CAPE TOWN GLOBAL COMPETITIVENESS PROJECT

Education, training and skills development in the Cape Town City Region: Background Paper

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Abbreviations

CHEC	Cape Higher Education Consortium
COFISA	Cooperation Framework on Innovation Systems between Finland and South Africa
CPUT	Cape Peninsula University of Technology
DoE	Department of Education
EMIS	Education Management Information System
FET	Further Education and Training
HEMIS	Higher Education Management Information System
NATED	National Technical Education
NCV	National Curriculum Vocational
NQF	National Qualification Framework
NSDS	National Skills Development Strategy
OECD	Organisation for Economic Cooperation and Development
SETA	Sectoral Education and Training Authority
UCT	University of Cape Town
US	University of Stellenbosch
UWC	University of Western Cape
WCED	Western Cape Education Department

Executive Summary

Introduction

Skills and human resources are critical drivers of global competitiveness, and a key aspect of locational advantage. Research to date has stressed the extent to which the Western Cape's human resource and knowledge capabilities contribute to its comparative advantage nationally (Kaplan et al 2009). However, the lack of appropriate skills in the Cape Town City Region, as in the province and nationally, is a major constraint on the labour market that potentially threatens global competitiveness, and this is mainly the result of the poor performance of the education system (OECD 2008). Moreover, growing income inequality nationally is linked to rising wage inequality – which, given the nature of the current growth trajectory, is linked to low levels of education and skills (Bhorat et al 2009). Education, training and skills development are an increasingly important focus in national economic growth strategies.

Understanding the capacity and performance of the education system is thus significant in the process of developing a strategy to position Cape Town to be a globally competitive city, in a way that promotes sustainable and inclusive growth.

This background report provides an overview of current conditions, capacity and performance on the education and training supply side in the Cape Town City Region, as distinct from and in relation to provincial and national trends. The Cape Town City Region covers seven municipalities centred on the City of Cape Town, including Saldanha Bay, Swartland, Drakenstein, Stellenbosch, Theewaterskloof and Overstrand local municipalities.

The report provides a detailed descriptive analysis of trends at three education and training and skills development levels: the schooling foundation, intermediate level provision and higher education. Its purpose is to feed into and inform analysis in Workstreams 1:4 (Locational advantage), 2 (Benchmarking) and 5 (SWOT Analysis).

It draws on national education and skill datasets to extract trends at the city region level, a task that has not been undertaken systematically. The quality and coverage of the available data is limited, particularly when drilled down to the level of the city region. Hence, the analysis focuses on overall enrolments and completions, as well as demographic trends and where possible disciplinary field or sectoral trends, at each of the three levels of the education and training system.

It is apparent that while the Cape Town City Region performs well relative to the Western Cape provincial and national trends, there are significant gaps in provision, concerns about equity of access and outcomes, and concerns about the scale and quality of the skills and qualifications produced, that impact on global competitiveness.

Section 1. National advantage but declining quality of literacy and numeracy

The City Region represents 80% of the province's schools and total enrolments, which have grown over the past decade. Relative to the national trend, only a small proportion of schools are classified as 'no-fee' schools, those based in communities with the highest levels of poverty that receive the highest proportion of state funding per capita. Formal access to schools is generally not a problem, with 97% of children aged 7 to 15 years old enrolled. Throughput and retention problems are evident at two points – Grade R, with very low enrolments; and a sharp drop in enrolments after Grade 10, so that the potential pool of matriculants is small, approximately 38 000 per year, as opposed to approximately 100 000 pupils enrolled in each of the lower grades.

Although the general trend is that schools in the City Region perform well relative to national trends, the quality of schooling, of the learning and skills provided, is inadequate in comparison with international peers, both in developed and developing economies. Declining and racially differentiated performance at Grade 12 – and hence the pool of applicants eligible for intermediate and high level qualifications in the tertiary education and training sector - is a challenge. The progressive decline over the last 10 years is not likely to be arrested in the short term, given deep-rooted problems in primary schooling, evident in the declining quality of basic numeracy and literacy skills. Analysis of indicators of performance suggests that racial inequalities and disparities have widened over the past few years. While the majority of young people may be in school, the problem lies in what does not happen while they are there. This is a major constraint on laying the foundations for an educated citizenry and for skills development in the City Region.

Section 2. A lack of progression and articulation: skilling at the intermediate level

A critical problem in South Africa is the absence of a coherent and credible post-school system that offers a wide range of education and training opportunities to young people that will equip them to enter the labour market. The 'system' is typically described as an inverted pyramid, with more young people in higher education than in other forms of vocational and occupationally related education and training, in contrast to international trends. The situation in the Cape Town City Region does not differ significantly from the national, with a major gap in provision at the intermediate skills level.

The learnership system aims to provide a recognized occupational qualification achieved through structured institutional learning and applied competence developed through workplace experiential learning.

At present, the learnership system does not have a significant impact on the supply of skills at the intermediate level to firms in priority sectors in the City Region. The learnership system in the City Region caters for approximately 3 400 participants per year, primarily unemployed Coloured youth, with a higher participation of young women than is the case nationally. Similar to the national trend, the majority, 64%, enters the learnership programme already holding a matric qualification, and enrolls at a *lower* NQF

level in order to enhance opportunities for employment, evidence of the lack of opportunities for progression to occupationally related qualifications. These 'zig-zag' pathways point to systemic gaps and has significant resource implications for individuals and the education and training system.

Analysis shows that only three or four SETAs are providing education and training opportunities on any significant scale in the City Region. The learnership system in Cape Town does not contribute significantly to righting the 'inverted pyramid'. It does not provide opportunities for many young school-leavers to advance to high level skills training, and the opportunities for intermediate level skilling (Level 4) are limited – although clearly, the learnership qualification can increase the chances of employment for individuals. The system could however, support skills upgrading in firms, and improve the life chances of individuals, if it were expanded on a larger scale and with more credible education and training opportunities.

Relative to national trends, the City Region has a strong set of five public FET institutions that display good performance, adequate infrastructure, stable leadership and emergent responsiveness to the labour market. Total enrolments were steady in 2007 and 2008, and grew in 2009, so that annually, a sizable cohort of almost 39 000 students are enrolling in the five colleges.

Significant shifts in the programme offerings and hence, the mission and focus of FET colleges have taken place over the past three to four years. Traditional National Technical Education (NATED) programmes are being phased out in favour of a new National Curriculum Vocational (NCV), which terminates at NQF Level 4, promoted as an alternative vocational route to a school leaving qualification. A major motivation has been that the NATED programmes are outdated and have not kept pace with occupational, technical and skills changes in a knowledge economy.

The colleges primarily cater for coloured and African students, with a virtually equal number of male and female students, and the age profile of enrolments is shifting towards a younger age group, between 15 to 19 years old. An encouraging trend is that the majority of enrolments at the FET colleges remain related to engineering. However, the pass rates on the new NCV have been very low, leading to high levels of dissatisfaction from employers, students and government departments. The colleges need to grow significantly and improve the quality of their programmes, if they are to have greater impact – but the funding, governance and curriculum policy challenges they face may constrain their contribution.

Section 3. Higher education, firms and global competitiveness

The higher education sector in the Cape Town City Region is typically regarded as a locational asset that represents significant potential capacity for high skills development and research to support technological upgrading and global competitiveness. After a period of stagnation, there was steady growth in enrollments between 2000 and 2008 to a total of 91 800 students in 2008. Considering that the schools in the City Region

produced some 27 000 matriculants in 2008, of whom about a quarter passed with university exemption, it is clear these are national institutions serving a wider reach than the City Region or the province.

The four universities perform very well relative to their institutional type nationally – whether research university or university of technology. However, performance of the universities in relation to the high level skills graduates required for key sectors is evidently not sufficient. The extent of linkages and networks between firms and universities in the City Region is still embryonic; although there are new strategic processes intended to facilitate stronger interaction. The potential for expansion and deepening of these initiatives is significant.

Conclusion: Interventions at the Cape Town City Region level

The public post-schooling system in the city region in 2008 provided learning opportunities for approximately 130 000 young people, which amounts to 36.5 % of young people aged 20-24 years. Most opportunity lies in higher education, with a sizable public FET sector.

Table 1: Summary of post-schooling enrolments in the Cape Town City Region

	Enrolment		**Completion**		
Higher Education total 2008	91 800	25.40%	21 500	6%	
FET college total 2008	36 482	10.10%	Not available		
Learnership total 2007	3 357	0.90%	2 397	0.70%	
Total 20-24 years		**36.50%**			**360 386**

Source: compiled by authors

Under the right conditions, these institutions have the capacity to provide a distinct locational advantage. Problems of racially skewed and low participation rates, low enrolment in critical fields, poor quality programmes, attrition and low completion or graduation rates may limit this advantage. Hence, firms experience skills shortages and potential constraints on global competitiveness.

Schooling, further and higher education and skills development are national and provincial competences. There are many initiatives currently driven by government departments, individual institutions, the private sector and other intermediary agencies to address the problems of education quality and unequal performance at all levels.

The policy challenge is to identify where Cape Town can intervene within the ambit of its own local level powers, with maximum impact.

There are at least four broad areas for possible intervention at city region level that can complement or coordinate more effectively existing national and provincial provision and initiatives:

1. Coordinated private and public sector interventions to improve the quality of literacy and numeracy at the schooling level
2. Interventions to promote firm involvement in learnership and apprenticeship programmes at the intermediate and high skills levels in key economic sectors, so that their quality, credibility and coverage can be extended
3. Interventions to promote linkages between FET colleges, firms and local government to support skills programmes and promote the quality and credibility of core programme offerings
4. Interventions to strengthen emergent linkages and collaboration between higher education institutions, firms, communities and local government.

However, resources are finite, and the time frames required to realise many of these interventions are long. The challenge is to prioritise and identify a set of interventions that will yield the maximum return on investment in the shortest possible time. There is a tension between interventions that aim to improve education and training across the board at schooling, intermediate or high skills levels, or in contrast, investments in education and training strategies that support smart specializations and emergent sectoral strengths, to make them more sustainable and effective.

A wide-scale policy debate is required in order to prioritise a combination and balance of horizontal and vertical interventions to address the skills development challenges within the Cape Town City Region.

Introduction

Skills and human resources are critical drivers of global competitiveness, and a key aspect of locational advantage. Research to date in the Western Cape has stressed the extent to which human capital and knowledge capabilities contribute to its comparative advantage nationally (Kaplan et al 2009). The critical question is typically how skills development provides a basis to accelerate industrial development and labour absorbing pro-poor economic growth. However, the lack of appropriate skills in the Cape Town city region, as in the province and nationally, is a major constraint on the labour market that potentially threatens global competitiveness, and this is the result of the poor performance of the education system (OECD 2008). Moreover, growing income inequality nationally is linked to rising wage inequality – which, given the nature of the current growth trajectory, is linked to low levels of education and skills (Bhorat et al 2009).

Understanding the capacity and performance of the education system is thus significant in the process of developing a strategy to position the Cape Town City Region as globally competitive in a way that promotes sustainable and inclusive growth.

This background report provides an overview of current conditions, capacity and performance on the supply side in the Cape Town City Region, as distinct from and in relation to provincial and national trends. The Cape Town City Region covers seven municipalities centred on the City of Cape Town, including Saldanha Bay, Swartland, Drakenstein, Stellenbosch, Theewaterskloof and Overstrand local municipalities.

The report provides a detailed descriptive analysis of trends at three education and training and skills development levels: the schooling foundation, intermediate level provision and higher education.

The main methodology used was to extract and construct datasets for the Cape Town City Region specifically, from two main sources: national Education Management Information System (EMIS) and Higher Education Management Information System (HEMIS) datasets; and HSRC survey datasets. The methodological challenge was to provide up-to-date data trends drilled down to the city region level. Given limitations in the quality and coverage of the available data in South Africa, the analysis focuses on overall enrolments and completions, as well as demographic trends and where possible, disciplinary field or sectoral trends. More detailed comparative statistics or more complex analysis of the dynamics of supply and demand was constrained by the lack of publicly available data at the level of detail required.

The report will feed into and inform analysis in Workstreams 1:4 (Locational advantage), 2 (Benchmarking) and 5 (SWOT Analysis). The datasets will also to be used in the benchmarking exercise, where more systematic comparison with international trends will be drawn.

Section 1 examines the extent to which the schooling system in the Cape Town City Region lays a sound basis for an educated citizenry and for skills development. It demonstrates that declining and racially differentiated performance is a challenge. Section 2 examines the gaps in provision and linkages at the intermediate skills level, through public Further Education and Training colleges and through the Learnership system. Section 3 focuses on the high skills level, at the strengths offered by the four institutions in the higher education sector, but the need to increase participation, efficiency and diffuse emergent good practices more widely. Section 4 outlines four broad possible areas of intervention to address challenges of education and skills development at the Cape Town City Region level. A city competitiveness strategy will need to determine how the highest returns on investment and time available may be achieved: whether through promoting education improvement across the board at all levels, or to support a few strategic strengths and smart specialisations.

SECTION 1. National advantage but declining quality of literacy and numeracy

The problems of schooling in South Africa are well-documented, with widespread national concern at the intractability of improving the quality of schooling despite a high proportion of national expenditure. There is nevertheless value to consider trends and patterns specific to the Cape Town City region. What are the levels of performance in Cape Town, and in what ways are problems of schooling likely to be constraints on global competitiveness?

This section draws on an EMIS 2008 dataset extracted for the schools within the Cape Town City Region specifically. In relation to some issues, it was not possible to disaggregate data down to the City Region level, and hence, it was necessary to rely on secondary sources to supplement the data analysis.

The provision of schooling in the Cape Town City Region

A high proportion of schooling in the Western Cape Province takes place within the boundaries of the Cape Town City Region. In 2008, the City Region represented 80% of the province's 1 208 public and independent schools, and 81% of total enrolment in the province (Table 1). The remaining 19% of pupils in the province are schooled in rural areas, aside from the concentration around George. We can propose that much of what has been written about schooling in the province will apply to Cape Town.

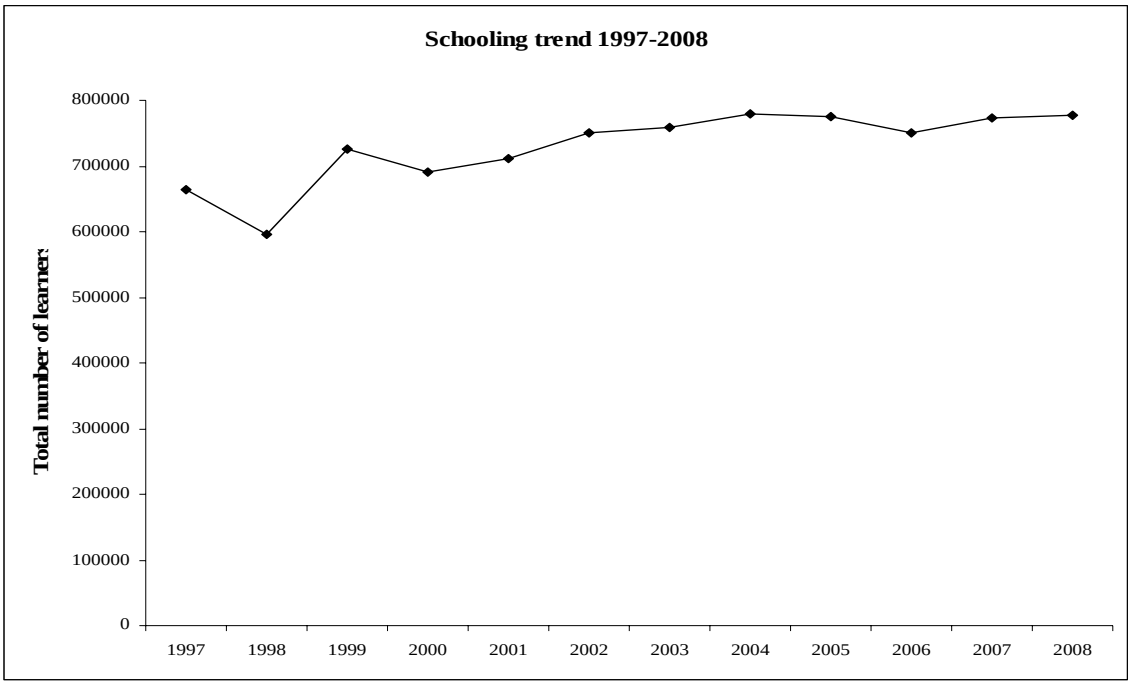
Table 2: Cape Town City Region schooling relative to province and national 2008

	Cape Town City Region	**Western Cape Province**	**South Africa**
Total schools	1 208	1 550	25 875
CTC region share		80%	4.6%
Public schools	1 062		
Independent schools	146		
Total learners enrolled in public schools	777 471	962 008	12 239 363
CTC region share		81%	6.4%
Primary learners in public schools	496 820	589 693	723 1660
CTC region share		84%	7%
Secondary learners in public schools	280 651	338 753	440 3754
CTC region share		82%	6.4%

Source: Compiled from HEMIS

The total school enrolment in the Cape Town City Region has remained stable over the past decade, but there is a large young population of school going age in the city region (Figure 1).

Figure 1: Cape Town City Region school enrolment 1997 to 2008



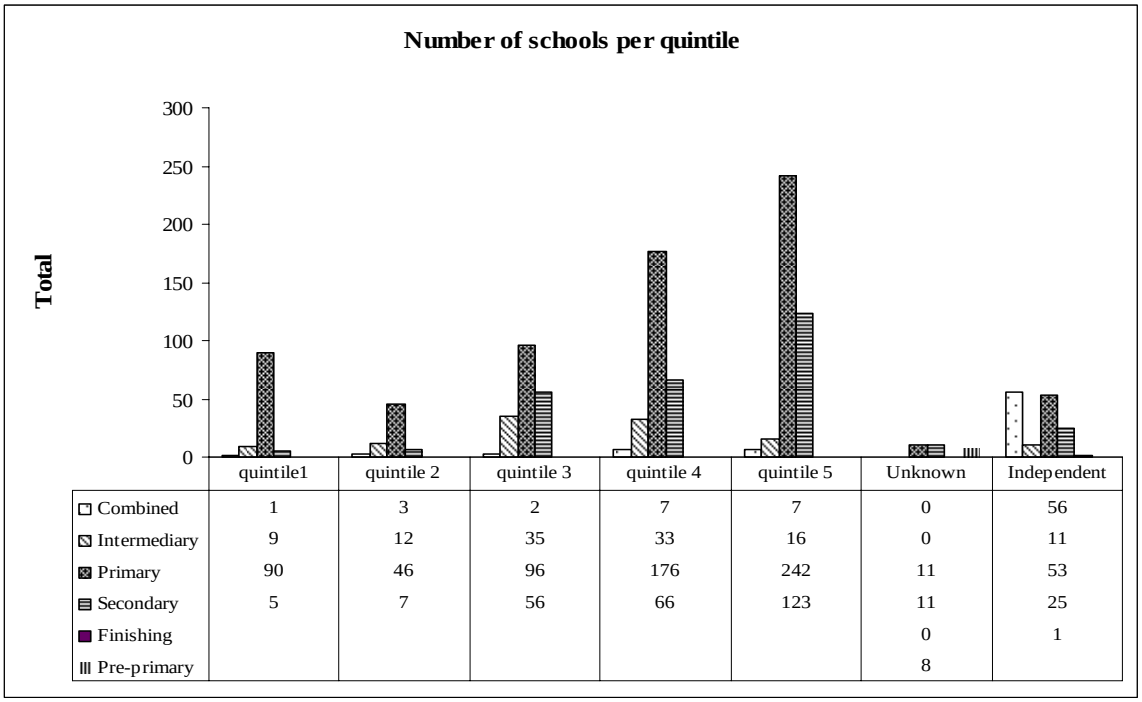
Source: compiled from HEMIS

A majority of schools in the City Region in 2008, 65%, were categorized as 'least poor' schools (poverty quintiles 4 and 5). These are the schools that receive the lowest proportion of state funding per capita, as parents are deemed to have sufficient resources to pay school fees (Figure 2). There is a small independent school sector which consists primarily of well-resourced, high performing private schools.

The majority of quintile 1 schools, the schools located in areas with the highest poverty that receive the highest proportion of state funding per capita, are located within the metropolitan municipality, with only five schools located in the other municipal areas. This distribution reflects the fact that a high proportion of the poor in the Western Cape province are located in Cape Town.

The state has made a commitment to create 'no-fee' schools in the lowest 40% of schools nationally. The province had 9.5% of learners enrolled in quintile 1 schools in 2008, the lowest proportion nationally. Only 28% of schools in the Western Cape were no-fee schools in 2008 (SAIRR 2009), although there are plans to increase this to 40% of schools in the province by 2010 in order to provide more support (Grant 2010).

Figure 2: Cape Town City Region schools per quintile 2008



	quintile1	quintile 2	quintile 3	quintile 4	quintile 5	Unknown	Independent
Combined	1	3	2	7	7	0	56
Intermediary	9	12	35	33	16	0	11
Primary	90	46	96	176	242	11	53
Secondary	5	7	56	66	123	11	25
Finishing						0	1
Pre-primary						8	

Source: HEMIS

Formal access to schools is generally not a problem. In the Western Cape, 97% of children aged 7 to 15 years old are enrolled in schools, as are 91% of 7 to 18 year olds. However, this proportion of 7 to 18 year olds enrolled in school is below the national average of 94.3% (DoE 2010), a sign of a problem of throughput and retention in the schooling system.

If we consider enrolment by grade for 2008, we can identify two critical points (Table 2). At the beginning of the school cycle, there are not yet sufficient enrolments in Grade R, in line with state policy to build the pre-primary education phase. Grade R is critical to develop core cognitive and learning developmental foundations amongst the majority of children.

Table 3: Cape Town City Region school enrolment per grade 2008

	R	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
CT	27030	73744	67014	64576	68768	70433	63410	61845	58554	60784	67845	55106	38272
WP	30627	91327	84882	80835	87157	88377	79631	77484	71669	74808	81310	65979	44987
SA	543799	1122114	1031821	1017656	1050860	1043012	1001852	964345	928603	902656	1076527	902752	595216

Source: HEMIS

Provision of access to Grade R is being phased in nationally, but a low 3.5% of all enrolments in the Cape Town City Region schools are in Grade R, which is below the national average of 4.5%, and only slightly above the provincial average of 3.2% (and relative to the 9.5% of enrolments in Grade 1).

At the end of the school cycle, the number of pupils enrolled in Grade 12, who form the potential pool of matriculants, is small in the City Region, just over 38 000 in a single year, relative to the approximately 74 000 who begin their schooling, and representing only 4.9% of total enrolments. Many young people do not perceive value in remaining at school, although a matric qualification increases the chances of finding employment and accessing the labour market. The Western Cape in general has a long term trend to a drop in enrolments after Grade 10, with an increase in the 'drop-out' rate over time, and further evidence of a high repetition rate and the presence of over age learners in the secondary school system particularly (Arends 2005).

Declining quality and performance

Poor retention in the schooling system since 2000 is an indication of problems in the quality of schooling in the City Region and the province. Although the general trend is that the City Region and the province perform well relative to national trends, the quality of schooling is inadequate in comparison with international peers – and of major concern, there is a decline in the performance of the schooling system over the past three to five years.

The province has historically produced the highest senior certificate pass rates, well above national averages. In recent years, as with national trends, the provincial pass rate is declining, from a high of 87% in 2003 to 78.6% in 2008 and to 75% in 2009. In general, the total number of candidates is low relative to the Grade 1 entering cohort[1]. The proportion of the small pool of candidates who do pass with a university exemption has been between 25 - 27% over the past five years (SAIRR 2009). Success is strongly racially skewed. In 2007, 11% of African candidates, 15% of coloured candidates, 61% of Indian candidates and 61% of white candidates in the province passed with endorsement. Another indicator of declining quality is that the number of schools that have a senior certificate pass rate of less than 60% of their pupils increased almost threefold, from 34 in 2004 to 85 schools in 2009.

Matric data for 2007 reveals differences between the City Region and the province. The City Region schools achieved a pass rate of 77.2 %, slightly below the provincial pass rate of 78.4% (Table 3). Inequalities are also evident within the City Region, where pass rates vary widely between schools located in poorly resourced municipalities in the metropolitan region, and those located in well resourced areas (Table 3). For example, circuit 3 in Metropolitan East district covers schools in Khayelitsha, and these pupils achieve a low 48.7% pass as opposed to the high 91.2% of schools in circuit 1 of Metropolitan Central, predominantly the wealthy Southern suburbs like Rondebosch and Newlands.

[1] In 2002, the WCED reported that only 48% of children who begin Grade 1 remain in school until Grade 12.

Table 4: Cape Town City Region Senior Certificate performance by district 2007

Region	District	Total wrote	Total passed	Pass rate (%)
Cape Winelands	*0*	2	2	100
	1	1 319	1 147	87
	2	1 588	1 309	82.4
Total		**2 909**	**2 458**	**84.5**
Metropole Central	*0*	1 360	1 248	91.8
	1	2 204	2 009	91.2
	2	1 098	979	89.2
	3	623	378	60.7
	4	1 575	876	55.6
	5	562	230	40.9
	6	405	237	58.5
Total		**7 827**	**5 957**	**76.1**
Metropole East	*0*	65	61	93.9
	1	1 693	1 485	87.7
	2	1 155	790	68.4
	3	938	457	48.7
	4	974	505	51.9
	5	1 032	577	55.9
	6	1 194	1 050	87.9
	7	34	23	67.7
Total		**7 085**	**4 948**	**69.8**
Metropole North	*0*	350	282	80.6
	7	1 757	1 670	95.1
	1	898	640	71.3
	2	748	508	67.9
	3	685	302	44.1
	4	1 255	1 188	94.7
	5	946	873	92.3
	6	1 195	818	68.5
Total		**7 834**	**6 281**	**80.2**
Metropole South	*0*	217	174	80.2
	1	967	821	84.9
	2	1 599	1 498	93.7
	3	799	595	74.5

	4	390	143	36.7
	5	962	583	60.6
	6	1 098	711	64.8
	7	910	792	87
Total		**6 942**	**5 317**	**76.6**
Overberg	*2*	590	462	78.3
	3	429	375	87.4
Total		**1 019**	**837**	**82.1**
Westcoast	*1*	622	526	84.6
	3	624	574	92
Total		**1 246**	**1 100**	**88.2**
CTCR Total		**34 862**	**26 898**	**77.2**
WC Total		**43 966**	**34 479**	**78.4**

Source: SAIRR 2009

Declining and racially differentiated performance at Grade 12 – and hence the pool of applicants eligible for intermediate and high level qualifications in the tertiary education and training sector - is a major challenge for the City Region.

There is evidence to suggest that the progressive decline over the last 10 years is not likely to be arrested in the short term, given deep-rooted problems in schooling at the primary school level. Analysis of numeracy and literacy testing of primary school pupils suggests that 'the school system is struggling to achieve deep learning amongst the majority of its learners' (Gilmour and Soudien 2009: 283).

Systemic evaluations at the Foundation phase in 2007 found that less than half, only 48% of Grade 3 learners in the province were at the required levels of literacy, and 49% achieved the standard of numeracy required, although learners performed way above the national levels for numeracy (35%) and literacy (36%). In a further round of assessments in 2009, approximately half, 53.5%, of Grade 3 learners in the province performed at age and grade norm for literacy but the achievement levels of for numeracy declined further to 37% (WCED 2010). The absence of a sound foundation of literacy and numeracy is exacerbated as children progress through the system, so that less than half, 44% , of Grade 6 learners performed at age and grade norm for literacy and an abysmal 14% for numeracy in 2009.

Gilmour and Soudien attempt to explain the declining performance, first, at the structural level in relation to class and race. There is a strong relationship between poverty and performance, in that very few learners in schools in poverty quintiles 1 to 4 passed Grade 6 numeracy tests (65.4% of all learners). Only 34.8% of learners in the quintile 5 schools passed the numeracy tests at Grade 6 level (see Figure 2 above). The former department to which a school belonged was used as a proxy for race, although there has been some movement towards integration of schools. Bearing this in mind, there were significant racial differences in literacy testing pass rates. For instance, 83.8% of pupils from former

Cape Education Department (white) schools passed Grade 6 literacy tests in 2007, in comparison with 4.7% of those from former African schools, and 35.5% from former coloured schools (the majority of learners who wrote). Gilmour and Soudien argue that the legacy of the past has been compounded by the introduction of a new outcomes based curriculum which does not match the reality of schools, teachers and pupils, so that there is limited real access to learning.

Second, a number of school level factors are evident, particularly the effect of language, given the policy of mother-tongue instruction for the first three years of schooling with a switch to English or Afrikaans at Grade 4 level. For instance, 66.4% of pupils whose home language was English and who studied in English medium schools passed numeracy tests, in stark contrast with 1.5% of the second largest group of pupils whose home language was Xhosa and whose schools were English/Xhosa parallel medium of instruction, and again, in contrast to the 16.7% of the largest group of pupils whose home language and medium of instruction was Afrikaans. Gilmour and Soudien thus conclude that only pupils in the wealthiest, largely white schools are achieving the required numeracy and literacy competences.

The declining quality of basic numeracy and literacy skills presents a serious limitation on laying education foundations in the City Region. While the majority of young people may be in school, the problem lies in what does not happen while they are there.

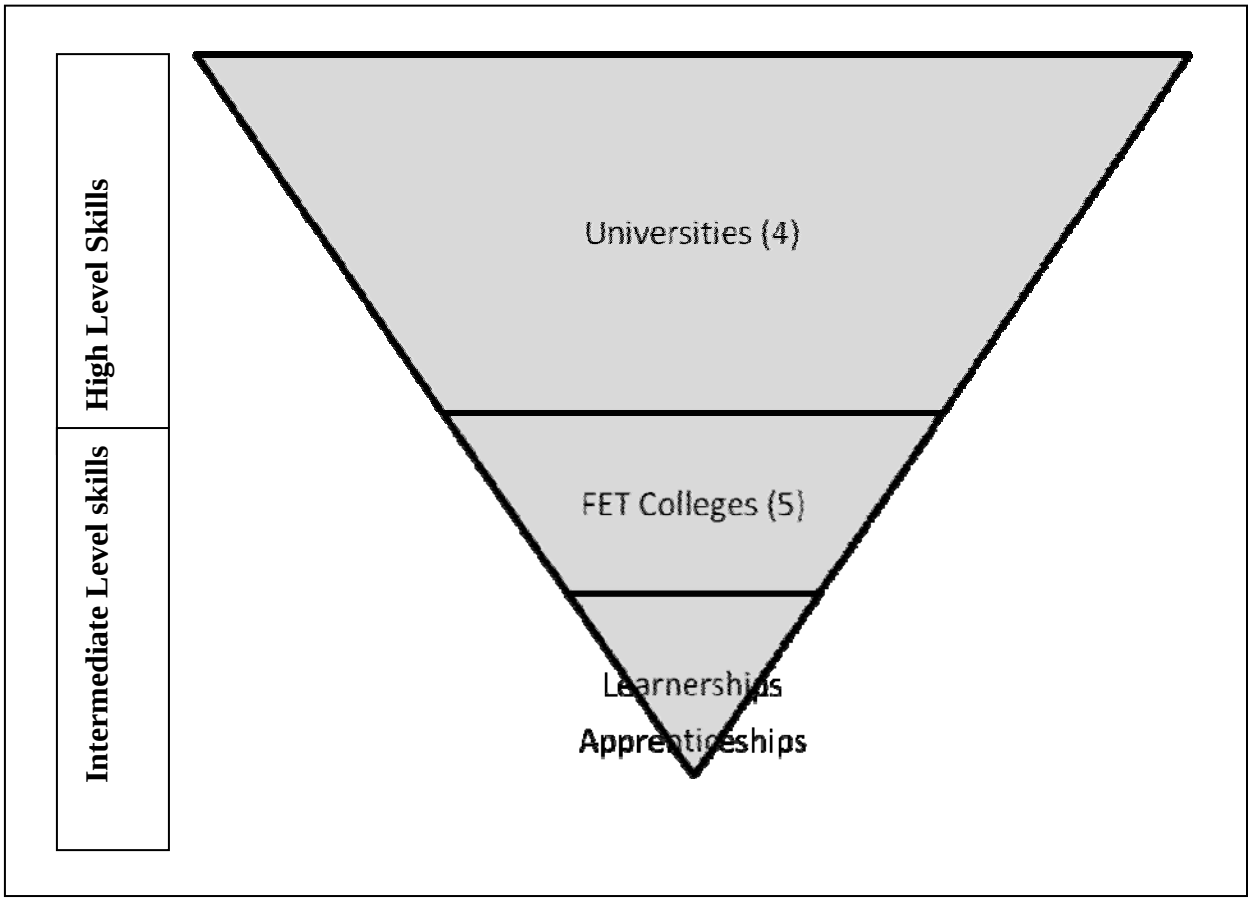
Conclusion

Relative to national trends, the Cape Town City region schooling system performs well, but it remains characterized by ongoing historical racial inequalities and disparities that have widened over the past few years, and as is the national and provincial trend, the majority of schools do not offer quality education, evident in a decline on a range of critical indicators of literacy, numeracy and school leaving certification. The schooling system currently does not provide a solid basis for a well educated citizenry, nor does it provide a solid foundation for progression to education and training institutions and qualifications at the intermediate and high skills levels for all citizens.

SECTION 2. A lack of progression and articulation: skilling at the intermediate level

A major problem of skills development in South Africa is the absence of a coherent and credible post-school education and training system that offers a wide range of education and training opportunities to young people that will equip them to enter the labour market. The present 'system' is typically described as an inverted pyramid (Figure 3). That is, more young people are in higher education than in other forms of vocational and occupationally related education and training, in contrast to international trends. There is thus a major gap in provision at the intermediate skills level.

Figure 3: The inverted pyramid of post-school provision South Africa and Cape Town



The situation in the Cape Town City Region does not differ significantly from the provincial or national picture. Section 2 reviews the pool of young people enrolling and completing vocational education and training through two key institutional mechanisms – learnership programmes, and Further Education and Training (FET) colleges. It highlights possible mis/matches with priority sectors and areas of potential opportunity in the Cape Town city region. Section 2 does not take into account the large number of private providers offering technical and vocational qualifications at the intermediate skills

levels, particularly in ICT and business, as well as upskilling courses offered within firms to meet their specific needs, mechanisms that form part of the complex institutional system.

A lack of opportunities for progression: Learnership programmes

Learnerships became a key mechanism of the new skills creation system from 2001, with large scale investment via the National Skills Fund, largely supported by employer levies (DoL 2003). The learnership system differed from the traditional apprenticeship system in that it operated across all sectors and all skills levels, not only intermediate level or artisanal skilling (NQF Level 4). The learnership system also included basic level skilling (NQF levels 1 to 3) and high level skills (Level 5 to 8), incorporating traditional professional internship training programmes in fields such as accountancy. The system aimed to enhance skills upgrading for the employed as well as provide vocational education and training for the young unemployed.

A learnership leads to a recognized occupational qualification achieved through structured institutional learning and applied competence developed through workplace experiential learning. Learnership agreements are coordinated by sectoral bodies, the SETAs, who register the learnership, accredit the programmes and training providers, disburse payments to host firms and issue the qualifications. The structured formal learning component is provided by a range of private training providers and public FET colleges. The experiential learning is offered concurrently through work placements in private sector firms. A major attraction for young people is the opportunity to earn a stipend while attaining practically grounded occupational certification.

This section draws on a survey of participants in learnership programmes conducted in 2007 to determine learning and employment outcomes (HSRC 2008). The survey sample included those learners who registered for a learnership qualification during the first year of the National Skills Development Strategy II (NSDS II), that is, from 1 April 2005 to 31 March 2006.

The size and shape of the learnership system in the City Region

A sample of learners in the Western Cape was extracted from the weighted survey dataset. Of the total learnership population of 47 034 surveyed nationally, 12% or 5 482 young people had enrolled for a learnership programme in the Western Cape. Unlike other provinces such as Limpopo, there was little migration or mobility, in that 93% of the sample grew up, registered for a learnership and still lived in the Western Cape in 2007.

A sub-set of learnership participants in the municipalities that fall within the Cape Town City Region was extracted - a total of 3 357 young people, or 78% of those who pursued learnerships in the province, suggesting a strong concentration of learnership provision in the city region.

Analysis of the national learnership population database revealed that the majority of learnership participants are young unemployed Africans, and registered at lower skills levels, NQF 4 and below. Over time, the learnership system has shifted more strongly towards a strategy for addressing youth unemployment and social exclusion, in tension with learnerships as a strategy for skills upgrading and to meet the need for critical and scarce intermediate and high level skills (Visser and Kruss 2009).

The question is whether the pattern in the Cape Town City Region is similar or differs from this strong trend that potentially undermines the value and status of learnerships as a mechanism of vocational education and training.

In terms of demographic profile, the majority of learnership participants in 2007 in the City Region were coloured (63% in contrast with 13% nationally), female (59% as opposed to 47% nationally) and between the ages of 20 to 29 (68% similar to 62% nationally). The high participation of coloured females (38%) and African females (13%) stands out relative to national trends.

The majority of those registering for a learnership were unemployed (61%), but slightly lower than the national population trend (69%).

A lack of progression to higher qualification levels

Two thirds - 64% - entered the learnerships programme already holding a matric qualification (NQF level 4). A small proportion, 16% entered with qualifications at NQF levels 5, 6 or 7, for upgrading at high skills levels. Another small proportion, 19% entered with qualifications at NQF levels 0 to 3, for upgrading at low skills levels (Table 4).

Table 5: Cape Town City Region learnership registration by highest qualification at enrolment 2007

Highest qualification other than a learnership	**Number**	**%**
NQF 0 (ABET 1 (Std 1 / Gr3)	5	0
NQF 0 (ABET 2 (Std 3 / Gr5)	29	1
NQF 0 (ABET 3 (Std 5 / Gr7)	88	2
NQF 1 (ABET 4 (Std 7 / Gr9)	94	3
NQF 2 (N1)	8	0
NQF 2 (Std 8 / Gr10)	247	7
NQF 3 (N2)	27	1
NQF 3 (Std 9 / Gr11)	172	5
NQF 4 (Matric)	2,292	64
NQF 4 (N3)	38	1
NQF 5 (Diplomas / Occupational certificate)	336	9
NQF 6 (First degrees/ Higher dip)	119	3
NQF 7 (Honours / Master's degree)	103	3
Total	3,557	100

Source: HSRC database 2007

The majority who enroll for a learnership qualification would thus be eligible to enrol for qualifications at intermediate or high skills levels. In fact, the largest number of

participants in the Cape Town City Region, 34%, enroll for qualifications at NQF Level 2, equivalent to N1 or Grade 10 (Table 5). In total, 80% of learnership participants are enrolled at Level 4 or below (two thirds *below* Level 4), and only a very small proportion are progressing to study at the high skills level. There is a small but significant group enrolled at NQF level 7, and these are typically in the accounting, finance and ICT sectors. The lack of progression is negative both in terms of individual potential, and of the effective use of limited resources for education and training.

Table 6: Cape Town City Region learnership registration by NQF level 2007

NQF level of learnership	**Number**	**%**
NQF level 1 (ABET 4 Gr 9)	591	17
NQF level 2 (N1 or Gr 10)	1 210	34
NQF level 3 (N2 or Gr 11)	549	15
NQF level 4 (Matric)	515	14
NQF level 5 (Diploma/occupational certificate)	145	4
NQF level 6 (First degree / higher diploma)	49	1
NQF level 7 (Honours / Masters degree)	498	14
Total	3 557	100

Source: HSRC database 2007

The highest qualification on entry of 2 330 learners (66%) was at NQF level 4, and of these learners, 69% enrolled for a learnership at a *lower* NQF level. Learners entering with a senior certificate are willing to pursue an occupationally related technical qualification at *lower* levels than their existing qualification, in order to enhance their opportunities for employment. The lack of opportunities for progression to occupationally related qualifications in the City Region (as nationally) at Level 5 and above is a marked gap, reflected in the inverted pyramid. The system at present remains linear, and does not address the need for alternative high-quality, high-status technical and vocational education and training opportunities delivered in such a way as to enhance employability.

In which sectors are these young people receiving training? The SETAs that enrolled the largest numbers of learnerships are, in rank order: MERSETA, the Manufacturing, Engineering and Related SETA (16%); CTFL SETA, Clothing, Textiles, Footware and Leather SETA (15%); FASSET, Financial and Accounting Services SETA (14%) and Agriculture SETA (10%). The spread reflects the historical significance of the clothing and agricultural sectors, and this also may partially account for the relatively high number of Coloured females enrolled. There is potentially an encouraging match with priority sectors in the City Region, such as financial services and the sectors covered by MERSETA. However, the total number registered with each SETA is low – and the skills provided are primarily at basic or intermediate level. The reasons for this is complex, related to lack of capacity in SETAs, lack of credibility and status of vocational qualifications and lack of employer buy-in to the learnership system, which in turn is related to a long history of low firm commitment to training and skills development in South Africa. There is room to expand learnership registrations, particularly at the intermediate and high skills levels.

Completion of a learnership qualification

There is nevertheless an indication that participants perceive value in completing the learnership programme. Slightly above the national average, 67% of those who enrolled completed their programme, and only 8% - 284 young people - terminated before completing the qualification, in contrast with 15% nationally (Table 6).

Table 7: Cape Town City Region learnership registration by completion status 2007

Completion status	Number	%
Not indicated	22	1
Completed	2,397	67
Registered	854	24
Terminated	284	8
Total	3,557	100

Source: HSRC database 2007

Of course, the largest group of those who completed their learnership programme – 77% - emerged with a qualification *below* NQF level 4. Only 17% achieved a qualification at the intermediate skills level, and a very low 7% at the high skills level 5 or above. Thus, the Cape Town City region is producing a very small absolute number of learnership qualifications at the basic and intermediate skills levels per year. These qualifications were clustered in the CTFL SETA (21%), the Agri SETA (15%), MerSETA (14%), and the Construction SETA and Health and Welfare SETA (8% each).

Nearly a quarter, 24% were still registered on their programme, but bear in mind that some learnerships last for three years. The majority of those who were still registered, 54%, were registered at NQF level 7, on programmes of a longer duration. These programmes tend to be clustered in specific SETAs – 56% of these learners were in FASSET, 18% in MerSETA and 11% in the Health and Welfare SETA. These qualifications are linked to long established training systems and occupational pathways (nursing and accountancy), that are likely to lead to better, and more highly paid, labour market opportunities.

Almost three quarters, 73%, of those who terminated the learnership before completion were registered at NQF level 1 and 2, qualifications that offer low employment opportunities. Key SETAs here were again MerSETA (33% of those who terminated), Wholesale and Retail SETA (31%) and Construction SETA (12%).

However, the data indicates that there is a match with firm demand, in that completion of the learnership was likely to result in employment. When those who were still registered are excluded, 73% of young people were employed after their learnership programme, whether they completed or terminated. Of those who were unemployed at enrolment and employed at present, 94% had completed their programme, and 6% had terminated. Of those who were employed at enrolment and remained employed, 90% had completed their programme. And conversely, of those who were unemployed at enrolment and remained unemployed, 18% had terminated their programme before completing. The

learnership qualification thus has a distinct advantage for young people to access employment.

Participation rates?

Finally, we attempted to construct a 'graduation' measure akin to that used internationally in the higher education sector – the number of 'graduates' attaining the qualification relative to the population aged 20 to 24 years old[2]. There were 998 young people in this age group who attained a learnership qualification in the City Region in 2007. The estimated population of the relevant age group is 360 386[3], so that 0.28 % of the age cohort that should be in formal education and training programmes is catered for by the learnership system in the City Region. Of course, the age group for which the learnership system caters tends to be younger than 20 years old, so calculating participation rates in this way is not entirely accurate, but it does serve to illustrate the inadequacy of the scale of provision.

Conclusion

Only three or four of the 23 SETAs are providing opportunities on any significant scale. The learnership system does not provide opportunities for many young school-leavers to advance to high level skills training, and intermediate level skilling in priority sectors is limited – although clearly, the learnership qualification can increase the chances of employment for individuals. At present, the learnership system does not have a significant impact on the supply of skills at the intermediate level to firms in priority sectors in Cape Town. The system could however, support skills upgrading in firms, and improve the life chances of individuals in the city region, if it were expanded to a larger scale and with more credible education and training opportunities.

[2] See Section 3 below for a full explanation.

[3] Population data was based on projections prepared by Dorrington for the OECD Territorial Review background reports.

Vocational education and training in public Further Education and Training Colleges

Further Education and Training (FET) colleges are the key public sector providers of vocational education and training at the intermediate skills level in South Africa. Relative to national trends, by 2005, the Western Cape province had a strong set of public FET institutions, with good performance and infrastructure, and emergent responsiveness to the labour market (McGrath 2005). However, the public FET sector is characterized by one constant feature over the past ten years – multiple policy shifts and changes that create significant challenges for all institutions, however strong their leadership, governance, resources and teaching capacity. The main changes include new governance, financial and curriculum arrangements:

- 2001: the creation of a new institutional landscape by a process of mergers and amalgamations to create 50 large FET colleges focused on responsiveness to development goals and the labour market
- 2006/7: the introduction of a new National Curriculum Vocational (NCV) to replace the old NATED programmes, accompanied by a process of infrastructural recapitalisation aimed to modernize and equip the sector more adequately for a role in skills development
- 2008: new legislation that provides for new, more autonomous forms of governance and funding arrangements for the colleges that require decentralized management (currently in the process of implementation)
- 2009: the creation of the new Department of Higher Education and Training that offers greater possibilities to align vocational education and training and skills development policy mechanisms, and will shift colleges from provincial to a national competence

Individual colleges grapple with defining their core purpose, balancing multiple roles and building relationships with industry, communities, higher education and local government (Mc Grath 2010). Thus, while the Western Cape has a solid foundation on which to build, the challenges remain considerable and the extent to which colleges are able to meet future intermediate level skills needs, particularly in key technical and artisanal occupations to support priority competitive sectors, requires serious policy attention.

In the 2008/09 financial year, the total provincial budget for the Western Cape's six FET colleges was R367 million. Five of these colleges are located in the Greater Cape Town City Region. These colleges are the focus of the analysis that follows. The analysis draws on primary data gathered by the HSRC directly from the colleges in May 2010 as part of a national audit.[4]

[4] There are serious data difficulties in the FET sector. Requests to the WCED for official data were referred to the national Department of Higher Education and Training. Despite repeated requests over some months, this data was not provided. The only publicly available data on FET enrolment trends dates back to 2002. The data used in this report was gathered as part of a project commissioned by the DHET and a number of SETAs, to determine the readiness of

FET colleges for new governance arrangements. The project is still in process. It was not possible to access the full dataset for comparative purposes within the timelines of the present project.

The size and shape of the FET sector in Cape Town City Region

The provincial education department's projections are to grow the public FET sector to a total of 47 000 enrolments by 2012/13. Table 7 reflects enrolment trends for the five Cape Town colleges over the past three academic years, indicating that this target could be attainable. Total enrolments were steady in 2007 and 2008, and grew in 2009, so that annually, almost 39 000 students are enrolling in the five colleges.

Table 8: Cape Town City Region FET college enrolments 2007 to 2009

	2007	**2008**	**2009**
Boland	6 579	6 337	6 681
Cape Town	11 024	11 598	10 832
False Bay	5 464	4 399	4 621
Northlink	11 212	11 835	13 328
West Coast	2 457	2 313	3 204
TOTAL CTCR	36 736	36 482	38 666

Source: HSRC database 2010

In 2009, individual colleges ranged widely in size from large – around 13 000 students – to quite small – around 3 000 students. The colleges have distinct histories and hence capacities, but each operates from a number of devolved campuses that extend their reach. Boland College for example, is located in the rural areas, with campuses in Caledon, Paarl, Strand, Worcester and Stellenbosch, the oldest constituent college, established in 1918. The College of Cape Town likewise is the oldest college in South Africa, established in the early twentieth century, and, currently operates on nine campuses across the Cape Town metropolitan area, at Athlone, City, Crawford, Gardens, Guguletu, Pinelands, Salt River, Thornton and Wynberg. These colleges have operated efficiently with a high degree of autonomy over the years and are relatively well resourced. In contrast, West Coast is the youngest institution that formally became an FET college only in 2002, out of the merger of satellite sites that had operated on the West Coast in the towns of Vredendal, Citrusdal, Vredenburg, Atlantis and Malmesbury. Northlink college serves the Northern suburbs, with 8 campuses located at Belhar, Belville, Goodwood, Table Bay, Wingfield, Parow, Protea and Tygerburg. Finally, False Bay college serves Muizenburg, Noordhook, Westlake, Mitchells Plain and Khayelitsha through its five campuses.

Demographic profile of FET college students

Data on the demographic profile of students is only available as at the first quarter of the 2010 academic year.[5] The FET colleges in the City Region primarily cater for coloured and African students - 52 % and 36% of enrolments respectively (Table 8). Boland and Northlink have white students as approximately 20% of total enrolments, with far lower

[5] Note that the data reflects enrolments as at May 2010, and hence, not the total enrolments that may be expected by the end of the academic year, given the semesterisation of enrolments.

proportions at the other three colleges. Cape Town and False Bay have the largest concentrations of African enrolments, 49% and 42% respectively. West Coast stands out in that 72% of students are coloured, with Boland similarly having 61% coloured learners, both reflecting local population demographics outside of the metropolitan areas.

In terms of gender, a virtually equal number of male and female students enrolled in the five colleges. Some colleges cater for a majority of female students, namely Boland, Cape Town and West Coast (Table 8).

Table 9: Cape Town City Region FET college enrolment by race and gender 2010

	Male					**Female**				
	Black African	**Coloured**	**Indian /Asian**	**White**	**Total M**	**Black African**	**Coloured**	**Indian / Asian**	**White**	**Total F**
Boland	347	1 232	4	431	2 014	882	2 565	15	596	4 058
Cape Town	1 811	1 629	16	233	3 689	2 298	1 647	13	117	4 075
False Bay	794	829	4	263	1 890	969	648	5	52	1 674
North Link	1 601	3 513	48	1 251	6 413	1 370	1 786	15	674	3 845
West Coast	352	997	3	43	1 395	685	1 264	2	17	1 968
TOTAL	4 905	8 200	75	2 221	15 401	6 204	7 910	50	1 456	15 620

Source: HSRC database 2010

Traditionally, learners have begun study at FET colleges after completing at least Grade 10, and from 18 years onwards. With the introduction of the new National Curriculum Vocational (NCV), and the attempt to promote a vocational route to a final schooling qualification, the age profile of enrolments has shifted towards a younger age group, with 27% of students now aged between 15 to 19 years old (Table 9). The majority of students, almost 45%, remain between the ages of 20 and 24. There is variation between colleges, with West Coast particular enrolling a very young cohort – 41% of all students are between the ages of 15 and 19. This has been a major shift in orientation for the college, given that students enter the college directly from school after completing Grade 9. Lecturers have indicated they are not trained to deal with the disciplinary and academic development aspects of such young students (HSRC 2007). Older students are likely to be those registered for skills or learnership programmes, often while employed and on a part-time basis.

Table 10: Cape Town City Region FET college enrolments by age 2010 academic year

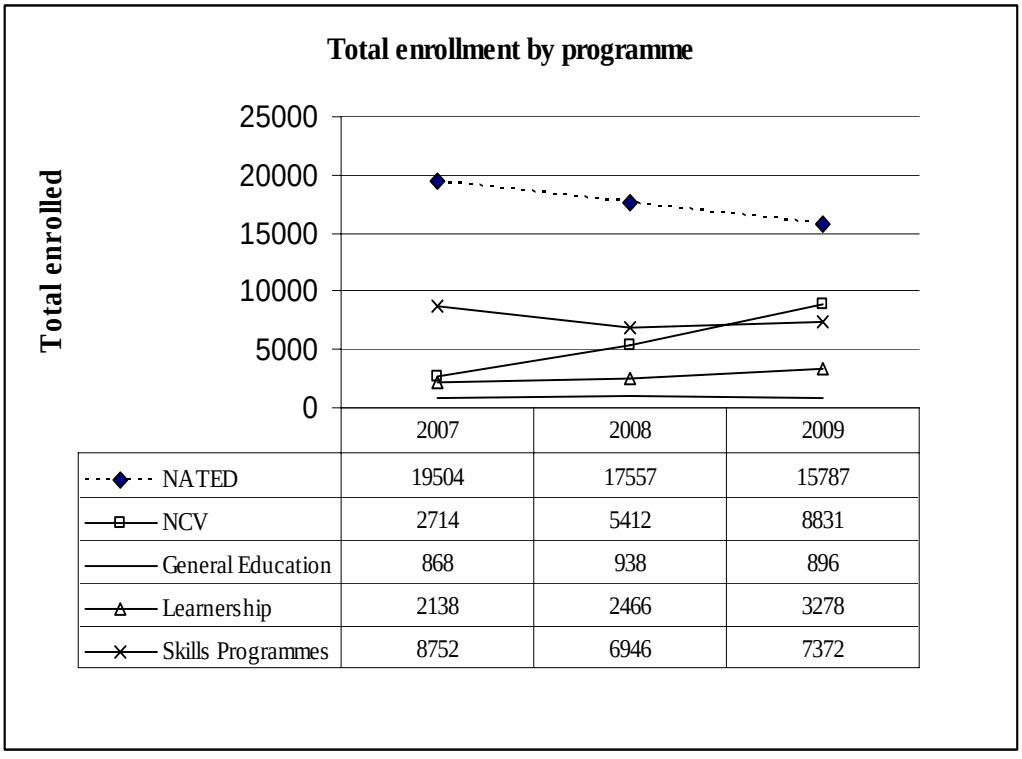
	15-19	**20-24**	**25-29**	**30-34**	**35-40**	**Above 40**
Boland	1497	2747	587	392	395	454
Cape Town	1841	3768	915	457	404	417
False Bay	1336	1163	464	208	160	233
Northlink	2404	4718	1364	653	571	548
West Coast	1363	1420	326	128	66	60
TOTAL	8441	13816	3656	1838	1596	1712

Source: HSRC database 2010

Trends in programmatic offerings

Significant shifts in the programme offerings and hence, the mission and focus of FET colleges have taken place over the past three to four years. Traditional NATED programmes are being phased out in favour of the new NCV, which terminates at NQF Level 4, promoted as an alternative vocational route to a school leaving qualification. A major motivation has been that the NATED programmes are outdated and have not kept pace with occupational, technical and skills changes in a knowledge economy. NCV programmes were initially developed in core fields, and the plan was that they would be progressively developed in more fields so that they replace the old NATED programmes entirely. A major difference is the inclusion of a stronger theoretical component and the promotion of core competences in the NCV programmes. However, in the initial phases of implementation, the pass rates on the new NCV have been very low, leading to high levels of dissatisfaction from employers, students and government departments. There are calls to retain the old NATED programmes that have the advantage of being a proven, and known, qualification for employers in key sectors. The data on the type of programme for which students enrolled reflects these turbulent national shifts (Figure 4).

Figure 4: Cape Town City Region FET college enrollment by programme type 2007-2009



	2007	2008	2009
NATED	19504	17557	15787
NCV	2714	5412	8831
General Education	868	938	896
Learnership	2138	2466	3278
Skills Programmes	8752	6946	7372

Source: HSRC database 2010

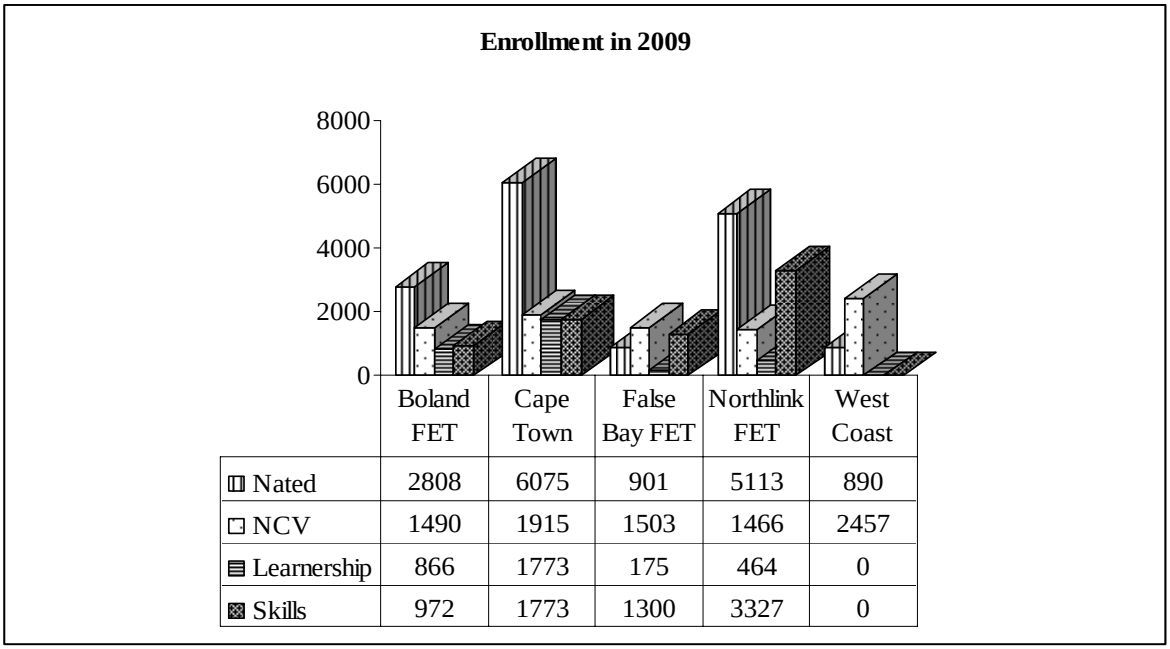
By 2009, the pattern of enrolment was such that the majority, 44%, of enrolments were still for NATED programmes, almost a quarter, 24%, were now NCV programmes, and 20% were skills programmes. Total enrolments in NATED programmes have declined by 19% over the three years, from 19 504 to 15 787 enrolments. Conversely, and as may be

expected from provincial funding allocations and performance targets set for colleges, enrolments in the NCV programmes have increased dramatically, from 2 714 in 2007 to 8 831 in 2009, a growth of 225%. This situation is problematic for colleges who have to manage complex curriculum change in a short space of time, and for employers who do not have clear signals about the quality and standards of the qualifications issued.

College enrolments in Learnership programmes have grown steadily, from 2 138 in 2007 to 3 278 in 2009, an increase of 53% over the period. This growth is way above the provincial target for 1 090 learnership agreements involving FET colleges as the training provider to be active annually, from the 2009/10 year onwards. The recent growth of learnerships at FET colleges suggests a shift from the trends identified in the HSRC 2007 survey, to prioritise learnership qualifications as a skilling route.

Enrolment in non-formal skills programmes – income bearing programmes developed by each college and evidence of their growing responsiveness to local industry - tended to fluctuate, with an overall decline, from 8 752 in 2007 down to 6 946 in 2008 and back up to 7 372 in 2009. The fluctuation is likely to be related to the challenges of implementing the new NCV.

Figure 5: Cape Town City Region FET **e**nrollment by programme per college 2009



	Boland FET	Cape Town	False Bay FET	Northlink FET	West Coast
Nated	2808	6075	901	5113	890
NCV	1490	1915	1503	1466	2457
Learnership	866	1773	175	464	0
Skills	972	1773	1300	3327	0

Source: HSRC database 2010

Individual colleges differ in the balance of programmes offered (Figure 5). The more established colleges, Boland, Cape Town and North Link had between 44-51% of enrolments on NATED programmes in 2009, while the newer colleges, West Coast and False Bay, had a far lower proportion, around 22 - 26%. Cape Town and Boland host the majority of learnership programmes. Northlink focuses its energies on offering 45% of the skills programmes developed by the college itself to meet local demand, with Cape Town college offering a further 24% of the total skills programmes in the city region.

West Coast college only offers the centrally developed NATED and NCV programmes, and has not developed any of its own offerings appropriate to the local economic context.

Meeting sectoral needs?

The question is whether the FET colleges are enrolling students in fields of intermediate skilling related to priority sectors in Cape Town. The complexity of enrolments in different programme types makes this difficult to summarise and compare[6]. Here we focus on enrolments in three key college fields relevant to priority sectors, to illustrate the pool of intermediate level skills that the five colleges can supply potentially in the city region over the next few years.

First, is the traditional area of strength of the FET colleges – engineering and related artisanal programmes. Table 10 shows that a pool of 8 000 students is enrolled across all engineering related programmes. The NATED programmes continue to provide 55% of potential artisanal skills. There are low numbers enrolled for building and construction related skills in particular. Cape Town College and Northlink are two key institutional locations for engineering programmes (and these are primarily NATED programmes), but there is very little offered in the rural areas by Boland College.

Table 11: Cape Town City Region FET colleges Engineering enrolments 2009

	NATED Engineering Studies	**NCV Building and Civil Construction**	**NCV Engineering and related design**	**NCV Electrical Infrastructure Construction**	**Total per college**
Boland	0	69	139	163	371
Cape Town	2162	140	185	513	3000
False Bay	0	73	287	150	510
Northlink	2156	202	413	162	2933
West Coast	281	0	844	381	1506
Total per programme	4599	484	1868	1369	**8320**

Source: HSRC database 2010

An encouraging trend is that the majority of enrolments at the FET colleges remain related to engineering.

A second key area analysed shows that there are some 3 000 enrolments in Business and Management related fields (Table 11). Colleges with this specialism are West Coast, Cape Town and Boland. Of note – and concern – is the high number of enrolments in the NCV Office Administration in general, but at West Coast college in particular (814), an area not closely located to a concentration of office jobs. This raises questions about whether the college is analysing skills demands, about the nature of careers guidance offered to young people and about increased migration to the metropolitan areas. Similar concerns may be raised about Boland college's pattern of enrolments, with high business

[6] The data on completion of programmes was not accurate, hence, here we report on enrolment data only, for 2009 academic year.

and management, and relatively low engineering related enrolments - and a reported 6 students enrolled in the new NCV Primary Agriculture in 2009.

Table 12: Cape Town City Region FET Colleges. Business and Management Enrolments 2009

	NCV Office Admin	NCV Marketing	NCV Finance, Economics, Accounting	NCV Management	Total per college
Boland	357	178	76	0	611
Cape Town	262	153	68	166	649
False Bay	230	0	205	0	435
Northlink	177	57	54	69	357
West Coast	814	0	0	163	977
Total per programme	1840	388	403	398	3029

Source: HSRC database 2010

Finally, in relation to the tourism sector, the numbers are very low, a total of 801 in 2009. While all colleges have small numbers of enrolments in the NCV Hospitality, only Boland and Northlink have enrolments in the NCV Tourism. The FET colleges do not produce a pool of skilled young people at the intermediate level for the tourism industry at this point in time. There may be space for the City and municipalities to collaborate with the tourism industry and with provincial directorates to address this gap.

Table 13: Cape Town City Region FET Colleges. Tourism enrolments 2009

	Hospitality	Tourism	Total per college
Boland	120	115	235
Cape Town	69	0	69
False Bay	166	0	166
Northlink	112	49	161
West Coast	170	0	170
Total per programme	637	164	801

Source: HSRC database 2010

Conclusion

The five Cape Town FET colleges enroll a sizable cohort of young people, primarily in engineering related programmes. The specialization of qualification types and sectoral focus provides an opportunity for collaboration between colleges that maximizes limited resources. However, if we calculate a similar 'participation rate' of young people aged 20-25, then 3.8% of the age cohort[7] in the City Region are participating in FET college programmes. The colleges need to grow significantly if they are to have greater impact – but the funding, governance and curriculum policy challenges they face may constrain their contribution. There is significant room for support and intervention at local level, particularly for strengthening the linkages between firms and colleges.

[7] Population data was based on projections prepared by Dorrington for the OECD Territorial Review background reports.

SECTION 3. Higher education, firms and global competitiveness

Interviews conducted with multinational companies and large firms in the Cape Town City Region suggest that in a number of sectors, there are crucial high level skills gaps, in terms of design, engineering and management capabilities, and in terms of compliance with national employment equity policies. Firms tend to address these gaps by importing highly skilled employees or sub-contracting design aspects of contracts. There is little evidence of networked activity between firms and universities, and this is attributed to education and skills constraints (Lorentzen et al 2010).

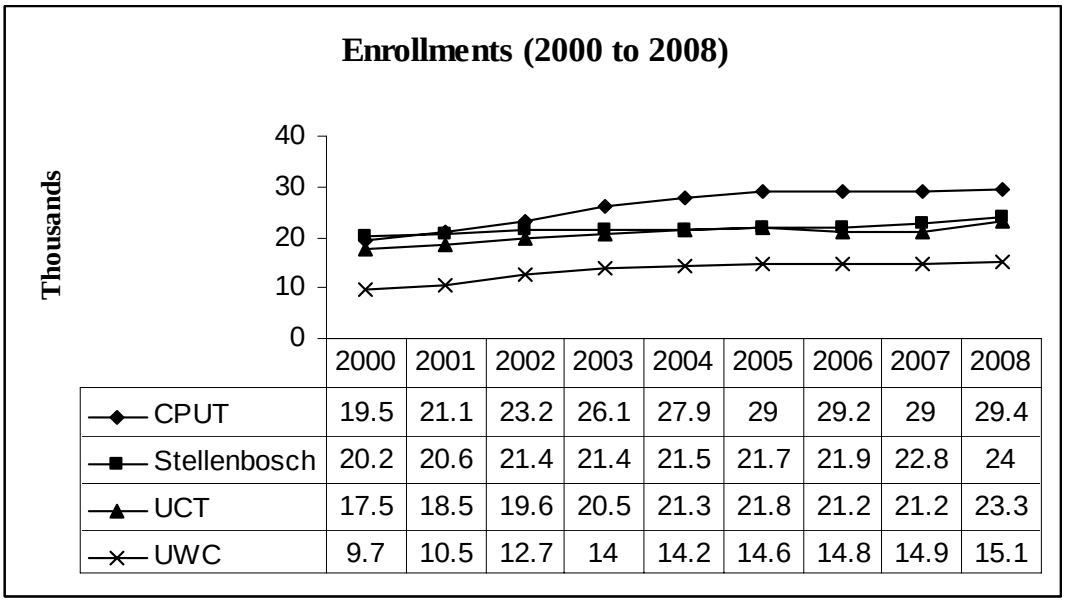
The higher education sector in the Cape Town City Region is typically regarded as a locational asset that represents significant potential capacity for high skills development and research to support technological upgrading and global competitiveness. The four universities perform very well relative to their institutional type nationally – whether research university or university of technology. However, as nationally, performance of the universities in relation to the high level skills graduates required for key sectors is not sufficient. The extent of linkages and networks between firms and universities in the City Region is still embryonic, although there are new strategic processes intended to facilitate stronger interaction.

This section draws primarily on HEMIS data, accessed through an interactive indicators programme developed by the Centre for Higher Education Transformation for the period 2000 to 2006, and updated to 2008 by drawing on Department of Education annual publications (DoE 2009, DoE 2010).

The size and shape of higher education enrolments

After a period of stagnation nationally, there was steady growth in enrollments between 2000 and 2008 in all four higher education institutions – University of Cape Town (UCT), University of Stellenbosch (US), University of Western Cape (UWC) and Cape Peninsula University of Technology (CPUT). Figure 6 presents the growth in headcount enrolments between 2000 and 2008. The four institutions enrolled about 91 800 students in 2008.

Figure 6: Cape Town City Region university headcount enrolments 2000-2008



	2000	2001	2002	2003	2004	2005	2006	2007	2008
CPUT	19.5	21.1	23.2	26.1	27.9	29	29.2	29	29.4
Stellenbosch	20.2	20.6	21.4	21.4	21.5	21.7	21.9	22.8	24
UCT	17.5	18.5	19.6	20.5	21.3	21.8	21.2	21.2	23.3
UWC	9.7	10.5	12.7	14	14.2	14.6	14.8	14.9	15.1

Source: CHET and DoE 2010

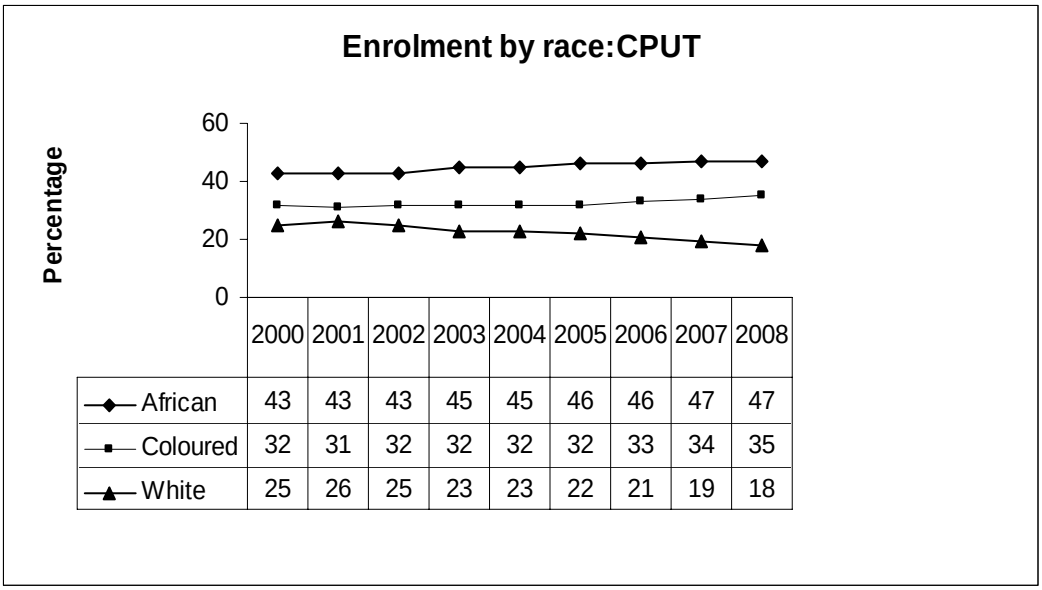
Considering that the schools in the City Region produced some 27 000 matriculants in 2008, of whom about a quarter passed with university exemption, it is clear these are national institutions serving a wider reach than Cape Town or the province.

The student profile remains distinctly shaped by the racialised history of each institution, which is also related to differential financial resources historically and in the present, particularly differences in the level of fees. The challenge remains to enroll students and produce more graduates to address employment equity goals.

In 2006, just over a third of all students enrolled were white, a third coloured and just under a third African. This contrasts with the national profile in 2008, where 64% of higher education students were African. Of course, nationally, proportionally fewer young Africans are studying in higher education. Nationally, the goal of a 20% participation rate remains elusive, with the participation rate in 2007 at 15.9%, but for African students it was 12%, and for white students, a high 54% (CHE 2009b).

Positive signs are that growth in total enrolments has taken place particularly at two institutions that extend access to African and coloured students, UWC (7.4 per cent growth) and CPUT (6.9 per cent growth). Over the past five years, there are shifts in the racial profile of students at each university (Figures 7 to 10). Of note is an increase in coloured students and a decline of African students at UWC; that African students are in the majority at CPUT; that there is an increase in African and coloured students at UCT; but that 72% of enrolments at Stellenbosch remain white.

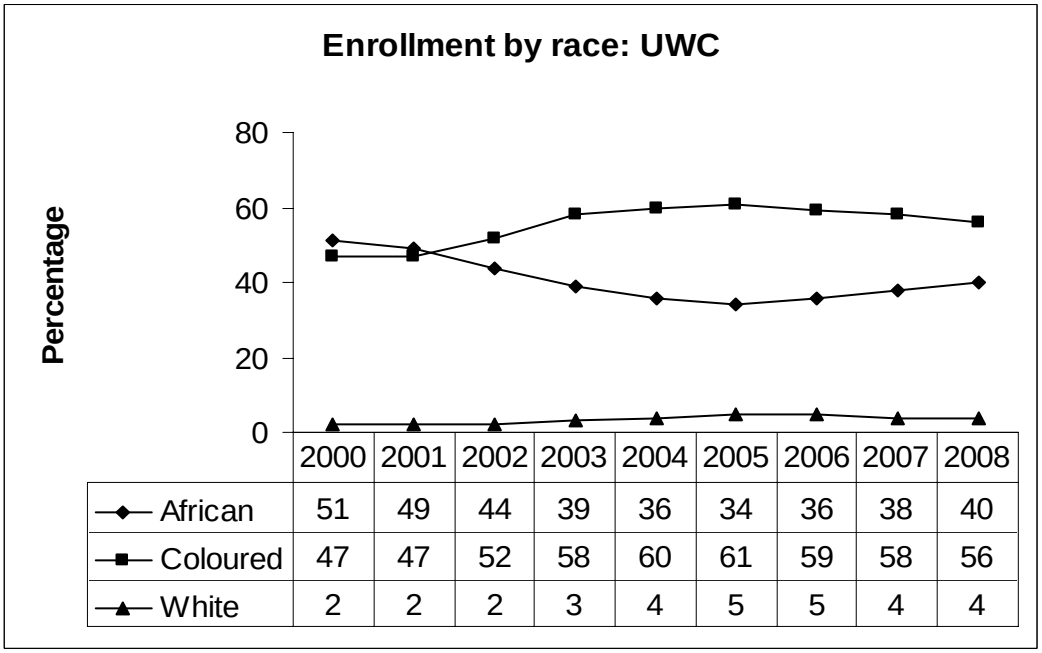
Figure 7: Enrolment by race: CPUT 2000 to 2008



	2000	2001	2002	2003	2004	2005	2006	2007	2008
African	43	43	43	45	45	46	46	47	47
Coloured	32	31	32	32	32	32	33	34	35
White	25	26	25	23	23	22	21	19	18

Source: CHET and DoE 2010

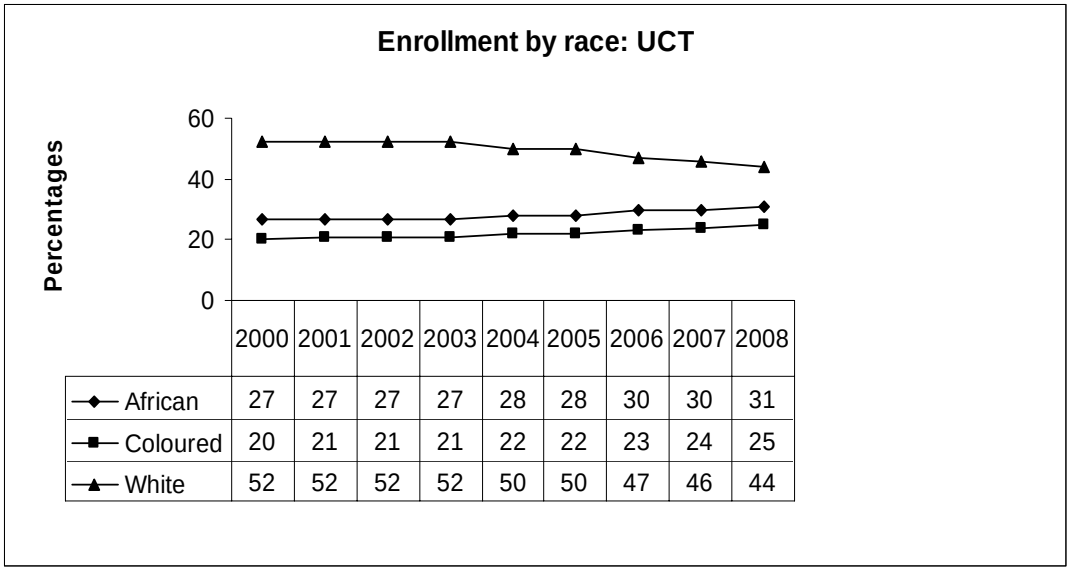
Figure 8: Enrolment by race: UWC 2000 to 2008



	2000	2001	2002	2003	2004	2005	2006	2007	2008
African	51	49	44	39	36	34	36	38	40
Coloured	47	47	52	58	60	61	59	58	56
White	2	2	2	3	4	5	5	4	4

Source: CHET and DoE 2010

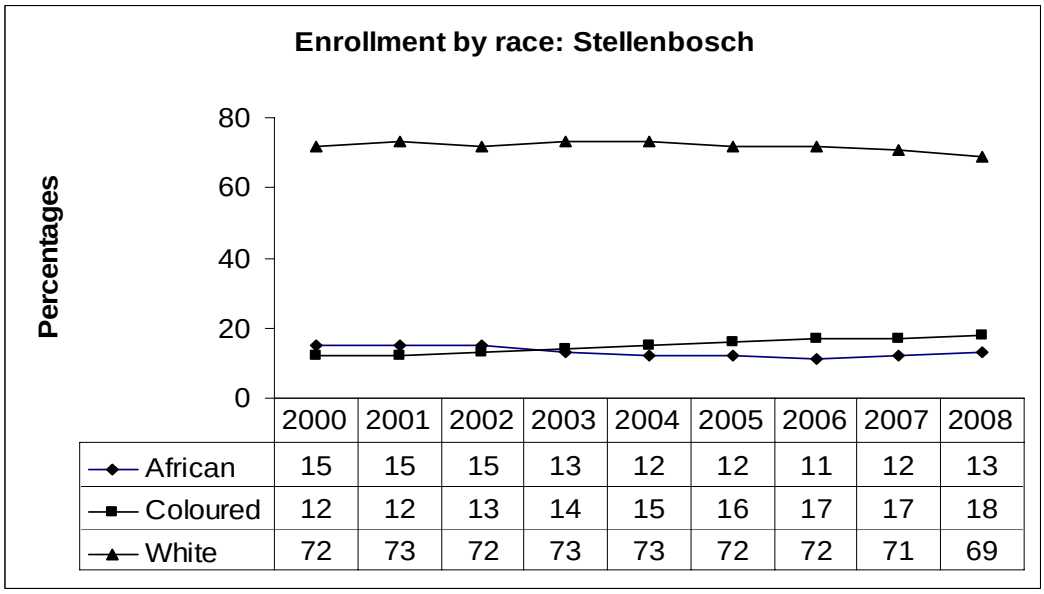
Figure 9: Enrolment by race: UCT 2000 to 2008



	2000	2001	2002	2003	2004	2005	2006	2007	2008
African	27	27	27	27	28	28	30	30	31
Coloured	20	21	21	21	22	22	23	24	25
White	52	52	52	52	50	50	47	46	44

Source: CHET and DoE 2010

Figure 10: Enrolment by race: Stellenbosch 2000 to 2008



	2000	2001	2002	2003	2004	2005	2006	2007	2008
African	15	15	15	13	12	12	11	12	13
Coloured	12	12	13	14	15	16	17	17	18
White	72	73	72	73	73	72	72	71	69

Source: CHET and DoE 2010

Universities have attempted to shift the field of study towards the national enrolment target of 40: 30: 30 for Science and Technology, Business and Management, and Education and Humanities. Table 13 reflects that there has been strong progress towards 40% of enrolments in Science and Technology in the city region's institutions, well above the national average of 28%, such that the taken together, the average is 39% in the city region. This trend potentially supports the City's focus on the development of a knowledge economy, and on smart specialization.

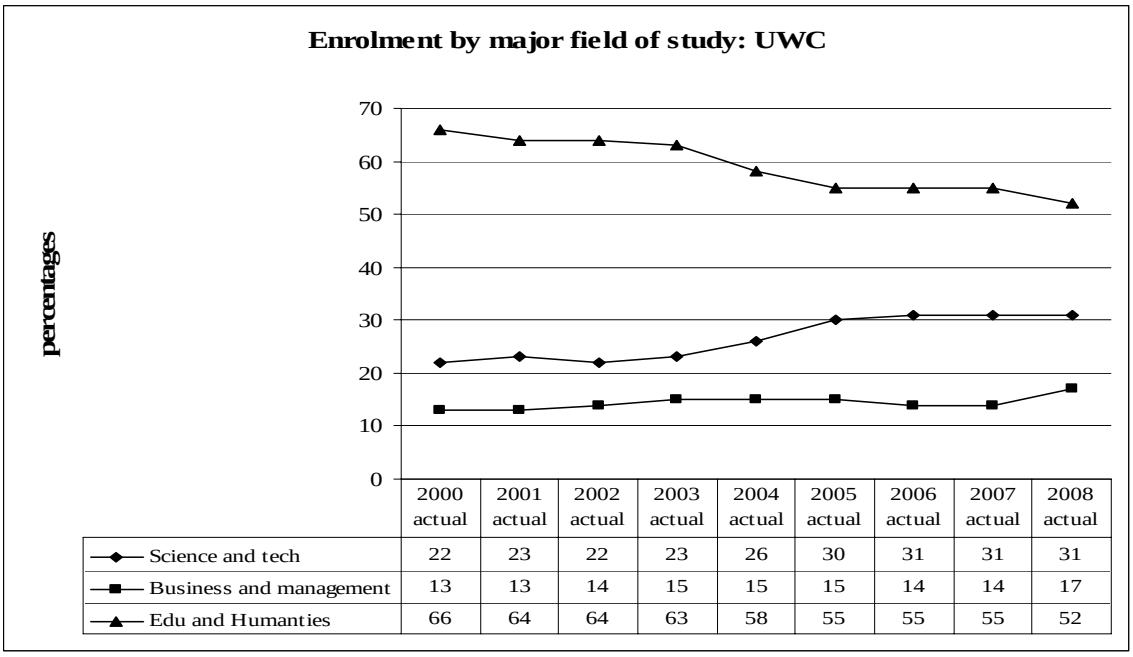
Table 14: Cape Town City Region university enrolment by field 2008

	Science and Technology 40	**Business and Management 30**	**Education and Humanities 30**
UCT	41%	20%	39%
SU	41%	20%	39%
UWC	31%	17%	52%
CPUT	49%	30%	21%
CTCR	39%	27%	33%
National	28%	29%	43%

Source: DoE 2010

All except CPUT, which did not offer Humanities historically, are above target for Education and Humanities enrolments. UWC has shifted from 66% enrolled in Education and Humanities in 2000 but still remains way above target at 52% in 2008 (Figure 11). All except the university of technology are below target for Business and Management fields – a critical lack identified by firms in the city region. Investigating the reasons for this trend – whether due to student preferences or lack of university capacity in these fields - will be important to inform local support interventions.

Figure 11: Enrolment by field: UWC 2000 to 2008



Source: CHET and DoE 2010

Nationally, there are racial imbalances in enrolments in different fields of study, and we may expect to find such imbalances exacerbated in the city region given the skewed racial pattern of enrolments and differential institutional resources.

The academic staff complement

The two well-established universities have the largest academic staff complement, but CPUT and UWC have the largest proportion of black academic staff (Table 14).

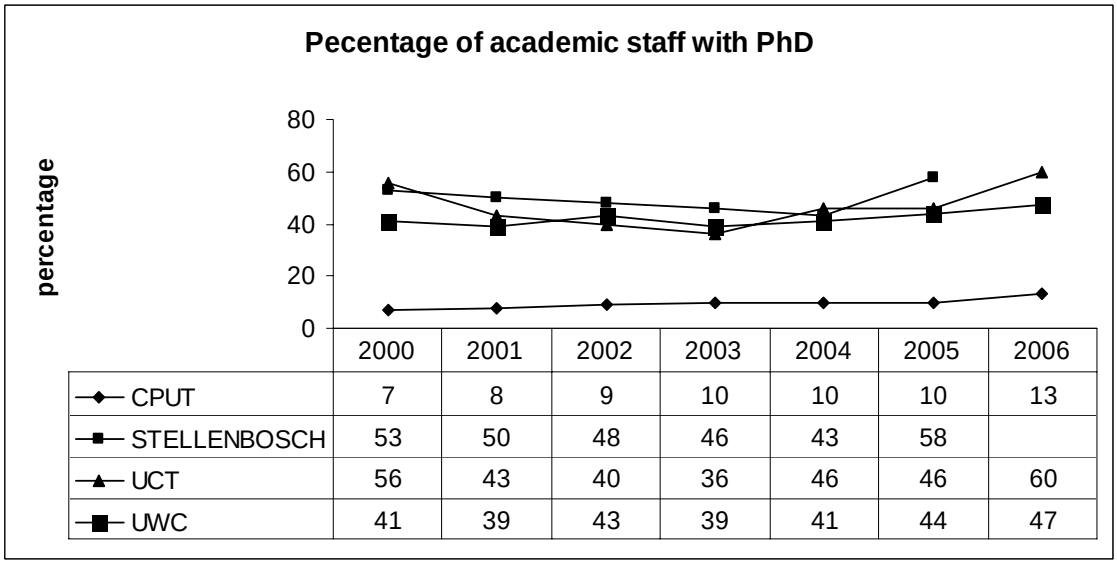
Table 15: Cape Town City Region academic staff 2005 and 2008

Institution	Permanent academic staff 2005	% Black academic staff 2005	Permanent academic staff 2008	% black academic staff
CPUT	621	44%	696	52%
UCT	829	21%	937	23%
Stellenbosch	818	12%	867	16%
UWC	465	58%	518	61%
National TOTAL	15 315	37%	15 936	41%

Source: DoE 2006, 2010

Given its history as a technikon, CPUT has the lowest proportion of academic staff with a PhD qualification, used as a proxy for academic expertise and reputation, while the research universities UCT and Stellenbosch have almost 60% of academics with doctorates (Figure 12).

Figure 12: Cape Town City Region percentage of academic staff with doctorates 2000 to 2006



Source: CHET and DoE 2010

Academic staff performs extremely well on a range of indicators of academic excellence and reputation nationally (Table 15). UCT and US in particular are amongst the top five research universities nationally, with UCT ranked in the first 200 institutions on the Times Higher Education Supplement Rankings. Taken together, the four universities in the city region accessed 33% of the total projects and 26.5% of the total THRIP funds allocated in 2008/9, a funding incentive scheme that promotes research collaboration between university and industry. Significantly, they were awarded half of all the research

chairs nationally, a national scheme which brings substantial benefits in terms of post-graduate students, publications and other research outputs and linkages.

Table 16: Cape Town City Region selected indicators of research excellence

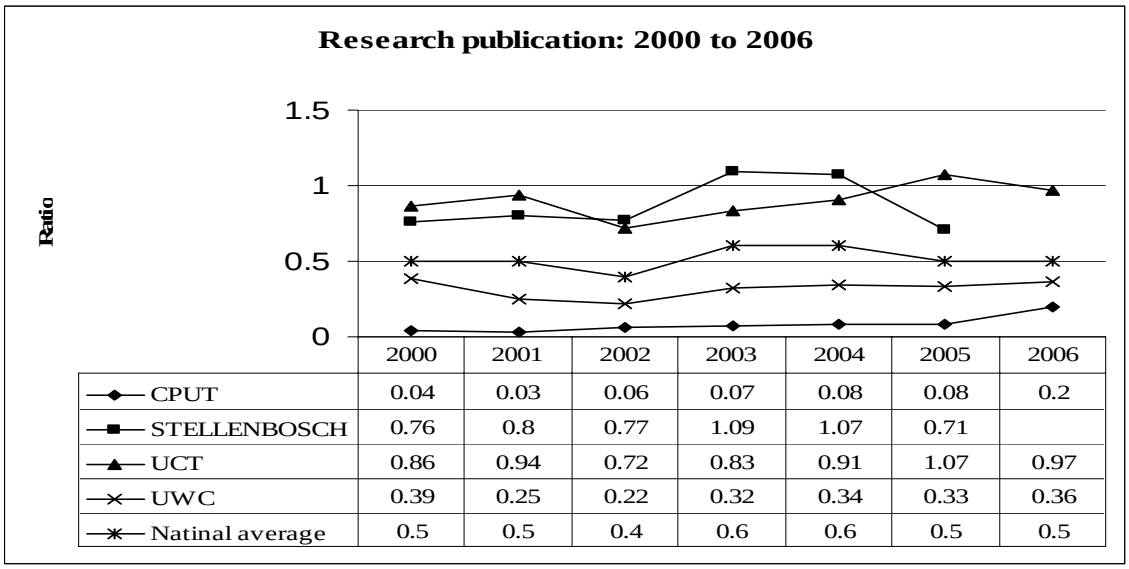
	THRIP projects 2008/9[8]	**Rated researchers 2006[9]**	**Research chairs 2008/9[10]**
UCT	31	271	25
	(10.5% of total funds)		
US	40	231	9
	(11.2% of funds)		
UWC	5	67	1
	(4.4% of funds)		
CPUT	3	10	-
	(0.4% of funds)		
Total CTCR	79	579	35
CTCR % of National	33%	33%	50%
National	240	1 753	70

Source: Compiled by author see footnotes 5-7

Nationally, there is concern that a key indicator of R&D activity within universities, journal publications, has remained static over a long period. This appears to be shifting only very recently in the city region. The ratio of publication units per academic staff member has remained relatively consistent, with improvement at CPUT off a very low base from 0.04 publications per academic in 2000 to 0.2 in 2006 (Figure 13). UCT and US performed well above the national average.

[8] THRIP Annual report 2008/9
[9] NRF report 2006/7
[10] DST 2008/9

Figure 13: Cape Town City Region research publication units per academic 2000 to 2006



	2000	2001	2002	2003	2004	2005	2006
CPUT	0.04	0.03	0.06	0.07	0.08	0.08	0.2
STELLENBOSCH	0.76	0.8	0.77	1.09	1.07	0.71	
UCT	0.86	0.94	0.72	0.83	0.91	1.07	0.97
UWC	0.39	0.25	0.22	0.32	0.34	0.33	0.36
Natinal average	0.5	0.5	0.4	0.6	0.6	0.5	0.5

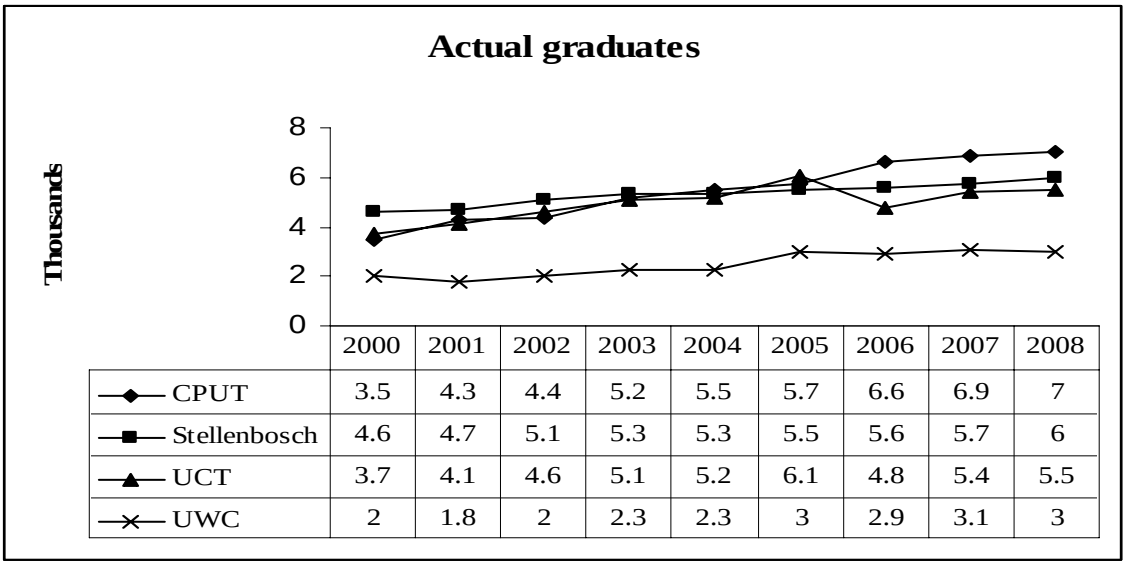
Source: CHET and DoE 2010

The production of graduates in the City Region

A major concern nationally is with the efficiency and effectiveness of the higher education system, given high drop out rates, low throughput rates and low graduation rates – are we producing sufficient graduates and within the required time? As with schooling, the city region institutions appear to be performing well relative to national trends, but there are significant problems of performance differentiated on racial lines, that may not be sufficient to support global competitiveness.

The total graduates over the past decade are reflected in Figure 14, showing a steady increase in the actual number between 2000 and 2008 so that the system produces 21 500 graduates per year. Nationally too, there has been an increase in the number of graduates since 1994, particularly at universities of technology (CHE 2009b)

Figure 14: Cape Town City Region graduates 2000 to 2008



	2000	2001	2002	2003	2004	2005	2006	2007	2008
CPUT	3.5	4.3	4.4	5.2	5.5	5.7	6.6	6.9	7
Stellenbosch	4.6	4.7	5.1	5.3	5.3	5.5	5.6	5.7	6
UCT	3.7	4.1	4.6	5.1	5.2	6.1	4.8	5.4	5.5
UWC	2	1.8	2	2.3	2.3	3	2.9	3.1	3

Source: CHET and DoE 2010

The institutions in the Cape Town City Region together produce 17.7% of the total number of Bachelors and Honours degrees nationally (Table 16). Bear in mind that UNISA produced 12.7 per cent while University of Pretoria produced 11 per cent in 2007. Together they produced almost a quarter of the post-graduate degrees nationally in 2007. This is a positive strength, particularly if we bear in mind that nationally, the higher education system is primarily an undergraduate teaching system (CHE 2009a), and moreover, that there has been a decline in post-graduate enrolments as a proportion of the total national headcount enrolments, to 6.7% in 2007 (CHE 2009b).

Table 17: Cape Town City Region level of degrees 2007

	Bachelors and honours degrees	**Masters and doctoral degrees**
UCT	5.5	9.8
US	5.7	11.5
UWC	3.2	2.7
CPUT	3.3	0.8
Total proportion of national output	17.7	24.8

Source: SAIRR 2009

As would be expected from the pattern of enrolments, the racial profile of graduates is skewed between the four institutions (Table 17), but in general, white students are more successful. This is directly related to the problems of the quality of schooling discussed in Section 1. The racial profile of graduates is likely to present a challenge for firms seeking to address employment equity targets in the city region, as it does nationally.

Of note is the higher proportion of African Masters and Doctoral graduates at US, UWC and UCT (Table 17). However, this group includes a large number of post-graduate students from the SADC and other African countries. Students from the SADC region made up 8% of postgraduate enrolments nationally in 2007, and a higher proportion of international students enroll in postgraduate programmes (CHE 2009b).

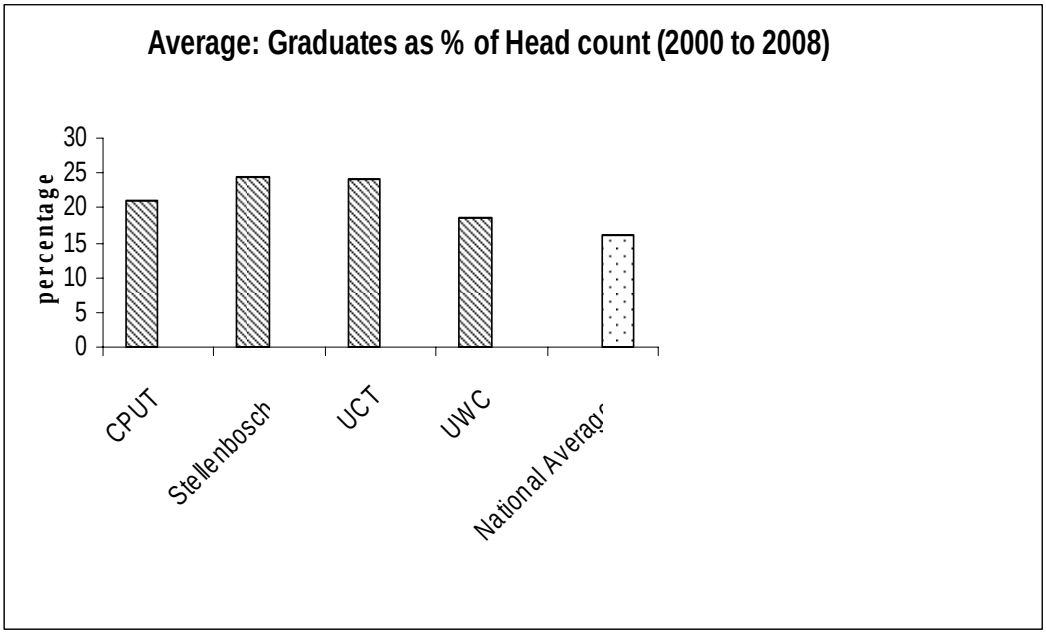
Table 18: Cape Town City Region degree level by race 2007

	UCT		**US**	
	Bachelors and honours	**Masters and doctorates**	**Bachelors and honours**	**Masters and doctorates**
African	25.1%	26.1%	6.0%	18.4%
Coloured	12.7%	9.0%	11.4%	8.8%
Indian	8.1%	5.8%	0.9%	3.1%
White	52.6%	55.7%	81.7%	69.7%
Total	3 810	893	4 023	1 055
	UWC		**CPUT**	
	Bachelors and honours	**Masters and doctorates**	**Bachelors and honours**	**Masters and doctorates**
African	31.3%	36.9%	37.8%	29.2%
Coloured	53.2%	29.1%	30.0%	25.0%
Indian	9.4%	16.4%	0.9%	1.4%
White	4.9%	16.0%	31.3%	44.4%
	2 193	244	2 248	72

Source: SAIRR 2009

Graduation rates in South Africa are typically calculated as the total number of graduates as a percentage of the total headcount. The national graduation rate was steady at approximately 16% between 2004 and 2007. The City Region institutions all tend to perform above the national average, with UCT and US averaging 24%, CPUT 20% and UWC 17%, between 2000 and 2008 (Figure 15). Calculated in this way, the graduation rate for the city region is 21.25%.

Figure 15: Cape Town City Region average graduates as percentage of head count 2000 - 2008



Source: CHET and DoE 2010

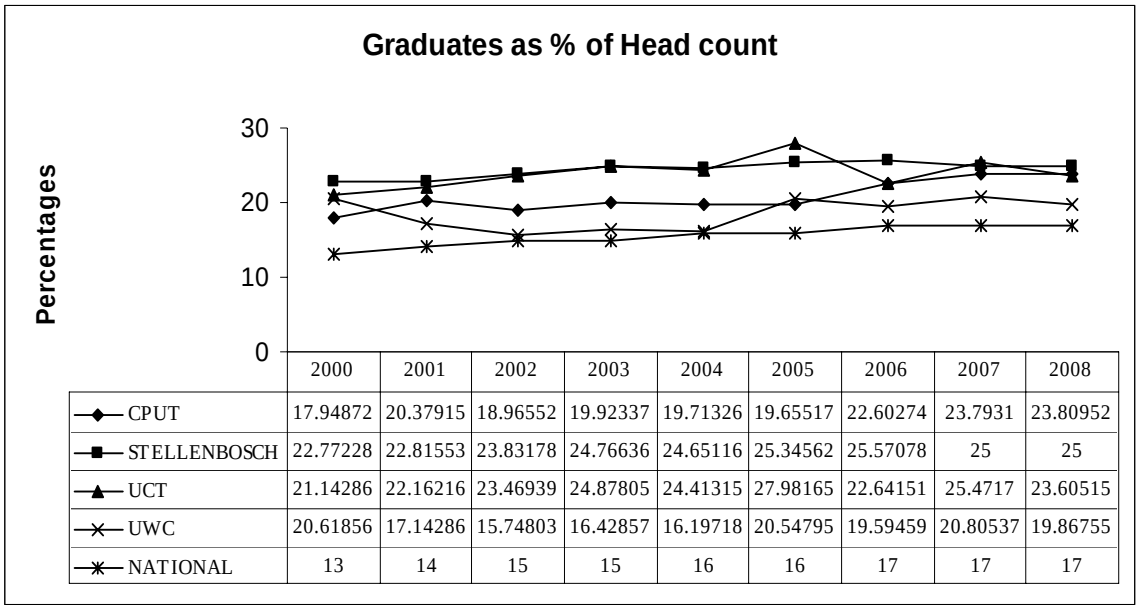
Calculated in this way, however, graduation rates provide a measure of efficiency of institutions, but do not provide a useful reflection of the extent of preparation of young people in the city region for high level skills occupations. For international comparison, graduation rates are typically calculated as a percentage of the age appropriate population, 20 to 24. Calculated as the total graduates in the four institutions relative to the population aged 20 to 24 in the city region[11], we obtain a graduation rate of just 6.1% for 2008.

The OECD average graduation rate for 2006 was 37%, and has risen steadily over the past decade. The lowest graduation rate was 15% in Turkey, and the highest was 52% in New Zealand.

There are a number of other matters for serious concern. Graduation rates show little improvement within each institution over the period 2000 to 2008 (Figure 16). Moreover, the total number of graduates produced in a single year is low, approximately 21 500 in 2008 for example.

Figure 16: Cape Town City Region graduates as % of headcount 2000-2008

[11] Population data was based on projections prepared by Dorrington for the OECD Territorial Review background reports.



	2000	2001	2002	2003	2004	2005	2006	2007	2008
CPUT	17.94872	20.37915	18.96552	19.92337	19.71326	19.65517	22.60274	23.7931	23.80952
STELLENBOSCH	22.77228	22.81553	23.83178	24.76636	24.65116	25.34562	25.57078	25	25
UCT	21.14286	22.16216	23.46939	24.87805	24.41315	27.98165	22.64151	25.4717	23.60515
UWC	20.61856	17.14286	15.74803	16.42857	16.19718	20.54795	19.59459	20.80537	19.86755
NATIONAL	13	14	15	15	16	16	17	17	17

Source: CHET and DoE 2010

The broad field in which graduates are produced is not optimal, contributing to a skewed high skills labour market in critical design, engineering and management fields. The proportion of graduates per field does not reflect the proportions of enrolment, and there is a greater divergence from the national targets of 40:30:30. Of note is that most of the universities graduate proportionately more students in Business and Management and in Humanities and Education, and are below target for Science and Technology fields (Table 18). Moreover, the total number of graduates in Science and Technology fields is small. UWC in particular, graduates more Humanities and Education students than the national average, and the majority are coloured and African students.

Table 19: Cape Town City Region graduates by field 2008

	Science and technology	**Business and Management**	**Humanities and Education**	**TOTAL**
UCT	2 027	1 503	1 961	5 491
	37%	27%	36%	
US	2 328	1 411	2 239	5 978
	39%	24%	37%	
UWC	1 113	397	1 471	2 980
	38%	13%	49%	
CPUT	2 974	2 462	1 542	6 977
	43%	35%	22%	
National	38 764	31 813	62 432	133 009
	29%	24%	47%	

Source: DoE 2010

Of course, not all those who graduate from universities in Cape Town will remain in Cape Town, or even in South Africa, given worldwide shortages and global mobility in high skill occupations. The challenge of retaining graduates to work in firms in Cape Town needs further investigation.

Problems of high student attrition and low graduation rates, particularly among African students, together with low participation rates, translate to a major problem of meeting high skills needs in the city region, as it does nationally. There is concern amongst the universities themselves about levels of student performance, that current university output does not match national – or local - needs to promote economic growth and social development and inclusion (Wickham 2009).

Growing interaction and collaboration between universities, the city and firms

There are recent attempts at the policy and institutional level to drive stronger strategic linkages and networks, both between the four universities and between the universities, government and industry in the city region. These range from general collaboration agreements, in the form of two Cape Higher Education Consortium (CHEC) agreements, one with the provincial government and the other with the City of Cape Town, to support innovation and economic growth. The Memorandum of Understanding with the province aims to promote the notion of a 'Learning Region', and establish collaborative structures and strategies to advance provincial social and economic development. A collaboration protocol with the City of Cape Town aims for the higher education sector to work with the city to promote growth and development, to build an educated citizenry and to promote the City as a top location for higher education in Africa.

CHEC also plays a coordinating role to promote university collaboration in the face of historical competition, as well as social responsiveness in specific sectors. Attention has been paid to high level skills development in key sectors such as ICT, education and nursing, as well as to collaborative efforts to address problems of student performance. There is a stronger awareness of higher education as a sector in its own right that can contribute to Cape Town's locational advantage, by providing high quality education and research, and attracting international students, whether full-time or for lucrative 'semester abroad' programmes. However, the role of CHEC as an intermediary body promoting interaction between the universities and firms in the private sector can be strengthened (see Boulle 2010).

In this regard, the Department of Science and Technology recently initiated processes to stimulate a regional innovation system. COFISA has played a catalytic role in promoting research and collaboration on regional innovation. There are new specific collaborative ventures between the universities and firms such as the East City Design precinct and a Bellville Science Park Initiative, or the Special Purpose Vehicles that involve the universities, such as the Cape Initiative in Materials and Manufacturing or the Cape Town Fashion Council or FabLab. The potential for expansion, consolidation and deepening of these initiatives with City support is significant.

SECTION 4: Interventions at the Cape Town City Region level

The public post-schooling system in the city region in 2008 provided learning opportunities for approximately 130 000 young people, which amounts to 36.5% of young people aged 20-24 years (Table 19). It certified a far smaller proportion of this age cohort. Most of the opportunity for education and training lies in the higher education sector, with a sizable public FET sector, but a serious gap in provision at the intermediate skills levels. We lack up-to-date systematic research documenting the scale of private provision of technical and vocational education and training at the intermediate and high skills levels at Cape Town City Region level, but it could be significant (see Akoojee 2005 for national level analysis).

Table 20: Summary of post-schooling enrolments in the Cape Town City Region

	Enrolment		**Completion**		
Higher Education total 2008	91 800	25.40%	21 500	6%	
FET college total 2008	36 482	10.10%	Not available		
Learnership total 2007	3 357	0.90%	2 397	0.70%	
Total 20-24 years		**36.50%**			**360 386**

Source: compiled by authors

Under the **right conditions**, the Cape Town City Region public institutions have the capacity to provide a distinct locational advantage. However, the low total number of qualifications produced per year reflects the problems of racially skewed and low participation rates, low enrolment in critical fields, attrition and low completion or graduation rates that may limit this advantage. Hence, firms experience skills shortages that are a potential constraint on global competitiveness.

Education and skills development, as strategic assets, require urgent intervention, but the question is – what can be done to maximize the potential of education and training institutions, and to address constraints, *at the level of the city region*? What policy interventions are desirable and possible for the City of Cape Town and the local government municipalities that form the functional city region, in partnership with the Western Cape provincial government, and national departments? Schooling, further and higher education and skills development are national and provincial competences. Only Early Childhood Development is a direct competence of local government. There are also many public and private sector initiatives currently driven by government departments, individual institutions and other intermediary agencies to address the problems of education quality, nationally, provincially and locally. There is thus little direct control over core education and training activities at the level of the city region, except in the form of partnerships and networks, local initiatives that support and consolidate existing

policy thrusts or address gaps in implementation, and the investment of additional resources.

Here it becomes important to identify and prioritise critical problems, as it is not possible to address gaps at all three levels of schooling, intermediate skilling and higher education and training at the same time.

Based on the education and training supply-side data analysis, we can identify at least four broad areas for intervention at the level of the City and local municipalities that can complement public and private provision. The discussion below is intended to stimulate fresh ideas and further debate that can inform the SWOT analysis and competitiveness strategy document.

1. **Coordinated private and public sector interventions to improve the quality of literacy and numeracy at the schooling level**

The analysis highlighted a number of opportunities for intervention at the local level in relation to schooling:

- Interventions to support access to quality Early Childhood Development programmes and activities, which provide the critical cognitive foundations for all learning
- Support to increase the pace of the roll out of Grade R provision across all schools
- Support to 'no-fee' schools, or those in the highest poverty-quintiles that are likely to have the least financial and organizational support from parents and local communities
- Interventions to improve the quality of foundational literacy and numeracy at primary school level, which may include the role of local libraries or science centres
- Interventions to support retention in school through to Grade 12, which may include mentor or tutorial schemes
- Interventions to develop more credible alternative routes to NQF Level 4 qualifications on a wider scale, for those who do not wish to pursue a traditional academic schooling route
- Interventions to increase the pool of candidates who pass matric with a university exemption, and particularly, in critical subjects of mathematics and science

There are existing interventions at national and provincial level aimed to address and improve the quality of literacy and numeracy for example, such as the National Strategy for Mathematics, Science and Technology Education, or the Dinaledi schools project, which mobilizes additional resources to promote high quality teaching and learning in selected schools, through public-private sector partnerships. The evidence of success is still equivocal, and although the total numbers writing mathematics and science have increased, pass rates in the selected schools have not yet met national targets (Mahlong 2010). In the Western Cape, public sector initiatives include the Khanya project to roll out ICT to schools, and private sector initiatives such as the Telkom Foundation 150 Schools project, providing connectivity resources to improve the quality of teaching.

Local government at Cape Town city region level may play a role in mobilizing local and global firms to support such programmes and projects financially. It may commit its own resources to new projects customized to needs in specific municipalities. Or, it may act to set up structures to coordinate the activities of NGOs and other public and private education and training agencies, so that there is greater critical impact rather than fragmented initiatives.

1. **Interventions to promote learnership and apprenticeship programmes at the intermediate and high skills levels**

The challenge is to build a system of vocational and technical education and training at the intermediate level that has the same status and is on par with the academic education offered in the traditional system. The creation of the new Department of Higher Education and training has been a significant national shift towards building such a system.

Learnerships may provide a useful model to provide education and training that increases individuals' employability. There is a role for City Region structures to encourage greater firm involvement in learnership and apprenticeship training opportunities. The advantage is that the quality, credibility and coverage of these qualifications can thus be extended, and their status enhanced. The City of Cape Town, for example, could extend their involvement in such skills development programmes, particularly in relation to articulation with the labour market after completion. Interventions – such as promotion campaigns or incentives - could focus on firms in priority sectors, and be linked with strategies in SPVs for example, or there could be a generalized incentive or rebate to firms.

There is also space for support to public FET colleges and private training providers, to enhance the quality of the theoretical components of the learnership training. The extension of work experience programmes for graduates of universities and FET colleges to facilitate labour market entry is a related aspect that can be encouraged at local level.

There is a clear role for the City to collaborate with MNEs, SMMEs and the public sector so that problems with the learnership model can be addressed to offer more effective programmes.

2. **Interventions to promote linkages between FET colleges, firms and local government**

Infrastructural investment has created potential in the colleges, the challenge is now to create substantive linkages to the workplace. There is space at the level of the City Region for interventions to promote interaction between firms, local government and colleges. Such initiatives can support better targeted skills programme offerings, as well as promote the quality and credibility of core programme offerings, particularly in the current context of curriculum change and instability. Support could take the form of grants for local networks, curriculum development, communication mechanisms or

training facilities. A key constraint on students' completion of qualifications is the lack of opportunities for work experience placements in firms, and this could be a valuable focus for interventions. There is also space to coordinate and regulate the quality of provision by private providers, so that it can complement public provision and close the gap of intermediate level skills development.

3. **Interventions to strengthen emergent linkages and collaboration between higher education institutions, firms, communities and local government**

City level government in other provinces has been involved in interventions to address quality and performance at university level, to support the development of a knowledge economy and smart specialisation. There is a role for the Cape Town city region local government to stimulate and coordinate targeted interventions to address the low participation and graduation rates. Encouraging and supporting institutions to shift the racial profile of graduates could be a collaboration between the City, the province, CHEC and the institutions Or it may take the form of support to foundation programmes to increase the number of black graduates who come from poor schooling backgrounds, for example (Koen 2005). Or it may take the form of leveraging bursaries and financial support to increase enrolment and graduation in critical science and technology or business and management fields. There is an opportunity for collaboration to ensure a more effective match between key areas of scientific excellence in the universities, and the technological needs of firms in targeted sectors in Cape Town. This would require communication and information sharing channels to be brokered between universities and firms at the technological frontier.

The discussion in Section 3 identified that the role of CHEC in brokering interaction between universities and firms could be strengthened, and how there are a number of regional sectoral initiatives that can be deepened and consolidated at city region level. Local level support for embryonic initiatives can make a difference.

Horizontal or vertical prioritization?

It is easy to generate such a set of possible interventions in relation to core problems in the city region, which have worked elsewhere. However, resources are limited, and the urgency of the problem means that the time available is also limited. The challenge is thus to determine what combination of interventions will give the maximum return on investment within the shortest time frame. There are two possible approaches:

- **Support for educational improvements across the board at schooling, intermediate or high skills levels.** This has the benefit of reaching a larger number of citizens, but in spreading resources horizontally, allows for a lower benefit to each individual.
- **Support for educational strategies to foster emergent strengths and smart specializations, to ensure that they become sustainable.** This has the benefit of intensifying global competitiveness but in focusing resources vertically, may benefit fewer individuals directly.

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