

TEACHER EDUCATION IN SOUTH AFRICA SERIES

# TEACHER GRADUATE PRODUCTION IN SOUTH AFRICA

ANDREW PATERSON & FABIAN ARENDS



Koninkrijk  
der Nederlanden

Published by HSRC Press  
Private Bag X9182, Cape Town, 8000, South Africa  
[www.hsrcpress.ac.za](http://www.hsrcpress.ac.za)

First published 2009

ISBN (soft cover) 978-0-7969-2269-4

ISBN (pdf) 978-0-7969-2270-0

ISBN (e-pub) 978-0-7969-2297-7

© 2009 Human Sciences Research Council

Copy-edited by Kathleen Sutton

Typeset by Robin Taylor

Cover by Fuel Design

Printed by

Distributed in Africa by Blue Weaver

Tel: +27 (0) 21 701 4477; Fax: +27 (0) 21 701 7302

[www.oneworldbooks.com](http://www.oneworldbooks.com)

Distributed in Europe and the United Kingdom by Eurospan Distribution Services (EDS)

Tel: +44 (0) 20 7240 0856; Fax: +44 (0) 20 7379 0609

[www.eurospanbookstore.com](http://www.eurospanbookstore.com)

Distributed in North America by Independent Publishers Group (IPG)

Call toll-free: (800) 888 4741; Fax: +1 (312) 337 5985

[www.ipgbook.com](http://www.ipgbook.com)

# CONTENTS

---

Tables and figures iv

Preface ix

Acknowledgements xi

Executive summary xii

Abbreviations and acronyms xx

## 1 INTRODUCTION 1

Key questions to be addressed 3

Structure of this monograph 4

## 2 BACKGROUND AND LITERATURE REVIEW 5

Literature on attraction to train as a teacher 5

Emphasis on functions of recruitment, attrition and retention, but neglect of attraction in the literature 8

Career decision-making processes and enrolment in teacher training 11

Teaching and the labour market 13

Changing labour-market conditions impact on who is prepared to become a teacher 14

Pathways of teachers from training to the labour market in South Africa 17

## 3 DATA SOURCES 21

Transformation in the higher education sector and analytic continuity 21

## 4 ANALYSIS OF DATA 25

Education enrolment 25

Education graduates 29

Graduation rate and throughput rate 33

Enrolments, graduates and graduation rates with reference to population group 35

Gender distribution of enrolment, graduates and graduation rate 42

Gender and population group (nested) of student enrolment and graduates 46

Postgraduate enrolments and graduations 51

Enrolment and graduates by province 53

Enrolment and graduates by qualification type 63

Enrolment by age 74

Financial support through NSFAS 80

Graduate production for IPET 84

HIV/AIDS and teacher supply 95

## 5 CONCLUSION 99

Initiatives by the Department of Education 99

The critical impact of spatial location on teacher supply in South Africa 100

Young women and declining entry into initial teacher training 105

## APPENDICES 107

Appendix A Methodology 107

Appendix B List of CESMs for education study fields 111

Appendix C Analysis of enrolment in education subfields, 1995–2004 114

## REFERENCES 117

## TABLES AND FIGURES

### Tables

Table 3.1	Enrolment and graduations in educator training, 1993 and 1997–2001	22
Table 4.1	University and technikon enrolment and the percentage change over the previous year, 1995–2004	26
Table 4.2	Enrolment in education programmes and the percentage share per year in universities and technikons, 1995–2004	27
Table 4.3	Enrolment in education programmes in universities and percentage share of total university enrolment, 1995–2004	28
Table 4.4	Enrolment in education programmes in technikons and percentage share of total technikon enrolment, 1995–2004	28
Table 4.5	Graduates in education programmes and the percentage share per year in universities and technikons, 1995–2004	30
Table 4.6	University and technikon graduates and the percentage change over the previous year, 1995–2004	31
Table 4.7	Graduates in education programmes in universities and percentage share of total university graduates, 1995–2004	32
Table 4.8	Graduates in education programmes in technikons and percentage share of total technikon graduates, 1995–2004	32
Table 4.9	Completion rates in higher education institutions, 2000–2004	33
Table 4.10	Enrolment, graduates and graduation rates in universities and technikons, 1995–2004	34
Table 4.11	Graduation rates for universities and technikons, 1995–1999 and 2000–2004	34
Table 4.12	Enrolment in education by population group at universities, 1995–2004	35
Table 4.13	Enrolment in education by population group at universities, 1995–2004 (%)	36
Table 4.14	Enrolment in education by population group at technikons, 1995–2004	36
Table 4.15	Enrolment in education by population group at technikons, 1995–2004 (%)	37
Table 4.16	Enrolment in education by population group at universities and technikons, 1995–2004	37
Table 4.17	Enrolment in education by population group at universities and technikons, 1995–2004 (%)	38
Table 4.18	University and technikon graduates by population group, 1995–2004	39
Table 4.19	University and technikon graduates by population group, 1995–2004 (%)	40
Table 4.20	University graduates in education by population group, 1995–2004 (%)	41
Table 4.21	Technikon graduates in education by population group, 1995–2004 (%)	41
Table 4.22	Enrolment in education at universities by gender, 1995–2004 (%)	42
Table 4.23	Enrolment in education at technikons by gender, 1995–2004 (%)	42
Table 4.24	Enrolment in education at universities and technikons by gender, 1995–2004 (%)	43
Table 4.25	Graduates in education at universities by gender, 1995–2004 (%)	44

Table 4.26	Graduates in education at technikons by gender, 1995–2004 (%)	44
Table 4.27	Graduates in education at universities and technikons by gender, 1995–2004 (%)	45
Table 4.28	Throughput rates in education in universities and technikons by gender, 1995–2004 (%)	46
Table 4.29	University enrolment in education by population group and gender, 1995–2004	47
Table 4.30	University enrolment in education by population group and gender, 1995–2004 (%)	47
Table 4.31	University graduates in education by population group and gender, 1995–2004	48
Table 4.32	University graduates in education by population group and gender, 1995–2004 (%)	49
Table 4.33	Technikon enrolment in education by population group and gender, 1995–2004	49
Table 4.34	Technikon enrolment in education by population group and gender, 1995–2004 (%)	50
Table 4.35	Technikon graduates in education by population group and gender, 1995–2004	51
Table 4.36	Technikon graduates in education by population group and gender, 1995–2004 (%)	51
Table 4.37	Enrolment in education by qualification level at universities and technikons, 1995–2004	52
Table 4.38	Graduates at senior postgraduate qualification levels at universities and technikons, 1995–2004	52
Table 4.39	Master's and doctorate graduates from universities and technikons, 1995–2004	53
Table 4.40	Total education enrolment by province, 1995–2004	53
Table 4.41	University enrolment in education by province, 1995–2004	54
Table 4.42	Technikon enrolment in education by province, 1995–2004	55
Table 4.43	University graduates in education by province, 1995–2004	56
Table 4.44	Technikon graduates in education by province, 1995–2004	57
Table 4.45	Total graduates in education by province, 1995–2004	57
Table 4.46	Enrolment in educator training at universities and technikons by mode of delivery, 2000 and 2001	60
Table 4.47	Comparison of provincial distribution of teachers (2004) with provincial share of graduate production, 1995–2004	62
Table 4.48	Enrolment in education by qualification type at universities and technikons, 1995–2004	64
Table 4.49	Enrolment in education by qualification type at universities and technikons, 1995–2004 (%)	65
Table 4.50	Unqualified/underqualified and qualified educators, 1994, 2000 and 2005	65

Table 4.51	Graduates in education by qualification type at universities and technikons, 1995–2004	66
Table 4.52	Graduates in education by qualification type at universities and technikons, 1995–2004 (%)	67
Table 4.53	Enrolment in education by qualification type at universities, 1995–2004	68
Table 4.54	Enrolment in education by qualification type at universities, 1995–2004 (%)	69
Table 4.55	Graduates in education by qualification type at universities, 1995–2004	69
Table 4.56	Graduates in education by qualification type at universities, 1995–2004 (%)	70
Table 4.57	Enrolment in education by qualification type at technikons, 1995–2004	71
Table 4.58	Enrolment in education by qualification type at technikons, 1995–2004 (%)	72
Table 4.59	Graduates in education by qualification type at technikons, 1995–2004	72
Table 4.60	Graduates in education by qualification type at technikons, 1995–2004 (%)	73
Table 4.61	Enrolment in universities and technikons by age group, 2000–2004	75
Table 4.62	Enrolment in universities and technikons by age group, 2000–2004 (%)	75
Table 4.63	Enrolment in technikons and universities according to age, 2000–2004 (%)	76
Table 4.64	University enrolments by population group and gender for age group <26, 2000–2004	77
Table 4.65	University enrolments by population group and gender for age group <26, 2000–2004 (%)	77
Table 4.66	University enrolments by population group and gender for age group 26–30, 2000–2004	78
Table 4.67	University enrolments by population group and gender for age group 26–30, 2000–2004 (%)	78
Table 4.68	University enrolments by population group and gender for age group 31–35, 2000–2004	79
Table 4.69	University enrolments by population group and gender for age group 31–35, 2000–2004 (%)	79
Table 4.70	Technikon enrolments by population group and gender for age group <26, 2000–2004	79
Table 4.71	Technikon enrolments by population group and gender for age group <26, 2000–2004 (%)	80
Table 4.72	Expenditure by NSFAS on teacher-training students, 1996–2004 (R000 000)	81
Table 4.73	Students receiving NSFAS funding	81
Table 4.74	NSFAS total expenditure and per student expenditure per higher education institution, 2004	82
Table 4.75	Education students receiving NSFAS funding	83

Table 4.76	Proportions of primary- and secondary-phase students receiving NSFAS funding	83
Table 4.77	Graduate share of students receiving NSFAS funding	84
Table 4.78	Enrolment numbers in IPET in higher education, 2005	86
Table 4.79	Enrolment numbers for IPET in higher education, 2006	87
Table 4.80	Expected graduate numbers from IPET in higher education, 2005	88
Table 4.81	Expected graduate numbers from IPET in higher education, 2006	89
Table 4.82	Enrolment and graduation of all education students and in IPET	91
Table 4.83	HIV prevalence among education students	96
Table 5.1	Higher education institutions and colleges offering teacher education programmes, 1990–2006	100
Table C.1	University and technikon graduates by CESM subfield, 1995–1998	115
Table C.2	Graduates in second-order CESM category/subfield in universities, 1995–2004	116

## Figures

Figure 1	Trends in IPET graduates for higher education and colleges of education, 1994–2006	xvii
Figure 2.1	Factors impacting on an individual's decision to enrol for teacher training and to practise as a teacher	12
Figure 2.2	Pathways of teachers between training and the labour market in South Africa	19
Figure 4.1	University and technikon enrolment, 1995–2004	27
Figure 4.2	Education enrolment as a share of enrolment in universities and technikons, 1995–2004	29
Figure 4.3	Graduates from universities and technikons, 1995–2004	31
Figure 4.4	Education graduates as a percentage of all graduates in universities and technikons, 1995–2004	32
Figure 4.5	Enrolment numbers at universities and technikons by population group, 1995–2004	38
Figure 4.6	Graduation numbers at universities and technikons by population group, 1995–2004	40
Figure 4.7	Female students as a percentage of all students enrolled in universities and technikons, 1995–2004	43
Figure 4.8	Graduates by gender in universities and technikons, 1995–2004	45
Figure 4.9	University enrolment by population group and gender, 1995–2004	48
Figure 4.10	Technikon enrolment by population group and gender, 1995–2004	50
Figure 4.11	University enrolment in education by province, 1995–2004	54
Figure 4.12	Technikon enrolment in education by province, 1995–2004	55
Figure 4.13	Graduate production in education by province, 2004	58
Figure 4.14	Comparison of different programme delivery modes	61

Figure 4.15	Enrolment in higher education by qualification level, 1995–2004	64
Figure 4.16	Graduations in higher education by qualification level, 1995–2004	67
Figure 4.17	Enrolment in universities by qualification level, 1995–2004	68
Figure 4.18	Graduations in universities by qualification level, 1995–2004	70
Figure 4.19	Enrolment in technikons by qualification level, 1995–2004	71
Figure 4.20	Graduates in technikons by qualification level, 1995–2004	73
Figure 4.21	Share of enrolment in education by age group, 2000–2004	75
Figure 4.22	IPET graduate production and all graduate production in teacher education	91
Figure 4.23	Undergraduate degrees from universities and technikons in relation to IPET graduates	93
Figure 4.24	Trends in IPET graduates for higher education and colleges of education, 1994–2006	94



## PREFACE

---

The Teacher Education in South Africa series is produced as part of the Teacher Education Programme (TEP), funded by the Embassy of the Kingdom of the Netherlands from 2005 to 2008.

The programme took place at a critical juncture in the development of teacher education in post-apartheid South Africa. Since 2004, sustained attention has been given to the improvement of teacher education consequent on the revision of the curriculum and the restructuring of higher education. In October 2004, the Council on Higher Education initiated a review of teacher education programmes. On 26 April 2007, a National Policy Framework for Teacher Education and Development was gazetted. This provided the basis for a new system of teacher education and development for a new generation of South African teachers.

The TEP emerged within this overall context of enhanced attention being given to the improvement of teacher education. Its overall goal was 'to contribute to the knowledge and information base for policy formulation and implementation regarding the organisation and practice of teacher education, with a particular emphasis on initial teacher education (both pre-service and upgrading), as well as the professional development of school leaders and managers' (CEA, CEPD, EFT, HSRC & SAIDE 2005). The work was organised under four major themes: teacher supply and demand; institutional culture and governance; the development of education management; and literacy and teacher development.

The programme was designed by a consortium of agencies with considerable expertise and experience in the field: the Centre for Education Policy Development (CEPD); the Human Sciences Research Council (HSRC); the South African Institute for Distance Education (SAIDE); the Centre for Evaluation and Assessment (CEA) at the University of Pretoria; and the Education Foundation Trust (EFT).<sup>1</sup> The TEP was developed in consultation with stakeholders such as the national Department of Education, the Ministerial Working Group on Teacher Education, the Deans' Forum and the Council on Higher Education/Higher Education Quality Committee, among others. Briefing and consultation continued through the process of research, for the consortium as a whole and in relation to specific projects.

The first of a number of monographs on the work of a project defined under the theme of teacher supply and demand, this monograph analyses teacher graduate production in South Africa between 1995 and 2006. It presents a unique in-depth analysis of enrolment and graduate data drawn from the South African Higher Education Management Information System (HEMIS).

The monograph first presents an overview of enrolment and graduation trends in initial professional education and training (IPET) and in continuing professional development of teachers (CPDT), thus generating a trend analysis of overall teacher graduate production for the decade.

This serves as the platform from which to draw attention to a serious decline in the numbers of African women enrolled in IPET. In considering what has brought

---

<sup>1</sup> The EFT has been disbanded, and uncompleted projects have been taken over by the consortium.

---

about this pattern, the monograph draws attention to the impact of the closing of the former colleges of education on teacher production.

It also emphasises the importance of understanding the social contexts that inform the movement of potential teacher-training candidates from their households into teacher-training institutions and into the labour market.

*Michael Cosser*, HSRC Organisational Manager, Teacher Education Programme  
*Andrew Paterson* and *Fabian Arends*, Project Leaders

## ACKNOWLEDGEMENTS

---

We would like to thank Jean Skene from HEMIS for helping us with our data needs. We are grateful to Glenda Kruss for her input from reading an early draft of this work and members of the Teacher Education Programme consortium, including Jenny Glennie, who gave further useful input during the course of this project. In addition, we gratefully acknowledge comments and suggestions from the manuscript reviewers, Prof. Ben Parker and Prof. Aslam Fataar. We would also like to thank Chwayita Msada for converting many tables from Excel to Word format.

Finally, we are grateful to the Embassy of the Kingdom of the Netherlands for the funding which made it possible to undertake the research reported here.

# EXECUTIVE SUMMARY

---

## **Who are we missing? Teacher graduate production in South Africa, 1995–2006**

While teacher supply challenges are felt in the present, changes in graduate production affecting teacher supply may be identified by looking back at enrolment and graduation trends over a number of years.

This monograph seeks to describe the changing demography of the population of education students at South African higher education institutions between 1995 and 2006. The intention is to provide a broad quantitative overview of the enrolment, graduation and throughput characteristics of student cohorts that registered for programmes in the education field over the period.

The analysis presented here is important for several reasons. First, this monograph covers the period 1994 to 2006, which coincides with the first twelve years of democracy in South Africa. It therefore provides an opportunity to capture the scope and key features of teacher education supply from higher education, an approach that, to the knowledge of the authors, has not been addressed from a longitudinal perspective in the literature.

Second, the supply of education graduates in South Africa has become a matter of national concern in recent years. Thus the findings should provide a useful basis for debate and further research on questions of teacher supply and teacher quality, which are high on the agenda of the national Department of Education (DoE). In particular, the report draws attention to the diminishing participation of young African women in teacher education in the post-millennium period.

## **Methodology and data sources**

The source of data for this analysis is HEMIS, which, under the custodianship of the national DoE, is the repository for management information submitted by each higher education institution on an annual basis.

In the form in which they are received from the institutions, the data are not based on the records of individual units. In other words, the data simply report the total number of students who are enrolled in a particular year and the number who graduate in the same year. This means that neither the progress of individual students, nor the progression of specific student cohorts can be tracked from year to year. This is the work of tracer studies.

National data on student enrolments and graduations are organised according to the Classification of Education Subject Matter (CESM) system. CESM is a single, standardised scheme according to which enrolment and graduation of students studying different subject matter or in different study fields can be compared. The CESM system needs to be updated to reflect changes in knowledge and study fields.

The main focus of this monograph is to undertake fine-grained analysis of graduate output from the then universities and technikons, based on an uninterrupted time series of institutional data from 1995 to 2004, accessed from the HEMIS database system. The former colleges of education produced large numbers of graduates until 2001, by which time closure or incorporation of these institutions into the universities

and technikons was completed. Disaggregated analysis of education graduates from the universities and technikons in this monograph depends on the reliability and completeness of the HEMIS database system. However, there is no equivalent database for the former colleges. While in operation, the colleges provided the DoE's Education Management Information Systems (EMIS) Directorate with summary data reports only that cannot be disaggregated. To populate a database with reliable college enrolment and graduation data more than a decade after the first college closures would have necessitated tracing and retrieving databases if they still existed and converting data from old media and obsolete data formats, with no prospect of satisfactorily verifying queries about the data because the institutions in question had long been shut down. Given the high cost of such an undertaking and the high risk that it would not produce workable data, secondary sources were used to sketch the main features of college enrolment and graduation in the period. These data were sufficient to support discussion of the general impact the closure of the colleges had on teacher education graduate production after 2001.

### **Teacher education graduate demographics**

In the decade in question, 210 432 graduates from technikons and universities completed degrees and diplomas in the field of education. The number of graduates per year increased from 17 823 in 1995 to 28 756 in 2004, or by approximately 61 per cent.

The annual graduate output of the colleges of education averaged over 25 000 between 1995 and 1998, dropping to just under 20 000 in 1999. By 2001, this institutional source of education graduates was shut down. Although the graduate output from technikons and universities did increase steadily, taking the colleges into account it is clear that the gross graduate output from South African teacher education declined between 1995 and 2004. This aspect is addressed with particular reference to initial professional education and training (IPET).

Technikon and university output in terms of population group and gender from 1999 onwards showed African graduate numbers increasing steadily, accounting for 82 per cent of all education graduates in 2004. The share of white, coloured and Indian graduates declined correspondingly. At the end of the period, over 7 in 10 of all higher education teacher graduates were female. The representation of male students declined from 35 per cent in 1995 to 28 per cent in 2004.

### **Graduates by qualification type**

The largest proportion of graduates (49 per cent) completed undergraduate certificates (UG Cert) while postgraduate certificates and honours degrees (PG Deg/Cert) accounted for 30 per cent, followed by undergraduate degree (UG Deg) holders at 18 per cent. Graduates with master's degrees and doctorates accounted for 3 per cent of all graduates. A steady upsurge of postgraduate certificate and honours-degree qualifications is clearly visible. The bulk of this increase must be attributed to rising participation of practising teachers seeking further professional development, rather than to increased IPET graduate production.

## The declining participation of young African females in IPET

It is important to pay attention to enrolment numbers, which measure initial participation. Also, enrolment numbers constrain possible graduate production. We examine patterns of enrolment for universities only because these institutions enrolled nearly 9 out of every 10 education students between 2000 and 2004.

We focus on the younger age ranges spanning 25 years and under (<26) and 26 to 30 years of age (26–30), assuming that these age ranges captures most people who are enrolled in IPET. Enrolment share in the <26 group rose from 6.5 per cent to 13.1 per cent, whereas enrolment in the 26–30 group declined from 15.7 per cent to 9.4 per cent in the period 2000–2004.

Looking at the <26 cohort, total enrolment increased from 4 627 to 11 197 in five years. Enrolment was dominated by white females and the enrolment share of this group rose to 50 per cent in 2004. By comparison the proportion of African females, which in 2000 constituted 27.6 per cent, dropped to 17.4 per cent by 2004. The participation of African males in this age group also declined, which meant that the total enrolment share of African students in the <26 group stood at 29.5 per cent, while white enrolment was 58.9 per cent. Thus, in the <26 age category enrolment doubled off a small base but, within this overall increase, African female enrolment declined while white female enrolment rose.

Such a decline in the proportion of African females in this age group is counter-intuitive since African women have been the wellspring of teacher supply for the majority of South Africa's school-age learners. In 2005, 79 per cent of all educators employed in public schools were African and 66 per cent female (Arends 2007). There is clearly a major disjuncture between the proportions of practising African female teachers and the proportions of African female students enrolled in the <26 age group.

The relatively low numbers of African students in the <26 category could be influenced by a variety of factors (these include their completion of Grade 12 at an older age, time spent in seeking funding, taking care of household responsibilities, and so on). It is possible that African women who register for a teacher-training programme are older than their white counterparts. On this basis, we may expect higher proportions of African students in the next age group.

In the 26–30 age group African females constituted 56.4 per cent and African males 28.1 per cent of that cohort in 2000, but declined to 50 per cent and 24.9 per cent respectively by 2004. In numerical terms there were 1 728 and 898 fewer African females and males respectively enrolled in 2004 than in 2000. The 26–30 age group as a whole suffered a 30 per cent decrease in enrolment in the period 2000–2004. Clearly there was an absolute decline in the enrolment of African students aged 26–30 for teacher training.

Declining enrolment trends observed in the younger age groups are not evident among older education students, the majority of whom are practising teachers. The proportion of African female enrolments remained securely above 60 per cent, in the age categories of 31 to 35 years (31–35), 36 to 40 years (36–40) and 41 years and over (>40). In the same 2000–2004 period, the African male share averaged

25 per cent in the same three age categories. Clearly our concern must be with the decline in young Africans up to 30 years of age enrolling for teacher education.

### **Financial support through NSFAS**

The National Student Financial Aid Scheme of South Africa (NSFAS) provides financial aid through loans and bursaries for academically deserving and financially needy students to meet their own and South Africa's development needs. It seeks to have an impact on South Africa's racially skewed enrolment and graduate demographics and is funded primarily by the national DoE.

The teacher-training share of all NSFAS funding dropped from a high of 11 per cent in 1996 to a low of 3.3 per cent in 2001. The number of teacher-training students funded suffered a steep decline from 8 509 in 1996 to a trough of 2 535 in 2001, thereafter rising to 5 216 in 2004. Despite a recovery after 2001, as late as in 2004, both the share of the funding received by education students and the number of education students funded by NSFAS were still well below 1996 levels.

In addition, there is a clear decline in NSFAS students as a proportion of all education students enrolled. Proportionate share declined from over 1 in 10 (13.3 per cent) to less than 1 in 20 (4.7 per cent) between 1996 and 2004. Overall, the data point to declining numbers of students supported by NSFAS for study in teacher training.

If the population of teacher-training students receiving NSFAS funding is disaggregated into those engaged in training to teach in the primary phase and those training with the intention of teaching in the secondary phase, it is immediately apparent that a perturbing dynamic is at work in each group. Headcount numbers of primary-phase students rapidly declined from 3 294 in 1996 to 348 in 2004 which was 90 per cent down on the number funded barely eight years earlier. Until 2000, primary-phase student teachers represented roughly half of all NSFAS teacher-training beneficiaries. Thereafter, the proportion of students enrolled for primary teaching with state assistance plummeted to 6.7 per cent. Not even the ring-fenced NSFAS conditions that provided for an increase in overall numbers of funded teacher-education students between 2002 and 2004 could raise the share of primary-phase students in comparison to secondary-phase students. By 2004, NSFAS was largely funding secondary-education students at a ratio of 9:1.

### **IPET graduate production from universities and technikons**

Attention has recently sharpened on the role of initial professional education of teachers and its contribution to teacher supply. There are difficulties with attempting to extract the IPET output from HEMIS data. To the knowledge of the authors, at the time of writing this monograph there was no formal mechanism (such as agreed data collection protocols and data definitions) for obtaining separate IPET enrolment and graduation data from education departments in higher education institutions.

The first publicly available IPET information was published in the report of the Ministerial Working Committee on Teacher Education (DoE 2005b). The working committee data – though missing data from five institutions – indicated that enrolment in IPET was 21 748 in 2005 and expected graduations were 5 322. More recently, Morrow, who served on the ministerial working committee, produced a



set of data on enrolment and estimated graduate numbers for 2006 using the same method. The data were obtained from deans of Education and, in Morrow's view, could be deemed 'reasonably accurate' (Morrow 2006). These data covering all institutions indicated IPET enrolment to be 27 393, with an estimated 6 029 graduates.

The data also confirm that across the teacher-education sector, the undergraduate degree qualification serves as the biggest conduit of IPET students, constituting between 79.3 per cent and 83.8 per cent of enrolments in 2005 and 2006. The next largest group was the postgraduate certificate in education (PGCE), accounting for between 16.3 per cent and 15.4 per cent across the two years. The smallest contribution derived from pre-graduate diplomas, which are being phased out (Morrow 2006).

We have IPET enrolment and IPET graduate data for only two consecutive years but if we juxtapose these data with other trend data, we can begin to generate a picture of IPET as a component within overall graduate production.

Overall enrolment and graduate numbers are included as the basis of comparison with IPET numbers. Taking overall enrolment from 2004 (112 068) to 2005 (105 826), and IPET enrolment data given for 2005 (21 748) and 2006 (27 393), we estimate that IPET enrolment as a percentage of total enrolment for 2005–2006 was about 20 per cent to 25 per cent. This is important because it demonstrates the current size-ratio of IPET output in relation to all other education programmes. Looking at graduates, the IPET cohorts constituted between 18.6 per cent and 20.8 per cent of total graduate numbers in 2005–2006.

A critical question for the decade is: Did the IPET share decline relative to overall graduate numbers? It is clear that the general trend in IPET graduate output from all higher education institutions – expressed as graduates of undergraduate degrees – maintained a flat profile over the period. In contrast, the trend line for overall teacher-education graduate output rose steadily. This suggests that, in the universities and technikons, the continuing professional development of teachers (CPDT) grew substantially whereas IPET did not.

A critical concern regarding IPET graduate production relates to the skills mix within each IPET cohort. To prepare students for working with learners in the General Education and Training band (GET) requires them to focus on specialities in 'Foundation Phase', 'Intermediate Phase', and 'Senior Phase' and then Further Education and Training band (FET) teaching. Morrow (2006) draws our attention to the fact that many higher education institutions do not have separate programmes for these levels.

In particular, Morrow (2006) highlights the low numbers of Foundation Phase students currently enrolled in only 12 of the 24 higher education institutions. This dire situation was identified in the 2006 *National Policy Framework for Teacher Education and Development in South Africa*, which observed that the teacher supply situation is 'especially serious in the Foundation Phase where learners require teachers with mother-tongue competence. Of the 6 000 new teachers likely to graduate in 2006, fewer than 500 will be competent to teach in African languages in the Foundation Phase' (DoE 2006a: 12).



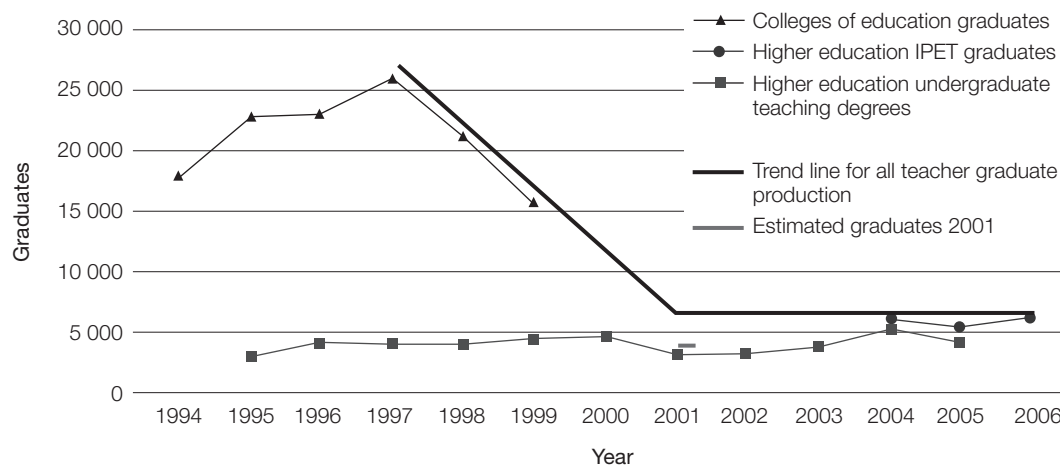
## The closure of the colleges of education and the IPET big picture

A discussion of IPET graduate production trends is incomplete without taking into account the rationalisation of the colleges of education and their incorporation into higher education institutions, which was largely completed by 2001. We suggest that the institutional incorporation of the colleges should have redirected a flow of students – who would otherwise have registered at a college – into the universities and technikons. We argue that this did not happen to a significant extent.

First, we cannot establish the declination of the trend in IPET graduate production in universities and technikons before 2004, with confidence. However, our proxy measure, the trend of undergraduate degree graduations, which provided the major share of new teachers, fluctuated between 3 000 and 5 000 (see Figure 1).

Undergraduate degrees in teacher education are by far the largest contributor to total IPET graduate output. Comparison between the trend line 'Higher Ed Undergrad teaching degrees' and the 'Higher Ed IPET graduates' line in the figure below confirms that in the past few years, IPET production has consisted mainly of output from the undergraduate degree level.

Figure 1 Trends in IPET graduates for higher education and colleges of education, 1994–2006



In the colleges, graduate production reached a peak of over 25 000 in 1997 (Jaff et al. 1996: 12). The data clearly delineate a sharp downward trend thereafter. The drop in graduates was foreshadowed by sinking enrolment. According to Vinjevoold (2001: 8 [citing Committee of College Rectors of South Africa Report of January 2000]), enrolment in contact IPET programmes declined from 70 731 to 10 153 between 1994 and 2000.

The rationalisation of the colleges continued after 2000. Reliable data on education graduate outputs for all institutions could not be obtained for this transition period. In her research for the Education Training and Development Practices Sector Education and Training Authority, Vinjevoold reported that at the end of 2001 there were approximately 14 400 students enrolled in IPET with the expectation that about 5 000 would graduate in the same year (2001: 8–9, 16).

We do know that after the various mergers and incorporations impacting on teacher education, IPET production was in the order of 6 000 in 2005/06 (DoE 2005b; Morrow 2006).

As Figure 1 shows, when the various pieces of data are assembled, a clear trend line emerges of bottoming-out graduate numbers, and thereafter a flat profile. The heavy line drawn in the figure shows that graduate numbers seemed to flatten at a level which was – and still is – not much higher than higher education IPET graduate production on its own. It looks as though there was hardly any overflow of enrolment from the colleges into higher education after the former institutions were closed. Had this overflow been more substantial, enrolment and graduate numbers in IPET may have been sustained at a higher level. The outstanding feature of the period is that the contribution of the colleges to IPET dissipated to a small fraction of the peak in the number of college graduates recorded in 1997.

### **HIV/AIDS and teacher supply**

In a key component of a South African Education Labour Relations Council (ELRC) study of educator supply and demand in the public school system, Shisana et al. (2005) investigated the health of South African educators and student teachers, including their HIV status. Data were collected on third year (n=905) and fourth year (n=147) teacher-training students covering 25 higher education institutions (Shisana et al. 2005). The sample may not be representative. Nevertheless, the indicative findings are useful.

The proportion of education students who were HIV-positive at 8.2 per cent was much lower than for the sample of educators (12.7 per cent). Within the student group, females had a much higher HIV prevalence than males, and the prevalence among African students was at 13.2 per cent compared to less than 1 per cent for coloured, Indian and white students combined. Peltzer et al. (2005: 69) observe that HIV prevalence among students was highest in the 25–34-year age range at 14.7 per cent.

Shisana et al. (2005) presented evidence that socio-economic status is related to HIV prevalence among educators. The same relationship was examined among student teachers. Peltzer et al. (2005: 69) cited results to the effect that ‘those with a perceived low socio-economic status (have) a much higher HIV prevalence (13.1 per cent) than those with a perceived higher status (3.7 per cent).’

The data strongly suggest that in the sample, African female students had a much higher HIV prevalence than other population groups and/or gender groups. In combination with the findings on socio-economic status and age, the picture that emerges is that young African women who are of perceived low socio-economic status are most at risk. We therefore ask: Could the impact of HIV/AIDS on individuals, households and communities have lowered the propensity of young African women in poor rural areas to take up teacher training?

## Conclusion

We identified key trends in teacher graduate production in the period, including:

- significant increases in enrolments and graduations overall;
- increased participation of African students, especially after 1999;
- increased share of graduates produced from technikons after 1998;
- teacher education participation dominated by large-scale expansion of CPDT;
- stagnation of IPET.

We confirm what has long been suspected – that there has been a decline in the number of African women aged 30 and younger entering teacher-training programmes. Given that African women constitute the majority of South Africa's teachers, this decline is matter of serious concern.

A critical question is: Why is the demography of young women who enrol for teacher training changing? There are four key interlinked trends that we need to take into account. These are:

- a decline in numbers of young African women enrolling for IPET programmes;
- a decline in numbers of students applying for NSFAS bursaries to enter primary-phase teacher training;
- low numbers of students with mother-tongue competence in African official languages enrolling for training in the Foundation Phase;
- higher HIV prevalence among African female students of low perceived socio-economic status who are currently registered for teacher education.

Why does the participation of young African women in teacher education appear to be dissipating in the post-2000 period? We suggest that some young African women who hitherto would have enrolled for a teaching qualification no longer perceive this choice as attractive and, where they have the financial means, will enrol for career training in other professional fields. Alternatively, young African women from poor households who otherwise would have registered for teaching qualifications are not able to access higher education due to social, health, financial or other factors in their household environment. The scenarios sketched here raise important underlying questions: What is the social-class base of student teachers, and has this base changed since 1994? What labour market characteristics or signals inform the decisions of young women to go for – or not go for – teacher training?

Recently, the DoE implemented a new bursary scheme. The Fundza Lushaka (Teaching Makes a Difference) Bursary Campaign made R700 million available for bursaries in priority subject and learning areas across a range of qualifications. Those awarded bursaries are obliged to teach in a provincial education department post, one year for each year that they received their bursary (Tyobeka 2007: 10). In 2007, 3 000 bursaries had already been made available and allocated. We must ask: How successful will the bursary scheme be in countering the trends identified in the foregoing discussion? Critical to the success of the scheme will be how well bursaries are targeted and supported on a pro-poor and rural basis.

# ABBREVIATIONS AND ACRONYMS

ACE	Accelerated Certificate in Education
ART	antiretroviral therapy
BEd	Bachelor of Education
CEA	Centre for Evaluation and Assessment
CEPD	Centre for Education Policy Development
CESM	Classification of Education Subject Matter
CHE	Council on Higher Education
CPTD	continuing professional teacher development
DoE	Department of Education
EFA	Education for All
EFT	Education Foundation Trust
ELRC	Education Labour Relations Council
EMIS	Education Management Information Systems
FTE	full-time equivalent
HIV/AIDS	human immunodeficiency virus/acquired immunodeficiency syndrome
HEMIS	Higher Education Management Information System
HSRC	Human Sciences Research Council
IPET	initial professional education and training
NPDE	National Professional Diploma in Education
NPFTED	National Policy Framework for Teacher Education and Development in South Africa
NSFAS	National Student Financial Aid Scheme of South Africa
NTEA	National Teacher Education Audit
PGCE	Postgraduate Certificate in Education
PG Deg/Cert	postgraduate certificates and honours degrees
REQV	Relative Education Qualification Value
SACOL	South African College for Open Learning
SACTE	South African College of Teacher Education
SAIDE	South African Institute for Distance Education
SAPSE	South African Post Secondary Education
TSA	Technikon South Africa
UG Cert	undergraduate certificates
UG Deg	undergraduate degree
UNISA	University of South Africa

# Introduction

The delivery of quality learning in any education system depends on sustaining the supply of teachers of quality and in sufficient numbers to meet demand.

In public education systems, the scale of primary demand for teachers is determined by the:

- size of the system (the distribution of learners across grades, schools and locality as dictated by population size and regulations regarding free and/or compulsory education);
- teacher quality benchmarks (determined through training and accreditation systems);
- quality of teaching and learning aims (as may be reflected by teacher-learner ratios).

Primary demand for teachers is influenced by how strongly the government responds to the educational aspirations of society, the skills needs of the economy and the constitutional mandate to provide equitable access to quality schooling opportunities. Fiscal constraints place limits on the government's response.

Changing patterns of teacher demand have emerged as a consequence of the historical development of modern mass education systems. For example, after colonialism among developing countries, demand for teachers increased because of the continued expansion of primary and secondary education systems. The commitment of nations to the Education for All (EFA) goals will sustain this demand for some time to come.

In addition to the size, scope and quality targets set for the education system that determine primary teacher demand, there are factors that influence the rate at which teachers leave the active teaching workforce, creating a secondary demand. Among others, these factors include: the age profile of the teacher workforce, teaching conditions, alternative employment options and teacher mortality. Education authorities must marshal resources to address both facets of demand. In particular, they must secure the conditions that will maximise the quality and length of teachers' working life. Otherwise, attending to demand only by increasing supply is like pouring water into a leaking bucket.

With reference to primary demand, in South Africa gross and net enrolment rates in primary schools have almost peaked, which means that – aside from the need to improve quality or to reduce the teacher-learner ratio – demand arising from the need to expand access to primary schools should have tapered off. This is not the case for secondary education where the need to expand access so that more learners achieve the school-leaving Grade 12 exam will drive new teacher demand for some time to come, assuming the availability of financial resources.

In South Africa, there are concerns as to whether the current levels of teacher supply from higher education institutions will meet projected needs. Some have put forward the view that a serious teacher shortage in the near future is an absolute

certainty if it does not already exist.<sup>2</sup> The document setting out South Africa's national policy framework for teacher education and development captures the situation as follows: 'Most research studies indicate an impending shortage of teachers in the country, although its exact magnitude and timing is a matter of debate. The Educator Supply and Demand report projected a shortfall of around 15 000 teachers by 2008, with certain assumptions about enrolment trends and learner-teacher ratios' (DoE 2006a: 11). While the existence and dimensions of a general shortage of teachers are the subjects of some debate, a chronic shortage of mathematics and science teachers – historically driven by apartheid education policy – has existed for a long time and continues to afflict rural schools, schools serving poor communities and, especially, schools that before 1994 were designated for African learners.

Within the secondary demand factors noted above, there are two that feed ominous predictions of a general shortage of teachers. First, the argument is put forward that the education corps is slowly eroding under the impact of labour market forces drawing numbers of well-qualified and relatively young teachers and school managers into non-teaching careers in a range of economic sectors. Second, it is observed that in the same period HIV/AIDS is contributing to lowered productivity and early departure of teachers from the profession (Peltzer et al. 2005: 6–7, 23). In sub-Saharan Africa in particular, the epidemiological onslaught of HIV/AIDS against the body of teaching professionals constitutes a significant threat. The impact of HIV/AIDS has been felt in terms of sickness, absenteeism, demoralisation and mortality producing raised levels of teacher attrition (Bennell 2003, 2005a; Department of Education 2006a: 8; Peltzer et al. 2005: 50, 108). These factors involve the loss of experienced teachers who should otherwise be able to offer more years of service and who cannot be replaced by recruits directly from the teacher-training institutions.

Given that the size of the teacher workforce in South Africa is relatively large – there were 339 703 teachers in 2004 (Arends 2007) – it takes merely a few percentage-point increases in teacher attrition to significantly increase demand relative to supply. Inevitably, this poses questions about the nature of teacher supply and, particularly, the capacity of higher education institutions to deliver on demand. Mainly anecdotal evidence from education faculty staff in some institutions suggests that the numbers of students enrolling for education programmes – especially initial teacher education – diminished in the decade following 1994. IPET will be examined in so far as available IPET data for 2005 and 2006 permit.

It is important to stress that the role of teacher education institutions is not only to meet demand for new teachers. Providing opportunities for continuing professional teacher development (CPTD) is an equally vital complementary function within higher education. Teacher careers may span more than 30 years, during which they will require professional development opportunities that expose them to new knowledge in their teaching discipline or field, induct them into emerging innovative pedagogic practices, enable them to develop new specialist skills or support them in an education management role in their schools. Need for CPTD may also be heightened by significant shifts in education policy.

---

<sup>2</sup> For example, Crouch and Perry (2003) argued that by the end of the decade 30 000 teachers would need to be trained each year (Peltzer et al. 2005: 7). The Mobile Task Team (2003) derived an even higher required figure, based on their demographic model.

This monograph seeks to describe in some detail the changing demography of the population of education students at South African higher education institutions between 1995 and 2006. The intention of this monograph is to provide a broad quantitative overview of the enrolment, graduation and throughput characteristics of student cohorts that registered for programmes in the education field over the period. While teacher supply challenges are felt in the present, changes in graduate production that affect teacher supply may be identified by looking back at enrolment and graduation trends over a number of years.

The analysis presented here is important for several reasons. First, this monograph covers the period 1995 to 2006, which coincides with the first decade or so of democracy in South Africa. It therefore provides an opportunity to capture the scope and key features of teacher education supply from higher education, an approach that, to the knowledge of the authors, has not been addressed from a longitudinal perspective in the literature.

Second, the supply of education graduates in South Africa has become a matter of national concern in recent years. Thus the findings should provide a useful basis for debate and further research on questions of teacher supply and teacher quality, which are high on the agenda of the national DoE.

Third, this monograph was commissioned to make a specific contribution within a comprehensive suite of projects that collectively constitute the Teacher Education Research Programme funded by the Embassy of the Kingdom of the Netherlands between 2005 and 2008. This project is intended as a resource and companion piece in particular to a sister project that employs a qualitative methodology to develop case studies of the complex forms of institutional restructuring that are the context within which enrolment and graduation occurs (Kruss 2008).

### **Key questions to be addressed**

The main analysis focuses directly on the production of graduates with qualifications in the field of education. It aims to establish the nature of the supply of persons who were accredited with some form of education-related qualification from South African higher education institutions. The analysis will examine the following fundamental parameters that describe teacher graduate production:

- How many people enrol and graduate within the broad study field of education?
- What is the distribution of enrolment and graduations by gender, population group and age?
- What are the proportions of enrolment and graduations between universities and technikons<sup>3</sup>?
- What qualifications at which levels do students enrol for and graduate in?
- With what levels of efficiency do people who enrol complete their intended programmes, as reflected by graduation rates?
- What specialisations in school subject fields do people graduate with and what school sectors/phases (for example, primary Foundation Phase, other primary, secondary) are they qualified to practise in?

---

<sup>3</sup> The reasons for using the institutional categorisations of 'university' and 'technikon' are given in Chapter 2, which discusses the strategy for data analysis.



## **Structure of this monograph**

This monograph is presented in the following chapters.

Chapter 2 places the phenomenon of teacher education in context. The following aspects are considered: how occupational choice processes contribute to the decision to enrol for teacher training, and how 'attraction' to teaching is critical in drawing students into a teaching career. The sociological and economic literature that attempts to explain why people elect to train and practise as teachers is briefly reviewed. The monograph then goes on to place graduate teacher production from higher education within a framework that identifies other possible sources of trained teachers for the schooling system.

Chapter 3 provides a brief summary of the primary data source of this monograph, the South African Higher Education Management Information System (HEMIS), and discusses its limitations and the methodological approach to the analysis.

Chapter 4, the empirical core of this monograph, provides an in-depth analysis of data on enrolment and graduates in the field of education.

Chapter 5 entails a discussion of the implications of the findings for our understanding of the issue of teacher supply, including further opportunities for research.



# Background and literature review

This chapter constitutes an attempt to place the phenomenon of teacher education by higher education institutions in the broader context. An adequate understanding of the complex dynamics of teacher supply requires a holistic view of the institutional ecology of teachers as professionals and an appreciation of how the process leading towards selection of teaching as an occupation is socially constructed.

In order to situate education graduate production in its broader context it is necessary to do the following:

- Review the literature on attraction to enter teacher training.
- Draw attention to the way in which the education management literature emphasises issues of recruitment, attrition and retention among current teachers, but neglects the process of attraction to teaching.
- Demonstrate how enrolment in teacher training is only part of a much longer process from childhood to adulthood within which individuals develop, frame and make career decisions.
- Introduce economic and labour market literature that is relevant to how individuals make occupational choices in the South African labour market.
- Identify the multiple pathways that teachers traverse between training and the labour market in South Africa. Higher education graduate production is one of several sources of trained teachers in the labour market.

The sections that follow aim to achieve each of the above goals in sequence.

## Literature on attraction to train as a teacher

This brief review focuses mainly on the literature that deals with attraction to become a teacher. Two important observations must be made at the outset.

First, consideration of factors attracting people to teach overlaps conceptually with analysis of teacher retention. A factor that initially attracts a person to become a teacher may explain retention of the same individual. For example, the belief that teachers can make a social contribution does motivate some individuals to *become* teachers and can, over time, play a role in motivating teachers to *remain* in the profession.

Second, factors that attract people to become teachers are not in themselves sufficient to retain teachers because other factors come into play only once the individual begins working, for instance, the daily lived experience of the school climate, school leadership culture, teacher collegiality and teacher autonomy.<sup>4</sup> All of these can impact on teacher attrition and teacher retention among practising teachers but do not directly impact on the period in which they initially experienced an attraction to teaching. The factors that inhere in the practical experience of teaching are not pursued here.

---

<sup>4</sup> As measured by Weiss (1999).

Attempts to understand how or why people are attracted to teaching as an occupation derive from a range of perspectives and disciplines including psychology, sociology and economics.<sup>5</sup>

In psychology, researchers have explored how the self-concept (Tusin 1999), values (Dawis 1991), cognitive characteristics and affective characteristics (for example, Billingsley 1993; Stuart 2000) and personality and interests (Dawis 1991; Hogan et al. 1996) of individuals influence their attraction to teaching as a career. From a sociological perspective, many researchers have attempted to find associations between demographic factors and the decision to teach, such as whether having a teacher in the family is a co-factor in this choice. Further examples of this approach will be cited below.

The standard method for investigating attraction to teaching – or reasons for leaving teaching – is the inclusion of lists of factors that participants rate on scales (Likert-type scales) or rank comparatively in a questionnaire. A great variety of factors have been ‘tested’ from intrinsic to extrinsic, monetary to non-monetary, also covering a range of individual preferences and social influences.

Many of these studies are based on pre-coded instruments and are therefore dependent on how the researcher constructs items, and on how items are phrased. A weakness with this approach is that it cannot take account of motivations for taking up teaching that fall outside of the framework of responses included in the instrument (Andrews & Hatch 2002: 185). Recently Jarvis and Woodrow (2005) employed an open-ended approach for participants to identify factors in their own words, which would be post-coded and could therefore incorporate all motives put forward by respondents.

A drawback of this literature is that in a large proportion of the studies the *weight* of the relative importance of factors is not reported (Johnson & Birkeland 2002: 10). This means that attempts to identify the most powerful factors across studies or across countries will be frustrated. Consequently, there exist intractable difficulties for building theory and developing coherent and inclusive models of attraction to teaching. As early as in the 1960s, Werts (1967: 348) observed that ‘a problem confronting career research [today] is one of relevance, of how to separate the theoretically meaningful from the many sources of artifact’.

One example of the factor-based approach to investigating teacher career choice has been selected largely on the basis of the longevity of influence that study has enjoyed in this field of research. The details are briefly recounted here.

The ‘appeal’ theory articulated by Lortie (1975) proposes that there are certain appeals inherent in teaching that attract people to the occupation.<sup>6</sup> When these appeals wane, then teacher attrition will occur. The appeal theory is useful in interpreting the basis for the decision by an individual to undergo initial teacher training with the prospect

<sup>5</sup> An anomaly in the literature is that, to the knowledge of the authors, there are no studies published that have systematically compared career-choice factors between teachers and other occupations. For a comparison of accountants with other professions, see Paolillo and Estes (1982).

<sup>6</sup> This is despite the fact that the original research was carried out with in-service teachers as participants.

of becoming a teacher. The project identified five themes through which teaching is appealing:

- Interpersonal (working with people).
- Service (personal contribution to society).
- Continuation (desire to remain in a school-like institutional environment).
- Material benefits (for example, salary).
- Time compatibility (teacher's work schedule is compatible with that of one's own children).

The original work by Lortie encouraged a number of similar studies. For example Morales (1994: 41) replicated the work of Lortie – though her results differed – but added the following themes (also see Liu et al. 2000):

- Power (influence other people's lives).
- Intellectual interest (motivation to develop in a subject or knowledge field).
- Societal/family pressure.

Many studies attempting to isolate the influential attraction factors present what appear to be contradictory results (Hovatter 2002: 12–13). This is because so many investigations of the same issue posed different research questions, applied different configurations of factors and employed different groups of participants – ranging from student teachers in pre-service training to in-service teachers.

The following examples are cited to give an indication of the wide variation in research questions on teacher attraction:

- Why do student teachers decide they want to teach a particular subject or knowledge field?  
(example: Hammond (2002) on why students decide they want to teach ICT)
- Why do certain education student groups choose particular teacher professional qualifications?  
(example: Reid & Caudwell (1997) on the motivations of PGCE students in the UK)
- Why do student teachers decide to teach in a particular type or level of school?  
(example: Kyriacou, Haltgreen & Stephens (1999) on motivations of students enrolled to become secondary school teachers; Morales (1994) on the differences between elementary, secondary and special education needs student teachers)
- Do pre-service teachers with different disciplinary backgrounds have different reasons for choosing to teach?  
(example: Jarvis & Woodrow 2005)
- Are there generational differences between teachers' attitudes to their occupation?  
(example: Johnson & Birkeland 2002: 9)
- What are the general attitudes to teaching among undergraduate students?  
(example: Unwin (1990) on geography undergraduates)
- Are student teacher motivations balanced between extrinsic, intrinsic and altruistic?  
(example: Moran et al. 2001)

Over time, approaches to addressing career choice and the factors of attraction to teaching have changed. From the 1990s, the emphasis seems to be mainly on working teachers, that is, studies are oriented towards finding out what attracts people to remain teachers rather than what initially attracts them to the profession.

A theme that has been strongly pursued in the past decade is that of workplace conditions and school organisational dynamics (such as administrative efficiencies and student discipline) in determining the satisfaction of teachers with their work (Ingersoll 2001; Ingersoll & Smith 2003).

Methodological approaches have broadened to include more research that applies qualitative methodologies oriented to understanding motivation and job satisfaction of practising teachers (for example, Bishay 1996). There are few studies that adopt a longitudinal approach to exploring changes in attraction to teaching or even attrition or retention (Marso & Pigge 1997). These are, by necessity, large-scale and expensive projects such as the study undertaken by Murnane et al. (1991), who reported on the career decisions – who chose teaching and who chose not to teach – of over 50 000 college graduates in the United States from the 1960s to the 1980s.

The literature on attraction to teaching in South Africa contains one recent study that highlights current thinking of young people on the profession. Park (2006) conducted a study that elicited Grade 11 learners' views on the profession. Respondents strongly expressed perceptions that learners do not 'respect' teachers, that there is 'poor discipline' and that the threat of violence is present in schools. Over and above these impressions of adverse school social relations, the respondents also perceived teacher remuneration to be poor in relation to other occupational options.

Recent studies on potential attrition in the teaching corps in South Africa suggest that the unfavourable impressions of teaching held by school-age learners are not unfounded (Hall et al. 2005: 16). Unfortunately, it is frequently impressions that count, even if they are not necessarily entirely accurate. For instance, Crouch (2001: 2) presents evidence to the effect that teacher compensation – relative to working hours and compared with that of other workers – could not be considered unattractive. Yet certain well-educated and middle-aged teachers could consider teaching to be relatively unattractive. Thus age, career prospects and remuneration influence how the advantages or disadvantages of leaving teaching are perceived.

### **Emphasis on functions of recruitment, attrition and retention, but neglect of attraction in the literature**

The literature on education planning and teacher supply seems to focus largely on how teachers enter and leave the career, with specific emphasis on recruitment, attrition and retention. Much less attention is paid to how to attract people into teaching, despite the obvious importance of this function that has a direct impact on the inclination of individuals to enter teacher training initially. A case will be made here for focusing more strongly on attracting people to take up teacher training.

The functions identified – attraction, recruitment and retention – and their interactions will be discussed briefly with the aim of emphasising the importance of the former.

#### **Recruitment and attraction**

It is necessary to distinguish between 'recruitment' and 'attraction', since the meaning of these two terms is not consistently distinguished in the literature. For the purposes of this monograph, 'recruitment' is understood to refer to the human resources management processes conducted by schools and education departments as

employers. Recruitment practices are part of the normal human resource management procedures, such as advertising the post, shortlisting, interviewing, negotiating and signing the employment contract.

From the perspective of this monograph, recruitment is distinct from the function of finding ways to attract people to consider training to become teachers. This should be the responsibility of government, teacher unions, teacher professional associations and other role-players. The success of raising this 'attraction'<sup>7</sup> towards teaching as a career must necessarily take place prior to 'recruitment' since it is the former that brings students to envisage a teaching career and to the decision to enrol for a teaching qualification.

### Attrition

Teacher 'attrition' has been recorded as a matter of concern in many national education systems in the past two or more decades, if not longer.<sup>8</sup> The use of the term 'attrition' to describe the teaching corps is significant since it refers to 'the action or process of gradually wearing down through sustained attack or pressure'.<sup>9</sup> This perspective must be contrasted with the neutral term 'turnover', which is commonly used in human resource management environments across industries to refer to the proportion of the workforce that needs to be replaced on an annual basis. Turnover is a 'normal' phenomenon in any employment situation. Workers leave because they resign their posts to take other work opportunities, withdraw from the labour market, retire or die while still in employment.

The use of the term 'attrition' to refer to teaching is informed by the view that teaching as an occupation is under threat. First, it is argued that teachers are exposed to difficult working conditions, which include: inadequate resources, recalcitrant learners, increased pressures of performance and reduced independence. In South Africa, these factors are considered intensively by Hall et al. (2005) and Phurutse (2005). Many of the conditions could not be said to be new, since rising demands on teachers are associated with periods of systemic or curriculum reform. A significant literature on teacher stress has emerged (Kyriacou & Sutcliffe 1979; Leach 1984; Kyriacou & Coulthard 2000; Hall et al. 2005).

Second, it is argued that conditions in the labour market constitute an attack on the occupation because teachers' skills are found to be redeemable for higher wages and better conditions in non-teaching occupations. The argument is put forward that the size and quality of the education corps is literally eroding under the impact of labour market forces drawing numbers of teachers and school managers into non-teaching careers.

Thus, the general conditions of teaching are interpreted as having a pernicious impact on teacher motivation causing 'attrition', the premature loss of teachers – before retirement age – from the teaching corps. Particularly noteworthy is the fact

7 Ross and Hutchings (2003) use the term 'attraction' in their OECD Country Background Report on 'attracting, developing and retaining effective teachers' for the United Kingdom.

8 The phenomenon of 'teacher attrition' is linked to 'teacher shortages' and, in turn, discussion of shortages inherently concerns the matter of teacher quality because plans to remediate shortages specify the key resources (time, curriculum and recruitment) whose limitations will have quality implications.

9 Oxford University Press (2006) *Concise Oxford English Dictionary* Oxford: Oxford University Press: 85

that this phenomenon has been identified from time to time in developing and developed countries. This is hardly unexpected since, in all countries, the teacher wage bill dominates education expenditure, and is in tension with all other education expenditure (including facilities, textbooks and curriculum development). Does the discovery that teacher attrition occurs in many countries amount to anything? Does this finding coincide with a recent downturn in education spending internationally? Is the burgeoning literature on teacher attrition merely another example of policy diffusion? These questions cannot be answered here, and the answers are moot. There *are* objective factors impacting on South Africa's teaching corps.

### **Retention**

Studies that deal with the phenomenon of attrition inevitably deal with 'retention', which involves research and policy development intended to ameliorate the impact of attrition. There is a substantial body of work on 'teacher attrition' and 'teacher retention' (for example, Chapman 1983; Billingsley 1993; Macdonald 1999; Darling-Hammond 2003).

Of particular relevance to the focus of this monograph, is why the majority of studies deal with attrition and retention rather than with attraction. This is partially because rates of attrition and retention lie directly within the sphere of influence of education system management. Both are amenable to direct regulation and policy intervention. Addressing retention and attrition offer the prospect of showing some impact and will appease demands for reform of the teacher supply-demand problem.

### **The importance of attraction**

In the long term, influencing the patterns of future career choice in younger people cannot be ignored if motivation to teach in the next generation is to be secured. Education authorities must pay attention to strategies oriented towards attracting people into teaching. Otherwise, a hidden process of attrition among young people who might otherwise have been disposed towards teaching will continue. Part of the difficulty in encouraging education authorities to work on attracting young people to consider becoming teachers is that this is a long-term investment that delivers no immediate politically visible gains and is probably viewed as having a relatively low expectation of success.

Studies of attraction need to take account of more than just mechanisms to increase the attractiveness of teaching careers, such as remuneration. The impact of past policy has a potentially enduring effect on the labour market and on impressions of viability of jobs and careers. The period of 'rightsizing' and rationalisation of the teaching workforce, including offering voluntary severance packages in the mid to late 1990s (Peltzer et al. 2005: 4), created the perception that there were no jobs available. Welch and Gultig (2002: 17) noted 'the public impression created by re-deployment processes that South Africa had too many teachers', which seems to have lingered long after the process was over. In the 1990s, there was also a widespread perception that teaching bursaries had been curtailed. Given that these impressions can impact on individual career plans, it is necessary to manage such perceptions of teaching and to publicly counteract these misperceptions.



## Career decision-making processes and enrolment in teacher training

Although the focus of this study on enrolment and graduation self-evidently refers only to the period in which students are actually involved in studying – usually a period of between one and four years – each individual goes through a process of much longer duration in which they make a series of key decisions that may, or may not, lead them to train as and then to practise as a teacher. These include the following: to take up a career in teaching, to enrol for a particular course of study, to complete the course of study, to practise as a teacher and to cease practising as a teacher. This array of decisions will commonly be made across a span of many years in an individual's life that extend far beyond the actual period of study.

Thus the 'story' of teacher supply begins long before the arrival of a student at the registration desk of a university department or faculty of education. There is usually an overlaying of personal experiences and decisions leading to the eventual engagement of a trained teacher in professional practice. For some individuals, the process will be incremental and cumulative – but not in a teleological sense (Katz & Martin 1962: 154). For other individuals, the weight of a particular experience, even a serendipitous one (Andrews & Hatch 2002: 185), may be definitive in their decision.

The process contributing to the eventual decision of individuals to enrol for teacher training is informed by how they interacted with their own teachers, how they have come to construct their own view of the teaching profession, how they perceive the value and status of teachers in society and in the labour market, how they understand teaching conditions in schools governed by national or provincial education authorities, and how their view of teaching accords with their own identity formation.

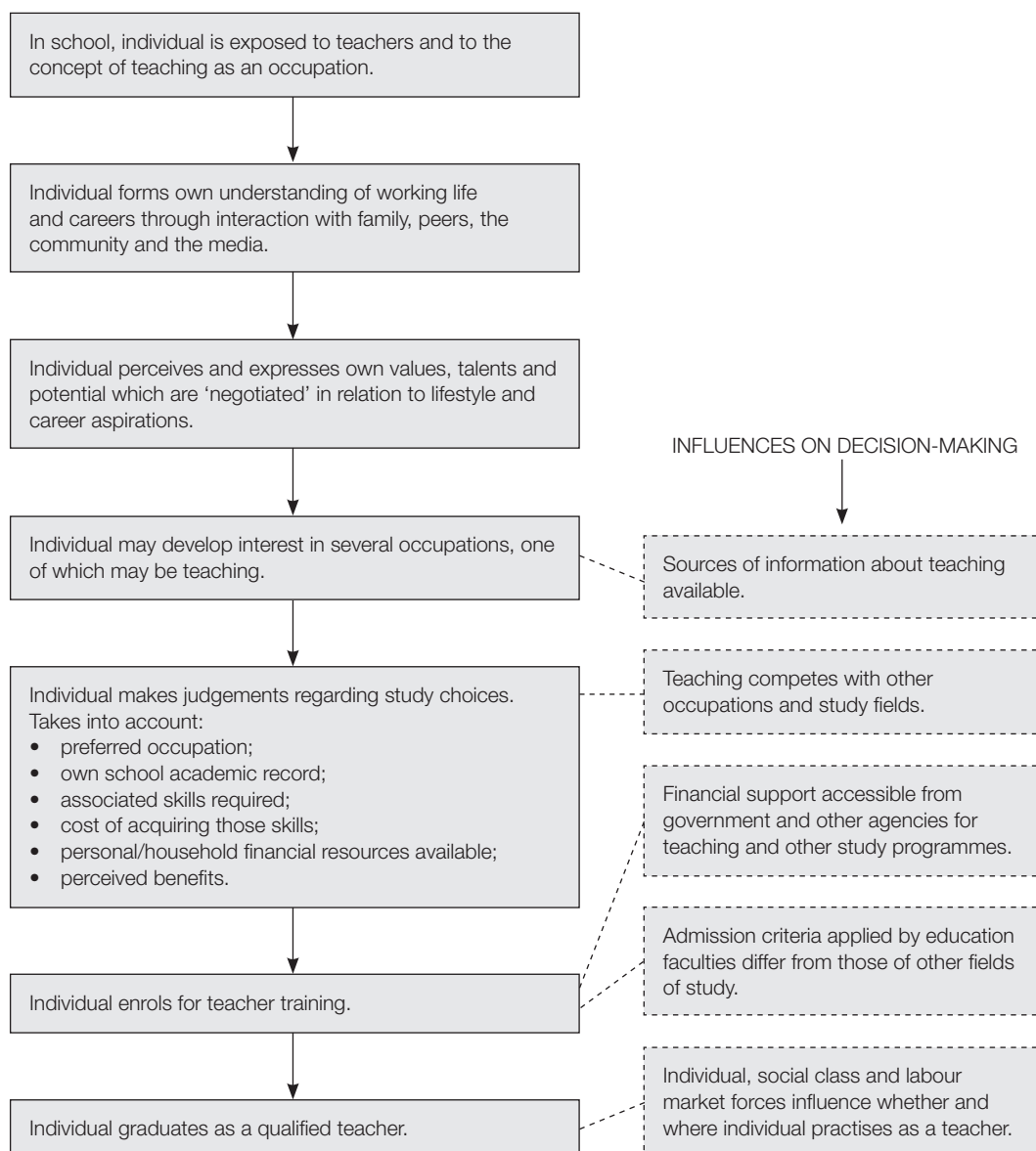
This is a process that requires individuals to assimilate information about teaching from a variety of sources and to relate this information to their own personal, social, financial and academic resources which may constrain or at least channel their study and career options. Figure 2.1 sketches the series of possible experiences and factors that influence the decision that leads people to engage in pre-service teacher training and to work as a teacher.

Clearly, one key resource in the process is access to information. Issues of remuneration, benefits and work conditions are as important to the initial decision regarding entering teaching as to the subsequent decision to stay or leave. The question is where young people obtain information on which to base their career decisions, and is career information about teaching available? A major challenge to the efficient operation of labour markets is information asymmetries that can work to the disadvantage of social groups that are marginalised through lack of access to career and labour market information. These people may study at schools where career guidance information is thin, and where there is relatively low access to media resources – print and internet – which are the main purveyors of career information.

However, career choice is certainly not a mere matter of access to 'objective' information. It is a social process in which parents, family and peers have a strong influence on personal career choice. The career options of the children of low-skilled workers will be constrained to the extent that their parents lack the social

capital with which to support their children's decision-making especially where the school does not compensate for this gap. Similarly, low-income households may not have access to the intellectual capital and financial resources to support the career aspirations of young members. These constraints will powerfully affect decisions where there is low access to – or visibility of – government support in the form of financial aid to aspirant teacher-training students.

*Figure 2.1 Factors impacting on an individual's decision to enrol for teacher training and to practise as a teacher*



A recent South African study by Bertram et al. (2006) illuminates how the decision-making of graduate students can impact on the number of beginner teachers taking up posts in schools. The authors conducted a survey in 2004 of 776 final-year student



teachers from 11 higher education institutions. The main purpose of their survey was to establish the extent to which newly qualified teachers were contemplating teaching abroad as opposed to entering the profession immediately in South Africa. It appears that 27.4 per cent of respondents planned to teach abroad while 63.3 per cent intended to teach in South Africa. A significant fraction – 7.2 per cent – did not intend to teach.

Two insights are evident. First, even though a significant proportion of graduates intended to teach internationally, the majority indicated that they would return to South Africa within two years. Yet, whether these intentions were fulfilled is unknown. This situation highlights the current fluidity of graduate career decision-making. This fluidity, where more than one in four students may or may not be available in the local labour market for about two years, highlights the difficulty of planning teacher supply.

The second insight relates to the operation of the South African teacher labour market, which is claimed to be affected by shortages, especially in particular subject teaching areas. Bertram et al. (2006) observed from their data that one-third of the student teachers already had a job secured for the 2005 year – immediately after their expected graduation. Three-quarters of these posts were guaranteed by school governing bodies in ex-Model C schools.

Bertram et al. (2006) argue that teacher shortages are not translating into available jobs for newly qualified teachers. This suggests that further attention must be given to the way in which the teacher labour market works (for example, how information about posts is communicated formally and informally through which agents). How recently qualified teachers get jobs is an important area for research.

Of particular importance to understanding career aspirations are tracer studies that follow up on actual career choice, study and career trajectories. Though they are technically difficult and expensive, considerable value may be captured from tracer studies that follow cohorts of high school students from when they are first expected to articulate their career aspirations, through making commitments to study and then finally to starting their careers (Klingelhofer 1967; Omari n.d.; Cosser et al. 2002; Cosser et al. 2004). A sister project to this monograph within the Teacher Education Programme sets out to trace the paths of school students into the post-school phase of their careers and should contribute to our understanding of higher education study choice patterns (Cosser, 2009).

## **Teaching and the labour market**

A valuable approach to understanding choice of occupation is informed by an economic model that proposes that individual agents seek to maximise the benefits accruing to them. The assumption is that an individual will assess the net monetary and non-monetary benefits deriving from a particular occupational choice (Kirby et al. 1999). In doing this, that individual will systematically assess the net benefits across a number of occupational options before making a career choice.

The pull of the labour market therefore affects practising teachers, who might move into non-teaching careers. Experienced teachers with some years of service who

are lost to teaching cannot be replaced by recruits directly from the teacher-training institutions.

The supply of teachers is observed to be sensitive to the salary differentials between teaching and other jobs (Murnane et al. 1991; Stinebrickner et al. 2004), though other benefits and work conditions (such as vacations and length of school day) cannot be left out of the reckoning (Hall et al. 2005: 13–22). Salaries may affect the career decisions of beginning teachers more than the career decisions of mid-career teachers (Murnane et al. 1991: 120). However, increasing salaries could be less effective than expected because teachers are also motivated by non-pecuniary or intrinsic factors (Dolton et al. 1989). In addition, there are also structural features of the teaching labour market that will blunt the impact of salary differentiation. For example, increasing salaries will not successfully attract teachers if there are too few individuals who qualify in terms of the certification requirements for the positions that have been incentivised (Liu et al. 2000: 1; Ballou & Podgursky 1997).

In the United States, evidence suggests that numbers of would-be teachers turn away from teaching because of the opportunity costs of entering and staying in the profession (Liu et al. 2000: 7). Typically, opportunity costs refer to the expected losses arising from not taking an alternative choice. For example, if teacher training requires relatively high academic fees and there is a loan repayment burden against a low teacher's salary, choosing to be a teacher bears opportunity costs in comparison with electing to obtain a qualification providing entry to a better-paying profession. In the United States, comparison of the earning gap between teachers and other professions revealed that the opportunity costs<sup>10</sup> of choosing to teach had risen dramatically by 2000 (Henke Chen & Geis, 2000). The authors are not aware of published work of a similar nature undertaken in South Africa.

There are at least two ways in which government can shift the opportunity-cost calculation made by prospective teachers: adjustments to teacher salaries<sup>11</sup> and implementation of student loan and bursary schemes that cover tuition fees and other study costs. Later in this monograph, some attention will be given to the investment by the South African DoE in teacher training through the National Student Financial Aid Scheme (NSFAS) and a new national teacher education bursary initiative, Fundza Lushaka, which disbursed R180 million in bursaries in the 2007 academic year.

### **Changing labour-market conditions impact on who is prepared to become a teacher**

In the decades leading up to the millennium, the services sector has seen significant growth globally, especially in developed economies. Compared with the resources and manufacturing sectors, the services sector is more technology intensive and requires a higher skills base. Positive changes in the growth trajectory of an economy are usually associated with changes in the mix of skills needed to support increased economic activity in the sectors that are expanding. Where an economy is growing and is simultaneously shifting in emphasis towards service activities, demand for high skills will rise.

<sup>10</sup> Opportunity costs are defined as 'the loss of other alternatives (that may bring higher benefits) when one alternative is chosen'. Adapted from Oxford University Press (2006) *Concise Oxford English Dictionary* Oxford: 1003

<sup>11</sup> In October 2007, negotiations were under way in South Africa in the Education Labour Relations Council in respect of new salary scales with implications for teachers as well as principals and managers.

School leavers, undergraduate students and even new postgraduates who 'read' these changes in labour market conditions may alter their career and occupational choices, producing shifting patterns in career decision-making among whole cohorts of young people. In countries experiencing sustained economic growth and where skilled workers are continuously in demand, teacher graduate production has been affected.

For example, the economy of the United States has until recently experienced sustained moderate positive growth and low unemployment rates for the last two decades. In a discussion of the initial career choice decisions made by individuals in that country, Johnson and Birkeland observed that 'prospective teachers have access to occupations offering high pay and status...and where competing occupations offer more attractive benefits, there is no guarantee that they (students) will choose teaching over other options' (2002: 7). In these conditions, the social groups from which aspirant teachers might ordinarily be expected to emerge may be changing.

Furthermore, the same authors observe that teacher graduates do not 'necessarily expect to teach for the long term; serial careers are the norm and short-term employment is common' (Johnson & Birkeland 2002: 7). From this observation and from recent economic analysis of occupational choice, it is clear that employment decision-making is undertaken not only once, but rather throughout an individual's working life. The notion of being a teacher for life has eroded.

For many decades, teaching provided the opportunity for upward mobility when racial barriers precluded black people from other professions in Africa and in the United States (Paterson 1992; Stuart 2000). However, this situation appears to have shifted in the United States. Kennedy (1992: 66) argues that '...the past two decades have seen an increase in the career opportunities for these populations that have traditionally filled teaching positions. Thus the supply problem we now face derives more from competition with other professions than it does from an increase in the actual number of teachers needed.'

If the growth and increased propensity to absorb labour in the economy of the United States since the 1980s opened the doors to careers outside of teaching to black people who otherwise would have taken teaching careers, could an analogous process be taking place in South Africa? There appear to be historical parallels. Circumstantial evidence that suggests that a similar process may well be taking place in South Africa on the demand and on the supply side is discussed in some detail in the paragraphs that follow.

First, in the decade or more since the advent of democracy in 1994 and mandated by a non-racial and non-sexist Constitution, where various pieces of legislation and regulations, such as the Employment Equity Act, have been put in place to redress past discriminatory practices, the scope of career and occupational opportunities in the public and the private sector have opened up to black people. Crouch and Lewin (2003) argued that for 'black Africans the opportunities in the formal economy are opening up at a faster rate than in teaching', while Peltzer et al. (2005: 61) observed that '[E]ven the few black education graduates may not necessarily end up teaching, but are likely to seek employment in other fields where their training is valuable such as training-related careers or marketing.'

Second, the higher education system underwent a massive expansion in the same period, increasing enrolment from 569 000 to 744 489 between 1995 and 2004 (DoE 2005a). This expansion provided for a greater number of African students to take up study opportunities that prepared them for wider array of career fields.

Third, notwithstanding its social importance, teaching has hardly been the most popular profession historically from the perspective of individual choice in developed or developing countries (see, for example, Cliget and Foster 1966; Foster 1965; Waller 1965). With options opening up, in terms of study choice and occupational choice since 1994, we may ask the following: Could the social groups from whom teachers were traditionally 'recruited' forsake teaching in favour of other opportunities? Have these conditions impacted on teacher graduate production?

Fourth, within this broader labour market context, it is necessary to observe that the South African teaching corps is strongly feminised, a pattern that this monograph will confirm. This occupational 'segmentation' is particularly evident in primary schools in South Africa and may be sustained as long as much larger proportions of women continue to enrol and graduate from teacher education institutions than men.

Thus, understanding the explanations for why women in particular elect to teach, and the continuity in these reasons, is important in attempting to address the broad issue of teacher supply.

Gender impacts on a student's general orientation to the world of work and occupational preferences (Ellis & Herrman 1983: 902). In developed countries, it is observed that women choose occupations such as teaching because they 'anticipate shorter and less continuous work lives than men' and consequently will 'choose occupations where their human capital depreciates less from labour markets exits' (Bacolod 2002: 23). Put differently, public education systems have set, structured salary scales for experience and qualifications according to which a woman can re-enter the profession without being exposed to any market-driven salary disadvantage on the basis of discontinuity in her service. Also, teachers who are parents of school-age children benefit from the convenience that accrues because their own occupational work pattern coincides with that of their school-going children. Furthermore, Becker (1985, cited in Bacolod 2002) observes that: 'Women may also select teaching because its tasks are more compatible with home production.'

It is therefore important to note that in spite of the perceived benefits identified above, in the United States educated women have taken up an expanding array of employment opportunities. In that country, Bacolod (2002: 2) observes that real wages, depending on education and experience, have grown overall, but have risen particularly among women with higher education qualifications, and for women in professional occupations relative to men. The consequence of this is that wage gains among women have brought higher levels of general participation in occupations traditionally dominated by men.

Significantly, declining proportions of women in teaching, which was by tradition the primary occupation of educated women, have been attributed to changing labour-market conditions. Bacolod (2002: 4, 23) argues that, in the United States, '[a]s alternative opportunities improved for women and blacks, fewer chose to teach,

and fewer among those who teach are of high quality.’ This statement – even if only partially true – reflects importantly on the social-class dynamics internal to the still-female-dominated educator labour market. (This is also hinted at regarding the United States by Pavalko 1970: 345–346).

This monograph will show that the enrolment of young African women in teacher training in South African higher education institutions has indeed declined between 2000 and 2004. A relevant question is: Has the widening of access to higher education for African people, especially after 1994, contributed to a shift in the groups who historically availed themselves of teacher education opportunities?

### **Pathways of teachers from training to the labour market in South Africa**

Higher education has recently become the primary source of pre-service teacher training to the education system in South Africa after the incorporation of former colleges of education into the universities and technikons.

Many factors can focus or diffuse or destroy the intention to practise as a teacher. Even though the higher education data to be discussed provide quantitative evidence of graduate numbers, the proportion of graduates who end up as practising teachers cannot be inferred from the graduate numbers. There are multiple paths within higher education and between higher education and the labour market that may or may not lead a graduate to practise as a qualified teacher.

Figure 2.2 demonstrates the possible pathways between higher education and practice as a teacher as well as non-traditional routes into teacher training.

The conventional route into pre-service teacher education involves the following. Post-school students who enrol in a higher education institution have two possible routes to graduating with a pre-service qualification (Figure 2.2): via an undergraduate degree, which serves as a professional qualification (box A), or via a postgraduate diploma (box B).

Equipped with their academic and professional accreditation, these pre-service teachers would then take up employment in the public schooling system (box C). This path is represented in Figure 2.2 by the heavy arrow linking boxes A and B to box C.

At some later stage, practising teachers might return to take up a postgraduate qualification to further their professional training. The reality is more complex.

Factors that can reduce the numbers of qualified teachers who ultimately make themselves available for employment as teachers include the following:

- In the process of their studies in an education field:
  - students who terminate their studies early (for example, on the basis of financial hardship) may or may not return;
  - students opt out of education into other study fields mid-programme.
- Before entering the labour market:
  - graduates immediately register for higher degrees in other fields;
  - graduates immediately register for higher degrees in education (delays entry into the labour market).

- Upon entering the labour market:
  - graduates teach in public schools;
  - graduates work in private schools where their productivity contribution as teachers is not lost, but does reduce the pool available to public education;
  - graduates seek work as teachers but are unemployed either temporarily or for an extended period;
  - graduates take jobs in the private sector in training/skills development/HRD/HRM rather than public schooling;<sup>12</sup>
  - graduates seek non-teaching occupations. The teaching credential is a 'fall-back' that becomes important as serial careers and short-term employment become more common (Johnson & Birkeland 2002: 7);
  - graduates do not intend to seek work;
  - graduates emigrate.

Clearly, the output in numbers of graduates from pre-service teacher education in South Africa is important, but the impact of this output is relative to how many graduates actually end up teaching in the South African classroom, and must be viewed in relation to other sources of teacher supply that exist in the local and international labour market.

These observations should be sufficient merely to demonstrate that graduate production is just one aspect within the system of teacher supply and demand in South Africa.

Simultaneously there will be a movement of additional students into teacher education – other than those who enter teacher training directly after completing their school leaving certificate – who include:

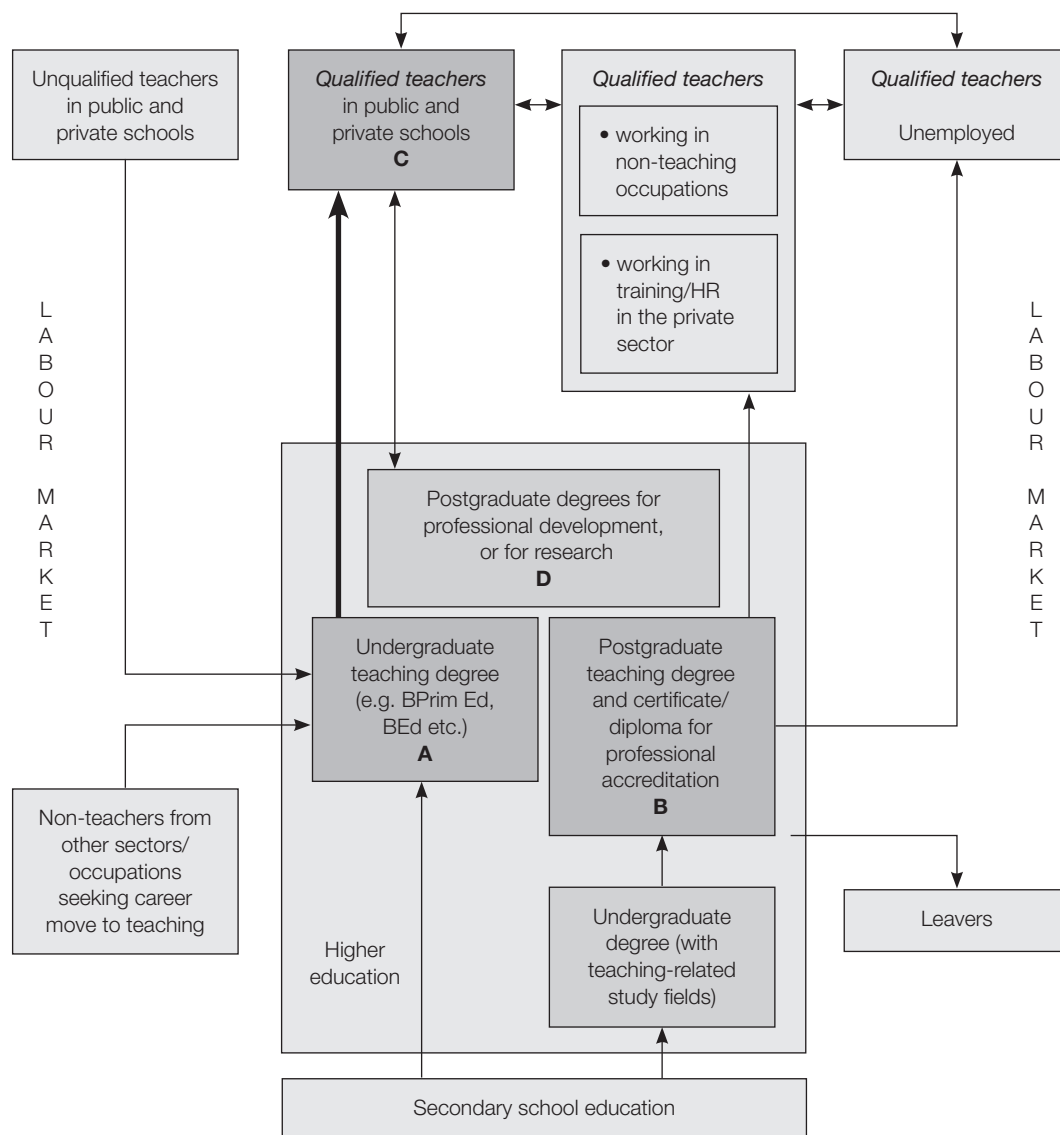
- unqualified and underqualified teachers who are currently practising and enrol (full-time or part-time) to obtain a professional accreditation. When these individuals graduate, they improve the qualifications quotient of the teacher force but do not increase the actual teacher stock.
- people qualified for non-teaching occupations, who in mid-career turn to teaching (Priyadharshini & Robinson-Pant 2003).

Similarly, teacher supply is not only restricted to the output of newly qualified teachers emerging from training institutions in South Africa. Other sources in the labour market include foreign/expatriate teachers, qualified South African teachers who return from practising abroad and teachers in the pool of unemployed teachers in South Africa. The characteristics (such as teaching subjects, demography and location), size, accessibility and mobility of these groups will determine whether they can be factored into overall teacher workforce planning. A fundamental concern will be whether strategies targeting these groups are likely to be successful in drawing significant numbers of people with the right combination of teaching qualifications into the South African teaching corps.

---

<sup>12</sup> When people complete their training and qualify as educators but do not practise as teachers, the social investment in that individual is not fully realised. Where the individual elects to be unemployed the investment is lost, but if the person is productively employed in some non-teaching occupation, it can be assumed that their training contributes in some way to the value they produce as a worker. This observation is scant reassurance for the planners who must attempt to increase the probability that people trained as teachers will practise.

Figure 2.2 Pathways of teachers between training and the labour market in South Africa



The data to be discussed include qualifications that are offered by education faculties – mainly at the postgraduate level – that are oriented towards raising the skills of the teaching corps through in-service or professional development and research opportunities (Figure 2.2 box D).

Finally, some analysts of the relationship between teacher supply and demand refer to supply as a 'pipeline' (for example, Henke et al. 2000; Kennedy 1992: 77), which is not an appropriate metaphor to capture a process that is by no means as simple and linear as that evoked by the unidirectional image of a pipeline. The pipeline metaphor will only be apposite if a recursive, and somewhat leaky system is imagined in which pressure through the pipeline has dissipated by the time it gets to the 'delivery' point.







### Data sources

The main source of data for this analysis is HEMIS, which, under the custodianship of the national Department of Education (DoE), is the repository for management information submitted by each higher education institution on an annual basis. These data submissions are used to make allocations of financial support to the institutions. These administrative data reveal patterns of enrolment in and graduation from education programmes offered in South African higher education institutions.

The nature of the data imposes limitations on the depth of the analysis that will be presented. In the form that it is received from the institutions, the data is not based on individual unit records. This means that neither the progress of individual students, nor the progression of particular student cohorts, can be tracked from year to year.

In other words, the data simply report the total number of students who are enrolled in a particular year and the number who graduate in the same year. Therefore, the impact of the following on enrolment and graduation numbers cannot be disaggregated in the annual counts: (a) the presence of students who repeat a year, (b) the presence of students who return to their programme of study after a period of absence, and (c) the absence of students who are forced to prematurely terminate their studies, temporarily or indefinitely. Consequently, the data do not allow us to uncover the actual proportion of students who successfully graduate from a particular cohort, who enrolled for the same study programme together in the same year.

The analysis in this monograph concentrates chiefly on enrolment and graduation data. It also deals with 'graduation rate' data as a proxy for 'throughput'. Appendix A elaborates on how the 'graduation rate' is calculated and also provides the Classification of Education Subject Matter (CESM) definitions of the 'education study field'.

#### **Transformation in the higher education sector and analytic continuity**

As will become clear in the tables, most data sourced cover a ten-year period from 1995 to 2004. They therefore reflect the institutional and curriculum changes in the higher education system from the perspective of the study field of education. During the period, institutional mergers were undertaken in the higher education sector (Jansen 2002). In so far as teacher education is concerned, there were two main phases of change: in the earlier phase former colleges of education were incorporated into universities and technikons; in the later phase the former universities and technikons were reconfigured in a process of creating universities, comprehensive universities and universities of technology (See Kruss 2008 for institutional analysis).

The main focus of this monograph is on graduate output from the then universities and technikons, but the analysis would be incomplete without reference to the colleges of education that produced large numbers of graduates until 2000 when the process of closing most colleges and the incorporation of a few into the universities and technikons was completed.

In the mid-1990s, the DoE initiated the rationalisation of more than 100 colleges of education associated with pre-1994 education structures. This left 27 larger colleges in existence, which in turn were incorporated into universities and technikons. From 2001, first-year enrolments at colleges were transferred to universities and technikons (Crouch & Perry 2003: 482). Table 3.1 provides a glimpse of how college enrolment declined as colleges were incorporated into universities and technikons.

Table 3.1 Enrolment and graduations in educator training, 1993 and 1997–2001<sup>1</sup>

	Colleges					Universities			Technikons			Total enrolment
	Full-time	Dis- tance/ part- time	Total enrol- ment	Grad- uates	% enrol	Total enrol- ment	Grad- uates	% enrol	Total enrol- ment	Grad- uates	% enrol	
1993	<sup>2</sup>		64 051	13 191	20.6	22 185			816			87 052
1997	44 725	38 491	83 216	20 578	24.7	54 751	15 351	28.0	4 202	648	15.4	142 169
1998	48 965	14 655	63 620	20 995	25.2	59 910	16 642	27.8	6 487	839	12.9	130 017
1999	19 665	31 269	50 934	15 597	24.5							
2000			31 405			90 178	15 604		13 282			134 865
2001			18 238 <sup>3</sup>			107 922			11 680			137 840

Notes:

1. University and technikon data for 1999–2001 exclude data from the University of the North West, Border Technikon and Eastern Cape Technikon (missing for 2001 only). Data for 2001 is provisional. Due to rapidly declining enrolment in the colleges, the 1998 and 1999 ratio of graduates to enrolment was calculated against enrolment given for the previous year so as not to give an inflated idea of the output capacity of these colleges. From 2001, first-year enrolment at colleges was transferring to universities or technikons, thus the college data excludes first-year students and the university data includes those students who may have enrolled at colleges previously.

2. Empty cells in this table indicate that data was not available in the required format or was deemed too unreliable to be included.

3. First-year college students are not included in this number. First-year enrolments from colleges were transferred to universities and technikons in this year.

Source: Crouch & Perry (2003: 482) Table 4 and <http://brdwarehouse.hsrc.ac.za/Table.jsp?tabid=2565&cbid=138>

The question is how these institutional changes impacted on the data acquired for this study?

Data for the colleges of education were administered by the Education Management Information Systems (EMIS) Directorate in the national DoE until the closure of the colleges in 2000. Leading up to that date, colleges provided only summary data reports on enrolment and graduates to EMIS, which were then captured in a spreadsheet. The summary data spreadsheet held by EMIS could not be disaggregated because there was no database to drill down into. Also, data in the spreadsheets were entirely dependent on the validity and reliability of data delivered by the colleges from their own databases. In their reconstruction of enrolment and graduations in educator training between 1993 and 2001, Crouch and Perry (2003) encountered problems with college data in terms of reliability and accessibility, especially for the years before 1997. Reliability could not be properly assessed because the institutions no longer existed. Accessibility of data was a challenge because individual college data was stored in old technology data formats that were incompatible with current database software.

Secondary sources are therefore used to sketch the main features of college enrolment and graduation in the period.<sup>13</sup> Though the analysis of the contribution of the colleges to teacher education could not be undertaken at a detailed level, the dissipation of their impact on IPET after 2001 is closely considered in this monograph.

It was not possible to establish which university or technikon education department or faculty grew through incorporation of which colleges. This procedure would have to be undertaken by examining historical records from the institutions concerned, which is not part of the brief for this project. In practical terms, the data to be reported in the analysis that follows will reflect the incorporation of the colleges into the universities and technikons simply as increased enrolments.

With respect to the mergers of technikons and universities, the HEMIS data will soon only reflect the new tripartite institutional landscape. However, until 2004, HEMIS continued to report data according to the now historical division between technikons and universities. Given that these institutional types existed for the greater part of the period in question, the authors decided to stay with this pattern in order to retain the integrity of the data as provided. To recombine the 2005 data (given in the old technikon and university pattern) according to the new configuration (universities, comprehensive universities and universities of technology) would require detailed knowledge of institutional restructuring and some judgement calls on allocation of headcount numbers. This exercise would not work for data before 2003. As can be seen, a side effect of the new institutional configurations will be to create certain difficulties for maintaining data continuity and analysis.

---

<sup>13</sup> For an account of the contribution of college enrolment to overall enrolment of IPET students, see Chapter 4, Figure 4.24 and the section entitled 'Closure of the colleges of education and the IPET big picture' (Chapter 4).



### Analysis of data

This analysis aims to establish the nature of the supply of persons who were accredited with some form of education-related qualification from South African public higher education institutions. The analysis will examine the following fundamental parameters that could be used to describe teacher graduate production:

- How many students enrolled within the broad study field of education.
- How many students enrolled in universities and technikons.
- What qualification levels students elected to enrol for.
- The levels of efficiency with which students who enrolled actually completed their intended programmes as reflected by graduation rates.
- Which subject areas or specialist fields students enrolled in and graduated from.

The analysis is presented as follows:

- First, enrolments with reference to the broad field of education.<sup>14</sup>
- Second, graduates with reference to the broad field of education.
- Third, graduation rates with reference to the broad field of education.
- Fourth, enrolments, graduates and graduation rates with reference to population group and gender.
- Fifth, enrolment and graduates by province and mode of delivery.
- Sixth, enrolments, graduates and graduation rates with reference to qualification level according to levels in the National Qualifications Framework (See Appendix A for discussion of sub-classes of education study fields).
- Seventh, enrolments and graduates with reference to the age of students.

The first seven analytic sections are based on HEMIS data. The remaining three analytic sections are not based on HEMIS data:

- Eighth, the contribution of the National Student Financial Aid Scheme (NFSAS) to enrolments and graduates.
- Ninth, the proportion of graduates within the broad field of education who completed their initial teacher training qualifications.
- Tenth, the impact of HIV/AIDS on the student teacher population.

In the course of the analysis, tables and figures are presented to demonstrate the main trends and features of enrolment, graduates and graduation rates.

#### Education enrolment

In the period from 1995 to 2004, enrolment in teacher education faculties or departments in universities and technikons increased from 70 587 to 112 068 or by 41 481. This represented a 58.76 per cent increase over the decade in question (Table 4.1).

Nevertheless, this increase must be viewed in the context of the total enrolment recorded for teacher training before 2001 when the colleges of education were operational. In 1997 and 1998, enrolment in teacher education in South African

---

<sup>14</sup> The subject matter of the first-order CESM category describes all education and related subject matter grouped together. See Appendix A for more information on the CESM classification system.

colleges, universities and technikons was 142 169 and 130 017 respectively (Table 3.1; Figure 4.24). Clearly, the gross enrolment of students in teacher education declined from 142 169 in 1997 to 112 068 in 2004, three years after the cessation of the colleges.

The analysis that follows will focus in detail on technikon and university enrolment.

In the mid-1990s, low teacher education enrolments in the technikons increased dramatically from 1 351 in 1995 to 18 169 in 2004 – or by 16 818. The increase in university enrolment was 24 661 over the same period.

In percentage terms, increased enrolment in technikons over the full period was 1 245 per cent because enrolment came off a very low base. By comparison, enrolments in universities increased by a far more moderate 36 per cent. This meant that the technikon share of enrolment rose from 2 per cent in 1995 to 16 per cent in 2004 (Table 4.1).

The cumulative impact of enrolment patterns in each institutional type as reflected in year-on-year percentage changes reveals a period of decline (1996–1998), a period of resurgence (1999–2001) and a period of equilibrium (2002–2004).

*Table 4.1 University and technikon enrolment and the percentage change over the previous year, 1995–2004*

Year	Enrolment			% Change over previous year		
	University	Technikon	Total	University	Technikon	Total
1995	69 237	1 351	70 587			
1996	60 856	2 969	63 825	–12	120	–10
1997	57 669	4 280	61 949	–5	44	–3
1998	53 451	6 309	59 760	–7	47	–4
1999	58 712	10 789	69 500	10	71	16
2000	73 527	11 820	85 347	25	10	23
2001	92 621	12 585	105 206	26	6	23
2002	97 130	12 567	109 697	5	0	4
2003	90 876	16 004	106 880	–6	27	–3
2004	93 898	18 169	112 068	3	14	5

*Note: Numbers of students in the tables are based on full-time equivalents (FTEs) and not a 'headcount'. In some cases, row totals do not add up exactly because of rounding off. FTEs are explained in Appendix C 'Analysis of enrolment in education subfields, 1995–2004'*

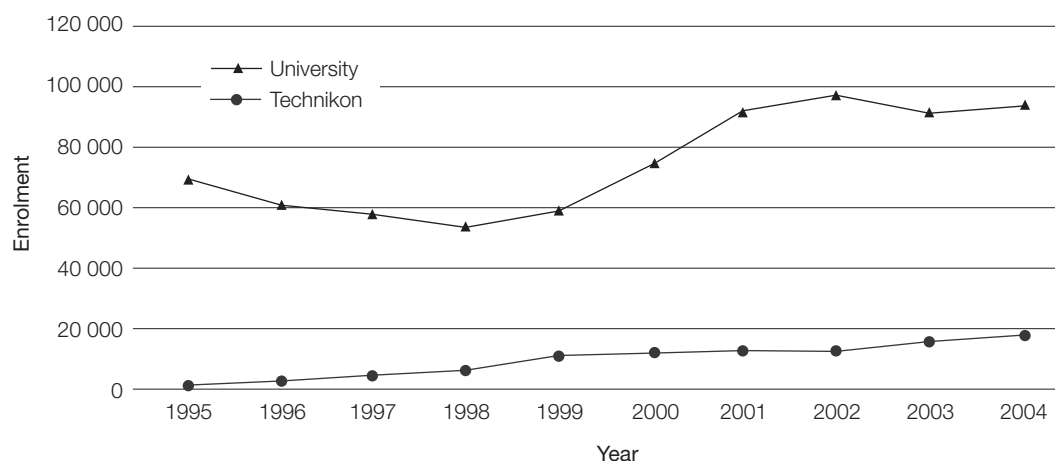
Notwithstanding the overall enrolment increase that was realised in the period, there were marked fluctuations in enrolments within each institutional type. Enrolment in the universities declined from 1995 by more than 15 000 to reach a low of 53 451 in 1998. Thereafter enrolment accelerated until it peaked in 2002 at 97 130. This reveals a significant fluctuation in enrolment of 43 679 within the space of four years (Table 4.2 and Figure 4.1).

The technikons were characterised initially by enrolment doubling off a low base, and then tapering off after 1999 to a zero-growth point in 2002. Thereafter enrolments increased again in 2003 (Figure 4.1).

*Table 4.2 Enrolment in education programmes and the percentage share per year in universities and technikons, 1995–2004*

Year	Enrolment			% Share		
	University	Technikon	Total	University	Technikon	Total
1995	69 237	1 351	70 587	98	2	100
1996	60 856	2 969	63 825	95	5	100
1997	57 669	4 280	61 949	93	7	100
1998	53 451	6 309	59 760	89	11	100
1999	58 712	10 789	69 500	84	16	100
2000	73 527	11 820	85 347	86	14	100
2001	92 621	12 585	105 206	88	12	100
2002	97 130	12 567	109 697	89	11	100
2003	90 876	16 004	106 880	85	15	100
2004	93 898	18 169	112 068	84	16	100
Total	74 7977	96 843	84 4819	86	14	100

*Figure 4.1 University and technikon enrolment, 1995–2004*



Clearly, the two types of institution experienced different enrolment patterns that would not be visible from aggregate enrolment figures. Sharp increases in technikon enrolment between 1996 and 1998 and again in 2003–2004 had the effect of masking large fluctuations in university enrolment. As a result, a somewhat more even growth curve was achieved.

The wide fluctuation in university enrolment and initial extremely fast growth in technikons observed from the data suggests that each type of institution was subject to stresses in coping with their particular enrolment growth trajectories. It is likely

that these enrolment shifts and their attendant effects were stronger in certain institutions than in others. At this level, case study analysis may reveal how the different institutions responded.

### Enrolment in education compared to total enrolment in higher education

It is important to compare enrolment in education programmes with total enrolment in higher education as a whole to establish whether, relative to other study fields, education enrolments have expressed similar patterns of improvement or decline.

Between 1999 and 2001, university and technikon enrolment grew faster than overall enrolment per institutional type. Thereafter, only technikons sustained further growth against overall enrolments.

Education enrolment as a percentage of total enrolment in the universities fluctuated between a low of 15 per cent in 1998 and a high of 22 per cent in 2001 (Table 4.3 and Figure 4.2). The steady decline from 1995–1998 reveals that education enrolment dropped in absolute and relative terms in these years.

In contrast, education student enrolment in the technikons steadily increased relative to total enrolment from 1 per cent in 1995 to 9 per cent in 2004 (Table 4.4 and Figure 4.2).

*Table 4.3 Enrolment in education programmes in universities and percentage share of total university enrolment, 1995–2004*

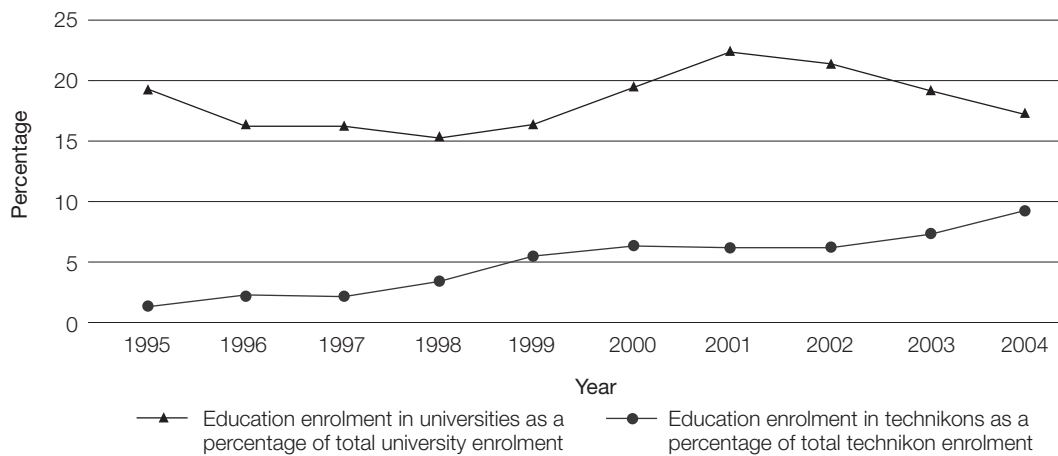
Year	Education enrolment	Total university enrolment	Education as a % of total enrolment
1995	69 237	368 845	19
1996	60 856	375 615	16
1997	57 669	370 680	16
1998	53 451	362 746	15
1999	58 712	356 818	16
2000	73 527	387 361	19
2001	92 621	428 094	22
2002	97 130	460 470	21
2003	90 876	487 741	19
2004	93 898	549 508	17

*Table 4.4 Enrolment in education programmes in technikons and percentage share of total technikon enrolment, 1995–2004*

Year	Education enrolment	Total technikon enrolment	Education as a % of total enrolment
1995	1 351	170 257	1
1996	2 969	189 540	2
1997	4 280	197 992	2
1998	6 309	197 819	3
1999	10 789	197 646	5
2000	11 820	202 792	6
2001	12 585	224 327	6
2002	12 567	214 690	6
2003	16 004	230 052	7
2004	18 169	194 981	9



Figure 4.2 Education enrolment as a share of enrolment in universities and technikons, 1995–2004



There were therefore no signs of a downward enrolment trend in education programmes in the period. With the exception of 2003, gross enrolment increased after 1998. Enrolment growth was buttressed by a strong upswing in the technikons. However, the downward trend in university enrolment from 2001 may be cause for concern. The question is whether this reflected a general across-the-board drop in enrolment or perhaps a specific decline in enrolment within particular study programmes, within particular institutional groups or among particular groups of students.

We now turn to examine trends in graduation rates from the education field in the decade 1995–2004.

### Education graduates

In an occupational labour market, such as teaching, there is not a one-to-one correspondence between the number of new graduates and the number of posts filled. Labour markets have inherent inefficiencies and graduates do not necessarily practise in their field of qualification. Nevertheless, graduation data is fundamental in determining the extent to which the supply of graduates with appropriate qualifications from educational institutions corresponds to the number of professionals needed in the workplace.

In the decade of 1995 to 2004, 210 433 graduates completed degrees and diplomas in the field of education from South African universities and technikons (Table 4.5). The number of graduates per year increased from 17 823 in 1995 to 28 756 in 2004, or by 61%.

The annual graduate output of the colleges of education averaged over 25 000 between 1995 and 1998, dropping to just under 20 000 in 1999.<sup>15</sup> By 2001, this institutional source of education graduates was shut down. Though the graduate output from technikons and universities did increase steadily, taking the colleges

<sup>15</sup> See Figure 4.24 in this chapter.

into account it is clear that the gross graduate output from all South African teacher education institutions declined between 1995 and 2004. This actuality will be addressed later in this monograph with particular reference to IPET graduates.

It is necessary to disaggregate the overall shape of graduate output, by year and by institutional type, to reveal fluctuations in the flow of graduates and in the relative contribution of each institutional type to graduate production.

Graduates increased by 42 per cent and by 1 030 per cent in the universities and technikons respectively. In the latter case, such steep growth could only be achieved off a low base. The lowest output of graduates was in 1998, when university graduations were in decline and before technikon graduations began to increase in volume.

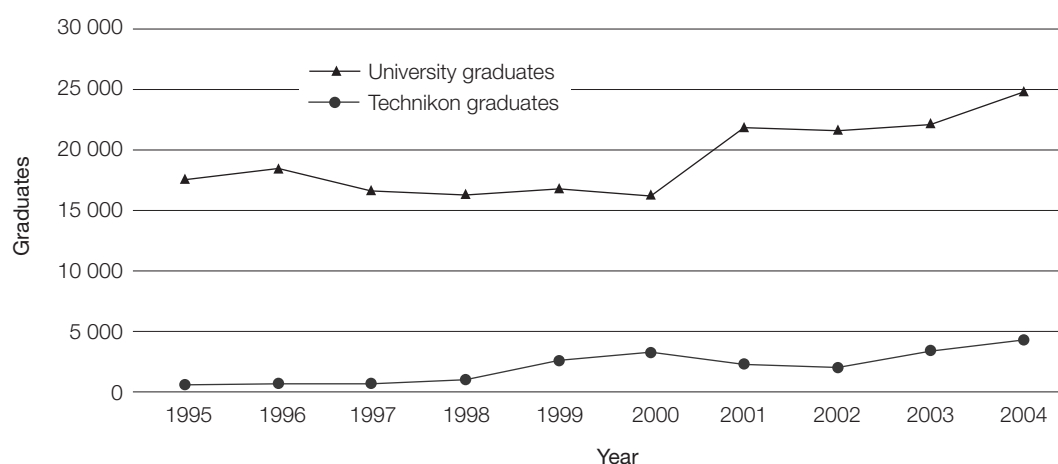
In the technikons, the upward curve of graduations achieved per year faltered only once in the period. They rose sharply until 2000, and then dropped steeply in 2001–2002 to recover in the following years. By contrast, university graduations declined from an early peak in 1996, into a trough that lasted until 2000 when graduate numbers eventually overtook the 1996 level. This was by a massive 5 607 or 35 per cent difference between the 2000 and 2001 years (Table 4.5 and Figure 4.3). This can be ascribed to the incorporation of the former colleges of education.

In the second half of the period, the percentage share of education graduate output from technikons rose to levels between 8 per cent and 16 per cent.

*Table 4.5 Graduates in education programmes and the percentage share per year in universities and technikons, 1995–2004*

Year	Graduates			% Share		
	University	Technikon	Total	University	Technikon	Total
1995	17 430	393	17 823	98	2	100
1996	18 364	696	19 060	96	4	100
1997	16 417	648	17 065	96	4	100
1998	16 190	837	17 027	95	5	100
1999	16 777	2 280	19 056	88	12	100
2000	16 021	3 058	19 079	84	16	100
2001	21 628	2 245	23 873	91	9	100
2002	21 494	1 889	23 383	92	8	100
2003	22 116	3 194	25 310	87	13	100
2004	24 707	4 049	28 756	86	14	100
Total	19 1144	19 289	210 432	91	9	100

Figure 4.3 Graduates from universities and technikons, 1995–2004



Year-on-year percentage change shows significant variation in graduate numbers (Table 4.6) subject to a variety of factors at the institutional level, including fluctuation in enrolments and the unique progression pattern within each student cohort, as well as changes in the institutions such as mergers and phasing out, or introduction, of new curriculum programmes.

Table 4.6 University and technikon graduates and the percentage change over the previous year, 1995–2004

Year	Graduates			% Change over previous year		
	University	Technikon	Total	University	Technikon	Total
1995	17 430	393	17 823			
1996	18 364	696	19 060	5	77	7
1997	16 417	648	17 065	–11	–7	–10
1998	16 190	837	17 027	–1	29	0
1999	16 777	2 280	19 056	4	172	12
2000	16 021	3 058	19 079	–5	34	0
2001	21 628	2 245	23 873	35	–27	25
2002	21 494	1 889	23 383	–1	–16	–2
2003	22 116	3 194	25 310	3	69	8
2004	24 707	4 049	28 756	12	27	14

### Education graduates compared to total higher education graduates

Finally in this section, it is necessary to assess whether there was any shift in the proportion of education graduate cohorts within overall graduate production in universities and in technikons. Education graduates as a proportion of all graduates from the universities showed some variation within a range of 23 per cent to 35 per cent (Table 4.7 and Figure 4.4). This means that, in the period under review, education graduates accounted for just under 30 per cent of all university graduates. By comparison, education graduates as a proportion of all technikon graduates

clearly rose in the period from 2 per cent to just over 10 per cent (Table 4.8 and Figure 4.4).

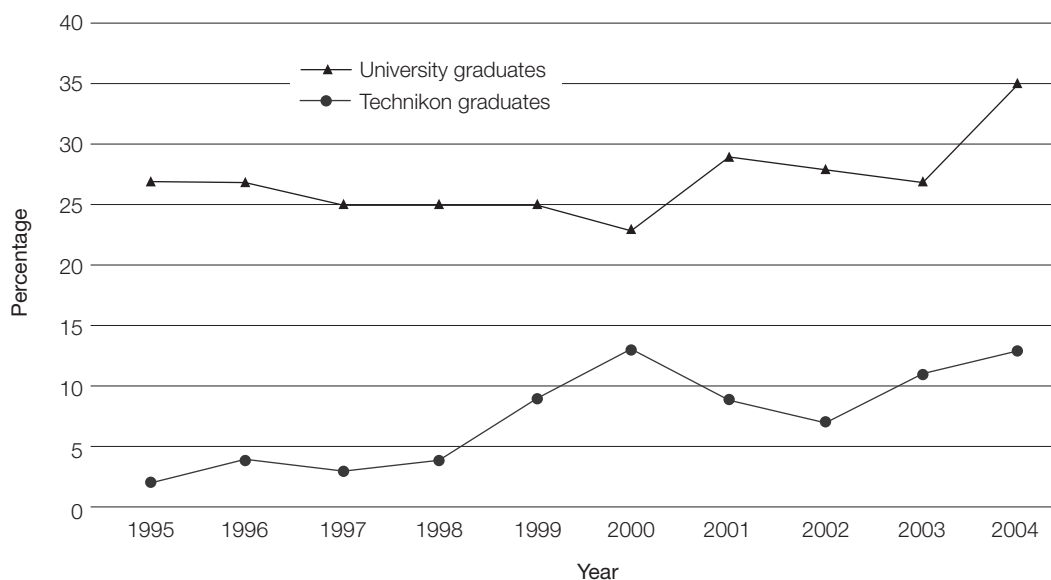
*Table 4.7 Graduates in education programmes in universities and percentage share of total university graduates, 1995–2004*

Year	Education graduates	Total university graduates	Education graduates as a % of total university graduates
1995	17 430	65 494	27
1996	18 364	66 826	27
1997	16 417	66 935	25
1998	16 190	66 054	25
1999	16 777	67 361	25
2000	16 021	69 403	23
2001	21 628	73 406	29
2002	21 494	75 665	28
2003	22 116	81 286	27
2004	24 707	71 599	35

*Table 4.8 Graduates in education programmes in technikons and percentage share of total technikon graduates, 1995–2004*

Year	Education graduates	Total technikon graduates	Education graduates as a % of total technikon graduates
1995	393	16 189	2
1996	696	19 388	4
1997	648	21 289	3
1998	837	20 571	4
1999	2 280	25 138	9
2000	3 058	22 922	13
2001	2 245	24 659	9
2002	1 889	26 015	7
2003	3 194	28 372	11
2004	4 049	30 307	13

*Figure 4.4 Education graduates as a percentage of all graduates in universities and technikons, 1995–2004*



## Graduation rate and throughput rate

This monograph uses the graduation rate as a measure of the relationship between enrolment and graduation numbers in the absence of throughput rate data.

To calculate the throughput rate requires information about the progress of a group of graduates who all enrolled together in the same year. The progress of each member of this group is recorded from year to year. Table 4.9 presents the findings of a recent exercise conducted by the DoE to establish the throughput rate of a large number of students who first enrolled as undergraduates in 2000.

If it is assumed that these students should all have graduated after four years, we can calculate the throughput rate as being that percentage who completed their studies within the expected period. According to Table 4.9, in 2004 the throughput rate for universities based on the year 2000 cohort of 38 407 students was 50 per cent. The aggregate throughput rates are starkly different between institutional type and lower than might be desired.

*Table 4.9 Completion rates in higher education institutions, 2000–2004*

Institutions	Throughput rate			
	First-time undergraduates in 2000	Dropped out by 2004 (%)	Graduated by 2004 (%)	Not completed by 2004 (%)
Universities	38 407	38	50	12
Technikons	43 484	58	32	10
Distance education institutions	37 798	71	9	20

*Source: Minister Pandor released these figures in a written answer to a question in Parliament. The data were reported in the Mail & Guardian, 22–28 September 2006.*

As can be seen from Table 4.9, a large proportion of students repeat years or they do not complete their programme. This contributes to inefficiencies as reflected in the ‘dropped out’ and ‘not completed’ columns. The throughput rate information given in Table 4.9 is provided as background to the discussion of graduation rates in this monograph.

The graduation rate (our proxy for a throughput rate<sup>16</sup>) is worth examining as it provides some measure – though somewhat imperfect, as has been observed – of the relationship between enrolment and graduation numbers. The graduation rate is expressed as a percentage where the graduation number is the numerator and the enrolment number is the denominator. The number of graduates for a particular year is expressed in relation to the number of enrolments in the same year as a percentage.

The graduation rate calculated here is a floating comparative index of the effectiveness of an institution in supporting graduates through the system. It will

<sup>16</sup> To calculate the throughput rate requires information about the progress of a group of graduates who all enrolled together in the same year. The progress of each member of this group is recorded from year to year. HEMIS data cannot accommodate this methodology.

become apparent that the graduation rate is especially volatile where numbers of students are small. Nevertheless, the data provide some useful insights that may prompt further research.

#### Graduation rate in universities and technikons, 1995–2004

When enrolment and graduation numbers are used to calculate a 'graduation rate', for universities this rate ranged from a low of 22 per cent to a high of 30 per cent. There was a similar range from 21 per cent to 30 per cent for technikons (Table 4.10). Year-on-year analysis within each institution does not reveal clear trends.

Year on year, the overall graduation rate declined from a high in 1996 to a low in 2002 and recovered somewhat by 2004. The lower graduation rates in the second half of the decade reflect a relative decline in graduations in relation to concurrent increases in enrolments.

Table 4.10 Enrolment, graduates and graduation rates in universities and technikons, 1995–2004

Year	Universities			Technikons			Total		
	Enrolment	Graduate	Graduation rate (%)	Enrolment	Graduate	Graduation rate (%)	Enrolment	Graduate	Graduation rate (%)
1995	69 237	17 430	25	1 351	393	29	70 587	17 823	25
1996	60 856	18 364	30	2 969	696	23	63 825	19 060	30
1997	57 669	16 417	28	4 280	648	15	61 949	17 065	28
1998	53 451	16 190	30	6 309	837	13	59 760	17 027	28
1999	58 712	16 777	29	10 789	2 280	21	69 500	19 057	27
2000	73 527	16 021	22	11 820	3 058	26	85 347	19 079	22
2001	92 621	21 628	23	12 585	2 245	18	105 206	23 873	23
2002	97 130	21 494	22	12 567	1 889	15	109 697	23 383	21
2003	90 876	22 116	24	16 004	3 194	20	106 880	25 310	24
2004	93 898	24 707	26	18 169	4 049	22	112 068	28 756	26

Given the limitations on the graduation rate as a proxy for throughput – especially at a year-on-year level – the graduation rate was aggregated over the first half of the decade and over the second half of the decade for comparison (Table 4.11). Three broad observations are possible. First, over the decade, graduation rates were higher in the universities; second, university graduation rates were five percentage points lower in the second period; and third, there was a small improvement in technikon throughput rates between the two periods.

Table 4.11 Graduation rates for universities and technikons, 1995–1999 and 2000–2004

Year	Institution	
	Universities	Technikons
1995–1999	28.4	18.9
2000–2004	23.6	20.3

The changes in graduation rate suggest that conditions in university education faculties and departments changed during the second half of the decade, leading to a decline in this crude measure of efficiency. In the technikons a slight improvement in efficiency is hinted at. Case-study analysis may contribute to our understanding how and why throughput changed.

## Enrolments, graduates and graduation rates with reference to population group

### Enrolments by population group, 1995–2004

In the past, black people's access to higher education – and especially to particular study fields – was severely limited. However, historically education was one field to which black people did have access. We need to be aware of how the study opportunities in other fields for black people have opened up from 1994 onwards and whether new patterns of study preference have had an effect on education enrolment.

Data on annual enrolment by population group in the universities as described in Table 4.12, and then represented in percentages in Table 4.13, reveal remarkable stability in proportionate representation from 1995 to 2004. Throughout this decade, African students constituted 4 in every 5 education students, followed by white students who represented 1 in every 10 education students, followed by coloured (3 per cent) and Indian (2 percent) students.

*Table 4.12 Enrolment in education by population group at universities, 1995–2004*

Year	African	Coloured	Indian	White	Unknown	Total
1995	54 650	2 979	2 566	9 041		69 237
1996	50 160	2 258	1 990	6 448		60 856
1997	47 984	1 997	1 722	5 967		57 669
1998	45 288	1 410	1 397	5 343		53 438
1999	40 214	1 048	1 064	4 895	11 491	58 712
2000	61 971	1 441	1 261	5 251	3 604	73 528
2001	78 801	1 862	1 494	8 986	1 478	92 621
2002	81 313	2 678	1 892	10 160	1 088	97 131
2003	72 836	3 204	2 204	11 195	1 437	90 876
2004	75 936	3 533	2 470	11 483	477	93 898
<b>Total</b>	<b>609 153</b>	<b>22 410</b>	<b>18 060</b>	<b>78 769</b>	<b>19 575</b>	<b>747 966</b>

*Note: Here, and in the tables that follow, the data for 1999 introduced a group of students of 'unknown population group'. Information on the population group classification of a number of students was not recorded. This required the creation of an 'Unknown' category.*

*Table 4.13 Enrolment in education by population group at universities, 1995–2004 (%)*

Year	African	Coloured	Indian	White	Unknown	Total
1995	79	4	4	13		100
1996	82	4	3	11		100
1997	83	3	3	10		100
1998	85	3	3	10		100
1999	68	2	2	8	20	100
2000	84	2	2	7	5	100
2001	85	2	2	10	2	100
2002	84	3	2	10	1	100
2003	80	4	2	12	2	100
2004	81	4	3	12	1	100
Average	81	3	2	11	3	100

Enrolment data for the technikons by population group fluctuated quite widely until 2001. A pivotal transition took place between 1998 and 1999 that was marked by distinct shifts in the share of enrolments. Between those years, African enrolments rose from 3 343 (53 per cent) to 10 349 (96 per cent) while white enrolments dropped from 2 677 (42 per cent) to 219 (2 per cent) between 1998 and 1999 respectively (Table 4.14 and Table 4.15). By 1998, representation of Indian students had declined from 6% to 1%.

In the period after 2001, during which share of enrolment remained relatively stable, African students comprised 86 per cent followed by white (10 per cent), coloured (4 per cent) and Indian (1 per cent) students.

*Table 4.14 Enrolment in education by population group at technikons, 1995–2004*

Year	African	Coloured	Indian	White	Unknown	Total
1995	1 035	87	84	145		1 351
1996	2 339	254	81	295		2 969
1997	2 986	194	68	1 032		4 280
1998	3 343	219	70	2 677		6 309
1999	10 349	155	63	219	0	10 785
2000	11 393	175	43	209	0	11 820
2001	11 395	239	100	851	0	12 585
2002	10 794	632	105	1 035	2	12 567
2003	13 745	878	100	1 262	20	16 004
2004	15 716	983	101	1 370	0	18 169
Total	83 095	3 816	815	9 095	22	96 843



*Table 4.15 Enrolment in education by population group at technikons, 1995–2004 (%)*

Year	African	Coloured	Indian	White	Unknown	Total
1995	77	6	6	11		100
1996	79	9	3	10		100
1997	70	5	2	24		100
1998	53	3	1	42		100
1999	96	1	1	2	0	100
2000	96	1	0	2	0	100
2001	91	2	1	7	0	100
2002	86	5	1	8	0	100
2003	86	5	1	8	0	100
2004	86	5	1	8	0	100
Average	86	4	1	9	0	100

If enrolment by population group is compared between universities and technikons, the following features are apparent. The proportion of African students enrolled in education study fields in the technikons for the period (86 per cent) was slightly higher than the percentage of African students enrolled in universities, which settled at 81 per cent. There was much less variation between technikons and universities in the proportionate share of enrolment among other population groups over the decade, which amounted to less than 1 per cent.

As a consequence of these distributions, the overall proportions according to population group in education student enrolment in the higher education sector as a whole was African (82 per cent), white (10 per cent), coloured (3 per cent) and Indian (2 per cent) (Table 4.16 and Table 4.17).

*Table 4.16 Enrolment in education by population group at universities and technikons, 1995–2004*

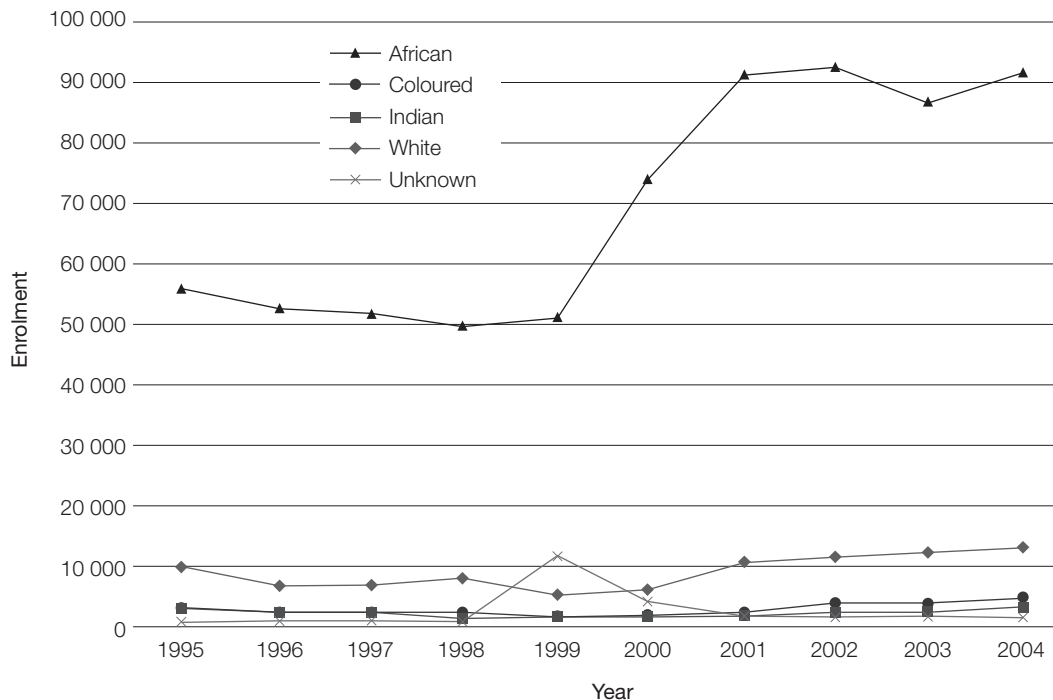
Year	African	Coloured	Indian	White	Unknown	Total
1995	55 685	3 066	2 650	9 187		70 587
1996	52 498	2 512	2 071	6 744		63 825
1997	50 970	2 192	1 789	6 999		61 949
1998	48 631	1 628	1 467	8 019		59 747
1999	50 563	1 203	1 127	5 114	11 491	69 497
2000	73 364	1 616	1 304	5 460	3 604	85 348
2001	90 196	2 102	1 594	9 837	1 478	105 206
2002	92 107	3 310	1 996	11 195	1 090	109 698
2003	86 581	4 082	2 304	12 457	1 457	106 880
2004	91 652	4 515	2 571	12 853	477	112 068
Total	692 247	26 226	18 873	87 865	19 597	844 805

Table 4.17 Enrolment in education by population group at universities and technikons, 1995–2004 (%)

Year	African	Coloured	Indian	White	Unknown	Total
1995	79	4	4	13		100
1996	82	4	3	11		100
1997	82	4	3	11		100
1998	81	3	2	13		100
1999	73	2	2	7	17	100
2000	86	2	2	6	4	100
2001	86	2	2	9	1	100
2002	84	3	2	10	1	100
2003	81	4	2	12	1	100
2004	82	4	2	11	0	100
Average	82	3	2	10	2	100

The consolidated enrolment data for universities and technikons is reflected in Figure 4.5, where clearly the largest shift in overall enrolment proportions was in favour of African graduates, specifically from 1999 onwards.

Figure 4.5 Enrolment numbers at universities and technikons by population group, 1995–2004



### Graduates by population group, 1995–2004

Employment practices of all employers must be undertaken without discrimination on the basis of population group or gender. In this sense, therefore, the population group or gender of teachers who graduate and are therefore eligible for employment is not relevant on an individual basis. However, the constitution of teacher professional graduate cohorts leaving higher education can be monitored to assess the extent to which the population group, gender and language characteristics of the South African population as a whole continue to be reflected in the teacher supply, which is an important national resource that supports cultural continuity and interchange.

Individual teachers should be prepared to serve students from a variety of backgrounds, and to contribute to intercultural exchange and understanding. At the same time, it is argued that ‘students are aware of the full population of teachers in their schools. And this population as a whole does much more than literally teach content. They also personify content. They stand as models for what it is like to be an educated person, to be a member of a community of scientists, writers, mathematicians, or political scientists... Moreover, diversity among teachers may increase both the students’ and the teachers’ knowledge and understanding of different cultural groups...’ (Kennedy 1992: 84). This view reinforces the importance of monitoring the graduate output of education.

The numbers of students from each population group that make up the total output of education graduates will be discussed first, followed by a brief discussion of proportions of students from different population groups within the university and technikon education graduate groups.

The number of African graduates increased by 80 per cent from 12 971 in 1995 to 23 311 in 2004, whereas the number of Indian education graduates decreased by 36 per cent from 901 to 575 in the same period (Table 4.18 and Figure 4.6). Coloured and white graduate numbers increased by 15 per cent and 20 per cent respectively. Clearly African graduates contributed the most to increased graduate output from higher education in the period.

*Table 4.18 University and technikon graduates by population group, 1995–2004*

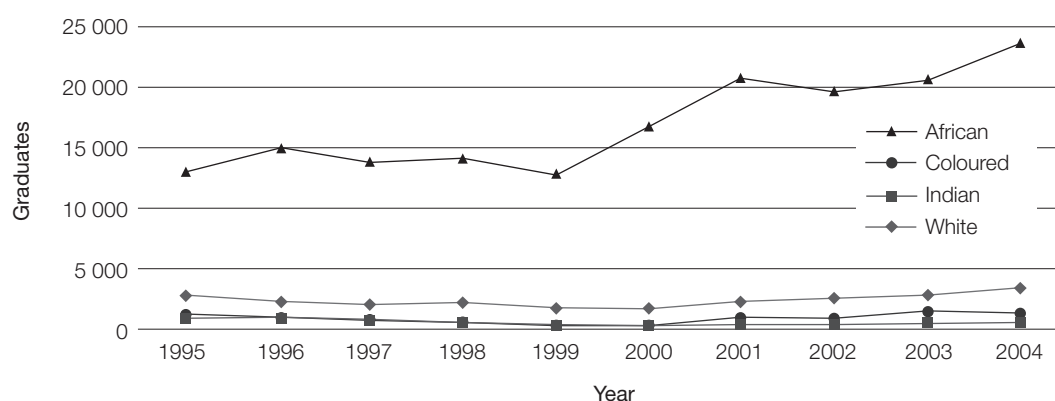
Year	African	Coloured	Indian	White	Unknown	Total
1995	12 971	1107	901	2843		17 823
1996	15 055	878	762	2 366		19 060
1997	13 800	599	641	2 024		17 065
1998	14 031	466	482	2 046		17 026
1999	12 618	377	414	1 639	0	15 048
2000	16 409	396	383	1 561	0	18 749
2001	20 297	654	408	2 266	0	23 624
2002	19 571	688	467	2 526	0	23 252
2003	20 233	1 457	489	2 870	0	25 049
2004	23 311	1 270	575	3 399	1	28 556
Total	168 296	7 892	5 522	23 540	1	205 252

This meant that the proportion of African graduates increased from 73 per cent in 1995 to 82 per cent in 2004 (Table 4.19 and Figure 4.6). In fact, Africans as a share of graduates rose to 88 per cent in 2000 and then dropped off slightly thereafter. Corresponding declines were visible in the proportions of white, coloured and Indian graduates. Though starting from a small base in 1995, Indian graduations had already halved by 2000.

Table 4.19 University and technikon graduates by population group, 1995–2004 (%)

Year	African	Coloured	Indian	White	Unknown	Total
1995	73	6	5	16		100
1996	79	5	4	12		100
1997	81	4	4	12		100
1998	82	3	3	12		100
1999	84	3	3	11	0	100
2000	88	2	2	8	0	100
2001	86	3	2	10	0	100
2002	84	3	2	11	0	100
2003	81	6	2	11	0	100
2004	82	4	2	12	0	100

Figure 4.6 Graduation numbers at universities and technikons by population group, 1995–2004



When the data on graduations by population group are disaggregated by institution type, we see that the proportion of the total number of university graduates that was made up by African students increased by 56 per cent between 1995 and 2004 (Table 4.20). The proportion of African students of the total number of technikon graduates increased by 1 445 per cent in the same period (Table 4.21). This is because graduations in the technikons increased quickly from a relatively low base. This growth was driven chiefly by African graduates who in 2000 counted for 97 per cent of technikon graduates. The factors contributing to this growth are discussed in the section entitled 'The closure of the colleges of education and the IPET big picture'.

*Table 4.20 University graduates in education by population group, 1995–2004 (%)*

Year	African	Coloured	Indian	White	Unknown	Total
1995	73	6	5	16		100
1996	80	4	4	12		100
1997	81	3	4	12		100
1998	83	2	3	12		100
1999	63	2	2	9	24	100
2000	84	2	2	9	2	100
2001	85	3	2	10	1	100
2002	84	3	2	11	1	100
2003	80	5	2	12	1	100
2004	81	4	2	12	1	100

By the end of the decade, the racial distribution of graduates between universities and technikons was very similar. Africans constituted just over 4 in every 5 graduates, followed by whites with roughly 1 in 10 graduates. Coloured and Indian graduates together accounted for fewer than 1 in 10 graduates.

*Table 4.21 Technikon graduates in education by population group, 1995–2004 (%)*

Year	African	Coloured	Indian	White	Unknown	Total
1995	56	9	8	27		100
1996	65	16	5	14		100
1997	81	10	3	6		100
1998	71	8	2	19		100
1999	93	3	1	3	0	100
2000	97	1	0	2	0	100
2001	88	3	0	8	0	100
2002	84	4	1	11	0	100
2003	79	10	1	10	0	100
2004	84	7	1	8	0	100

### Gender distribution of enrolment, graduates and graduation rate

The gender balance among graduates who eventually qualify with a teaching qualification is determined at the upper limits by the proportion of males and females who enrol to study towards such qualifications.

Consequently, the gender proportions of students registering for programmes in the teacher-education field is of relevance. In 2004, females constituted 72 per cent and 66 per cent of enrolments in universities and technikons respectively (Table 4.22 and Table 4.23 and Figure 4.7).

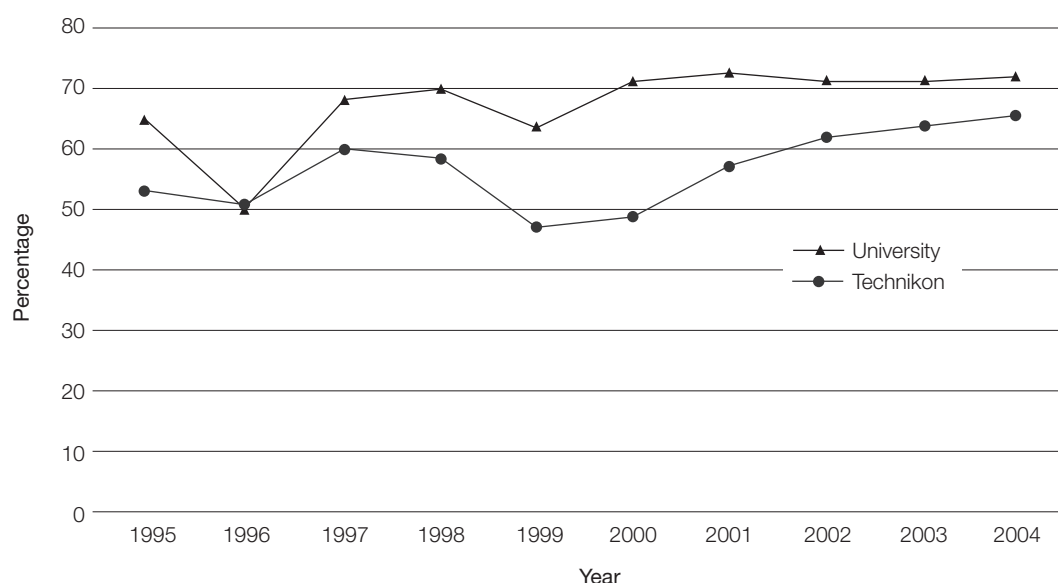
*Table 4.22 Enrolment in education at universities by gender, 1995–2004 (%)*

Year	Male	Female	Unknown	Total
1995	35	65		100
1996	50	50		100
1997	32	68		100
1998	30	70		100
1999	27	64	9	100
2000	29	71	0	100
2001	27	73	0	100
2002	29	71	0	100
2003	29	71	0	100
2004	28	72	0	100

*Table 4.23 Enrolment in education at technikons by gender, 1995–2004 (%)*

Year	Male	Female	Total
1995	47	53	100
1996	49	51	100
1997	40	60	100
1998	41	59	100
1999	53	47	100
2000	51	49	100
2001	43	57	100
2002	38	62	100
2003	36	64	100
2004	34	66	100

Figure 4.7 Female students as a percentage of all students enrolled in universities and technikons, 1995–2004



At the end of the period, 7 in 10 of all teacher-education students enrolled in higher education were female. The representation of male students declined from 36 per cent in 1995 to below 30 per cent – in fact, 29 per cent – for the first time in 2004 (Table 4.24).

Table 4.24 Enrolment in education at universities and technikons by gender, 1995–2004 (%)

Year	Male	Female	Total
1995	36	64	100
1996	50	50	100
1997	32	68	100
1998	32	68	100
1999	33	67	100
2000	32	68	100
2001	29	71	100
2002	30	70	100
2003	30	70	100
2004	29	71	100

Clearly, the propensity of males to elect to study towards obtaining a qualification in the education field declined between 1995 and 2004. The question is: What factors diverted interest of young males away from teaching towards other study fields? This has become a matter of concern in countries such as Australia where the need to recruit more men into primary education is promoted to ‘restore the balance and diversity reflected in the wider society’ and to ‘provide primary age children with males who model learning as an acceptable masculine activity’ (Mulholland and Hansen 2003: 214).

### Graduates by gender, 1995–2004

The gender balance within the teaching profession reveals a degree of segmentation where primary schooling is dominated by female teachers and where leadership positions in schools, such as principals' and senior teachers' posts, are mainly held by males, especially in secondary schools. This is where the gender proportions in the supply of new teachers into the profession are significant.

In 2004, females constituted 73 per cent and 67 per cent of graduates in universities and in technikons respectively (Table 4.25 and Table 4.26).

*Table 4.25 Graduates in education at universities by gender, 1995–2004 (%)*

Year	Male	Female	Unknown	Total
1995	34	66		100
1996	34	66		100
1997	31	69		100
1998	28	72		100
1999	23	60	17	100
2000	26	74	0	100
2001	26	74	0	100
2002	25	75	0	100
2003	27	73	0	100
2004	27	73	0	100

*Table 4.26 Graduates in education at technikons by gender, 1995–2004 (%)*

Year	Male	Female	Total
1995	63	37	100
1996	55	45	100
1997	45	55	100
1998	39	61	100
1999	51	49	100
2000	52	48	100
2001	41	59	100
2002	40	60	100
2003	29	71	100
2004	33	67	100

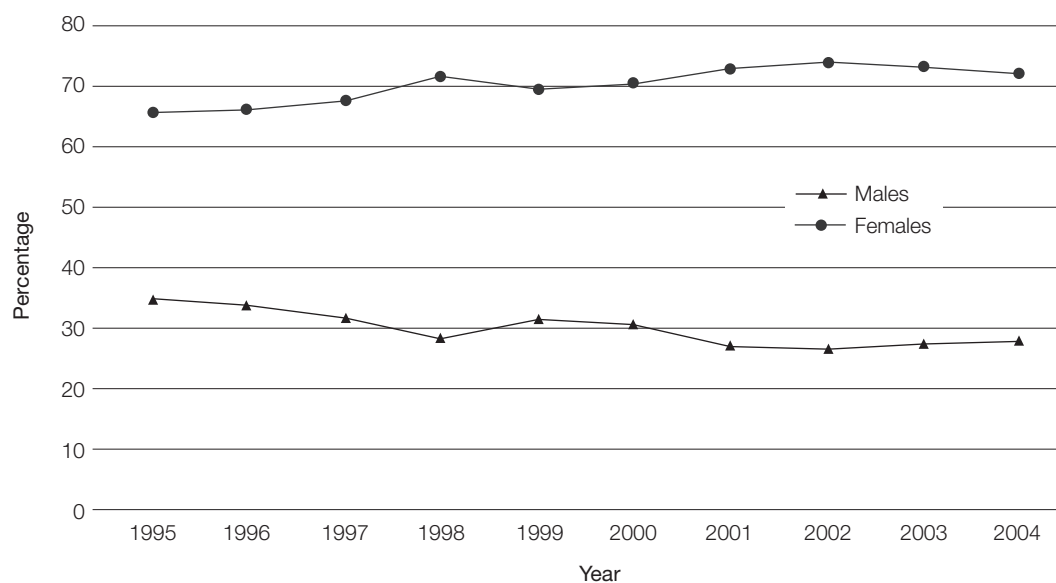
At the end of the period, over 7 in 10 of all higher education teacher graduates were female. The representation of male students declined from 35 per cent in 1995 to 28 per cent in 2004 (Table 4.27 and Figure 4.8). The data attests to increasing female dominance of graduate output with teaching qualifications.



Table 4.27 Graduates in education at universities and technikons by gender, 1995–2004 (%)

Year	Male	Female	Total
1995	35	65	100
1996	34	66	100
1997	32	68	100
1998	28	72	100
1999	31	69	100
2000	30	70	100
2001	27	73	100
2002	26	74	100
2003	27	73	100
2004	28	72	100

Figure 4.8 Graduates by gender in universities and technikons, 1995–2004



This occurrence may be of concern in that the decline in males entering the teaching profession may lead to a decline in the number of teachers qualified to teach certain subjects that have in the past been male dominated, notably science and mathematics. This places a premium on attracting female students with a mathematical and scientific background to take up initial teacher education.

It also suggests that if the disproportionately small share of females in school leadership positions remains evident in the future, this will not be on account of a lack of qualifications. The statistics cited here reflect gender proportions of graduates across all teacher education qualifications, inclusive of both initial teacher education and in-service professional development.

### Graduation rate and gender

The calculation of combined graduation rates for university and technikon students reveals a noticeable pattern. For the entire period under analysis, the number of female graduates produced is consistently higher than the number of males (Table 4.28). Why this is the case is worth further consideration. Among the factors that could have an influence are that a greater proportion of female students may have chosen teaching as a vocation and for this reason may be committed; the quality of female students at registration may be better than male students; the institutional, familial and social background and support systems of female education students may be more effective than that of male education students; or a higher proportion of males curtail their studies or move into other study programmes.

*Table 4.28 Throughput rates in education in universities and technikons by gender, 1995–2004 (%)*

Year	Male	Female	Total
1995	25	26	25
1996	31	58	44
1997	27	28	28
1998	26	30	28
1999	23	26	25
2000	21	23	22
2001	21	23	23
2002	19	22	21
2003	21	25	24
2004	24	26	26

### Gender and population group (nested) of student enrolment and graduates

The analysis has revealed that there are clear patterns according to which students register for and graduate from education programmes at higher education institutions. However, so far the discussion has considered the population group and gender characteristics of education student populations separately. Nesting population group within gender may provide additional analytic value in revealing how the distribution of population group and gender interact.

Beginning with enrolment, as has been shown earlier in this monograph, African students constitute the overwhelming majority of students who enrol for study in the education field. This means that any shift in gender representation within this group can strongly influence the gender balance for education students overall.

### Enrolment and graduates in universities by population group and gender

Between 1995 and 2004, there was a substantial increase in the numbers and proportion of African females who enrolled in universities for education programmes (Table 4.29 and Table 4.30 and Figure 4.9). In the period, the proportion of African males who enrolled for a teaching programme declined to below one-in-four (Table 4.30). This proportion ultimately sets the parameters for the gender share of newly qualified teachers entering the labour market.

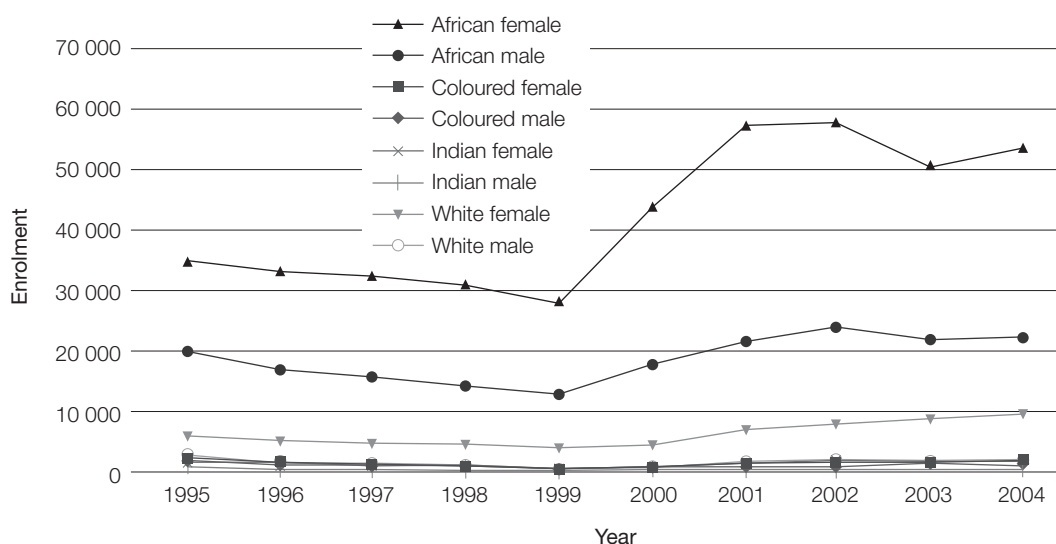
Table 4.29 University enrolment in education by population group and gender, 1995–2004

Year	African		Coloured		Indian		White		Total
	F	M	F	M	F	M	F	M	
1995	35 113	19 537	1 632	1 347	1 708	858	6 256	2 785	69 237
1996	33 203	16 956	1 282	976	1 433	557	4 974	1 474	60 856
1997	32 591	15 393	1 074	924	1 219	503	4 552	1 414	57 669
1998	31 070	14 218	751	659	1 001	396	4 343	1 000	53 438
1999	27 641	12 573	631	417	799	265	4 042	853	47 221
2000	43 825	18 145	868	573	945	317	4 350	901	69 923
2001	57 030	21 771	1 126	737	1 159	335	7 115	1 872	91 143
2002	57 378	23 925	1 798	880	1 458	434	8 096	2 064	96 033
2003	50 611	22 225	2 051	1 153	1 702	502	9 034	2 161	89 439
2004	53 454	22 481	2 249	1 284	1 934	536	9 396	2 087	93 421

Table 4.30 University enrolment in education by population group and gender, 1995–2004 (%)

Year	African		Coloured		Indian		White		Total
	F	M	F	M	F	M	F	M	
1995	51	28	2	2	2	1	9	4	100
1996	55	28	2	2	2	1	8	2	100
1997	57	27	2	2	2	1	8	2	100
1998	58	27	1	1	2	1	8	2	100
1999	57	26	1	1	2	1	10	3	100
2000	63	26	1	1	1	0	6	1	100
2001	63	24	1	1	1	0	8	2	100
2002	61	25	0	2	1	2	0	9	100
2003	57	25	2	1	2	1	10	2	100
2004	57	24	2	1	2	1	10	2	100

Figure 4.9 University enrolment by population group and gender, 1995–2004



The shape of graduations from universities by population group and gender reveals a similar pattern to that of enrolments. If anything, the trend is more sharply evident. Nearly 6 of every 10 university graduates in 2004 were African and female. Corresponding male representation among graduates within all except the African population group declined between 1995 and 2004 (Table 4.31 and Table 4.32).

Table 4.31 University graduates in education by population group and gender, 1995–2004

Year	African		Coloured		Indian		White		Total
	F	M	F	M	F	M	F	M	
1995	8 337	4 415	544	528	567	303	2 003	733	17 430
1996	9 565	5 034	413	355	529	196	1 702	569	18 364
1997	9 038	4 346	283	250	466	158	1 579	404	16 525
1998	9 563	3 875	212	186	335	128	1 565	324	16 189
1999	7 464	3 043	188	120	297	96	1 277	283	12 769
2000	9 906	3 543	214	146	279	95	1 261	247	15 691
2001	13 498	4 824	344	232	307	95	1 687	392	21 379
2002	13 428	4 548	394	227	367	89	1 870	439	21 362
2003	12 690	5 008	811	314	369	102	2 101	461	21 855
2004	14 283	5 642	611	360	445	102	2 554	509	24 506

Table 4.32 University graduates in education by population group and gender, 1995–2004 (%)

Year	African		Coloured		Indian		White		Total
	F	M	F	M	F	M	F	M	
1995	48	25	3	3	3	2	11	4	100
1996	52	27	2	2	3	1	9	3	100
1997	55	26	2	2	3	1	10	2	100
1998	59	24	1	1	2	1	10	2	100
1999	61	25	2	1	2	1	7	2	100
2000	63	23	1	1	2	1	8	2	100
2001	63	23	2	1	1	0	8	2	100
2002	63	21	2	1	2	0	9	2	100
2003	58	23	4	1	2	0	10	2	100
2004	58	23	2	1	2	0	10	2	100

### Enrolment and graduates in technikons by population group and gender

Technikon enrolment for education programmes reveals a similar pattern of increased involvement among African females, rising by more than 10 per cent to reach 56 per cent, and a slight decline in the share of African males (Table 4.33 and Table 4.34 and Figure 4.10).

Table 4.33 Technikon enrolment in education by population group and gender, 1995–2004

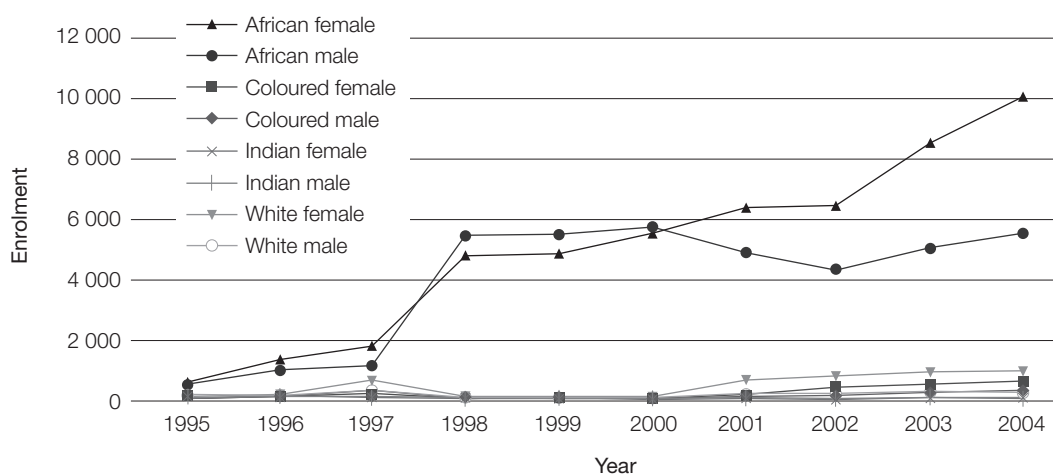
Year	African		Coloured		Indian		White		Total
	F	M	F	M	F	M	F	M	
1995	582	453	28	59	41	43	58	87	1 351
1996	1 244	1 095	105	149	40	41	119	177	2 969
1997	1 775	1 211	83	112	43	25	657	375	4 280
1998	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	6 309
1999	4 834	5 515	68	87	26	36	137	82	10 785
2000	5 611	5 783	77	98	16	27	118	91	11 820
2001	6 411	4 984	126	113	41	60	642	209	12 585
2002	6 502	4 292	456	176	51	54	799	236	12 565
2003	8 568	5 176	631	247	56	44	975	287	15 984
2004	10 148	5 568	636	346	76	25	1 063	307	18 169

Note: On account of a data error, only in the 1998 year, data on enrolment could not be linked to population group and gender per individual student. Consequently a breakdown by enrolment according to gender could not be calculated for that year.

Table 4.34 Technikon enrolment in education by population group and gender, 1995–2004 (%)

Year	African		Coloured		Indian		White		Total
	F	M	F	M	F	M	F	M	
1995	43	34	2	4	3	3	4	6	100
1996	42	37	4	5	1	1	4	6	100
1997	41	28	2	3	1	1	15	9	100
1998	46	52	0	1	1	0	0	0	100
1999	46	52	0	1	1	0	0	0	100
2000	47	49	1	1	0	0	1	1	100
2001	51	40	1	1	0	0	5	2	100
2002	52	34	4	1	0	0	6	2	100
2003	54	32	4	2	0	0	6	2	100
2004	56	31	4	2	0	0	6	2	100

Figure 4.10 Technikon enrolment by population group and gender, 1995–2004



In the period under review, the number of technikon graduates grew off a low base of enrolment (Table 4.35). In the first half of this period, there was a significant decline in the white, coloured and Indian male share of graduates (Table 4.36). African male graduations, though fluctuating over the 10 years, assumed a proportion of roughly 30 per cent at the end of the period. In contrast, African female representation rose from 23 per cent in 1995 to a high of 55 per cent in 2003 that was sustained in the following year.

Table 4.35 Technikon graduates in education by population group and gender, 1995–2004

Year	African		Coloured		Indian		White		Total
	F	M	F	M	F	M	F	M	
1995	89	130	2	33	13	19	40	67	393
1996	223	232	39	70	16	20	32	64	696
1997	306	219	23	43	8	9	21	21	648
1998	358	234	35	33	14	5	103	54	837
1999	1 029	1 081	32	37	10	12	0	0	2 201
2000	1 410	1 549	13	24	2	7	35	18	3 058
2001	1 134	841	38	39	2	4	157	31	2 245
2002	915	679	41	27	7	5	165	51	1 890
2003	1 754	782	275	58	10	8	229	79	3 194
2004	2 229	1 156	214	86	18	10	271	66	4 049

Table 4.36 Technikon graduates in education by population group and gender, 1995–2004 (%)

Year	African		Coloured		Indian		White		Total
	F	M	F	M	F	M	F	M	
1995	23	33	1	9	3	5	10	17	100
1996	32	33	6	10	2	3	5	9	100
1997	47	34	3	7	1	1	3	3	100
1998	43	28	4	4	2	1	12	7	100
1999	45	47	1	2	0	1	2	1	100
2000	46	51	0	1	0	0	1	1	100
2001	50	37	2	2	0	0	7	1	100
2002	48	36	2	1	0	0	9	3	100
2003	55	24	9	2	0	0	7	2	100
2004	55	29	5	2	0	0	7	2	100

## Postgraduate enrolments and graduations

In the period under review, aggregate master's and doctorate student enrolments in the education field rose from 2 785 to 5 709 (Table 4.37). Enrolment for these higher postgraduate qualifications increased slightly relative to all other enrolment in the education field, from 4 per cent to 5.1 per cent. This reflects a very small increase in participation in higher-degree programmes.

The actual number of students engaging in pure research was lower than the figures given. A significant proportion of master's degree enrolments was based partially or fully on coursework programmes rather than straight dissertations.

*Table 4.37 Enrolment in education by qualification level at universities and technikons, 1995–2004*

Year	Total education field	Master's	Doctorates	Master's %	Doctorate %
1995	70 448	2 253	532	3.2	0.8
1996	63 506	2 177	563	3.4	0.9
1997	61 720	2 156	551	3.5	0.9
1998	59 578	2 329	555	3.9	0.9
1999	69 329	2 259	616	3.3	0.9
2000	85 347	3 043	607	3.6	0.7
2001	105 206	3 333	701	3.2	0.7
2002	109 698	3 844	812	3.5	0.7
2003	106 879	4 532	922	4.2	0.9
2004	112 068	4 693	1 016	4.2	0.9
<b>Total</b>	<b>843 779</b>	<b>30 619</b>	<b>6 875</b>	<b>3.6</b>	<b>0.8</b>

Education graduates with higher postgraduate degrees as a proportion of all postgraduates decreased between 1995 and 2004 from 3.3 per cent (2.8 per cent master's and 0.5 per cent doctorates) to 2.3% per cent (1.9 per cent master's and 0.4 per cent doctorates) (Table 4.38). This trend is a matter of concern because it suggests that the propensity of departments of education to produce graduates with advanced professional skills or with research capacity in the field effectively declined over the decade.

*Table 4.38 Graduates at senior postgraduate qualification levels at universities and technikons, 1995–2004*

Year	Total postgraduates	Education master's	Education doctorates	Master's %	Doctorate %
1995	17 823	501	92	2.8	0.5
1996	19 060	413	95	2.2	0.5
1997	17 065	470	77	2.8	0.5
1998	17 029	432	77	2.5	0.5
1999	19 056	432	97	2.3	0.5
2000	19 078	478	113	2.5	0.6
2001	23 873	578	84	2.4	0.4
2002	23 383	507	100	2.2	0.4
2003	25 309	524	117	2.1	0.5
2004	28 756	559	127	1.9	0.4
<b>Total</b>	<b>210 432</b>	<b>4 894</b>	<b>979</b>	<b>2.3</b>	<b>0.5</b>

The balance between master's and doctorate graduates – a ratio of 4:1 – remained quite stable in the period, with a marginal increase in doctorates over master's graduates (Table 4.39).



Table 4.39 Master's and doctorate graduates from universities and technikons, 1995–2004

Year	M	PhD	Total	M %	PhD %
1995	501	92	593	84.5	15.5
1996	413	95	508	81.3	18.7
1997	470	77	547	85.9	14.1
1998	432	77	509	84.9	15.1
1999	432	97	529	81.7	18.3
2000	478	113	591	80.9	19.1
2001	578	84	662	87.3	12.7
2002	507	100	607	83.5	16.5
2003	524	117	641	81.7	18.3
2004	559	127	686	81.5	18.5
Total	4 894	979	5 873	83.3	16.7

## Enrolment and graduates by province

### Education enrolments by province

This section first provides a perspective on overall provincial enrolment within higher education and thereafter within the universities and the technikons.

When the annual graduate output was aggregated per province, substantial enrolment increases of more than 10 000 education students between 1995 and 2004 were evident in the North West and Eastern Cape. Institutions in the Free State and KwaZulu-Natal raised their enrolment by about 5 000, while enrolment levels in the Western Cape and Gauteng were more modest. In Limpopo, enrolment declined after 1995 to eventually recover to the same level in 2004, thus achieving no growth over the decade (Table 4.40).

Table 4.40 Total education enrolment by province, 1995–2004

Province	Eastern Cape	Free State	Gauteng	KwaZulu-Natal	Limpopo	North West	Western Cape	Total
1995	3 645	998	50 517	5 389	4 663	1 517	3 859	70 587
1996	3 498	985	45 929	5 030	4 359	1 035	2 989	63 825
1997	5 987	1 536	40 933	5 150	3 414	1 040	3 889	61 949
1998	8 999	1 535	35 020	5 757	2 474	2 683	3 279	59 747
1999	12 572	1 127	46 252	1 535	1 312	3 685	3 014	69 497
2000	19 036	853	48 552	5 591	1 248	5 837	4 231	85 347
2001	21 528	1 570	58 639	6 912	1 972	9 299	5 287	105 206
2002	22 289	3 812	53 708	7 706	4 379	11 191	6 615	109 698
2003	15 658	4 839	53 526	8 987	4 345	13 187	6 338	106 880
2004	15 242	6 054	56 820	9 865	4 654	13 465	5 968	112 068

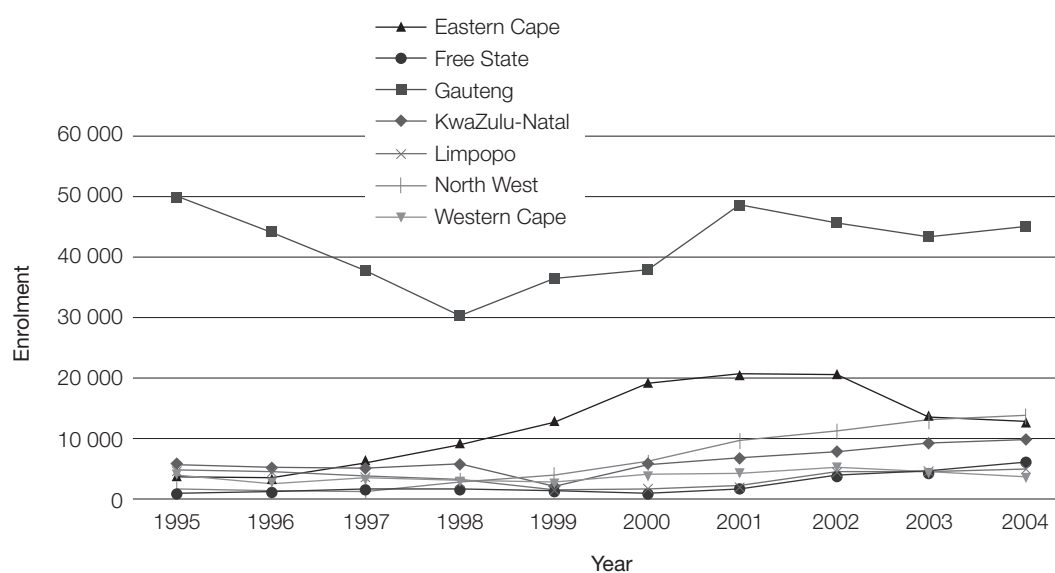
In 2004, enrolment at the university level was over 90 000, and in technikons just under 20 000. It is to be expected that on the basis of their larger scale, university enrolments would largely dictate the overall distribution of enrolment, except in one conspicuous instance, as will be shown below.

Sharp university enrolment increases were evident especially in the North West and Eastern Cape between 1995 and 2004, whereas the Free State and KwaZulu-Natal experienced more modest increases. Enrolment levels in the Western Cape and Limpopo at the end of the period were roughly equivalent to levels at the beginning of the period (Table 4.41). Importantly, between 1995 and 2004, there was a decline of 4 687 university enrolments in Gauteng, a number that exceeded the total enrolment of the Western Cape or Limpopo at the end of the decade.

Table 4.41 University enrolment in education by province, 1995–2004

Province	Eastern Cape	Free State	Gauteng	KwaZulu-Natal	Limpopo	North West	Western Cape	Total
1995	3 468	898	49 741	5 262	4 663	1 481	3 724	69 237
1996	3 213	813	44 003	4 957	4 359	961	2 551	60 856
1997	5 589	1 309	37 957	5 039	3 414	971	3 390	57 669
1998	8 601	1 309	30 024	5 669	2 474	2 603	2 757	53 438
1999	12 274	1 015	36 516	1 464	1 312	3 652	2 480	58 712
2000	18 708	801	37 734	5 541	1 248	5 837	3 659	73 527
2001	20 516	1 448	48 601	6 817	1 972	9 239	4 028	92 621
2002	20 156	3 584	45 448	7 595	4 379	11 187	4 781	97 130
2003	13 169	4 527	43 172	8 815	4 345	12 852	3 996	90 876
2004	12 260	5 531	45 054	9 483	4 654	13 465	3 452	93 898

Figure 4.11 University enrolment in education by province, 1995–2004



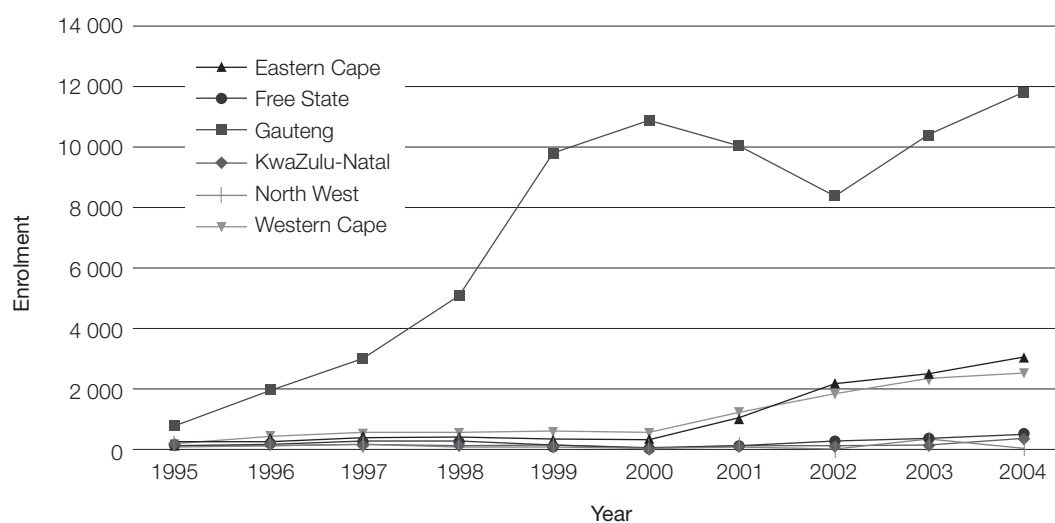
Despite these losses, the overwhelming bulk of enrolment opportunities in the education study field were still located in Gauteng (Table 4.41 and Figure 4.11). On the other hand, a decline in enrolment in Eastern Cape-based institutions after 2002 deserves closer attention to explain the causes, and to determine whether the falling numbers were concentrated in any particular institution, programme type or student group.

In the technikons, enrolment in teacher education programmes climbed rapidly from a small foundation. Enrolment was distributed very unevenly across the provinces. Apart from Limpopo which had no technikons, growth was minimal in the North West, KwaZulu-Natal and the Free State (Table 4.42). Moderate increases were evident in the Eastern Cape and Western Cape, while the major locus of growth in enrolment was experienced in Gauteng (Figure 4.12).

Table 4.42 Technikon enrolment in education by province, 1995–2004

Province	Eastern Cape	Free State	Gauteng	KwaZulu-Natal	Limpopo	North West	Western Cape	Total
1995	177	100	776	127	n.a.	36	134	1 351
1996	285	172	1 926	73	n.a.	74	438	2 969
1997	398	227	2 976	111	n.a.	69	499	4 280
1998	398	226	4 995	88	n.a.	80	523	6 309
1999	298	112	9 736	71	n.a.	33	535	10 785
2000	328	52	10 818	50	n.a.	0	572	11 820
2001	1 011	122	10 038	96	n.a.	60	1 258	12 585
2002	2 132	228	8 260	111	n.a.	4	1 833	12 567
2003	2 489	312	10 355	172	n.a.	335	2 342	16 004
2004	2 983	523	11 766	382	n.a.	0	2 516	18 169

Figure 4.12 Technikon enrolment in education by province, 1995–2004



This data demonstrates that in the decade, increases in the overall supply of education study opportunities in Gauteng were provided through technikon enrolments while university enrolment declined. Concurrently, it was the universities of the North West and Eastern Cape that expanded their enrolment in the education field. Clearly the provision of teacher education opportunities privileged those populations in the locality of institutions situated in Gauteng, Eastern Cape and North West provinces.

The data shows that education student enrolments fluctuated widely within almost all of the provinces. The institutions were all under pressure to increase enrolment. What enabled certain institutions to rapidly ramp up and then equally rapidly downscale their facilities and human resources?

The largest market was obviously to be found among practising teachers. Since most of these teachers would only be able to study part-time, the range of possible qualifications that they could enrol for was circumscribed. Simultaneously, support for under-qualified and unqualified teachers currently in service was emphasised by policy. The nature of the desired qualifications and their target audience favoured mixed and, to a lesser extent, distance delivery modes. The difficulty and marginal cost of increasing distance mode 'places' is significantly less than that of face-to-face teaching, especially where the size of the student group increases. Thus, institutions adopting this strategy on either a distance or a mixed mode of delivery would be rewarded by maximising their numbers.

### Education graduates by province

This section analyses graduates by province first within universities and the technikons and then for higher education overall.

On account of their increased enrolments in the period, university graduation numbers rose rapidly as expected in the North West and Eastern Cape particularly from 1999–2000 onwards (Table 4.43). For similar reasons, technikons in Gauteng experienced a step up in graduate flows from 1999 (Table 4.44).

*Table 4.43 University graduates in education by province, 1995–2004*

Province	Eastern Cape	Free State	Gauteng	KwaZulu-Natal	Limpopo	North West	Western Cape	Total
1995	1062	290	11819	1505	936	396	1421	17 430
1996	1 223	302	12 569	1 191	1 733	311	1 034	18 364
1997	921	335	10 952	1 225	1 651	283	1 159	16 525
1998	674	335	11 207	1 516	1 344	273	840	16 189
1999	1 375	348	12 531	635	673	592	624	16 777
2000	1 264	295	10 422	1 751	477	1 150	663	16 021
2001	1 851	294	14 061	1 722	767	2 015	918	21 628
2002	1 691	881	12 811	1 579	766	2 440	1 325	21 494
2003	3 855	1 518	9 027	2 978	611	2 618	1 509	22 116
2004	4 078	1 675	10 479	2 106	789	4 262	1 319	24 707

Table 4.44 Technikon graduates in education by province, 1995–2004

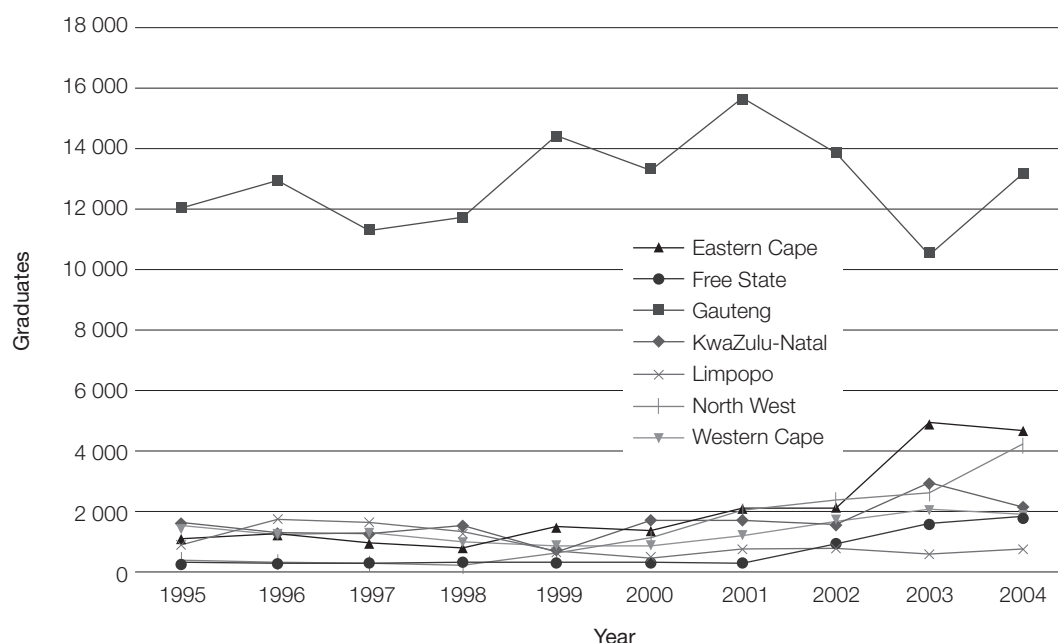
Province	Eastern Cape	Free State	Gauteng	KwaZulu-Natal	Limpopo	North West	Western Cape	Total
1995	37	0	268	40	n.a.	0	47	393
1996	64	14	329	26	n.a.	0	263	696
1997	60	20	334	25	n.a.	7	202	648
1998	93	36	483	42	n.a.	8	176	837
1999	109	26	1 846	22	n.a.	13	264	2 280
2000	69	17	2 808	7	n.a.	0	157	3 058
2001	292	28	1 552	5	n.a.	15	354	2 245
2002	401	56	1 026	5	n.a.	4	398	1 890
2003	1 054	73	1 431	10	n.a.	27	599	3 194
2004	559	197	2 673	44	n.a.	0	575	4 049

The cumulative impact of the enrolment and graduation patterns discussed separately for technikons and universities is visible from the overall higher education graduate output (Table 4.45 and Figure 4.13). There was minimal growth in the graduate production of Gauteng and the Western Cape, with slight growth in KwaZulu-Natal and Free State. As expected, growth in graduate numbers was concentrated in the North West and Free State. The only province that reflected a real decrease in graduates over the 10 years was Limpopo.

Table 4.45 Total graduates in education by province, 1995–2004

Province	Eastern Cape	Free State	Gauteng	KwaZulu-Natal	Limpopo	North West	Western Cape	Total
1995	1 100	290	12 088	1 546	936	396	1 468	17 823
1996	1 287	316	12 899	1 217	1 733	311	1 297	19 060
1997	981	355	11 286	1 250	1 651	290	1 361	17 173
1998	767	371	11 689	1 558	1 344	281	1 016	17 026
1999	1 484	374	14 377	657	673	605	888	19 056
2000	1 332	312	13 230	1 758	477	1 150	820	19 078
2001	2 143	322	15 614	1 727	767	2 030	1 272	23 873
2002	2 092	937	13 837	1 584	766	2 444	1 723	23 383
2003	4 909	1 591	10 458	2 988	611	2 645	2 108	25 309
2004	4 637	1 873	13 152	2 150	789	4 262	1 894	28 756
Total	20 732	6 741	128 630	16 435	9 747	14 414	13 847	210 537

Figure 4.13 Graduate production in education by province, 2004



The shifting distributions of enrolment and graduations at the provincial level discussed above have important implications.

### The impact of enrolment by province

The data discussed in this section reveal the share of education enrolment in and graduates emanating from institutions by province. This discussion provides the opportunity to assess the extent to which the enrolment and graduation of education students changed between provinces in the period 1995–2004.

The fluctuations at a provincial level discussed previously cumulatively reflect the impact of different individual institutional responses to the contextual challenges of the period. Rising numbers in the Eastern Cape and North West reflect the evolution of entrepreneurial trends where public institutions engaged in partnerships with private providers. Likewise, key teacher education institutions in Gauteng such as Rand Afrikaans University (RAU, now University of Johannesburg) and the University of Pretoria raised their student numbers through the stratagem of developing partnerships with Lyceum College and Success College respectively, and it was estimated that by 2000 as many as 40 000 teachers<sup>17</sup> were involved in distance education programmes offered through such partnerships, the quality of which was in most cases considered to be poor (Welch & Gultig 2002: 7, 14).

Gross provincial enrolment needs to be examined more closely to begin to expose spatial implications, since the spatial location of enrolment chances fundamentally influences access.

<sup>17</sup> This is not an FTE count. In-service teachers may have been doing two out of eight modules at any one time. Vinjevold (2001: 17) puts the number enrolled at RAU and University of Pretoria at about 30 000 in 2001.

Viewed from this perspective, the location of training institutions within each province is important because those living within reasonable daily commuting distance have privileged access to face-to-face tuition programmes. Likewise, with mixed-mode programme delivery, the time and travel costs borne by students in moving to the institution – or borne by the institution in transporting lecturers to meet students – will impose spatial limits on accessibility. The distance education mode is not geographically restricted in this way.

The spatial arrangement of institutions within each province must be taken into account in relation to the surrounding population density. For example, Gauteng had more institutions offering education programmes and supplied the highest number of enrolment places compared with other provinces. But that province covers the smallest geographical area and has the highest population density. By contrast, in all the other larger provinces, which cover far larger areas, their higher education institutions are concentrated in one or two high-density urban centres. Outside of these centres, students must migrate or avail themselves of mixed-mode or distance education. Consequently the number and location of institutions offering residential places to education students, and what share of residential places education students are offered per institution, is important. This aspect cannot be pursued here since the analysis in this monograph does not extend to the institutional level, with the exception of a discussion of IPET.

Table 4.46 disaggregates the number of students enrolled at universities and technikons where teacher education is offered according to different modes of delivery. This data refers to enrolled students and not graduates, so it provides a picture of the proportionate spread of students enrolled across different modes of delivery.

First, distance education institutions absorbed 16.3 per cent of enrolments.<sup>18</sup> The main distance institutions, University of South Africa (UNISA) and Technikon South Africa (TSA) are both based in Gauteng.<sup>19</sup> Distance education students who enrol – and who graduate – at UNISA or at Technikon SA are counted in the Gauteng totals because the main administrative functions of both institutions is located in that province. Of course, the students who enrol in the programmes at these two institutions may do so irrespective of their own location nationally – or for that matter internationally.

Second, universities and technikons served 19 per cent of students – or about one in five – through contact tuition.

Third, the same ‘contact’ institutions implemented distance education methods, which accounted for nearly two-thirds (64 per cent) of all enrolment.<sup>20</sup> Therefore, distance education provided by contact institutions – sometimes called ‘mixed-mode’ delivery – was the predominant mode of delivery. Unlike the pure ‘contact’ and pure ‘distance’ modes, this category of programme delivery admits some variation in how it is implemented.

18 The South African College of Teacher Education (SACTE) and the South African College for Open Learning (SACOL) were incorporated into University of South Africa (UNISA), Gauteng, in 2001.

19 Teacher education was not a strong focus for Technikon South Africa (TSA) (1.7%) as compared to its university equivalent UNISA (18.1%).

20 Only a small number of institutions have implemented this mode of delivery.

Unfortunately, the data are spread over only two years, so that it is not possible to establish to what extent the proportions of enrolment has shifted to or away from distance or contact or mixed-mode forms of delivery. However, on the basis that we have observed a substantial increase in CPTD enrolments while IPET enrolments have remained flat, it would seem logical to conclude that the proportions of distance and especially mixed-mode enrolment have increased over the period.

*Table 4.46 Enrolment in educator training at universities and technikons by mode of delivery, 2000 and 2001*

	Distance method at contact institutions	UNISA and TSA	Contact only	Total
Total enrolment 2000–2001 for universities and technikons	144 263	36 279	42 520	223 062
%	64.7	16.3	19.1	100

Year	University				Technikon			
	Distance method at contact institutions	UNISA	Contact only	Total	Distance method at contact institutions	TSA	Contact only	Total
2000	60 486	12 241	17 451	90 178	11 280	183	1 819	13 282
2001	63 999	23 602	20 321	107 922	8 498	253	2 929	11 680
Institution Total	124 485	35 843	37 772	198 100	19 778	436	4 748	24 962
%	62.8	18.1	19.1	100	79.2	1.7	19.0	100

*Notes: Data for 2001 are missing for the University of North West, Border Technikon and Eastern Cape Technikon; data for 2001 are provisional; percentages do not add up to 100 because of rounding off.*

*Source: Adapted from Crouch and Perry (2003: 482) Table 5.*

Three examples capture the main ways in which distance-type access is provided.

First, there are part-time programmes that students attend in the evenings after work. This option depends on students living and working in localities that are close enough to the institution for them reasonably to be expected to attend contact sessions on a weekly basis.

Second, there are programmes in which students – mostly practising teachers – attend contact sessions less frequently. The pattern is usually to schedule class meetings over weekends or perhaps in school vacations. This enables students from further afield to travel longer distances – and to overnight – in order to complete contact requirements.

Third, there are institutions that offer tuition closer to student populations who are located at such a distance that accessing the main campus is not feasible. This may occur where an institution offers contact tuition from a satellite campus where there is a permanent physical presence. Alternatively, institutions make arrangements where lecturers travel to an urban centre where student populations in the locality meet for contact sessions.



Figure 4.14 Comparison of different programme delivery modes

Institution type	Contact institutions		Distance institutions
Mode of delivery	Contact mode only	Distance mode offered by contact institutions	Distance mode only
Share of enrolment	19.1%	64.7%	16.3%
Distance and cost parameters	Commuting distance from campus and/or costs of residence	Contact proportions defined by <ul style="list-style-type: none"> <li>• frequency of contact sessions</li> <li>• duration of contact sessions</li> <li>• distance travelled</li> <li>• accommodation</li> </ul>	Location not relevant

Note: Percentages do not add up to 100 because of rounding off.

This analysis has drawn attention to the spatial distribution of study opportunities in the education field. How the different contact institutions configure their ‘distance method’ programmes is not visible from the data. It is likely that these offerings vary considerably in the extent to which they are supported by contact interaction.

Contact interaction is inevitably about the spatial location of the students – how far they must travel to meet their lecturers or tutors – and the accessibility arrangements made by the institution. All of these variables affect the costs to institutions of providing access to students, and, especially, the costs to students of securing the opportunities. Consequently, the spatial location and clustering of institutions will set the parameters of access and in turn will influence the patterns of access within and between provinces.

Finally, it is important to note that the type of delivery mode can have a marked impact on the graduation rate or throughput rate of students, especially where, as is commonly the case, the majority of contact students are studying full-time and the majority of distance students are engaged in part-time study.

### Provincial share of enrolment

To focus the analysis on how access is affected by the location of the point of delivery and by the location of the student, we must first remove the number of students who are enrolled as ‘pure’ distance education students since this group of 16.3 per cent of all students enrolled is assumed not to be influenced by distance factors.<sup>21</sup> This tells us that nearly 84 per cent of all students enrolled for education programmes that involved some form of contact time with their institution. This means that over 8 of every 10 students had to be daily commuters or within a reasonable travelling time to enable them to engage in mixed-mode tuition. Demands on the time and resources of students increase in relation to their distance from the point of contact.

If the provincial graduate production rates over a decade are compared with the proportions of teachers practising in each province, there is a clear disjuncture between provincial share of graduate production and teacher employment.

<sup>21</sup> These proportions are derived from the data for 2000 and 2001 and, in the absence of a time series, are applied to the discussion below, which refers to graduate data for 1995–2004.

Starting with Gauteng, 61.1 per cent of all education graduates were from institutions in that province. However, 16.3 per cent (Figure 4.14 above) of these graduates were from TSA and UNISA, South Africa's two distance institutions.<sup>22</sup> This means that the graduate production of contact institutions in Gauteng that offered contact only and/or the distance mode of tuition was 44.8 per cent. This is still a disproportionately large share of total graduate production across the country, when Gauteng's share of all practising teachers was only 12 per cent in 2004. Large numbers of teachers living and working in neighbouring provinces (North West, Limpopo, Mpumalanga and Free State) who are within reasonable travelling distance from Gauteng probably enrol with institutions in the province and contribute to the high number of education students who graduate there. It is possible that the Gauteng-based institutions located in a metropolitan region can supply more residential places for students and may on this basis offer more opportunities for full-time students. Both of these examples highlight the impact of student movement – contact or mixed-mode – on how total numbers of graduates are accounted for.

On the other hand, the share of teacher education graduates in some provinces is much lower than the provincial share of practising teachers (Table 4.47). This was true in Limpopo where 15.5 per cent of teachers were employed in 2004 but whose institutions produced only 4.6 per cent of all higher education graduates between 1995 and 2004. Similarly, the province of KwaZulu-Natal employed 21.7 per cent of all South African teachers in 2004 but the higher education institutions in that province produced only 7.8 per cent of education graduates. This points to the strong probability that large proportions of teachers in those provinces did not have the personal or household resources or sufficient motivation to pursue further study through enrolling for a mixed-mode programme while they were teaching.

*Table 4.47 Comparison of provincial distribution of teachers (2004) with provincial share of graduate production, 1995–2004*

Province	Number of teachers, 2004	% distribution of teachers, 2004	Education graduate production, 1995–2004	% share of graduate production, 1995–2004
Eastern Cape	63 498	18.7	20 732	9.8
Free State	22 451	6.6	6 741	3.2
Gauteng	40 916	12.0	128 630	61.1
KwaZulu-Natal	73 637	21.7	16 435	7.8
Limpopo	52 571	15.5	9 747	4.6
Mpumalanga	25 631	7.5	–	–
North West	29 752	8.8	14 414	6.8
Northern Cape	6 067	1.8	–	–
Western Cape	25 180	7.4	13 847	6.6
<b>Total</b>	<b>339 703</b>	<b>100</b>	<b>210 537</b>	<b>100</b>

*Source: Arends (2007: 9) for number of teachers employed in 2004. Graduate production figures 1995–2004 from Table 4.44.  
Note: Percentages do not add up to 100 because of rounding off.*

<sup>22</sup> Information on the domicile of distance education students would be useful to model the spatial parameters of access to teacher education. Distance education students may not necessarily be located outside of the range of other tuition options.

The data in Table 4.47 were intentionally juxtaposed to draw attention to the relationship between the spatial location of higher education institutions offering teacher education opportunities and the impact of this spatial arrangement on the levels of graduate production at a provincial level. This suggests the need for further research that maps out the 'catchment' areas of the various institutions to assess the coverage or reach of the teacher education programmes associated with higher education, especially in the provinces where the proportion of graduates over the decade does not compare favourably with the actual number of teachers employed.

The spatial arrangement of teacher education institutions and facilities is given further attention in the conclusion to this monograph.

## **Enrolment and graduates by qualification type**

Most qualifications offered by higher education institutions in the study field of education lead to professional accreditation as a teacher, or provide for continuing professional development after the initial accreditation.<sup>23</sup>

### **Enrolment by qualification type**

An examination of enrolment by qualification level can assist us in identifying broad shifts in the patterns of provision of teacher education. The introduction of new qualifications at particular levels in the National Qualification Framework can bring about changes in enrolment and graduation patterns. Changes in these patterns are therefore partly attributable to innovations in curriculum and programme redesign within the institutions. In the final analysis, enrolment changes also reflect take-up by students who exercise their preferences within a range of available qualification and programme offerings and options. The different combinations of learning programmes offered by institutions across the country shaped the patterns of student enrolment and graduation of students.

The data as they are provided from HEMIS give enrolment and graduation totals *per qualification level* and not *per qualification type*. This has the following impact. At the immediate postgraduate qualification level (National Qualification Framework Level 5) the following types of student are counted together: graduates who subsequently enrol for a post-graduate certificate to obtain professional accreditation (for example, Postgraduate Certificate in Education [PGCE]) and teachers who hold a graduate teaching degree and now wish to pursue their professional development by enrolling for an honours-level course (for example, Bachelor of Education (BEd), now called a BEd Honours). Although this monograph aims to present a picture of overall graduate production, there is keen interest in the output of graduates from IPET because these cohorts contribute to the supply of new teachers into the teaching corps. However, as can be seen, the aggregated institutional data does not allow for this distinction to be achieved because it counts IPET qualifications together with other qualifications (such as BEd). For this reason, a separate discussion of initial teacher education graduate production will appear in a later section of this monograph.

<sup>23</sup> There is a small proportion of postgraduate students who register for academic and research purposes mainly at the master's and doctorate level. A good proportion of these students probably consists of senior teachers and school managers. However, these proportions would have to be established through further research. Senior postgraduate numbers are discussed separately in this monograph.

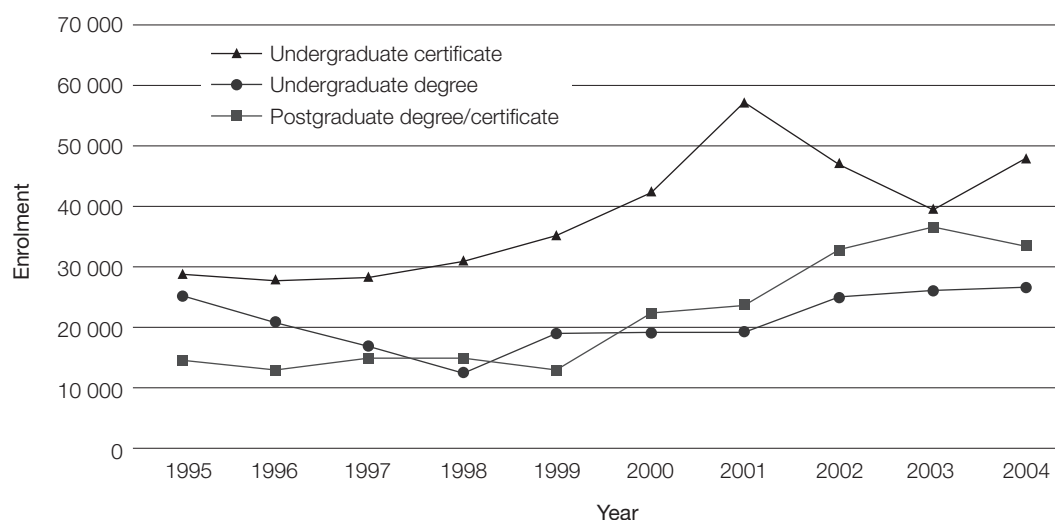
Over the 10-year period, the majority of education enrolments in higher education were in undergraduate certificates (UG Cert) (45 per cent) followed by an almost equal proportion of postgraduate certificate and honours-degree qualifications (PG Deg/Cert) (26 per cent) and undergraduate degrees (UG Deg) (25 per cent). This was followed by 4 per cent and 1 per cent at master's and doctoral levels respectively (Table 4.48 and Table 4.49).

*Table 4.48 Enrolment in education by qualification type at universities and technikons, 1995–2004*

Year	UG Cert	UG Deg	PG Deg/Cert	Master's	Doctorate	Others	Total
1995	28 461	25 042	14 160	2 253	532	0	70 448
1996	27 065	20 585	13 117	2 177	563	0	63 506
1997	27 653	16 626	14 735	2 156	551	0	61 720
1998	30 058	12 281	14 356	2 329	555	0	59 578
1999	34 530	18 903	13 023	2 259	616	0	69 329
2000	41 114	18 723	21 589	3 043	607	271	85 347
2001	57 199	18 880	23 215	3 333	701	1 879	105 206
2002	46 837	24 755	32 135	3 844	812	1 314	109 698
2003	39 020	25 502	36 168	4 532	922	735	106 879
2004	47 227	25 764	32 951	4 693	1 016	416	112 068
Total	379 164	207 061	215 449	30 619	6 875	4 615	843 779

However, on a year-to-year basis, there were changes in the relative contribution to enrolment. UG Cert rose until 2001 to account for 54 per cent of all enrolment and then declined, UG Deg declined from 36 per cent in 1995 to 23 per cent in 2004. Postgraduate degrees and certificates increased their share in the decade (Figure 4.15).

*Figure 4.15 Enrolment in higher education by qualification level, 1995–2004*



*Table 4.49 Enrolment in education by qualification type at universities and technikons, 1995–2004 (%)*

Year	UG Cert	UG Deg	PG Deg/Cert	Master's	Doctorate	Others	Total
1995	40	36	20	3	1	0	100
1996	43	32	21	3	1	0	100
1997	45	27	24	3	1	0	100
1998	50	21	24	4	1	0	100
1999	50	27	19	3	1	0	100
2000	48	22	25	4	1	0	100
2001	54	18	22	3	1	2	100
2002	43	23	29	4	1	1	100
2003	37	24	34	4	1	1	100
2004	42	23	29	4	1	0	100
Average	45	25	26	4	1	0	100

Overall enrolments increased steeply by more than 20 000 in a single year from 2000 to 2001.

This single largest annual increase – 16 000 – was partially accounted for by the uptake of the Accelerated Certificate in Education (ACE). The ACE qualification was introduced to provide the opportunity for practising teachers to expand their skills and competencies in a particular area of expertise. The ACE served as a route into postgraduate studies. A wide range of as many as 190 ACEs were approved by the DoE by 2004 (Peltzer et al. 2005: 58).

The sharp rise in the number of undergraduate certificates occurred as partnerships between public higher education and private providers expanded enrolment. The equally sudden decline in the number of undergraduate certificates was precipitated by the DoE placing a moratorium on partnerships with private providers, ruling that these certificate programmes could not be approved.

In 2000 there were about 76 000 practising but unqualified or underqualified teachers who might at some point be expected to enrol for teacher training (Table 4.50).

*Table 4.50 Unqualified/underqualified and qualified educators, 1994, 2000 and 2005*

Year	Number unqualified/ underqualified	% unqualified/ underqualified <sup>1</sup>	Number qualified	Total
1994	122 459	36	219 444	341 903
2000	76 839	22	266 641	343 480
2005	31 419	8	337 340	368 759

*Note 1: Defined as Relative Education Qualification Value (REQV) Level 12 and lower.  
Source: Crouch & Perry (2003: 481) Table 3 and Arends (2007: 18) Table 11.*

A National Professional Diploma in Education (NPDE) qualification was introduced to enable those with qualifications from former colleges of education (for example, Primary Teacher's Certificate or Senior Teacher's Diploma) to 'upgrade' and achieve the REQV13 level that constitutes the basic professional qualification level. The DoE heavily funded the NPDE programme, which involved some 17 providers and over 10 000 students by 2002 (Welch & Gultig 2002: 6).<sup>24</sup>

### Graduates by qualification type

Turning to graduations, based on the aforementioned enrolment by qualification type, the following can be observed. The largest proportion of graduates in the decade completed UG Cert (49 per cent) followed by PG Deg/Cert which accounted for 30 per cent of graduates followed by UG Deg holders (18 per cent) (Table 4.51 and Table 4.52). A remarkable feature arising from data trend lines is the steady upsurge of post-graduate certificate and honours-degree qualifications. The bulk of this increase must be attributed to rising participation of teachers seeking further professional development rather than increased IPET graduate production at this level. For example, the BEd Honours option at universities was taken by numbers of former college qualified teachers. Intense debate ensued as to whether these BEd Honours programmes were academic or professional qualifications or an uncomfortable compromise. Questions were raised about the quality of students enrolled and about the programmes themselves.

*Table 4.51 Graduates in education by qualification type at universities and technikons, 1995–2004*

Year	UG Cert	UG Deg	PG Deg/Cert	Master's	Doctorate	Others	Total
1995	8 306	2 830	6 094	501	92	0	17 823
1996	8 645	4 023	5 885	413	95	0	19 060
1997	7 236	3 814	5 468	470	77	0	17 065
1998	7 918	3 851	4 751	432	77	0	17 029
1999	10 621	4 336	3 570	432	97	0	19 056
2000	9 378	4 613	4 496	478	113	0	19 078
2001	14 471	3 114	5 627	578	84	0	23 873
2002	12 173	3 019	7 582	507	100	2	23 383
2003	11 269	3 621	9 645	524	117	132	25 309
2004	13 859	5 153	9 058	559	127	0	28 756
<b>Total</b>	<b>103 876</b>	<b>38 374</b>	<b>62 176</b>	<b>4 894</b>	<b>979</b>	<b>134</b>	<b>210 432</b>

<sup>24</sup> REQV13 level constitutes the basic professional qualification level below which teachers are considered underqualified or unqualified.

Figure 4.16 Graduations in higher education by qualification level, 1995–2004

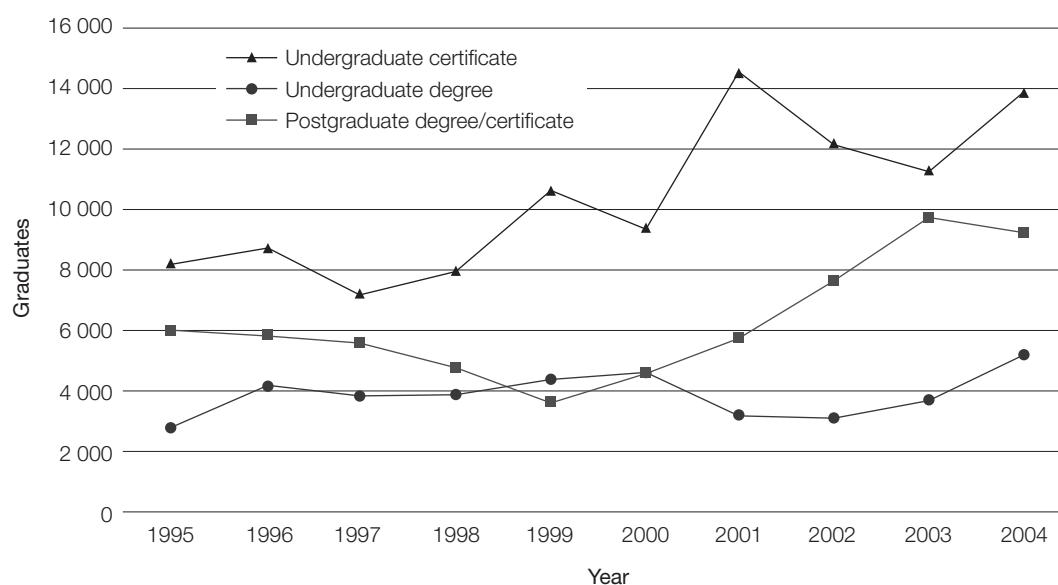


Table 4.52 Graduates in education by qualification type at universities and technikons, 1995–2004 (%)

Year	UG Cert	UG Deg	PG Deg/Cert	Master's	Doctorate	Others	Total
1995	47	16	34	3	1	0	100
1996	45	21	31	2	1	0	100
1997	42	22	32	3	0	0	100
1998	46	23	28	3	0	0	100
1999	56	23	19	2	1	0	100
2000	49	24	24	3	1	0	100
2001	61	13	24	2	0	0	100
2002	52	13	32	2	0	0	100
2003	45	14	38	2	0	1	100
2004	48	18	31	2	0	0	100
Average	49	18	30	2	0	0	100

The universities and technikons showed different patterns of enrolment and graduation across the qualification levels. For this reason, the key differences between the two institutional types with respect to graduate production by qualification level will be highlighted in the following discussion.

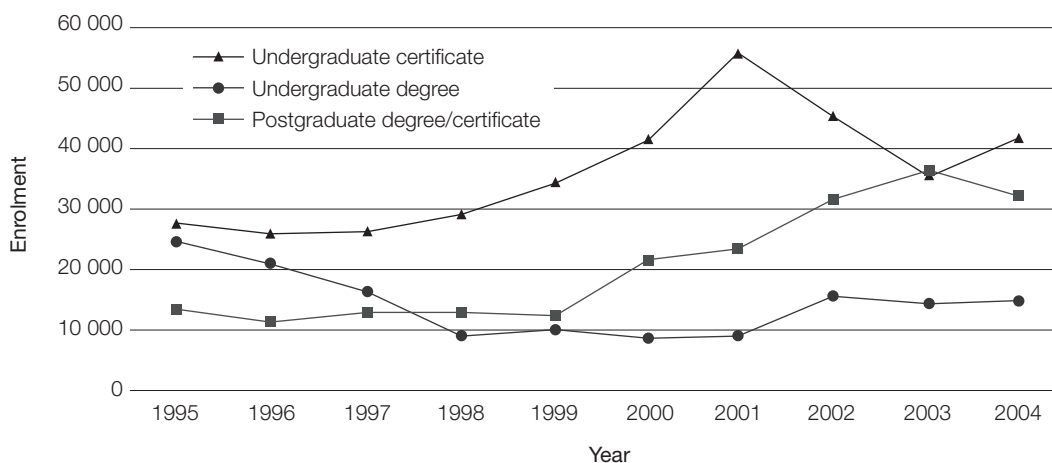
**Enrolments and graduates by qualification level in universities, 1995–2004**

In the universities, enrolment in UG Cert increased from 1995 to 2001, achieving 60 per cent of total enrolment, and thereafter fell into sharp decline. UG Deg declined from a 36 per cent share in 1995 to a 16 per cent share in 2004, while the biggest gains in enrolment were captured in the postgraduate diploma/degree category which increased from 20 per cent to 34 per cent (Table 4.53 and Table 4.54). Clearly, enrolments shifted to the latter category. The trend lines tell a story over the decade of flagging interest in full undergraduate degree programmes, which are the main contributor to IPET, whereas interest in the postgraduate diploma/degree levels rose on the impetus of interest in professional development among practising teachers. This pattern of student choice effectively reduced IPET proportions while it increased in-service training over the period. This lends circumstantial credence to the suggestion of Peltzer et al. (2005: 60) that 'the HEIs [higher education institutions] may have boosted enrolment in non-IPET qualifications as a means of survival'.

*Table 4.53 Enrolment in education by qualification type at universities, 1995–2004*

Year	UG Cert	UG Deg	PG Deg/Cert	Master's	Doctorate	Others	Total
1995	27 686	25 042	13 608	2 235	528		69 098
1996	25 779	20 507	11 607	2 093	553		60 539
1997	25 916	16 035	12 896	2 052	525		57 424
1998	28 517	9 321	12 676	2 218	543		53 274
1999	33 556	9 745	12 518	2 146	612		58 577
2000	40 303	8 511	21 205	2 704	602	202	73 527
2001	55 540	9 069	22 787	2 746	689	1 790	92 621
2002	45 105	15 496	31 248	3 232	794	1 256	97 130
2003	35 555	14 279	35 792	3 683	896	670	90 874
2004	41 453	14 739	32 356	3 997	978	376	93 898
Total	359 411	142 743	206 693	27 104	6 719	4 294	746 964

*Figure 4.17 Enrolment in universities by qualification level, 1995–2004*





*Table 4.54 Enrolment in education by qualification type at universities, 1995–2004 (%)*

Year	UG Cert	UG Deg	PG Deg/Cert	Master's	Doctorate	Others	Total
1995	40	36	20	3	1	0	100
1996	43	34	19	3	1	0	100
1997	45	28	22	4	1	0	100
1998	54	17	24	4	1	0	100
1999	57	17	21	4	1	0	100
2000	55	12	29	4	1	0	100
2001	60	10	25	3	1	2	100
2002	46	16	32	3	1	1	100
2003	39	16	39	4	1	1	100
2004	44	16	34	4	1	0	100
Average	48	19	28	4	1	1	100

As before, we note that the distribution of graduates is a function of enrolment and the various factors that act on student progress. Therefore, enrolment patterns may not become immediately visible, but will appear over time in the distribution of graduates as they move towards completion of their qualifications. Most obvious from the data is the decline in graduations from the undergraduate degree category from 16 per cent to 9 per cent (Table 4.55 and Table 4.56). This reflects a decline in IPET graduate production. The postgraduate diploma and honours category expanded slightly and, based on the enrolment data, we can expect this group to continue increasing its share.

*Table 4.55 Graduates in education by qualification type at universities, 1995–2004*

	UG Cert	UG Deg	PG Deg/Cert	Master's	Doctorate	Others	Total
1995	8 246	2 830	5 760	501	92		17 430
1996	8 399	4 004	5 454	411	95		18 364
1997	6 974	3 729	5 169	468	76		16 417
1998	7 620	3 575	4 494	426	77		16 192
1999	10 373	2 438	3 448	421	96		16 777
2000	9 211	1 792	4 432	473	111		16 021
2001	14 038	1 452	5 490	567	81		21 628
2002	11 759	1 711	7 449	474	99	2	21 494
2003	10 151	1 769	9 459	491	114	132	22 115
2004	12 834	2 318	8 898	535	122		24 707
Total	99 605	25 619	60 054	4 767	964	134	191 145

Figure 4.18 Graduations in universities by qualification level, 1995–2004

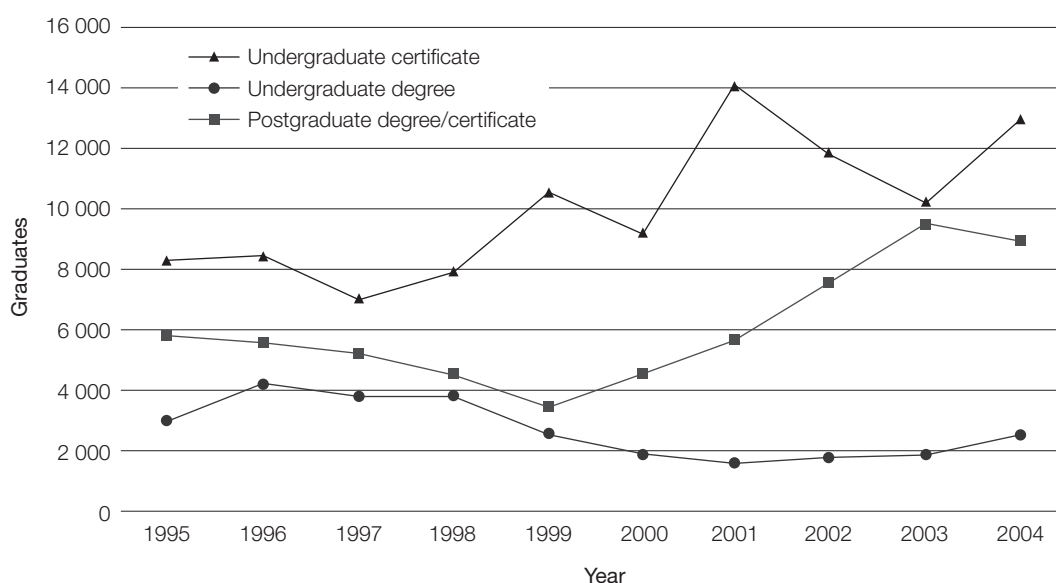


Table 4.56 Graduates in education by qualification type at universities, 1995–2004 (%)

Year	UG Cert	UG Deg	PG Deg/Cert	Master's	Doctorate	Others	Total
1995	47	16	33	3	1	0	100
1996	46	22	30	2	1	0	100
1997	42	23	31	3	0	0	100
1998	47	22	28	3	0	0	100
1999	62	15	21	3	1	0	100
2000	57	11	28	3	1	0	100
2001	65	7	25	3	0	0	100
2002	55	8	35	2	0	0	100
2003	46	8	43	2	1	1	100
2004	52	9	36	2	0	0	100
Average	52	13	31	2	1	0	100

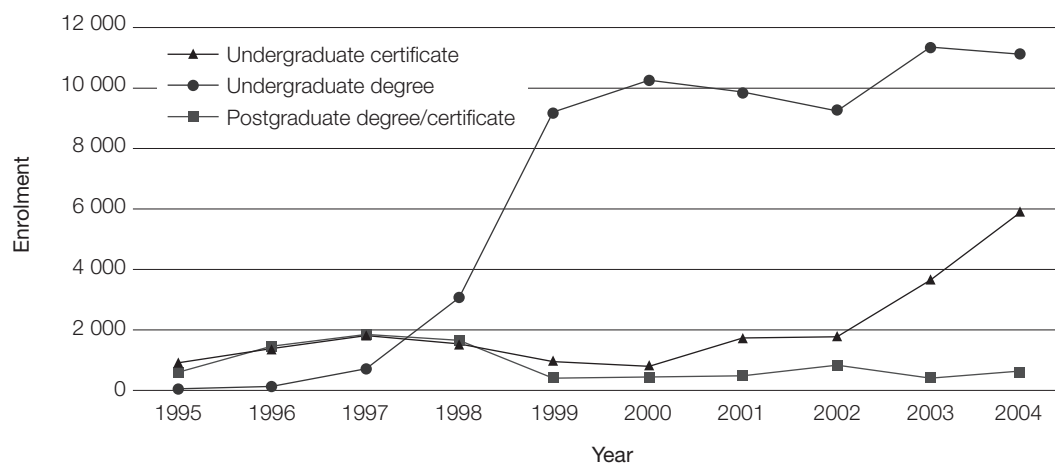
### Enrolments and graduates by qualification level in technikons, 1995–2004

As is clear from the data on technikon enrolments, the availability of education as a study field was relatively recent and it began to grow substantially within the period of analysis. In the technikons, the key source of enrolment growth was undergraduate degrees, which accounted for 61 per cent of enrolment by 2004, followed by moderate increases in undergraduate certificates, while postgraduate higher diplomas and honours qualifications declined (Table 4.57 and Table 4.58). This shape contrasts with the universities where greatest decline was in UG Deg and fastest growth was in PG Deg/Cert.

Table 4.57 Enrolment in education by qualification type at technikons, 1995–2004

Year	UG Cert	UG Deg	PG Deg/Cert	Master's	Doctorate	Others	Total
1995	775	0	552	18	4	0	1 350
1996	1 286	78	1 509	84	10	0	2 968
1997	1 737	591	1 839	104	26	0	4 297
1998	1 541	2 959	1 680	111	12	0	6 304
1999	973	9 158	504	113	4	0	10 752
2000	810	10 212	384	339	5	69	11 820
2001	1 659	9 811	428	587	12	88	12 585
2002	1 732	9 259	887	613	18	59	12 567
2003	3 465	11 223	375	850	26	65	16 004
2004	5 774	11 025	596	696	38	41	18 169
<b>Total</b>	<b>19 752</b>	<b>64 316</b>	<b>8 754</b>	<b>3 515</b>	<b>155</b>	<b>322</b>	<b>96 816</b>

Figure 4.19 Enrolment in technikons by qualification level, 1995–2004



*Table 4.58 Enrolment in education by qualification type at technikons, 1995–2004 (%)*

Year	UG Cert	UG Deg	PG Deg/Cert	Master's	Doctorate	Others	Total
1995	57	0	41	1	0	0	100
1996	43	3	51	3	0	0	100
1997	40	14	43	2	1	0	100
1998	24	47	27	2	0	0	100
1999	9	85	5	1	0	0	100
2000	7	86	3	3	0	1	100
2001	13	78	3	5	0	1	100
2002	14	74	7	5	0	0	100
2003	22	70	2	5	0	0	100
2004	32	61	3	4	0	0	100
Average	20	66	9	4	0	0	100

The pattern of enrolment growth: increased UG Deg, decreased PG Deg/Cert and slower growth in UG Cert is reflected in the graduate patterns of the technikons (Table 4.59 and Table 4.60). This brings the differences in graduate production between the two institutional types into strong contrast.

*Table 4.59 Graduates in education by qualification type at technikons, 1995–2004*

Year	UG Cert	UG Deg	PG Deg/Cert	Masters	PhD	Others	Total
1995	59	0	334	0	0	0	393
1996	246	18	431	2	0	0	696
1997	262	85	298	2	1	0	648
1998	298	277	257	6	0	0	837
1999	247	1 898	123	11	1	0	2 280
2000	167	2 820	64	5	2	0	3 058
2001	432	1 662	137	11	3	0	2 245
2002	414	1 309	133	33	1	0	1 890
2003	1 119	1 852	186	33	3	0	3 193
2004	1 025	2 835	160	24	5	0	4 049
Total	4 269	12 756	2 123	127	16	0	19 289

Figure 4.20 Graduates in technikons by qualification level, 1995–2004

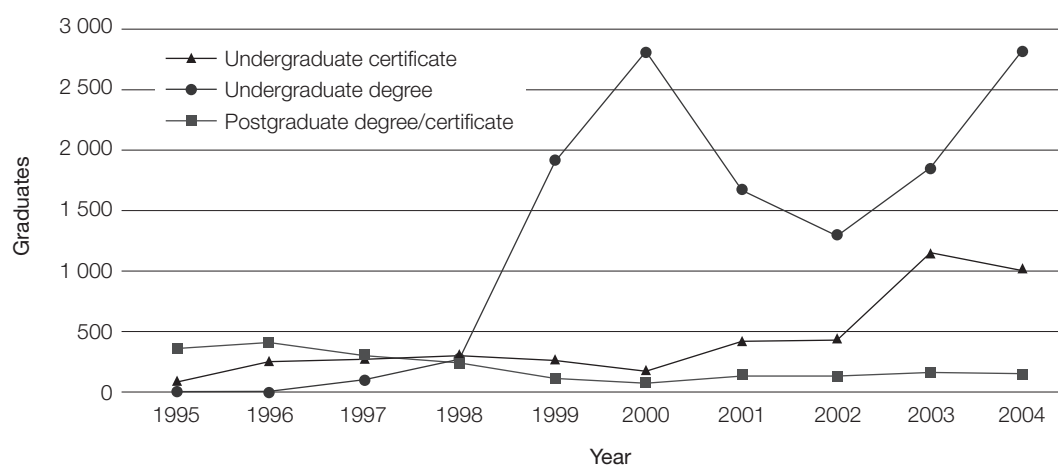


Table 4.60 Graduates in education by qualification type at technikons, 1995–2004 (%)

Year	UG Cert	UG Deg	PG Deg/Cert	Master's	Doctorate	Others	Total
1995	15	0	85	0	0	0	100
1996	35	3	62	0	0	0	100
1997	40	13	46	0	0	0	100
1998	36	33	31	1	0	0	100
1999	11	83	5	0	0	0	100
2000	5	92	2	0	0	0	100
2001	19	74	6	0	0	0	100
2002	22	69	7	2	0	0	100
2003	35	58	6	1	0	0	100
2004	25	70	4	1	0	0	100
Average	22	66	11	1	0	0	100

There are some questions posed by this data. First, what were the conditions leading to such different growth patterns across these groups of institutions? Second, did these different growth patterns reflect a deliberate targeting of different groups of students between the institutional types, or were changes in enrolment a consequence of shifts in the career aspirations and choices of students? Third, on this basis did the different student groups anticipate career and school placement trajectories in education? Fourth, how did the process of mergers affect the shape of these programmes?

## Enrolment by age

Students who enrol for studies in the education field are distributed over a wide age range. The purpose for which students enrol for study in the education field is in some way related to the point they are at in their career path. For example, most people who enrol in initial teacher education programmes will do so prior to initiating their career – and their age range will extend from late teens to late twenties. As teachers accumulate experience they will engage in professional development by enrolling for programmes to raise their skills in particular curriculum fields or in the field of education management. Mature senior teachers or managers may seek to enhance their expertise further through pursuing higher degrees either in a professional domain or in research. Notwithstanding the delinking of qualifications to rank and salary promotion in the 1990s, the DoE's emphasis on continuing professional development and the desire of teachers to improve their own practice should contribute to a healthy stream of teachers enrolling in higher education teacher-education programmes.

If we consider what the desirable enrolment across age groups should be, we could assume the following. First, the share of enrolment in the <26 and the 26–30 age groups should be equal to, or slightly exceed, the expected number of vacant educator posts in the system – for the moment leaving aside issues of subject specialty and so on. This presumes that most people preparing for a teaching career would fall within this relatively young age group. This is a *required* size that relates to a specific need for new teachers in the workforce.

Second, an enrolment size in all ages greater than 30 years is *desired* in order to sustain the academic and professional qualification needs of the current teacher workforce. Increases in the proportion of this group in relation to the teacher workforce should be encouraged because practising teachers who seek to improve their skills and qualifications can improve the quality of the system.

Data on the age of students were not available from HEMIS for 1999 and earlier. Nevertheless, the data from 2000 to 2004 demonstrate clearly that teachers of all ages were actively participating in higher education study programmes. Bearing in mind that the analysis of age-related data is affected by the selection of intervals according to which the data is described, it was decided to set categories in five-year intervals, up to the age of 40. Thereafter a single category was created for all teachers in the mature phase of their career.

Within this framework, and looking at enrolment from 2000 to 2004 in aggregate, the majority of students enrolled were in the 41 and over (>40) category, accounting for 34.5 per cent of enrolments in the five-year period (Table 4.62). The next age groups were the 31–35 and the 36–40 groups which accounted for 22 per cent and 21.3 per cent of enrolments respectively. The age groups with the lowest enrolment were the <26, and the 26–30 groups. The larger size of older age groups was expected because the number of qualified practising teachers enrolled for CPTD purposes should be larger than those in IPET. Also, as has been demonstrated, over the 10 years, enrolment in CPTD has increased substantially.

If we observe the change in each of these groups year on year over the period, the picture becomes interesting (Table 4.61 and Table 4.62). Enrolment in the <26 and the >40 groups grew. The 36–40 age group retained a steady share, whereas the proportions of the 26–30 and the 31–35 age groups declined (Table 4.62 and Figure 4.21).

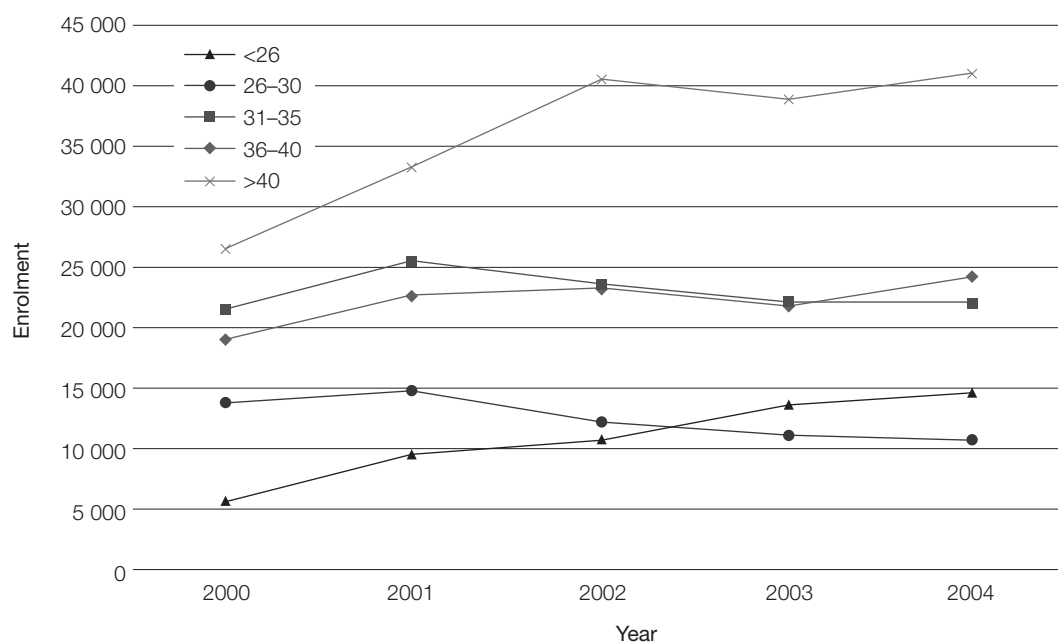
Table 4.61 Enrolment in universities and technikons by age group, 2000–2004

Year	<26	26–30	31–35	36–40	>40	Total
2000	5 530	13 361	21 514	18 800	26 150	85 355
2001	9 304	14 712	25 481	22 668	33 045	105 210
2002	10 563	12 202	23 415	23 192	40 329	109 701
2003	13 390	11 038	21 993	21 718	38 744	106 883
2004	14 666	10 555	21 792	24 025	41 033	112 071
Total	53 453	61 868	114 195	110 403	179 301	519 220

Table 4.62 Enrolment in universities and technikons by age group, 2000–2004 (%)

Year	<26	26–30	31–35	36–40	>40	Total
2000	6.5	15.7	25.2	22.0	30.6	100
2001	8.8	14.0	24.2	21.5	31.4	100
2002	9.6	11.1	21.3	21.1	36.8	100
2003	12.5	10.3	20.6	20.3	36.2	100
2004	13.1	9.4	19.4	21.4	36.6	100
Average	10.3	11.9	22.0	21.3	34.5	100

Figure 4.21 Share of enrolment in education by age group, 2000–2004



We are particularly interested in the younger age ranges spanning <26 and 26–30, because we assume that this age range captures most people who are enrolled in IPET. Enrolment share in the <26 group rose from 6.5 per cent to 13.1 per cent, and enrolment in the 26–30 group declined from 15.7 per cent to 9.4 per cent in the period 2000–2004. How does this information contribute to our understanding of the claimed shortage of enrolment in initial teacher education? In order to make sense of this contradictory pattern, we disaggregate the <26, and the 26–30 age groups according to population group and gender, and separately according to institutional type.

First, we examine the universities because they enrolled nearly 9 out of every 10 education students between 2000 and 2004. With increasing age, the university share increased to 89 per cent of the >40 group, which accounted for 34.5 per cent of enrolments (Table 4.63).

*Table 4.63 Enrolment in technikons and universities according to age, 2000–2004 (%)*

	Enrolment		% share	
	Technikon	University	Technikon	University
<26	41 936	53 453	21.5	78.5
25–30	52 778	61 868	14.7	85.3
31–35	97 739	114 195	14.4	85.6
36–40	96 078	110 403	13.0	87.0
>40	159 534	179 301	11.0	89.0
Total	448 065	519 220	13.7	86.3

Looking at the <26 cohort, we see that enrolment was dominated by white female enrolment and that enrolment in this group further strengthened to 50 per cent in 2004 (Table 4.64 and Table 4.65). By comparison, the proportion of African females, which in 2000 constituted 27.6 per cent, dropped to 17.4 per cent by 2004. This data confirms indications from teacher-training units that there was increased enrolment of young white females. In the five years up to 2004, African female enrolment increased by 666 students to 1 943, and white female enrolment increased by 3 648 to 5 614. The decline in proportion of African females in this group is counter-intuitive since African women have been the wellspring of teacher supply for the majority of South Africa's school-age learners.

African male participation in this age group also declined, which meant that the total African contribution to enrolment in the <26 group stood at 29.5 per cent, while white enrolment was 58.9 per cent.

In 2005, 79 per cent of all educators employed in public schools was African and 66 per cent female (Arends 2007). There was clearly a major disjuncture between the proportions of practising teachers and the proportions of students enrolled in the <26 age group.



Table 4.64 University enrolments by population group and gender for age group &lt;26, 2000–2004

	African		Coloured		Indian		White		Unclassified		Total
	F	M	F	M	F	M	F	M	F	M	
2000	1 277	712	48	18	235	38	1 966	236	74	24	4 627
2001	1 607	956	142	53	281	45	3 456	554	169	65	7 328
2002	1 346	848	165	73	402	65	4 463	880	104	53	8 399
2003	1 746	1 094	243	102	553	111	5 308	1 042	121	66	10 386
2004	1 943	1 359	298	131	674	135	5 614	989	37	16	11 197
Total	7 919	4 969	895	377	2 144	394	20 806	3 700	506	225	41 936

Table 4.65 University enrolments by population group and gender for age group &lt;26, 2000–2004 (%)

	African		Coloured		Indian		White		Unclassified		Total
	F	M	F	M	F	M	F	M	F	M	
2000	27.6	15.4	1.0	0.4	5.1	0.8	42.5	5.1	1.6	0.5	100
2001	21.9	13.0	1.9	0.7	3.8	0.6	47.2	7.6	2.3	0.9	100
2002	16.0	10.1	2.0	0.9	4.8	0.8	53.1	10.5	1.2	0.6	100
2003	16.8	10.5	2.3	1.0	5.3	1.1	51.1	10.0	1.2	0.6	100
2004	17.4	12.1	2.7	1.2	6.0	1.2	50.1	8.8	0.3	0.1	100
Average	18.9	11.8	2.1	0.9	5.1	0.9	49.6	8.8	1.2	0.5	100

The dominance of young white women in the <26 enrolment category could be explained with reference to the disadvantaged school and socio-economic environment that large numbers of young Africans must overcome to enrol in higher education. As a consequence of a variety of possible factors (such as completing Grade 12 at an older age, time spent in obtaining funding and the need to take care of household responsibilities), it is possible that most African women who register for a teacher-training programme are older than their white classmates.

The enrolment pattern in the 26–30 age group seems to lend credence to such an explanation, because African females constituted 56.4 per cent and African males 28.1 per cent of that cohort in 2000 (Table 4.66 and Table 4.67). But the share of African females and males in this group declined to 50.7 per cent and 24.9 per cent respectively by 2004. In numerical terms there were 1 728 and 898 fewer African females and males respectively enrolled in 2004 than in 2000.

Table 4.66 University enrolments by population group and gender for age group 26–30, 2000–2004

	African		Coloured		Indian		White		Unclassified		Total
	F	M	F	M	F	M	F	M	F	M	
2000	6 278	3 128	129	66	191	34	642	121	335	208	11 131
2001	7 433	3 436	148	108	221	44	847	208	141	159	12 745
2002	5 537	2 909	200	109	282	69	968	244	129	159	10 607
2003	4 463	2 466	213	98	318	78	1 080	225	203	182	9 325
2004	4 550	2 230	208	101	312	84	1 103	259	60	58	8 965
<b>Total</b>	<b>28 260</b>	<b>14 168</b>	<b>898</b>	<b>482</b>	<b>1 324</b>	<b>309</b>	<b>4 640</b>	<b>1 056</b>	<b>868</b>	<b>766</b>	<b>52 773</b>

Table 4.67 University enrolments by population group and gender for age group 26–30, 2000–2004 (%)

	African		Coloured		Indian		White		Unclassified		Total
	F	M	F	M	F	M	F	M	F	M	
2000	56.4	28.1	1.2	0.6	1.7	0.3	5.8	1.1	3.0	1.9	100
2001	58.3	27.0	1.2	0.9	1.7	0.3	6.6	1.6	1.1	1.3	100
2002	52.2	27.4	1.9	1.0	2.7	0.7	9.1	2.3	1.2	1.5	100
2003	47.9	26.4	2.3	1.0	3.4	0.8	11.6	2.4	2.2	2.0	100
2004	50.7	24.9	2.3	1.1	3.5	0.9	12.3	2.9	0.7	0.6	100
<b>Average</b>	<b>53.6</b>	<b>26.8</b>	<b>1.7</b>	<b>0.9</b>	<b>2.5</b>	<b>0.6</b>	<b>8.8</b>	<b>2.0</b>	<b>1.6</b>	<b>1.5</b>	<b>100</b>

The declining trends observed in the younger age groups are not replicated among older university graduates. From Table 4.68 and Table 4.69, it is clear that in the 31–35 age group, the proportion of African women remained securely above 60 per cent, with an average for the period of 62.5 per cent.

Similar stability was evident in the next two age groups. In the 36–40 category, African women graduates ranged between 62.9 per cent and 64.6 per cent with an average share of 63.7 per cent for the period 2000–2004. In the >40 category, African women graduates ranged between 63.8 per cent and 66.8 per cent with an average share of 64.9 per cent in the same period. Among African males, the average share declined slightly from 26.5 per cent in the 31–35 category to 25.8 per cent and 24.5 per cent in the 36–40 and >40 age categories respectively.

*Table 4.68 University enrolments by population group and gender for age group 31–35, 2000–2004*

	African		Coloured		Indian		White		Unclassified		Total
	F	M	F	M	F	M	F	M	F	M	
2000	10 931	4 659	194	145	178	53	457	159	701	359	17 837
2001	14 460	5 640	262	194	195	46	701	295	211	142	22 146
2002	13 003	5 592	328	228	234	59	746	254	127	96	20 666
2003	11 303	5 143	363	295	271	58	744	245	181	146	18 749
2004	11 387	4 907	405	232	301	67	713	222	62	46	18 340
<b>Total</b>	<b>61 084</b>	<b>25 941</b>	<b>1 551</b>	<b>1 094</b>	<b>1 179</b>	<b>282</b>	<b>3 362</b>	<b>1 175</b>	<b>1 282</b>	<b>788</b>	<b>97 738</b>

*Table 4.69 University enrolments by population group and gender for age group 31–35, 2000–2004 (%)*

	African		Coloured		Indian		White		Unclassified		Total
	F	M	F	M	F	M	F	M	F	M	
2000	61.3	26.1	1.1	0.8	1.0	0.3	2.6	0.9	3.9	2.0	100
2001	65.3	25.5	1.2	0.9	0.9	0.2	3.2	1.3	1.0	0.6	100
2002	62.9	27.1	1.6	1.1	1.1	0.3	3.6	1.2	0.6	0.5	100
2003	60.3	27.4	1.9	1.6	1.4	0.3	4.0	1.3	1.0	0.8	100
2004	62.1	26.8	2.2	1.3	1.6	0.4	3.9	1.2	0.3	0.3	100
<b>Average</b>	<b>62.5</b>	<b>26.5</b>	<b>1.6</b>	<b>1.1</b>	<b>1.2</b>	<b>0.3</b>	<b>3.4</b>	<b>1.2</b>	<b>1.3</b>	<b>0.8</b>	<b>100</b>

In the technikons, between 2000 and 2004, African students constituted more than 90 per cent of enrolment in all age groups, and enrolment of African women never fell below 50 per cent – with the exception of the <26 age group (Table 4.70 and Table 4.71). In that age category, enrolments increased overall, but the relative share of African females and males declined. In particular, the share of African females declined from 60.7 per cent to 38.6 per cent.

*Table 4.70 Technikon enrolments by population group and gender for age group <26, 2000–2004*

	African		Coloured		Indian		White		Unclassified		Total
	F	M	F	M	F	M	F	M	F	M	
2000	547	293	22	8	2	0	23	7	0	0	902
2001	854	441	54	15	7	1	516	88	0	0	1 976
2002	800	498	92	31	11	2	609	121	0	0	2 164
2003	1 245	681	118	39	9	3	745	162	1	0	3 003
2004	1 338	789	210	72	39	4	841	177	0	0	3 469
<b>Total</b>	<b>4 785</b>	<b>2 702</b>	<b>497</b>	<b>165</b>	<b>67</b>	<b>9</b>	<b>2 734</b>	<b>555</b>	<b>1</b>	<b>0</b>	<b>11 514</b>

Table 4.71 *Technikon enrolments by population group and gender for age group <26, 2000–2004 (%)*

	African		Coloured		Indian		White		Unclassified		Total
	F	M	F	M	F	M	F	M	F	M	
2000	60.7	32.5	2.5	0.9	0.2	0.0	2.5	0.7	0.0	0.0	100
2001	43.2	22.3	2.8	0.8	0.3	0.1	26.1	4.4	0.0	0.0	100
2002	37.0	23.0	4.3	1.4	0.5	0.1	28.2	5.6	0.0	0.0	100
2003	41.5	22.7	3.9	1.3	0.3	0.1	24.8	5.4	0.0	0.0	100
2004	38.6	22.7	6.0	2.1	1.1	0.1	24.2	5.1	0.0	0.0	100
Average	41.6	23.5	4.3	1.4	0.6	0.1	23.7	4.8	0.0	0.0	100

To summarise, in the age range associated with the influx of young people into IPET, enrolment doubled in the <26 age category, but within this overall increase African female enrolment declined while white female enrolment increased. The 26–30 age groups as a whole suffered a 30 per cent decrease in enrolment in the period 2000–2004. The decline in young Africans enrolling for teacher education between 2000 and 2004 is of particular concern.

What needs to be asked is why the participation of young Africans in teacher education appears to be dissipating in the post-2000 period?<sup>25</sup> It may be that young Africans who hitherto would have enrolled for a teaching qualification no longer perceived this choice as attractive. Or it is possible that the cohorts who otherwise would have registered for teaching qualifications were not able to access higher education for financial, social, health or other reasons. These two sets of conditions may have impacted differently on subgroups of the population from which young teachers were drawn in the recent past. For instance, some young adults with access to financial means and without a strong attraction to teaching may have elected to pursue other careers, whereas other young adults who wanted to teach but lacked financial means may have been unsuccessful in their attempt to obtain financial support. A third explanation may be found in the matriculation examination results, where insufficient African matriculants with interest in a teaching career obtain university endorsements. Of equal interest is the increasing enrolment of young white females. We need to ask what changing conditions or motivations have led to an increase in this group's participation in teacher education.

Having raised the question of financial support, we now turn to an analysis of the extent to which the largest public source of financial support for teacher training has served the population of those seeking to take up teacher training.

### Financial support through NSFAS

The National Student Financial Aid Scheme of South Africa (NSFAS) provides financial aid through loans and bursaries for academically deserving and financially needy students to meet their own and South Africa's development needs. It seeks to impact

<sup>25</sup> The data extends back only as far as 2000, but the trends identified post-2000 were probably at work in the ante-2000 period.

on South Africa's racially skewed enrolment and graduate demographics and is funded primarily by the national DoE.

Of interest is how the NSFAS disbursements have contributed to teacher training within its total remit. Table 4.72 shows that the teacher-training share of all NSFAS funding dropped from a high of 11 per cent in 1996 to a low of 3.3 per cent five years later.

Concerns about the low numbers of candidates entering teacher education prompted the DoE to allocate ring-fenced NSFAS funding for teacher education. In 2003, 2004 and 2005, a total of R60 million per annum was ring-fenced. This amount was allocated according to proposals from the universities (Kruss 2007). As can be seen, the allocated R60 million was fully expended in 2004 for the first time, but did not bring the teacher-training share of expenditure on a par with the 1996 level. Against this benchmark, NSFAS funding to teacher training was still lower than at the beginning of the decade. Despite an increase in expenditure, the allocation to teacher training as a percentage of all NSFAS disbursements in 2004 (5.8 per cent) was substantially lower than the 1996 allocation (11 per cent).

*Table 4.72 Expenditure by NSFAS on teacher-training students, 1996–2004 (R000 000)*

Year	1996	1997	1998	1999	2000	2001	2002	2003	2004
Total expenditure by NSFAS	335	354	398	447	534	646	747	914	1 029
Expenditure on teacher training	37	29	32	24	20	21	32	48	60
Teacher-training expenditure as a percentage of all expenditure	11.0	8.2	8.0	5.4	3.7	3.3	4.3	5.3	5.8

*Source: Extracted from DoE (2005b) Table D1.*

Of the approximately 717 000 students in higher education in 2004, 98 856 received support from NSFAS (Kruss 2007) and 5 216 or 5.3 per cent were teacher-training students in that year.

As can be seen from Table 4.73, the number of teacher-training students funded declined to a trough of 2 535 in 2001, thereafter rising to 5 216 in 2004. Changes in student numbers receiving funding mirror the expenditure trend discussed in the previous paragraph, revealing that the 2004 count of students funded was well below the 1996 level of 8 509.

*Table 4.73 Students receiving NSFAS funding*

Year	1996	1997	1998	1999	2000	2001	2002	2003	2004
All students funded	67 709	63 433	6 7598	68 416	72 080	80 593	86 194	96 605	98 856
Teacher training students funded	8 509	5 230	5 967	3 875	2 813	2 535	3 577	4 336	5 216
Teacher training students as a percentage of all NSFAS students	12.6	8.2	8.8	5.7	3.9	3.1	4.1	4.5	5.3

*Source: Extracted from DoE (2005b) Table D1.*

The general pattern was also for primary-phase teacher training students to receive lower per capita support than secondary students, the average expenditure being R9 500 and R11 591 respectively in 2004 (Table 4.74). This in turn contributed to primary students receiving a lower overall share of total expenditure of 5.5 per cent than their headcount representation of 6.7 per cent.

Table 4.74 NSFAS total expenditure and per student expenditure per higher education institution, 2004

	Actual expenditure on teacher education			NSFAS student headcount			Average NSFAS expenditure per student		
	R000			Number			Average		
	Primary	Secondary	Total	Primary	Secondary	Total	Primary	Secondary	Total
1 Cape Peninsula Univ of Technology	106	5 502	5 609	11	569	580	9 673	9 670	9 670
2 Central Univ of Technology	11	1 568	1 579	1	139	140	10 810	11 284	11 280
3 Durban Inst of Technology	11	2 322	2 332	1	213	214	10 630	10 900	10 899
4 Nelson Mandela Metropolitan Univ	73	1 718	1 791	10	144	154	7 292	11 930	11 629
5 North West Univ	823	4 533	5 357	94	421	515	8 758	10 768	10 401
6 Rhodes Univ	37	781	818	2	43	45	18 343	18 161	18 169
7 Tshwane Univ of Technology	52	2 060	2 112	5	174	179	10 382	11 842	11 801
8 Univ of Cape Town		832	832		46	46		18 081	18 081
9 Univ of Fort Hare	129	286	415	10	27	37	12 853	10 593	11 204
10 Univ of Johannesburg	89	430	520	8	34	42	11 175	12 654	12 372
11 Univ of KwaZulu-Natal	107	11 649	11 755	6	600	606	17 803	19 414	19 398
12 Univ of Limpopo	158	3 434	3 593	8	189	197	19 783	18 171	18 237
13 Univ of Pretoria	46	4 510	4 556	3	259	262	15 353	17 412	17 388
14 Univ of South Africa	68	816	884	12	163	175	5 645	5 009	5 053
15 Univ of Stellenbosch		140	140		7	7		20 031	20 031
16 Univ of the Free State	12	1 889	1 901	1	140	141	12 059	13 495	13 485
17 Univ of Venda	553	572	1 125	30	44	74	18 421	13 001	15 199
18 Univ of Western Cape	9	743	752	1	67	68	8 508	11 095	11 057
19 Univ of Witwatersrand	107	3 301	3 408	10	223	233	10 684	14 804	14 627
20 Univ of Zululand	466	5 093	5 559	79	686	765	5 895	7 424	7 266
21 Vaal Univ of Technology									
22 Walter Sisulu Univ	451	4 243	4 694	56	680	736	8 053	6,240	6 378
<b>Total</b>	<b>3 308</b>	<b>56 422</b>	<b>59 732</b>	<b>348</b>	<b>4 868</b>	<b>5 216</b>	<b>9 500</b>	<b>11 591</b>	<b>11 451</b>
Percentage share	5.5	94.5	100.0	6.7	93.3	100.0			

Source: DoE (2005c).

If we look at the group of NSFAS students as a proportion of all education students enrolled, there is a clear decline in numbers. Proportionate share declined from over 1 in 10 to less than 1 in 20 across the span of eight years (Table 4.75).

*Table 4.75 Education students receiving NSFAS funding*

Year	All education students enrolled	Students receiving NSFAS funding	Students receiving NSFAS funding (%)	Education students not receiving NSFAS funding (%)
1996	63 825	8 509	13.3	86.7
1997	61 949	5 230	8.4	91.6
1998	59 760	5 967	10.0	90.0
1999	69 500	3 875	5.6	94.4
2000	85 347	2 813	3.3	96.7
2001	105 206	2 535	2.4	97.6
2002	109 697	3 577	3.3	96.7
2003	106 880	4 336	4.1	95.9
2004	112 068	5 216	4.7	95.3

If the population of teacher-training students receiving NSFAS funding is disaggregated into those engaged in training to teach in the primary phase and those in the secondary phase, it is immediately apparent that a different dynamic is at work in each group. Headcount numbers of primary phase students rapidly declined from 3 294 in 1996 to 348 in 2004 which was 90 per cent down on the number funded barely eight years earlier. Further analysis is needed to explore to what extent this decline was driven by the closure of the colleges, or by waning interest from universities in training teachers for the primary level.

Until 2000, primary-phase student teachers represented roughly half of all NSFAS teacher-training beneficiaries. Thereafter, the proportion of primary students enrolled for primary teaching with state assistance plummeted to 6.7 per cent (Table 4.76). Not even the ring-fenced NSFAS conditions that provided for an increase in overall numbers of funded teacher-education students between 2002 and 2004 could increase the primary share. By 2004, NSFAS was largely funding secondary education students at a ratio of 9:1. Part of the explanation for this decline may be found in different funding allocated by NSFAS between primary and secondary students. The extent to which NSFAS practices may have affected the decline may be worth investigating further.

*Table 4.76 Proportions of primary- and secondary-phase students receiving NSFAS funding*

Year	1996	1997	1998	1999	2000	2001	2002	2003	2004
Primary	3 294	2 185	2 600	1 832	1 476	1 127	1 062	379	348
Secondary	5 212	4 045	3 367	2 043	1 337	1 408	2 515	3 957	4 868
Primary-phase students as a percentage of all teacher training students	38.7	41.8	43.6	47.3	52.5	44.5	29.7	8.7	6.7

*Source: Extracted from DoE (2005b) Table D1.*

Table 4.77 reveals how the graduate numbers dropped to a low of 3.9 per cent of all graduates as the low numbers of students taking recourse to NSFAS financial assistance worked through the system. Only 1 130 NSFAS-supported students graduated as teachers in 2004.

*Table 4.77 Graduate share of students receiving NSFAS funding*

	1996	1997	1998	1999	2000	2001	2002	2003	2004
Total NSFAS-funded graduates	13 041	14 025	15 448	13 056	12 435	14 876	12 891	11 648	28 766
NSFAS teacher-training graduates	2 723	2 552	3 141	2 503	1 685	1 108	915	620	1 130
Teacher-training graduates as a percentage of all graduates	20.9	18.2	20.3	19.2	13.6	7.4	7.1	5.3	3.9

*Source: Extracted from DoE (2005b) Table D1.*

In summary, between 1996 and 2004, education students receiving NSFAS funding declined as a proportion of all higher education students receiving such funding *and* they declined as a proportion of education students. Within this picture, the numbers of education recipients of NSFAS funding began to increase from 2002. However, this increase was evident almost exclusively among students enrolled for training as secondary school teachers.

The analysis draws our attention to the alarming fact that the numbers of NSFAS-supported students enrolled to train as primary school educators continued to decline. The NSFAS recently changed its eligibility criteria by lowering the threshold household income level below which young people would be eligible for financial support. This was implemented to focus the NSFAS opportunities towards lower income households. Yet the enrolment numbers of would-be primary school teachers who received NSFAS support – mainly young African women – have dwindled.

This leaves the question: What has lead to this decline? If there are no impediments preventing students who qualify from accessing NSFAS financial support, then the implication can be that potential primary phase students would rather not enrol for a teaching qualification even if financial support is available – or they are not able to take up the opportunity. The following factors may also impact on this situation: a reluctance among university education faculties or departments to sustain primary phase teacher training, and insufficient numbers of eligible candidates completing the school leaving matriculation examination.

An important related question is: What occupations are African women entering if they are not taking up teaching in large numbers?

### **Graduate production for IPET**

Attention has recently sharpened on the role of IPET and its contribution to teacher supply. The flow of IPET graduates from South African higher education institutions into teaching is one of several potential sources of teacher supply. However, in the long term, this supply will be the most reliable because, from the outset, the institutions involved can put in place appropriate quality assurance measures – as opposed to recruiting teachers internationally, for instance.



We have shown in this monograph that there are difficulties with attempting to extract the IPET output from HEMIS data, partly because data was captured systematically by qualification level rather than qualification type.<sup>26</sup> For this reason, HEMIS postgraduate honours-level graduate numbers would include both IPET and CPTD qualifications. Currently, the chief IPET qualifications are the BEd (graduate degree) and the PGCE. It will be an onerous task to separate out PGCE numbers from other postgraduate honours-level graduates in the HEMIS data. The difficulty in separating out qualification types is compounded because institutions use widely different naming conventions for their qualification programmes.

An additional challenge remains because there may be unqualified or underqualified but practising teachers who are enrolled or graduating within an IPET qualification.<sup>27</sup> As a result, IPET graduate numbers cannot be assumed straightforwardly to be new graduate teacher production. The number of practising teachers who graduate with a PGCE, for example, must be removed in order to arrive at the potential number of new entrants to the teaching profession. For example, it is likely that a relatively large proportion of students registered with the University of South Africa (UNISA) for the BEd and the PGCE are currently employed as teachers. Because HEMIS serves an administrative and finance function inside of higher education for subsidy purposes it will count all students registered, irrespective of their current employment status.

For the reasons cited above an independent source of IPET information is needed. To the knowledge of the authors, there is no formal mechanism for obtaining separate IPET enrolment and graduation data from education departments in higher education institutions. Even if the institutions kept such data, without agreed data-collection protocols and data definitions, reliability would be a problem. This means that obtaining such information would be a potentially expensive research task.

To the knowledge of the authors, the first purposely gathered IPET information was produced in the 2006 report of the Ministerial Working Committee on Teacher Education (DoE 2005b). The working committee data indicated that enrolment in IPET – though missing data from five institutions – was 21 748 in 2005 (Table 4.78) and expected graduations were 5 322 (Table 4.80). More recently, Morrow, who served on the Ministerial Working Committee, produced a set of data on enrolment and estimated graduate numbers for 2006 using the same method. The data were obtained from deans of education and, in Morrow's view could be deemed 'reasonably accurate' (Table 4.79 and Table 4.81) (Morrow 2006). These data, covering all institutions, indicated IPET enrolment to be 27 393 and with an estimated 6 029 graduates.

These data reveal that:

- The location of IPET enrolment is distributed unevenly across the institutions. In 2005, the enrolment number per higher education institution ranged from 94

26 HEMIS does contain data according to qualification type. The problem is that there is no standardised naming convention for the different qualification types. Some institutions name programmes in unique ways. As a result, there are many hundreds of different names. To separate out IPET and CPTD programmes at the same level would require identifying, coding and separating out all programmes within each qualification level. Additional data manipulation may, at some cost, make it possible to assemble a trend line.

27 Education faculties and departments rule that an individual may not be concurrently employed and registered for a full-time IPET qualification. Candidates may however enrol part-time for distance education programmes.

(University of Cape Town) to 2 844 (North West University) and 6 390 (UNISA). In 2006, enrolment ranged from 35 (Vaal University of Technology) to 2 923 (North West University) and 7 130 (UNISA).

- UNISA has by far the single largest share of enrolment and graduates. UNISA accounted for between 25 per cent (2006) and 37 per cent (2005) of graduates. This distance institution strongly influences the IPET demography.
- The 10 largest contributors to IPET graduate output account for between 86 per cent (2005) and 80 per cent (2006) of the total (including UNISA numbers). This suggests that there are quite a number of institutions with low-key engagement in IPET. Differences in the size of IPET enrolment between institutions may be the outcome of a strategy to keep IPET programmes small in order to focus on other programmes, or may be due to declining interest in teacher education among prospective students.
- The data also confirm that, across the teacher-education sector, the undergraduate degree qualification serves as the biggest conduit of IPET students, constituting between 79.3 per cent and 83.8 per cent of enrolments in 2005 and 2006. The next largest group was the PGCE, which accounted for between 16.3 per cent and 15.4 per cent of IPET enrolment across the two years. The smallest contribution derived from pre-graduate diplomas, which are being phased out (Morrow 2006).

Table 4.78 Enrolment numbers in IPET in higher education, 2005

Institution	Enrolment				Percentage			
	Dip <sup>2</sup>	Deg	PGCE	Total IPET	Dip <sup>2</sup>	Deg	PGCE	Total IPET
1 Cape Peninsula Univ of Technology		2 024	85	2 109				
2 CUT (Welkom)	195	340	45	580	33.6	58.6	7.8	100
2b CUT (Free State)								
3 Durban Institute of Technology		437		437		100.0		100
4 Nelson Mandela Metropolitan Univ		446	36	482		92.5	7.5	100
5 NIHE Mpumalanga								
6 NIHE Northern Cape								
7 North West Univ	359	2 274	211	2 844	12.6	80.0	7.4	100
8 Rhodes Univ			42	42			100.0	100
9 Tshwane Univ of Technology	22	685	40	741	3.0	92.4	5.4	100
10 Univ of Cape Town		5	89	94		5.3	94.7	100
11 Univ of Fort Hare		238	91	329		72.3	27.7	100
12 Univ of Johannesburg		486	113	599		81.1	18.9	100
13 Univ of KwaZulu-Natal		1 733	190	1 923		90.1	9.9	100
14 Univ of Limpopo		511	27	538		95.0	5.0	100
15 Univ of Pretoria	10	2 008	39	2 057	0.5	97.6	1.9	100
16 UNISA	111	3 957	2 322	6 390	1.7	61.9	36.3	100

Institution	Enrolment				Percentage			
	Dip <sup>2</sup>	Deg	PGCE	Total IPET	Dip <sup>2</sup>	Deg	PGCE	Total IPET
17 Univ of Stellenbosch		597	84	681		87.7	12.3	100
18 Univ of the Free State								
19 Univ of the Western Cape		356	70	426		83.6	16.4	100
20 Univ of the Witwatersrand	213	633	43	889	24.0	71.2	4.8	100
21 Univ of Venda								
22 Univ of Zululand								
23 Vaal Univ of Technology								
24 Walter Sisulu Univ	60	510	17	587	10.2	86.9	2.9	100
<b>Total</b>	<b>970</b>	<b>17 240</b>	<b>3 544</b>	<b>21 748</b>	<b>4.5</b>	<b>79.3</b>	<b>16.3</b>	<b>100</b>

Source: DoE (2005b: Table D14).

Notes:

1. CUT = Central University of Technology.

2. This qualification is being phased out.

3. No data were available from University of the Free State, University of Venda, University of Zululand, Vaal University of Technology and the National Institutes of Higher Education in Northern Cape and Mpumalanga

Table 4.79 Enrolment numbers for IPET in higher education, 2006

	Enrolment				Percentages			
	Dip <sup>1</sup>	Deg	PGCE	Total IPET	Dip <sup>1</sup>	Deg	PGCE	Total IPET
1 Cape Peninsula Univ of Technology	34	2 206	92	2 332	1.5	94.6	3.9	100
2 CUT (Welkom)		24	31	55		43.6	56.4	100
2b CUT (Free State)	99	354	74	527	18.8	67.2	14.0	100
3 Durban Institute of Technology		620		620		100.0		100
4 Nelson Mandela Metropolitan Univ		397	37	434		91.5	8.5	100
5 NIHE Mpumalanga	27	167		194	13.9	86.1		100
6 NIHE Northern Cape		476		476		100.0		100
7 North West Univ	2	2 452	469	2 923	0.1	83.9	16.0	100
8 Rhodes Univ			53	53		0.0	100.0	100
9 Tshwane Univ of Technology	13	1 133	90	1 236	1.1	91.7	7.3	100
10 Univ of Cape Town			72	72			100.0	100
11 Univ of Fort Hare		459	101	560		82.0	18.0	100
12 Univ of Johannesburg		524	142	666		78.7	21.3	100
13 Univ of KwaZulu-Natal		1 776	144	1 920		92.5	7.5	100
14 Univ of Limpopo		579	44	623		92.9	7.1	100
15 Univ of Pretoria		1 507	59	1 566		96.2	3.8	100
16 Univ of South Africa		4 818	2 312	7 130		67.6	32.4	100

	Enrolment				Percentages			
	Dip <sup>1</sup>	Deg	PGCE	Total IPET	Dip <sup>1</sup>	Deg	PGCE	Total IPET
17 Univ of Stellenbosch		579	86	665		87.1	12.9	100
18 Univ of the Free State		875	139	1 014		86.3	13.7	100
19 Univ of the Western Cape		222	67	289		76.8	23.2	100
20 Univ of the Witwatersrand	39	867	44	950	4.1	91.3	4.6	100
21 Univ of Venda		225	34	259		86.9	13.1	100
22 Univ of Zululand		1 020	79	1 099		92.8	7.2	100
23 Vaal Univ of Technology			35	35		0.0	100.0	100
24 Walter Sisulu Univ		1 678	17	1 695		99.0	1.0	100
<b>Total</b>	<b>214</b>	<b>22 958</b>	<b>4 221</b>	<b>27 393</b>	<b>0.8</b>	<b>83.8</b>	<b>15.4</b>	<b>100</b>

Source: DoE (2005b: Table D14).

Note 1. This qualification is being phased out. CUT = Central University of Technology.

Table 4.80 Expected graduate numbers from IPET in higher education, 2005

	Graduates				Percentage			
	Dip <sup>2</sup>	Deg	PGCE	Total IPET	Dip <sup>2</sup>	Deg	PGCE	Total IPET
1 Cape Peninsula Univ of Technology		263	53	316	0.0	83.2	16.8	100
2 CUT (Welkom)	165		33	198	83.3	0.0	16.7	100
2b CUT (Free State)								100
3 Durban Institute of Technology		19		19	0.0	100.0	0.0	100
4 Nelson Mandela Metropolitan Univ		109	36	145	0.0	75.2	24.8	100
5 NIHE Mpumalanga	154			154	100.0	0.0	0.0	100
4 NIHE Northern Cape								100
5 North West Univ	25	287	123	435	5.7	66.0	28.3	100
8 Rhodes Univ			42	42	0.0	0.0	100.0	100
9 Tshwane Univ of Technology	17	80	35	132	12.9	60.6	26.5	100
10 Univ of Cape Town		5	89	94	0.0	5.3	94.7	100
11 Univ of Fort Hare		26	91	117	0.0	22.2	77.8	100
12 Univ of Johannesburg		75	81	156	0.0	48.1	51.9	100
13 Univ of KwaZulu-Natal		271	190	461	0.0	58.8	41.2	100
14 Univ of Limpopo			27	27	0.0	0.0	100.0	100
15 Univ of Pretoria	10	332	39	381	2.6	87.1	10.2	100
16 UNISA	22	791	1 161	1 974	1.1	40.1	58.8	100
17 Univ of Stellenbosch		132	84	216	0.0	61.1	38.9	100
18 Univ of the Free State								100

	Graduates				Percentage			
	Dip <sup>2</sup>	Deg	PGCE	Total IPET	Dip <sup>2</sup>	Deg	PGCE	Total IPET
19 Univ of the Western Cape		25	70	95	0.0	26.3	73.7	100
20 Univ of the Witwatersrand	199	58	43	300	66.3	19.3	14.3	100
21 Univ of Venda								100
22 Univ of Zululand								100
23 Vaal Univ of Technology								100
24 Walter Sisulu Univ	11	32	17	60	18.3	53.3	28.3	100
<b>Total</b>	<b>603</b>	<b>2 505</b>	<b>2 214</b>	<b>5 322</b>	<b>11.3</b>	<b>47.1</b>	<b>41.6</b>	<b>100</b>

Source: Ministerial Working Committee (2005b) Table D14.

Notes:

1. CUT = Central University of Technology.

2. This qualification is being phased out.

3. No data were available from University of the Free State, University of Venda, University of Zululand, Vaal University of Technology and the National Institute of Higher Education in Northern Cape

Table 4.81 Expected graduate numbers from IPET in higher education, 2006

	Graduates				Percentage			
	Dip <sup>1</sup>	Deg	PGCE	Total IPET	Dip <sup>1</sup>	Deg	PGCE	Total IPET
1 Cape Peninsula Univ of Technology	30	503	46	579	5.2	86.9	7.9	100
2 CUT (Welkom)			23	23			100	100
2b CUT (Free State)	65		50	115	56.5		43.5	100
3 Durban Institute of Technology		40		40		100.0		100
4 Nelson Mandela Metropolitan Univ		62	34	96		64.6	35.4	100
5 NIHE Mpumalanga	27	17		44	61.4	38.6		100
4 NIHE Northern Cape		120		120		100.0		100
5 North West Univ		333	102	435		76.6	23.4	100
8 Rhodes Univ			53	53			100.0	100
9 Tshwane Univ of Technology	10	69	80	159	6.3	43.4	50.3	100
10 Univ of Cape Town			72	72			100.0	100
11 Univ of Fort Hare		35	101	136		25.7	74.3	100
12 Univ of Johannesburg		100	120	220		45.5	54.5	100
13 Univ of KwaZulu-Natal		500	144	644		77.6	22.4	100
14 Univ of Limpopo		110	44	154		71.4	28.6	100
15 Univ of Pretoria		284	59	343		82.8	17.2	100
16 UNISA		763	770	1 533		49.8	50.2	100
17 Univ of Stellenbosch		145	86	231		62.8	37.2	100
18 Univ of the Free State		243	70	313		77.6	22.4	100

	Graduates				Percentage			
	Dip <sup>1</sup>	Deg	PGCE	Total IPET	Dip <sup>1</sup>	Deg	PGCE	Total IPET
19 Univ of the Western Cape		9	67	76		11.8	88.2	100
20 Univ of the Witwatersrand	35	150	40	225	15.6	66.7	17.8	100
21 Univ of Venda		4	34	38		10.5	89.5	100
22 Univ of Zululand		250	56	306		81.7	18.3	100
23 Vaal Univ of Technology			23	23			100.0	100
24 Walter Sisulu Univ		49	2	51		96.1	3.9	100
<b>Total</b>	<b>167</b>	<b>3 786</b>	<b>2 076</b>	<b>6 029</b>	<b>2.8</b>	<b>62.8</b>	<b>34.4</b>	<b>100</b>

Source: Morrow (2006) Table E.

Notes:

1. This qualification is being phased out.

2. CUT = Central University of Technology.

The data raise a number of points of discussion. The purpose here is to place IPET within the broad parameters of overall graduate production in teacher education programmes in higher education in South Africa. The data have their limitations. With IPET enrolment and IPET graduate data only for two consecutive years we cannot reveal trends. But if the data for just two IPET years are juxtaposed with other trend data, we can add value to our understanding of the terrain. Table 4.82 therefore assembles several pieces of data in order to generate a picture of IPET as a component within overall graduate production.

First, the overall enrolment and graduate numbers are included as the basis of comparison with IPET numbers. Note there is a slight decline in overall enrolment from 2004 (112 068) to 2005 (105 826). Then, the IPET enrolment data are given for 2005 (21 748) and 2006 (27 393). Bearing in mind the data limitations, IPET enrolment as a percentage of total enrolment for 2005 was between 20 per cent (using 2005 IPET enrolment data) and 25 per cent (using 2006 IPET enrolment data). This importantly demonstrates the current size-ratio of IPET output in relation to all other education programmes. With regard to graduates, the IPET group cohorts appeared to constitute between 18.6 per cent and 20.8 per cent of total graduate numbers in 2005–2006.

While we have a sense of the current IPET share of graduate output, the critical question for the decade is: Did the IPET share decline relative to overall graduate numbers?

In an attempt to address this question, we have elected to include data on undergraduate teaching degree graduate numbers (from Table 4.51). This data is used as a proxy for IPET given that undergraduate teaching degree enrolment constituted more than 80 per cent of IPET enrolment and between 40 per cent and 60 per cent of all IPET graduate output between 2005 and 2006. The relationship is presented in Figure 4.22. It is clear that the general trend in IPET graduate output from all higher education institutions – expressed as undergraduate degree graduates – maintained a flat profile over the period. In contrast, the trend line for overall teacher-education graduate output rose steadily. This suggests that in the universities and technikons, CPTD grew substantially whereas IPET did not.

Table 4.82 Enrolment and graduation of all education students and in IPET

Year	Education students enrolled <sup>1</sup>	Education students graduates <sup>2</sup>	IPET enrolled <sup>3</sup>	IPET graduates <sup>3</sup>	Undergraduate teaching degree graduates <sup>4</sup>
1995	70 587	17 823			2 830
1996	63 825	19 060			4 023
1997	61 949	17 065			3 814
1998	59 760	17 027			3 851
1999	69 500	19 056			4 336
2000	85 347	19 079			4 613
2001	105 206	23 873			3 114
2002	109 697	23 383			3 019
2003	106 880	25 310			3 621
2004	112 068	28 756		6 000 <sup>5</sup>	5 153
2005	105 826	29 348	21 748 <sup>6</sup>	5 322 <sup>6</sup>	4 134
2006			27 393	6 029 <sup>7</sup>	

## Notes:

1. From Table 4.1. The HEMIS data for 2005 became available after the bulk of this analysis was already complete. The 2005 data is included in this table to add value to the discussion of IPET.

2. From Table 4.5. The HEMIS data for 2005 became available after the bulk of this analysis was already complete. The 2005 data is included in this table to add value to the discussion of IPET.

3. Data on IPET for 2005 and 2006 from DoE (2005b) and Morrow (2006).

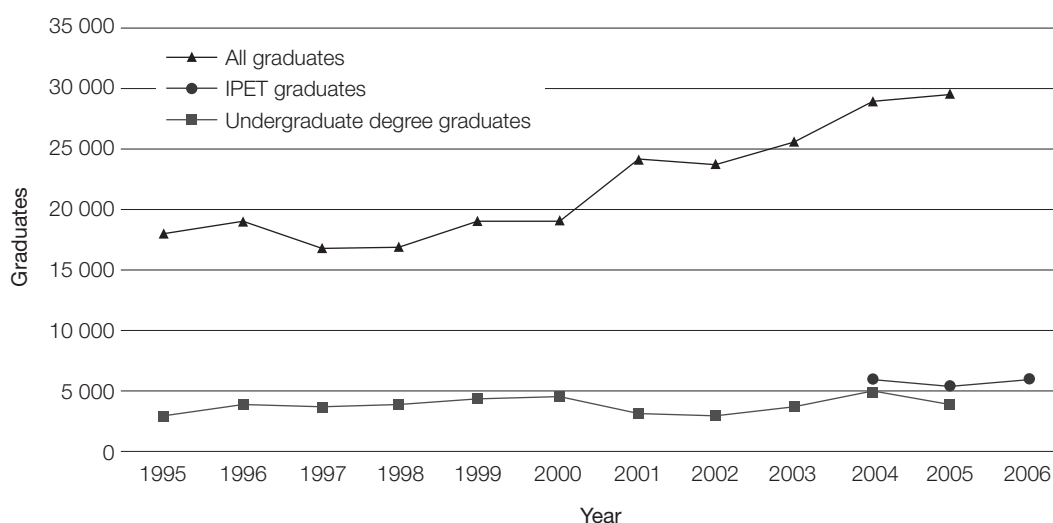
4. From Table 4.51.

5. Self-reported data from the Dean's Forum suggests that of an estimated 9 000 graduates in 2004, 3 000 were probably already practising teachers (Peltzer et al. 2005: 60–61).

6. This is an underestimate because data from University of the Free State, University of Venda, University of Zululand, Vaal University of Technology was not available.

7. Morrow (2006) notes that of this group, at least 179 are already in teaching posts, and 1 138 are in learnerships. This means that these numbers must be deducted from IPET graduate numbers to obtain the real number of potential new entrants to teaching. Morrow (2006) also observes that some higher education institutions may have interpreted 'learnership' to mean 'teaching practice', which can obscure the meaning of the data.

Figure 4.22 IPET graduate production and all graduate production in teacher education



An additional concern regarding IPET graduate production relates to the skills mix within each IPET cohort. To prepare students for working with learners in the General Education and Training band requires them to focus on specialities in 'Foundation Phase', 'Intermediate Phase', and 'Senior Phase' and then Further Education and Training band teaching. Morrow (2006) draws our attention to the fact that many higher education institutions do not have separate programmes for these levels. In particular, Morrow (2006) highlights that within the 12 – out of 24 – higher education institutions that offer separate Foundation Phase training programmes, student enrolment numbers are low. This dire situation was identified in the 2006 'National policy framework for teacher education and development in South Africa' (NPFTED), which observed that the teacher supply situation is 'especially serious in the Foundation Phase where learners require teachers with mother-tongue competence. Of the 6 000 new teachers likely to graduate in 2006, fewer than 500 will be competent to teach in African languages in the Foundation Phase' (DoE 2006a: 12).

### **The closure of the colleges of education and the IPET big picture**

This discussion of IPET graduate production is incomplete without taking into account the closure of the colleges of education. This is because one would have expected the institutional incorporations to have redirected a flow of students – who would otherwise have registered at a college – into the universities and technikons.

The colleges no longer exist, so there is no institutional memory or institutional base from which to assess whether the populations from which college student numbers were formerly drawn were attracted into the IPET programmes offered only from higher education institutions. This is a question about continuity of access and about continuity in the whole South African IPET project.

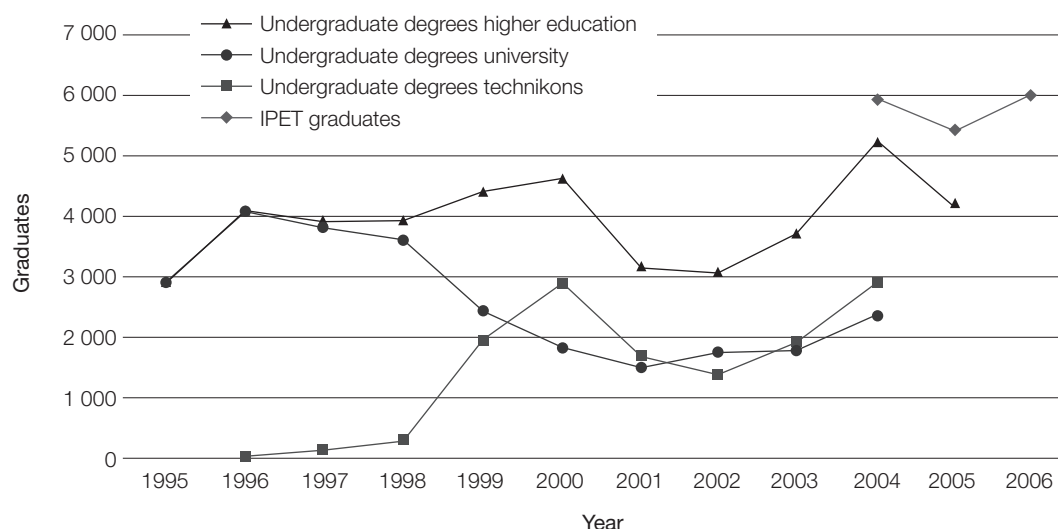
In order to obtain the 'big picture' of graduate production over the last decade, the distribution of IPET graduates from the universities and technikons, and from the colleges of education must be looked at together. In the discussion that follows, we will introduce the data elements that complete a picture of the transition period.

We cannot establish the IPET graduate production trend in universities and technikons before 2004 with confidence. However, our proxy measure, the trend of undergraduate degree graduations, which provided the major share of new teachers, fluctuated between 3 000 and 5 000. If this production is separated between universities and technikons we see that university production declined from a plateau of 4 004 graduates in 1996 down to a trough of 1 452 graduates in 2001 and then recovered to 2 318 in 2004 (Table 4.55). Therefore, in real terms, IPET declined in the universities. The undergraduate degree was the main growth point of education enrolment in the technikons, rising sharply from 277 in 1998 to successive peaks of 2 820 and 2 835 graduates in 2000 and in 2004 (Table 4.59) (Figure 4.23).

We do know that after the various mergers and incorporations impacting on teacher education, IPET production was in the order of 6 000 in 2005–2006 (DoE 2005b; Morrow 2006) (Figure 4.23).



Figure 4.23 Undergraduate degrees from universities and technikons in relation to IPET graduates



If we turn to the colleges, graduate production reached a peak of over 25 000 in 1997 (Jaff et al. 1996: 12). The data clearly delineate a sharp downward trend thereafter. The drop in graduates was foreshadowed by sinking enrolment. According to Vinjevold (2001: 8 citing the Committee of College Rectors of South Africa Report of January 2000) enrolment in contact IPET programmes declined from 70 731 to 10 153 between 1994 and 2000.<sup>28</sup>

The rationalisation of the colleges continued after 2000. Data on education graduate outputs for all institutions could not be obtained for this transition period. In her research for the Education Training and Development Practices SETA, Vinjevold reported that at the end of 2001 there were approximately 14 400 students enrolled in IPET with the expectation that about 5 000 would graduate in the same year (2001: 8–9, 16).

When the various pieces of data are assembled, a clear trendline emerges of bottoming-out graduate numbers, and thereafter a plateau phase (Figure 4.24). The shape of the trendline is revealing. Graduate numbers seemed to flatten at a level which was – and still is – not much higher than higher education IPET graduate production on its own. It seems there was hardly any carryover or overflow of enrolment from the colleges into higher education after the former were closed. This carryover might have sustained enrolment and graduate numbers in IPET at a higher level.

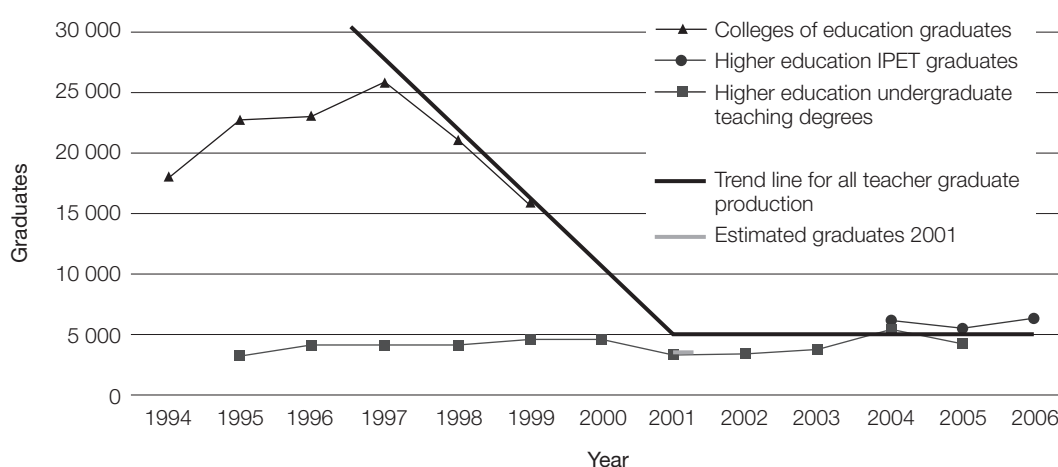
Access to funding played a significant role. From 1997, provincial governments began to cut back on the allocation of funds to colleges. A significant proportion of college students were fully funded, so the curtailment of provincial funding for college students directly impacted on enrolments. It is equally important to observe that the funds withheld from the college system were never transferred from provincial

<sup>28</sup> Crouch and Perry (2003: 482) put the number of full-time students in the colleges at 64 051 in 1993 and 19 665 in 1999. They counted 31 200 students as distance/part-time students in the same year. Jaff et al. (1996: 87) indicated that there were 71 000 students in initial teacher education in 1994.

budgets into higher education institutions offering teacher education. For example, in 2000, approximately R800 million was allocated to provinces for colleges. In effect, these resources were simply lost to teacher education once the colleges were closed (Parker 2002: 23, 35).

Perhaps a limited carryover of enrolment from the colleges is what increased the number of graduates in the technikon undergraduate degree programmes in 1999. Alternatively, concurrent increases in technikon enrolment and declining university enrolment in education programmes could mean that students were forsaking the opportunity to obtain a university degree in favour of a technikon degree.

Figure 4.24 Trends in IPET graduates for higher education and colleges of education, 1994–2006



Sources: Created by the authors based on data from: Table 4.82; Figure 4.22; Jaff (1996: 12); Crouch & Perry (2003: 482).

The issue is not only about numbers, but also about the demographic characteristics of the students at the colleges. In 1994, most students in the colleges of education (78 per cent) were 29 years of age or younger, the majority were African (89.1 per cent African, 3.5 per cent coloured, 1.4 per cent Indian and 6.2 per cent white) and 65–80 per cent female. In pre-primary and junior-primary courses, 98 per cent were female. An estimated 35–45 per cent of students were accommodated in residences (Jaff et al. 1996: 51–52, Table P). In 1995 there were 370 159 applications for places in 79 colleges out of which 25 272 students were admitted (Jaff et al. 1996: 53). Young African women in primary education programmes were therefore the core student group. But they were (are) probably economically vulnerable. How have conditions changed?

We may ask: Were rural communities in the catchment areas of the former colleges left stranded once teacher education opportunities receded towards the towns? Why did the impetus of teacher training established in the hinterland of over 90 colleges not generate a secondary wave of education students who pursued teacher-education opportunities in numbers after the closure of the colleges. Was the propensity to study teaching very sensitive to the impact of distance and cost on households?

Despite these gaps in our analysis, the outstanding feature of the period is that the contribution of the colleges to IPET dissipated to a small fraction of the numbers of graduates, which peaked in 1997.

## HIV/AIDS and teacher supply

Dire predictions of education systems in sub-Saharan Africa falling into disarray as a consequence of the impact of HIV/AIDS on the teacher corps and on education support services have not transpired. Evidence on the extent of the impact is not conclusive (Kinghorn and Kelly 2005; Coombe 2004). Nevertheless, HIV/AIDS presents a major challenge to education systems and the key occupation of teaching.

South Africa is fortunate to have benefited from a large-scale study funded by the South African Education Labour Relations Council (ELRC) which addressed educator supply and demand in the South African public school system. In the integrated report emanating from this empirically rich study, Peltzer et al. (2005: 112) reported finding a high HIV prevalence rate of 12.7 per cent among South African teachers. Analysis of mortality among teachers projected 'that 8.3 per cent of HIV-infected educators, or 1.1 per cent of the total educator population, died of AIDS in 2004'. Almost half (48.7 per cent) of the estimated 3 976 AIDS-associated deaths in that year were concentrated in the 35–44 year age group (Peltzer et al. 2005: 49).

According to Peltzer et al., 'The projected loss of nearly 4 000 educators during the 2004 year due to AIDs suggests that the educator population is seriously affected, leading to a possible shortage of educators in the public education system' (2005: 50). Putting this in the perspective of the overall relationship between demand and supply, Peltzer et al. observed the following: 'The data available suggest that in the period ahead (post-2004) South Africa is likely to face increasing shortages of educators due to resignations, death and age-based retirement' (2005: 108).

There are three ways in which HIV/AIDS has probably influenced the demographic profile of those who are in a position to access and complete pre-service teacher training. First, the impact of HIV/AIDS on parental death and more generally on adult mortality – especially those employed – affects the availability of resources in households to absorb the costs of keeping a family member at school (Bennell 2005b) or in higher education.<sup>29</sup> These circumstances can restrict or rule out would-be teacher trainees from accessing higher education opportunities, and increase the chances that once enrolled they will be forced to abandon their studies for financial reasons or caregiving responsibilities at home. These pressures may already have played a part in restricting students from registering for IPET and may account partially for the downturn in enrolments. From a research perspective it may simply be unfeasible to establish who the missing teacher-training students are – those who might have but did not become student teachers.

Second, a proportion of student teachers themselves may be HIV-positive and illness and absenteeism may have affected their academic progress or curtailed their studies prematurely. Third, a proportion of HIV-positive student teachers will qualify and, with appropriate ARV medication and support, will live healthily and work productively for a long period.<sup>30</sup> This study is based on information from HEMIS and cannot reveal actual throughput of students because it does not track individuals. As

<sup>29</sup> Studies dealing with the impact of HIV on the educational careers of household members tend to focus more strongly on young children.

<sup>30</sup> Student teachers who graduate may, in the course of their working lives, become HIV-positive.

a result, it cannot assist us in obtaining any indication as to whether student 'dropout' or non-completion, especially of IPET programmes, has changed in the decade in review.

In a key component of the ELRC study, Shisana et al. (2005) investigated the health of South African educators, including their HIV status. Shisana et al. (2005) collected data on third-year (n=905) and fourth-year (n=147) teacher-training students through a 'Student Educator Survey' (implemented in education departments in higher education institutions) and an 'Educator School Survey' (implemented in schools) respectively. This strategy was necessary in order to include fourth-year students who were doing their 'teaching practice'.<sup>31</sup>

*Table 4.83 HIV prevalence among education students*

	n sample	% sample	% HIV+	95CI	N tested
<b>Whole sample</b>	<b>1 052</b>		<b>8.2</b>	<b>6.6–10.2</b>	<b>902</b>
<b>Gender</b>					
Female	701	66.6	9.9	7.8–12.5	607
Male	351	33.4	4.8	2.9–8.0	291
<b>Population group</b>					
African	631	59.9	13.2	10.6–16.3	546
White	312	29.6			
Coloured	82	7.8			
Indian/Asian	28	2.7	0.6	0.1–2.2	354
<b>Age in years</b>					
18–24	618	47.9	4.4	2.9–6.5	528
25–29	296	22.9			
30–34	85	6.6	14.7	11.2–19.0	327
35 and above	56	4.3	6.5	2.1–18.4	46
<b>Economic status</b>					
Not enough money for basics	122	11.7			
Have money for food and clothes	382	36.7	13.1	10.3–16.7	426
Have most things	339	32.6			
Some money for extra things	198	19.0	3.7	2.3–5.8	465

*Source: Peltzer et al. (2005: 64–65, 70) Table 4.3 and 4.7.*

31 Data for fourth-year students was drawn from this survey by selecting student teachers doing teaching practice using an algorithm of: age <30, one year or less of teaching experience, and without a first degree (Peltzer et al. 2005: 61).

The sample covered 25 higher education institutions. A limitation of the study was that students registered with UNISA, being a distance institution, were not included for logistical and financial reasons. Also, a convenience sample was taken at each institution, and response rates and weights could not be calculated. For these reasons, the sample may not be representative. Nevertheless, the findings are important.

The proportion of students who were HIV-positive, at 8.2 per cent, was much lower than for the sample of educators, who tested at 12.7 per cent. Within the student group, females had a much higher HIV prevalence than males, and prevalence among African students was at 13.2 per cent compared to less than 1 per cent for coloured, Indian/Asian and white students combined. Peltzer et al. (2005: 69) observe that HIV prevalence was highest in the 25–29-year age group, and in the 25–34-year age category, HIV prevalence was 14.7 per cent.

Shisana et al. (2005) presented evidence that socio-economic status is related to HIV among educators and the same relationship was examined among student-teachers. Peltzer et al. (2005: 69) cited results to the effect that ‘those with a perceived low socio-economic status (have) a much higher HIV prevalence (13.1 per cent) than those with a perceived higher status (3.7 per cent) (Table 4.83).

The data strongly indicate that in the sample, African female students had a much higher HIV prevalence than other population and/or gender groups. African females have the largest representation among education students and are the majority of teachers in the education system. If we consider this aspect in relation to the data on socio-economic status and age range, the picture that emerges is that young African women who are of perceived low socio-economic status are most at risk.

The selective mortality impact of AIDS on younger populations of teachers implies that ART roll-out alongside prevention strategies present important opportunities (Rehle & Shisana 2005: 13–14; Rehle et al. 2005). The question is how this can be most effectively implemented alongside strategies to increase the numbers of candidates enrolling for IPET programmes.



# Conclusion

The most urgent concerns arising from this survey of teacher education from 1995 to 2006 are the need to increase graduate production of teachers from IPET, the need to secure the quality of teacher training, especially CPTD programmes,<sup>32</sup> which experienced rapid growth in the period under review; and the need to improve data systems that record graduate production.

This conclusion will first highlight the key elements of the DoE 2006 NPFTED document and refer to current implementation of a wide set of programmes within the NPFTED.

Thereafter, we argue for further attention to be paid to two key dimensions of teacher training and teacher graduate production that will impact in future on the successful implementation of the NPFTED. These are the need:

- to improve our understanding of the factors that influence the movement of teacher education candidates from home to teacher training, and then their spatial distribution once qualified and working as teachers;
- to investigate the slump in enrolment of young African women in IPET.

## Initiatives by the Department of Education

For some time, concerns have been raised about graduate production in IPET and quality of in-service teacher education in South Africa. In response to these challenges, in 2003 the Minister of Education appointed a Ministerial Committee on Teacher Education, which reported in 2005. In 2006, the DoE published the NPFTED. Before the final version of the NPFTED was passed in 2007, the DoE moved swiftly to begin its programme of implementation.

Implementation of the NPFTED involves a number aspects, which include a national teacher-recruitment campaign in collaboration with the universities and the teaching profession, a national teacher-education bursary scheme, a continuing professional teacher development system under the South African Council of Educators, as well as the creation of an enhanced database and information service on teacher demand and supply (DoE 2006a: 23–25; Tyobeka 2007: 2–6)

The Fundza Lushaka (Teaching Makes a Difference) Bursary Campaign was officially launched by the DoE on 26 March 2007 as part of the NPFTED. The Bursary Campaign has made R700 million available over three years for initial teacher education and has been split into tranches of R120 million, R180 million and R400 million. These amounts will provide for over 17 000 bursary years, which will enable the equivalent of 5 666 students to each receive a full bursary for three years. Target groups include: 'top high school learners', 'higher education students looking to put their qualifications to good use', 'mature citizens wanting to switch to a more fulfilling career' and 'former teachers who would like to return' to teaching (Tyobeka 2007: 7). We can expect that the scheme will assist in attracting more than 5 666 candidate teachers because not all will need support for a full three years. For

---

<sup>32</sup> The quality of IPET programmes is also a subject of debate, especially in light of the recent curriculum requirements prescribed by the DoE.

example, appropriate candidates seeking to switch careers will need only one year of support to complete a PGCE if they already have a graduate degree.

In 2007, 3 000 bursaries were already made available for allocation to priority subject and learning areas in the BEd and PGCE programmes as well as for BA, BSc, BCom and BTech degree candidates with subjects suitable for admission to the PGCE. Bursaries were offered on a 'full cost' basis up to a maximum of R40 000/year. According to a service contract, those awarded bursaries are obliged to teach in a provincial education department post, one year for each year that they received their bursary (Tyobeka 2007: 10). It is important to track the distribution of these bursary awards according to equity, spatial, programme and subject areas.

## The critical impact of spatial location on teacher supply in South Africa

### The old geography of teacher supply

In 2001, Vinjevold observed that there had been a 'dramatic decline' in the number of student teachers in pre-service programmes at contact colleges of education between 1994 and 2000 (2001: 8). The event precipitating this decline – the features of which will be sketched later – was the 1995 National Teacher Education Audit (NTEA), which involved a systemic mapping exercise of teacher education that had not previously been attempted on a non-racial and comprehensive basis. The NTEA presented the case for rationalising the unwieldy and 'irrational' system of about 120 teacher education institutions that was in existence in 1994. It argued that college-based education was more expensive than university-based teacher education because of the large number of rurally based smaller and mainly African colleges. The lower per capita cost of university-based teacher education was seen as a strong justification to phase out the colleges and to create a more cost-efficient institutional environment for teacher education (Welch & Gultig 2002: 5, 15).

Over five years, many colleges were closed or merged into larger colleges until a declaration in December 2000 by the Minister of Education that all existing colleges should be incorporated into education subdivisions of universities and technikons. The number of teacher-education institutions, which numbered in the region of 150 in 1990, was reduced to 28 in 2002 (Table 5.1) and teacher education was henceforth offered exclusively by universities and technikons.

*Table 5.1 Higher education institutions and colleges offering teacher education programmes, 1990–2006*

Institutions <sup>1</sup>	1990	1994	2000	2002	2006
Colleges	120	93	34	–	
Universities	26	23	21	21	23
Technikons	6	6	6	5	
Higher education institutes <sup>2</sup>				2	2

Notes:

1. Institutions counted in the table are publicly funded.

2. Located in Mpumalanga and the Northern Cape.

Source: Adapted from Vinjevold (2001: 8).



This rationalisation process imposed a severe urban bias on physical access to teacher education institutions. Professor Robinson of the Cape Peninsula University of Technology observed that in the past, 'education colleges were accessible to many communities as they were based in rural areas and phasing them out has made it difficult for rural students in particular to access education'.<sup>33</sup> By this, Robinson was emphasising that access to teacher education opportunities was severely restricted in comparison with those that were formerly presented to communities in many rural localities. Thus the 'footprint' of teacher education access was drastically curtailed by 2002.

Welch and Gultig (2002: 16) similarly argued: 'The rationalization has overwhelmingly closed rural and African colleges. The one strength of the old system, namely the geographic spread of colleges through remote rural areas, has now been reversed.' We may ask why Welch and Gultig referred to the spatial arrangement of colleges in rural areas as a strength? At first glance, the strength of the 'old' geography of teacher training colleges was their physical location, which made *access* to teacher training possible. We will argue that providing access was only one of two vital characteristics of the colleges' contribution. A critically important and overlooked facet of local provision of teacher training through the colleges was their impact on the eventual *supply* of qualified teachers in the *same locality*. They appear to have performed a vital role in sustaining the reproduction of the teacher workforce in rural areas.

### **The teacher heads for home: how teacher preferences for where they work can powerfully influence teacher supply**

In theory, any individual with appropriate teaching qualifications entering the labour market is entitled to compete for a teaching post in any school in any province.

In reality, teachers hardly exercise this prerogative because they do not roam far and wide to seek jobs. This is the important finding of recent research conducted by Boyd et al. (2003), who demonstrate the inherently localised job hunting behaviour of teachers: 'We find that teachers delineate their job searches to relatively small geographic areas, very close to where they grew up. While preferences vary somewhat by the characteristics of the individual teachers, distance appears important for all teachers that we analyse' (2003: 1).

From this we can infer that, for all intents and purposes, teacher demand and supply does not take place within a single huge national teacher labour market. That only exists as a statistical concept. In reality the 'national' teacher labour market is segmented spatially. Boyd et al. (2003: 13) concur, arguing that the 'common practice of conceptualising teacher labor markets as covering large regions, or the nation as a whole can be quite misleading'. In South Africa, to the knowledge of the authors, there is no published research that interrogates teacher labour markets below the national and provincial levels. Virtually all analysis engages with the question from a macro perspective, which of course must be done, but which cannot address the kinds of questions raised in this analysis. This obliges us to focus our minds on understanding how local teacher labour markets work.

---

<sup>33</sup> Mtshali T, Shortage of teachers sparks education crisis, *Pretoria News*, 27 April 2005.

Although teachers may not be in a position to select a specific school that they wish to teach in they will be able to choose the region. Indeed, beginner teachers were shown by Boyd et al. (2003: 10) to 'have strong preferences to locate in regions similar to that of their home towns, other things (including distance) equal'. This finding resonates with the experience of South Africa. There is anecdotal evidence of an analogous pattern in South African rural places where recently qualified young teachers would expect to teach near their home area.

Empirical analysis undertaken by Boyd et al. strongly supports their argument that distance from home town is statistically and quantitatively important to a teacher's location decision. For instance, they observe that '[a] beginning teacher is four times as likely to teach in a region within five miles of his or her home town as one 40 miles away (Boyd et al. 2003: 9–10). In addition, the authors also tested for the possible impact of the location of the institution where teachers received their training, and found as follows: 'In seeking their first teaching jobs, prospective teachers appear to search very close to their home towns and in regions that are similar to those where they grow up. Location of college plays an independent, although a less important role in teacher's employment location decisions' (Boyd et al. 2003: 12).

There are significant implications arising from the findings. They point strongly to the need 'to consider local supply when designing policies to affect the recruitment and retention of teachers' (Boyd et al. 2003: 14). The impact of teachers electing to find work in the locality of their own childhood hold important consequences, including the potential for perpetuating patterns of local teacher quality. Boyd et al. (2003: 12) observed how '[p]references for proximity lead to the perpetuation of inequities in the qualifications of teachers. Inadequate education is a difficult cycle to break'.

The cumulative effect of teachers exercising their preferences to teach where they were brought up also had the unwanted consequence of reinforcing teacher shortages. In the study area, where low numbers of entrants to teacher training were recruited from socio-economically disadvantaged inner city areas, this had a self-perpetuating pattern. Because most teacher recruits were not from inner city areas, beginner teachers' preferences continually challenged urban poor districts that were net importers of teachers (Boyd et al. 2003: 12).

If we consider the findings of Boyd et al. (2003) to be generalisable to the South African environment, even weakly so, the implications may well be quite profound for our understanding of teacher supply in this country. For example:

- Preference effects will have an impact on patterns of teacher movement into and between schools. Movement is likely to have the character of circulation within localities or between contiguous areas within a province rather than migration within or between provinces. The majority of teachers are likely to be schooled, to train and to practise professionally in the same province.
- In South Africa, as a multilingual country, the effects of beginner teacher preference may be reinforced where teachers – especially at the primary school level – prefer to interact in the school environment that suits their mother tongue or in localities where linguistic homogeneity is emphasised.
- Preference effects will work against efforts to encourage beginner teachers to work outside of the locality in which they were raised and enculturated.

- The closure of the colleges for reasons of efficiency has had the unintended consequence of erasing localised teacher production-supply dynamics. In order for policy instruments to compensate for the gap left by the colleges, these instruments must be able to direct teacher supply on a spatial basis, and their impact on teacher supply to meet local shortages must be as powerful and as sustainable as the colleges. A key issue is how bursaries can reclaim the space vacated by the colleges.
- Incentivising teachers to migrate outside of their area of 'preference' will remain a critical challenge for policy.

### **The new geography of teacher supply in South Africa**

Do the findings that have been recounted contribute to our understanding of the dilemma imposed by the liquidation of the education colleges? In effect, has this brought about the end of the 'old' geography of teacher supply in South Africa?

In their review of the domain of teacher education in the period immediately following the closure of teacher colleges, Welch and Gultig presciently observe: 'The integration of teacher education into higher education – an attempt to control...costs, has been achieved, but the costs in terms of loss of teacher education expertise and student enrolment have not as yet been fully calculated' (2002: 15). We would rather shift attention away from the issue of *costs* and in the direction of the linked question of *means*, to consider the policy alternatives available to the DoE to achieve the same effects as the adjacency of supply and demand delivered by the colleges.

We do not argue here for the re-opening of the colleges. We also do not seek to reinterpret the college system as blameless or without fault when it was troubled not only by the fact of its costs but also by severe difficulties in sustaining quality. This said, we should not presume that university-based departments of education are necessarily the guarantors of teacher-graduate quality.

It is clear that the new policy instrument to direct teacher supply is bursaries. Of course, the use of bursaries is not really new because somewhat imperfect systems of bursary support (Peltzer et al. 2005: 61) were applied while the colleges operated. What is new is that bursaries appear to be the only instrument currently on the policy table to incentivise and direct the supply of newly qualified teachers in South Africa. The 'new' geography of teacher supply, based as it is on bursaries, does not have an institutional presence in rural areas where teacher shortages appear to be most pressing.

Assuming that the model of teacher preference articulated by Boyd et al. (2003) holds for South African beginner educators, some useful deductions may be drawn with the aim of strengthening our understanding of the weaknesses and strengths of the bursary system.

First, we can assume that bursaries will be more effective in causing new teachers from the rural areas to return to the environment of their childhood and less effective in causing new teachers who grew up in urban areas to practise in the rural areas. Therefore effective targeting will be essential.

Second, targeting bursaries to impact on teacher supply to rural areas may be in tension with the aim of allocating bursaries on the basis of excellence. It will be important to allocate bursaries to meet both aims. Recently the Minister of Education indicated that the scheme would emphasise recruiting candidates from rural areas because 'they will be more likely to teach in rural areas once qualified' (Pandor 2007). On the other hand, Ms Tyobeka, Deputy Director General, General Education and Training, was reported as saying that: 'It was the aim of the department to find the best minds to train to become teachers, regardless of their background' (Minutes noting reply by Ms Tyobeka, Deputy Director General, General Education and Training, to questions, Parliamentary Monitoring Group 2007: 2).

Third, the colleges were located in local environments. They served as a physical manifestation of the commitment of government to teacher training and provided an institutional point of contact with potential future teaching candidates. Over time, the production of generations of teacher graduates from each college created an institutional awareness in the community. A strategic focus for the bursary scheme will therefore be how to ensure that knowledge about bursaries and how to access them is communicated to rural communities in particular.

Fourth, preference effects may exacerbate local shortages of teachers offering particular areas of expertise in the curriculum. This means that the recruitment of teacher-education students through the bursary scheme should be coordinated so that bursaries are offered to students who will offer the right skills in the right locations.

Fifth, even if urban or peri-urban students are obliged in terms of their contracts to work back their bursaries in localities that would not be their preference, there is the risk that they will remain where they are deployed – in temporary exile – only as long as they are obliged by contract. Should this develop as a pattern, the bursary system will not provide a long-term solution to teacher placement.

Sixth, the strategy of implementing bursaries – rather than building institutions such as colleges – involves the substitution of local teacher-education supply with student migration for the purposes of study. To the knowledge of the authors, very little research has been undertaken on the spatial aspects of teacher supply and demand. Recently, Peltzer et al. (2005: 108) observed that: '[v]ery little information is available about the destination of new education graduates'.

We therefore need to know more about the factors that influence the decisions of newly qualified teachers as to where they will apply for a teaching post. Relatively little is known about how these factors operate and there is no extant study that specifically traces movement of teacher-training students from their home or place of matriculation, to their choice of institution for study and thereafter to their first – and subsequent – teaching posts.<sup>34</sup>

---

<sup>34</sup> There is also no available empirical evidence that can shed light on graduates from education programmes who have experienced some period of unemployment. Thus it is not possible to establish whether the proportion of recent education graduates who are unemployed originate from any particular institution or provincial group of institutions.

## Young women and declining entry into initial teacher training

This study analysed HEMIS data from 2000 to 2004 on enrolment in teacher education and confirmed what has long been suspected – there has been a decline in the number of African women, aged 30 and younger, entering teacher-training programmes. Given that African women constitute the majority of South Africa's teachers, this decline is matter of serious concern.

A critical question is: Why is the demography of young women who enrol for teacher training changing? There are four key trends that we need to take into account in attempting to answer the question:

- A decline in numbers of young African women enrolling for teacher education programmes and a simultaneous relative increase in the numbers of young white women enrolling.
- A decline in numbers of students applying for NSFAS bursaries to enter primary-phase teacher training.
- Low numbers of students with mother-tongue competence in African official languages enrolling in for training in the Foundation Phase.
- Higher HIV prevalence among African female students of low perceived socio-economic status who are currently registered for teacher education.

We do not attempt to establish causal links between the four trends. Our intention is to consider how the four trends may represent different strands of a single story.

The central strand is changes in the numbers of young women enrolling for initial teacher education. Within this, we focus on the largest demographic group, African females of age 30 and under, which experienced the greatest change – namely a significant decline in numbers.

We advance two tentative explanations for this situation:

- (a) Numbers of young African women who might have enrolled for teacher training are electing to pursue careers other than teaching and to that end are enrolling for higher education qualifications in other fields of study; or
- (b) Numbers of young African women who might have enrolled for teacher training are not enrolling for teacher training nor for any other education programme in higher education.

In the case of (a), we have identified new social and economic conditions that seem to be encouraging previously disadvantaged women to break into new study or occupational fields. It may be that young women able to access these opportunities are mainly from urban households from which higher education is physically accessible.

In the case of (b), young African women of the social groups that might otherwise have enrolled for teaching find themselves unable to access these opportunities. These young women may be from urban unemployed, urban working-class or rural poor households. Their enforced withdrawal is impacted by low or unstable household income levels, which may or may not be associated with the impact of HIV/AIDS.

Where young rural women could qualify for education bursaries, such as through NSFAS, they cannot leave their homes to take up the bursary in the urban area because they have increased caregiving responsibilities and cannot leave. Lastly, it may be that the 'the unusual mortality rate, especially among women teachers, which varies considerably by province' (DoE 2006a: 9) may be directly affecting the proportions of young African women from rural areas who might seek access to teacher training.

Under the general conditions described in explanation (b), 'inaccessibility of educator institutions to black students from rural areas' (Peltzer et al. 2005: 61) probably reduced participation of rural African women in teacher training. After the closure of the colleges, no other sufficiently powerful policy or accessible mechanism was put in place to secure the link between graduate production and rural teacher supply.

NSFAS financial support was available through the period, but there was a steady decline in NSFAS applicants for primary teacher training – a form of training traditionally dominated by females. This strongly suggests that social or household conditions are constraining the capacity of people to use the financial assistance. There may be reason to doubt whether bursaries as a sole mechanism of student support will be as successful as government might wish unless a broader set of support mechanisms is put in place.

The two explanations advanced here provide the frame within which we can consider the possibility that there are social-class and rural/urban differences within the social category of young African women aged 30 years and under. The social-class and rural/urban characteristics of the households within which these young women live may play a strong role in determining their career and life paths.

The overall decline in numbers of young African women entering teacher training may therefore have its origins in more than one set of social conditions: aspirant young women who seek other careers and life prospects, and survivalist young women whose immediate personal and household circumstances prevent them from making choices about studying in far-flung places. If there are no students taking up the places vacated by better-resourced, better-placed and better-informed urban working-class and middle-class students moving into other study directions, why would this be the case?

The scenarios sketched above raise two important underlying questions: What is the social-class base of teachers and has this base changed since 1994? What is it about the rural/urban labour-market structure that makes young women go for – or not go for – education study?



# APPENDICES

## Appendix A Methodology

### Data concepts and data definitions that inform this analysis

The source of data for this analysis is the Higher Education Management Information System (HEMIS) which, under the custodianship of the national DoE, is the repository for management information submitted by each higher education institution on an annual basis.

The nature of these data sets limitations on the depth of the analysis that is presented. In the form that it is received from the institutions, the data are not based on individual unit records. This means that neither the progress of individual students, nor the progression of particular student cohorts can be tracked from year to year. This is the work of tracer studies.

In other words, the data simply report the total number of students who are enrolled in a particular year and the number who graduate in the same year. Therefore, the impact of the following on enrolment and graduation numbers cannot be disaggregated in the annual counts: (a) the presence of students who repeat a year, (b) the presence of students who return to their programme of study after a period of absence, and (c) the absence of students who are forced to prematurely terminate – temporarily or indefinitely – their studies. This means that the data do not allow us to uncover the actual proportion of students who successfully graduate from a particular cohort that enrolled for the same study programme together in the same year.

The analysis in this monograph depends chiefly on enrolment and graduation data, and to a much lesser extent on ‘graduation rate’ data, given that this indicator is relatively unstable. A discussion of the ‘graduation rate’ concept is given below.

### Graduation rate

Throughput is an indicator of efficiency in educational institutions and reveals the extent to which students complete the programmes for which they are enrolled in more or less than the optimal or expected time. Throughput is defined as the number of years a student or a cohort of students takes to complete the learning programme or the qualification for which they registered.

There are currently no available data on the calculation of throughput rates for South African students registered in the education field. This would require cohort studies that trace a group of students from first year to graduation and is thus not possible to calculate from the data that can be obtained from the South African Post Secondary Education (SAPSE) database or its successor, the HEMIS database.

A ‘graduation rate’ will be calculated and used as a proxy for throughput. The graduation rate is officially defined as the number of graduations divided by the total number of enrolments within the entire programme in the same year (Subotzky 2003). The graduation rate is therefore a measure of the rate at which students graduate from the institution(s) in question. This measure has disadvantages. It can be unreliable because it may show large fluctuations in graduation rate from year to year. It is influenced by fluctuations in headcount enrolments between years, and is influenced by repeaters, drop-outs, conversions to other courses and so on (Paterson et al. 2005).

Bearing in mind these concerns, throughput, in the form of graduation rates, was calculated and analysed in this monograph.

### **Classification of Education Subject Matter system**

National data on student enrolments and graduations are organised according to Classification of Education Subject Matter (CESM) classification. This system provides a single, standardised scheme that facilitates the recording, reporting and comparing of data about subject matter. The development of this standard classification of subject matter facilitated compliance with the statutory reporting requirements for various educational agencies and institutions and expedited communication and information exchange about subject matter regardless of the type of the organisation providing instruction.

Institutions have their own internal management units such as faculties and departments, for funding allocation as well as for monitoring performance. Also, institutions may have their own unique management information systems, which include records on student throughputs. For these reasons, the CESM system needs to be retained as its standardised classification system enables inter-institutional data comparisons and provides for aggregating data across the higher education system to obtain an overall picture of outputs of graduates. CESM is used to capture data on the level of academic programmes (or registered academic courses) for each institution, which enables comparability.

The Higher Education Directorate has recognised that the CESM classification is out of date and needs to be improved to reflect changes in knowledge fields, additional knowledge fields and necessary adaptations to the approach to capturing this kind of information in South African higher education systems.

### **Structure of the CESM**

The data are arranged according to a system of categorising all degree, diploma and certificate programmes offered in the higher education system. There are 22 broad categories into which all accredited certificate, diploma and degree courses offered in higher education are categorised. The broad categories are known as CESM categories. This analysis focuses on students registered for the CESM subject category '07' or 'Education'.

Each high level category (called a first-order CESM category) contains a number of fields or subcategories (called second-order CESM categories) in which cognate programmes are grouped. Thus, the first-order CESM category called '07 Education' contains the following second-order CESM categories:

- 07.01 Foundations of Education
- 07.02 Educational Administration
- 07.03 Systems of Education
- 07.04 Teaching – Subject Matter
- 07.05 Teaching – Programmes
- 07.06 Teacher Training
- 07.07 Counselling and Guidance
- 07.08 Special Education Programmes
- 07.09 Community Education Programmes



- 07.10 Educational Development
- 07.11 Educational Evaluation and Research
- 07.12 Educational Technology and Media
- 07.99 Other Education

In turn, each second-order category includes a number of third-order categories (See Appendix B).

### **The relationship between CESM data and institutional curricula**

HEMIS provides information based on the CESM categories only and does not contain information on the actual curriculum of institutions. Whereas the qualification codes, course names and course codes are unique to each institution, the CESM categories are standard across the system. As a result, institutional uniqueness is hidden. Also it must be noted that the classification of unique programmes offered by each institution into CESM subject material categories is not an exact process, but involves exercising informed judgements regarding where to place courses or modules within CESM.

Until 2005, only technikons used generic qualifications, which were standardised across all of the technikons. Individual universities structure their own qualifications, which differ among institutions. Notably, from 2005, technikons were also able to structure their own qualifications.

### **CESM data and institutional data**

For this analysis, information was sourced from HEMIS according to CESM categories. The option of independently obtaining data from the institutions at the qualification level was not taken. The following conditions contributed to this decision:

- Some institutions kept their data in different formats before uploading them into the required HEMIS format. However, this information could not be used since it varied from institution to institution in how it was coded, captured and formatted, as this was designed to suit their own purposes.
- It could not be established whether information obtained directly from the faculties was more or less accurate than the data contained in the HEMIS CESM categories. In the end, the HEMIS database, on the basis of its being standardised and quality assured, was considered the best option.

The following links exist in the HEMIS database:

- CESM categories are directly linked to courses in the 'Course file' table.
- Courses are directly linked to qualifications in a separate table, 'Course registration file'.
- The field 'Course' in both tables mentioned here, creates an indirect link between CESM categories and qualifications.

### **The meaning of the numbers in CESM**

These data are based on the standard headcount numbers of student enrolment and graduation that higher education institutions submit to the Higher Education Directorate of the national DoE.

CESM categories include information on students enrolled in other programmes or qualifications who chose an education course as an elective. This information is included within the second-order CESM categories, which all fall under the first-

order CESM category of 'Education'. In other words, second-order Education CESM categories do not distinguish between students enrolled in education programmes and those students enrolled in other degree or diploma programmes with an education elective.

The enrolment data in the tables presented are based on 'fractional' enrolment and graduate counts. These fractional counts are calculated (as is done by the DoE for reporting purposes) by partitioning each student headcount and each graduate headcount in fractions across a maximum of four possible areas of study specialisation.

### **Post-graduate qualifications and qualifications not directed to professional certification**

The data that are discussed do include qualifications that are offered by education faculties – mainly at the postgraduate level – that are oriented towards raising the skills of the teaching corps through in-service or professional development and research opportunities. Since this group is numerically small, it is included in most of the analysis and disaggregated only when enrolment and graduations per qualification level are discussed.

## Appendix B List of CESMs for education study fields

07	EDUCATION
	Subject matter concerned with the science and practice of educating the generations towards maturity.
07.01	FOUNDATIONS OF EDUCATION
07.01 01	Educational Theory
07.01 02	Cultural Foundations
07.01 99	Other Foundations of Education (Specify)
07.02	EDUCATIONAL ADMINISTRATION
07.02 01	Principles and Theories of Educational Administration
07.02 02	Educational Facilities and Material
07.02 03	Educational Finance
07.02 04	Educational Leadership
07.02 05	Educational Management
07.02 06	Educational Organisation and Control
07.02 07	Educational Personnel and Staffing
07.02 08	Educational Planning
07.02 99	Other Educational Administration (Specify)
07.03	SYSTEMS OF EDUCATION
07.03 01	Pre-primary Education Systems
07.03 02	Primary Education Systems
07.03 03	Secondary Education Systems
07.03 04	Tertiary Education Systems
07.03 05	Vocational Technical Educational Systems
07.03 06	Private Education Systems
07.03 07	Adult – Continuing Education Systems
07.03 99	Other Systems of Education (Specify)
07.04	TEACHING – SUBJECT MATTER
07.04 01	Agriculture and Renewable Natural Resources
07.04 02	Architecture and Environmental Design
07.04 03	Arts, Visual and Performing
07.04 04	Business
07.04 05	Communication
07.04 06	Computer Science and Data Processing
07.04 07	Education
07.04 08	Engineering and Engineering Technology
07.04 09	Health Care and Health Sciences
07.04 10	Home Economics
07.04 11	Industrial Arts, Trades and Technology
07.04 12	Language, Linguistics and Literature
07.04 13	Law
07.04 14	Libraries and Museums
07.04 15	Life Sciences and Physical Sciences
07.04 16	Mathematical Sciences
07.04 17	Military Sciences
07.04 18	Philosophy, Religion and Theology

07.04 19	Physical Education, Health Education and Leisure
07.04 20	Psychology
07.04 21	Public Administration and Social Services
07.04 22	Social Sciences and Social Studies
07.04 99	Other Teaching and Subject Matter (Specify)
07.05	TEACHING – PROGRAMMES
07.05 01	Agriculture Occupation
07.05 02	Career Education
07.05 03	Co-operation Education
07.05 04	Distributive Education
07.05 05	Health Occupations
07.05 06	Home Economics Occupations
07.05 07	Office Occupations
07.05 08	Technical Education
07.05 09	Trade and Industrials Occupation
07.05 10	Reading and Language Arts Programmes
07.05 11	Bilingual Education Programmes
07.05 12	Extra-curricular Programmes
07.05 13	Driver Education Programmes
07.05 99	Other Teaching Programmes (Specify)
07.06	TEACHER TRAINING
07.07	COUNSELLING AND GUIDANCE
07.07 01	Principles and Theories of Counselling and Guidance
07.07 02	Academic Counselling and Guidance
07.07 03	Career Information and Counselling
07.07 04	Clinical Experience
07.07 05	Counselling Services
07.07 06	Group Processes and Procedures
07.07 07	Organisation and Administration of Counselling and Guidance
07.07 08	Professional Development
07.07 99	Other Counselling and Guidance (Specify)
07.08	SPECIAL EDUCATION PROGRAMMES
07.08 01	General Study of Special Education Programmes
07.08 02	Autistically Handicapped
07.08 03	Emotional Handicapped
07.08 04	Gifted and Talented
07.08 05	Aurally Handicapped
07.08 06	Crippled
07.08 07	Epileptic
07.08 08	Multiple Physically Handicapped
07.08 09	Neurologically Handicapped
07.08 10	Visually Handicapped
07.08 11	Mentally Handicapped
07.08 12	Speech Handicapped
07.08 99	Other Special Education Programmes (Specify)

07.09	COMMUNITY EDUCATION PROGRAMMES
07.09 01	Communication
07.09 02	Community Relations
07.09 03	Community Services and Activities
07.09 99	Other Community Services (Specify)
07.10	EDUCATIONAL DEVELOPEMNT
07.10 01	Experimentation and Innovation
07.10 02	Staff Development
07.10 03	Other Educational Development (Specify)
07.11	EDUCATIONAL EVALUATION AND RESEARCH
07.11 01	Planning and Design
07.11 02	Methodology
07.11 03	Educational Measurement
07.11 99	Other Educational Development (Specify)
07.12	EDUCATIONAL TECHNOLOGY AND MEDIA
07.12 01	Instructional Systems Design
07.12 02	Educational Media and Material Production
07.12 03	Television Applications to Education
07.12 99	Other Educational Technology and Media (Specify)
07.99	OTHER EDUCATION (SPECIFY)

## Appendix C Analysis of enrolment in education subfields, 1995–2004

This monograph has focused on the enrolment and graduation patterns of education students between 1995 and 2004 with reference to:

- institution type;
- population group;
- gender;
- provincial location;
- age;
- qualification level.

From an education planning perspective, and specifically from a 'teacher supply' point of view, the analysis has not touched on key characteristics of the qualifications with which students graduate. These are: in what sector of the education system the graduate is entitled to teach (for example, primary or secondary); what subject (learning area) expertise the graduate student brings to the disposal of schools; and what specialised skills the graduate has acquired (for example, special needs education, school guidance and counselling).

These are critical parameters, because they set limits to where new graduates can most effectively be deployed. For example, it is preferable to match a vacant teaching post in a primary school with a new graduate who has an appropriate primary school qualification (for example, Foundation Phase specialists in the primary school). Likewise, it is preferable to match a vacant secondary school mathematics post with a graduate who obtained a qualification that prepared her for secondary school teaching and who offers mathematics rather than biology as a teaching subject. Supply of newly qualified teachers ultimately must ideally be expressed at this level of detail.

Unfortunately, the HEMIS data set does not record data in such a way as to be useful in establishing numbers of graduates with particular school teaching specialisations. Firstly, the data in HEMIS is collected according to CESM categories, which refer to the study field as taught in the higher education system. They are not collected according to school subject or learning area. This means that details of the school subjects for which an education graduate has acquired teaching methodology skills cannot be obtained from this data.<sup>35</sup> For example, we cannot know from the HEMIS data what proportion of all education graduates took mathematics as an undergraduate subject or how many of these graduates studied mathematics teaching methodology as part of their professional qualification.

Second, the data in the HEMIS database are not configured to record enrolment or graduations as actual numbers of students or as 'headcounts'. The reason for this is that in the higher education funding system, institutions receive a subsidy from government per individual student. For each year within a study programme, a student will be required to complete a set combination of courses or modules leading to fulfilling the requirements for completion. These courses or modules will be offered in different units, departments or faculties. It is necessary to credit a department or faculty that offers a course or module attended by a student with a

<sup>35</sup> Nor can the subject in which the student majored be identified from the HEMIS data. This information must be obtained from the individual institutions or from the National Learner Record Database.

'share' of that student's subsidy amount. This is done by partitioning each student (who counts as one unit of subsidy) into fractions across a maximum of four possible areas of study choice (in other words, four quarters can be allocated between a maximum of four different study areas).

For example, if 20 students enrolled for a course in the field of 'Educational Administration' (CESM Category 07.02) and a quarter of each student's subsidy is accredited to the department or unit offering the course, then the HEMIS records would record five full-time equivalent (FTE) units. The total count within a CESM study field is not a headcount but a running total of all the fractions that indicate that a student has elected to do a particular course. At this level of disaggregation, FTE numbers do not reflect the actual numbers of students enrolling or graduating.

Therefore the data will not assist planners in establishing the gap between supply and demand for say, mathematics teachers. Other means must be sought to identify the proportions of graduates with scarce subject teaching specialisations by actual headcount.

Finally, the allocation of the subsidy values is made at the institution level. The method of allocating these fractions differs between each institution on the basis of the shape of the programme within each qualification. For instance the allocation of fractions will differ between compulsory and elective courses or modules. As a result, the way allocations are made will differ between institutions.

With these reservations in mind, let us now turn to the data. If we examine the HEMIS data over the decade in question, we see that the categories according to which the data were collected changed midway through the period. The CESM categories from 1995–1998 were based on education sectors (primary, secondary, higher, special and so on), whereas from 1999 onwards they were based on fields of study.

Table C.1 provides summarised graduate numbers for the years 1995–1998. The very large residual category 'all other education' may be taken to refer to all programmes that do not involve initial teacher training, but we cannot be sure that this assumption is correct. It is also not clear which students were grouped under the category 'tertiary'. The 'sector' approach was abandoned at the end of 1998, which severed data continuity. Very little can be inferred from this information without further investigation to establish how students were allocated to each sector.

*Table C.1 University and technikon graduates by CESM subfield, 1995–1998*

ROW CODE	CESM	1995	1996	1997	1998
701	a Pre-primary	65	230	229	114
702	b Primary	429	468	420	630
703	c Secondary	6 318	6 025	7 657	7 899
704	d Tertiary	6 389	7 280	3 689	3 690
705	e Special	207	191	195	87
706	f All other education	4 415	4 865	4 876	4 607
<b>Total</b>		<b>17 823</b>	<b>19 060</b>	<b>17 065</b>	<b>17 027</b>

In the period 1999–2004, CESM subject fields were employed to arrange graduate data. The data recorded have little to offer. First, the classification of subfields according to CESM is open to interpretation. Courses and modules are classified by subject field in each institution. This is based on the perceived emphasis in each course or module of a particular subject field. For instance, if students are registered for a module dealing with the history of educational administration this course could be allocated to ‘Foundations of Education’ or ‘Educational Administration’. This decision will be based on intra-institutional judgements about the weighting and emphasis within each module or course. As a result, the summarised data in HEMIS are limited in the extent to which they reveal the relative emphasis between various education fields of study (as they are categorised in the current CESM system).

The data difficulties noted above are relevant to the education graduate tables for universities and for technikons according to CESM. In the data shown in Table C.2, it appears that there was growing interest in specialisations such as ‘counseling and guidance’, ‘educational media and technology’ and ‘special education programmes’. However, analysis of these data can produce little value, for the reasons already given. Also, the large ‘other education’ residual category makes attempts at analysis highly uncertain. Sudden annual variations in the size of this category imply discontinuities in categorisation of graduates according to CESM. Such disjunctures render time-based analysis unproductive. These difficulties are indicative of both the university and the technikon data, though Table C.2 shows only the former category here as an example.

*Table C.2 Graduates in second-order CESM category/subfield in universities, 1995–2004*

CESM Description	1999	2000	2001	2002	2003	2004
07.01 Foundations of Education	1 303	1 355	1 240	1 265	2 106	2 843
07.02 Educational Administration	776	1 249	1 768	2 221	1 774	2 355
07.03 Systems of Education	945	1 828	1 076	1 173	1 273	1 904
07.04 Teaching – Subject Matter	3 416	5 069	4 905	4 034	4 871	4 373
07.05 Teaching – Programmes	226	153	128	80	738	472
07.06 Teacher Training	1 375	1 782	4 320	8 954	5 773	6 332
07.07 Counselling and Guidance	91	92	60	50	101	228
07.08 Special Education Programmes	238	229	304	1 009	1 038	1 185
07.09 Community Service	–	73	63	5	1	29
07.10 Educational Development	41	–	79	83	488	28
07.11 Educational Evaluation and Research	5	6	233	155	391	364
07.12 Educational Technology and Media	16	1	102	238	399	575
07.99 Other Education	8 345	4 186	7 352	2 228	3 164	4 020
<b>Total</b>	<b>16 777</b>	<b>16 021</b>	<b>21 628</b>	<b>21 494</b>	<b>22 116</b>	<b>24 707</b>

Finally, the data as they are expressed here do not differentiate between persons who graduate with initial teacher education qualifications and all other qualifications covering the education field. Although the graduate output of pre-service teachers recently qualified to teach in the primary and secondary sectors is a core concern, it is clear that the HEMIS data cannot address the information need.



## REFERENCES

- Andrews P & Hatch G (2002) Initial motivations of serving teachers of secondary mathematics. *Evaluation and Research in Education* 16(4): 185–201
- Arends F (2007) The employment status of teachers. Teacher Education Programme: Number 4. Draft report, HSRC
- Bacolod MP (2002) *Do alternative opportunities matter? The role of female labour markets in the decline of teacher supply and teacher quality, 1940–1990*. Department of Economics, University of California, Irvine. Accessed: <http://www.econ.uci.edu/paper/2002-03/Bacolod-02.pdf>
- Ballou D & Podgursky M (1997) *Teacher pay and teacher quality*. Kalamazoo, Michigan: W. E. Upjohn Institute
- Bennell P (2003) The AIDS epidemic in sub-Saharan Africa: Are teachers a high-risk group? *Comparative Education* 39(4): 493–508
- Bennell P (2005a) The impact of the AIDS epidemic on teachers in sub-Saharan Africa. *Journal of Development Studies* 41(3): 440–466
- Bennell P (2005b) The impact of the AIDS epidemic on the schooling of orphans and other directly affected children in sub-Saharan Africa. *Journal of Development Studies* 41(3): 467–488
- Bertram C, Appleton S, Muthukrishna N & Wedekind V (2006) The career plans of newly qualified South African teachers. *South African Journal of Education* 26(1): 1–13
- Billingsley S (1993) Teacher retention and attrition in special and general education: A critical review of the literature. *Journal of Special Education* 27(2): 137–174
- Bishay A (1996) Teacher motivation and job satisfaction: A study employing the experience sampling method. *Journal of Undergraduate Science* 3: 147–154
- Boyd D, Lankford H, Loeb S & Wyckoff J (2003) The draw of home: How teachers' preferences for proximity disadvantage urban schools. NBER Working Paper No. 9952
- CEA, CEPD, EFT, HSRC & SAIDE (2005) Teacher education in South Africa. Proposal for a research and development programme to be conducted by a consortium comprising: Centre for Education Policy Development (CEPD); Centre for Evaluation and Assessment (CEA), University of Pretoria; Education Foundation Trust (EFT); Human Sciences Research Council (HSRC); and South African Institute for Distance Education (SAIDE). Funding proposal submitted to the Royal Netherlands Embassy
- Chapman D (1983) A model of the influences of teacher retention. *Journal of Teacher Education* 34(5): 34–49
- Cliget R & Foster P (1966) *The fortunate few. A study of secondary schools students in the Ivory Coast*. Evanston, IL: Northwestern University Press
- Coombe C (2004) Confronting the impact of HIV and AIDS: The consequences of the pandemic for education supply, demand and quality. A global review from a Southern African perspective. *Policy Futures in Education* 2(1): 102–140
- Cosser M (2009) *Studying Ambitions: Pathways from Grade 12 and the factors that shape them*. Cape Town: HSRC Press
- Cosser M, Du Toit J & Visser M (2002) *From school to higher education? Factors affecting the choices of Grade 12 learners*. Cape Town: HSRC Press

- Cosser M, Du Toit J & Visser M (2004) *Settling for less: Student aspirations and higher education realities*. Cape Town: HSRC Press
- Crouch L (2001) *Turbulence or orderly change? Teacher supply and demand in the age of AIDS*. RTI International. Accessed 19 January 2007, <http://www.rti.org/pubs/turbulence.pdf>
- Crouch L & Lewin KM (2003) Turbulence or orderly change? Teacher supply and demand in South Africa: Current status, future needs, and the impact of HIV/AIDS. In KM Lewin, M Samuel & Y Sayed (Eds) (2003) *Changing patterns of teacher education in South Africa. Policy, practice and prospects*. Cape Town: Heinemann
- Crouch L & Perry H (2003) Educators. In HSRC *Human resources development review 2003: Education, employment and skills in South Africa*. Cape Town: HSRC Press
- Darling-Hammond L (2003) Keeping good teachers: Why it matters what leaders can do *Education Leadership* 60(8): 6–13
- Dawis RV (1991) Vocational interests, values and preferences. In MD Dunnette & LM Hough (Eds) *Handbook of Industrial and Organisational Psychology*. Palo Alto, California: Consulting Psychology Press
- DoE (Department of Education, South Africa) (2005a) *Student enrolment planning in public higher education*. Pretoria: DoE
- DoE (2005b) *Report of the Ministerial Committee on Teacher Education*. Pretoria: DoE
- DoE (2005c) *Information on the state budget for higher education*. Accessed 15 January 2007, <http://www.education.gov.za/dynamic/dynamic.aspx?pageid=326&dirid=12>
- DoE (2006a) *National policy framework for teacher education and development in South Africa*. Pretoria: DoE
- Dolton PJ, Makepeace GH & Van der Klaauw W (1989) Occupational choice and earnings determination: The role of sample selection and non-pecuniary factors. *Oxford Economic Papers* 41(3): 573–594
- Ellis RA & Herrman MA (1983) Three dimensions of occupational choice: A research note on measuring the career intentions of college women. *Social Forces* 61(3): 893–903
- Foster P (1965) *Education and social change in Ghana*. Chicago: Chicago University Press
- Hall E, Altman M, Nkomo N, Peltzer K & Zuma K (2005) *Potential attrition in education: The impact of job satisfaction, morale, workload and HIV/AIDS*. Cape Town: HSRC Press
- Hammond M (2002) Why teach? A case study investigating the decision to train to teach ICT. *Journal of Education for Teaching* 28(2): 135–148
- Henke RR, Chen X & Geis S (2000) *Progress through the teacher pipeline: 1992–93 college graduates and elementary/secondary school teaching as of 1997*. Washington, DC: National Center for Education Statistics
- Hogan R, Hogan J & Roberts BW (1996) Personality measurement and employment decisions: Questions and answers. *American Psychologist* 51(5): 469–477
- Hovatter GA (2002) Impact of student teaching experiences, personal demographics, and selected factors on the decisions of pre-service agricultural education teachers to enter into teaching. MSc thesis, Davis College of Agriculture, Forestry and Consumer Sciences, West Virginia University, Morgantown West Virginia. Accessed 16 January 2007, [http://kitkat.wvu.edu:8080/files/2341/Hovatter\\_Gene\\_thesis.pdf](http://kitkat.wvu.edu:8080/files/2341/Hovatter_Gene_thesis.pdf)

- Ingersoll RM (1999) Teacher turnover, teacher shortages and the organization of schools. University of Washington, Centre for the Study of Teaching and Policy. Accessed 16 January 2007, <http://depts.washington.edu/ctpmail/PDFs/Turnover-Ing01-2001.pdf>
- Ingersoll RM (2001) Teacher turnover and teacher shortages: An organizational analysis. *American Educational Research Journal* 38(3): 499–534
- Ingersoll RM (2003) Is there really a teacher shortage? Research report co-sponsored by the Center for the Study of Teaching and Policy and the Consortium for Policy Research in Education, Washington, DC: Center for the Study of Teaching and Policy, University of Washington
- Ingersoll RM & Smith TS (2003) The wrong solution to the teacher shortage. *Educational Leadership* 60(8): 30–33
- Jaff R, Rice M, Hofmeyr J & Hall G (1996) The national teacher education audit: The Colleges of Education Report for the Department of Education funded by the Danish International Development Agency. Johannesburg: EDUPOL, National Business Initiative
- Jansen JD (Ed.) (2002) *Mergers in higher education: Lessons learned in transitional contexts*. Pretoria: UNISA Press
- Jarvis J & Woodrow D (2005) Reasons for choosing a teacher training course. *Research in Education* 73(May): 29–35
- Johnson SM & Birkeland SE (2002) Pursuing ‘a sense of success’: New teachers explain their career decisions. Project on the Next Generation of Teachers, Harvard Graduate School of Education. Accessed 18 January 2007, [http://www.gse.harvard.edu/~ngt/Johnson\\_Birkeland\\_Oct\\_2002.pdf](http://www.gse.harvard.edu/~ngt/Johnson_Birkeland_Oct_2002.pdf)
- Katz, FE & Martin HW (1962) Career choice processes. *Social Forces* 41(2): 149–154
- Kennedy M (1992) The problem of improving teacher quality while balancing supply and demand. In D Guildford & E Boe (Eds) *Teacher supply, demand and quality*. Washington, DC: National Academy of the Sciences
- Kinghorn A & Kelly MJ (2005) The impact of the AIDS epidemic. Articles by Paul Bennell: Some comments. *Journal of Development Studies* 41(2): 489–499
- Kirby SN, Berends M & Naftel S (1999) Supply and demand of minority teachers in Texas: Problems and prospects. *Educational Evaluations and Policy Analysis* 21(1): 47–66
- Klingelhofer EL (1967) Occupational preferences of Tanzanian secondary school pupils. *Journal of Social Psychology* 72(2): 149–159
- Kruss G (2007) Patterns of student enrolment. Unpublished manuscript
- Kruss G (2008) The challenges of curriculum restructuring in context: 1994–2007. In G Kruss (Ed.) *Opportunities and challenges for teacher education curriculum in South Africa*. Cape Town: HSRC Press
- Kyriacou C & Sutcliffe J (1979) Teacher stress and satisfaction. *Educational Research* 21(2): 89–96
- Kyriacou C, Haltgreen A, & Stephens P (1999) Student teacher’s motivation to become a secondary school teacher in England and Norway. *Teacher Development* 3(3): 373–381
- Kyriacou C, & Coulthard M (2000) Undergraduate views of teaching as a career choice. *Journal of Education for Teaching* 26(2): 117–126

- Leach D (1984) A model of teacher stress and its implications for management. *Journal of Educational Administration* 12(2): 157–172
- Liu E, Kardos SM, Kaufmann D, Peske HG & Johnson SM (2000) Barely breaking even: Incentives, rewards, and the high costs of choosing to teach. Research paper for Project on the Next Generation of Teachers, Harvard Graduate School of Education. Accessed 17 January 2007, <http://www.gse.harvard.edu/~ngt/Barely%20Breaking%20Even%200700.pdf>
- Lortie D (1975) *School-teacher: A sociological study*. Chicago: University of Chicago Press
- Macdonald D (1999) Teacher attrition: A review of the literature. *Teaching and Teacher Education* 15(8): 835–848
- Marso RN & Pigge FL (1997) A longitudinal study of persisting and non-persisting teachers' academic and personal characteristics. *Journal of Experimental Education* 65(3): 243–254
- Mobile Task Team (2003) *HIV/AIDS and education in KwaZulu-Natal: A pilot study of educator mortality*. Durban: HEARD, University of Natal
- Morales CA (1994) Education majors: Why teaching as a career? *Education* 114(3): 340–342
- Moran A, Kilpatrick R, Abbott L, Dallat J & McClune B (2001) Training to teach: Motivating factors and implications for recruitment. *Evaluation and Research in Education* 15(1): 17–32
- Morrow W (2006) Teacher supply for the schooling system in South Africa, 2006. Unpublished document made available to the authors
- Mulholland J & Hansen P (2003) Men who become primary school teachers: an early portrait. *Asia-Pacific Journal of Teacher Education* 31(3): 213–224
- Murnane R, Singer JD, Willett JB, Kemple JJ & Olsen RJ (1991) *Who will teach? Policies that matter*. Cambridge, Massachusetts: Harvard University Press
- Omari IM (n.d.) Educational expansion and the pattern of occupational choices of university students in Tanzania. *Utafiti* 167–188. Accessed 19 January 2007, <http://digital.lib.msu.edu/projects/africanjournals/pdfs/Utafiti/vol1no2/aejp001002004.pdf>
- Pandor N (2007) Address by the then Minister of Education, Naledi Pandor, MP at the teacher recruitment campaign, University of Limpopo, 26 March 2007. Accessed 26 April 2007, <http://www.education.gov.za/dynamic/dynamic.aspx?pageid=306&id=2541>
- Paolillo JGP & Estes RW (1982) An empirical analysis of career choice factors among accountants, attorneys, engineers and physicians. *Accounting Review* 57(4): 785–793
- Park T (2006) Teaching as a career choice: Attractors and deterrents identified by Grade 11 learners. *South African Journal of Education* 26(1): 143–156
- Parker B (2002) Roles and responsibilities, institutional landscapes and curriculum mindscapes: A partial view of teacher education policy in South Africa: 1990 to 2000. In K Lewin, M Samuel, & Y Sayed (Eds) *Changing patterns of teacher education in South Africa: Policy, practice and prospects*. Cape Town: Heinemann
- Parliamentary Monitoring Group (2007) Education Portfolio Committee, 17 February 2007 National Policy Framework for Teacher Education Development: Report-back by department. Accessed 26 April 2007, <http://www.pmg.org.za/viewminute.php?id=8709>

- Paterson A (1992) Contest and co-option: The struggle for schooling in the African independent churches of the Cape Colony: 1895–1920. PhD thesis, University of Cape Town
- Paterson A, Earle N, Arends F, Visser M & Moila B (2005) A study on graduate outputs for agricultural qualification in SAQA accredited higher education institutions over a ten-year period. Department of Agriculture, Pretoria
- Pavalko RM (1970) Recruitment to teaching: Patterns of selection and retention. *Sociology of Education* 45(Summer): 340–355
- Peltzer K, Shisana O, Udjo E, Wilson D, Rehle T et al. (2005) *Educator supply and demand in the South African public education system: Integrated report*. Cape Town: HSRC Press
- Phurutse MC (2005) *Factors affecting teaching and learning in South African public schools*. Cape Town: HSRC Press
- Priyadharshini E & Robinson-Pant A (2003) The attractions of teaching: An investigation into why people change careers to teach. *Journal of Education for Teaching* 29(2): 95–111
- Rehle T & Shisana O (2005) *The impact of antiretroviral treatment on AIDS mortality: A study focusing on educators in South African public schools*. Cape Town: HSRC Press
- Rehle T, Shisana O, Glencross D & Colvin M (2005) *HIV-positive educators in South African public schools*. Cape Town: HSRC Press
- Reid I & Caudwell J (1997) Why did secondary PGCE students choose teaching as a career? *Research in Education* 58(November): 46–58
- Ross A & Hutchings M (2003) *Attracting, developing and retaining effective teachers in the United Kingdom of Great Britain and Northern Ireland*. OECD Country Background Report Institute for Policy Studies in Education, London Metropolitan University. Accessed 19 January 2007, <http://www.oecd.org/dataoecd/62/25/2635748.pdf>
- Shisana O, Peltzer K, Zungu-Dirwayi N & Louw J (eds) (2005) *The health of our educators: A focus on HIV/AIDS in South African schools*. Cape Town: HSRC Press
- Stinebrickner TR, Scafidi B & Sjoquist DL (2004) Do teachers really leave for higher paying jobs in alternative occupations? Andrew Young School of Policy Studies Research Paper, Series No. 06–50. Accessed 12 January 2007, <http://ssrn.com/abstract=902027>
- Stuart VB (2000) Reasons for selecting a teaching career and remaining in the profession: A conversation with ten African American Roanoke City teachers. D.Ed dissertation, Virginia Polytechnic Institute and State University
- Subotsky G (2003) Private higher education and training. In HSRC *Human resources development review 2003*. Pretoria: HSRC
- Tusin LF (1999) Deciding to teach. In RP Lipka & TM Brinthaupt (Eds) *The role of the self in teacher development*. Albany, New York: State University of New York Press
- Tyobeka P (2007) NPFTED report-back to Portfolio Committee on Education, 27 February 2007. Accessed 24 April 2007, <http://www.pmg.org.za/docs/2007/070227npfted.ppt>
- Unwin T (1990) The attitudes of final year geography undergraduates to teaching as a career. *Geography* 75(30): 227–237

- Vinjevold P (2001) Initial and in-service teacher education: Skills training in relation to national needs and interests. Commissioned by the ETDP SETA. Pretoria: HSRC and JET Education Services
- Waller W (1965) *The sociology of teaching*. New York: Wiley
- Weiss EM (1999) Perceived workplace conditions and first-year teachers' morale, career choice commitment, and planned retention: a secondary analysis. *Teaching and Teacher Education* 15(8): 861–879
- Welch T & Gultig J (2002) Being competent: Initiatives for the improvement of teacher education in South Africa 1995–2002. Paper presented to Pan-Commonwealth Conference, July 2002
- Werts CE (1967) Career choice patterns. *Sociology of Education*. 40(4): 348–358



