



Higher Education Monitor

The State of Higher Education in South Africa

A report of the CHE Advice and Monitoring Directorate



***THE STATE OF HIGHER EDUCATION IN
SOUTH AFRICA***

Advice and Monitoring Directorate
Council on Higher Education
October 2009

Table of Contents

Foreword	i
Acknowledgements	ii
Abbreviations and acronyms	iii
List of tables	v
List of figures	vi
1. Introduction	01
2. Size and shape of the South African higher education sector	03
Introduction	03
Enrolments and outputs	04
The configuration of public institutions	06
• Reflecting on the reconfiguration	08
Funding higher education	09
The role of private institutions	11
The role of distance education programmes	14
South Africa attracts students from Africa	15
Concluding comments	15
3. Teaching and learning	17
Introduction	17
Who participates in higher education learning?	17
• Participation by race	18
• Participation by gender	22
• Broadening the social base of learners	24
• The role of distance programmes	25
• Participation by international students	26
• Participation in private higher education	28
• The cost to students of higher education studies	28
Is teaching and learning succeeding?	29
• How many people are graduating?	29
• Is the system efficient?	34
Do the skills and knowledge produced match the national needs?	37
• Graduations by field of study	37
• Producing professional and high level skills for specific labour markets	40
• Meeting the need for higher level professional and research skills	42
• The skills produced by the private higher education sector	43
Concluding comments	44

4. Sustaining and promoting research	46
Introduction	46
What research is being produced?	47
The practice and visibility of South African research	53
• Collaboration patterns	53
• Where is research published?	54
• Which fields enjoy international visibility?	56
• The international visibility of South African universities	56
Participation in research	57
• The base of active researchers	57
• Developing new researchers	59
Concluding comments	63
5. Resourcing public universities	65
Funding higher education	65
• State funding of higher education	65
• Student fees and NSFAS	68
• Third-stream income	69
Staffing public universities	70
• The supply of staff for higher education	70
• Quality of academic staff	73
• Equity in staffing	74
Concluding comments	79
6. Salient debates and developments	81
Engaging with the wider society	81
• Definitions and debates	81
• Purposes and practices	83
Policy framework on HIV and AIDS	84
Racism and other forms of discrimination	85
Academic freedom and institutional autonomy	86

7. Conclusions	88
Is the system meeting national policy goals?	88
• Goal one: Providing advanced educational opportunities	88
• Goal two: Equity of access and success	89
• Goal three: Diversity in institutions and programmes	90
• Goal four: Research	90
• Goal five: A coordinated national higher education system	91
Progress and challenges in higher education	91
The way forward	93
8. Publications and reports referenced	95

Foreword

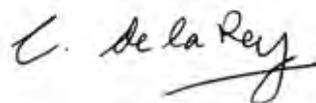
One of the statutory functions of the CHE is to publish information regarding developments in higher education, including reports on the state of higher education. This report on the State of Higher Education covers the period from 2004 to 2007, the past five years, giving a broad overview of trends in the core areas of teaching and learning and research as well as selected coverage of key issues that have confronted the sector during this period. It is in the nature of 'state of the art' reports, to take stock, provide an assessment of progress and to offer some prognosis. Therefore, this report not only describes the developments in higher education; it also offers an overall assessment. To what extent have the goals identified in the 2001 National Plan for Higher Education (NPHE) been fulfilled? This is the overarching question framing the report.

The short answer to this question is yes and no, a quintessentially South African response. There have been gains in some areas, yet significant challenges remain. Although there has been progress in racial and gender equity, the overall participation rate has not increased in the last five years. Research outputs have shown a pleasing increase, but of concern is that doctoral enrolments have remained rather constant and the proportion of staff in higher education institutions with doctoral degrees is low. These trends are described in some detail in the chapters of the report. The concluding chapter then assesses the overall state of South African higher education in relation to the goals set in the NPHE.

While much effort has gone into producing a comprehensive report, the picture is incomplete. There are many areas of higher education for which we do not have adequate information. This is particularly so for private higher education. This report makes a small start by including some information about private providers, but this part of the higher education sector is not sufficiently understood. The process of compiling this report has brought to the CHE's attention the need to improve data collection capacities. Having identified gaps in the available data, the CHE has begun working with other agencies and institutions to close these gaps through co-ordination and alignment of our efforts. An example is the development, in conjunction with SAQA, of the Higher Education Quality Committee Information System (HEQCIS), a database to store qualification and learner award information from private higher education institutions. This database will begin to provide information about the private higher education sector.

The timing of this publication is perhaps particularly opportune, in the light of the establishment of the new Department of Higher Education and Training. The Minister of Higher Education and Training, Dr Nzimande, has signalled a shift in policy focus to create a diverse and differentiated post school system. The report shows that the time is ripe for revising policies and plans so that the gains may be deepened and the shortfalls addressed with a renewed sense of focus and a quickening of pace.

Thank you to Ms Judy Backhouse, Director of the CHE's Advice and Monitoring Directorate, and her team, for the compilation of this report. We hope that this report will provide useful information as we debate and plan the future of higher education in South Africa.



Dr Cheryl de la Rey
Chief Executive Officer

Acknowledgements

The Council on Higher Education would like to thank the Centre for Research on Science and Technology (CREST) at the University of Stellenbosch for writing the first draft of Chapter 4 of this report. Their substantial contribution and insight into higher education research has greatly enriched this report.

Information and advice for this report was received from the Department of Education, the National Research Foundation, the South African Qualifications Authority, Dr Marilet Sienaert of the Research Office at the University of Cape Town, and Professor Johan Muller of the Faculty of Humanities at the University of Cape Town. Their contribution is appreciated.

Abbreviations and acronyms

ABASA	Association for the Advancement of Black Accountants of Southern Africa
ARC	Agricultural Research Council
BCM	Business, Commerce and Management
CESM	Classification of Educational Study Matter
CHE	Council on Higher Education
CHESP	Community - Higher Education - Service Partnerships
CHERTL	Centre for Higher Education Research, Learning and Teaching (Rhodes University)
CHIETA	Chemical Industries Education and Training Authority
CREST	Centre for Research on Science and Technology (Stellenbosch University)
CSIR	Council for Scientific and Industrial Research
CWTS	Centre for Science and Technology Studies (University of Leiden)
DoE	Department of Education
DST	Department of Science and Technology
FASSET	Finance, Accounting, Management Consulting and other Financial Services SETA
FTE	Full-time equivalent (student or staff member)
GDP	Gross domestic product
HEAIDS	Higher Education HIV/AIDS Programme
HEMIS	Higher Education Management Information System
HEQC	Higher Education Quality Committee
HESA	Higher Education South Africa
HSRC	Human Sciences Research Council
HSS	Human and Social Sciences
IBSS	International Bibliography of Social Sciences
ISETT SETA	Information Systems, Electronics, Telecommunication Technologies SETA
ISI	Institute of Scientific Information
JET	Joint Education Trust (now JET Education Services)
MERSETA	Manufacturing, Engineering and Related Services SETA

NatCEMF	National Community Engagement Manager's Forum
NEPAD	New Partnership for Africa's Development
NLRD	National Learners' Records Database
NPHE	National Plan for Higher Education
NRF	National Research Foundation
NSFAS	National Student Financial Aid Scheme
NSI	National System of Innovation
RISA	Research and Innovation Support and Advancement
SADC	Southern African Development Community
SAICA	South African Institute of Chartered Accountants
SAQA	South African Qualifications Authority
SARCHI	South African Research Chairs Initiative
SARUA	Southern African Regional Universities Association
SATN	South African Technology Network
SAUVCA	South African Universities Vice Chancellor's Association
SET	Science, Engineering and Technology
SETAs	State Education and Training Authorities
Stats SA	Statistics SA
THRIP	Technology and Human Resources for Industry Programme
UCT	University of Cape Town
UKZN	University of KwaZulu-Natal
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNISA	University of South Africa

List of tables

Table 1:	Public higher education institutions and the location of their campuses	07
Table 2:	State spending on higher education in South Africa (R millions)	10
Table 3:	Registered and provisionally registered private higher education providers	12
Table 4:	Enrolments (headcount) in public higher education by race, 2004-2007	19
Table 5:	Participation rates by race, 2007	20
Table 6:	Enrolments (headcount) in public higher education by institutional type and race, 2007	21
Table 7:	Enrolments (headcount) in public higher education by gender	23
Table 8:	Enrolments in Science, Engineering and Technology sub-fields by gender, 2007	24
Table 9:	Enrolments in public higher education by age	24
Table 10:	Enrolments in distance programmes in public higher education, 2007	25
Table 11:	Enrolments (headcount) in public higher education by nationality	27
Table 12:	NSFAS awards to students in public higher education	29
Table 13:	Proportion by race of enrolments in and graduates from public higher education, 2004 and 2007	30
Table 14:	Graduation rates at public institutions by field of study (CESM)	35
Table 15:	Graduation patterns of first-time entering students starting general academic Bachelor degrees in 2000, excluding UNISA	36
Table 16:	Graduation patterns of first-time entering students starting national diplomas in 2000, excluding Technikon SA	36
Table 17:	Enrolments (headcount) in and graduations (headcount) from public institutions by field of study (CESM)	37
Table 18:	Fields in which private higher education institutions offer courses	43
Table 19:	Trends in collaboration by institutional type	54
Table 20:	Enrolments in and graduations from research master's degrees	60
Table 21:	Enrolments in and graduations from doctoral degrees	60
Table 22:	Forms of community engagement	82

List of figures

Figure 1:	Higher education participation rates in South Africa	04
Figure 2:	Campuses of public higher education institutions	06
Figure 3:	Count of private higher education institutions (headquarters) by province	12
Figure 4:	Enrolments by institutional type for 2004-2007	18
Figure 5:	Proportional enrolments (headcount) in public higher education by race	19
Figure 6:	Proportional enrolments (headcount) in public higher education by institutional type and race, 2007	21
Figure 7:	Proportional enrolments (headcount) in public higher education by race and field of study (CESM), 2007	22
Figure 8:	Proportional enrolments in public higher education by gender and field of study (CESM), 2007	23
Figure 9:	The changing age profile of UNISA students	26
Figure 10:	Foreign students enrolling in public higher education by region	27
Figure 11:	Graduates (headcount) from public higher education by institutional type	30
Figure 12:	Enrolments (headcount) in and graduations (headcount) from public institutions by race and institutional type, 2007	31
Figure 13:	Graduations (headcount) from public institutions by race and field of study (CESM)	32
Figure 14:	Enrolments (headcount) in and graduations (headcount) from public institutions by institutional type, 2007	33
Figure 15:	Graduates (headcount) from public institutions by gender and field of study (CESM), 2007	34
Figure 16:	Graduation rates at public institutions by institutional type	35
Figure 17:	Percentage enrolments in public higher education by field of study (CESM)	37
Figure 18:	Percentage graduations from public higher education by field of study (CESM)	38
Figure 19:	Graduates (headcount) from public institutions by field of study (CESM) and institutional type	39
Figure 20:	Proportional graduations from public institutions by learning mode and field of study (CESM), 2007	39
Figure 21:	Graduates (headcount) from public institutions by level of study and institutional type, 2007	42

Figure 22:	South African authored ISI papers	47
Figure 23:	Journal articles reported by public institutions for subsidy	49
Figure 24:	Research output by type of publication, 2003 - 2006	50
Figure 25:	Research output by field of study, 2006	52
Figure 26:	Distribution of journal articles by type of journal, by broad scientific field	55
Figure 27:	Distribution of NRF rated researchers by age, 2006	58
Figure 28:	Percentage of total enrolments (headcount) in public higher education that are for postgraduate study	59
Figure 29:	Postgraduate enrolments in and graduations from public higher education by race	61
Figure 30:	Enrolments (headcount) in doctoral study by gender, 2007	62
Figure 31:	Enrolments (headcount) in postgraduate programmes in public institutions by nationality	63
Figure 32:	Proportion of all staff employed in public higher education, by institutional type, 2007	70
Figure 33:	Ratio of students to academic staff and students to staff at public institutions, 2007	71
Figure 34:	Academic staff (headcount) in public institutions by age, 2004 and 2007	72
Figure 35:	Staff (headcount) in public higher education by basis of employment	72
Figure 36:	Proportion of academic staff at public institutions by highest qualification and institutional type, 2007	73
Figure 37:	Staff (headcount) in public higher education by race	74
Figure 38:	Staff (headcount) in public higher education by race and level of employment, 2007	75
Figure 39:	Academic staff (headcount) in public higher education by race and level of appointment, 2007	76
Figure 40:	Staff (headcount) in public higher education by gender and institutional type, 2007	77
Figure 41:	Staff (headcount) at public institutions by gender and level of employment, 2007	77
Figure 42:	Growing numbers of women in senior management positions	78
Figure 43:	Academic staff (headcount) by gender and level of appointment, 2007	79

1. Introduction

The State of Higher Education in South Africa reflects developments in higher education over the past five years. It builds on the 2004 CHE *South African Higher Education in the First Decade of Democracy* report and focuses on comparing the current state of higher education with the situation identified in 2004 and in relation to the national goals as set out in the National Plan for Higher Education (Ministry of Education, 2001). There have been fewer policy developments in the past five years, rather this has been a period of consolidation in the South African higher education system. This report asks: “To what extent are we moving towards the goals set for the higher education system?” and “Are the policies having the desired effect?” The focus is on the higher education system as a whole, not on individual higher education institutions.

The higher education system being reviewed is in some respects very different from that reviewed in the 2004 report. In 2003 a new funding framework was introduced by the Department of Education to distribute state funding to the public institutions. The phasing-in period for this new framework ended in 2007 and the impact of the change has begun to be felt. The public higher education institutions have undergone extensive restructuring resulting in 23 public universities. In 2007, these institutions ranged in size from the single-campus Rhodes University that enrolled 6 075 students to Tshwane University of Technology which enrolled 50 726 students on eight campuses spanning four provinces.¹

This report categorizes public higher education institutions as universities, comprehensive universities and universities of technology in order to illustrate how national trends sometimes play out differently in different parts of the higher education sector. The idea of moving towards defined institutional types was introduced by the CHE in a policy report published in June 2000 with a view to increasing the differentiation and diversity of institutions (CHE, 2000). The sector rejected this “externally-imposed institutional typology” (SAUVCA, 2000, p. 2), while supporting the principles of differentiation and diversity of institutions. However, there are indications that the sector is beginning to differentiate itself, as will be discussed in the conclusion. Such self-differentiation is welcomed and, where data is available, the groupings that emerge will be used in future reporting on the sector.

For the first time, this CHE report attempts to review the higher education sector as a whole, including both the public and private institutions. Private higher education has received little attention at a national level and has been viewed as competition for the public sector.² But given the rapidly increasing demands for high-level skills in the country and for tertiary education from individual learners, and the limited capacity of public higher education to meet these demands, the role of the private sector can no longer be neglected. Increasingly it plays an important part in providing niche skills and in accommodating learners seeking places in tertiary education. Understanding the sector requires a more holistic view that incorporates both the public and private sectors.

The structure of the report is based on issues and aspects of higher education that are likely to endure changes in focus that are caused by current events and changes in policy. Chapter 2 gives a high-level overview of the higher education system and some comparisons to other higher education systems. Chapter 3 examines the state of teaching and learning and Chapter 4 addresses the state of research. Chapter 5 examines the resourcing of higher education, including both the financial resources and staffing. Chapter 6 examines other topics which have been significant

¹ Higher education management information system (HEMIS), 2007

² See for example Bitzer (2002), Mapesela (2002) and Nkopodi (2002).

during the period under review. This structure is intended to form the basis for the CHE's long-term monitoring of the higher education system. The national goals for the higher education system remain those set out in the national plan for higher education: producing the graduates needed for social and economic development; achieving equity in the higher education system; achieving diversity in the higher education system; sustaining and promoting research; and restructuring the institutional landscape (Ministry of Education, 2001). The analysis of progress towards these goals is integrated into the structure outlined above in order to lay the foundation for the ongoing monitoring of the higher education system, regardless of shifts in policy and goals.

Reviewing the higher education system as a whole is an ambitious task and one to which this report cannot do justice. Our goal here is more modest: to provide a high-level overview of the system, at both national level and the level of institutional type. Difficult choices had to be made about what and what not to include. To a large extent the selection of issues for inclusion has depended on the information and published research available. As a result the report also exposes gaps in our knowledge of the sector. These gaps will inform future research and data collection activities. The report should be viewed as a small step towards the ongoing monitoring of higher education in South Africa.

2. Size and shape of the South African higher education sector

Introduction

Higher education in South Africa is intended to provide for individual aspirations for self-development, supply high level skills for the labour market, generate knowledge that is of social and economic benefit, and develop critical citizens (Department of Education, 1997). These intended benefits of higher education are in great demand, but the proportion of the population who can access them remains small when compared with similar countries, and the size of the sector is an ongoing concern. In addition, the shortage of many critical skills raises questions as to whether the higher education sector is optimally configured to meet its goals. In this chapter we look at high-level information about the size and shape of the higher education sector as a whole.

The years 2003 to 2005 saw major changes to the public higher education landscape in South Africa with the merging and restructuring of institutions and the introduction of universities of technology and comprehensive universities. At the time of the CHE's 2004 report, the institutional mergers were underway. Now the new institutions have been in place for some years, and while it is still early in the process, it seems an appropriate time to reflect on the new landscape that has been created.

Private higher education institutions were subjected to new Regulations for the Registration of Private Higher Education Institutions (Department of Education, 2002), which came into effect on 1 April 2003. These regulations require private institutions to register with the Department of Education (for which they must meet the quality assurance requirements of the HEQC), be financially sustainable, and comply with health and safety regulations. While the contribution of the private higher education sector in South Africa remains relatively small, it contributes to the diversity of programmes, particularly in niche areas. Although there is limited information available about private institutions, we make some attempt here to examine their contribution.

Globally, higher education is becoming an increasingly international endeavour and South Africa is not immune to these developments. As well as participating in global research networks, South Africa sends students to study in other parts of the world and attracts an increasing number of students, particularly from the rest of Africa, to study at local institutions. These movements contribute to the overall size and shape of the sector.

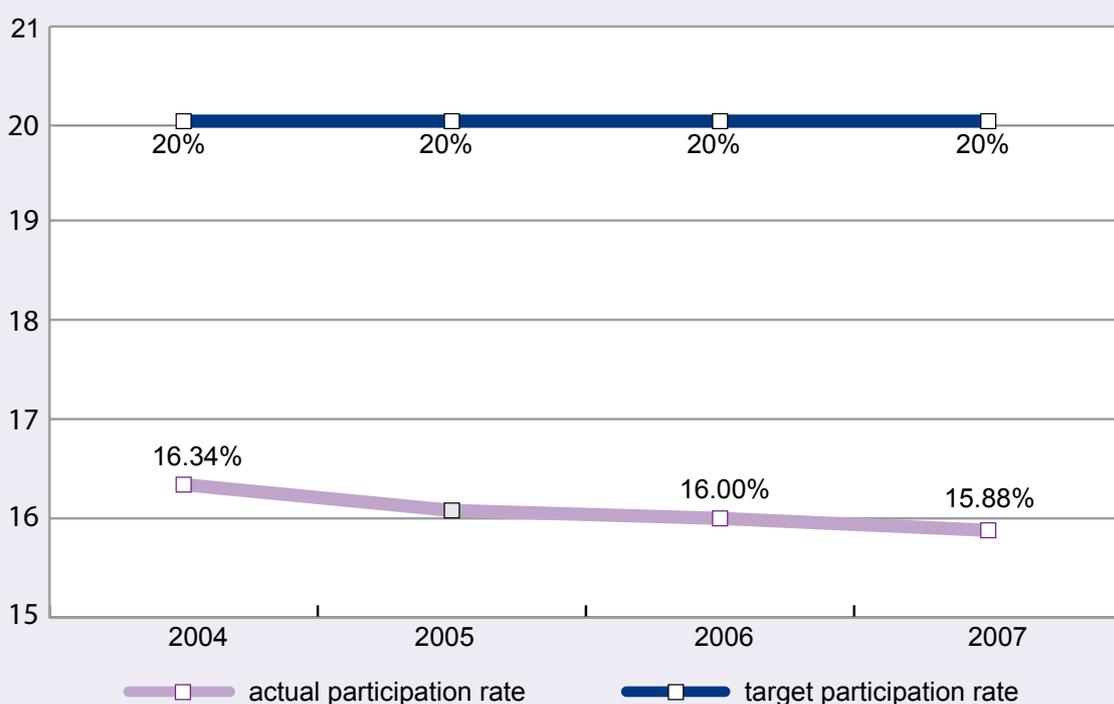
This chapter focuses on the following questions:

1. How many people participate in higher education?
2. What does South Africa invest in higher education?
3. What institutions now comprise the public higher education sector?
4. What role is private higher education playing?
5. What role does distance education play?
6. How does internationalization of higher education impact on higher education in South Africa?

Enrolments and outputs

Out of a projected total population of 48.5 million people in 2007,³ 761 090 were enrolled in public higher education.⁴ This represents 1.6% of the population. As at 2006, 8.9% of South Africans had attained a tertiary qualification (UNESCO Institute for Statistics, 2008, p. 181), which is high for countries in sub-Saharan Africa, but low in comparison to other parts of the world. Internationally, participation rates for higher education compare the total number of people enrolled with the number of people in the country between the ages of 20 and 24. In South Africa the participation rate for 2007 was 15.88%. The National Plan for Higher Education set a target for participation of 20% “over the next 10-15 years” (Ministry of Education, 2001, p. 19) and that target stands. During the period under review, the participation rate has remained steady at around 16%.

Figure 1: Higher education participation rates in South Africa⁵



Source: Statistics SA and HEMIS

The UNESCO Institute for Statistics compares education systems internationally. For 2006, they calculated the higher education participation rate for South Africa to be 15%, not significantly different from the 14% recorded in 1999. This rate compares favourably with the average 5% for sub-Saharan Africa, but is considerably lower than the average rate for Latin America and the Caribbean (31%), Central Asia (25%) and East Asia and the Pacific (25%). The average participation rate for North America and Western Europe in 2006 was 70% (UNESCO Institute for Statistics, 2008).

³ Statistics South Africa.

⁴ Detailed figures for the enrolments in private higher education are not available.

⁵ Calculated as total enrolled headcount students as a percentage of the population between ages 20 and 24.

There is increasing demand for higher education. The beginning of 2009 saw record numbers of school leavers attaining university entrance passes in the new National Senior Certificate. While statistics are not yet available, universities reported a rush of applicants at the start of the 2009 year. The capacity of the public higher education institutions is limited by the availability of staff and infrastructure. The public institutions employed 108 687 people in 2007, of which 41 383 were academic staff. Attracting enough suitably qualified academic staff continues to be a problem for the sector.

The direct outputs of the higher education sector include new knowledge in the form of research, and graduates. In 2007 South Africa produced 38 238 ISI-indexed⁷ research papers in areas that included medical science; Southern African studies; marine science; veterinarian science; philosophy; wildlife; psychology; astronomy and astrophysics; and education. The research output for South Africa outweighs the rest of the southern African region and amounts to 64% of all research undertaken in Africa (Yusuf, MacKenzie, Shall, & Ward, 2008).

In 2007, 126 641 people graduated from public institutions with a higher education qualification, an increase of 9% on the 116 561 which graduated in 2004.⁸ In line with national goals, the higher education system is producing proportionately more graduates in science, engineering and technology. Since 2004 the number of people graduating with qualifications in health care and health sciences has increased by 13%, in mathematical sciences by 16%, and in life sciences and physical sciences by 17%. The number of graduates in engineering increased by 39%. However, the system has fared less well in computer science, where the number of graduates declined by 14%.⁹

⁶ The UNESCO rate differs from locally calculated rates because UNESCO makes use of United Nations Population Division estimates of population, rather than estimates based on national censuses.

⁷ Institute of Scientific Information

⁸ Headcount graduates reported in HEMIS, 2004 and 2007

⁹ Higher Education Management Information System (HEMIS), 2007

Figure 2: Campuses of public higher education institutions

- Universities
- ◆ Comprehensive Universities
- Universities of Technology

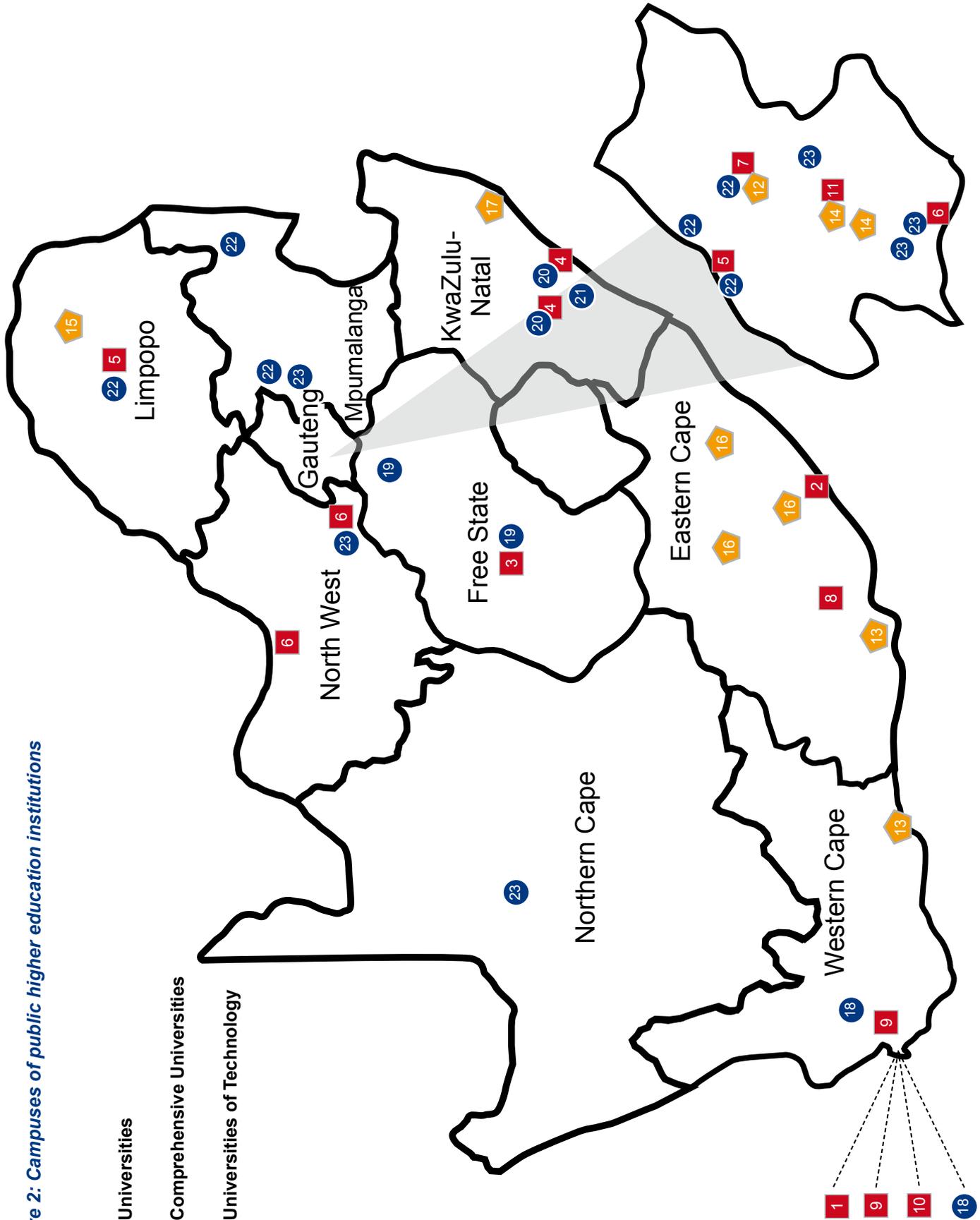


Table 1: Public higher education institutions and the location of their campuses

	Institution	Cities / towns / places in which campuses are located	Province(s) in which campuses are located
Universities			
1	University of Cape Town	Seven campuses in Cape Town	Western Cape
2	University of Fort Hare	Three campuses in Alice, Bisho, & East London	Eastern Cape
3	University of the Free State	One campus in each of Bloemfontein, QwaQwa, Vista	Free State
4	University of KwaZulu-Natal	One campus in each of Durban, Pietermaritzburg, Pinetown & Westville	KwaZulu-Natal
5	University of Limpopo	One campus in each of Ga-Rankuwa & Polokwane	Limpopo, Gauteng
6	North West University	One campus in each of Mafikeng, Potchefstroom & Vanderbijlpark	North West, Gauteng
7	University of Pretoria	Six campuses in and around Tshwane, one in Sandton	Gauteng
8	Rhodes University	One campus in Grahamstown	Eastern Cape
9	University of Stellenbosch	Campuses in Bellville, Tygerberg & Stellenbosch	Western Cape
10	University of the Western Cape	One campus in Bellville	Western Cape
11	University of the Witwatersrand	Four campuses in Johannesburg	Gauteng
Comprehensive Universities			
12	University of South Africa	Main campus in Tshwane	All provinces
13	Nelson Mandela Metropolitan University	One campus in George & five in Port Elizabeth	Eastern Cape
14	University of Johannesburg	Three campuses in Johannesburg, & one in Soweto	Gauteng
15	University of Venda	One campus in Thohoyandou	Limpopo
16	Walter Sisulu University	Campuses in Buffalo City, Butterworth, Mthatha, Queenstown	Eastern Cape
17	University of Zululand	One campus in KwaDlangezwa	KwaZulu-Natal
Universities of Technology			
18	Cape Peninsula University of Technology	Four campuses in Cape Town; one in Wellington	Western Cape
19	Central University of Technology	Campuses in Bloemfontein, Welkom	Free State
20	Durban University of Technology	Four campuses in Durban, & two in Pietermaritzburg	KwaZulu-Natal
21	Mangosuthu University of Technology	One campus in Umlazi	KwaZulu-Natal
22	Tshwane University of Technology	One campus in each of eMalahleni, Ga-Rankuwa, Nelspruit, & Polokwane; Two campuses in Soshanguve; Three campuses in Tshwane	Gauteng, Limpopo, Mpumalanga, North West
23	Vaal University of Technology	Main campus in Vanderbijlpark; delivery sites in Ekurhuleni, Klerksdorp, Secunda, Upington	Gauteng, Mpumalanga, Northern Cape

The configuration of public institutions

The public higher education landscape in South Africa now consists of 23 public institutions, including eleven universities, six comprehensive universities and six universities of technology. Universities offer “a mix of programmes, including career-oriented degree and professional programmes, general formative programmes and research master’s and doctoral programmes” (Ministry of Education, 2001, p. 49) while universities of technology offer “vocational education both at degree and sub-degree level” (Reddy, 2006, p. 36). Comprehensive universities offer programmes across the spectrum, from research degrees to career-oriented diplomas.

Institutions are unevenly distributed across the country but broadly follow the distribution of economic activity. Gauteng is well supplied with public institutions, as are the Western Cape, Eastern Cape and KwaZulu-Natal. Several institutions operate multiple campuses and in the case of North West University, the University of Limpopo, Tshwane University of Technology, and the Vaal University of Technology, campuses are in more than one province. Three institutions operate in Limpopo and two in each of the North West province and Free State. Two provinces have limited access to higher education institutions. In order to address this gap, two National Institutes for Higher Education have been set up. The National Institute for Higher Education, Northern Cape was launched in June 2003 and the National Institute of Higher Education, Mpumalanga in October 2006. These institutes are tasked with coordinating the provision of programmes in line with local needs, making use of the established higher education providers in neighbouring provinces. According to the most recent performance plan of the National Institute of Higher Education, Mpumalanga their activities focus on schools and teacher training.¹⁰

Reflecting on the reconfiguration

The notion of institutional mergers in South African higher education was first documented in the CHE Task Team’s 2000 report *Towards a New Higher Education Landscape* which identified the possibility of combining institutions. They were mentioned in the 2001 National Plan for Higher Education, and confronted the sector more substantially in the 2001 report of the National Working Group, *The Restructuring of the Higher Education System in South Africa*. At the time of the 2004 report, the mergers were just beginning, with plans to implement them in two phases, one starting in January 2004 and the other in January 2005.

The reconfiguration of the public institutions was undertaken in order to transform the higher education system. It was also expected to result in rationalization of programmes, to encourage collaboration between institutions, to enhance responsiveness, to build capacity and to refocus institutions with new institutional identities (Ministry of Education, 2001). There is some evidence of new identities emerging. The universities of technology have worked together, under the umbrella of the South African Technology Network (SATN) to define their role and distinguishing features. More recently a group of five historically disadvantaged rural universities have begun a similar undertaking.

Some of the institutional mergers were studied by the Higher Education Merger Study Group at intervals through the process. Challenges faced by merging institutions included establishing identities for the new institutions, accommodating different institutional cultures and traditions and aligning policies and procedures. Determining new management structures and combining faculties has generally been successful, but for the resulting multi-campus institutions, the matter of how to locate structures, faculties and programmes across campuses has proved complex, and the

¹⁰ http://www.mpumalanga.gov.za/education/documents_publications/plans/strategic_doc/Annual%20Performance%20Plan%202008_09%20to%202010_11.pdf

increased size of institutions is an ongoing challenge. The mergers drew attention to differences in the facilities provided on campuses and there have been positive reports that this resulted in upgrades to facilities on some campuses. Other management challenges have been around putting in place unified administrative processes and information systems. Aligning human resource policies, including inequitable levels of pay and leave policies, has been understandably contentious and in some cases is still ongoing.

From the perspective of students, there have been concerns about aligning student fees and merging student governance structures. The process has been more problematic on campuses where there has been a history of conflict between students and institutional management. As far as the academic programmes are concerned there have been challenges in rationalizing the programmes offered, accommodating different curricula, and teaching across campuses. To the credit of the staff at merging institutions, the Study Group has been able to report that the mergers studied were carried out without significant disruption to the academic programmes. In at least one of the institutions, the research output of the merged institution is higher than the combined output of the institutions before they merged (Higher Education Merger Study Group, 2008a; Higher Education Merger Study Group, 2008b; Higher Education Merger Study Group, 2008c).

Researchers have identified different models of institutional mergers globally, including the federal model which allows for some autonomy and continuing identity of the merging institutions and the unitary model with a single identity and central governance structure. Potential unintended consequences of the mergers were identified in the 2004 report and these included the concern that institutions might continue their separate existence inside the merged entity. While it is still too soon to draw conclusions, there are indications that this fear might have been justified to some extent. For example, senior administrators at one merged institution talk simultaneously of becoming one institution and of maintaining the identity of individual campuses. The mergers have been described as forced marriages between organizations with very different pasts, and ambivalence has been observed as to which model of merger is being followed (Mabokela, 2007).

Nevertheless, research indicates that the institutional mergers have succeeded in creating a new landscape in which the identities of institutions based on race and language are blurred, but not yet entirely obscured (Mabokela, 2007). The Higher Education Merger Study Group was generally positive about the progress made in merging the institutions studied, while recognizing that challenges remain. It noted that significant resources, including energy, went into accomplishing the mergers, however, it is not yet possible to comment on whether the cost of the mergers was worth it.

Funding higher education

Higher education in South Africa is largely state funded with funds being allocated to the public institutions through the national Department of Education. The overall budget for higher education in 2007/8 was R13.3 billion, representing 0.65 % of GDP. Sub-Saharan African countries that spend a greater percentage of their GDP on higher education include Botswana, Burundi, Ethiopia, Kenya, Lesotho, Rwanda, Senegal and Swaziland with values ranging up to 2.1 per cent of GDP (UNESCO Institute for Statistics, 2008).

Since 2004 there has been a steady increase in the funds available for higher education, both in absolute terms and when inflation is taken into account. However, the proportion of the national budget going to higher education has declined.

Table 2: State spending on higher education in South Africa (R millions) ¹¹

	2004/5	2005/6	2006/7	2007/8	2008/9*	2009/10*	2010/11*
Higher education budget	9,879	10,780	11,957	13,323	15,560	17,498	19,908
Rand equivalent to R100 in 2008	77.4	80.0	83.7	89.7	100	N/A	N/A
Budget equivalent (2008)	12,764	13,475	14,286	14,853	15,560	N/A	N/A
National budget	368,459	416,684	470,192	542,117	633,907	738,563	792,354
% of national budget	2.68%	2.59%	2.54%	2.46%	2.45%	2.37%	2.51%
GDP	1,427,445	1,584,743	1,807,316	2,045,533	2,304,111	2,474,214	2,686,254
% of GDP	0.69%	0.68%	0.66%	0.65%	0.68%	0.71%	0.74%

* Projected

Source: DoE, Treasury, Stats SA

An analysis of the sources of income of institutions in 2007 shows that on average, 40% of income is from state subsidies and 28% is from student fees. Students pay fees for higher education in South Africa and fee increases continue to be contentious. There have been student protests every year since 2004 over fee increases, financial exclusions and lack of adequate financial assistance. In 2008 for example, students protested at the Durban University of Technology, the University of Johannesburg, the University of KwaZulu-Natal, the University of Limpopo, North West University, Tshwane University of Technology, and the University of the Witwatersrand.

Universities increasingly rely on other sources of funding and on average 33% of their income is from other sources. But the capacity of institutions to generate other funding streams differs. As a result, the proportion of funds coming from other sources differs across institutional types with Universities of Technology most dependant on state funding.

¹¹ Substantial research funds also become available to higher education institutions through the Department of Science and Technology and other bodies, which are not included in this analysis.

The role of private institutions

In July 2009 there were 103 registered and provisionally registered private higher education institutions in South Africa. They range in size from small colleges offering a single programme to large multi-campus organizations offering a wide range of programmes. Private institutions offer a range of mostly certificate and diploma programmes and bachelor's degrees. Only twelve of the institutions offer programmes at the master's level and only three of these offer doctoral programmes. Private institutions offer programmes in business, management and information technology; in theology, education and law; in media, design and the visual arts; in sports science, travel and tourism, and health. While a few private institutions are engaged in research, their output as a whole is minimal in comparison to that produced by the public sector.¹²

At present, information about the enrolments at private institutions is not collected systematically. A project currently underway between the CHE and SAQA aims to add information about enrolments in and graduations from accredited programmes at private institutions to the National Learners' Records Database (NLRD).¹³ This information will make it possible to quantify the contribution of private higher education institutions to higher education in South Africa. Of the ten private institutions which were audited by the Higher Education Quality Committee (HEQC) between 2004 and 2008, the largest enrolled 17 843 students. Four others had between 1 500 and 2 800 students, and the remaining five institutions each had fewer than 1 000 students. These numbers indicate that it is unlikely that private institutions enroll students in numbers that compare with the public sector and they form a small part of the overall higher education landscape. Given the constraints on the capacity of public institutions, and the demand from individuals for higher education and from the labour market for skills, there is the potential for private higher education to play a more significant role.

Most of the private institutions are located in the more populous and economically active provinces of Gauteng, the Western Cape and KwaZulu-Natal. The map shows the distribution by province of the headquarters of the institutions. This does not reflect the full spread of campuses since some institutions have multiple campuses.

Research suggests that the private higher education sector in South Africa did not arise in response to excess demand for higher education, and addresses excess demand to only a limited degree. Rather it positions itself as offering programmes different to those available in the public sector. Institutions have been categorized as offering mobility, either geographical or socio-economic, or specialized credentials related to particular occupations (Kruss, 2007). Most of the institutions operating in South Africa are for-profit companies. Exceptions include theological institutions, and institutions such as TSIBA Education and CIDA City Campus, which offer subsidized business degrees to students who would otherwise not have access to university. Several private higher education institutions are part of, or affiliated to, foreign universities and represent one form of the growing internationalization of higher education.

¹² See chapter four, Research, for details.

¹³ The NLRD records all qualifications awarded to individuals by public institutions.

Figure 3: Count of private higher education institutions (headquarters) by province

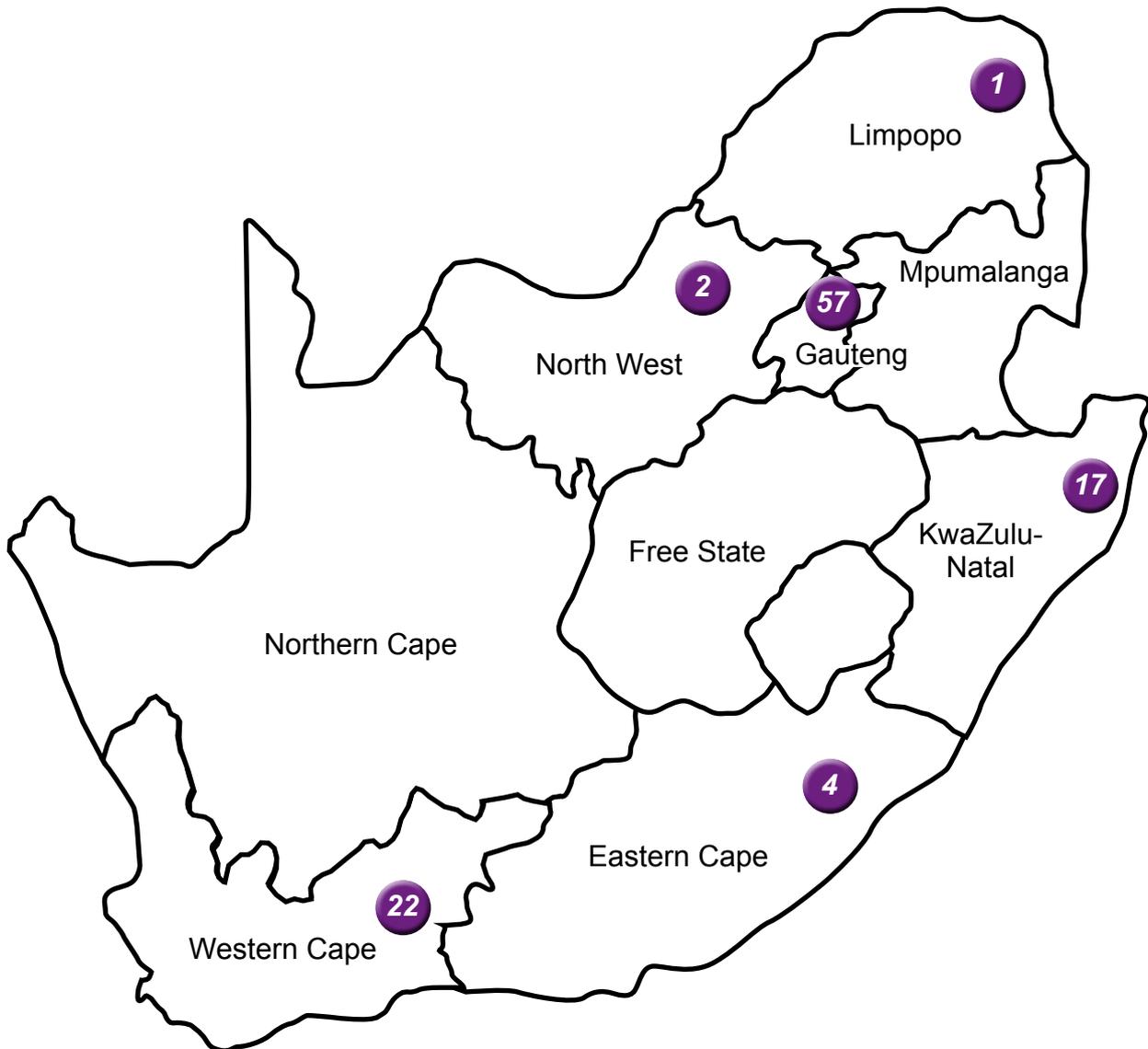


Table 3: Registered and provisionally registered private higher education providers

AAA School of Advertising (Pty) Ltd	Camelot International (Pty) Ltd
Action learning Business School Europe BV (Business School Netherlands South Africa)	Cape Town Baptist Seminary
AFM Theological College (Auckland Park Theological Seminary)	Centre for Creative Education / Iziko La Bantu Be Afrika
Afrikaanse Protestantse Akademie	Centre for Fine Art Animation & Design (Pty) Ltd
Baptist Theological College of Southern Africa	Centurion Akademie (Bdms) Bpk / Centurion Academy (Pty) Ltd
Beautiko, Academy of Beauty (Pty) Ltd	Christ Baptist Church Seminary
Belgium Campus	Christian Reformed Theological Seminary
Bible Institute Eastern Cape	CIDA City Campus
Boston City Campus & Business College (Pty) Ltd	City Varsity (Film & Television & Multimedia School)
Boston Media House (Pty) Ltd	College of Production Technology (Pty) Ltd

Source: DoE

Complementary Body Works (Pty) Ltd
(Complementary Health Centre)*
Cornerstone Christian College
Concept Interactive Cape (Pty) Ltd
Cranefield College (Pty) Ltd (Cranefield College of
Project & Programme Management)
CTI Education Group (Pty) Ltd
Da Vinci Institute for Technology Management (Pty) Ltd
Damelin (Pty) Ltd
Design School Southern Africa
Durban Computer College (Pty) Ltd (DCC Campus)
Durbanville College (Pty) Ltd
Educational Institute for Service Studies
International (Pty) Ltd
Edu-City Campus (Pty) Ltd
Embury Institute for Teacher Education (Pty) Ltd
Empilweni Education (Pty) Ltd
Evangelical Seminary of Southern Africa
Exercise Teachers Academy (Pty) Ltd (ETA)
FEDISA (Pty) Ltd
Foundation for Professional Development (Pty) Ltd
Full Gospel Church of God College
Global School of Theology (USA)
Global Training (Pty) Ltd (Prestige Academy)
George Whitefield College
Graduate Institute of Management &
Technology (Pty) Ltd
Greenside Design Centre College of Design (Pty) Ltd
Health and Fitness Professionals Academy (Pty) Ltd
Healthnicon SA (Pty) Ltd
Hebron Theological College
Helderberg College
Henley Management College (UK)
IHT Hotel School (Pty) Ltd
ICESA City Campus (Pty) Ltd
IMM Graduate School of Marketing (Pty) Ltd
Independent Institute of Education (Pty) Ltd
Inscape Design College (Pty) Ltd
International Academy of Reflexology &
Meridian Therapy (Pty) Ltd
International Academy of Health and Skincare (Pty) Ltd
International College of Bible & Missions
International Hotel School (Pty) Ltd
International Trade Institute of Southern Africa
Institute of Natural Health (Pty) Ltd
Lead & Inspire (Pty) Ltd (The Lead & Inspire School of
Leadership)
Life Healthcare Group (Pty) Ltd
Linea Academy (Pty) Ltd
LISOF (Pty) Ltd
Lyceum College (Pty) Ltd
Madge Wallace (Pty) Ltd (Madge Wallace International
College of Skincare & Body Therapy)
MANCOSA (Pty) Ltd (Management College of South
Africa)
MCS Private College*
Medi-Clinic Ltd
Midrand Graduate Institute (Pty) Ltd
Milpark Business School (Pty) Ltd
Monash South Africa
Nazarene Theological College
New Africa Theatre Association
Open Learning Group (Pty) Ltd
Open Window (Pty) Ltd (Open Window School of Visual
Communication)
Oval International Computer Education CC
PC Training and Business College (Pty) Ltd
Potchefstroom Akademie (Pty) Ltd
Production Management Institute of Southern Africa
(Pty) Ltd (PMI)
Red & Yellow School of Logic & Magic (Pty) Ltd
Reebok Education (Pty) Ltd*
Regenesys Management (Pty) Ltd
Regent Business School (Pty) Ltd
RS 23 Computer College South Africa (Pty) Ltd
Ruth Prowse School of Art
School of Hand & Foot Reflexology (Pty) Ltd
Sonett International Academy (Pty) Ltd
South African College of Applied Psychology (Pty) Ltd
South African Faculty of Homeopathy
South African School of Motion Picture
Medium & Live Performance (Pty) Ltd (AFDA)
South African Theological Seminary
Southern Africa Bible College
Southern Business School (Pty) Ltd
Spero Villioti Elite Design Academy (Pty) Ltd
St. Augustine College of Southern Africa
St. John Vianney Seminary
St. Joseph Theological Institute
Stellenbosch Academy of Health & Skin Care (Pty) Ltd
(Isa Carstens Health and Skincare Academy)
Stellenbosch Academy of Design & Photography (Pty) Ltd
Style Design College (Pty) Ltd
Theological Education by Extension College
TSIBA Education

* Registrations lapse at the end of 2009

The role of distance education programmes

Distance education plays a significant role in extending access to higher education to those who would otherwise not be able to participate. The most significant development in distance education since 2004 has been the merger in 2004 of the University of South Africa, Technikon South Africa and the distance element of Vista University to become the new University of South Africa (UNISA). This created a single dedicated distance education institution. The intended purpose of this consolidated distance institution was to facilitate increased access to higher education, to develop learning materials that could be used nationally, to create learning centres and other forms of support, and to expand access to students from the SADC region.¹⁴

The 2004 CHE report *Enhancing the contribution of Distance Higher Education in South Africa* noted that distance education accounted for a substantial proportion of higher education in South Africa, but that the quality of much of this provision was a cause for concern. Distance education continues to be a significant part of the higher education landscape with 37.6% of students¹⁵ enrolled in distance programmes in 2007. However, we have little information about the quality of distance programmes. Graduation rates have declined from 11% in 2004 to 9.5% in 2007, but graduation rates are a crude measure (as is discussed in Chapter 3), and particularly so for distance education, so cannot be taken as a direct reflection on the quality of programmes. The period under review has seen no significant policy statements on distance education, but there have been changes in the profile of people enrolling for distance programmes, with more young people choosing to study this way.¹⁶

At a policy level, distance education is considered valuable because it can expand access to higher education to people who would otherwise not be able to study, enable lifelong learning, increase the capacity of the higher education system, provide education for other countries in the region and provide lower cost programmes where economies of scale can be realized (Ministry of Education, 2001).

Concerns with quality, and that institutions were pursuing programmes that did not align with national goals for financial gain, led to a moratorium on the introduction of new distance education programmes in contact institutions in February 2000. This was lifted in 2001 on the condition that programmes fit in with institutional plans and meet quality standards (Ministry of Education, 2001). There have been no further policy statements that focus on distance education, although the CHE has recently provided comment on a draft distance education policy which is expected to be made public soon.

There is ongoing debate about the distinction between contact and distance programmes. As contact programmes make increasing use of a range of media to supplement their face-to-face teaching, and distance programmes implement a range of student support mechanisms, the distinction between the modes of delivery are becoming blurred. This debate is not just semantic. Distance education has in the past been assumed to be less costly than contact programmes and continues to be funded at a lower level. As understandings of teaching and learning develop, it has been recognized that good distance education requires significant investment in programme design and materials development and providing support for students is costly. If the distinction between distance and contact programmes is indeed blurring, the different levels of funding may be questioned.

In addition, understandings of distance education are evolving. Different terms are used to describe variants of distance education including mixed-mode, open learning, flexible learning, part-time, in-

¹⁴ Keynote address by the Minister of Education, Professor Kader Asmal, MP, at the Inauguration of University of South Africa, 28 Jan 2004. Retrieved 18 Feb 2009 from [http://www.search.gov.za/info/previewDocument.jsp?dk=%2Fdata%2Fstatic%2Finfo%2Fspeeches%2F2004%2F04012909461002.htm%40Gov&q=\(+\(+asmal+\)+%3CIN%3E+title\)&t=Asmal%3A+Inauguration+of+University+of+South+Africa](http://www.search.gov.za/info/previewDocument.jsp?dk=%2Fdata%2Fstatic%2Finfo%2Fspeeches%2F2004%2F04012909461002.htm%40Gov&q=(+(+asmal+)+%3CIN%3E+title)&t=Asmal%3A+Inauguration+of+University+of+South+Africa)

¹⁵ Student headcount

¹⁶ This point is addressed further in Chapter 3

service, and distance learning or distance education. The term open education is favoured and connotes learning which “combines the principles of learner centeredness, lifelong learning, flexibility of learning provision, the removal of barriers to access, the recognition for credit of prior learning experience, [and] the provision of learner support” (Department of Education, 1997, p. 28). Policy documents support a move away from traditional correspondence courses and towards open distance learning (Ministry of Education, 2001). The new UNISA describes itself as an “open learning and distance education institution”¹⁷ employing an “open distance learning model” in which “students actively engage and interact with the institution, their lecturers, study material and fellow students.”¹⁸

South Africa attracts students from Africa

Internationalization of higher education has seen more students travelling around the world to study. More than 2.75 million students worldwide studied outside of their home countries in 2006, including 205 205 from sub-Saharan Africa. Most of these (142 827) went to study in North America and Western Europe (UNESCO Institute for Statistics, 2008). A total of 6 638 South Africans left home to study abroad in 2006 with the top destinations being the USA, Australia and the UK (UNESCO Institute for Statistics, 2008). However, international student mobility represents a net gain for South Africa. In 2006 South Africa attracted 53 738 foreign students and was the only country in sub-Saharan Africa to attract substantial numbers of foreign students. The majority of foreigners studying in South Africa are from sub-Saharan Africa (UNESCO Institute for Statistics, 2008).

The National Plan for Higher Education targets increased recruitment of students from the Southern African Development Community (SADC), particularly at the postgraduate level. Increasing these numbers is considered beneficial for the development of the region as well as for enriching the experience of South African students. International students are counted for enrolment and graduation subsidies in the same manner that South African students are and postgraduates from the SADC region have access to some categories of National Research Foundation (NRF) funding. Ongoing concerns for international students are higher fees (relative to South African students), the difficulties of arranging study visas, and the recent spectre of xenophobia in South Africa which has also been reported on university campuses (DoE, 2008).

Concluding comments

The higher education sector in South Africa is substantial and growing. There is a growing demand for high-level skills and knowledge and indications that the system is operating near or at capacity. The public sector is dominated by large institutions, which are able to absorb significant numbers of students, and which generate substantial research, while the private sector consists mainly of small institutions offering programmes in niche areas. Higher education provision is unevenly distributed across the country with the urban centres and economically active provinces better provided with institutions.

The public sector produces a steady and increasing supply of graduates and has increased the number of people graduating in science, engineering and technology in line with policy goals. It also produces significant volumes of research and dominates research production on the African continent. The sector is funded by the state, by student fees and increasingly by third stream income.

¹⁷ Mission, retrieved 18 Feb 2009 from <http://www.unisa.ac.za/default.asp?Cmd=ViewContent&ContentID=20552>

¹⁸ Open distance learning, retrieved 18 Feb 2009 from <http://www.unisa.ac.za/Default.asp?Cmd=ViewContent&ContentID=21412>

Public higher education in South Africa has undergone significant restructuring. While there are signs of positive outcomes, including new institutional forms and identities, it is too soon to draw conclusions about the effectiveness of that restructuring.

The private higher education sector is largely unknown with little systematic and comprehensive data. Initiatives are underway to rectify this and to collect data on an ongoing basis. What is known is that the sector is relatively small, does little research and contributes to teaching in niche areas. The potential for expanding the private sector needs to be explored as well as the extent to which these institutions can contribute to the public good. More comprehensive data and research into the sector is the starting point for a better understanding of these issues.

The potential benefits of distance education for the country have been acknowledged, distance programmes have been consolidated into a single institution, and less ideal forms of distance education have been curtailed. Distance education has the potential to absorb higher numbers of students and more young people are opting to study in this way. New understandings of distance education are being explored, but the provision of more comprehensive services necessary for success in distance education is not supported by the current funding policy. Attention to distance education at the level of policy is now overdue.

The internationalization of higher education impacts on South Africa in several ways. Foreign institutions operate within the country, students leave South Africa to study and many students, particularly from Africa, come here to study. South Africa provides training at master's and doctoral level for many African researchers. This, together with the leading position that South Africa enjoys in research output, puts the country in a strong position to develop and lead research on the continent. That potential, and how South Africa should engage with the complexities of internationalization, need to be given attention at the policy level.

3. Teaching and learning

Introduction

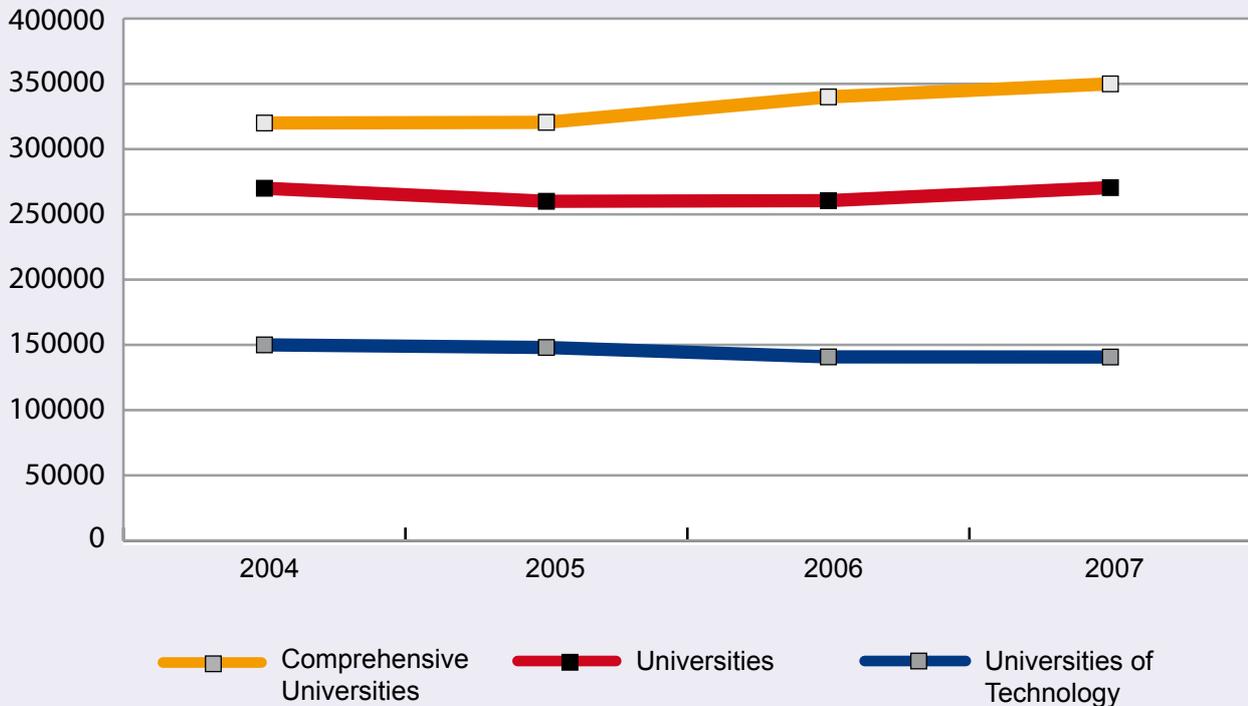
Teaching and learning is core to higher education. Not only is this the space in which high level skills are developed for the labour market, and where individual aspirations for self-fulfillment are realized, it is also expected to develop critical engaged citizens through the ongoing engagement with knowledge and with other people. In 2007 The South African higher education system enrolled 761 090 people into programmes of study and produced 126 641 graduates.

The 2004 report, *South African Higher Education in the First Decade of Democracy*, identified several ongoing concerns with the effectiveness and outcomes of university teaching and learning. These included issues such as widening access to higher education, achieving equity in enrolments and graduations, ensuring the quality of qualifications, and system efficiency. There were concerns about how the teaching and learning models would accommodate the expanding number and growing diversity of students entering the higher education system, and in particular how to promote access and success for students coming from disadvantaged educational backgrounds. The development of curricula that address the knowledge base, skills and competencies of students was considered critical, as was the concern to develop teaching and learning models that address the goals of the National Plan for Higher Education (CHE, 2004b). This chapter explores the extent to which these concerns have been addressed in the period under review.

Who participates in higher education learning?

As was discussed in Chapter 2, some 1.6% of the population was enrolled in higher education in 2007. The participation rate, measured as the total headcount enrolments as a proportion of the total population between the ages 20 to 24, stood at 15.9%. South Africa has a goal of 20% participation, but the rate showed a small decrease between 2004 and 2007. However, there has been a growth in the number of headcount enrolments across the system from 744 489 in 2004 to 761 090 in 2007. The growth has been uneven across institutional types. Enrolments at universities of technology decreased between 2004 and 2007, while those at comprehensive universities increased. In 2007 enrolments at traditional universities recovered from a decreasing trend between 2004 and 2006.

Figure 4: Enrolments by institutional type for 2004-2007



Source: HEMIS

Participation by race

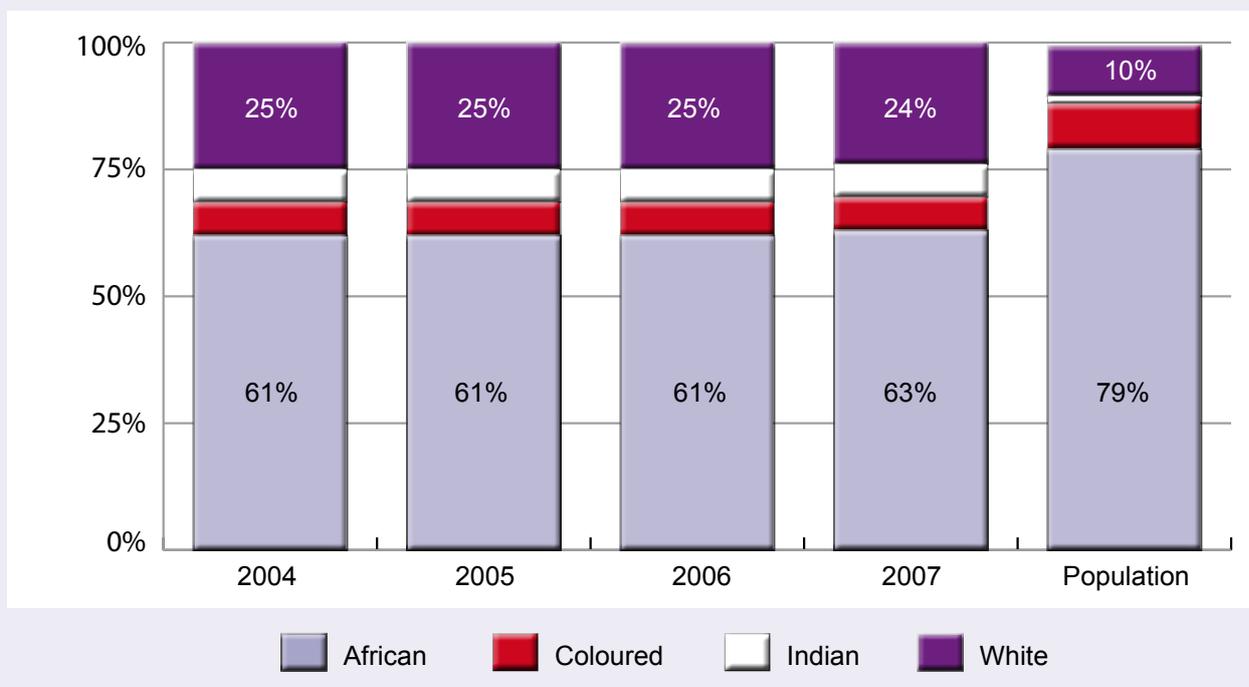
There has been some movement towards the White Paper’s (Department of Education, 1997) goal of ensuring that the racial profile of the student body reflects the racial composition of the population, but we are not yet there. The proportion of African students in the public higher education system as a whole increased from 49% in 1995 to 61% by 2004 and this trend continued during the period under review. By 2007, African students made up 63% of the total enrolment in public higher education. While the continued increase is positive, there is still some way to go, considering that this is some 16% less than the estimated 79% of African people in the country’s population. Coloured students, who made up 6% of the student body in 2007, are also underrepresented in public higher education, by some 3%. The proportion of white students in the student body decreased from 39% in 1995 to 25% in 2004 and showed a slight decrease to 24% by 2007. White students continue to be overrepresented in the system, relative to their proportion of the population, as do students classified Indian.

Table 4: Enrolments (headcount) in public higher education by race, 2004 - 2007

	2004	2005	2006	2007
African	453,640	446,946	451,106	476,768
Coloured	46,090	46,302	48,538	49,069
Indian	54,315	54,611	54,859	52,596
White	188,687	185,847	184,667	180,463
Total	744,489	735,073	741,380	761,090

Source: HEMIS

Figure 5: Proportional enrolments (headcount) in public higher education by race



Source: HEMIS, Stats SA

Another way of viewing the racial profile of students is to consider the participation rates of the four race groups. This perspective reinforces the view that white students are overrepresented in the higher education system. The participation rate for white students is 54%, for Indian students it is 43%, while for African and Coloured students, it sits at 12%.

Table 5: Participation rates by race, 2007

	20-24 year olds in the country	Students enrolled in higher education	Participation rate
African	3 918 890	476 768	12%
Coloured	416 355	49 069	12%
Indian	122 412	52 596	43%
White	334 150	180 463	54%
Total	4 791 807	758 896	16%

Source: HEMIS, Stats SA

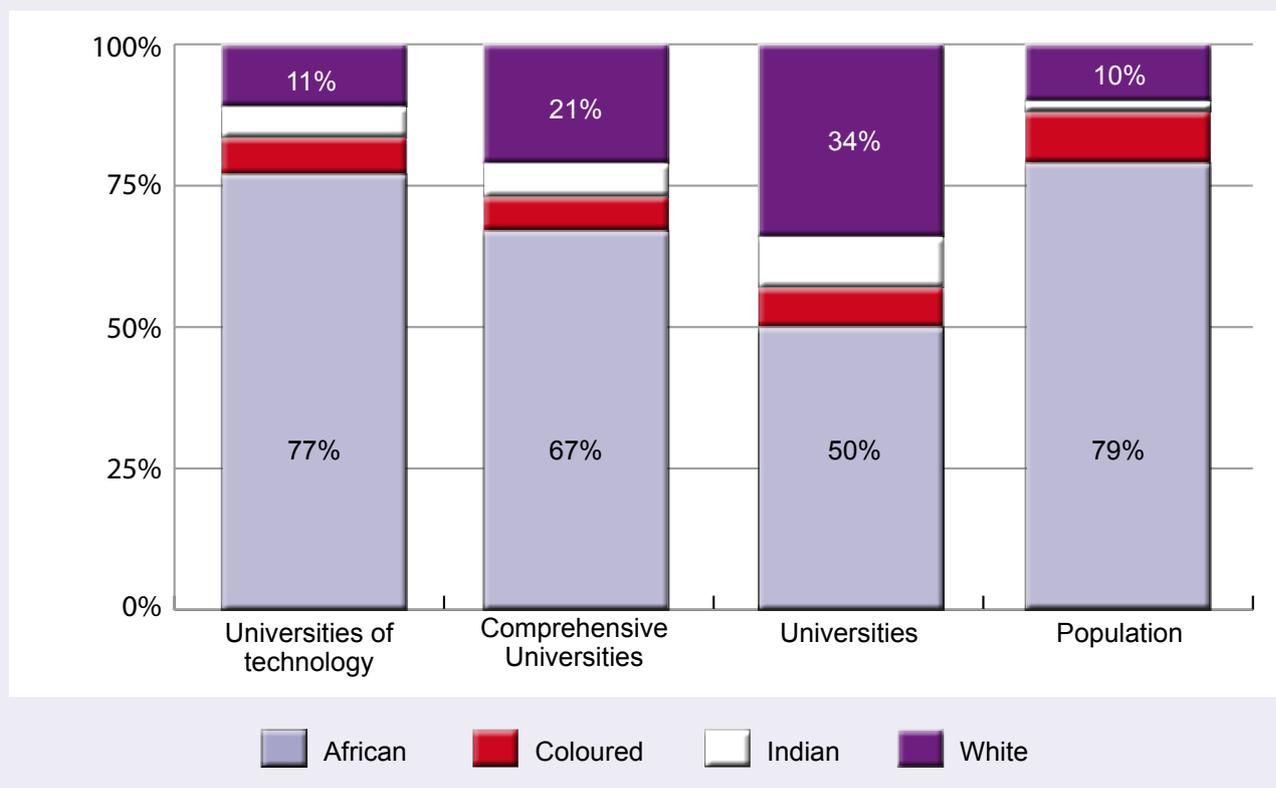
The target participation rate was set at 20% in the National Plan. The plan also made it clear that equity would not be achieved at the expense of white students (Ministry of Education, 2001). So these numbers do not reflect a need to decrease the number of white and Indian students, but rather the need to increase the participation of African and coloured students. Indeed the steady decrease in the absolute number of white students enrolling, from 188 687 in 2004 to 184 668 in 2007, is a cause for concern.

The racial imbalance in enrolments is more pronounced when viewed by institutional type. Looking back to when there were two institutional types, technikons were enrolling African students in larger proportions than universities. African enrolments at universities grew from 50% in 1995 to 53% in 2003, while at technikons, African enrolments grew from 47% in 1995 to 77% in 2003. White student enrolments at universities in South Africa decreased from 38% to 32% between 1995 and 2003, while at technikons enrolments of white students decreased from 41% to 14% for the same period.

In 2004 when data is first available for the three institutional types,¹⁹ 50% of students enrolled in universities were African, 63% of students enrolled in comprehensive universities were African and 77% of students enrolled in universities of technology were African. For white students the proportions were 34% at universities, 25% at comprehensive universities and 12% at universities of technology. During the period under review, there has been little change at both universities and at universities of technology. Comprehensive universities however, have shown some movement towards a more representative profile, probably as a result of the incorporation of technikons into these institutions. The proportion of white students at the comprehensive universities declined from 25% to 21% and the proportion of African students increased from 63% to 67%.

¹⁹ Some mergers only took place in 2005, resulting in further changes in the student profile across institutional type.

Figure 6: Proportional enrolments (headcount) in public higher education by institutional type and race, 2007



Source: HEMIS, Stats SA

The racial profile of students at the three different institutional types is shown in the figure above. The universities of technology come closest to the racial profile of the population with 77% African, 11% white, 8% coloured and 4% Indian students. Comprehensive universities enroll more African students (233 214) than universities of technology (107 581), but they constitute a smaller proportion of the total student headcount (67%). The racial imbalance is most marked at the traditional universities where African students represented 50% and white students 34% of the student population in 2007. Across all institutional types, white and Indian students are overrepresented and coloured and African students are underrepresented.

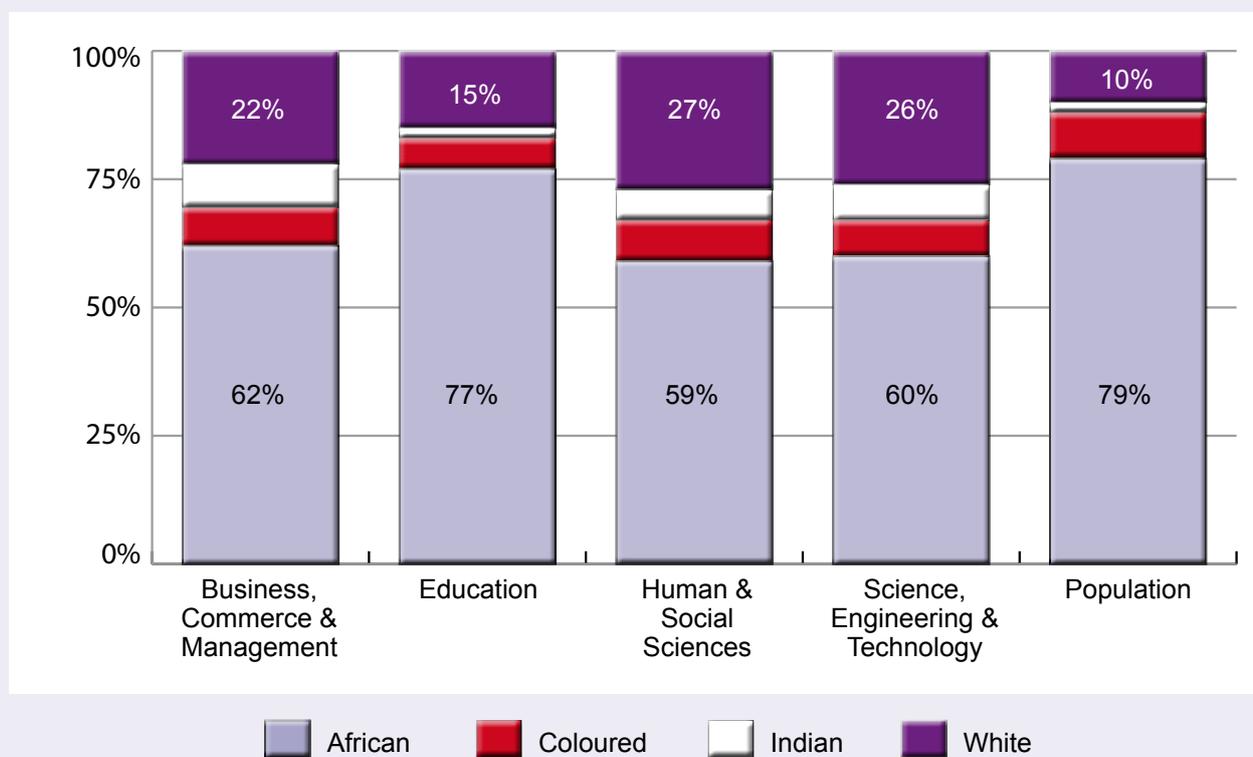
Table 6: Enrolments (headcount) in public higher education by institutional type and race, 2007

	African	Coloured	Indian	White	Total
Universities of technology	107,581	11,004	5,065	15,188	138,912
Comprehensive Universities	233,214	18,569	25,152	73,314	350,624
Universities	135,973	19,496	22,379	91,961	271,554

Source: HEMIS

Racial imbalances are also evident in the enrolments by field of study. Courses in education continue to attract a higher proportion of African students although the proportion of African students enrolled in these courses decreased from 82% in 2004 to 77% in 2007. The proportion of African students enrolling in courses in the human and social sciences increased from 53% in 2004 to 59% in 2007. There was also an increase in the proportion of African students enrolling in science, engineering and technology courses, from 56% in 2004 to 60% in 2007. All fields of study, other than education, continue to attract disproportionately more white students.

Figure 7: Proportional enrolments (headcount) in public higher education by race and field of study (CESM²⁰), 2007



Source: HEMIS, Stats SA

Participation by gender

Before 1995, both universities and technikons enrolled more men than women students. This changed from 1995 when, for the first time, more women than men enrolled in universities although men were still in the majority in the technikons. By 2000, the number of women in the public higher education system exceeded men, 53% to 47%. This trend has continued with the proportion of women enrolled in the public higher education system reaching 55.5% in 2007. By comparison, an estimated 52% of the population are women.

²⁰ Classification of Educational Study Matter

Table 7: Enrolments (headcount) in public higher education by gender

	2004		2005		2006		2007	
	Headcount	%	Headcount	%	Headcount	%	Headcount	%
Women	403,462	54.2	401,042	54.6	408,718	55.1	422,535	55.5
Men	341,022	45.8	334,030	45.4	332,662	44.9	338,549	44.5
Total	*744,489	100	735,073	100	741,380	100	761,090	100

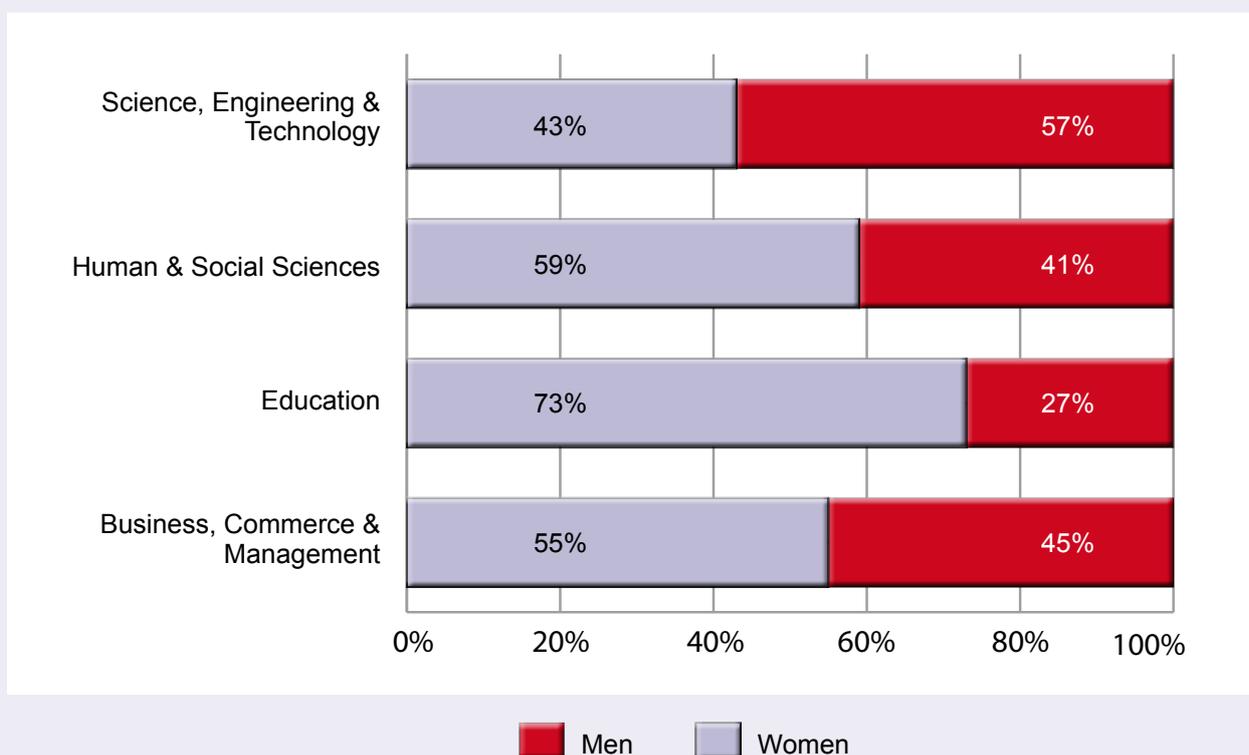
Source: HEMIS

* Slight discrepancies are due to some enrolments with gender unknown

The proportions of men and women enrolling continue to differ across the institutional types. In 2007, 51% of the students at universities of technology were women, at universities 56% were women and at comprehensive universities, 57% were women. There has been little change in these proportions since 2004.

When enrolments are examined by field of study, men continue to dominate in science, engineering and technology, where they made up 57% of enrolments in 2007. In all other fields of study, there are more women enrolled than men. In 2007, 56% of students in business, commerce and management were women; in the human and social sciences 59% of students were women; and in education, 73% of students were women. These patterns of enrolment have been consistent since 2004.

Figure 8: Proportional enrolments in public higher education by gender and field of study (CESM), 2007



Source: HEMIS

These overall participation rates obscure the gender imbalances in particular fields of study. For example, when the science, engineering and technology category is examined in more detail, there are more women than men enrolled in industrial arts, trade and technology, in life and physical sciences and in health care and health sciences. More men enroll for architecture and environmental design, agriculture, mathematical sciences, and computer science. The areas with the greatest gender imbalances are in engineering and engineering technology, where only 24% of the students are women, and in health care and health sciences where only 32% of the students are men.

Table 8: Enrolments in Science, Engineering and Technology sub-fields by gender, 2007

Sub-field	% Women	% Men
Industrial Arts, Trades and Technology	67	33
Architecture and Environmental Design	37	63
Agriculture and Renewable Natural Resources	43	57
Mathematical Sciences	39	61
Life Sciences and Physical Sciences	53	47
Computer Science	37	63
Health Care and Health Sciences	68	32
Engineering and Engineering Technology	24	76

Source: HEMIS

Broadening the social base of learners

Outcome 3 of the National Plan (Ministry of Education, 2001) suggests that increasing the participation of non-traditional students, such as workers, mature students and students with disabilities, could assist in addressing the shortage of high-level skills. Since 2004, the number of mature students has been relatively stable. Around 40% of students in public higher education are over the age of 25. While there was a drop in the number of mature students between 2004 and 2005, this proportion has remained relatively stable since then.

Table 9: Enrolments in public higher education by age

	2004		2005		2006		2007	
<=25 years	432,324	58%	441,447	60%	444,087	60%	464,436	61%
>25 years	312,165	42%	293,622	40%	297,290	40%	296,650	39%
Total	744,489	100%	*735,073	100%	*741,380	100%	*761,090	100%

Source: HEMIS

* Slight discrepancies are due to some enrolments with age unknown

The data that is collected from the public institutions about disability shows unexplained extreme variations between 2004 and 2007. Disability is not verified by the institutions and this data relies on students' self-reporting. It is possible that students' interpretations of questions about disability at registration are inconsistent. So it is not possible at present to report on the enrolments of students with disabilities. Access to higher education for students with disabilities is an important national goal, and this information gap will need to be addressed in future.

The role of distance programmes

The University of South Africa (UNISA) dominates distance higher education. It had 239 581 enrolled students in 2007, including 83.4% of those studying in distance programmes. But distance education is also provided by other institutions, notably North West University, the University of Pretoria and the University of KwaZulu-Natal. The proportion of distance to contact students²¹ in these institutions has, however, been declining.

Table 10: Enrolments in distance programmes in public higher education, 2007

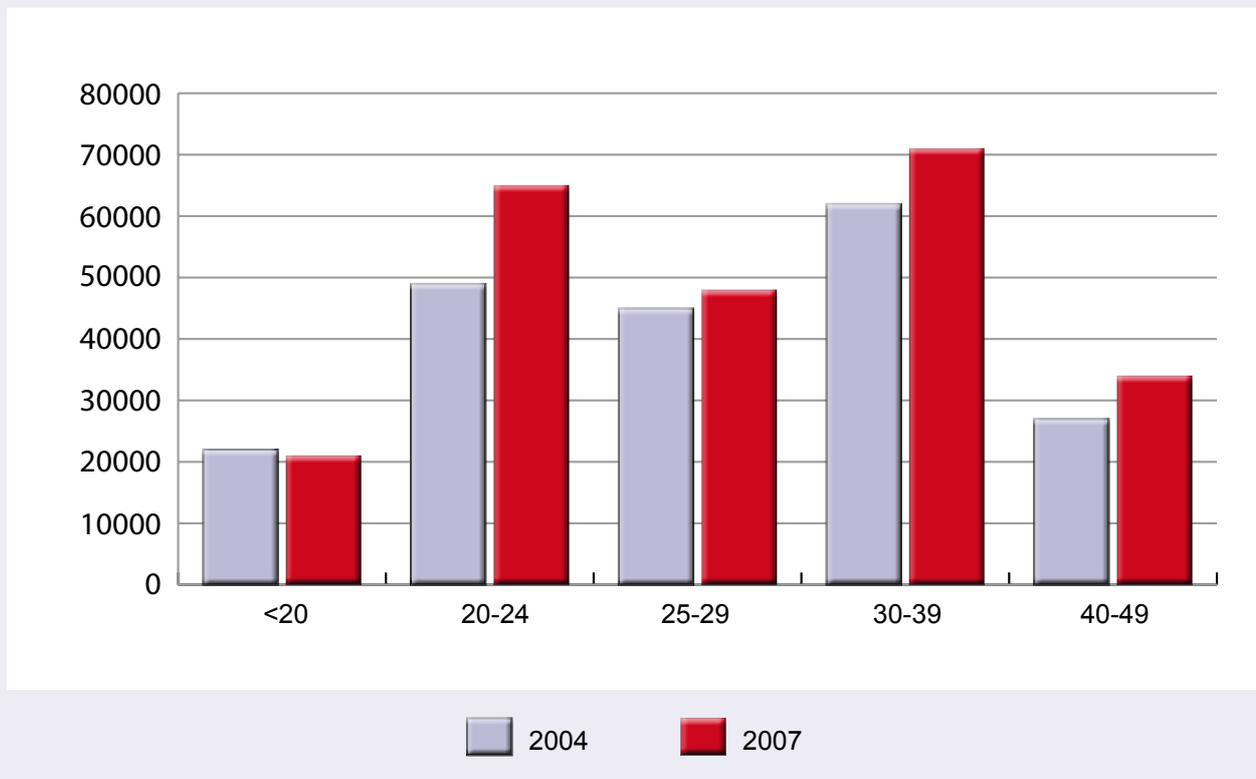
Institution	Headcount enrolments in distance programmes	Full-time equivalent enrolments in distance programmes	% of full-time equivalent enrolments in distance mode
University of South Africa	238,803	115,950	99.5%
North West University	18,651	10,915	33.5%
University of Pretoria	10,303	4,343	12.5%
University of KwaZulu-Natal	7,292	4,050	14.2%
Tshwane University of Technology	4,156	2,213	5.1%
Nelson Mandela Metropolitan University	3,963	2,067	12.2%
University of the Free State	1,737	1,025	5.7%
Walter Sisulu University	604	647	3.0%
Other institutions	927	574	0.3%
TOTALS	286,436	141,784	27.3%

Source: HEMIS

In the period under review, there is one significant trend in the profile of people enrolling for distance programmes. Traditionally, distance programmes have attracted students who are older than those in contact programmes. But more younger people are enrolling for distance programmes. Over the years 2004 to 2007, the age category 20-24 saw the most rapid growth in enrolments at UNISA, increasing by 31%. By comparison, the enrolments in the 30-39 age category grew by only 14% over the same period.

²¹ Full-time equivalent students

Figure 9: The changing age profile of UNISA students



Source: HEMIS

This suggests that more young people are opting for distance education for their first degree. Possible reasons for this would include the lower cost of distance education, the convenience and reduced cost of studying from home and the limited capacity at contact institutions, although there is no research to confirm this. UNISA reports that such young people expect services and facilities such as libraries, computer laboratories and recreational spaces, traditionally provided by contact institutions and that this is placing pressure on the institution.

Participation by international students

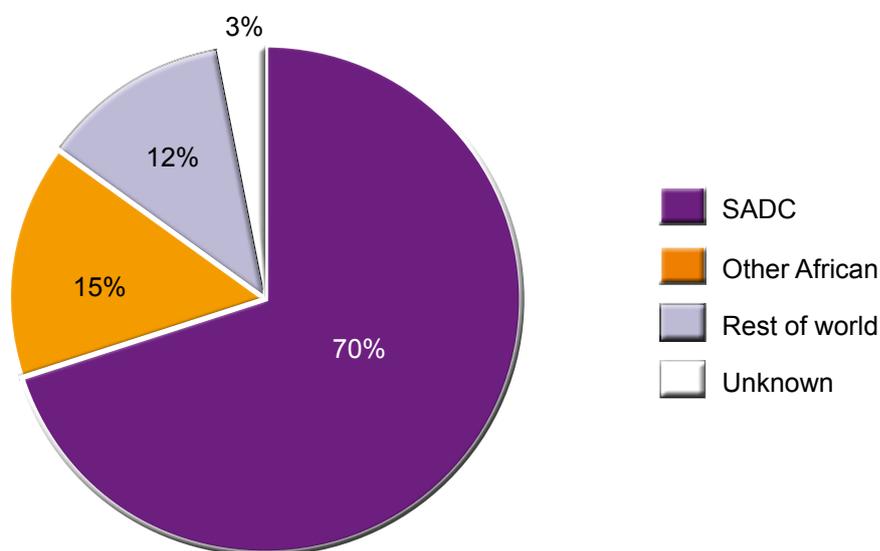
While South Africans make up 92% of the student body, the public higher education system attracted 59 235 international students in 2007, representing 8% of the students enrolled. Outcome 4 of the National Plan targets increased recruitment of students from other SADC countries, particularly into research programmes (Ministry of Education, 2001). As we shall see in the chapter that deals with research, a higher proportion of foreign students enroll in postgraduate programmes.

Table 11: Enrolments (headcount) in public higher education by nationality

	2004		2005		2006		2007	
South African	691,910	93%	683,473	93%	687,642	93%	701,853	92%
SADC	36,302	5%	35,074	5%	35,922	5%	41,713	5%
Other African	6,874	1%	7,196	1%	8,569	1%	8,682	1%
Rest of world	7,836	1%	7,839	1%	7,673	1%	7,136	1%
Unknown	1,567	0%	1,491	0%	1,574	0%	1,706	0%
Total	744,489	100%	735,073	100%	741,380	100%	761,090	100%

Source: HEMIS

Enrolments from countries in the Southern African Development Community (SADC) region constituted 5% of the total enrolments in 2007, and 70% of the international students. Enrolments from elsewhere in Africa represent 1% of total enrolments and those from the rest of the world, 1%. There has been little change in the proportion of foreign students enrolling or in the distribution of those students by region during the years under review.

Figure 10: Foreign students enrolling in public higher education by region

Source: HEMIS, Stats SA

Participation in private higher education

While in other developing countries, the private higher education sector arose in response to excess demand, this is not the case in South Africa. As was discussed in Chapter 2, the private sector in South Africa is relatively small and can be categorized into those that offer the promise of mobility and those that offer specialized credentials. Institutions that primarily attract students with the promise of geographic or socio-economic mobility do show some flexibility in their entrance criteria, but they target the relatively privileged and do not significantly broaden access to higher education. Those that offer specialized credentials more commonly target non-traditional students who might otherwise not have access to higher education. In this sub-sector that private higher education contributes to expanding access, although in limited numbers (Kruss, 2007).

Students choose private higher education institutions that offer mobility because they believe that they offer better qualifications, either because they are internationally recognized or because they are more closely tied to the workplace, and also cite flexibility and a privileged, more personalized environment as desirable. Those that choose institutions offering specialized credentials do so because they offer lower fees, flexible modes of learning and employability (Kruss, 2007).

The cost to students of higher education studies

Cost of study is often a barrier to access. The data collected on student exclusions does not distinguish between students who are excluded on academic grounds and those excluded on financial grounds, so it is difficult to judge the extent of this problem. But increasing fees, exclusions on financial grounds, and inadequate financial support, have been reasons cited for continuing student protests on campuses.

The National Student Financial Aid Scheme (NSFAS) assesses the cost to students of study at public institutions by adding the registration fee per student, to the average cost of tuition and the average cost of residence accommodation. The average cost of tuition is calculated as the tuition fee income divided by the number of enrolled students (headcount) and the average cost of residence accommodation is calculated as the residence fee income divided by the number of students in residence. Using this calculation, the full cost of study for 2007 ranged from R 25 983 at Walter Sisulu University to R 49 253 at the University of the Witwatersrand with an average of R 35 806 (Department of Education, 2007).

NSFAS is one of the success stories of South African higher education. It provides funds for capable students who might otherwise be excluded from higher education as a result of poverty. It was initiated in 1995 and formally established as a statutory agency in 2000. NSFAS provides low interest loans to students, of which up to 40% can be converted to a bursary, depending on academic achievement. Repayments begin when the individual's income exceeds R 26 300 per annum. The loans are administered by the institutions and R 1 693 million was allocated to institutions by NSFAS in the 2007 academic year, up by 22% from the R 1 382 million allocated in the 2006 academic year.²² In 2008, NSFAS received R 1 389 482 000 in grants for the higher education sector. Grants came from the South African government via the Department of Agriculture, the Department of Education, the Department of Labour, the Eastern Cape Provincial Government, Department of Social Development and from various other donors.

²² All NSFAS data is taken from the NSFAS 2008 annual report, retrieved on the 11th April 2009 from http://www.nsfas.org.za/resources/0/NSFAS_Annual_Report2008.pdf

Table 12: NSFAS awards to students in public higher education

	2004	2005	2006	2007
Students assisted	98 813	106 852	108 416	113 616*
Awards made	113 693	122 696	124 730	140 901*
Amounts awarded	R 985m	R 1 200m	R 1 382m	R 1 693m
Pass rate, NSFAS students	72.3%	74.3%	73.8%	75.1%
Amounts recovered	R245m	R329m	R392m	R479m

Source: NSFAS 2008 annual report

*Note that number of awards made exceeds the number of students assisted. Statistics provided by NSFAS differ from those reflected in the HEMIS system.

In 2004, 13% of the students enrolled in public higher education benefitted from NSFAS grants and by 2007 this had risen to 15%. Most of the students who benefit from NSFAS awards are women (56%). The highest proportion of awards were made to African students (93%) with 4% going to coloured students, 2% to white students and 1% to Indian students. According to HEMIS data, the number of students who apply for but do not receive NSFAS awards, is increasing.

Is teaching and learning succeeding?

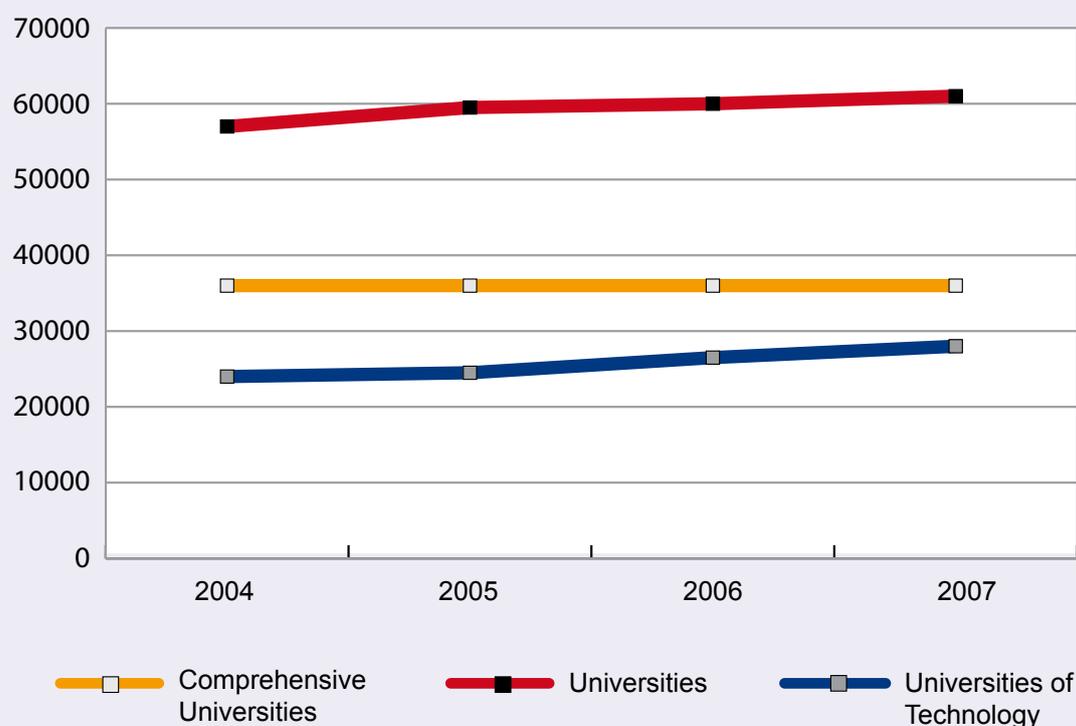
In order to assess whether the higher education system is succeeding in the teaching and learning project, we need to have an understanding of what constitutes success, and what indicators best reflect success or failure. As noted above, the learning and teaching project can be considered to have multiple goals, including self-development and improved employment prospects of individuals, meeting national and regional labour needs and contributing to the economy and society. Measuring the success of these elements is complex and suitable indicators are not always readily available. Here we review some measures that reflect on the success of teaching and learning.

How many people are graduating?

The number of students graduating has increased consistently over the years 2004 to 2007, this despite fluctuating enrolments. In 2004, there were 116 561 graduates and in 2007, there were 126 640. This means that over the period, graduations increased by 8.6% although enrolments increased by only 2%.

The increase in graduations can be seen across all institutional types with universities producing the most graduates. Both universities and universities of technology are producing more graduates, despite relatively stable enrolments in universities and decreasing enrolments in universities of technology. A potential explanation could be that the substantially larger 2000 to 2004 cohort would be completing their qualifications during the period 2004 to 2007. Comprehensive universities on the other hand, have had increasing student enrolments, but stable numbers of graduates. In absolute terms, they enroll more students, but produce fewer graduates than traditional universities.

Figure 11: Graduates (headcount) from public higher education by institutional type



Source: HEMIS

In the public higher education system, African students continue to be the least successful. Although 63% of all the enrolled students are African, they make up only 57% of the graduates. And throughout the system, white students continue to be the most successful. In total about 30% of the graduates produced are white, despite making up only 24% of enrolments. Although the proportion of African students in both enrolments and graduations has increased since 2004, the gap between enrolments and graduations persists.

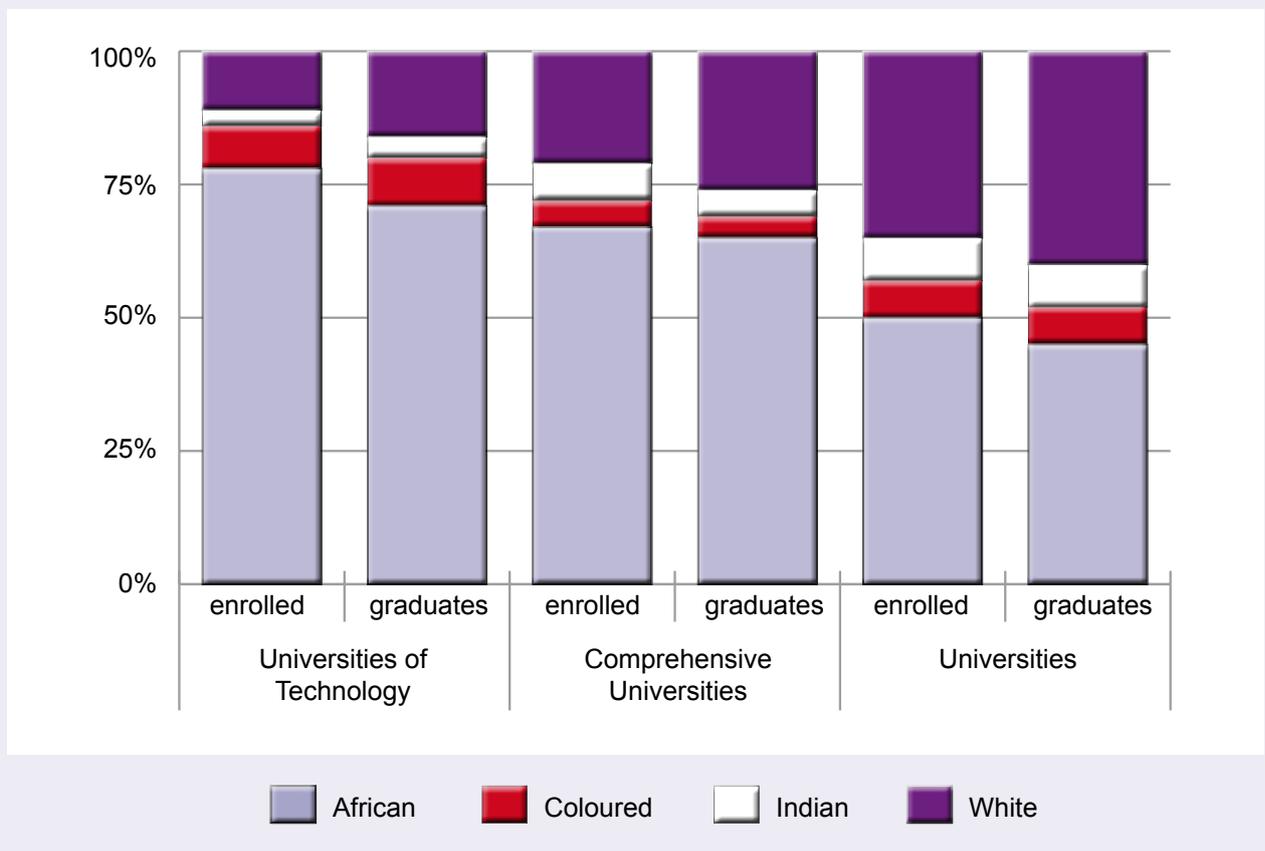
Table 13: Proportion by race of enrolments in and graduates from public higher education, 2004 and 2007

	2004		2007	
	enrolled	graduated	enrolled	graduated
African	61%	55%	63%	57%
Coloured	6%	6%	6%	6%
Indian	7%	7%	7%	7%
White	25%	32%	24%	30%
Total	100%	100%	100%	100%

Source: HEMIS

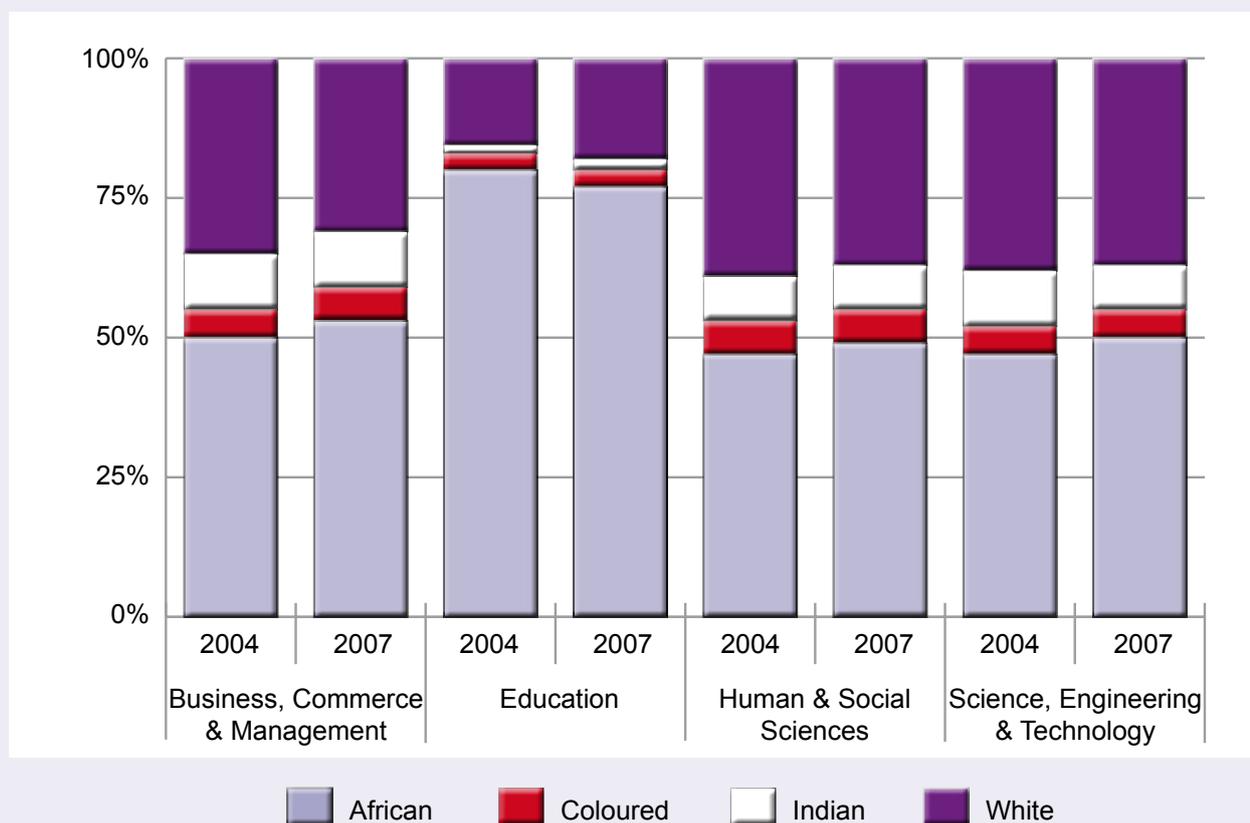
The chart below shows the distribution of enrolments and graduations by race in the different institutional types. Consistent with the profile of enrolments, universities of technology graduate proportionally more African students. In 2007, 77% of enrolments and 72% of graduates from universities of technology were African. At comprehensive universities, African students fare better with the profile of graduates more closely matching the profile of those that enroll. In 2007, 67% of the enrolments and 64% of graduates at comprehensive universities were African. Traditional universities graduate proportionately more white students. In traditional universities African students made up 50% of the enrolment and 46% of the graduates in 2007.

Figure 12: Enrolments (headcount) in and graduations (headcount) from public institutions by race and institutional type, 2007



Source: HEMIS

Figure 13: Graduations (headcount) from public institutions by race and field of study (CESM)

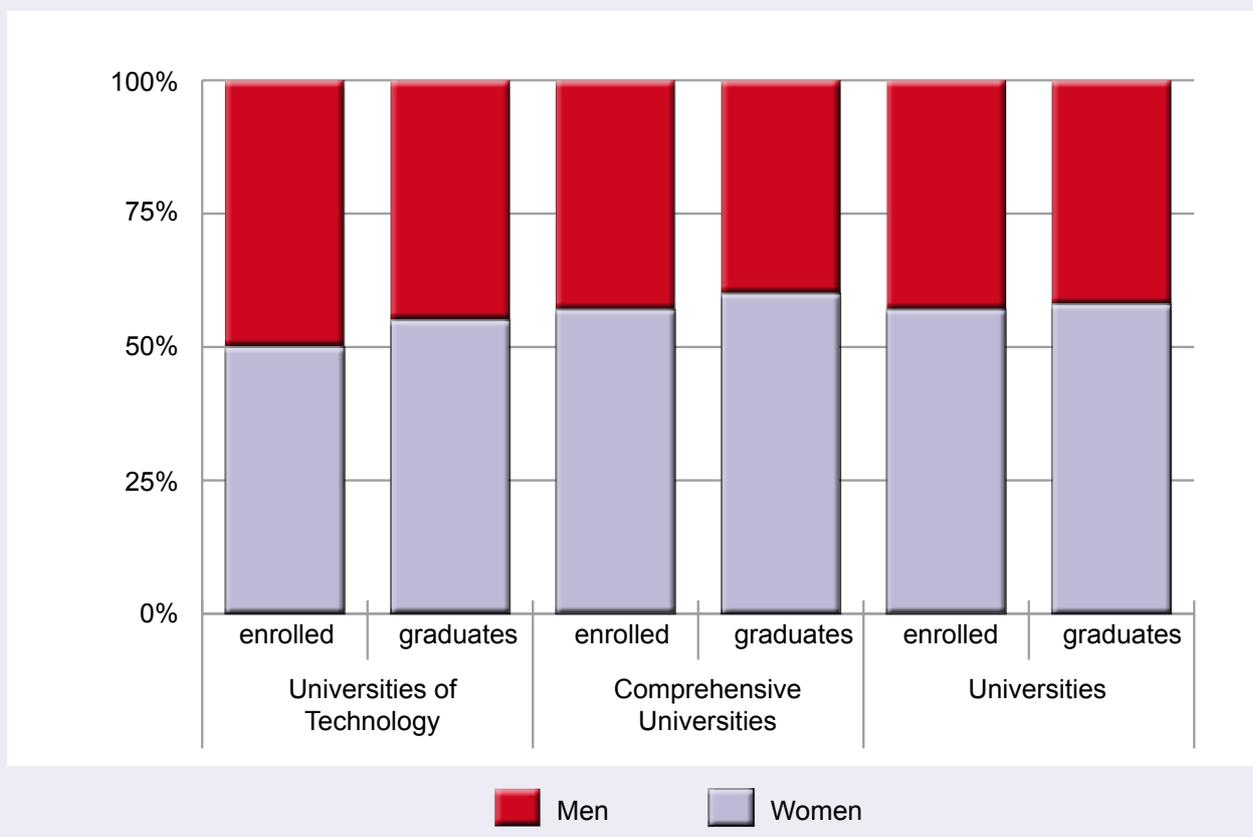


Source: HEMIS

African students are beginning to dominate in the profile of graduates across all fields of study. In 2007, only the human and social sciences (excluding education) had less than 50% African graduates. In business, commerce and management the proportion of African graduates is increasing and those of white students decreasing. Education continues to enroll and graduate a far higher proportion of African students than other fields of study, but there are signs that more white graduates are emerging in this field. In the human and social sciences (excluding education) and in science, engineering and technology, graduates are still disproportionately white, but there has been a gradual increase in the proportion of African graduates.

Overall women are more successful in their studies. In 2007, 59% of graduates were women, although only 55.5% of all enrolled students were women. At the universities of technology, 55% of graduates were women compared with 51% of enrolments. In the comprehensive universities 62% of graduates were women, while women made up only 57% of enrolments. And at the universities, 59% of graduates were women, compared to 56% of enrolments. There was little change in this pattern during the period under review.

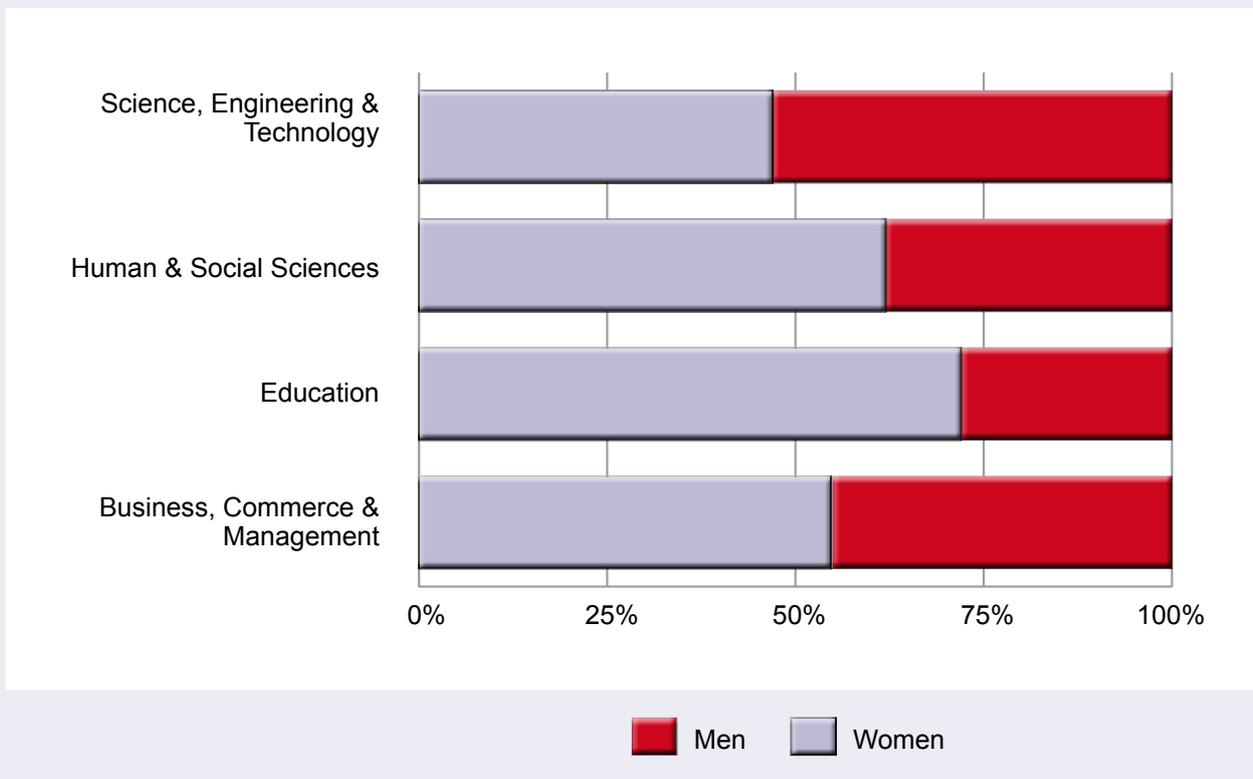
Figure 14: Enrolments (headcount) in and graduations (headcount) from public institutions by institutional type, 2007



Source: HEMIS

Only in the science, engineering and technology fields do more men graduate than women and then by only a small margin. In education more than 70% of the graduates are women and in the human and social sciences, more than 60%. Business, commerce and management showed less of a difference between genders, but still produce more women graduates than men.

Figure 15: Graduates (headcount) from public institutions by gender and field of study (CESM), 2007



Source: HEMIS

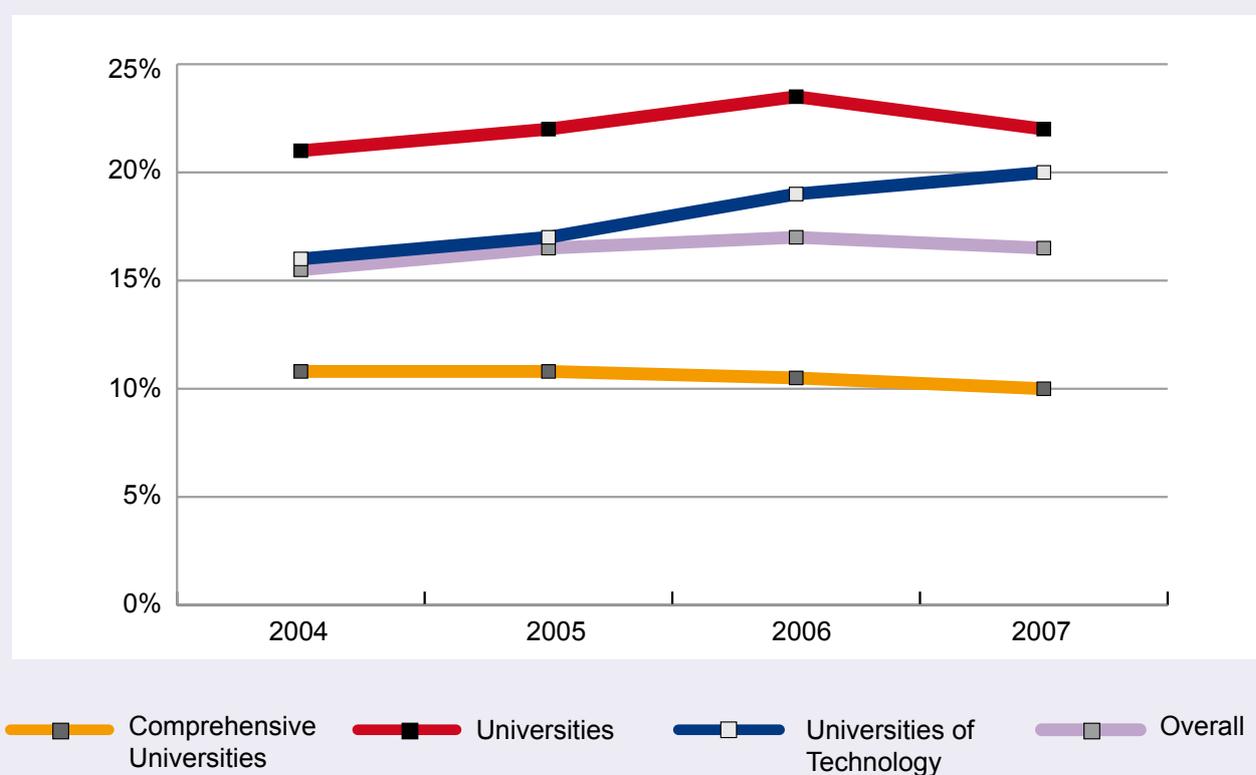
Is the system efficient?

Graduation rates are calculated by dividing the total number of qualifications awarded at an institution by the total number of students enrolled in the same year. This gives a rough measure of the number of years that graduates are staying in the system, but does not take into account fluctuating enrolments or the different durations of degree programs (Steyn & de Villiers, 2006). Because there is a delay of three to five years between first enrolment and graduation, fluctuations in enrolments can have a significant impact on graduation rates. Measuring student throughput is further complicated because students do not follow linear paths through higher education. Students may complete one year of a course and then move to a different course or to a different institution. While these appear as ‘drop-outs’ in measures of the course or institution in question, they may go on to be successful graduates elsewhere (Scott, Yeld, & Hendry, 2007). Although graduation rates are not a particularly accurate indicator of efficiency, in the absence of other indicators, we use them to give a rough view of the efficiency of the system.

Between 2004 and 2007 the overall graduation rate for the public higher education system was around 16%. Out of the three institutional types, comprehensive universities are least successful with graduation rates around 11%. The slight decline in the graduation rate is probably attributable to the rising enrolments in comprehensive institutions over the period. (Graduation rates are also the least

meaningful for comprehensive universities, because students enrolling in distance programs take considerably longer to complete.) Traditional universities, which are likely to attract the best students, have an average graduation rate of 22% between 2004 and 2007 with the fluctuations reflecting the decline in enrolments until 2006 and the increase in 2007. The graduation rate at universities of technology increased from 16% in 2004 to slightly more than 20% in 2007. While the decreasing enrolments at universities of technology over the period contribute to this increase, it appears that these institutions have had some success in improving the rate at which students graduate.

Figure 16: Graduation rates at public institutions by institutional type



Source: HEMIS, Stats SA

Graduation rates also vary by field of study, with the rates being higher in the human and social sciences and lowest in business, commerce and management. An encouraging sign is the steady increase in the graduation rates in science, engineering and technology.

Table 14: Graduation rates at public institutions by field of study (CESM)

	Business, commerce and management	Human and social sciences	Science, engineering and technology
2004	12.3%	18.7%	15.0%
2005	13.1%	19.0%	15.9%
2006	13.5%	19.6%	16.3%
2007	13.6%	18.6%	17.0%

Source: HEMIS

A more accurate picture of the rate at which students move through academic programmes can be obtained using cohort studies that track the number of people in a cohort to graduate after 3, 4 or 5 years and these were initiated for the students who enrolled in 2000. An analysis of the 2000 data has shown that after five years, 30% of students enrolling in 2000 had graduated and 56% had left the institution without graduating. An estimated 10% of those who leave without graduating transfer to other institutions, and taking these students and those still enrolled into account, an estimated 44% of students in the 2000 cohort would go on to graduate (CHE, 2007). By comparison, the Higher Education Funding Council for England projects that 78% of the 2000/2001 cohort in the English higher education system will go on to graduate.²³

The proportion of students who go on to graduate varies over degree programmes. In the professional bachelor's degrees, which are more selective than other programmes, 54% of engineering students and 31% of law students graduate within five years. The rates for the general bachelor's degrees are shown below. (Rates for the distance institutions have been omitted because people studying part-time take longer to complete.)

Table 15: Graduation patterns of first-time entering students starting general academic Bachelor degrees in 2000, excluding UNISA

Subject area	Graduated within 5 years	Still registered after 5 years
Business / management	50%	7%
Life and physical sciences	47%	13%
Mathematical sciences	51%	9%
Social sciences	53%	6%
Languages	47%	7%

Source: CHE, 2007

The 2000 cohort began their studies before the institutional mergers and so the data above is for universities, in the pre-merger sense. At the technikons, between 17% and 34% of students in the 2000 cohort graduated in five years.

Table 16: Graduation patterns of first-time entering students starting national diplomas in 2000, excluding Technikon SA

Subject area	Graduated within 5 years	Still registered after 5 years
Business / management	33%	8%
Computer science	34%	11%
Engineering	17%	14%
Social services / public admin.	29%	6%

Source: CHE, 2007

These figures make it clear that many who enroll in higher education do not graduate, and that the higher education system has room for improvement in this regard. Ongoing cohort studies will make clear how the reconfigured institutions fare and give clearer indications of progress in this area.

²³ Projected graduation rates for 2000/2001 cohort <http://www.hefce.ac.uk/learning/perfind/2003/reports/t5.pdf>

Do the skills and knowledge produced match the national needs?

Graduations by field of study

South Africa produces more graduates in the human and social sciences than in the fields of business, commerce and management and science, engineering and technology. Since 2004 the number of enrolments in the human and social sciences and in science, engineering and technology have grown, while there has been a slight decline in the enrolments for business, commerce and management. Encouragingly, the graduations in all areas of study are increasing.

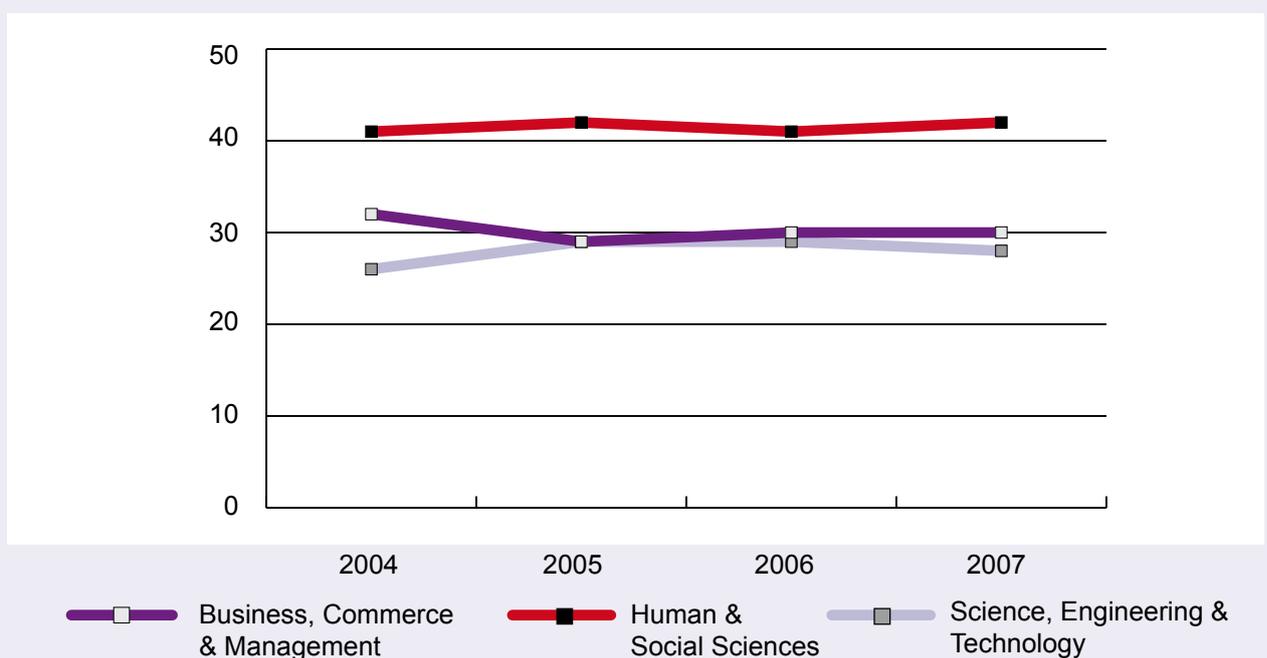
Table 17: Enrolments (headcount) in and graduations (headcount) from public institutions by field of study (CESM)

	Enrolments				Graduations			
	2004	2005	2006	2007	2004	2005	2006	2007
Business, commerce and management	238,534	214,485	223,036	228,860	29,321	28,166	30,096	31,064
Human and social sciences	303,403	309,879	306,399	322,244	56,858	58,736	59,985	60,319
Science, engineering and technology	202,552	210,707	211,585	209,985	30,383	33,506	34,478	35,257
Totals	744,489	735,073	741,380	761,090	116,561	120,418	124,615	126,640

Source: HEMIS

In an effort to ensure that the higher education system produces graduates in line with national needs, the Department of Education set national targets for the proportion of enrolments and graduates by field of study. The targets are 30% for business, commerce and management, 40% for human and social sciences, and 30% for science, engineering and technology (Ministry of Education, 2001). Between 2004 and 2007 the enrolment patterns in public higher education came close to the targets, although in science, engineering and technology, enrolments consistently fell about 2% short.

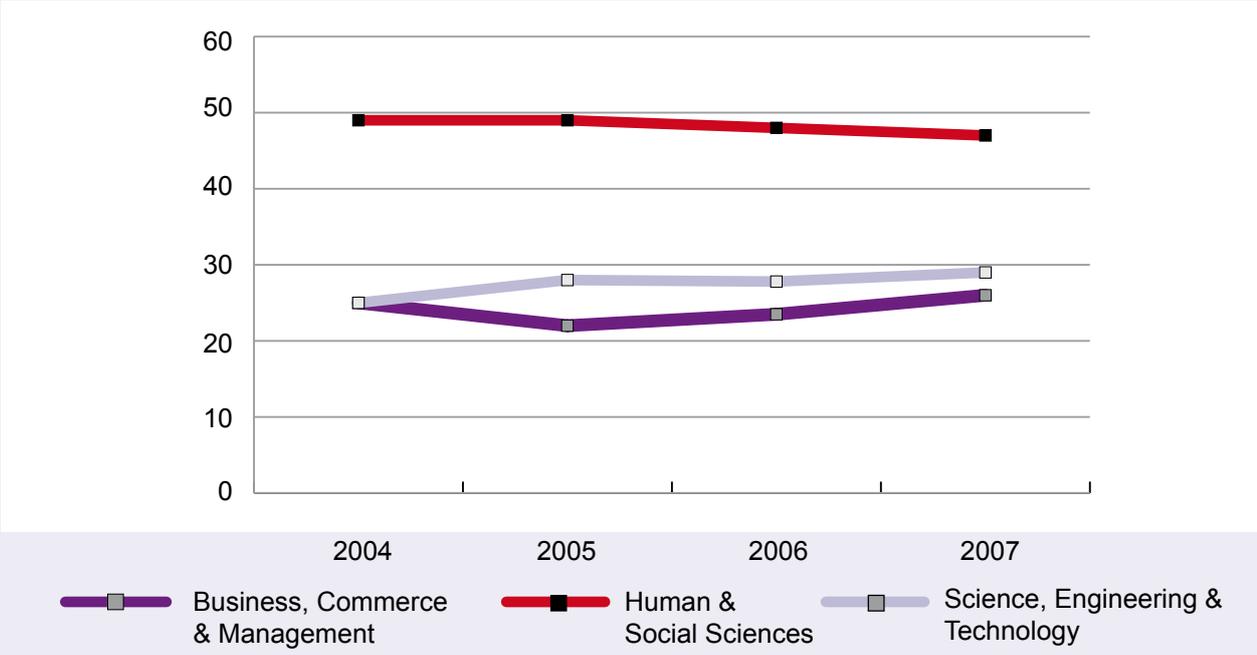
Figure 17: Percentage enrolments in public higher education by field of study (CESM)



Source: HEMIS

Where graduations are concerned, there is a greater divergence from the targets with graduates in human and social sciences above target and those in business, commerce and management and in science, engineering and technology below target.

Figure 18: Percentage graduations from public higher education by field of study (CESM)

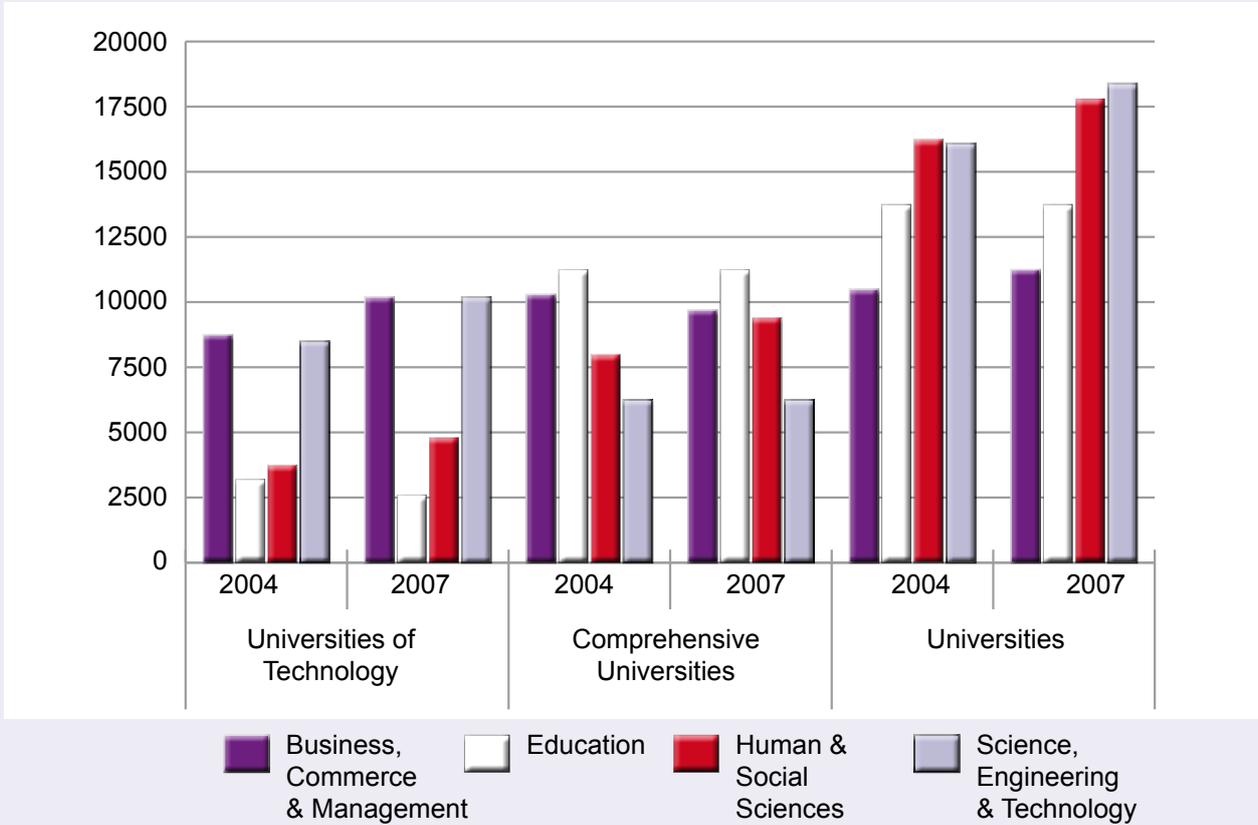


Source: HEMIS

As is to be expected, universities of technology produce more graduates in business, commerce and management and in science, engineering and technology. Comprehensive universities produce more graduates in the human and social sciences, particularly in education, while the traditional universities produce proportionately more science, engineering and technology graduates and fewer business, commerce and management graduates than do the comprehensive institutions.

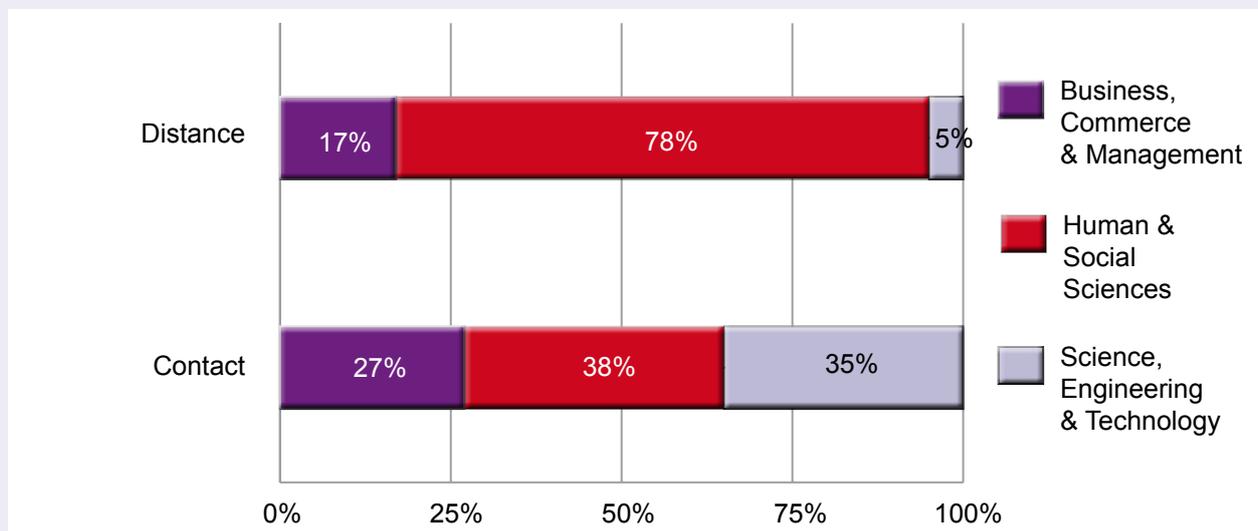
Comparing 2004 with 2007, both universities of technology and universities graduated more students in science, engineering and technology. All institutions increased the number of graduates in human and social sciences. The number of business, commerce and management graduates increased at the universities of technology, but decreased at the comprehensive institutions.

Figure 19: Graduates (headcount) from public institutions by field of study (CESM) and institutional type



Distance education continues to produce graduates predominantly in the human and social sciences and in business, commerce and management. Few distance students complete programmes in science, engineering and technology. This pattern has remained unchanged since 2004.

Figure 20: Proportional graduations from public institutions by learning mode and field of study (CESM), 2007



Producing professional and high level skills for specific labour markets

There is a lack of statistical information on the labour market with which to monitor the demand for graduates. Information can be obtained from the State Education and Training Authorities (SETAs), in their Sector Skills Plans, but the approaches taken by the different SETAs differ and the use of empirical research in arriving at their results is not uniform. There has been some research done on the supply of skills to the professions which indicates that the higher education sector is meeting the demand for professionals. However, most professions experience skills shortages in the rural areas and ongoing migration out of the country and into other sectors continues to deplete skills. Here we review the situation for some key professions.

South Africa has a small, but rapidly growing advanced manufacturing sector. While the economy is primarily resource-based, the growth of high-technology exports is exceeding the growth of total exports by a high margin. High-growth exports are in the areas of automatic data-processing machines, transistors and valves, telecommunications equipment, rotating electric plant, steam engines and turbines, and optical instruments and these industries employed an estimated 6000 high-skilled workers in 2004. A growth of at least 20% is expected in these industries. Although the Sector Skills Plans of the three SETAs that cover high-technology manufacturing²⁴ and the Department of Labour's 2005 State of Skills report do not quantify the critical skills needed at different levels, "there is no high-level skills emergency in the country at present" and the supply of high level skills in advanced manufacturing presents "no cause for alarm" (Kraak, 2008, pp. 345-364). There are, however, particular areas in which skills are in short supply or decreasing. These include most areas of computer science, where graduations are declining by around 5% per year; several areas of engineering (with different rates of decline); pharmaceuticals, where graduations are declining at 8% per annum; and physics, where the decline is about 2% per annum.

The demand for financial services professionals, including financial managers and accounting professionals, is influenced by economic growth, globalization, policy and legislation and technological change, but it is difficult to quantify. During the first half of the 2000s, the financial services sector outperformed the rest of the economy and was a major contributor to overall growth, but it also experienced significant job losses, linked to technological change. Job losses are at the lower skills level (clerical and sales staff) and are accompanied by increasing demand for professional and other high-level skills. The growth in financial services graduates from public universities has been strong, but the growth in membership of professional bodies is slower. This suggests that universities are able to meet the demand, but that professional registration is not always necessary, or that stringent professional standards and the duration and cost of professional admission programmes are obstacles to full membership (Kraak, 2008).

Two professional bodies, the South African Institute of Chartered Accountants (SAICA) and the Association for the Advancement of Black Accountants of Southern Africa (ABASA) run a programme²⁵ aimed at supporting students through high school, university undergraduate programmes and the qualifying examinations for the chartered accountant profession. The programme also supports capacity development in higher education institutions. University students who are supported have had consistently high pass rates and graduation rates suggesting that this is a successful model for supporting professional development, particularly of black professionals (Kraak, 2008).

²⁴ CHIETA, MERSETA and ISETT

²⁵ funded by the National Skills Fund, the Seta for Finance, Accounting, Management Consulting and other Financial Services (FASSET), provincial Departments of Education, the Department of Science and Technology and other donors.

In 2005, South Africa had 4 387 registered animal health professionals.²⁶ Most were white and working in small urban practices. Research has shown that young black people have little awareness of this career option and do not enroll in veterinary programmes (Kraak, 2008). A 2005 study found that only 59% of all government veterinary posts were filled and there are indications that, if the skills were available, the sector could accommodate a substantial increase in the number of government and parastatal veterinary posts. Skills are also in demand from private enterprises, particularly in sales and marketing of products related to animal health; and from private practice. As in other sectors, the skills shortages are most pronounced in rural areas. The public universities produced 137 veterinary graduates in 2001 (Kraak, 2008). The number of Bachelor of Veterinary Science graduates is limited by the number of places in universities, but there has been targeted funding for increasing these places, and this appears to be paying off. The number of veterinary health sciences graduates for the years 2004 to 2007 were 190, 269, 209, and 208 respectively, representing an average annual growth of 6%.

Pharmacists are critical for the South African healthcare sector, not only in their traditional role of dispensing medicines; many South Africans use pharmacists as alternatives to primary healthcare to which they lack access. In addition, the plan to roll out anti-retroviral drugs nationally required an additional 661 pharmacists between 2003 and 2008. Changes in legislation in the early 2000s have made retail pharmacy less profitable and there were fears that this would make pharmacy a less attractive choice for students. Indeed, enrolments have declined in recent years and graduates in the pharmaceutical sciences declined from 696 in 2004 to 544 in 2007, an average annual decrease of 8%. Taken over the longer term, this decline is not alarming as there were fewer than 400 graduates in each of 2001, 2002 and 2003. The Department of Health's National Human Resources Plan (2006) set as a target an annual output of 600 pharmacists, to be reached by 2010. When projected demand for pharmacists is compared with the output from higher education, "sufficient numbers of new pharmacists will be produced" between 2006 and 2015 (Kraak, 2008, p. 410). While the public health sector continues to report high levels of vacancies for pharmacists, these vacancies tend to be in rural areas. What skills shortages there are, result from an uneven distribution of skills across rural and urban areas, and from the flow of skills out of the country (Kraak, 2008).

The higher education system has been offering a four-year LLB since 1998. During the time under review the three-year B Juris and four-year B Proc degrees have been phased out and the four-year LLB has attracted increasing numbers of students. Practising as an attorney or an advocate involves further vocational training and examination, but university studies continue to be the biggest obstacle to the legal professions because "most of the people who leave the pipeline that runs from universities through to the attorneys' profession do so in the course of their university studies" (Godfrey & Midgely, 2008, p. 77). Of the students who enter the LLB programme, 37% end up practising as attorneys. Law graduates also go on to become legal advisers and, in the public sector, state attorneys, prosecutors, state advocates, legal advisers, magistrates or judges. There has been a considerable increase in the demand for law professionals due to the expansion of the National Prosecuting Authority and the Legal Aid Board. Despite this increase in demand, "there is an adequate supply of qualified law professionals coming into the profession" and "there are more than adequate supplies of law professionals to replace those retiring from the profession" (Godfrey & Midgely, 2008, p. 71). There are, however, relative scarcities of African and female law professionals and of law professionals in rural areas (Godfrey & Midgely, 2008).

Worldwide, a lack of engineering skills is hampering development and the impact on South Africa is particularly severe because the country is in the process of extensive infrastructure development. Engineering skills include professional engineers, engineering technologists, and engineering

²⁶ Of which 127 were pensioners and 50 were registered as living abroad.

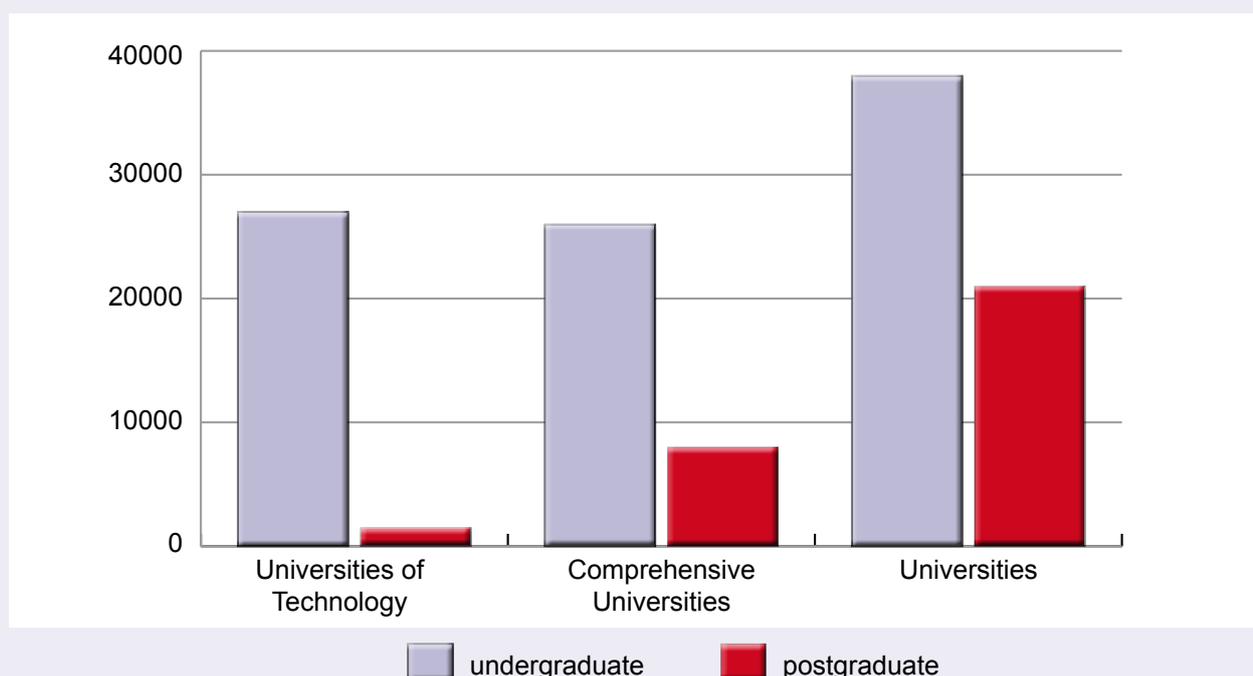
technicians, as well as certified engineers. South Africa has relatively more engineers than it has engineering technologists, meaning that many graduate engineers are underemployed, doing the work of technologists or technicians (Kraak, 2008).

The number of graduates with engineering qualifications showed a steady increase from 6 032 in 2004 to 8 381 in 2007.²⁷ The most significant gains were in aeronautical, geological, metallurgical, mining and nuclear engineering and in surveying and mapping. There were decreases in graduations from agricultural engineering, bio-engineering, computer engineering, engineering mechanics, and marine engineering. Between 2000 and 2004, the number of engineering graduates grew at a steady 4% per annum. Since 2004, the growth has been more rapid, averaging 12% per annum. At the universities of technology, which produce engineering technologists and technicians, the number of graduates grew between 2000 and 2004 at 18% per annum. This rate of growth has slowed to an average of 13% per annum between 2004 and 2007. Research has concluded that, “the tertiary education system seems to be in touch with industry demands, in that it offers broad-based engineering degrees that are flexible in responding to changes and demands in the work environment and is increasing the number of engineering graduates” (Kraak, 2008, p. 452). What is needed is incentives to attract people into the areas of greatest skills shortages, and to attract more women into engineering.

Meeting the need for higher level professional and research skills

The South African higher education system is primarily an undergraduate teaching system. This is obvious when one considers that even in the universities, 64% of qualifications awarded are at the undergraduate level. At comprehensive universities, 76% of qualifications awarded are at the undergraduate level and at universities of technology, the proportion rises to 96%.

Figure 21: Graduates (headcount) from public institutions by level of study and institutional type, 2007



Source: HEMIS

²⁷ All data in this section taken from HEMIS, 2007

Because postgraduate courses have been recently introduced at many of the universities of technology, the numbers graduating are small. But they are increasing rapidly; from 451 in 2004, to 1 211 in 2007. At comprehensive universities, the number of postgraduate students who graduated stayed more or less the same. In 2004 it was 9 026 (25% of graduates) and in 2007 it was 8 268 (24% of graduates). But at universities there was a steady decline from 23 578 in 2004 (42% of graduates) to 21 430 in 2007 (36% of graduates). This decrease in postgraduate level awards, both in number and in proportion, is particularly worrying in that fewer high-level skills are being produced. The downward trend also applies to research master's graduates and indicates that the higher education institutions are not producing sufficient research graduates who will go on to become researchers. The output of research postgraduate degrees is examined in more detail in the following chapter.

The skills produced by the private higher education sector

While we do not have complete data on the enrolments in private higher education institutions, we do know what qualifications they offer. Since the majority of these institutions are profit driven, it is likely that the courses offered reflect the demand by students. Where institutions focus on specific sectors, it is likely that they reflect more closely the needs of those particular sectors. In 2003, an analysis of enrolments in private higher education institutions showed that 48% were in education and training, 20% were in business, commerce and management and 9% were in the sciences (HSRC, 2003). There has been no subsequent research into enrolment patterns in private institutions.

Table 18: Fields in which private higher education institutions offer courses

	Offer courses	Dedicated institutions
Business colleges	34	20
Theological colleges	21	20
Information technology	17	5
Health and beauty	16	13
Media and visual arts	15	12
Fashion and interior design	9	6
Education	6	2

Source: DoE

Of the 103 private higher education institutions that are registered or have provisional registration, 34 offer courses in business including aspects of management and administration. Many of the business qualifications are focused on particular sectors such as public administration, tourism, or financial services. Others focus on particular job functions such as marketing, human resources management, purchasing or secretarial skills. Seventeen of the institutions offer courses in aspects of information technology.

Theology is well represented with twenty dedicated theological colleges. Other institutions focus in niche areas including health and beauty, media and the visual arts, and fashion and interior design. Two institutions focus on education. There are several institutions which offer a range of courses across these areas of specialization.

Concluding comments

Teaching and learning with a view to producing skilled and knowledgeable graduates is arguably the primary task of South African higher education. Concerns are to ensure that sufficient numbers of people have access to higher education, that they successfully complete their studies and that graduates have the skills and knowledge needed.

The number of people enrolling in higher education has increased, but since the participation rate continues to be around 16%, this increase reflects the increasing population and does not mean that proportionately more people get into tertiary education. Access is still heavily skewed by race with relatively high participation rates for people classified white and Indian, and relatively low participation rates for people classified African and coloured. The imbalance is most obvious at universities and least noticeable at universities of technology. More African students enroll for courses in education, but otherwise there are no significant differences in the race of students enrolling in the three broad fields of business commerce and management, human and social sciences, and science, engineering and technology. Gradual change is being observed with marginally more African students and marginally fewer white students enrolling. The gender profile of the student body is stable, with little change. There are more women than men in the higher education system, but men continue to dominate in enrolments in science, engineering and technology.

In 2007 almost 38% of students in higher education were studying through distance programmes showing that distance education fulfils an important role in expanding access to higher education. Attracting foreign students was identified as a potential source of growth, but here there has been little progress. In 2007, 8% of the student body was made up of foreign students with little change since 2004. Data is not available on the number of people enrolling in private higher education, although the number is thought to be considerably smaller than in public higher education. Although many private higher education institutions focus on niche areas and on lower-level skills training, there are some providing more general degree courses and there is potential for this sector to grow. NSFAS has increased access to poorer students and 15% of students in public higher education benefitted from this scheme in 2007. But more students apply for than are granted loans and the expansion of this scheme could increase access.

The public higher education sector produces a steady stream of graduates across a wide range of disciplines and between 2004 and 2007 graduations have increased more rapidly than enrolments. But there are ongoing racial and gender differences in the rates at which students succeed. On the whole a higher proportion of white students graduate than enroll and a lower proportion of African students graduate than enroll. As far as gender goes, a higher proportion of women graduate than enroll. While the proportional increase in graduates does indicate increasing efficiency in the public higher education system, we have limited ways to assess this efficiency. Graduation rates do not give a meaningful reflection of how many students are succeeding. Cohort studies that track the progress of students enrolling in a particular year, give a more meaningful picture. Current estimates are that 44% of the cohort that enrolled in 2000 will go on to graduate. As more cohort studies become available it will be possible to detect whether this situation is improving or not.

To the extent that data is available, it appears that the higher education system is meeting the country's needs for high level skills in many areas. In particular it has responded well to the national need for engineers, with a significant increase in the number of graduates with engineering qualifications.

Universities of technology have the potential to contribute further, particularly in increasing the number of engineering technologists and technicians. There are, however, niche areas in which skills are in short supply. And there is a worrying decrease in the number of students graduating with postgraduate qualifications.

The chapter identified several gaps in the data which will need to be addressed in future. In particular there is no systemic data about the enrolments in and graduations from private higher education. There is little data about the demand for graduates or systematic evaluations of the quality of graduates. And there is no reliable data about the prevalence of disability in the student body or about the impact of HIV and AIDS on the student body.

4. Sustaining and promoting research

Introduction

The higher education sector is one component of the National System of Innovation (NSI). The expenditure on research and development by public higher education in 2005/6 was comparable to that of government and the science councils (19% compared to 21%), but less than half what the business sector spent on research and development in the same period (R8.243m or 58.3%). As far as research output in scientific journals is concerned, higher education dominates the NSI. In 2007, academics at public universities produced 86% of all Institute of Scientific Information (ISI) indexed papers with a South African address. In the same year, these institutions produced 1274 PhDs and 3442 research master's graduates. The higher education sector produces more basic research than other parts of the NSI. Forty-two percent of research in higher education was classified as basic research in 2005/6 compared to slightly more than 25% of that produced by government and science councils. But the higher education sector still produces more applied research and experimental development than basic research.²⁸

In the 2004 review, it was argued that research within the higher education sector had been influenced and guided by developments within the National System of Innovation and debates in science policy at large and to a lesser extent by developments within the sector during the 1990s and early 2000's. Policy documents including the White Paper on Science and Technology (1996) and the National Research and Development Strategy (2002), shaped discussions about science and innovation priorities as did instruments such as the Innovation Fund and the Technology and Human Resources for Industry Programme (THRIP). Since 2003, the nature and direction of research within the sector has increasingly been influenced and shaped by new policy developments and initiatives within the sector itself. Besides the changes that the reshaping of the sector through the mergers of universities and technikons would bring about, other significant developments included the new funding framework introduced by the Department of Education in 2003, and the launch of the Centres of Excellence and Research Chairs initiatives by the National Research Foundation in 2006. To these one should add initiatives to promote PhD production (by the DST and NRF) as well as the NRF's decision to expand its system of rating scientists to scholars in the humanities and social sciences in 2005.

Although it is still too soon to see the full effects of these initiatives, this chapter reflects on their impact on knowledge production in the sector. In an important sense all of these initiatives could be read as re-affirming the research priorities listed in the 2001 National Plan for Higher Education. The National Plan identified the need for increased postgraduate output as well as increases in research production (books, articles and conference proceedings) as key priorities for the sector. It also emphasized that existing research capacities and strengths needed to be sustained and new centres of excellence developed. Finally, it pointed to the need to facilitate collaboration and partnerships, especially at the regional level, in research and postgraduate training.

What is the state of research at South African universities today? What have been the major shifts over the past five years, and what are the main drivers and shaping forces behind these shifts? What is the state of and future prospects for the base of researchers on which the country depends for research?

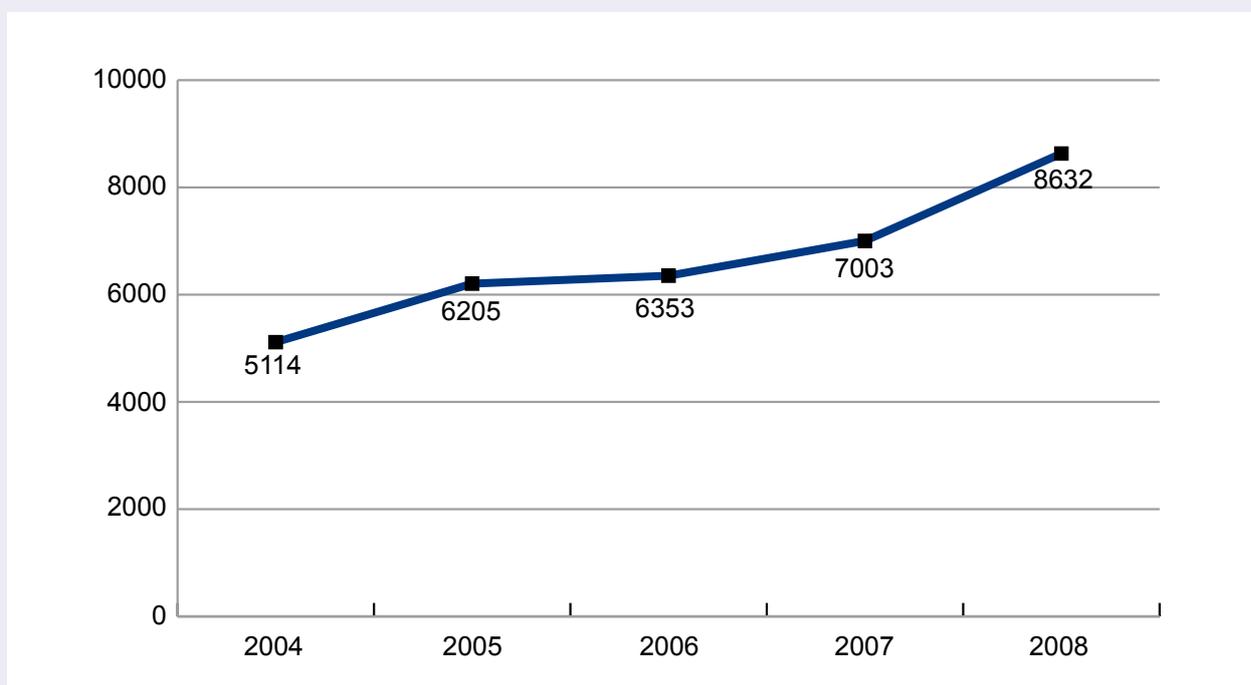
²⁸ According to the information in *SA Knowledgebase*, a bibliometric database housed at CREST which contains bibliographic and demographic information on scientific articles produced in accredited journals since 1987 by South African authors.

What research is being produced?

Between 2001 and 2007, South Africa produced 38 238 ISI-indexed research papers in areas that included medical science; southern African studies; marine science; veterinarian science; philosophy; wildlife; psychology; astronomy and astrophysics; and education. The NRF's Focus Area Programme was launched in 2001 with a view to "stimulating, facilitating and supporting collaborative, multi-/interdisciplinary and relevant research" (Marais, 2007, p. 12). A review of this programme undertaken in 2007 showed that it had resulted in the research system becoming more closely aligned with national objectives and in institutions "redirecting their programmes more towards relevant and multidisciplinary research" (Marais, 2007, p. 63).

The research output for South Africa outweighs that of the rest of the southern African region and amounts to 64% of all research undertaken in Africa (Yusuf, MacKenzie, Shall, & Ward, 2008, p. 29). A search in the Institute of Scientific Information (ISI) indexes²⁹ for papers originating from South Africa, shows that there has been a steady increase in research output with an overall growth rate for the last five years of 69%. This translates to an average growth rate of 14.3% per annum in ISI outputs over the period.

Figure 22: South African authored ISI papers



Source: ISI Web of Science

²⁹ Including the Science Citation Index Expanded, the Social Sciences Citation Index and the Arts & Humanities Citation Index.

Five universities – the University of Cape Town, Pretoria University, Stellenbosch University, the University of the Witwatersrand and the University of KwaZulu-Natal – dominate the production of research in South Africa. Together they produce more than 60% of all research and post-graduate output. The other main contributors to South Africa's research output are the nine science councils (most notably the CSIR, HSRC and ARC), the national research facilities (e.g. South African Astronomical Observatory and the Hartebeesthoek Radio Astronomical Observatory) and some government research institutes (such as the National Health Laboratory Services and the South African National Biodiversity Institute).

South Africa's public universities are directly rewarded for the research output of their staff. The amount of the award is based on publication units which differ by the type of research output. The period under review saw the implementation of the new funding framework, promulgated in 2003 and coming into effect in 2005, that made significant changes to the funding of research. These changes effectively increased the monetary amount awarded for each publication unit and resulted in a more direct relationship between the research outputs and the reward, as is discussed in more detail in Chapter 5. It is worth noting here, that only a prescribed range of research outputs, including publication in a list of journals approved by the Department of Education, are recognised for such funding.

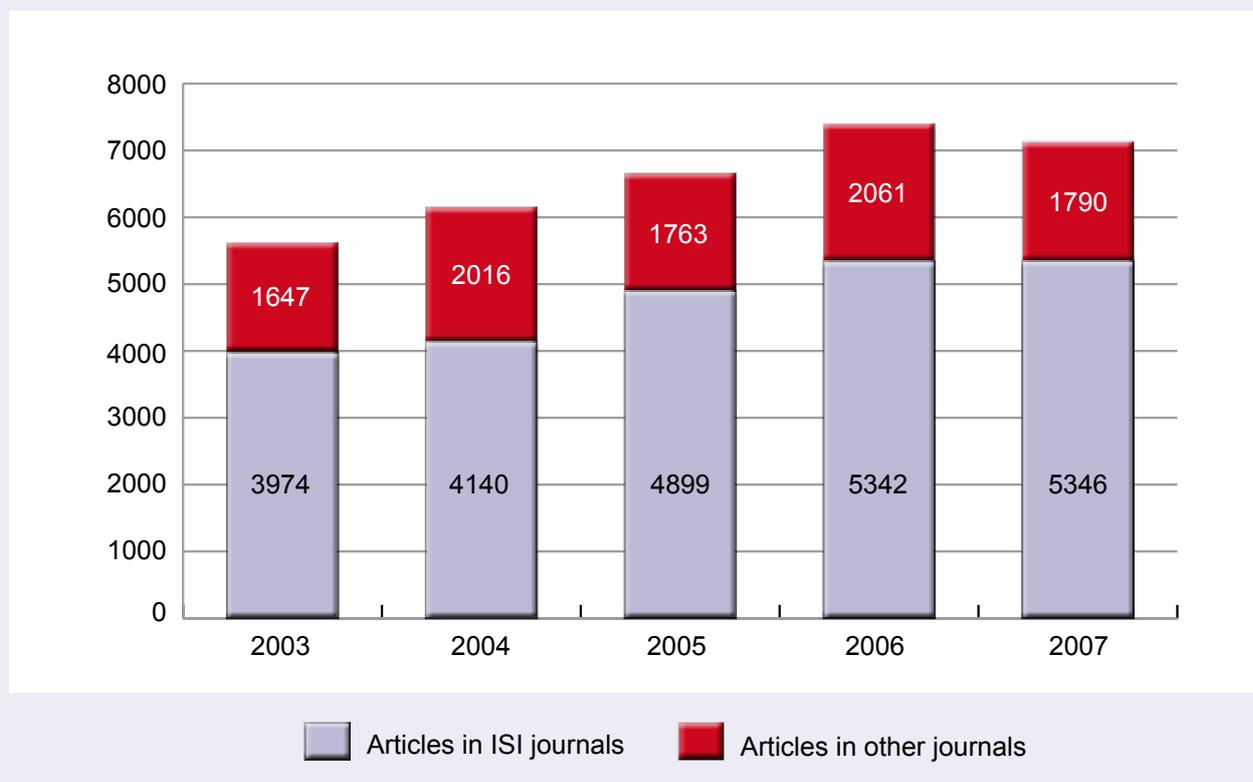
At present private higher education institutions contribute little to national research production. Research output information could only be found for two private institutions. St Augustine College lists 13 journal papers and 7 book chapters published in 2008. Monash South Africa lists 12 journal papers and 3 monographs / book chapters in their research report for 2007/08. It is not known how these publications compare to publications at the public institutions, because there is no requirement for private institutions to report research outputs in the format prescribed by the Department of Education. A search of the ISI indexes revealed one publication by a private higher education institution in South Africa between 2004 and 2008.

The change in the funding framework appears to have had an impact on the output of research in the form of articles in scientific journals. Journal articles attract funding if they appear in a list of accredited journals which includes journals that appear in the ISI indexes, the International Bibliography of Social Sciences (IBSS) or on a list of approved South African journals.³⁰ Based on information captured in *SA Knowledgebase*, the research article output at South African universities remained stable until 2003 when there was a significant upward trend that continued until 2006, when the system reached a peak of 7400 article units. The increase in research output from 2004 is clearly illustrated in the figure below.³¹ A further increase in ISI outputs, indicated above for 2008, is not yet reflected in the journal articles reported by public institutions.

³⁰ For more details see Chapter 5.

³¹ The *SA Knowledgebase* database contains publications reported by institutions for subsidy purposes. Since it reflects fewer articles than the ISI Web of Science, it appears that institutions are underreporting their research output.

Figure 23: Journal articles reported by public institutions for subsidy



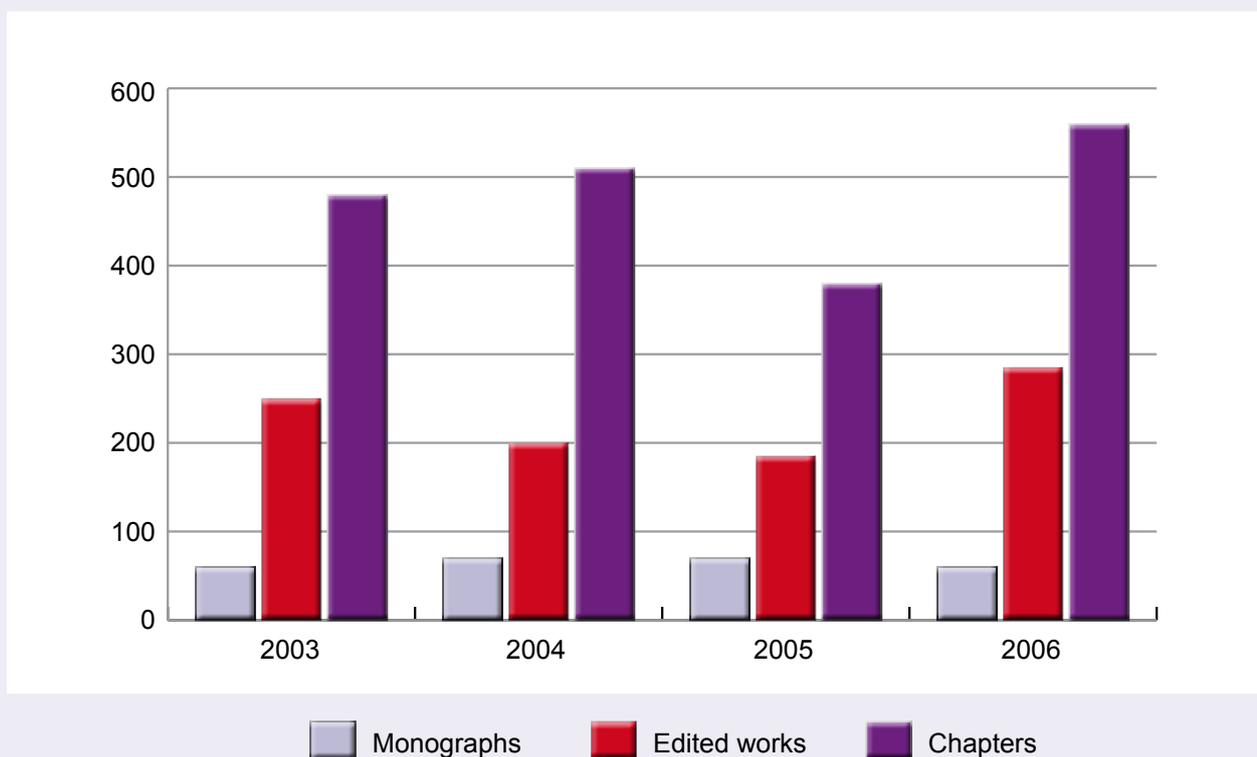
Source: HEMIS

The increase in output from 2004 onwards cannot be explained by increased academic capacity in the system since there has not been any significant growth in permanent academic staff numbers over this period, although contract staff may be contributing. There is anecdotal evidence that would suggest that universities are using incentives to increase staff contributions and mobilizing their postgraduate students as well as visiting scholars and fellows in order to increase their research output. There has also not been any increase in the number of locally accredited journals. One plausible explanation for the growth in output is the increased monetary values to be earned by such publications. Many universities have increased the monetary amounts that are passed on to individual authors as reward for publishing in accredited journals, further encouraging production. Also, given that research is an international endeavour and there is an international trend towards increasing research output, the increases could also be a result of individuals pursuing higher professional standing and prestige.

The funding framework also supports the publication of books and chapters in books. Books are defined as any “peer reviewed, non-periodical scholarly or research publications disseminating original research on developments within a specific discipline, sub-discipline or field of study.” A book is subsidized to a maximum of 5 units or portion thereof, based on the number of pages being claimed relative to the total number of pages of the book, if all the authors are affiliated to the claiming institution. Examples of different types of books include:

- Monographs, which are relatively short books or treatise on a single scholarly subject written by a specialist(s) in the field and are generally not extensive in scope.
- Chapters, which are one or more major divisions in a book, each complete in itself but related in theme to the division preceding or following it.
- Edited works, are collections of scholarly contributions written by different authors and related in theme.

Figure 24: Research output by type of publication, 2003 - 2006



The number of monographs for which subsidy is claimed averages around 60 titles per year. The output of chapters in collected works increased steadily between 2001 and 2004, but decreased in 2005. This decrease was also evident for the number of collected works in which these chapters appear, although here the decrease already started in 2004. On average, between 2003 and 2007, there were 222 collected works and 484 chapters per year.

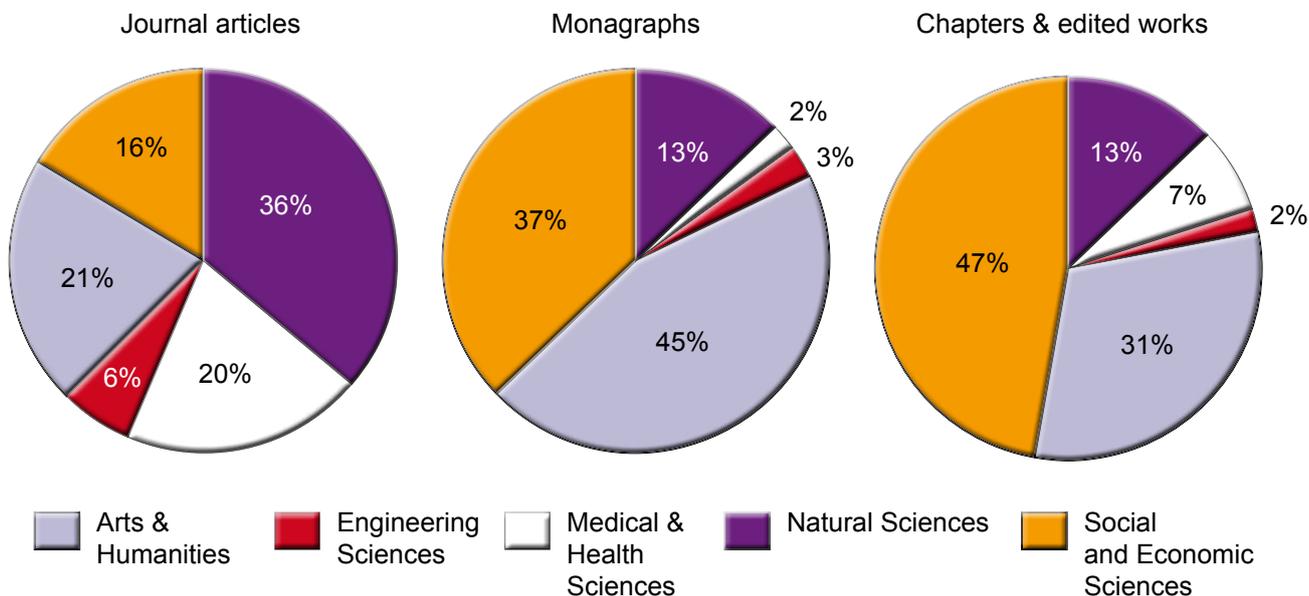
A 2007 web-based survey of scholars in South Africa³² found that significant proportions (between 45% and 69%) of South African scholars regard monographs and journal articles as equally important modes of knowledge dissemination. Large majorities (more than 60%) of scholars in all fields also agreed with the statement that monographs are important modes of knowledge dissemination and respondents in the Arts & Humanities (31%) and Social Sciences (20%) regard monographs as essential modes of knowledge dissemination. Large proportions of respondents (60 to 90%) in all fields indicated that they believe that writing chapters in collected or edited works is important to synthesize existing knowledge. A similar pattern applies to contributions to peer-reviewed conference proceedings as an acceptable form of knowledge dissemination with between 64% and 90% of all respondents indicating their agreement with this statement.

Research output in the form of monographs, chapters in collected works and published conference proceedings attracts approximately 10% of the overall annual research outputs funding. Despite the importance accorded to monographs by scholars in the humanities and social sciences, the annual production of monographs has remained quite stable at around 60 per year for the past four years. The reason for this may be found in the research subsidy system which does not reward the production of monographs at a level commensurate to the time investment required to generate these outputs. It is easier for a scholar to publish five journal papers (irrespective of length) than to put together a substantive monograph, but these two forms of output attract the same monetary reward. In addition, opportunities for publishing monographs are limited with few commercial publishers or even university presses interested in such ventures. International trends in academic publishing, increased global research competitiveness and the emergence of university ranking systems which lean heavily on ISI citation profiles, all militate against publications of monographs and or collected works.

How are the disciplines represented in the different types of research publications? The figure below presents the breakdown by broad disciplinary area for output in accredited journals, monographs, and chapters and edited works from 2001 to 2006.

³² CREST, October-November 2007

Figure 25: Research output by field of study, 2006



All of the broad disciplinary areas publish in journals. The natural sciences account for 36% of journal articles, arts and humanities 21% and social and economic sciences account for some 20%. These ratios have remained relatively stable. The picture is different for monographs where the majority are from the humanities (45%) and social sciences (37%). The annual output per field has not changed significantly since 2001 although there have been very few titles in engineering and health sciences in the past two years. The majority of edited works published between 2001 and 2006 were published in the social and economic sciences (47%) and the humanities and arts (31%).

In 2006, slightly more than half of monographs (56%) were published by foreign publishing houses, and this proportion has remained relatively stable over the past six years. The majority of titles in engineering and natural sciences were published by foreign publishers. Half of the monographs published by South African publishers were published by commercial publishers, one quarter by university presses and the remainder by university research centres, science councils and other publishers. During the same period, the majority of collected works (78%) were published by foreign publishers.

The practice and visibility of South African research

The policies of the apartheid government resulted in the gradual and widespread isolation of South African science and scientists between 1948 and 1994. Since 1994 there have been efforts to end this isolation, reinforced by worldwide globalization dynamics as well as the internationalization of academic institutions and the increased mobility of scientists and students. Policy statements for higher education and science have urged local scientists to increase their own forms of international scientific collaboration. This section focuses on the international “visibility” of South African university research. This analysis is confined to papers in ISI-citation indexes as it allows for comparison with other countries, and for the possibility of citation analyses. It is based on data produced by the Centre for Science and Technology Studies (CWTS) at the University of Leiden of all South African authored papers published between 1995 and 2007 in ISI-journals. It looks at overall trends in scientific collaboration (as measured by co-authorship) and at trends in visibility or impact (as measured by the field-normalized citation score³³).

Collaboration patterns

There are various ways to measure scientific collaboration; one of the standard and widely used bibliometric measures looks at patterns of co-authorship over time. Authorship patterns can be considered in three categories: single institution papers where the paper is authored by one or more authors from the same institution; national collaborative papers where there is collaboration with at least one other research institution within South Africa and international collaborative papers where there is collaboration with at least one foreign research institution. Data was not available for all the public institutions, so this analysis considers the following groupings: The five most research-productive universities (University of Cape Town, University of the Witwatersrand, Stellenbosch University, University of KwaZulu-Natal and Pretoria University), the remaining research-productive universities for which data was available (University of the Western Cape, North-West University, University of the Free State, University of Limpopo and Rhodes University) and the three comprehensive universities for which data was available (UNISA, University of Johannesburg and Nelson Mandela Metropolitan University).

As one might expect, there was an increase in the absolute numbers of internationally co-authored papers over the four-year period. The proportion of international collaborative papers is higher and the proportion of single institution papers is lowest for the five most research-productive universities. The three comprehensive universities produce proportionately fewer international collaborative papers. There was also an increase in national collaborative papers produced across all three groups of institutions, although at the universities, this was at a slower rate than the increase in international collaborative papers.

While the remaining research-productive universities produce substantially less research, they have shown higher increases in all three categories of publications in the past four years, with a particularly high increase in international collaborations. For the three comprehensive universities, the most significant increase was in national collaboration. No comparable data was available for the Universities of Technology.

³³ The field-normalized citation score (CPP/FCS) is represented by the mean citation rate of the fields in which an institute or – in this case – a country is active. The CWTS definition of fields is based on a classification of scientific journals into categories developed by Thomson Scientific. Although not perfect, it is at present the only comprehensive classification system that can be automated and updated consistently in our journals-based bibliometric information system. In summary: CPP/FCS indicates the impact of an institute/group’s articles, compared to the world citation average in the (sub-)fields in which the institute/group is active. Self-citations are excluded.

Table 19: Trends in collaboration by institutional type

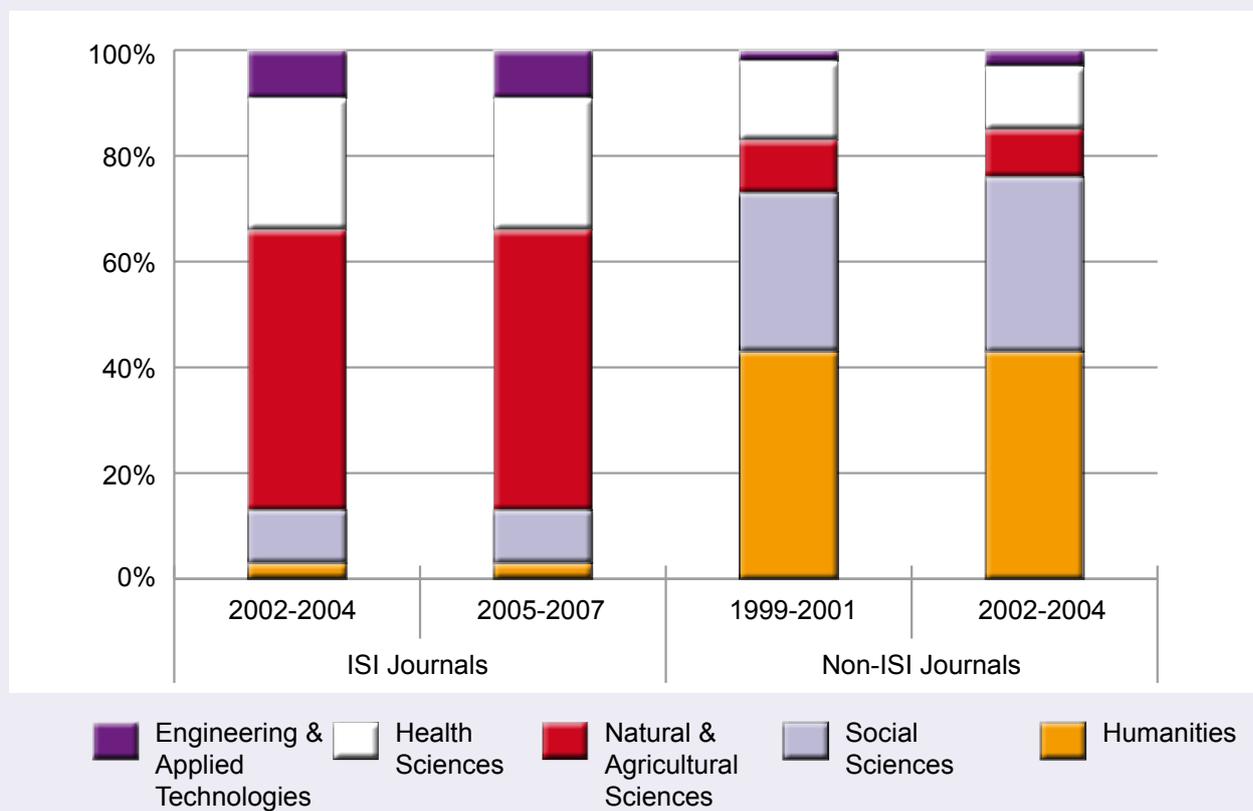
		2004	2005	2006	2007	Total	% inc.
Five most research-productive universities	Single institution	1042	1251	1266	1204	4763	16%
	National	739	902	964	943	3548	28%
	International	1300	1504	1668	1792	6264	38%
	TOTAL	3081	3657	3898	3939	14575	100%
Remaining research-productive universities	Single institution	223	264	322	285	1094	28%
	National	144	159	189	193	685	34%
	International	225	331	311	346	1213	54%
	TOTAL	592	754	822	824	2992	100%
Three most research active comprehensive universities	Single institution	116	106	118	138	478	19%
	National	65	80	106	93	344	43%
	International	105	112	105	108	430	3%
	TOTAL	286	298	329	339	1252	100%

The funding framework does not promote or lead to greater scientific co-operation. In fact, if a South African author co-authors with anyone outside the university system domestically (for example at the science councils or in industry) or from a foreign institution, the local university loses the fractional proportion of the subsidy amount, so that institutions and individuals benefit more from publishing single institution papers. Despite this, national and international collaboration is increasing. This suggests that collaboration patterns are also influenced by disciplinary norms and other factors and may be less responsive to funding policy.

Where is research published?

Different fields publish in different journals. Scholars in the social sciences and humanities publish predominantly in South African journals while scholars in the natural and health sciences publish more often in foreign journals. South Africa's output in ISI journals is dominated by the natural and agricultural sciences (53 – 55%), followed by the health sciences (25%) and engineering sciences (10%). The social sciences and humanities combined constitute 10 to 11% of the output in ISI journals. The majority of South African journals that are indexed in the ISI Web of Science, are either natural or health sciences journals. This means that publications in these "local" ISI-journals tend to skew the picture especially in some fields such as Botany, Medicine, Zoology and others where large proportions of SA scholarship are published in these local ISI-journals.

Figure 26: Distribution of journal articles by type of journal, by broad scientific field



Source: ISI and SA Knowledgebase³⁴

The distribution of output in non-ISI journals (i.e. non-ISI South African journals) is a near mirror image. The social sciences and humanities represent approximately three quarters of the output in local non-ISI journals. The argument is made that these publication patterns reflect the fact that social science scholarship is typically more embedded in the local social and cultural context of a specific country, but this is countered by arguments that other fields (such as ecology, biodiversity, agriculture, epidemiology or civil engineering) are also similarly embedded. Approximately 44 of the 254 accredited South African journals can be classified as social science journals and a further 76 as humanities journals. That means that although the social sciences and humanities produce about 37% of total national output, they have access to nearly half of the local journals (120 out of 254). So it appears that scholars in the social sciences and humanities in South Africa more heavily exploit opportunities to publish in local journals than their colleagues in the natural and health sciences.

Debates about the desirability of publishing in local or international journals continue. On the one hand, there is a need to develop locally relevant research that responds to local issues. On the other hand, scholarship published in local journals is not readily accessible to an international audience. Indeed, given that all researchers increasingly rely on the major electronic databases to access research publications, journals that are not represented in these databases may also be less visible to local researchers. Concerns have also been raised that the average acceptance rate of articles in local journals is high (estimated at more than 70%) (Mouton, Boshoff, & Tijssen, 2006) and that these

³⁴ The data here comes from different time periods. The information about publications in ISI-journals comes from ISI and covers the period 2002 to 2007. The information about publications in local, non-ISI journals comes from SA Knowledgebase and covers the period 1999 to 2004.

journals (especially in fields such as Law and Theology) are often published by a single university department or faculty with a large proportion of articles authored by members of the same faculty (Mouton & Boshoff, 2008). This form of “protectionist publishing” raises serious questions about quality and the enforcement of proper peer review practices. The Department of Education has accepted a recent recommendation by the Academy of Science of South Africa to commence with a regular review of South African journals to reaffirm the quality and integrity of local editorial and journal review practices.

Which fields enjoy international visibility?

The international visibility of South African university research can be measured by considering the citation rates of South African authored papers in ISI-journals. Citation patterns and trends are field-dependent, because the average number of citations per paper varies greatly across fields with high citation rates for such fields as the life sciences and chemistry compared to very low citation rates for fields in the humanities, mathematics and engineering. So visibility is examined in a field specific manner.

Data collected by the CWTS at the University of Leiden of all South African authored papers published between 1995 and 2007 in ISI-journals, shows that South African research enjoys significant international visibility in six fields: genetics and heredity; oncology; psychiatry; respiratory system research; other earth sciences and other humanities.³⁵ The fact that four of these are in the health sciences is an indication of the sustained international recognition that our research in health sciences enjoys. Other traditionally strong areas include veterinary sciences; chemical engineering; virology, infectious diseases, immunology, parasitology and tropical medicine; and microbiology. Other subfields within agricultural sciences also have a relatively high international impact.

Engineering disciplines other than chemical engineering do not enjoy high international visibility and neither do the physical sciences (astrophysics, nuclear physics and condensed matter physics) and disciplines that are associated with biodiversity (zoology, ornithology and entomology). Among the social sciences, South African researchers in education, economic and management sciences and psychology produce papers with low international impact, compared to disciplines such as sociology, anthropology and political studies which enjoy wider recognition. Greater international recognition appears to correlate with higher numbers of internationally co-authored papers.

The international visibility of South African universities

The visibility of South African institutions in international university rankings systems and league tables is very strongly correlated with the degree of international visibility (as measured in citation scores) of its published output. The University of Cape Town owes its position as the top South African university in both the Shanghai and Leiden university rankings to the fact that it has the highest share of ISI-papers of any South African university.³⁶ A few highly-cited researchers make a significant impact on the international visibility of South African research. There are seven highly

³⁵ For the purpose of these analyses, specific disciplines were grouped together (mainly on practical grounds). This distinguished between specific disciplines within the larger grouping of Earth Sciences (such as Geology) but also ended up having to group the smaller disciplines together as “Other Earth Sciences”. The latter includes the sub-disciplines of: biodiversity conservation; limnology and water resources; meteorology and atmospheric science; mineralogy and paleontology. In a similar way, “other humanities” includes a grouping of disciplines which are: archaeology; classics; philosophy and religious studies.

³⁶ It is still a pre-requisite that a significant number of these papers generate citations in order to produce high citation impact scores, but our point is that those South African universities that do not publish significant volumes of articles in ISI-journals do not even “qualify” for any citation-related ranking calculations.

cited researchers in the country, two at the University of Cape Town, four at the Medical Research Council and one at the University of KwaZulu-Natal. They work in ecology and the environment; plant and animal sciences and agricultural science.

In the group of the five most research-productive universities, we see differences between the three historically English-medium and the two historically Afrikaans-medium universities. The Universities of Cape Town, the Witwatersrand and KwaZulu-Natal all have relatively high proportions of output in foreign ISI-journals (above 50%) and relatively small output in local non-ISI journals. Conversely, the University of Pretoria and Stellenbosch University publish predominantly in local journals. These patterns reflect the dominance of the social sciences and humanities at the traditionally Afrikaans-medium universities. Other institutions that are not among the top producers of research, also regularly produce papers in ISI-journals. This is mainly due to small pockets of capacity and knowledge production in such areas as agriculture (University of the Free State), Engineering and the Built Environment, Physics and Chemistry (Tshwane University of Technology) and Materials Sciences and Biotechnology (Durban University of Technology).

Differences between institutions as far as their production of ISI-papers is concerned, is evidently related to historical factors, the presence or absence of specific faculties and schools as well as research niche areas. Some universities have adopted research policies to encourage their staff to publish more in ISI-journals which may also influence the outputs in future.

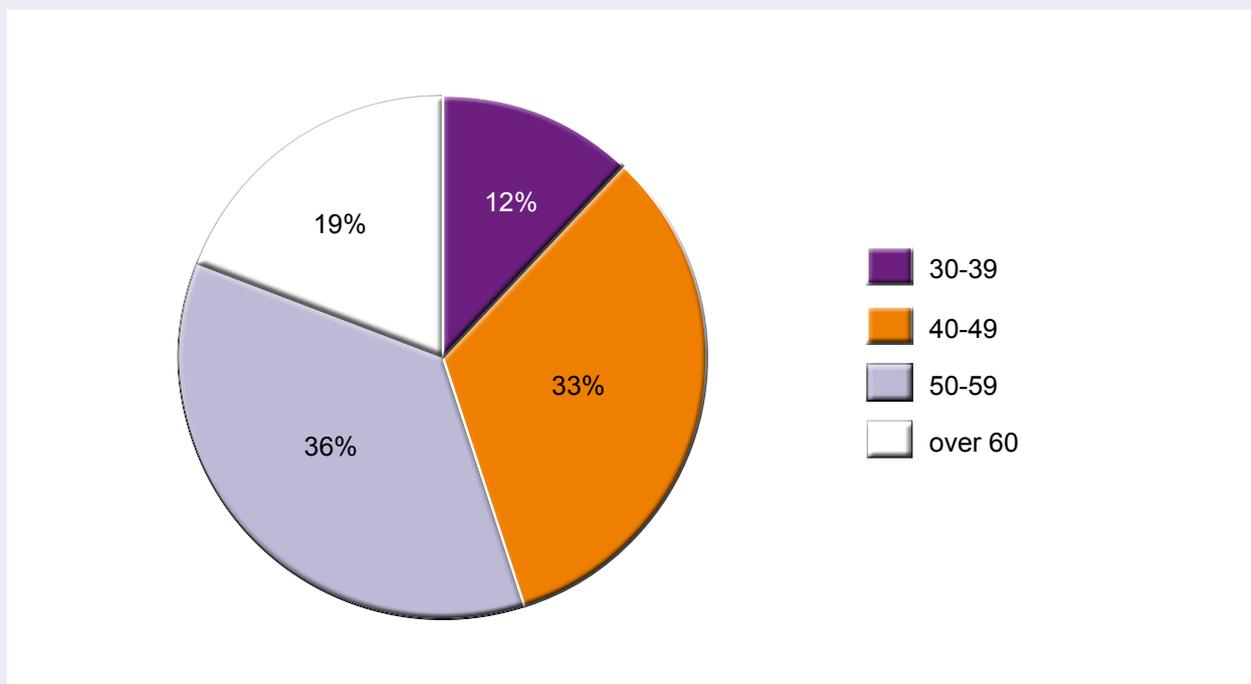
Participation in research

Research production depends on a solid base of active researchers. In this section we consider the profile of the pool of researchers in South Africa and the way in which postgraduate study is adding to that pool.

The base of active researchers

While not a perfect measure, the NRF rating system gives some indication of the size and shape of the pool of skilled researchers in the country. This system, whereby individual researchers are rated by their national and international peers, was expanded in 2002 to include researchers in the social sciences and humanities. In 2006, there were 1 606 rated researchers in South African public higher education institutions and museums; 1 093 in the natural sciences and engineering and 513 in the social sciences and humanities. Of the total academic staff in public higher education some 10% are rated researchers, but the proportion per institution varies greatly. Most researchers are white and male, but this is gradually changing. Of the rated researchers, about 13% are African (up from 9% in 2003) and 25% are women (up from 21% in 2003). The age distribution of rated researchers is shown below (NRF, 2007).

Figure 27: Distribution of NRF rated researchers by age, 2006



Source: SA Knowledgebase

In 2002, research showed that 90% of all research output (in the form of scientific papers) in 2001 was produced by white authors, that only 20% of all scientific papers were produced by female authors and that we were witnessing a gradual ageing of the active scientific workforce in the country.³⁷ The ongoing transformation imperative to increase black and female participation in knowledge production and to graduate more black and female research students continues to be one of the biggest challenges of higher education.

Analyses commissioned by the CHE as input to the institutional audits, give some information about participation in university research.³⁸ These analyses cover only some of the public institutions; ten universities, two comprehensive universities and two universities of technology.

As far as race is concerned, black participation in knowledge production has increased at all universities but institutional disparities still are quite evident. The proportion of authors of all papers produced by an institution, who are black, ranges between 4% and 58% at the traditional universities. At the comprehensive universities, it ranges between 8% and 19% and at the universities of technology, between 30% and 68%.

As far as gender is concerned, the proportion of women authors of all papers produced by the institution, ranges between 14% and 37% at the traditional universities. At the comprehensive universities, it

³⁷ In 2002 the Centre for Research on Science and Technology (CREST) at Stellenbosch published comprehensive trend data on the demographics of South Africa's knowledge production.

³⁸ Since these profiles were completed over different years (between 2005 and 2009), it is not possible to consistently compare institutions for the same most recent year. The most recently available data vary across institutions between 2005 and 2008.

ranges between 24% and 47% and at the universities of technology, between 26% and 41%. The analyses show that women are more likely to write co-authored papers, while men tend to write more single-authored papers. This results in a smaller share of the research output being attributed to women and might reflect another, more subtle form of gender disparity and structural discrimination that needs further analysis. But the analyses also show significant increases at most institutions in women authors' participation in research.

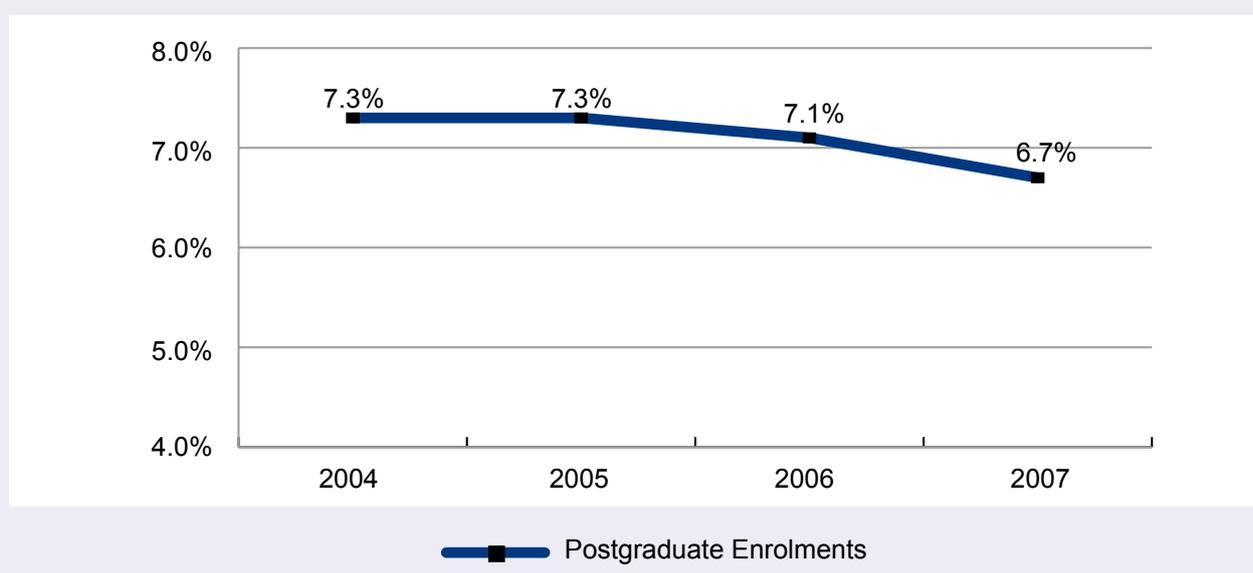
The breakdown by institution also shows that universities have different transformation trajectories which are obviously influenced by historical conditions. These conditions are not only related to former patterns of inclusion or exclusion on the basis of race and gender, but are also related to the type of scientific endeavour at institutions. Universities where the social sciences and humanities dominate tend to record higher levels of female participation. This is even true for the universities of technology where fields such as business administration, design and the humanities are more typically the domain of female scholars.

At the traditional universities, much of the research is produced by authors over the age of 50. Between 38% and 65% of the research output at these institutions is attributed to authors over the age of 50. By comparison, in 1990, authors over the age of 50 produced between 14% and 42% of the research.³⁹ The concomitant decline in the contribution of younger academics (under the age of 40) over this period means that the sector has not managed to mobilize the productive potential of the younger age cohorts. While universities have appointed significant volumes of younger academics, many of these do not have PhDs and are not (yet) contributing to the research output.

Developing new researchers

Participation in research is highly dependent on the number of people who graduate with research degrees. In particular the number of students who graduate with research master's and doctoral degrees limit the pool of available skills from which researchers can be drawn. Only 5.4% of students enrolled in the public institutions are studying postgraduate courses and only 1.3% are registered for doctoral studies. One percent of graduates are doctoral graduates. Of particular concern is the decreasing proportion of people enrolling for postgraduate study as is shown below.

Figure 28: Percentage of total enrolments (headcount) in public higher education that are for postgraduate study



Source: HEMIS

³⁹Except for the University of Natal, where 83% was produced by authors over the age of 50.

The path into a research career begins with a research master's degree, followed by a doctorate, but South Africa produces few master's and even fewer doctoral graduates. The NRF launched the South African PhD project in November 2007 to increase the numbers and diversity of PhD graduates. The PhD project focuses on identifying and recruiting PhD candidates and placing them in appropriate programmes. Incentives to increase doctoral enrolments appear to be bearing fruit, with both enrolments and graduations increasing. However, the number of people enrolling for research master's degrees has declined steadily since 2004 and the number of graduates has declined since 2005, meaning that the pool of potential doctoral candidates is decreasing.

Table 20: Enrolments in and graduations from research master's degrees

	Headcount Enrolments	% of Total Enrolments	Headcount Graduates	% of Total Graduates
2004	45,332	6.1%	7,883	6.8%
2005	44,321	6.0%	8,022	6.7%
2006	42,899	5.8%	7,883	6.3%
2007	41,176	5.4%	7,516	5.9%
Target		6.0%		6.0%

Source: HEMIS

Table 21: Enrolments in and graduations from doctoral degrees

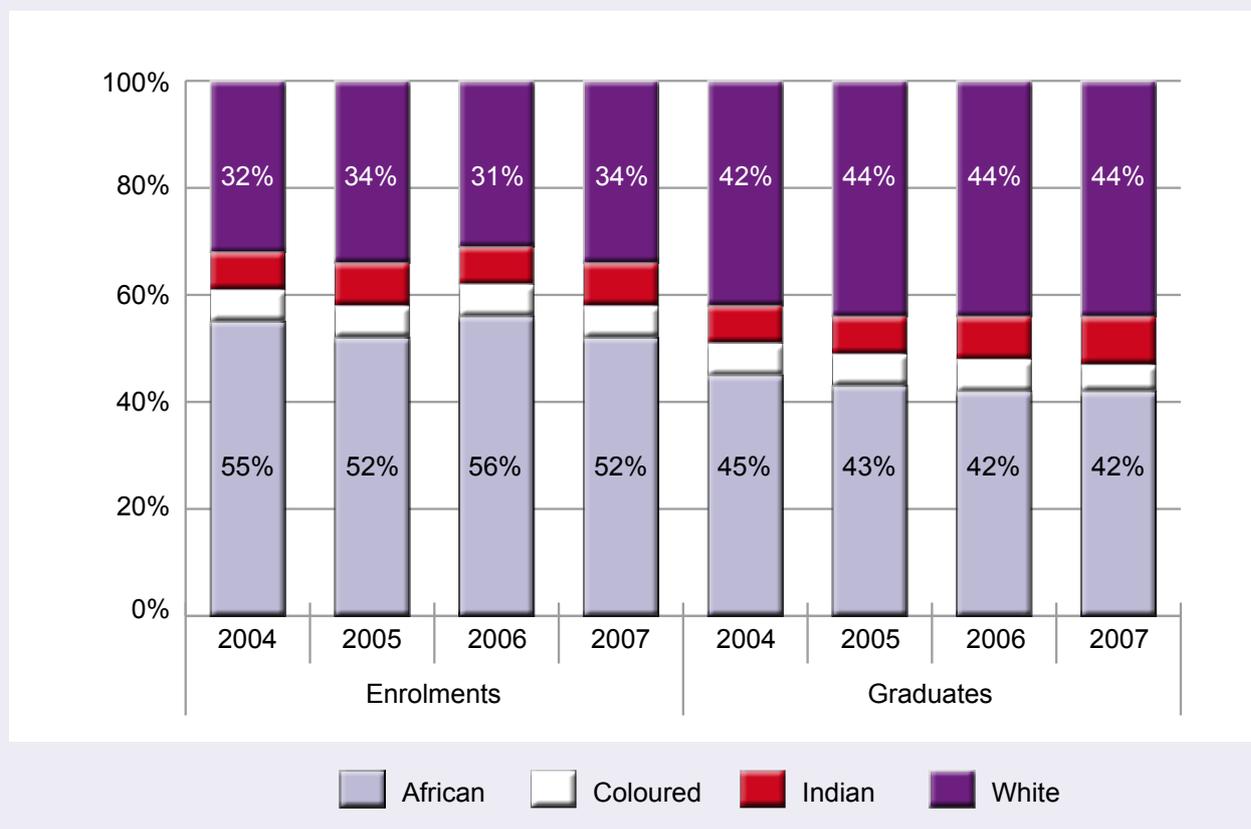
	Headcount Enrolments	% of Total Enrolments	Headcount Graduates	% of Total Graduates
2004	9,103	1.2%	1,103	0.9%
2005	9,434	1.3%	1,189	1.0%
2006	9,828	1.3%	1,100	0.9%
2007	10,052	1.3%	1,274	1.0%
Target		1.0%		1.0%

Source: HEMIS

Private institutions also contribute, although on a small scale, to developing research skills. Among the private institutions, twelve offer master's programmes and three offer doctoral programmes. These three institutions graduated 10 doctoral students in 2008 and have 19 doctoral students enrolled in 2009. Monash South Africa offers local students the opportunity to complete research degrees through Monash University. While the contribution is small, one private institution (St Augustine College) graduates more research master's and doctoral students than some public institutions.

Postgraduate enrolments and graduations continue to be differentiated by race. Proportionally more white and Indian students embark on postgraduate studies and succeed in their studies. Since 2004, there has been some fluctuation in the number of African students enrolling for postgraduate studies and overall the number has declined from 67 757 in 2004 to 57 198 in 2007, reflecting the overall decline in postgraduate enrolments. African students continue to be less successful in their postgraduate studies, compounding the difficulty of increasing black participation in research.

Figure 29: Postgraduate enrolments in and graduations from public higher education by race

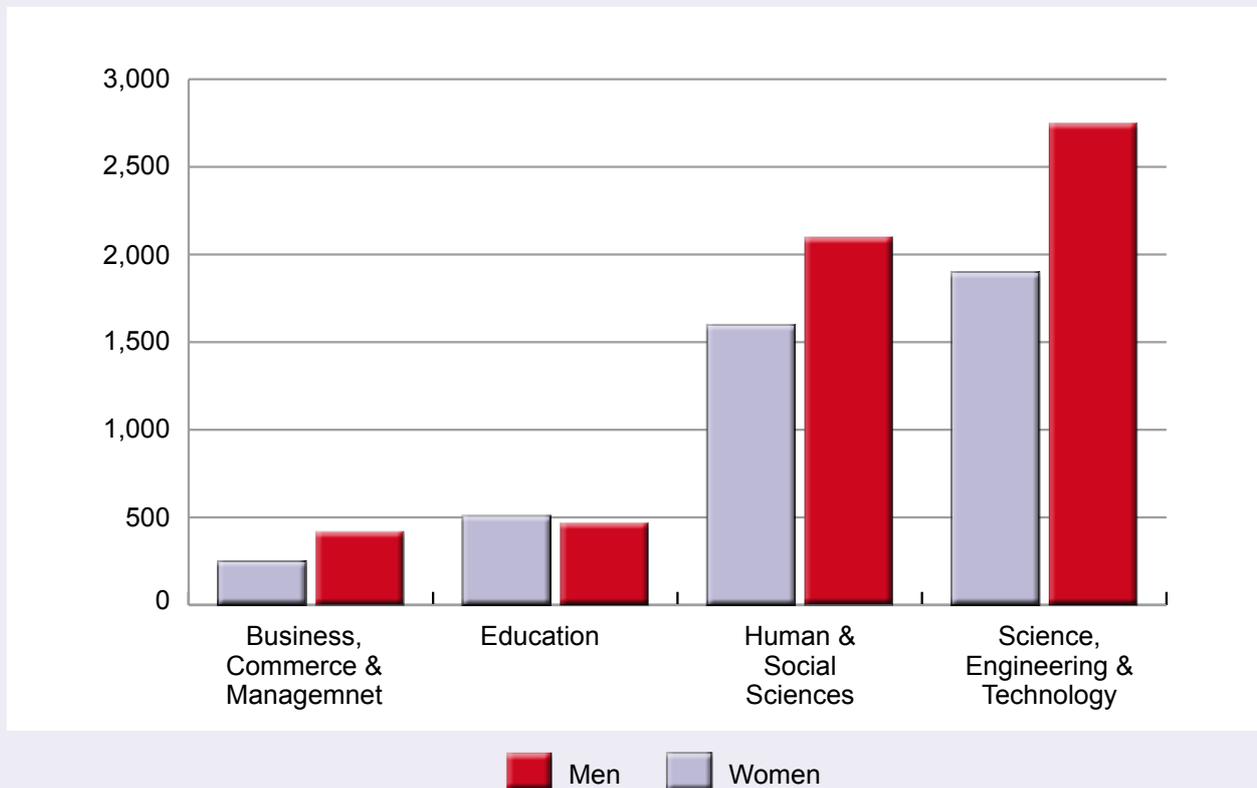


Source: HEMIS

The same pattern carries through to the doctoral level. Of the 1100 people who graduated with doctoral degrees in 2006, 618 (56 %) were white and 331 (30 %) were black. Considering that about 13% of doctoral graduates are foreigners and most of these are black, the system is producing very few black South African doctoral graduates. This not only limits the scope for increasing the participation of black researchers, but it also limits the potential for improving the racial profile of academic staff across the system.

As is the case with the overall enrolment pattern, there are slightly more women than men enrolled in postgraduate programmes and women are somewhat more successful in completing their postgraduate studies. This pattern has remained largely unchanged since 2004. But as with undergraduate study, this does not mean that gender equity has been achieved across the system. At the doctoral level, in 2007, only 42% of doctoral graduates were women, up from 38% in 2004. Education is the only field that enrolls more women for doctoral study than men, and in science, engineering and technology only 40% of doctoral students are women.

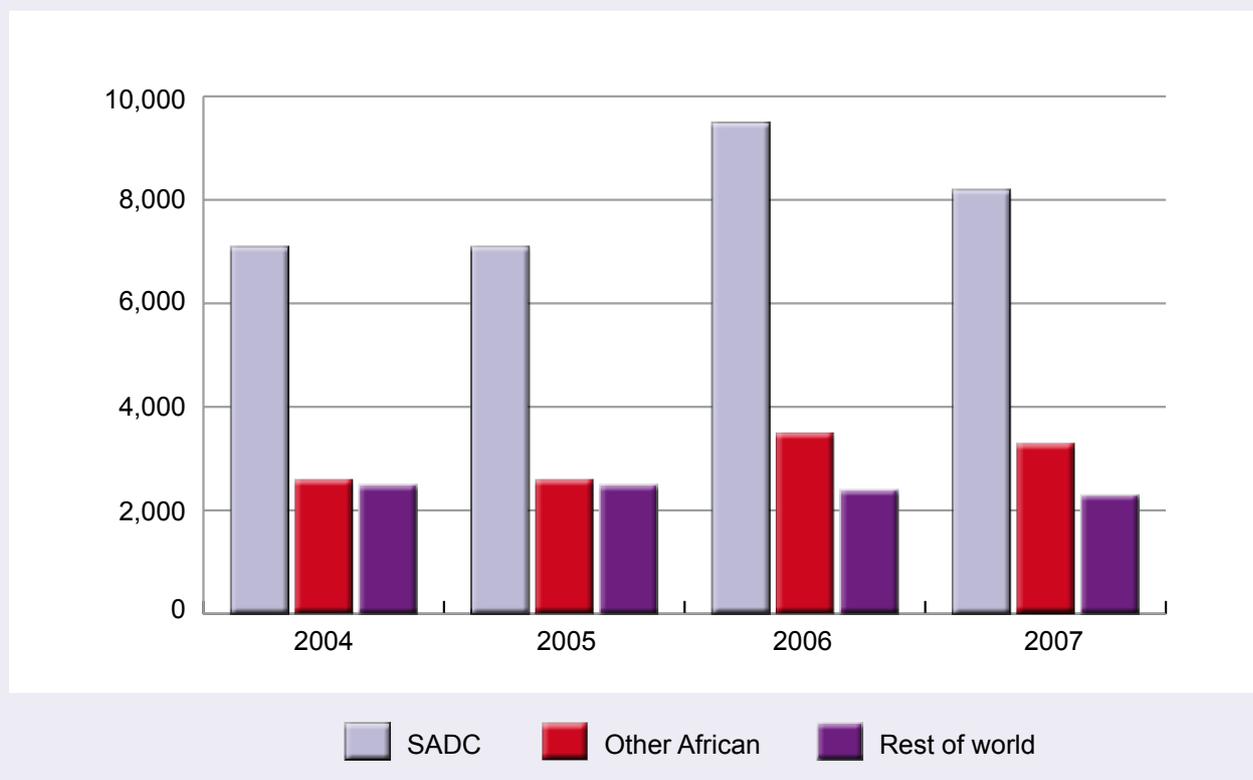
Figure 30: Enrolments (headcount) in doctoral study by gender, 2007



Source: HEMIS

South African higher education institutions have proportionally more foreign students enrolled in postgraduate programmes than in undergraduate programmes. The proportion of foreign students enrolled for postgraduate degrees rose from 10% in 2004 to 13% in 2007. By comparison, foreign students comprised only 8% of the total student body in 2007. Students from countries in the Southern African Development Community (SADC) region make up 8% of the postgraduate enrolment. This is in line with the National Plan which called for an increase in foreign enrolments, particularly from the SADC region and particularly in postgraduate programmes (Ministry of Education, 2001).

Figure 31: Enrolments (headcount) in postgraduate programmes in public institutions by nationality



Source: HEMIS

In 2005, 26% of people enrolling for doctoral degrees and 25% of doctoral graduates were not South Africans. Since most foreign students come from other countries in Africa, South African higher education plays an important role in developing staff for higher education across Africa (CHE, 2009b). Concerns have been raised about the capacity of the higher education system to produce more postgraduate students. In particular, research has shown that the average number of research master's students per supervisor⁴⁰ increased from 3.8 to 5.2 between 2000 and 2005 while the average number of doctoral students per supervisor⁴¹ increased from 1.3 to 2.2 in the same period (CHE, 2009b). This raises the concern that the potential to increase the number of research postgraduates may be limited by the number of qualified supervisors in the system. The NRF is trying to address the capacity issue through the launching of the DST/NRF programmes for Research Chairs and Centres of Excellence. Whether this intervention will be sufficient is an open question at this stage.

Concluding comments

Research in South African higher education takes place in the context of a complex interplay of policy, institutional and field differences and demographic trends. Over the last four years the new funding framework appears to have had an impact on research output, especially in increasing the number of journal articles and book chapters published. Any impact on the production of graduate

⁴⁰ Calculated using the number of permanent academic staff qualified to supervise master's degrees.

⁴¹ Calculated using the number of permanent academic staff qualified to supervise doctoral degrees.

students will take longer to manifest and constraints in the system make it unlikely that the impact will be as great. There are concerns that the new funding policy does not appropriately support the publishing practices of all fields of knowledge and that financial incentives might lead to more publications of lower quality.

Across public higher education there are institutional differences in knowledge production. Five universities dominate in the production of research in South Africa, but several others make significant contributions. The existence of specific faculties (notably Medicine, Engineering and Agriculture) impacts the volume and visibility of research at an institution. Patterns of knowledge production have their roots in historical, cultural and political legacies. The dominance of humanities (especially Theology and Law) at some universities continues to impact on the nature of their research output and sometimes negatively on their international profiles as these disciplines tend to publish locally. The existence of specific niche areas in some fields of science is clearly related to locality. The universities of technology have research capacities in engineering and applied sciences that need to be nurtured and further supported. Moreover there is some indication of small contributions to research emerging at a few private institutions.

The challenge to develop the next generation of scientists and academics in the country remains a high priority. There has been slow progress towards gender and race parity in knowledge production and attempts to broaden the base of research participation continue at both the national and institutional level. This is obviously not a short-term challenge. Gender, race and age profiles are different for different fields and institutions and are not directly correlated with high research productivity. The complexity of these different configurations suggests that a single approach or simplistic solution will not do.

The sustained increase in international scientific collaboration and above average citation impact in many scientific fields shows that South African university research remains competitive and healthy despite many challenges and constraints. In many fields of science, we have retained and even increased our international impact. New fields – such as Infectious Diseases and Virology- as well as some fields in the humanities and social sciences (History, Sociology) have also emerged as internationally visible.

The demands on the university research system are high and diverse: to be more productive, to broaden the base and transform knowledge production, to protect excellence, to increase international (including regional) collaboration as well as improve impact. The system is performing well in many of these areas. The biggest challenges relate to the transformation of the pool of active researchers. The fact that universities produce nearly 90% of all scientific papers and 40% of all basic science produced by the national system of innovation and are also responsible for the production of master's and doctoral graduates, is clear demonstration of their strategic value and role in the South African economy and society.

5. Resourcing public universities

For higher education to succeed, the right level and mix of resources need to be in place. The critical resources for higher education include funding and staff. In this chapter we consider these two resources; the availability of funds and the availability and quality of staff. As there is little data available on the resourcing of private higher education institutions, the focus in this chapter is on the public institutions.

Funding higher education

Higher education in South Africa is funded by a combination of state subsidies (first-stream income), student fees (second-stream income) and funding from other sources (third stream income). In common with higher education around the world, the sector's reliance on state subsidies has declined. As we saw in Chapter 2, the state spent R13.3 billion of the education budget on higher education subsidies in 2007/8. State subsidies received by the public institutions increased by 27% from R9 071 million in 2004 to R11 529 million in 2007. But the proportion of the institutions' income that this represented declined from 43% in 2004 to 40% in 2007.

Given that there is limited scope for increasing student fees, universities have been pressured into developing third-stream income sources. Since 2004 there has been a dramatic 62% increase in third-stream income while both state subsidies and income from fees have increased by 27%. On the face of it, public sector institutions are becoming less dependent on state funds, although both second- and third-stream income include funds that originate from the state. Public higher education institutions receive public money in direct subsidies from the national Department of Education (first-stream income), through NSFAS in the form of student fees (second-stream income) and from state departments and science councils in the form of research grants and contracts (third-stream income). During the period under review, there have been substantial changes in the state funding of higher education with the phasing in of the new funding framework. This section analyses the funding sources that the public higher education institutions draw on and how these have changed since 2004.

State funding of higher education

The new funding framework

The *Higher Education Act* of 1997 (Act No. 101 of 1997), makes provision for state funding of higher education. In November 2003 a schedule was published in terms of this act introducing a new funding framework aimed at using institutional funding as a lever to move institutions towards the goals set out in the White Paper 3 (Department of Education, 1997) and the National Plan for Higher Education (Ministry of Education, 2001). The new funding framework moved away from a cost-driven, demand-based model to one driven by affordability and institutional plans to address identified national goals of equitable student access, improved teaching and learning, improved graduation rates and greater responsiveness to social and economic needs. It was seen as the final instrument in a set that would "enable a sustained focus on meeting the policy goals ... thus paving the way for a transformed higher education system, which is affordable, sustainable and contributes to the skills, human resource and

knowledge needs of South Africa” (Department of Education, 2003, p. 4). The other instruments in the set are planning, a revised regulatory environment and quality assurance.

The funding framework divides the budget for higher education into block grants which can be used as the institutions see fit to meet their operational costs and earmarked grants which are funds designated for particular purposes. Block grants are further divided into teaching output, teaching input, research output and institutional factor grants. The allocation of funds to the two main funding categories as well as to the subcategories is determined by the Minister of Education in response to national trends and published annually in the Statement on Higher Education Funding. The new funding framework was phased in over a three-year period from 2004/5 to 2006/7 with steps taken to ensure that institutions were not faced with sudden changes in funding levels. From the 2007/8 financial year, the new funding framework was applied in full (Ministry of Education, 2006).

Critics of the new framework have argued that “funding allocations based on the new formula do not correlate with performance and it is therefore inevitable that the framework will lead to unexpected and undesirable outcomes” (Walwyn, 2008, p. 708). While it is early in the process to make conclusive statements about the effect of the funding framework, some results are evident.

Funding research

Research is funded from multiple sources. The Department of Education funds higher education institutions based on their research output and the National Research Foundation funds individual researchers and research projects. Institutions also attract research funds from the Department of Science and Technology’s programmes, other government departments, the private sector and from other funders.

Research output funding is allocated to institutions based on their production of research publications and research master’s and doctoral students. Research outputs are measured against targeted norms, based on the number of permanent instruction and research staff employed at each institution. But not all institutions are expected to produce similar levels of research. In 2004, universities and universities of technology were allocated different benchmarks for the ratio of weighted research output units to permanent instruction and research staff and in 2005 a benchmark was introduced for comprehensive institutions based on the proportion of staff teaching in university-type and technikon-type programmes (Ministry of Education, 2005).

Where the institutions collectively fall short of the targeted norms for the system, an amount proportionate to the shortfall was channeled into research development funding and allocated to underperforming institutions. This funding was, however, not earmarked for research development. The 2005 statement warned that in future institutions would need to apply for this research development funding (Ministry of Education, 2005) and the 2006 statement changed the policy so that research development funds became earmarked funds from 2007/8 (Ministry of Education, 2006).

South African universities are directly rewarded for the number of publications in accredited journals that their staff produce. Articles are subsidized if they appear in a list of accredited journals. In September 2003, the Department of Education published a revised policy on SA research output – “Policy and Procedures for the Measurement of Research Output for Public Higher Education

Institutions”, which came into effect on the 1 January 2005 for the 2004 research outputs. The policy listed the following journal categories as qualifying for subsidy purposes. Journals listed in the following:

- (a) The Sciences Citation Index of the Institute of Scientific Information (ISI)
- (b) The Social Sciences Citation Index of the ISI
- (c) The Arts and Humanities Citation Index of the ISI
- (d) The International Bibliography of Social Sciences (IBSS)
- (e) The Department of Education list of approved South African journals

The list of approved South African journals (excluding the ISI-listed titles) that was appended to this new policy, numbered 197. A supplementary list, containing the names of a further 23 South African journal titles, was circulated in 2004. This brought the total of South African journals titles (still excluding those on the ISI-list) to 219 journal titles. At the time, 23 South African journals were listed in one of the ISI indexes. In addition there were 14 social science journals included in the International Bibliography of the Social Sciences (IBSS) of which two⁴² were also included in the ISI, so that the total number of South African journals which are recognized in one way or the other as being of acceptable quality by the Department of Education, numbers 254.

One of the most far-reaching consequences of the implementation of the new framework relates to the monetary values of publication units. In the period between 1987 and 2003 (under the former framework) the subsidy amount awarded for a research article averaged approximately R22 000. This meant that the total amount paid out to the higher education sector would be in the region of R120 million per year (5000 publication units @ R22 000). Under the new framework, the block grants to universities of funds earmarked for research, were removed. This meant that as of 2005, an amount of approximately R1.5 billion rand was available on a competitive basis, for rewarding research output – now also including research master’s and doctoral graduates. The monetary awards for publication units increased significantly, from R 77 606 in 2005 to R102 604 in 2009. As we saw in the chapter on research, this increase in unit awards appears to have had an impact on research output in the sector.

Research funding under the new funding framework has been criticized for being a “zero-sum game” in which better performance across the sector results in decreased allocations and for not taking into account the quality of research outputs. In addition, it has been suggested that high performance is discouraged by higher targets and ineligibility for the research development grant (Walwyn, 2008). Despite these criticisms, research output funding appears to be achieving the intended goal of increasing research outputs with substantial increases in research publications during the period under review.

The National Research Foundation (NRF) funds research in higher education through its Research and Innovation Support and Advancement (RISA) business unit. This unit oversees a wide range of funding programmes, targeted at particular outcomes for research and for development. Programmes provide bursaries and scholarships to postgraduate students; provide grants for research in focused areas as well as more general grants; and fund equipment and the mobility of researchers to access equipment. In addition to competitive research grants, the NRF is planning to make available annual funding to all rated researchers for the duration of their rating. In 2008 the NRF was funding 70

⁴² South African Archaeological Bulletin and the South African Journal of Economics

research chairs under the South African Research Chairs Initiative (SARCHI). Another 16 chairs are to be awarded in 2009. In the 2007/08 financial year the NRF distributed R482 million in research grants and bursaries.

Funding teaching

Teaching is funded by a combination of teaching input and teaching output funding. Teaching input funding is calculated based on the student enrolment in teaching programmes while teaching output grants are based on the number of graduates produced.

Teaching input grants are based on the planned enrolments weighted by the field of study and level of study. The weighting grids used have remained unchanged since 2004, although they were reviewed for some fields of study in 2006. The planned enrolments have been determined by the Department of Education, in consultation with institutions, in order to ensure stability in the system (Ministry of Education, 2006). The teaching input grants form the largest portion of the state subsidy funding. In 2006/07, they accounted for 53% of the education budget distributed to public higher education. Teaching output grants are awarded for the number of graduates, weighted by programme level and mode of delivery. Teaching output grants accounted for 13% of the budget in 2006/07.

As with research development grants, teaching development grants are made available to those institutions that fail to meet targets for teaching outputs. As with research development grants, teaching development grants are only available to institutions that are not meeting output targets for teaching and they thus reward those that are least successful. And while these funds were previously added to the block grant, the 2006 statement warned that teaching development funds would become earmarked funds from 2007/8 (Ministry of Education, 2006).

Teaching input grants have been criticized for encouraging over-enrolment, resulting in lower per-student allocation over time (Walwyn, 2008). And as with research funding, institutions compete for a greater share of a fixed budget, so that any improvements in teaching which increase the share of funds available to an institution, take funds away from less successful institutions. While the research output grants appear to be driving increased research outputs, the same is not true of the teaching output grants. The balance between teaching input grants and teaching output grants may not be enough to drive increased teaching outputs.

Student fees and NSFAS

As is the case in higher education institutions worldwide, student fees in South Africa have been increasing. In 2004 student fees contributed R6 292 million to the public higher education sector, and in 2007 this had increased by 27% to R7 979 million. When comparing these amounts to the (full-time equivalent) enrolments, the average tuition fees paid per student increased from R12 452 in 2004 to R15 381 in 2007, an increase of 24% (CHERTL, 2009; Steyn & de Villiers, 2006). But the overall proportion that student fees contribute to the funding of higher education is declining. In 2007 student fees represented 28% of the income of the institutions, down from 30% in 2004. This is a change from the earlier trend where, in the five years to 2004, fees rose from an average of 24% of total university income.

Traditional universities, which receive on average 26% of their income from fees, are the least dependent on student fees for income. Universities of technology rely on student fees for 31% of their

income, while comprehensive universities receive 33% of income from fees. There are, however, substantial differences between institutions. For example UNISA and the University of Venda depend on student fees for (respectively) 43% and 40% of their income. At the other end of the spectrum, at both North West University and Stellenbosch University, student fees account for only 19% of income (CHERTL, 2009). The degree to which institutions rely on fee income is inversely related to their ability to attract third-stream income. This means that those institutions serving the poorest segments of the population are often also those most heavily dependent on income from student fees.

As was discussed in Chapter 3, NSFAS contributes substantial amounts to the higher education sector in the form of loans and bursaries to students. In 2007, NSFAS made awards to the value of R1 693 million, an increase of 72% since 2004. NSFAS grants made up 16% of fee income in 2004, but increased to 21% of total student fee income in 2007. Funds for NSFAS come from a number of government departments, including the Department of Agriculture, the Department of Education, and the Department of Labour, as well as from provincial governments and other donors. This means that the state contributes substantially to second-stream (as well as first-stream) income.

Although student fees represent the smallest of the three sources of funds for public higher education, they continue to be an obstacle to participation, behind many student exclusions, and the cause of ongoing student unrest. In 2004, student debt was increasing, but data is not available about whether this trend has continued since. Some student groups have called for free public higher education and there has been public discussion about the possibility of regulating fees at public institutions. In response to a parliamentary question in March 2008, the Minister of Education expressed concern over the rising fees at higher education institutions and said that a review of funding trends had been initiated. A report produced by Higher Education South Africa argues strongly against any regulation of tuition fees and for greater transparency on the part of institutions and strengthening of the NSFAS (Stumpf, et al., 2008).

As of June 2009, the Minister of Higher Education and Training has initiated a review of NSFAS in order to assess its strengths and shortcomings, advise on the need for student financial aid and review and evaluate different models of student financial aid. The intention is to promote the goals of equity of access and providing free undergraduate education to poor and working class students who cannot afford further or higher education (Ministry of Higher Education and Training, 2009).

Third-stream income

As fee income has not kept up with inflation, universities have turned increasingly to third-stream income to fund their operations. Between 2004 and 2007, third stream income increased by 62% from R5 858 million in 2004 to R9 462 million in 2007. Third stream income now accounts for 33% of the income of public institutions, up from 28% in 2004 (CHERTL, 2009).

Third-stream income includes income from contract or sponsored research, entrepreneurial or commercialization activities, philanthropic funding, provision of services, from investments and from borrowing. In South Africa the breakdown is around 34% from contracts, 21% from profit on investments, 18% from sales of services, 15% from interest and dividends and 9% from donations and gifts. Contract research funding comes from the state and from science councils, from international sources and from business or industry. In total contract income was worth about R25 billion in 2007 and it is estimated that some 33% of this income, about R830 million, comes from the state. Contract income has been increasing at around 10% to 15% per annum. While institutions have been

increasing their commercial activities, income from entrepreneurial and commercial sources has not increased significantly. There is little tradition in South Africa of private giving to universities and this area remains underdeveloped (CHERTL, 2009).

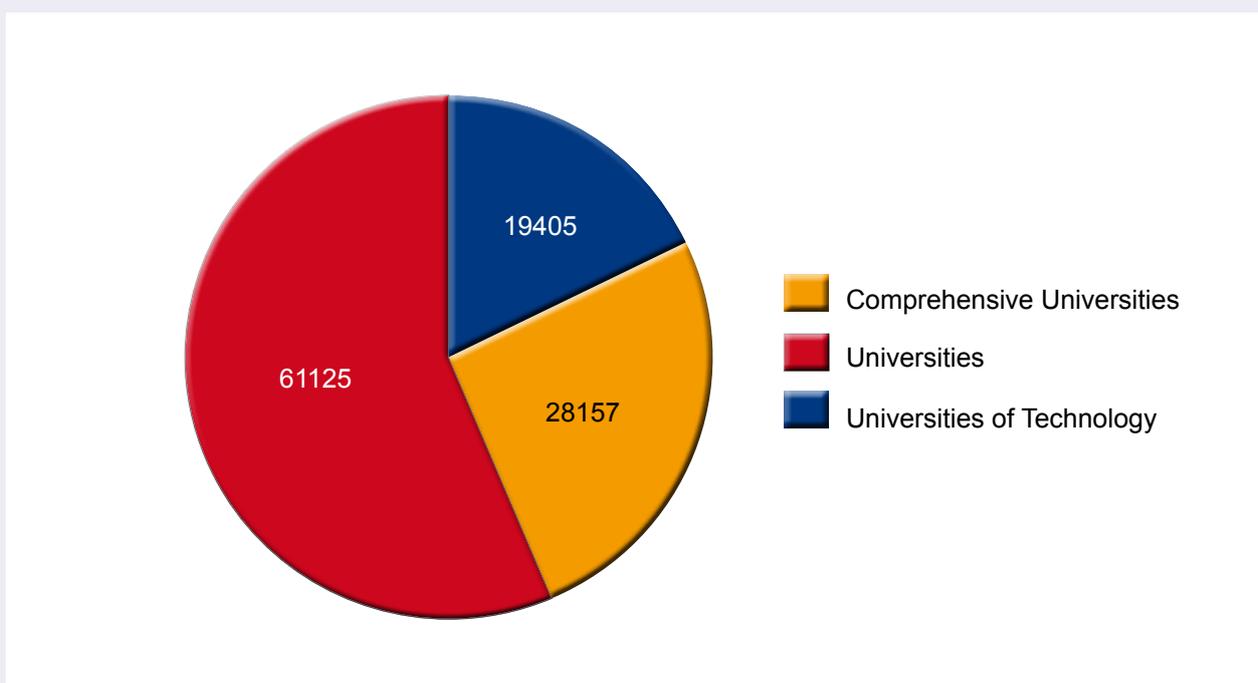
As is to be expected, the ability to raise third-stream income varies considerably across the sector. Universities of technology raise the least third-stream income. On average 14% of their income is in this form, although this is as low as 7% at the Durban University of Technology and as high as 23% at the Cape Peninsula University of Technology. Comprehensive universities average 21% of their income as third-stream income, but the range is from 5% at Walter Sisulu University to 34% at the University of Zululand. Among the universities, the ability to attract third-stream income varies widely, but appears linked to research output. For the five top research institutions, on average 45% of their income is third-stream, while for the other institutions, the average is 28%. But again, the range is considerable, from 13% at the University of Limpopo, to 54% at the University of the Witwatersrand.

Staffing public universities

The supply of staff for higher education

The public higher education sector employed 108 687 people in 2007, slightly up from the 101 186 who were employed in 2004. Of these, 19 405 were employed in the six universities of technology, 28 157 in the six comprehensive universities, and the remaining 61 125 were employed in the eleven universities.

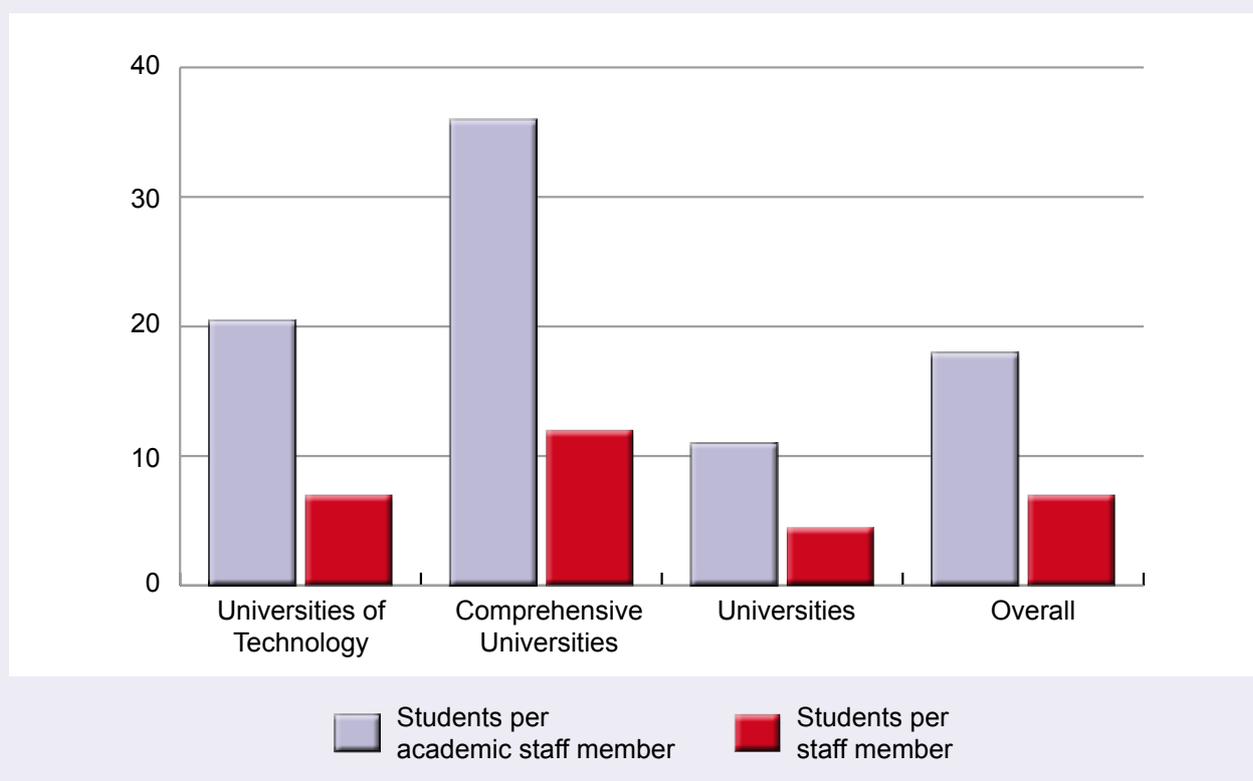
Figure 32: Proportion of all staff employed in public higher education, by institutional type, 2007



Source: HEMIS

Of the total 108 687 higher education staff, 41 383 (or 38%) were academic staff. The number of academic staff have decreased slightly from the 41 521 (or 41%) who were employed in 2004. Although student numbers have been increasing, the ratio of students to academic staff remains at around 18 and the ratio of students to total staff at around 7. But this picture is different for different institutional types. The universities employ relatively more academic staff; around 40% of their staff fall into this category, while at the universities of technology and the comprehensive universities, only 35% of their staff are academic staff.

Figure 33: Ratio of students to academic staff and students to staff at public institutions, 2007



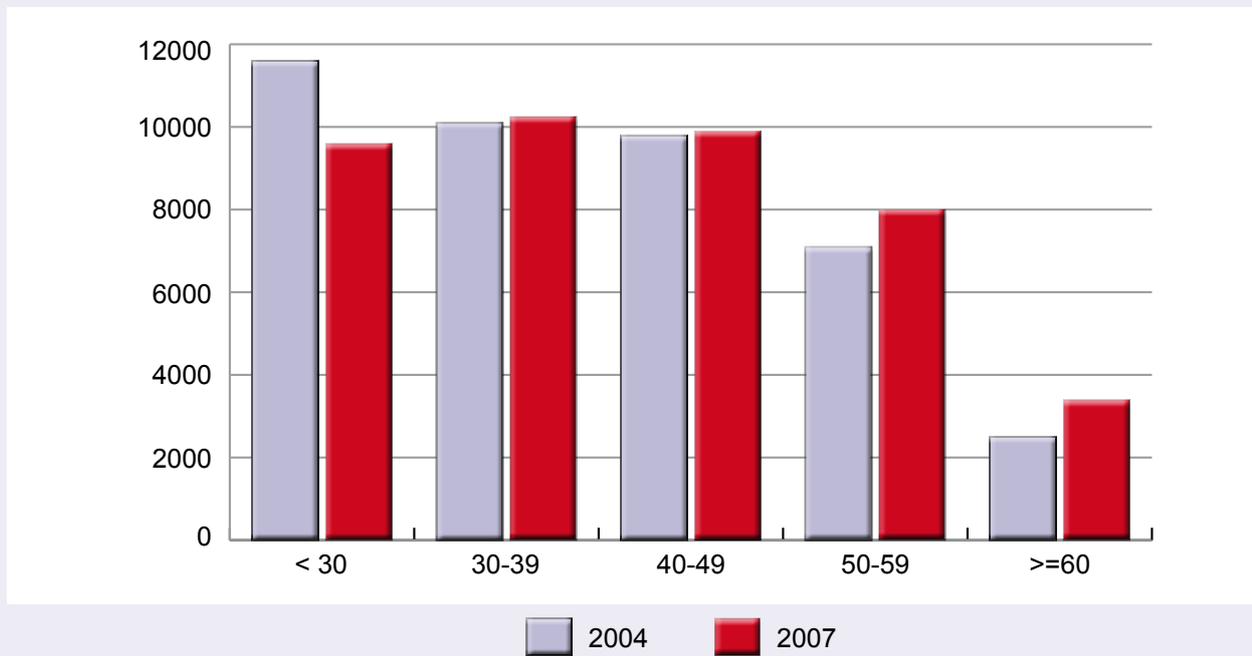
Source: HEMIS

Almost 90% of the academic staff in the public higher education sector are South African, but the sector also attracts international staff who come from Africa and the rest of the world in roughly equal numbers. South Africa appears to be attracting more foreign academics who made up 4% of academic staff in 2004, and increased to 6% in 2007.⁴³ The National Plan suggested that recruiting academic staff from the continent would provide role models for black students in the short term and would help to change institutional cultures. It acknowledged that there were difficulties in obtaining work permits and promised to facilitate “the streamlining of procedures” in this regard (Ministry of Education, 2001, p. 39). These obstacles continue to present an ongoing challenge in recruiting foreign staff.

Concerns are often voiced about the ageing of the academic staff, and in particular the most active researchers. The age profile of the public institutions shows that there has been an increase in the number of academic staff aged above 50. But it also shows that there are substantial numbers of academic staff aged between 30 and 50 who, with the right kinds of support, could take the academic project forward. There has, however, been a drop in staff under the age of 30, which may become a cause for concern in the future.

⁴³ The nationality of some 4% of staff is unknown.

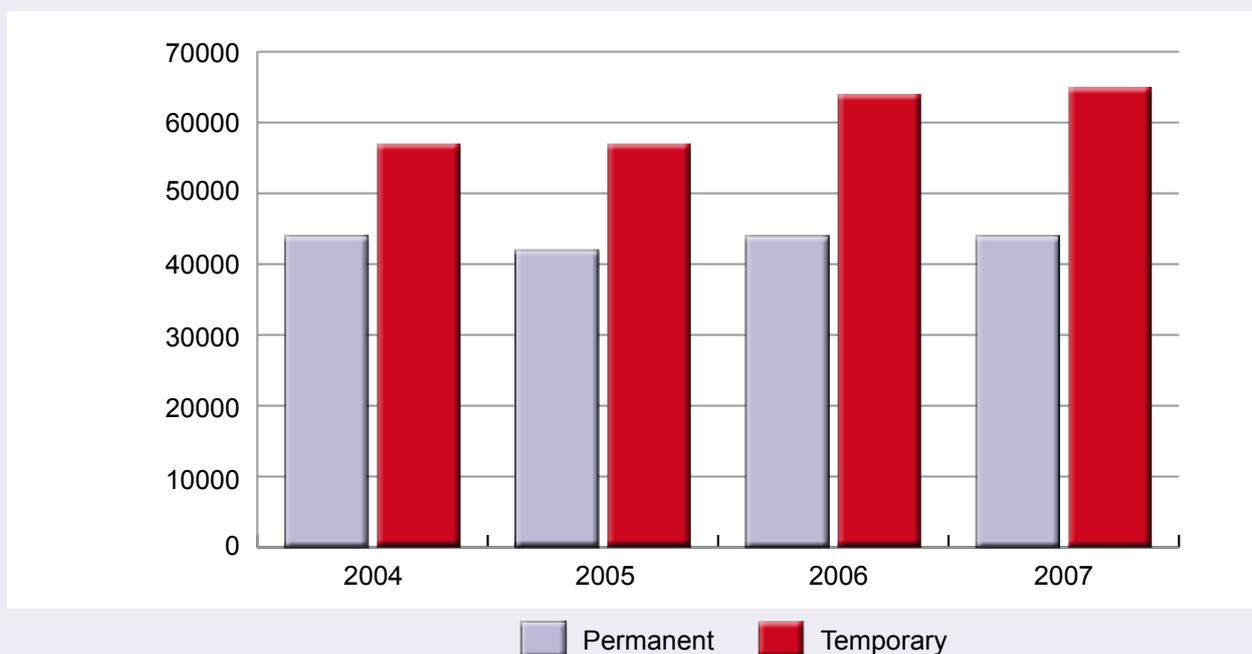
Figure 34: Academic staff (headcount) in public institutions by age, 2004 and 2007



Source: HEMIS

Public universities are employing more staff in temporary positions. While the levels of employment of permanent staff in the sector have remained constant since 2004, there has been an increase in the number of staff appointed to temporary positions. In 2004, 57% of higher education staff were appointed on a temporary basis and by 2007, this had risen to 60%.

Figure 35: Staff (headcount) in public higher education by basis of employment



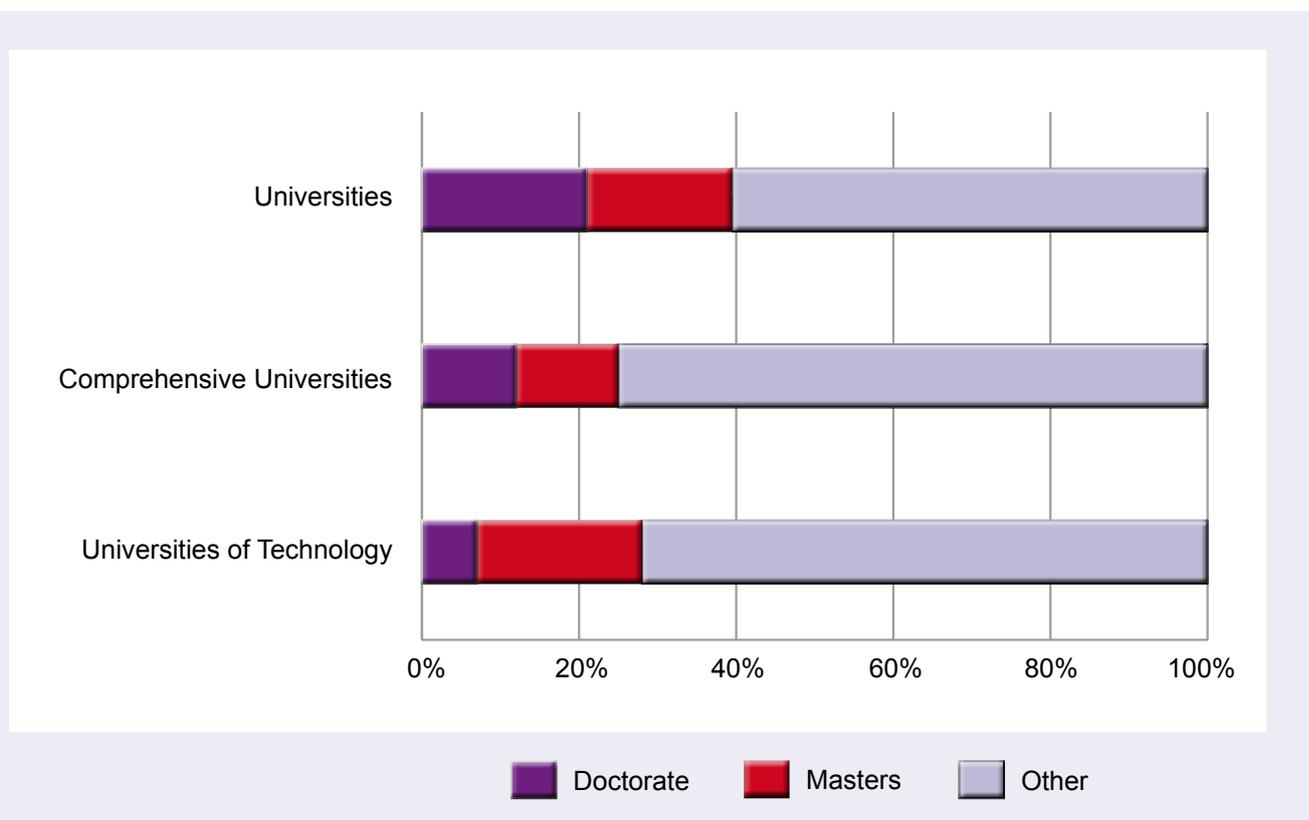
Source: HEMIS

Quality of academic staff

The quality of academic staff is critical to the success of the research and teaching and learning missions of the institutions. There are few direct measures of this quality. Research and teaching outputs say something about the quality of academic staff, but they also reflect the opportunities and support that staff have had. Similarly, the qualifications of academic staff provide some measure of the quality of academic staff.

Of the 41 383 academics staff employed in the public institutions in 2007, 6 806 had doctoral degrees (16%) and 14 033 had master's degrees (34%). This means that 66% of academic staff are qualified to a level lower than master's. The qualifications of academic staff have improved slightly since 2004 when 14% had doctoral degrees and 30% had master's degrees. The more highly qualified people are unevenly distributed across the system. Around 8% of staff at Universities of Technology have doctorates; at comprehensive universities, the figure is 12% and at universities, 21%. Comprehensive institutions have the highest proportion of staff qualified to a level lower than master's; 75% of their staff fall into this category. At universities of technology, it is 73% and at universities, 60%.

Figure 36: Proportion of academic staff at public institutions by highest qualification and institutional type, 2007



Source: HEMIS

Equity in staffing

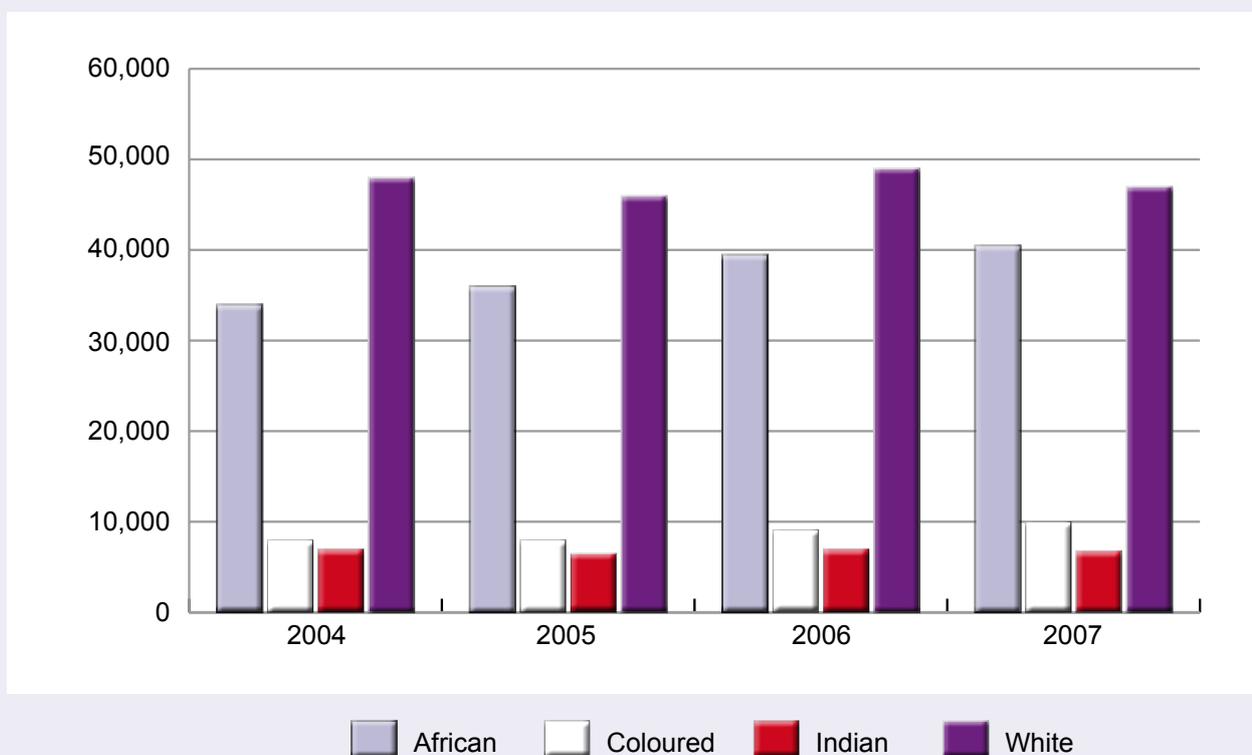
Achieving equity in the staff profile of the public higher education institutions is proving to be a long and slow process. Most staff are white, particularly in senior positions and in academic positions. There is a steady, but very slow increase in African staff. There has been greater progress towards gender equity although senior management⁴⁴ remains a masculine domain and the bulk of administration is carried out by women.

The National Plan recognized the difficulties of achieving equity in higher education staffing and suggested that plans needed to be put in place to reduce the number of white staff while developing black staff and that there was a need to change the institutional cultures (Ministry of Education, 2001, p. 39). All institutions have equity plans that are in progress.

Racial equity

The profile of university staff employed in public higher education remains racially skewed. It is changing, but slowly. In 2007, 37% of staff in public higher education were African, up from 33% in 2004; 44% of staff were white in 2007, down from 48% in 2004. While the change is slow, it is not insignificant, given the difficulties of sourcing staff. Between 2004 and 2007 almost 6500 additional African staff were employed at the public universities. The graph below shows the steady increase in African staff.

Figure 37: Staff (headcount) in public higher education by race

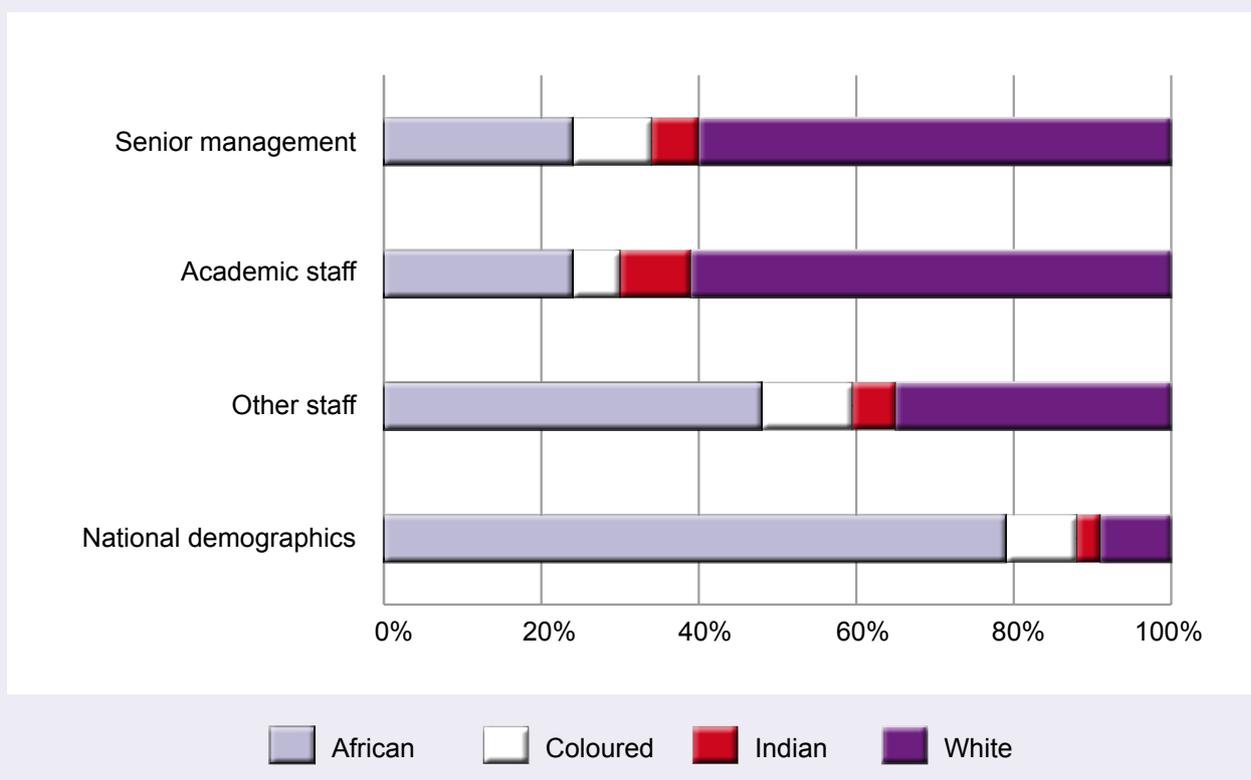


Source: HEMIS

⁴⁴ Senior management is defined in the HEMIS system as a position in which (a) the primary function is the management of the institution or one of its major divisions or sections, and (b) the position requires an educational attainment equivalent to at least 4 years of higher education study.

There is still a disproportionate number of white staff employed at all levels and the proportion of higher education employees that are designated Indian, is greater than in the general population. This profile of the higher education workforce means that students continue to interact primarily with white academic staff and that black students have fewer role models among the academic and senior administrative staff.

Figure 38: Staff (headcount) in public higher education by race and level of employment, 2007

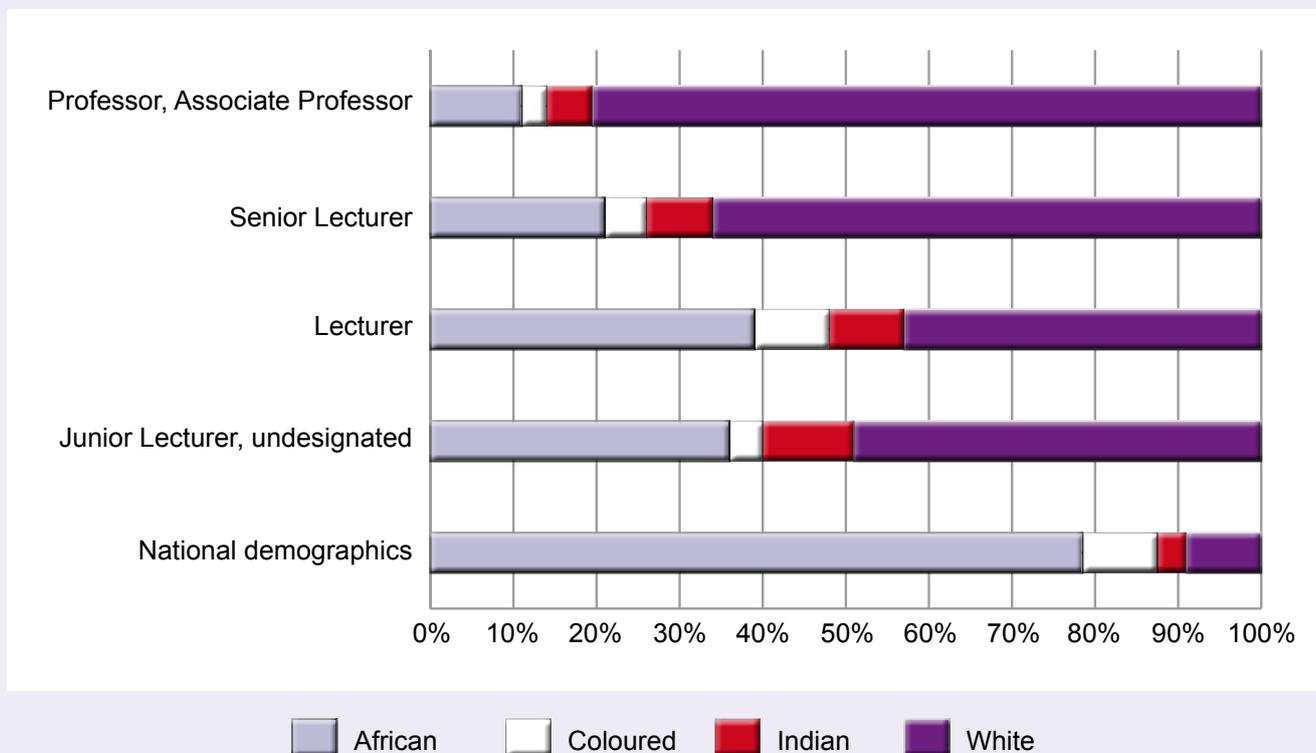


Source: HEMIS

Over the period 2004 to 2007, African staff in senior management positions increased both in number (headcount) and in proportion from 22% in 2004 to 24% in 2007. Indian staff also increased in both number (headcount) and proportion. The number of coloured staff in senior management positions remained constant, while the number of white people increased in number, but decreased in proportion to other race groups.

When it comes to academic appointments (instructional and research staff), the racial imbalance is more pronounced. White staff continue to fill most of the academic posts at all levels. Indian staff are also overrepresented, while African and coloured staff are underrepresented at all levels. This profile has changed very little since 2004, the most noticeable shift being at the senior lecturer level where the proportion of African staff moved from 17 per cent in 2004 to 20 per cent in 2007.

Figure 39: Academic staff (headcount) in public higher education by race and level of appointment, 2007 ⁴⁵



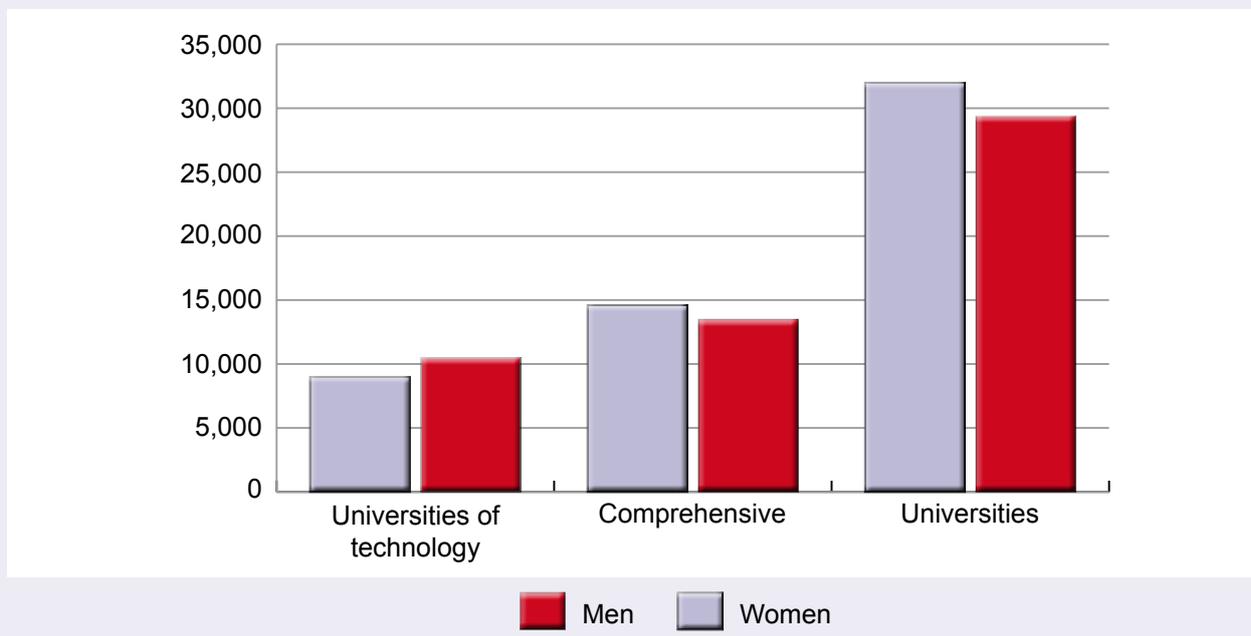
Source: HEMIS

Gender equity

Up until 2005, public higher education employed more men than women. This changed in 2006 when women outnumbered men for the first time, and by 2007 women made up 51% of higher education employees. But while equity has been achieved overall, there are continuing differences. There are differences across university types; universities of technology continue to employ more men (54%) than women (46%) while comprehensive universities and universities employ more women (52%) than men (48%).

⁴⁵ A total of 1468 staff whose race is unknown were excluded from this analysis.

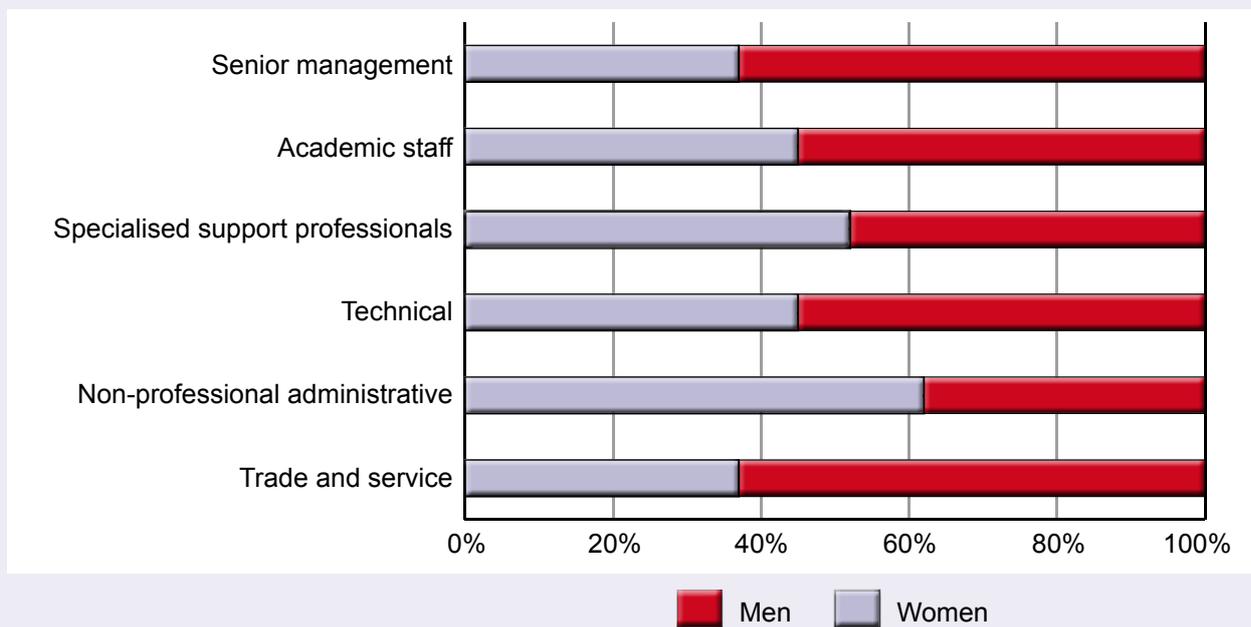
Figure 40: Staff (headcount) in public higher education by gender and institutional type, 2007



Source: HEMIS

Within job categories the gender equity is less evident. Men hold the majority of management, academic, technical, trade and service posts, while women are in the majority in the specialized support professional and non-professional administration posts. Between 2004 and 2007 the trend in all job categories is towards greater numerical equality. The areas where the greatest inequality persists are trade and service positions, and senior management. In both of these categories 64% of employees are men. However, these categories are small, representing (respectively) only 8% and 2% of positions in the sector.

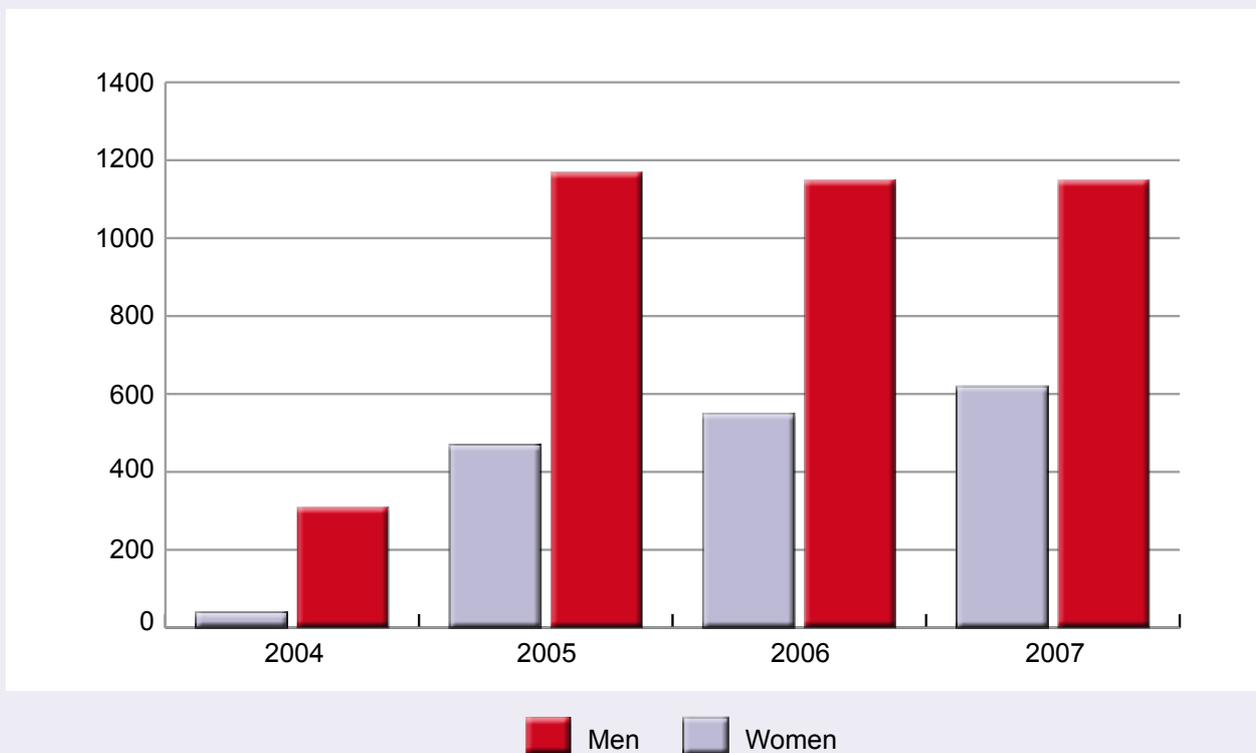
Figure 41: Staff (headcount) at public institutions by gender and level of employment, 2007



Source: HEMIS

Women have made inroads into higher education management. In 2004, 18% of senior management positions were filled by women, and by 2007 this had risen to 36%. Women are best represented in the universities where they make up 40% of the senior management and least well represented in the universities of technology where they make up 24%. At comprehensive universities, 31% of senior management are women. Despite this progress, few women make it to the most senior positions; only four out of the 23 public institutions, the University of Pretoria, Cape Peninsula University of Technology, the Vaal University of Technology and the University of Zululand, have women vice-chancellors. The chart below reflects the growing number of women in senior management positions.

Figure 42: Growing numbers of women in senior management positions ⁴⁶



Source: HEMIS

When it comes to academic staff, men are still in the majority. In 2007, overall 57% of employees are men and 43% women. There are differences across institutional types with comprehensive institutions employing slightly more women (45%) and universities of technology employing slightly fewer (42%). These proportions have remained stable since 2004. Women continue to be underrepresented in the more senior academic positions and only 24% of professors and associate professors and 40% of senior lecturers are women. These numbers have changed little since 2004 when 25% of professors and associate professors and 38% of senior lecturers were women.

⁴⁶ Changes in reporting account for the increase in senior management positions between 2004 and 2005.

Figure 43: Academic staff (headcount) by gender and level of appointment, 2007



Source: HEMIS

Concluding comments

Despite moves towards increasing funding from other sources, public higher education in South Africa continues to rely heavily on state funding. The past five years have seen a dramatic increase in the amount of third-stream income, but a substantial amount of this funding also originates from the state. The proportion which student fees contributes to the funding of higher education is decreasing, although it varies considerably across institutions. Funding for students through NSFAS has increased substantially, but fees continue to be an obstacle to participation in higher education for many South Africans.

A new funding framework has replaced the cost-driven approach to institutional subsidies for teaching and research, with the intention of steering the higher education sector towards more direct realization of policy goals. The new funding framework appears to have had two significant impacts on the system. Firstly, institutions have succeeded (some more than others) in increasing their third-stream income and thus have become less dependent on the first-stream subsidy income. Secondly, the direct funding of research outputs has resulted in an increase in the output of research publications in the form of journal articles. The impact on teaching and learning, where the funds are less directly linked to outcomes, has been less obvious. The funding has been adjusted each year in attempts to improve teaching and develop research, but the results of these adjustments are not clear.

South Africa's public universities compete against each other for state funds, a situation that is less than desirable because the stronger institutions are better able to compete. In effect the strong get stronger while the weak get weaker. While the funding framework has included elements to counter this, they do not appear to have been successful.

Staffing the higher education sector continues to be a challenge, particularly when it comes to attracting and retaining suitably qualified academic staff. There are few people qualified for academic work and many academic staff lack master's and doctoral qualifications. Attempts to attract staff from other countries have been hampered by the poor service provided by the Department of Home Affairs. It has also proved difficult to transform the racial profile of the staff at universities. While there has been some progress towards greater equity, academic and senior management staff continue to be disproportionately white. There has been greater success with gender equity although women are still underrepresented in senior management.

6. Salient debates and developments

It is difficult to do justice in this report to the full range of activities and concerns of the higher education sector during the past five years and there are many omissions. But there are a few more salient debates and developments in the sector which cannot be ignored. The higher education sector has grappled with its role in relation to the wider society and in particular with its response to poverty and development needs. This has led to ongoing experimentation with different forms of social responsibility or community engagement. A new policy framework on HIV and AIDS was adopted. And the behaviour of some students at the University of the Free State drew attention to continued racism and other forms of discrimination on university campuses. These matters are covered briefly in this section.

Engaging with the wider society

As higher education competes for public money, there is increasing pressure to demonstrate a direct contribution to society. Moreover, the extremes of economic inequality in South Africa result in a moral imperative to address the problems of poverty. Education White Paper 3 called on institutions to “demonstrate social responsibility” by showing a commitment and “making available expertise and infrastructure” (Department of Education, 1997, p.11). And to “promote and develop social responsibility and awareness amongst students of the role of higher education in social and economic development through community service programmes” has been identified as one of the goals of higher education (CHE, 2004b, p. 134).

The Department of Education has voiced concern about the types of graduates produced by higher education and how these graduates are contextualized within society. Speaking at a symposium on community engagement, Dr Qhobela, the deputy director-general for higher education, pointed to a real or perceived gap between expectations and practice. Higher education should be producing graduates who are not only knowledgeable, but also feel a sense of responsibility towards society and have learned cultural tolerance (CHE, 2009a). As a result of such concerns, the notion of service as the third responsibility of universities, has become identified in South African higher education with social responsibility or community engagement. Such activities are seen as important because they relate directly to the social and economic development of the country and “knowledge based community service” has become a requirement for quality assurance and programme accreditation (Higher Education Quality Committee, 2004).

Definitions and debates

In the past four years, institutions and the sector as a whole have continued to grapple with understanding what such social responsibility or community engagement means, and have continued to implement a variety of programmes under this banner. A great variety of practices have manifested themselves at higher education institutions, ranging from student volunteerism, service learning, engagement with policy-makers, and community-based action research, to offering specialist skills to communities and other consulting work.

There have been attempts to define the term community engagement, for example as “continuously negotiated collaborations and partnerships between the university and the constituency that it serves

aimed at building and exchanging the knowledge, skills, expertise and resources required to develop and sustain society” (Fourie, 2006, p. 10) or as “responsiveness to (local or regional) imperatives” where such imperatives are defined nationally by, for example, the National Plan for Higher Education, the Department of Science and Technology, the National Research Foundation, or NEPAD (CHE, 2009a). Various frameworks have been put forward as ways to understand community engagement. For example, Naudé has categorized forms of community engagement in terms of the beneficiary of the service and whether the goal is learning or providing a service (Naudé, 2006).

Table 22: Forms of community engagement

Form of engagement	Primary intended beneficiary	Primary emphasis
Volunteerism	Service recipient (community)	Service provided
Community outreach	Service recipient (community) Learners may receive benefits e.g. credits	Service provided
Internships	Provider/learner Service recipient (community) benefit as a secondary unintended goal	Learning
Co-operative education	Provider/learners Recipients/community may also benefit	Learning, but with a definite emphasis on the service
Service-learning	Provider/learner and recipient/ community	Service and learning

Source: Naudé 2006

Debates centre around who the community in community engagement is; what constitutes engagement; and how community engagement relates to teaching and learning, and research. Some have argued that community engagement should not include on the one side, traditional charitable outreach programmes and on the other, for profit industry relationships. But others have aligned more closely with the experience of business which has moved from implementing corporate social responsibility programmes to developing social entrepreneurs. For them, social responsibility is better conceived of as “implementation of expertise” and this could be for profit or not (CHE, 2009a).

A related debate centers around the extent to which social responsibility or community engagement should be identified as a third responsibility for higher education, separate from teaching and learning, and research. Some have argued that while this is intended to give such programmes priority, the inadvertent effect is to remove it from the well-understood core processes of the university. Rather, it has been suggested that teaching and research should take cognizance of the concern with the public good and “contribute through service learning, volunteerism, learning through rendering service, community participation in engaged and responsive research, and social enterprises” (Hall, forthcoming). This view is supported by others who argue for “use-inspired research” towards addressing the problems of development (CHE, 2009a); that community engaged teaching and learning should be seen as a scholarly activity (Naudé, 2006); and that community engagement could be used to create a strong fusion between the core functions (teaching and learning, and research) of higher education (CHE, 2009a).

These views are supported by the “bottom-up approach” taken at some universities where the focus has been on understanding and analyzing the social responsibility or community engagement practices within the university. At the University of Cape Town, over 50 “portraits of practice” have been documented, some research-oriented and some teaching or service-oriented. In an analysis of these portraits, it became clear that community engagement could not be separated from teaching and learning and knowledge generation (UCT, 2008).

Others have suggested that it is not necessary to define social responsibility or community engagement solely in terms of the teaching and research activities of the university, but that it is appropriate that institutions should respond to those local or regional imperatives that align with their individual strategic directions, and their resources and abilities, in a variety of ways. That there is a range of responses might be seen as appropriate and desirable. However such projects and initiatives are expressed, the unique contribution that higher education can make to society, is to bring “powerful knowledge” to bear on problems (CHE, 2009a).

During the period under review, these debates have continued in a number of forums. A conference held in Cape Town from the 3rd to 5th September 2006, drew more than 200 delegates from around South Africa as well as from Ghana, India, Mexico, the United Kingdom, and the United States of America. A National Community Engagement Manager’s Forum (NatCEMF) has been established and has met twice; in Stellenbosch in November 2008 and in Bloemfontein in May 2009.

In 2008 the CHE commissioned research into community engagement. This research resulted in a paper which was debated at a symposium on community engagement, held in Pretoria on the 19th March 2009. The symposium drew representatives from sixteen South African universities, the Department of Education, the Department of Science and Technology, the National Research Foundation, Higher Education South Africa and the Council on Higher Education. The paper and responses from the sector are to be published in the CHE’s Kagisano series.

Purposes and practices

There are many benefits of having higher education engage more closely with other communities. Some of those recorded by institutions include benefits to the teaching programmes including opportunities for interaction between diverse groups of people, promoting social awareness among students, promoting critical citizenship among students, enhanced student learning, richer and more relevant curricula, and greater transfer of skills and knowledge (in all directions). Research has benefitted by access to research sites, opportunities to collaborate across disciplines, and improved focus and relevance. Communities that have been the focus of engagement activities have benefitted from interventions that provide goods and services, from training and from advocacy and access to expertise (CHE, 2008b; UCT, 2008).

Examples of good practice are emerging from HEQC institutional audits where institutions were commended on aspects of their community engagement initiatives. The examples indicate that the essence of good practice in community engagement lies in the integration of teaching and learning and research with community engagement activities. There is a strong emphasis on formalizing quality assurance of community engagement activities in policies and procedures, as well as recognition of academic work done within community engagement projects.

While there is still no consensus on what form it should take, social responsibility or community engagement activities are receiving serious attention at most public and many private institutions. From these initiatives are emerging criteria for engagement. Primarily there needs to be a recognition that all parties – communities, universities and students – contribute to and benefit from the intervention. Successful partnerships between the institution and community are based on “shared philosophy, vision and values; high priority on trust, mutual accountability and responsibility; communication, evaluation and feedback; reciprocity; equality and equity, and sustainability” (Fourie, 2006, p. 12). More successful initiatives are linked to teaching and learning or research programmes. And for social responsibility or community engagement practices to be successful, they need to be integrated into the activities of the institution rather than being added on (Fourie, 2006). They should be acknowledged in the mission statements of institutions and allocated staff and resources including logistical support. For staff to engage in these practices, these activities need to be acknowledged in performance appraisals and staff promotions (Naudé, 2006).

The lack of agreement on a definition for community engagement should not be seen as an obstacle to progress, but rather as indicative of a healthy higher education sector where diversity and the freedom to experiment with different approaches allows for the emergence of robust programmes. What is important going forward is the continued communication within the sector and with communities, however these are demarcated, about what has been tried, what has succeeded and the lessons learned in the process. Continued debate is also important to analyse what has been learned, to give voice to new ideas and to prevent exploitative practices. In the process the sector’s understanding of community engagement and the role of higher education in addressing social and economic development, will be strengthened.

Policy framework on HIV and AIDS

In October 2008 the Minister of Education adopted a “Policy Framework on HIV and AIDS for Higher Education in South Africa”. The policy framework is intended to guide and inform higher education institutions as they develop and operationalise institutional strategies and initiatives to mitigate the impact of HIV and AIDS in the higher education sector. This framework was constructed after consultations with stakeholders across the sector and is a joint project of Higher Education South Africa (HESA) and the Department of Education. It was developed out of the Higher Education HIV/AIDS Programme (HEAIDS), a Department of Education initiative undertaken by HESA and funded by the European Union under the European Programme for Reconstruction and Development. The HEAIDS Programme was introduced in recognition of the contribution that higher education makes to the South African economy and society through its graduates, research outputs and community engagement processes. It has focused on strengthening the capacity of institutions to respond to and actively participate in national efforts to mitigate the impact of HIV and AIDS holistically.

The policy framework recognizes that collectively and individually higher education institutions must act to prevent new HIV infections and to provide access to treatment, care and support for staff and students. Firstly, the framework aims to mobilize leadership to drive and sustain responses to HIV and AIDS both internally within the higher education sector and externally within broader society. Secondly, it sets out a human rights-based approach to be used to create healthy and safe environments for all members of the higher education community. Thirdly, the framework stipulates that the sector must play an integral part in the national response to HIV and AIDS.

Currently, most public institutions and many private institutions have policies in place to deal with HIV and AIDS, but at present no system-wide data is collected on the prevalence of HIV and AIDS within the higher education sector. The implementation of the framework is intended to identify good practices and lead to country-level monitoring and evaluation mechanisms for the higher education system; and ultimately, to lead to resource mobilization.

Racism and other forms of discrimination

An event which received significant media coverage during 2008, was the behaviour of some students at the Reitz residence at the University of the Free State where a video surfaced of white students humiliating black cleaners in February 2008. The residence was closed by the University in July 2008 and the students involved face charges of *crimen injuria*. This incident raised concern about racism and other forms of discrimination in universities and led to the Minister of Education, establishing a *Ministerial Committee on Progress Towards Transformation and Social Cohesion and the Elimination of Discrimination in Public Higher Education Institutions*, in March 2008. The brief to the Committee was to “investigate discrimination in public higher education institutions, with a particular focus on racism and to make appropriate recommendations to combat discrimination and to promote social cohesion” (Department of Education, 2009). It was asked to report on the nature and extent of racial and other forms of discrimination in public higher education institutions; the steps taken by institutions to combat discrimination; and to advise the minister on strategies to counter discrimination.

The Committee invited submissions from the public higher education institutions and other interested bodies; reviewed available data and literature; and visited institutions and relevant national organisations to solicit the views of stakeholder. The full report was released in June 2009.

The Committee concluded that “transformation is clearly a challenge facing *all* South African higher education institutions.” During their investigations it became clear that all institutions have responded at a formal level and had in place a comprehensive range of policies to address discrimination and transformation. However it was also clear that “there is a disjunction between policy development and implementation” and that “discrimination, in particular with regard to racism and sexism, is pervasive in our institutions.” According to the report, this is due to a lack of information and awareness of the policies as well as a lack of institutional will in implementing them, and to differences between institutional culture and the transformation policies.

The Committee recommended that all institutions be required to develop, with the involvement of all stakeholders, a transformation compact to be included in the institutional plans which they submit to the Department of Education. It also recommended that a permanent oversight committee be established to monitor the transformation of higher education and that each institution establish an independent Office of the Ombudsman to deal with complaints about discrimination. The Committee concluded that university councils “had failed to realize the full scope of their responsibilities in respect of transformation” and recommended a review of the size and composition of councils and training of council members.

The report expresses concern about the academic performance of students and how student learning needs are addressed. The Committee found that the “parallel-medium language policies

that are in place in a number of historically Afrikaans-medium institutions discriminated against black students” and recommended that greater pressure be placed on institutions to implement language policies that commit to multilingualism and the development of African languages. It recommended the development of young black and female staff members be speeded up, and suggested ways in which institutions could facilitate this and ensure that equity concerns were given priority when employing new staff. A review of undergraduate and postgraduate curricula was suggested, to “assess their appropriateness and relevance in terms of the social, ethical, political and technical skills and competencies embedded in them ... in the context of post-apartheid South Africa and its location in Africa and the world.”

The Committee urged the Minister to invest further in NSFAS and the accommodation at historically black campuses to facilitate access to university by financially disadvantaged students. It urged institutions to pay greater attention to protecting and promoting the interests of women and students with disabilities, and to review orientation programmes with a view to eliminating humiliating practices. There were several detailed recommendations around student residences including centralizing the allocation of rooms to avoid racist practices by residence committees, reviewing the election processes for residence committees, removing the power and authority that senior students have over junior students in the residences, and banning all initiation ceremonies and practices. It also recommended reviewing the processes for employing and training residence managers.

The gap between policy and practice was also highlighted at a conference, *Institutional Cultures and Higher Education Leadership: Where are the Women* at the University of Cape Town in March 2008 that focused on the poor representation of women in senior positions in higher education. The conference resulted in a Declaration calling for a significant improvement in the representation of women in senior academic, administrative and executive leadership positions in all higher education institutions. The conference called on the Department of Education, the CHE and HESA to promote the importance of equity at senior leadership levels, to set targets for the representation of women in senior positions, and to monitor progress towards gender equity. HESA was called upon to draw up a National Plan of Action to support the attainment of these targets. There was also a broader call for a new national vision around gender and leadership with universities leading the way in questioning the strong authoritarian, racist and sexist culture and a redefinition of power away from a control model to an enabling model.⁴⁷

Racism and discrimination are not unique to the higher education sector, but are of course features of South African society as a whole. Higher education is however uniquely positioned to challenge racist and sexist assumptions and to promote and model non-discriminatory practices. In addition institutions have a responsibility to ensure that students have been challenged to consider their own prejudices, have been given the opportunity to engage with people from different backgrounds and emerge with a sense of their own responsibility and role in the challenge of building an equitable society. The progress of the sector towards these goals will continue to be monitored by the CHE.

Academic freedom and institutional autonomy

In the past five years questions of academic freedom and institutional autonomy have been regularly and publicly debated in academic circles and in the South African press. The debates centre around whether or not these values are being eroded by government, funding agencies, sponsors, donors

⁴⁷ Transforming higher education leadership, Dr Lesley Shackleton, 31 March 2008.

and institutional management. Academic freedom and institutional autonomy are regarded as distinctive features of higher education systems in many countries across the world. In South Africa academic freedom is a right enshrined in the South African Constitution and the 1997 White Paper (Department of Education, 1997). In mid-2005 the CHE established an independent Task Team to examine conceptions of academic freedom, institutional autonomy and public accountability. The task team report was finalized and published in 2008 (CHE, 2008a).

At the core of academic freedom and institutional autonomy is the understanding that the university and its academics should enjoy freedom of teaching and inquiry. The widely accepted distinction between institutional autonomy and academic freedom is that institutional autonomy describes the right that applies to a recognized community of scholars organized within a university as a societal institution; while academic freedom applies to the rights of individual academics and students within a university.

The Task Team pointed out that conceptualizations of academic freedom and institutional autonomy are shaped by socio-historical context. In South Africa, there are tensions between the ideal of institutional autonomy and the state's desire to steer higher education in particular policy directions and various ways have been put forward of conceptualizing the relationship between the universities and the state. Similarly, there are tensions between institutional management's efforts to steer institutions in particular ways and the right of academic staff and students to research, teach, learn and publish without restraint. These tensions take on particular forms in the context of a higher education system that is in the process of significant structural change and transformation, however that is understood.

Perhaps the only conclusion that can be drawn at this stage is that these relationships are, rightly, a matter for contestation and public debate, because such debates provide an opportunity to assess whether contemporary policies and operational procedures are appropriate and relevant in changing contexts. In terms of promoting accountability, there is a need for further public debate about the role and purpose of higher education. The task team recognized the need for co-operation in higher education governance; for a reformulated concept of academic freedom that links the rights and duties of academic freedom to the responsibility to serve the public good; for institutional autonomy that is linked to the substantive goals of society; for democratic accountability and for national steering of the higher education system. It made several recommendations as to how steering, governance and co-operation could be better effected.

7. Conclusions

This review of the state of higher education in South Africa drew on readily available data and research in order to reflect on developments in higher education over the past five years. It does not claim to be comprehensive and many of the issues dealt with could benefit from a more in-depth analysis. Rather it has set out to give a high-level overview. We conclude with some equally high-level reflections.

First we consider progress towards the goals set for higher education in national policy. Then we summarize the progress made and the ongoing challenges that the sector faces. Finally, we reflect on the increasing differentiation in the higher education sector and the need for a revised policy framework that addresses the needs of the new higher education landscape.

Is the system meeting national policy goals?

The 2001 National Plan for Higher Education (NPHE) set out goals for higher education in South Africa that have continued to guide policy. How is the higher education system faring against these goals? Overall the progress is satisfactory. Some goals have been met. The lack of progress towards others indicates significant challenges still to be overcome.

The NPHE identified five goals and sixteen outcomes to be pursued. In this section we examine the progress which has been made against the identified outcomes.

Goal one: Providing advanced educational opportunities

The first goal of the National Plan is to “provide a full spectrum of advanced educational opportunities for an expanding range of the population irrespective of race, gender, age, creed or class or other forms of discrimination.” This goal includes six outcomes, including increased participation rates; increased graduate outputs; a broadened social base of students; increased recruitment of students from SADC countries; shifting the ratio in which students enroll for the three broad fields of study; and enhanced cognitive skills of graduates.

The goal of outcome one was to have 20% of people aged 20 to 24-years-old system participating in higher education “over the next 10-15 years” (Ministry of Education, 2001, p. 19). Although the number of students enrolling has increased in the period under review, the participation rate has remained at around 16%. Unless something changes, it is unlikely that the target of 20% will be reached by 2011 or by 2016. The second outcome set targets for the efficiency of the teaching programmes in terms of graduation rates discussed in Chapter 3. While there have been overall improvements in the graduation rates, they are not yet nearing the targets. Cohort studies show that of the students entering university in 2000, an estimated 44% will go on to graduate. As more cohort studies become available it will be possible to detect trends.

The intention of the third outcome was to expand higher education access to older students, workers and people with disabilities. The data shows that the proportion of older students enrolling has been declining since 2004. There is no information available about the number of workers enrolling, and

the data that is collected about student disability is unreliable at present. The proportion of foreign students enrolling in South Africa's public universities remained at around 7% since 2004. About 5% of students enrolling are from SADC countries. There is still scope for increasing enrolments of foreign students. In particular, the number of students from SADC countries could be increased to the 10% of enrolments mentioned in outcome four.

Outcome five related to the balance in enrolments in three broad areas of study: the humanities and social sciences; business and commerce; and science, engineering and technology, with the goal of having students enroll in these areas in a ratio of 40:30:30. As we saw in Chapter 3, this goal has been achieved and the ratio of enrolments has reflected this pattern over the period being reviewed. This report has not included any data which reflects on progress towards outcome six, the enhanced cognitive skills of graduates.

Goal two: Equity of access and success

The second goal of the NPHE is to "promote equity of access and fair chances for success to all who are seeking to realize their potential through higher education, while eradicating all forms of unfair discrimination and advancing redress for past inequalities." This goal is expressed in two outcomes; increased equity in access and success rates and improved staff equity.

In 2007, 63% of students in the public higher education system were classified African, 6% were classified coloured, 7% Indian and 24% white. White and Indian students had participation rates of 54% and 43% respectively, while the participation rate for coloured and African students was 12%. So the profile of students does not yet reflect the racial profile of the population. And the situation is even more unbalanced when examined in more detail. Only 50% of students enrolling in traditional universities are African and courses in education continue to attract a greater proportion of African students. African students are less successful than white students, although since 2004, there are signs that this gap has narrowed slightly.

Since 1995 more women than men have enrolled in public higher education, although there are still differences by field of study, with higher proportions of women enrolling in education and more men enrolling in science, engineering and technology courses. Women are also more likely to graduate than men.

NSFAS funding has facilitated increased access, particularly for poor students.

The progress towards outcome eight, improved staff equity has been slower. White staff continue to dominate, in particular among the academic staff and in senior management where about 60% of staff are white. People classified Indian are also disproportionately represented in the staff profile. Since 2004 there has been a slow increase in the number of African and coloured staff, but almost no change in the numbers of white and Indian staff. This means that where staff numbers are growing, that growth is in African and coloured people. Since 2006 public higher education has employed more women than men, but there are still inequalities. Most women are employed in non-professional administrative roles or as specialist support professionals. Men still dominate in senior management positions and only four of the 23 public institutions are headed by women vice-chancellors.

Goal three: Diversity in institutions and programmes

The third goal of the National Plan is to “diversify the system in terms of the mix of institutional missions and programmes that will be required to meet national and regional needs in social, cultural and economic development” and this goal is expressed in four outcomes. These include differentiation by missions and programmes, regulation of distance programmes at residential institutions, establishment of a single dedicated distance education institution and the regulation of private higher education.

The National Plan for Higher Education opted to promote diversity in public higher education through mission and programme differentiation with checks on how the programme mix matched regional and national needs and institutional capacities. (Ministry of Education, 2001). Institutions have engaged with this process and it has been reinforced by the institutional audits which interrogate the mission and programme mix of each institution. As will be discussed under goal five below, there are signs of increasing self-differentiation emerging which are indicative of a maturing higher education sector. As far as distance education goes, the single dedicated distance education institution was created in 2004 with the merger of all distance institutions into UNISA. Policy for distance education has been under development, but has not yet been published or implemented. Programmes are being regulated through the accreditation process which ensures that programmes are in line with institutional missions and meet quality standards.

The *Higher Education Act, 1997* (Act No. 101 of 1997) together with the *Regulations for the Registration of Private Higher Education Institutions, 2002* (R1564 of Government Gazette No. 24143, 13 December 2002) made provision for the regulation of private higher education institutions. Private higher education institutions are required to be registered with the Department of Education and to meet the requirements of the Higher Education Quality Council. Since these regulations were in place before 2004, this matter has not been dealt with in this report.

Goal four: Research

The fourth goal of the National Plan is to “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.” This goal anticipates two outcomes, research concentration and funding linked to outcomes, and increasing graduate outputs at the master’s and doctoral levels.

During the period under review, the Department of Science and Technology made use of ring-fenced grants to direct research and the NRF made use of directed funding to promote areas of research focus. There is evidence that this approach helped to steer the research directions of universities. However, there is no comprehensive research that maps the extent to which outcome thirteen, a concentration of research activities, has been achieved. The new funding framework has linked funding more directly to outcomes, particularly in the direct rewards for research publications. This change in funding has led to increases in the quantity of research being published.

Progress in increasing the number of master’s and doctoral graduates has been negligible. Doctoral enrolments have been consistently above outcome fourteen’s target of 1% of total enrolments. Doctoral graduations have hovered very close to the target 1%, but there has been little increase

since 2004. Enrolments in master's programmes have decreased since 2004 to a level below the target of 6% of total enrolments and graduations are also decreasing.

Goal five: A coordinated national higher education system

The fifth and final goal of the National Plan is to “build new institutional and organisational forms and new institutional identities and cultures as integral components of a single coordinated national higher education system.” This goal includes two outcomes, increased programme and infrastructural collaboration and restructuring the institutional landscape of higher education.

This review did not uncover any evidence that reflected increased programme and infrastructural collaboration apart from that which is the result of mergers. But it did not examine the area in any detail. So it is not possible to comment on progress towards outcome fifteen. That the landscape of higher education has been restructured, outcome sixteen, cannot be disputed. There are now 23 public universities including comprehensive universities and universities of technology. Some of the mergers resulted in rebranding with institutions establishing new identities for themselves. The creation of universities of technology lead to debate about their role and form, and to co-operation among the institutions in addressing these and other questions. And there are signs that new groupings of public institutions are emerging as, for example, the rural, previously disadvantaged institutions begin to collaborate on concerns unique to their situation. In addition, the sector includes close to one hundred private higher education institutions, many filling niche roles.

Progress and challenges in higher education

How one perceives the state of higher education in South Africa, depends very much on where one stands. If one looks at South African higher education from the perspective of higher education in the developed world, it is easy to focus on the weaknesses. We enroll only 16% of 20-24 year-olds compared with participation rates as high as 70% in North America and Western Europe. We expect 44% of a cohort to go on to graduate, while in England the equivalent figure is 78%. But when one compares South Africa to the rest of Africa, it is easier to focus on the successes. South Africa produces 64% of all research undertaken in Africa and attracts tens of thousands of Africans in search of high-quality education.

There has been progress in a number of respects:

1. More students are enrolling in higher education.
2. NSFAS has made it possible for many students without financial means to access university education.
3. There is steady progress towards greater racial equity in enrolments. (For some this progress is slow; for others it is considered the best that can be achieved given the problems at the school level.)
4. Gender equity in overall enrolments has been achieved.
5. The target of 40:30:30 enrolments in human and social sciences; business commerce and management; and science, engineering and technology has been achieved.
6. Substantial numbers of foreign students choose to study in South Africa.
7. The number of graduations has increased more rapidly than the number of enrolments.

8. We have for the first time, cohort data that gives us a more meaningful benchmark than the graduation rate for how many students pass through the system and at what rates.
9. To the extent that data is available, it appears that higher education is meeting the need for developing high-level professionals.
10. There has been a significant increase in research output, particularly in journal articles.
11. The number of NRF-rated researchers who are classified African is increasing, as is the number of rated researchers who are women.
12. There has been a shift away from reliance on state subsidies and towards greater third-stream income.
13. We have a reconfigured public higher education sector which includes a single distance education provider. (And the effort that staff put into making the mergers work must be acknowledged.)

But there are ongoing concerns:

1. The overall participation rate is not improving and remains low.
2. The cost of higher education continues to exclude many and student fees are an ongoing source of discontent among students.
3. Racial inequity in enrolments remains. The participation rates for whites and Indians are high, while those for coloureds and Africans are low.
4. The number of students who succeed is considerably lower than the number who enroll.
5. On average, African students continue to be less successful than white students.
6. Research output continues to be dominated by white men.
7. The funding of research outputs does not appear to adequately support some of the outputs that are considered important in some disciplines, nor does it support collaboration.
8. The number of students enrolling for master's level study is decreasing and the number enrolling for doctoral level study has remained constant.
9. Few staff in higher education institutions have master's or doctoral degrees.
10. The staff profile, and particularly that of academic staff and senior management, is predominantly white and male.
11. The full potential of distance education has not yet been realized.
12. The private higher education sector is not yet fully understood.
13. There are many areas of higher education for which we do not have adequate information to properly understand whether progress is being made.

These apparent weaknesses of higher education need to be seen in the context of the significant challenges which the sector continues to face. Because of the poor quality of school-leavers coming into the system, universities are burdened by having to provide remedial teaching to address gaps in school level education and to develop basic literacy and numeracy skills. It is difficult to staff higher education institutions (CHE, 2004b) because graduates are also in demand by the private and government sectors (Cloete & Galant, 2005). Of the few doctoral graduates that are produced, many migrate out of the country and out of research into managerial and specialist positions (Blankley, 2004; Kahn et al., 2004). There are ongoing tensions around funding levels, how funds are distributed (both nationally and within institutions) and around who is able to access funds that are available.

Staff at South African universities have experienced changes in the nature of their work with increased teaching and administrative workloads, the need to deal with a rapidly changing student body, and pressure to transform curricula and teaching practices. They are under pressure to improve teaching, increase research output and take on more administrative work. Within the institutions, uncertainty and changes in organisational culture and values have made conditions of employment uncomfortable for staff (CHE 2004b:142; Johnson 2006). And institutional mergers have made teaching and collegial relationships across merged campuses more complex (Buller & Quilling 2005; Groenewald & Thulukanam 2005). In the face of these challenges, it is a tribute to the dedication of the staff at universities that the system continues to function as successfully as it does.

The way forward

What becomes clear from this overview is that higher education needs a revised set of goals. The National Plan for Higher Education has served its purpose, now a new national plan is needed. Several of the goals that were set in the NPHE have been achieved. The public higher education landscape has been reconfigured, there is a single distance education institution, private higher education is regulated and targets have been met. Enrolments in science, engineering and technology are at 30% and doctoral enrolments are at 1%.

Where goals have not been met, the policy as it stands does not contribute to meeting them. For example, the participation rate target of 20% was based on the assumption that there would be “a significant improvement in the throughputs from the school system” (Ministry of Education, 2001, p. 19) and this has not been the case and is unlikely to be the case in the near future. Some goals, such as those for graduation rates, are difficult to influence because the available measures are not ideal. Better ways for measuring throughput need to be established. In other cases, it is not possible to comment on progress towards national goals because there is no agreement on how to measure them and no systematic collection of data or research into progress. For example, the goals of enhanced cognitive skills of graduates and increased enrolment of disabled students, have not been measured. These goals need to be revised in terms of measures that are feasible.

A further concern is that existing policy operates at a systemic level that does not take account of the increasingly differentiated system that is emerging. The public higher education sector is beginning to differentiate itself and this self-differentiation is welcomed and may be encouraged with differentiated policy mechanisms. The NPHE was instrumental in making the broad-brush-stroke changes that were necessary for the system to break with its past and move forward. A more nuanced policy framework that recognizes the varied roles that institutions play and their different strengths and weaknesses, could be more meaningful for the present and future of higher education in South Africa. Targets, regulations, quality assurance mechanisms and funding all need to be tailored to a more diverse higher education sector. In particular, a clear policy for developing distance education is needed. To some extent the need for differentiation is recognized in current policy through, for example, earmarked funding for teaching and research development, but a more explicit commitment to differentiation and transparent application of policy in the different sub-sectors is needed.

The private higher education sector also needs to be better understood and national planning should take into account the role that this sector can play. It is clear that the sector contains a wide range of institutions that vary in the level and scope of education they offer as well as in their business models,

the students they target and the extent to which they engage in research. It is hoped that the kind of self-differentiation that is being observed in the public sector will also emerge in the private sector, as this will facilitate differentiated approaches to the sector. At the very least there is an urgent need to collect more systematic information about the private higher education sector.

South African higher education continues to make a valuable contribution to the lives of individuals, to the economy and to the broader society both in producing graduates and in producing knowledge. The South African higher education system is the most robust and productive on the African continent and plays a leading role in education in Africa. The period since 2004 has been one of policy consolidation with institutions focused on mergers, increasing research and coping with challenges in the teaching programmes. While there are ongoing areas for concern, in other respects the higher education sector is succeeding and often in the face of significant challenges. The private higher education sector is now subject to more stringent regulation, including quality assurance mechanisms, and the time is ripe for this sector to take on a more meaningful role in the provision of high-level education and training. In order for the higher education sector to move forward, it needs to be supported by a revised policy framework that addresses the needs of this more complex and diverse landscape.

8. Publications and reports referenced

Bitzer, E. (2002). South African legislation on limiting private and foreign higher education: protecting the public or ignoring globalisation? *South African Journal of Higher Education*, 16 (1), 22-28.

Blankley, W. (2004, 27 September). *South African study on the mobility of R&D workers - implications for the project on careers of doctorate holders*. Paper presented at Workshop on user needs for indicators on careers of doctorate holders Paris La-Défense.

Buller, N.H., & Quilling, R.D. (2005, 3-6 July). *Towards developing and applying a first year information systems curriculum on a multi-campus university*. Paper presented at SACLA 2005, Kasane, Botswana.

CHE (2000). *Towards a New Higher Education Landscape: Meeting the Equity, Quality and Social Development Imperatives of South Africa in the Twenty-first Century*. Pretoria: Council on Higher Education.

CHE (2004a). *Enhancing the contribution of Distance Higher Education in South Africa*. Pretoria: Council on Higher Education.

CHE (2004b). *South African Higher Education in the First Decade of Democracy*. Pretoria: Council on Higher Education.

CHE (2006). *Kagisano No.6: Universities of Technology*. Pretoria: Council on Higher Education.

CHE (2007). *A Case for Improving Teaching and Learning in South African Higher Education*. Pretoria: Council on Higher Education.

CHE (2008a). *Academic Freedom, Institutional Autonomy and Public Accountability in South African Higher Education*. Pretoria: Council on Higher Education.

CHE (2008b). *Service-learning in the disciplines: Lessons from the field*. Pretoria: Council on Higher Education.

CHE (2009a). *CHE Symposium on Community Engagement, 19th March*. Pretoria: Council on Higher Education.

CHE (2009b). *Postgraduate studies in South Africa: A statistical profile*. Pretoria: Council on Higher Education.

CHERTL (2009). *Third stream income at South African universities*. Grahamstown: The Centre for Higher Education Research, Learning and Teaching, Rhodes University.

Cloete, N., & Galant, J. (2005). *Capacity building for the next generation of academics*. Cape Town: Centre for Higher Education Transformation.

Department of Education (1997). *Education White Paper 3: A Programme for the Transformation of Higher Education*. Pretoria: General Notice 1196 of 1997.

Department of Education (2002). Regulations for the Registration of Private Higher Education Institutions. *Government Gazette* No. 24143.

Department of Education (2003). *Funding of Public Higher Education*. Pretoria: Department of Education.

Department of Education (2007). *Information on the State Budget for Higher Education 2007*. Pretoria: Department of Education.

Department of Education (2009). *Report of the Ministerial Committee on Transformation and Social Cohesion and the Elimination of Discrimination in Public Higher Education Institutions*. Pretoria: Department of Education.

Department of Education (2009). *Executive Summary: Report of the Ministerial Committee on Progress Towards Transformation*. Pretoria: Department of Education.

Fourie, F. (2006). *In pursuit of a South African scholarship of engagement*. Paper presented at the CHE-HEQC / JET-CHESP Conference on Community Engagement in Higher Education 3 to 5 September 2006.

Godfrey, S., & Midgey, R. (2008). *Scarce and critical skills: Law professionals*. Cape Town: Institute of Development and Labour Law, Sociology Department, University of Cape Town.

Groenewald, T., & Thulukanam, M. (2005). Work-integrated learning at a comprehensive higher education institution. *Progressio*, 27(1&2), 84-91.

Hall, M. (forthcoming). Community engagement in South African higher education. In *Kagisano No 7: Debating Community Engagement*. Pretoria: Council on Higher Education.

HESA (2007). *Challenge of renewal of the HE system*. Pretoria: Higher Education South Africa (HESA).

Higher Education Merger Study Group (2008a). *Final report of the Higher Education Merger Study Group on the merger to form the University of KwaZulu-Natal*. Cape Town: Higher Education Merger Study Group.

Higher Education Merger Study Group (2008b). *Final report on the incorporation of the East London campus of Rhodes University into the University of Fort Hare*. Cape Town: Higher Education Merger Study Group.

Higher Education Merger Study Group (2008c). *Final report on the merger between Port Elizabeth Technikon and the University of Port Elizabeth and the prior incorporation of the Port Elizabeth campus of Vista University into the University of Port Elizabeth to form NMMU*. Cape Town: Higher Education Merger Study Group.

Higher Education Quality Committee (2004). *Criteria for programme accreditation*. Pretoria: Council on Higher Education .

HSRC (2003). *Human Resource Development Review*. Cape Town: Human Science Research Council.

Jansen, J., Bandi, N., Sibu, C., Sehoole, C., & Soobrayan, V. (2002). *Mergers in higher education: Lessons learned in transitional contexts*. Pretoria: UNISA Press.

Johnson, B. (2006). South African academia in crisis: The spread of 'contrived collegial managerialism'. *South Africa Journal of Higher Education*, 20(1), 58-71.

Kahn, M., Blankley, W., Maharajh, R., Pogue, T.E., Reddy, V., Cele, G., & Du Toit, M. (2004). *Flight of the flamingos: a study on the mobility of research and development workers*. Cape Town: Human Sciences Research Council (HSRC), CSIR for the National Advisory Council on Innovation.

Kraak, A. (2008). *Human Resources Development Review 2008*. Pretoria: HSRC Press.

Kruss, G. (2007). Credentials and mobility: An analysis of the profile of students studying at registered private higher education institutions in South Africa. *Journal on higher education in Africa*, 5 (2&3), 135-154.

Mabokela, R. O. (2007). Lingering effects of the past on a University merger process in post-apartheid South Africa. *International Education Journal*, 8 (1), 160-171.

Mapesela, M. (2002). Is the proliferation of private colleges spelling doom for South African public higher education? *South African Journal of Higher Education*, 16 (2), 56-62.

Marais, H. (2007). *The focus area landscape programme of the National Research Foundation: A review*. National Research Foundation. Pretoria: National Research Foundation.

Ministry of Education (2001). *National Plan for Higher Education in South Africa*. Pretoria: Ministry of Education.

Ministry of Education (2005). *Ministerial Statement on Higher Education Funding: 2005/6 to 2007/8*. Pretoria: Department of Education.

Ministry of Education (2006). *Ministerial Statement on Higher Education Funding: 2006/7 to 2008/9*. Pretoria: Department of Education.

Ministry of Higher Education and Training (2009). Public Finance Management Act (1/1999): Ministerial Committee for the review of the National Student Financial Aid. *Government Gazette* No. 32317.

Ministry of Justice (1995). *Justice Vision 2000: Five year national strategy for transforming the administration of justice and state legal affairs*. Pretoria: Ministry of Justice.

Mouton, J., & Boshoff, N. (2008). A Bibliometric profile of Law journals in South Africa. *De Jure*, 41(3), 596-615.

Mouton, J., Boshoff, N., & Tijssen, R. (2006). *Report on a Strategic Approach to Research Publishing in South Africa*. Academy of Science of South Africa.

Naudé, L. (2006). *Community engagement through teaching and learning*. Paper presented at the CHE-HEQC / JET-CHESP Conference on Community Engagement in Higher Education 3 to 5 September 2006.

Nkopodi, N. (2002). Competition in higher education: lessons from the corporate world. *South African Journal of Higher Education*, 16 (1), 74-81.

NRF (2007). *Evaluation and rating: Facts & figures 2007*. Pretoria: National Research Foundation.

Reddy, J. (2006). The reclassification of technikons to universities of technology. *Kagisano*, 5, 24-49.

SATN (2008). *The development of performance indicators for Universities of Technology (UoTs) and UoT-related parts of Comprehensive Universities (CUs)*. South African Technology Network.

SAUVCA (2000). *SAUVCA's response to the CHE's Report "Towards a New Higher Education Landscape: Meeting the Equity, Quality and Social Development Imperatives of South Africa in the 21st Century"*. South African Universities Vice Chancellor's Association.

Scott, I., Yeld, N., & Hendry, J. (2007). *Higher Education Monitor 6: a case for improving teaching and learning in South African higher education*. Pretoria: Council on Higher Education.

Steyn, G., & de Villiers, P. (2006). *The impact of changing funding sources on higher education institutions in South Africa*. Pretoria: Council for Higher Education.

Stumpf, R., Griesel, L., Hall, M., Mandew, B., Melck, A., Ouma, G. W., et al. (2008). *Tuition Fees: Higher Education Institutions in South Africa*. Pretoria: Higher Education South Africa.

UCT (2008). *Social responsiveness report: portraits of practice 2008*. Cape Town: University of Cape Town.

UNESCO Institute for Statistics (2008). *Global education digest 2008: Comparing education statistics around the world*. Paris: UNESCO.

Walwyn, D. (2008). An analysis of the performance management of South African higher education institutions. *South African Journal of Higher Education*, 22 (3), 708-724.

World Bank (2000). *Report on Higher Education in Developing Countries: Perils and Promise*. UNESCO / World Bank.

Yusuf, S., MacKenzie, I., Shall, A., & Ward, J. (2008). *Mainstreaming Higher Education in National and Regional Development in Southern Africa*. Johannesburg: Southern African Regional Universities Association (SARUA).

The State of Higher Education in South Africa was produced by the Advice and Monitoring Directorate of the Council on Higher Education.



Back row (from left): Tshepi Aphane, Chantal Dwyer, Ruth van Staden, Michael Gordon
Front row (from left): Tebogo Kekana, Judy Backhouse, Job Masekoa

Notes

Notes

Notes



*Published by:
Council on Higher Education*

*PO Box 94
Persequor Park
0020
South Africa*

*Tel: +27 (0)12 349 3840
Fax: +27 (0)12 349 9130*

ISBN: 978-1-919856-73-5

Date of Publication: October 2009

*Material from this publication cannot be
reproduced without the CHE's permission.*