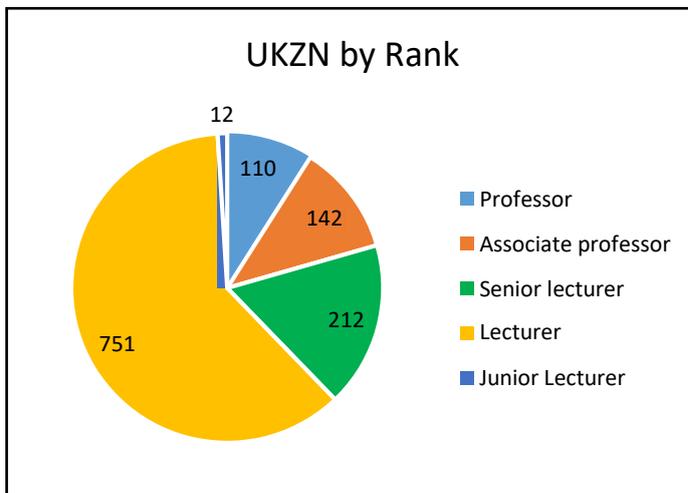
Gender and Race by Rank

	FEMALE				MALE			
	A	C	I	W	A	C	I	W
Senior Lecturer	26	1	17	100	61	6	17	92
Lecturer	86	22	40	108	121	9	20	80

3.16

University of KwaZulu-Natal (UKZN)

TOTAL PERMANENT INSTRUCTIONAL AND RESEARCH STAFF: 1227
LECTURERS (61%) AND SENIOR LECTURERS (17%) OF TOTAL



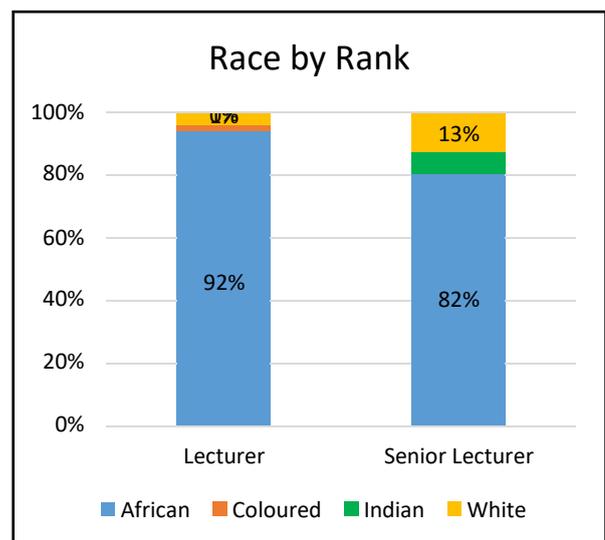
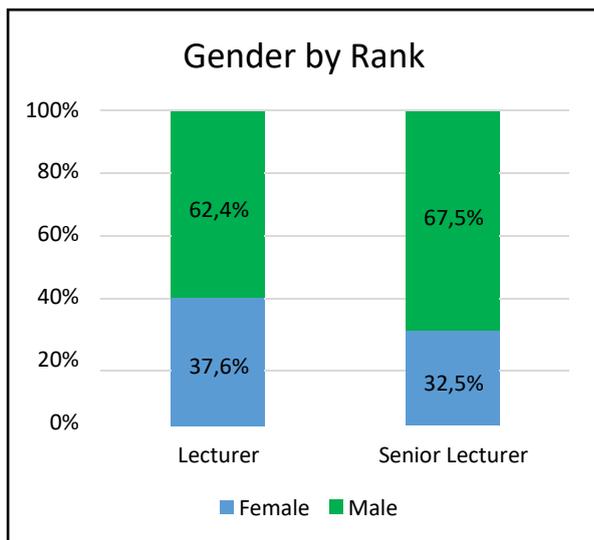
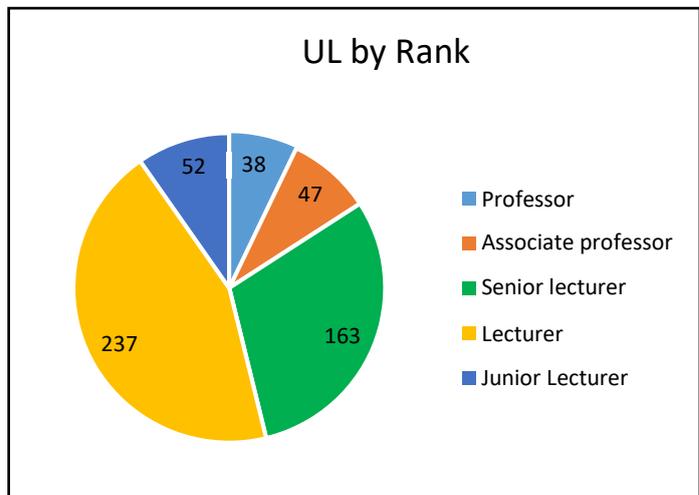
Gender and Race by Rank

	FEMALE				MALE			
	A	C	I	W	A	C	I	W
Senior Lecturer	8	2	35	32	20	4	36	40
Lecturer	139	11	128	110	150	9	82	53

3.17

University of Limpopo (UL)

TOTAL PERMANENT INSTRUCTIONAL AND RESEARCH STAFF: 537
LECTURERS (44%) AND SENIOR LECTURERS (30%) OF TOTAL



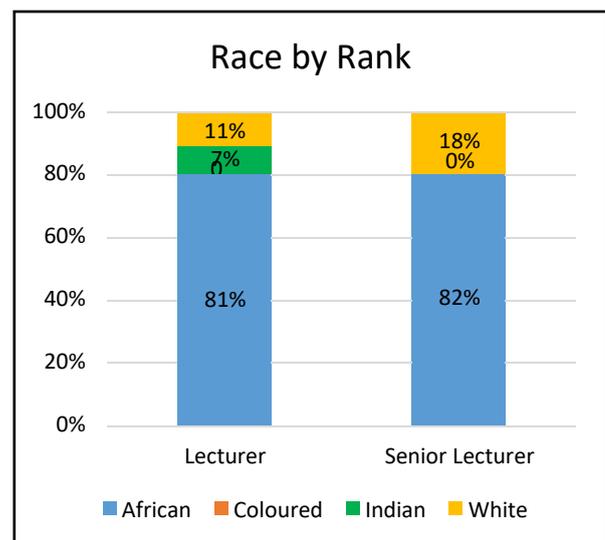
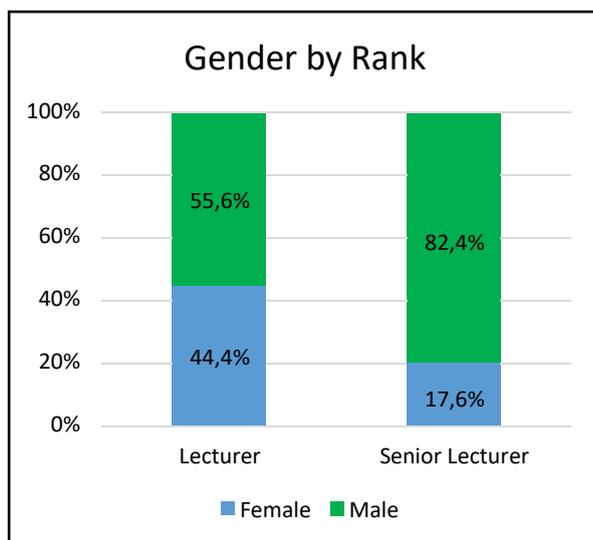
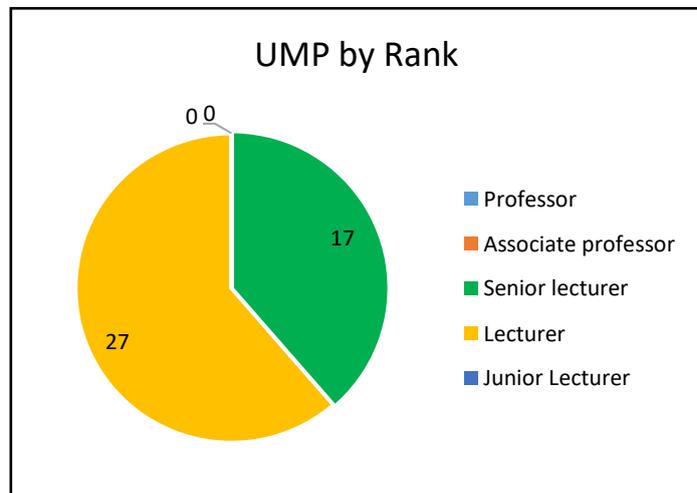
Gender and Race by Rank

	FEMALE				MALE			
	A	C	I	W	A	C	I	W
Senior Lecturer	37	1	3	12	96	0	5	9
Lecturer	77	1	0	11	142	1	1	4

3.18

University of Mpumalanga (UMP)

TOTAL PERMANENT INSTRUCTIONAL AND RESEARCH STAFF: 44
LECTURERS (61%) AND SENIOR LECTURERS (39%) OF TOTAL



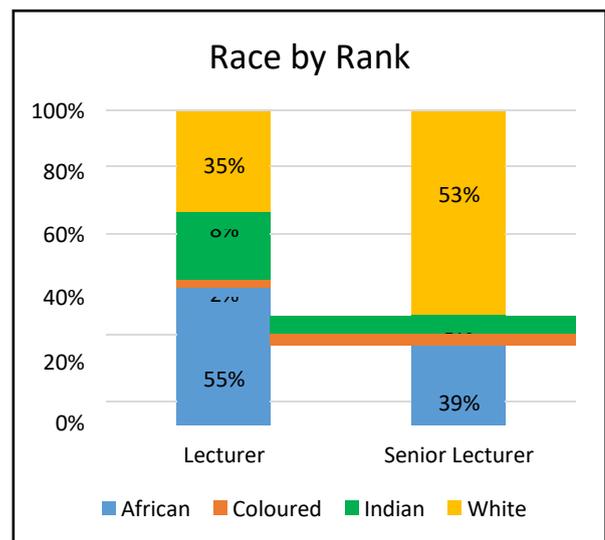
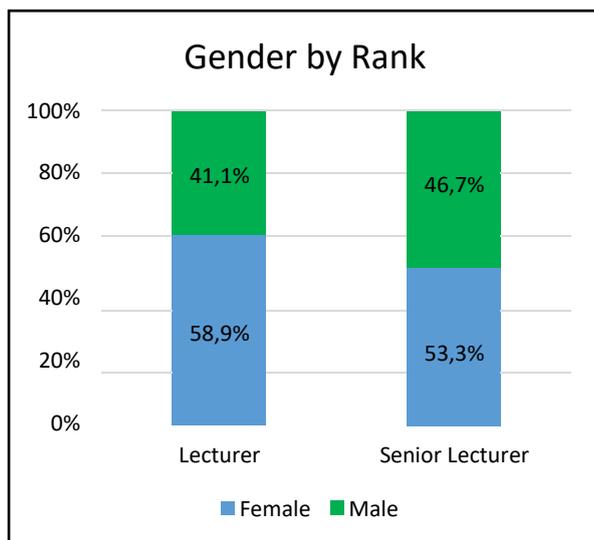
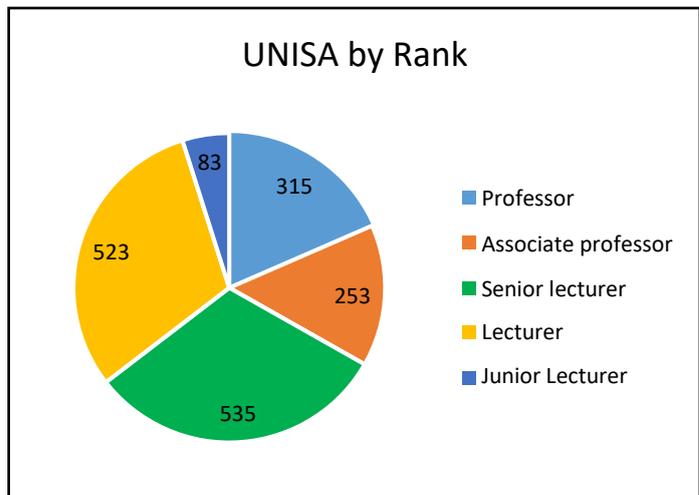
Gender and Race by Rank

	FEMALE				MALE			
	A	C	I	W	A	C	I	W
Senior Lecturer	2	0	0	1	12	0	0	2
Lecturer	9	0	2	1	13	0	0	2

3.19

University of South Africa (UNISA)

TOTAL PERMANENT INSTRUCTIONAL AND RESEARCH STAFF: 1709
LECTURERS (31%) AND SENIOR LECTURERS (31%) OF TOTAL



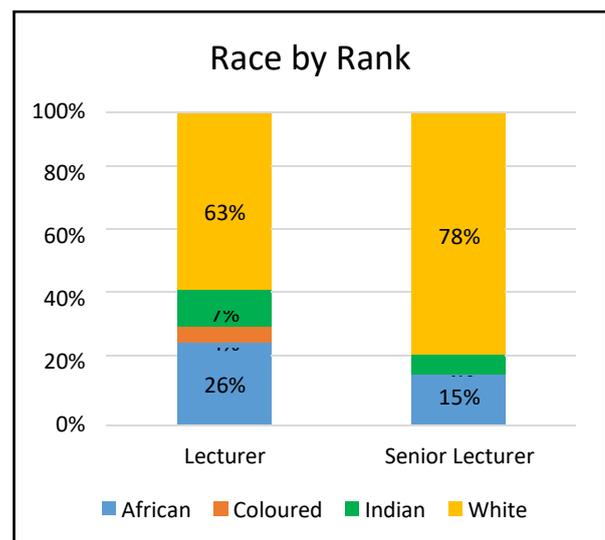
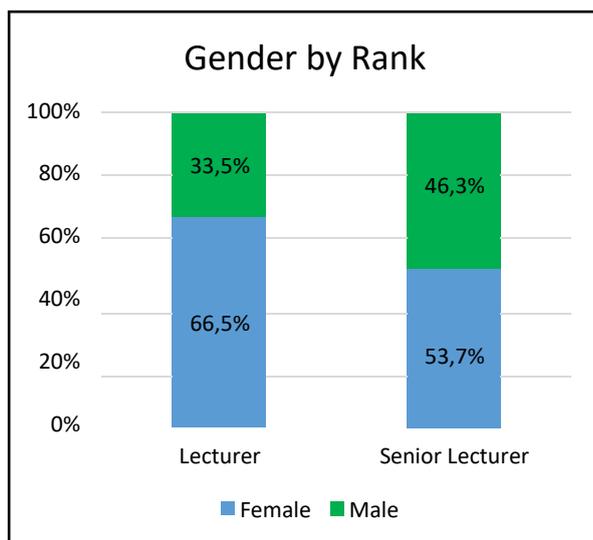
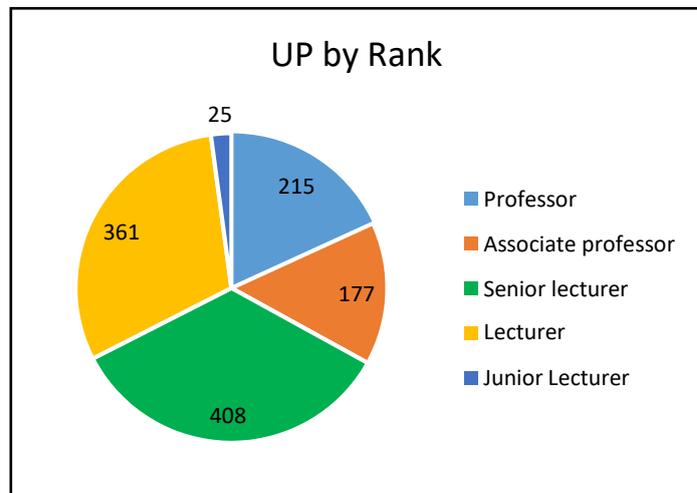
Gender and Race by Rank

	FEMALE				MALE			
	A	C	I	W	A	C	I	W
Senior Lecturer	80	6	17	182	131	8	12	99
Lecturer	133	7	34	134	154	5	8	48

3.20

University of Pretoria (UP)

TOTAL PERMANENT INSTRUCTIONAL AND RESEARCH STAFF: 1186
LECTURERS (30%) AND SENIOR LECTURERS (34%) OF TOTAL



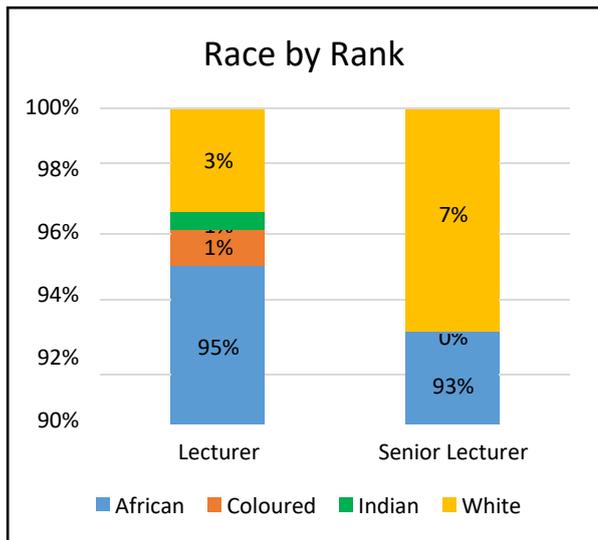
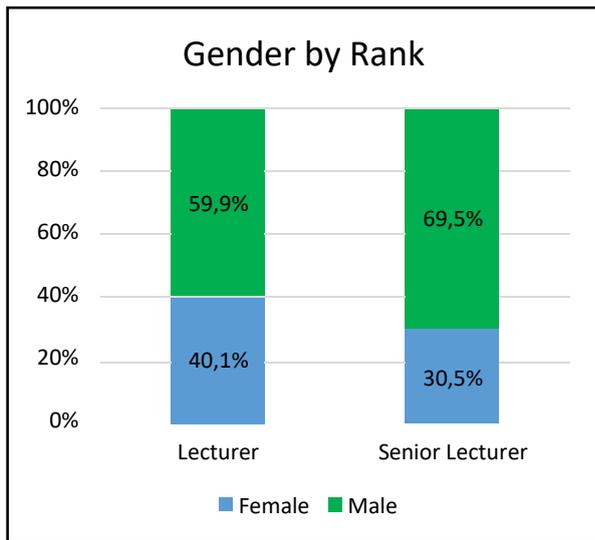
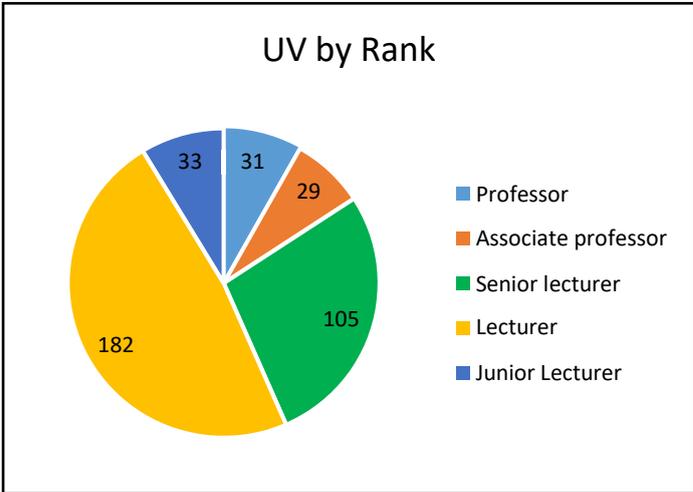
Gender and Race by Rank

	FEMALE				MALE			
	A	C	I	W	A	C	I	W
Senior Lecturer	27	4	9	179	35	4	9	141
Lecturer	59	9	18	154	36	5	7	73

3.21

University of Venda (UV)

TOTAL PERMANENT INSTRUCTIONAL AND RESEARCH STAFF: 380
LECTURERS (48%) AND SENIOR LECTURERS (28%) OF TOTAL



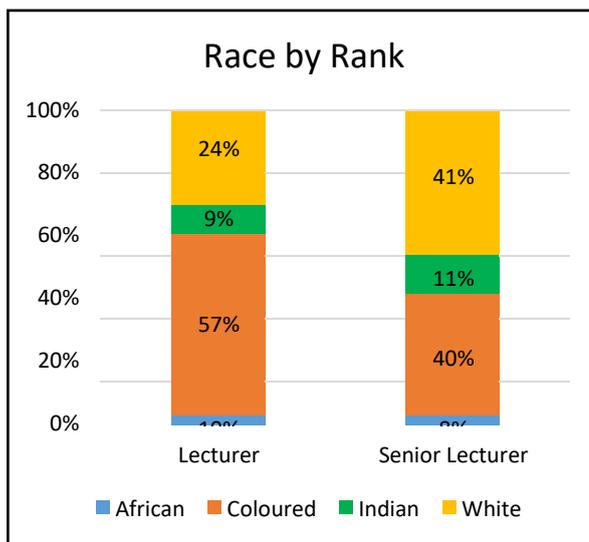
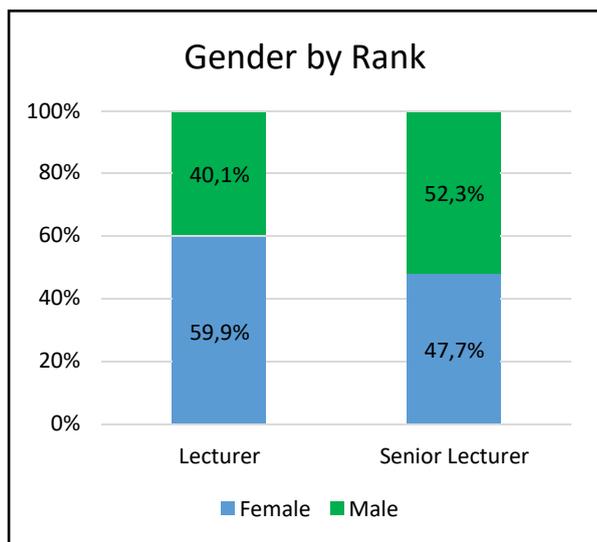
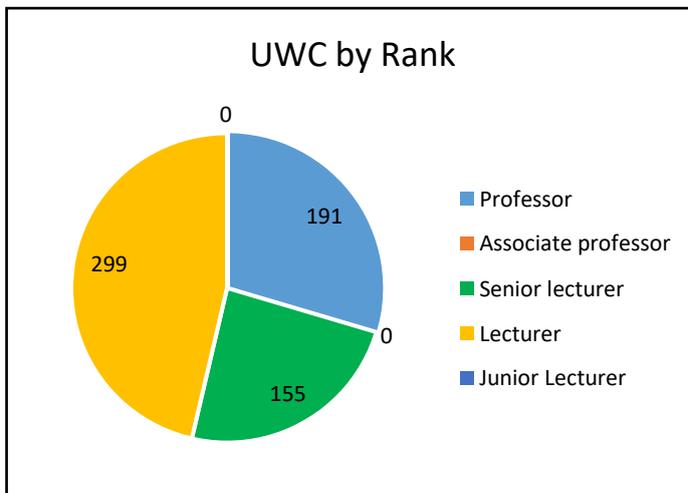
Gender and Race by Rank

	FEMALE				MALE			
	A	C	I	W	A	C	I	W
Senior Lecturer	30	0	0	2	68	0	0	5
Lecturer	69	2	1	1	104	0	0	5

3.22

University of Western Cape (UWC)

TOTAL PERMANENT INSTRUCTIONAL AND RESEARCH STAFF: 645
LECTURERS (46%) AND SENIOR LECTURERS (24%) OF TOTAL



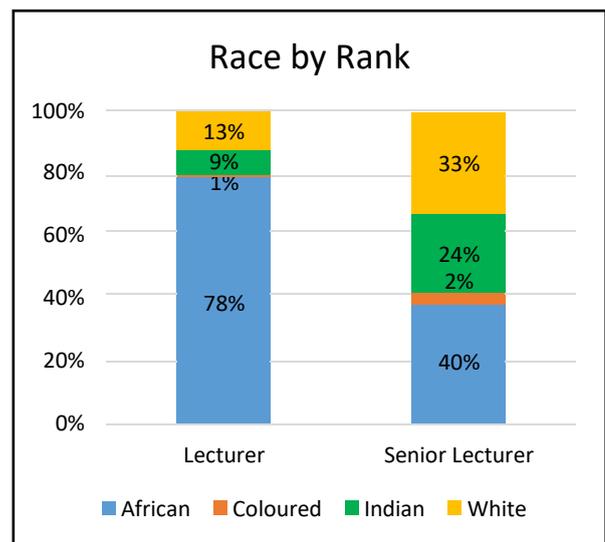
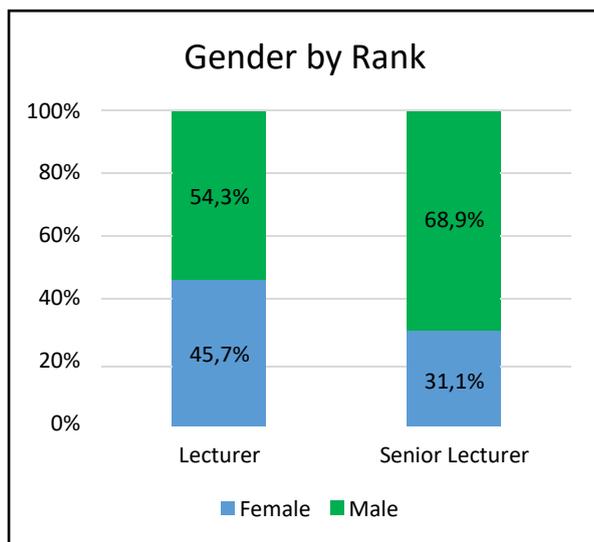
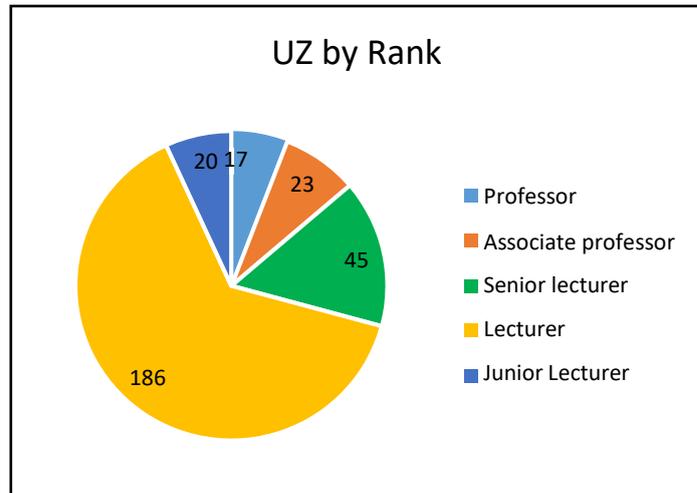
Gender and Race by Rank

	FEMALE				MALE			
	A	C	I	W	A	C	I	W
Senior Lecturer	9	19	9	32	1	32	5	21
Lecturer	18	92	15	37	9	57	9	26

3.23

University of Zululand (UZ)

TOTAL PERMANENT INSTRUCTIONAL AND RESEARCH STAFF: 291
LECTURERS (64%) AND SENIOR LECTURERS (15%) OF TOTAL



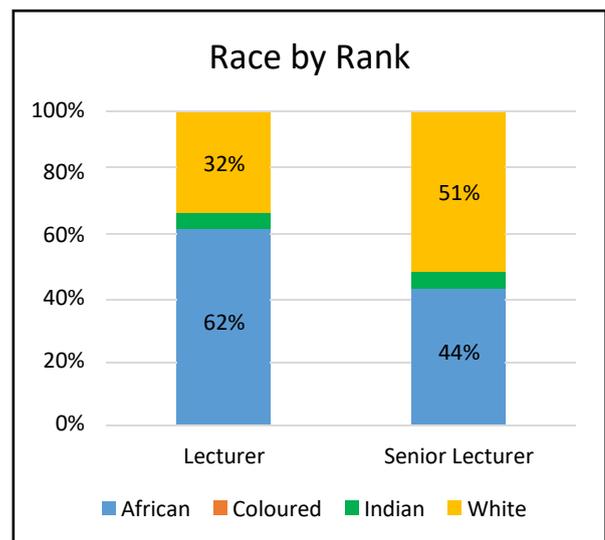
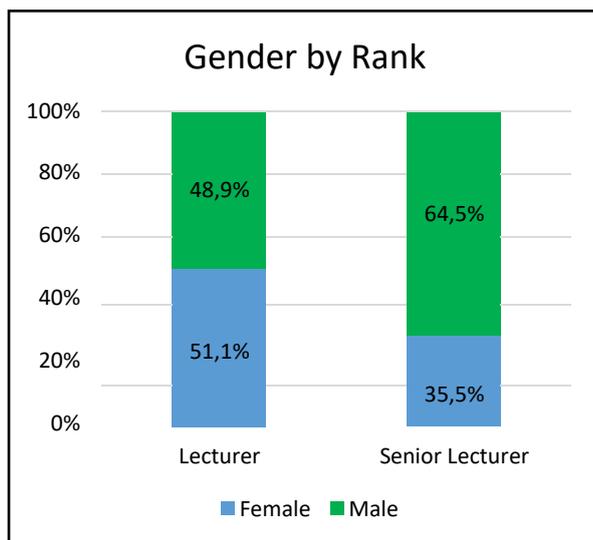
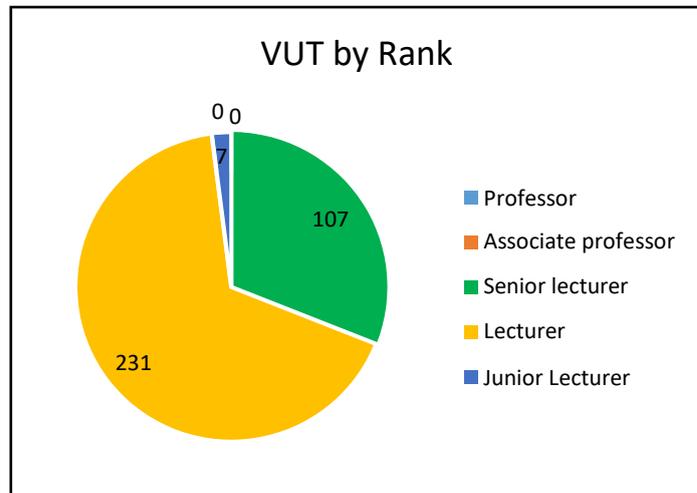
Gender and Race by Rank

	FEMALE				MALE			
	A	C	I	W	A	C	I	W
Senior Lecturer	6	0	3	5	12	1	8	10
Lecturer	62	0	8	15	83	1	8	9

3.24

Vaal University of Technology (VUT)

TOTAL PERMANENT INSTRUCTIONAL AND RESEARCH STAFF: 345
LECTURERS (67%) AND SENIOR LECTURERS (31%) OF TOTAL



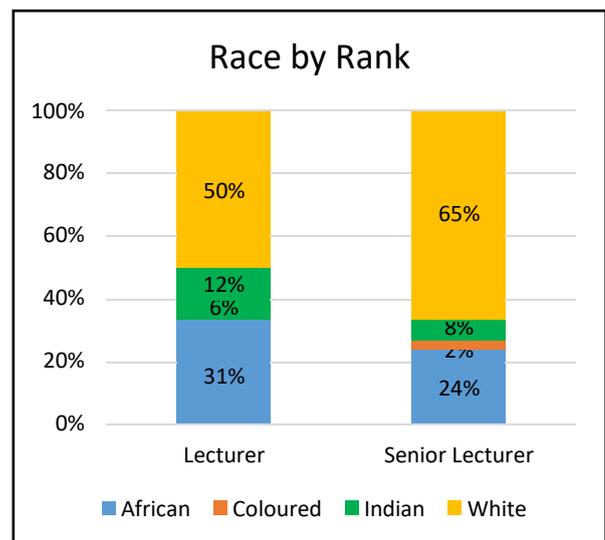
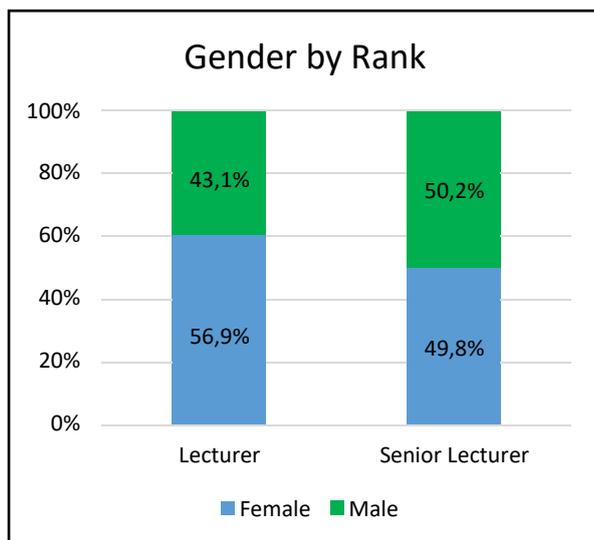
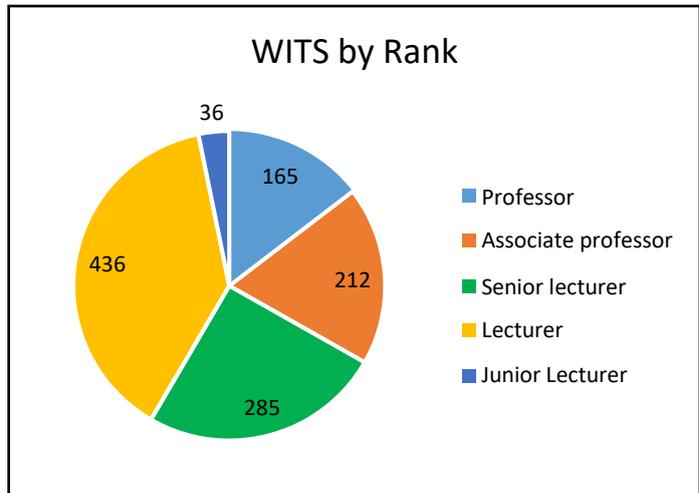
Gender and Race by Rank

	FEMALE				MALE			
	A	C	I	W	A	C	I	W
Senior Lecturer	8	0	2	28	39	1	2	27
Lecturer	62	1	6	49	82	0	5	26

3.25

University of the Witwatersrand (WITS)

TOTAL PERMANENT INSTRUCTIONAL AND RESEARCH STAFF: 1134
LECTURERS (38%) AND SENIOR LECTURERS (25%) OF TOTAL



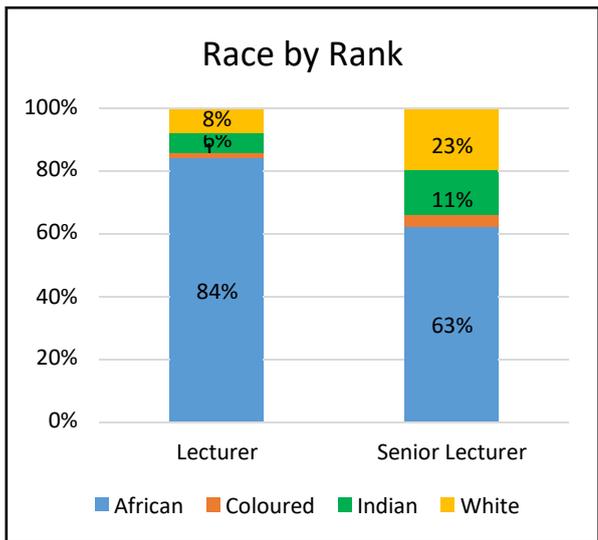
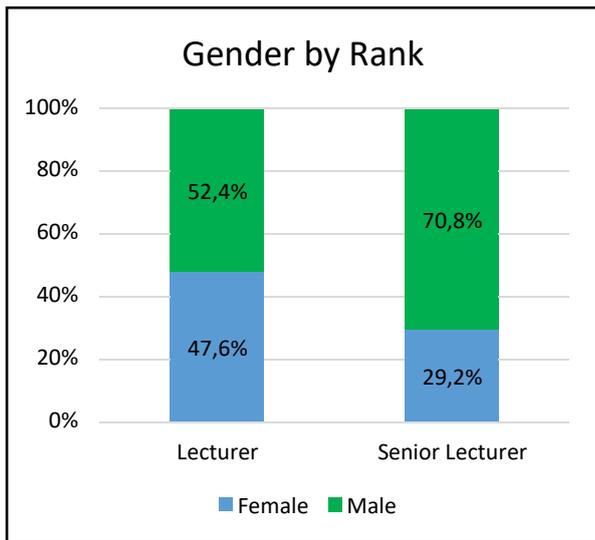
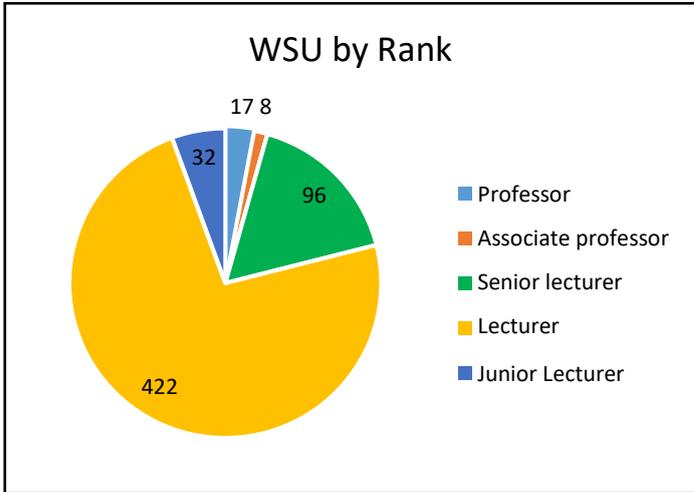
Gender and Race by Rank

	FEMALE				MALE			
	A	C	I	W	A	C	I	W
Senior Lecturer	23	4	14	101	46	3	9	85
Lecturer	65	18	36	129	72	9	17	90

3.26

Walter Sisulu University (WSU)

TOTAL PERMANENT INSTRUCTIONAL AND RESEARCH STAFF: 575
LECTURERS (73%) AND SENIOR LECTURERS (17%) OF TOTAL



Gender and Race by Rank

	FEMALE				MALE			
	A	C	I	W	A	C	I	W
Senior Lecturer	21	0	2	5	39	3	9	17
Lecturer	163	5	14	19	192	1	12	16