# GOVERNANCE OF THE RESEARCH ACTIVITIES IN HIGHER EDUCATIONAL INSTITUTIONS: FACTORS AND OUTCOMES

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## Abstract

South African higher education institutions, specifically, universities of technology have been faced with an arduous battle of increasing postgraduate students enrolment (masters and doctoral) and improve their completion rate. However, the situation is exacerbated by inadequate number and inexperience of supervisors to supervise these postgraduate students. The Durban University of Technology has formulated research structures to administer and co-ordinate research activities in order to improve the number of staff members with doctoral qualifications in order to aid the current challenges. Therefore, the aim of this study is to evaluate the circumstances and factors hindering the academic staff throughput rates and the impact it has on the university. The use of qualitative and quantitative approach was used for this study, with closed and open-ended questionnaires used to collect data from 278 academic staff members using a probability sampling. The respondents 9 (4.9%) indicated that lack of external funding and project management skills proved to be major contributory factors hindering academics staff to complete their postgraduate degrees within the required time. The study recommends that funding should be made easily available to academics pursuing doctoral studies, while project management workshops should be organised regularly to help academics appropriately management their studies. This can have a positive impact which will benefit the university and aid to the current crisis of lack of supervisor for masters and doctoral studies.

**Keywords:** Research, Governance, Activities, Outcomes, Institutions, Factors, Educational, Higher

## 1. INTRODUCTION

Prior studies indicate that research plays critical role for community all over the world. However, good governance and leadership in research universities are essential important for the promotion of research activities in the universities with specific reference to South Africa in particular Durban University of Technology. Proper management and commitment of university management with regard to the improvement of academic system including the core mission of research production and training students to engage in research. Therefore, this study seeks to analyze and discuss state of higher education in South Africa, staffing and qualification in South African universities, funding of higher education in South Africa as well as challenges experienced with regard to staffing and research globally. Problems and factors affecting the research activities in universities and recommendations were suggested in order to achieve research output increase.

## 2. LITERATURE REVIEWS

### 2.1. Brief higher education in South Africa

The role of HE must necessarily intersect and effectively engage with the economic and social challenges of local, national, regional, continental and global contexts (Badat, 2007). Del-Palacio, Sole & Berbegal (2011) argues that traditionally, universities were responsible for providing education and developing research but that subsequently their goals have become more ambitious in training people, creating knowledge and in some cases, even transferring this knowledge to industry. Such broadly-based but research-focused missions are bound to impact on the structures expected to uphold them, which will have to develop accordingly.

Given the drastic increase in the demand for tertiary education over the past decade, many universities have been obliged to pursue both these missions with equal vigour even when funding and other resources have been extremely limited (Kearney, 2008). As a result of this transformation in higher education in South Africa, universities of technology (UoT) academic staff have been compelled to upgrade their academic qualifications. This has resulted in UoTs transforming their structures to administer and build research capacity, in order to increase research output, while at the same time strengthening cooperative education and the links with industry, and increasing the intake of postgraduate students. These challenges and current difficulties experienced in the retention and reproduction of a new generation of academics can be detrimental to HEIs if not attended to promptly (Badat, 2007) and in this current tertiary environment, increasing pressure is placed on

academic staff to carry out research and to improve their qualifications (du Plessis, 2005).

## 3. STAFFING AND QUALIFICATION IN SOUTH AFRICAN UNIVERSITIES

Colleges and universities in addition to their research missions, train and educate future researchers (Matthews, 2012). They need to deliver the high level professional and occupational skills, research and innovation required for economic growth and development (Ministry of Higher Education and Training, 2010). Therefore universities play an important role in the provision and development of the manpower required for the social, economic and technological advancement of any nation. The need to increase Africa's stock of PhD qualified staff has featured prominently in many discussions and reports in recent years as it is part of a broader concern with securing the 'next generation' of academics – a critical foundation for universities, and something on which their future teaching and research strength will depend (Harle, 2013). A major barrier for advancing research and post-graduate training at South African universities is the low proportion of academic staff with appropriate qualifications to oversee post-graduate research and to advance knowledge creation. Overall, only one third of full-time permanent academic staff hold doctoral degrees (CHE, 2009). This however, is not satisfactory considering that central to any realization of university goals and objectives are the academic staff whose number, quality and effectiveness either ensure or put in jeopardy the success of their universities' education production function. Without well qualified and committed academic staff, no academic institution can ensure sustainability and quality in the longer term (Piennar & Bester, 2008).

According to Mapesela & Strydom (2005) the biggest challenge regarding staffing in South Africa and other African countries is "brain drain" and the loss of talented staff and experts within Africa's academia to other continents remains one of the critical problems facing universities. The Council on Higher Education (CHE, 2009) finds that staffing the HE sector continues to be a challenge, particularly when it comes to attracting and retaining suitably qualified academic staff as there are few people qualified for academic work and many academic staff lack master's and doctoral qualifications. Also well qualified people are often attracted to careers in the private sector where salaries tend to be higher. This unsatisfactory number of PhD academics need major intention and has become a national concern with the Minister of Higher Education, Dr B Nzimande (2014) emphasizing the absolute need to drastically increase PhDs in higher education system. The Minister further highlights the need for capacity development of academic staff to improve their teaching and supervision skills.

## 4. FUNDING OF HIGHER EDUCATION IN SOUTH AFRICA

The funding formula used during the apartheid regime favored what was known as white universities. The White Paper on HE transformation rejected this formula and proposed its replacement with a new model aimed at bringing greater equity and efficiency into the HE system (Mouton, Louw & Strydom, 2013). With the New Funding Framework (NFF) in existence, it is goal-orientated and performance-related thus enabling the distribution of government grants to institutions in line with national goals, priorities and approved institutional plans. This meant that South African Department of Higher Education and Training (DHET) will allocate funds to universities by means of a government funding formula which focuses largely on the two key outputs of student throughput and research productivity. The NFF subsidy consists of four block grants, namely the teaching input grant (planned full-time equivalent student enrolments) which includes provision for research training; the teaching output grant (non-research graduates produced) which includes provision for research training; the research output grant (publications and postgraduates produced); and grants for other institutional factors (development) (Pillay, 2003).

HEIs are judged by expressing their weighted research output as a percentage of their normed research output and the actual subsidy earned by an institution is equal to the institution's weighted research output (Woodiwiss, 2012). With such unfavorable numbers of academic staff with PhDs to supervise postgraduate student and produce scholarly publications, UoTs will continue to find it difficult to increase government subsidy to maintain and sustain research. Singh (2009) cautions that in the short term, this funding formula could be detrimental to some institutions and especially to universities of technology which do not have strong research capacity or output. She argues that universities with a low output are likely to continue to underperform because they will only be receiving small amounts of funding proportionate to their output. This can be illustrated through the government incentives offered for research outputs – these being clearly more easily obtained by traditional research-focused universities.

In an attempt to encourage and enhance research productivity in HEIs, various systems have been introduced, such as government subsidy that is granted to HEIs in reward for research outputs (primarily journal publications and postgraduate student graduations) (Woodiwiss, 2012). Tongai (2013) explains that the government's incentive system works by funding universities for articles published in accredited journal or peer-reviewed conference proceedings, or for publication of books, measured in publishing units. The DHET subsidy is R120000.00 per full publication although this could fluctuate from year to year. However, in addition to the government subsidy, collaborative approaches with other universities and countries have been implemented by HEIs to build capacity (Harle, 2013). In addition, universities have put in place postgraduate and/or research centres or offices to develop, promote and improve research participation and capacity among their staff and students (Zheng, 2012).

Globally, research has become a key factor in determining both the status and funding for HEIs (Bosch & Taylor, 2011). Academic staff are therefore under great pressure to be productive in research. In aspiring to maintain and/or gain high-level profiles, all HEIs must therefore strive to increase their research output (Woodiwiss, 2012).

## 5. CHALLENGES EXPERIENCED WITH REGARD TO STAFFING AND RESEARCH GLOBALLY

The ever increasing intake of students and the increasing demands of academic work has resulted in many academics working longer hours than in the past and expressing dissatisfaction with their working conditions (Vardi, 2009), more specifically in administration, teaching, research and supervision workloads (Arnolds, Stofile & Lillah, 2013). These increasing demands on academics has had a negative impact on the quality and output of supervision and research, and with teaching workload and administration intensifying, there is less and less time for research and research supervision. Mapesela & Strydom (2005) add that finding talented staff and experts in Africa's academia still remains one of the critical problems facing universities which are experiencing a steady loss of academics to other countries to better-paying universities or to the corporate world which offers appealing salaries. According to the Ministry of Higher Education (2001) HE has a critical and central role to play in facing the challenges of overall unsatisfactory quantity and quality of graduate and research outputs, lack of representative staff profiles, and the need for staff members to upgrade qualifications (CHE, 2009) with only around 8% of staff at UoTs holding doctorates, 12% at comprehensive universities and 21% at universities.

### 5.1. Problem statement

Universities of Technology have been tasked to build and sustain research, increase throughput and output and academic staff are requested to upgrade their qualifications specifically post studies which are mainly in research. According to the DUT Annual Research Report (2014/2015) 46% of their academic staff members hold a masters qualification while only 19% hold a doctoral qualification. This is far below the DHET 40% target for university of technology. This is an indication that the university has a persistent short-fall on academic staff with PhDs. Therefore, this study intends to investigate measures that can be of assistance to improve the number of academics with PhDs and also achieving the universities' objective of increasing the PhD academic staff indicator to reach 40% by 2019.

### 5.2. Primary objective

To examine the factors and evaluate the circumstances that hinder the academic staff throughput rates at the Durban University of Technology, and to what extent these affect them and what should be done to overcome this problem.

### 5.3. Secondary objectives

To assess academic staff research activities and abilities at Durban University of Technology.

To identify and explain factors affecting academic staff research throughput rate at the Durban University of Technology.

To recommend improved intervention strategies that could be implemented by the university to enable academic staff to achieve high research throughput rate.

## 6. RESEARCH METHODOLOGY

A combination of both qualitative and quantitative method was utilised to collect primary data from academic staff from the six campuses, across all faculties at the Durban University of Technology (DUT), namely, Accounting and Informatics, Applied Sciences, Arts and Design, Engineering and Built Environment, Health Sciences and Management Sciences. A questionnaire with closed and open-ended questions was used. The questionnaire was pretested in order to obtain the required information. The sampling frame consisted of academic staff at the above mentioned faculties. A probability sampling method was utilised to select 278 academic staff.

Questionnaire design: The questionnaire was carefully designed to collect information from academic staff about key variables that might support in clarifying and identifying research support structures and activities, put in place by the university to develop academic staff and assist them in upgrading their qualifications more especially in PhD degrees.

**Table 1.** Summary of key questions

| *Statement* | *Questions* |
|---|---|
| Research administrative factors | *Response alternatives:*<br>• staff are assisted with grants applications<br>• External funding is sourced for researchers<br>• Workshops are offered on project management skills<br>• Writing workshops are offered to assist staff to get published<br>• assist with enrolment/registration<br>• Provides student orientation<br>• assist with selection of promoter/supervisor<br>• assist with conference funding application<br>• assist returning students with re-admission/continuation of study<br>• Assist with procedures for examination |
| Capacity Development factors | *Response alternatives:*<br>• Supports academics to publish<br>• provides guidance and assistance for obtaining study ethical approval<br>• Research forums have been established<br>• training is provided and even on request<br>• language editing services are provided<br>• Statistical analysis services are provided<br>• has postgraduate lab for staff members and students |

### 6.1. Data analysis

Primary data collected from the respondents were coded into the SPSS (23.0 version) computer package. Data captured was double checked to ensure that information captured was error free.

### 6.2. Frequencies

Frequencies were used to determine the number of responses that each question received and were also used to crosscheck the coding of the data.

### 6.3. Validity and reliability

In order determine and ensure validity and reliability, the questionnaire was pretested to the study sample size, this enabled thorough comparison of the questions and objectives of the study and moreover allowing for an efficient and reliable data collection instrument.

## 7. RESEARCH FINDINGS

This section provides a detailed analysis of the finding and interpretation of the results. The presentations of the results are in the form of frequencies and percentages. The information is illustrated in tables are presented below.

**Table 2.** Research administration factors

| *Statement* | *No.* | *%* |
|---|---|---|
| staff are assisted with grants applications | 32 | 17.6 |
| External funding is sourced for researchers | 9 | 4.9 |
| assist with enrolment/registration | 29 | 15.9 |
| Provides student orientation | 32 | 17.6 |
| assist with selection of promoter/supervisor | 41 | 22 |
| assist with conference funding application | 17 | 9.3 |
| assist returning students with re-admission/continuation of study | 6 | 3.3 |
| Assist with procedures for examination | 55 | 30.2 |

Table 1 illustrate the research administrative support factors which play an integral role in assisting academic staff complexion of their postgraduate degrees. The need to support research in higher education has been, over the years been continuously emphasized by the Department of Higher Education and Training, however, it has been hindered by financial constraints; as a result, universities have been sourcing financial assistance from different avenues (stakeholders, government, etc). This issue of funding research and researchers has had a negative impact on academics as 32 (17.6%) indicated that they were assisted with grant applications. Further, the respondents 9 (4.9%) indicated that they were not supported fully by the university in sourcing external funding where internal funding has been exhausted.

The other factor which contributed to academics inability to complete their studies or taking longer years to complete their studies was the lack of project management skills which will sustain them and prolong them to complete their studies. Only 26 (14.3%) indicated that the university was assisting with such workshops. While staggering 6 (3.3%) indicated that lack of assistance and information in re-registration for their studies was lacking. The table below looks at capacity development factors.

**Table 3.** Capacity Development factors

| *Statement* | *No.* | *%* |
|---|---|---|
| provides guidance and assistance for obtaining study ethical approval | 74 | 40.7 |
| Workshops are offered on project management skills | 26 | 14.3 |
| Writing workshops are offered to assist staff to get published | 73 | 40.1 |
| Research forums have been established | 41 | 22.5 |
| training is provided and even on request | 73 | 40.1 |
| language editing services are provided | 10 | 5.5 |
| Statistical analysis services are provided | 14 | 7.7 |
| has postgraduate lab for staff members and students | 66 | 36.3 |

One of the main contributory factors has been the lack of assistance in statistical analysis and editing of dissertation/thesis chapters. The respondents 14 (7.7) and 10 (5.5) respectively, indicated that these services were very expensive and they had to pay these services from their own pockets. Lack of research forums to share ideas and study peers has also had a negative effect on academics 41 (22.5). Lastly there is a need to invest in building postgraduate labs and moreover, resources in order to promote research. The respondents indicated that they were not entirely satisfied with the current postgraduate labs due to numerous reasons which included, among others, effectiveness of computers, out-dated programs/software (antivirus, SPSS etc.).

**Table 4.** Mann-Whitney

| | *Assisted* | *N* | *Mean Rank* | *Sum of Ranks* |
|---|---|---|---|---|
| selection | staff are assisted with grants applications | 0[a] | .00 | .00 |
| | Total | 32 | | |
| procedures | staff are assisted with grants applications | 0[a] | .00 | .00 |
| | Total | 32 | | |
| ethical | staff are assisted with grants applications | 0[a] | .00 | .00 |
| | Total | 32 | | |
| offered | staff are assisted with grants applications | 0[a] | .00 | .00 |
| | Total | 32 | | |
| training | staff are assisted with grants applications | 0[a] | .00 | .00 |
| | Total | 32 | | |

In study, Mann-Whitney test was performed to check the most correlated variables where the respondents believed they were getting more assistance. The test confirmed that there is a strong correlation between the assisted variable as an independent and the selection, procedures, ethical, offered and training as they were dependent variables chosen for test. Therefore, this means that the respondents were getting more assistance with regards to those selected activities in the various research faculties.

## 8. LIMITATIONS

This study only included the Durban University of Technology and no other university. Therefore, findings of this study may not be appropriate to make generalisation to other universities. However, the findings can be of assistance in instigating academic staff research output and the sustainability of research in other universities of technology.

## 9. CONCUSSION

The conclusions of this study are grounded on the key findings. Additionally, conclusions also cover the aim and objectives of the study. This study concluded that the need to support research in universities of technology needs to be highly incorporated in faculties. The study further concludes that lack of research administration and capacity development were factors hindering

academic staff research throughput rates, more especially the issue of external research funding and fully functional postgraduate research labs. However, the university should be commended for establishing and developing active research structures to administer and co-ordinate research activities. As a result of these active research structures, continuous improvements have seen research in the university increasing progressively. Also there has been an increase of 3% to academic staff with doctoral degrees. Due to these research structures, the university recorded just over 140 units which await DHeT approval. The audited publication units for 2013 reported in 2014 were 12815 which marked a 61% increase over the last 5 years (DUT annual research report, 2014/2015).

## 10. RECOMMENDATIONS

Although the university is progressively improving its research activities, funding to assist academics pursuing postgraduate studies continues to be one of the major factors in academic's inability to complete their studies. The findings of the study suggest that there are challenges that need to be addressed by the university to better facilitate research support and activities to enhance academic research throughput rate in respective faculties and in the university as a whole. Therefore, the following recommendations would hopefully prompt and improve academic research output. The university must provide funding for academic staff who are enrolled for masters and PhD studies and provide supplementary research support in order to improve the complexion rate. This, in a long run will benefit the university to increase its currently limited pool of supervisors and also these academics will contribute towards the sustainability and continuity of research throughput and output. Further, project management capacity development workshops should be held regularly to enhance effective management skills which will improve academic staff co-ordination of their studies. This will immensely assist staff who find it difficult to dedicate time to their studies due to work commitments. Lastly, the need to build separate postgraduate research labs (fully dedicated for research purposes) with fully effective advanced technology equipment is equally important in driving research in the university.

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